AUTOMATION INTERFACES

GENERAL CATALOG

100% Made & Designed in Italy

ACQUISITION
DATA AND AUTOMATION

INDUSTRIAL COMMUNICATION
AND REMOTE CONTROL

ENERGY AND
ELECTRIC MEASUREMENTS

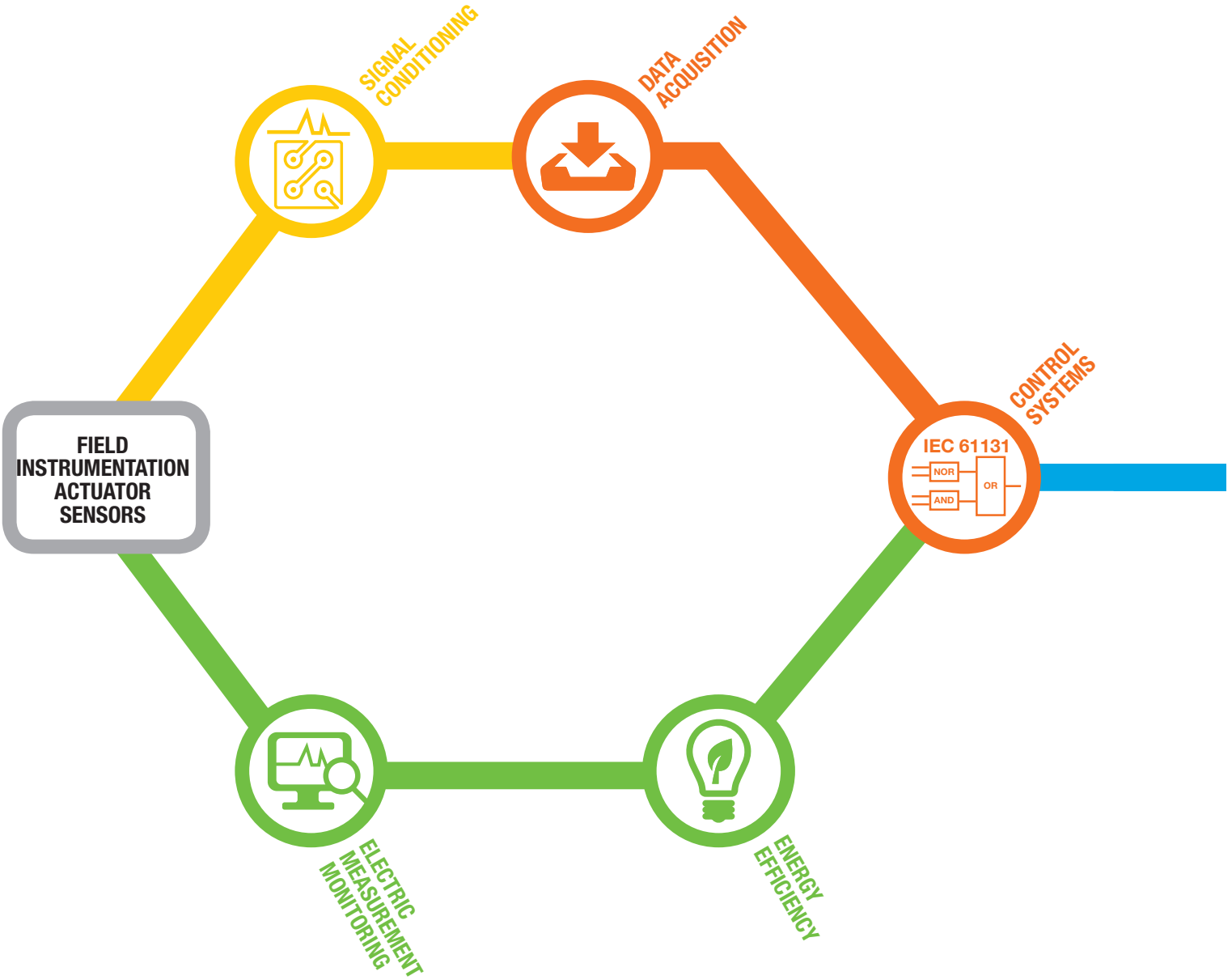
PANEL AND MEASUREMENT
INSTRUMENTATION

SENECA

www.seneca.it

MISSION WE HANDLE THE SIGNAL FROM THE SENSOR TO INDUSTRY 4.0

One of the leading companies in Europe to design and produce galvanic isolators and signal conditioners, SENCA offers a comprehensive catalogue of high-performance and cost-effective products and systems with which it is possible to feed, isolate, convert, capture, display and transmit safely by cable, bus or radio, most industrial signals, in other words, to ensure the integrity of the data processing cycle. In the 4.0 age, an increasing number of manufacturing companies, builders of machines, utilities, chemical and process industries must be able to rely on decentralised devices and control systems to monitor the progress of machines and systems. In this scenario the intent of SENECA is to ensure the real-time knowledge of the data available in order to offer the customer new information and concrete economic opportunities. This is the essence of the innovation process called Industry 4.0, in which the functions of data collection and interconnection are fundamental.

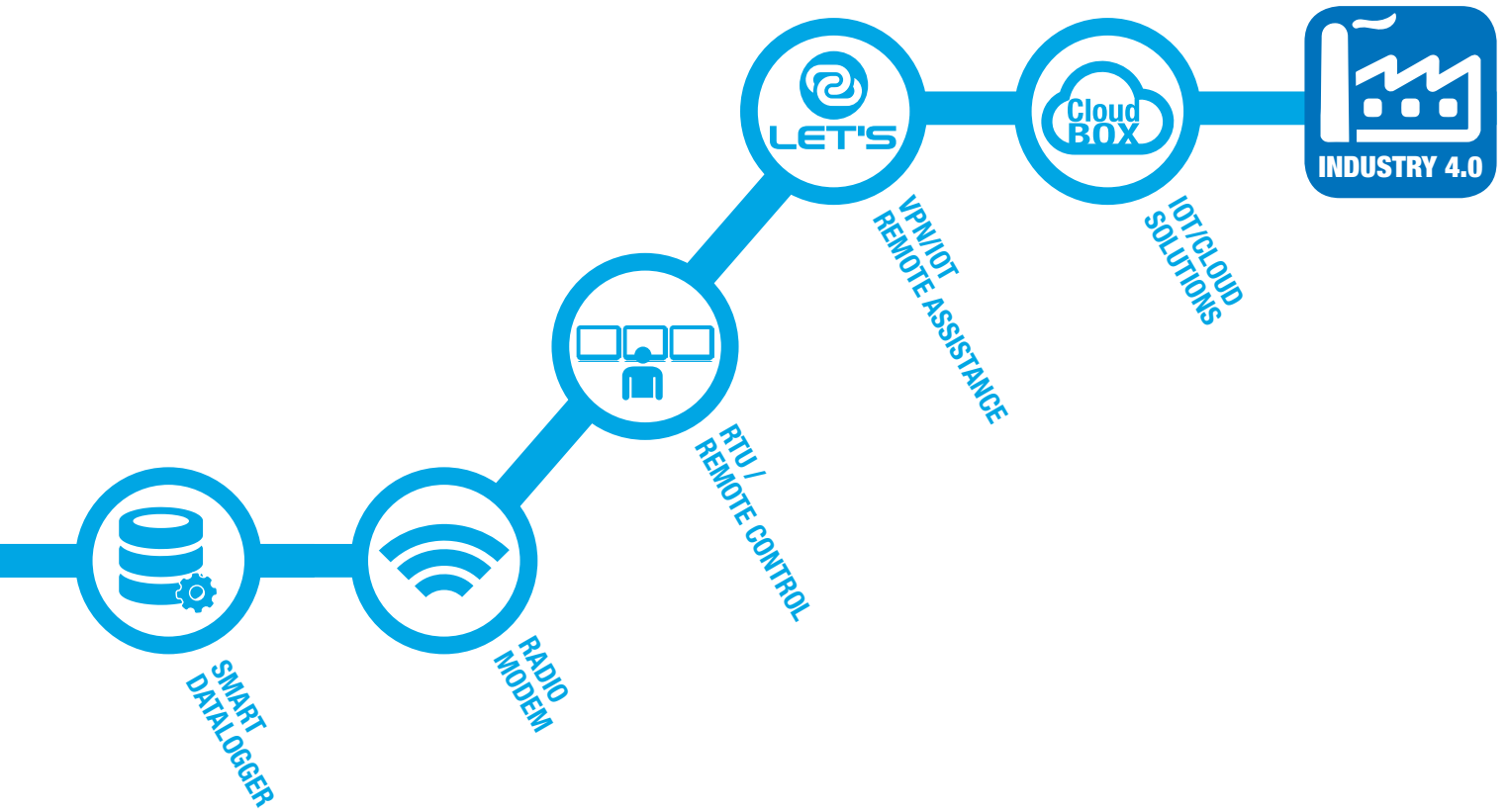


DATA ACQUISITION AND AUTOMATION

INDUSTRIAL COMMUNICATION AND REMOTE CONTROL

ENERGY AND ELECTRICAL MEASUREMENTS

PANEL AND MEASUREMENT INSTRUMENTATION



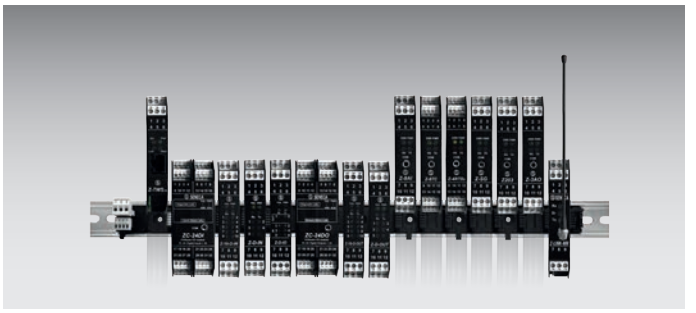
SENECA

MADE IN ITALY
WITH HIGH TECHNOLOGY

Company

Present for over 30 years in the field of industrial automation, SENECA has achieved a prominent position in the Italian electronic instrumentation market, making innovation, reliability and qualified support its core strengths.
SENECA constantly innovates processes and products with targeted investments in latest-generation machinery and in qualified personnel.

Product Lines



The product lines, designed and produced entirely in the SENECA plants, are compatible and consistent with the most common technological standards.
SENECA sets out to consolidate and expand its offer of excellence through a wide range of products, in particular with automation technologies aimed at data acquisition, remote control, supervision and energy saving.

Business Unit

Thanks to the synergy of two business units (Automation Interfaces, Systems & Services) organised according to quality criteria, SENECA offers a complete range of automation solutions: from the single component to the turnkey system.

Partnership

SENECA collaborates with the main process industries, with high automation SMEs, with the big energy and industry players as well as with various Universities and Research Companies.
SENECA has developed a concrete and effective business model, aiming to solve actual problems of the client, believing first and foremost in the technologies it offers to the market

Mission

WE TAKE CARE OF YOUR SIGNAL

SENECA manufactures multi-sector devices that galvanically power, condition and separate sensors and actuators, so that, after being connected to the control unit, no device can be damaged.
SENECA products provide standard signals via cable, bus and wireless to most industrial control systems.

Markets

Electrical and process automation: oil & gas, refineries, chemical and petrochemical plants, steel mills, rolling mills, foundries, paper mills, sugar mills, pharmaceutical industries, cement factories, metalworking, shipbuilding.
Distribution of electronic components, civil installations, domotics, remote control and remote assistance.
Solutions for the manufacturing sector, utilities and building automation.

COMPANY PROFILE

1st ITALIAN MANUFACTURER OF ELECTRICAL AND ELECTRONIC AUTOMATION INTERFACES

Year of foundation
1987

30% Global turnover on the overseas markets

20% Average growth rate

ISO 9001- certified company since
1997

60 Workers

34% graduates in Engineering

Global sales network with approximately
70
partners

2
Business Unit:
Electronic products (Automation Interfaces) and Systems
& Services for industry

600 Catalogue codes

4 Product lines

Average time for order completion
48 h

150,000
pieces sold every year

Pick&Place latest generation
50,000
components/hour

Automatic warehouses with over
70,000
items ready for delivery

Universal products and markets

Over
2,000
active clients

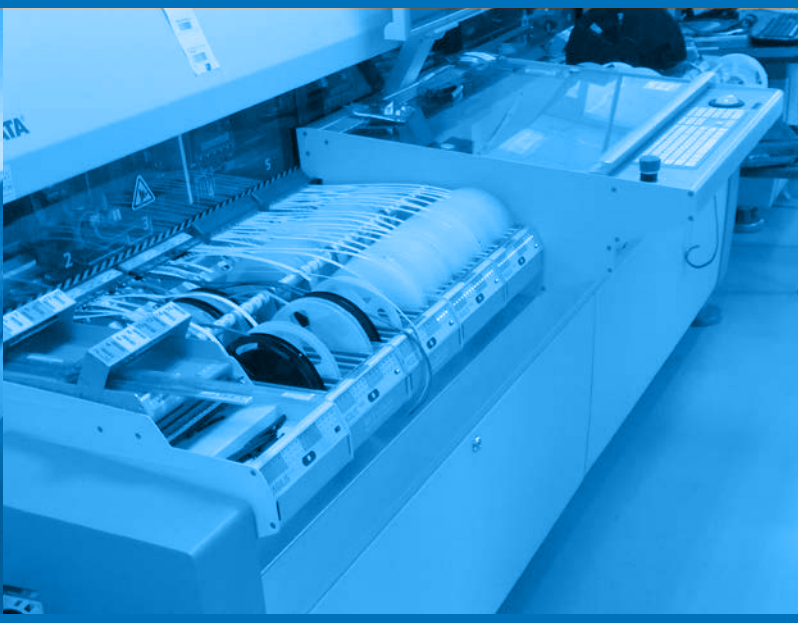
Hi-tech premises covering
5,000 sq.m

average MTBF over
1,000,000 hours

Custom warranty up to
60 months

General catalog and Website available in
5 languages

DESIGN, PRODUCTION, LOGISTICS, ALL UNDER THE ONE ROOF



DESIGN

- Integrated management of all the phases of product development
- Use of the best modelling, simulation, industrialisation and prototyping software
- Adoption of the most advanced microelectronic technologies (FPGA, PSOC, CPLD, ASIC, DSP, MEMS, LVDS, VHDL)
- Hardware / Software engineering
- Rapid prototyping
- Metrological and electromagnetic compatibility testing

PRODUCTION

- SMT (Surface Mounting Technology) lines for the latest generation Pick & Place machines 50,000 components/hour
- AOI (Automated optical inspection) and ATE (Automatic Test Equipment) systems
- Burn-in test on the entire production
- Lean Production for rapid changes in production cycles
- Production process fully compliant with the WEEE, ROHS and REACH eco-compatible directives

WAREHOUSING

- Prompt delivery of over 70,000 items
- Safe and high-density storage in 12-meter high towers
- Equivalent storage capacity of 1,000 square meters
- Connection in real time with ERP
- Complete product traceability

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DATA ACQUISITION AND AUTOMATION

1

Data Acquisition and Automation

The SENECA product line for Data Acquisition and Automation includes ModBUS, CANopen, Ethernet, HMI systems with Led and Oled technology, IEC 61131 logic controllers and for IEC 60870-5-101, IEC 60870-5-104 , IEC 61850 Energy Management process controllers and flow computers. SENECA I/O systems are modular and open automation platforms for single-signal management to thousands of I/Os. They include the widest variety of I/O modules: digital inputs, high-speed counters, digital relay outputs and MOSFETs, analog channels (mA, V, Ohm, mV), strain gauges, resistance thermometers, thermocouples, power grid measurements. SENECA systems are designed to facilitate system integrators, design and engineering firms, instrumentation builders, electrical installers, qualified installers.

1.1 ModBUS RTU I/O Systems

Z-PC Series Modbus I/O

1.2 ModBUS TCP-IP I/O Systems

Z-PC Series ETHERNET I/O

1.3 CANopen I/O Systems

Z-PC Series CANopen I/O

1.4 Controllers

Z-PC Series

1.5 HMI

1.6 Software and accessories

OVERVIEW
Z-PC SERIES

Z-PC Series

Data Acquisition and Automation

MODULAR DISTRIBUTED I/O SYSTEM

ModBUS Z-PC Series is a modular automation system for management of the single signal to thousands of I/Os. **The Z-PC Series** includes the widest variety of I/O modules: digital inputs, high-speed counters, digital relay outputs and mosfets, analog channels (mA, V, Ohm, mV), strain gauges, resistance thermometers, thermocouples. Maximum data concentration is also guaranteed. For example, with only 1 module, up to 24 digital and 8 analog signals can be acquired. Modular DIN guide bus support is available in 1, 2, 4, 8 slot formats. The modules are of a Hot-Swap type that is "hot" replaceable, without interrupting the power supply and communication. Completing the system is a wide range of interfaces and network interconnections to expand the configuration.

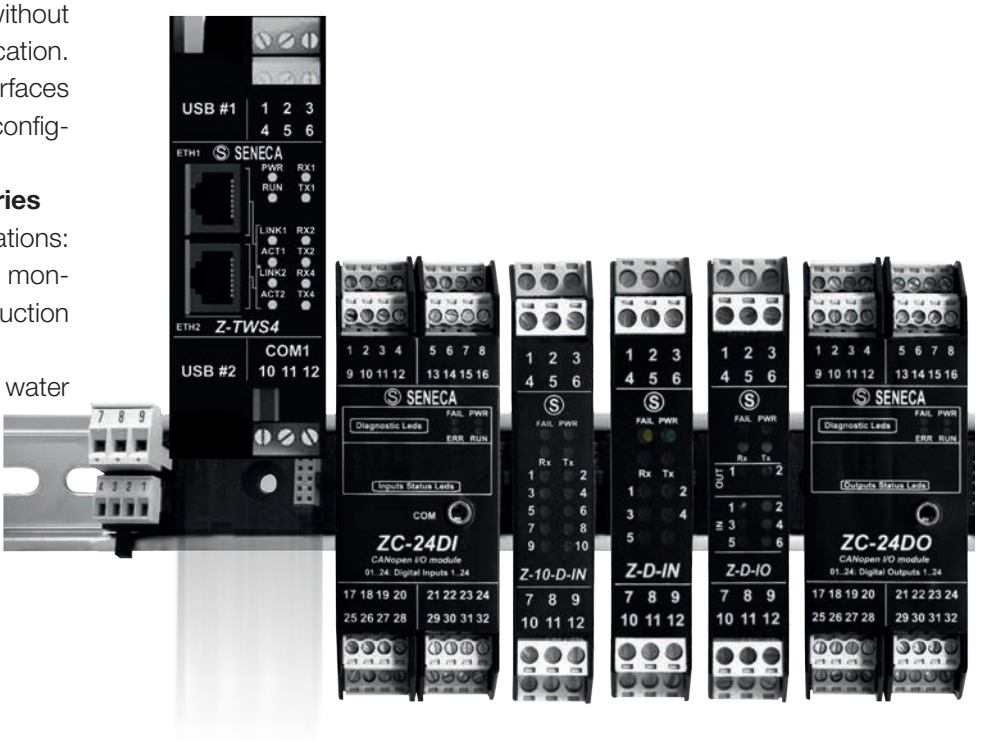
With its flexibility and modularity, **the Z-PC Series** is a distributed system for multi-sector applications: data acquisition, building automation, remote monitoring, energy consumption monitoring, production control, ship automation, testing and laboratory testing, environmental analysis, water treatment etc.

EXTENDED RANGE

Over 160 codes including I/O, CPU, RTU modules, communication interfaces, HMI, network analysers, software, accessories

UNIVERSAL APPLICATIONS

- Data acquisition and display
- Distributed automation
- Remote assistance / Remote control
- Stand-alone remote I/O system / with SENECA controllers / with third-party devices



CONFIGURATION MODE

1 Simplified Configuration for End User

EASY SETUP

EASY Setup is a user-friendly PC application that allows: quick setting and modification of the operating and communication parameters, automatic configuration of the individual modules, real-time tests, fast configuration replication for identical module batteries.

2 Advanced configuration for System Integrator

ZNET4

Z-NET is a system configuration and engineering platform designed for OEMs, system integrators and experienced users. It enables the creation and export of data and variable lists to PLC and SCADA, complete configuration of CPUs, I/O modules and communication network. Z-NET also integrates specific libraries with automation and remote control functions.

3 Basic configuration via dip switch

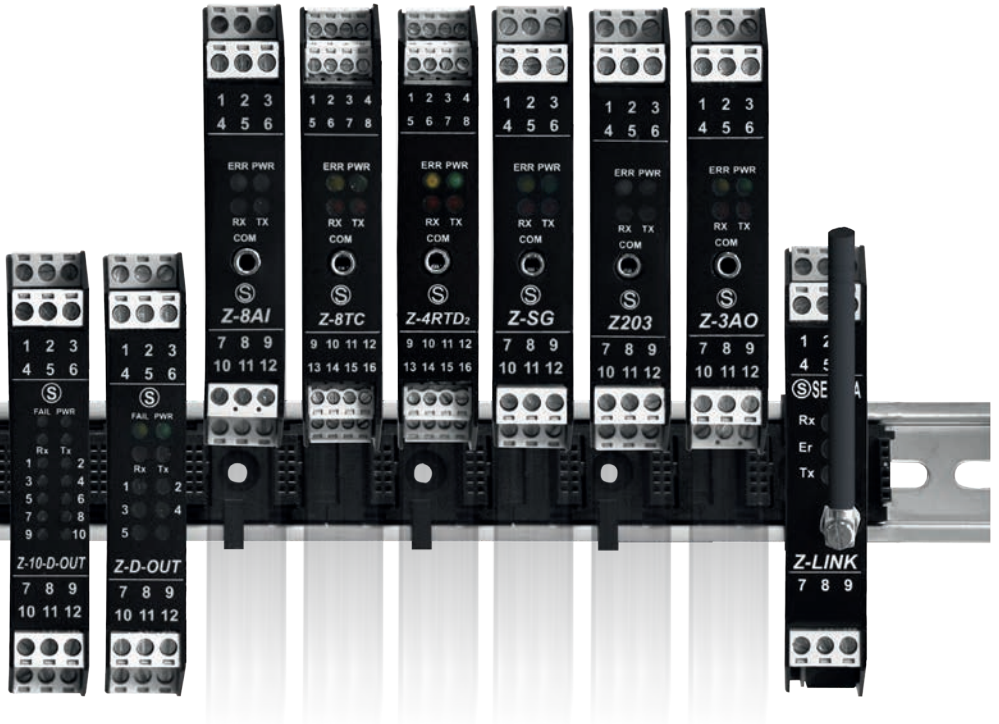
Address and baud rate setting for each module

TOOL FOR SYSTEM INTEGRATOR

- Ready to use automation, data transmission, remote control functions
- IEC 61131 programming environment
- Advanced technical support

DATA ACQUISITION TOOL

- DATA RECORDER (DAQ Software)
- Web Editor
- Microsoft Visual Studio Libraries™
- OPC Technologies
- Drives NI LabVIEW™



STANDARDS & CERTIFICATIONS

CE · cULus LISTED · RoHS compliant · Modbus · CANopen · ETHERNET · TCP-IP PROTOCOLS · OPENVPN · OPC · IEC 60870 IEC 61850 · 3G+ · straton

ENERGY MANAGEMENT

For Energy Management applications SENECA offers different types of controllers with the support of the IEC 60870-101/104 and IEC 61850 communication protocols

REMOTE ASSISTANCE / REMOTE CONTROL

VPN / IoT remote communication services and supervision with secure and private access to data and for communication between machines (M2M) and systems.

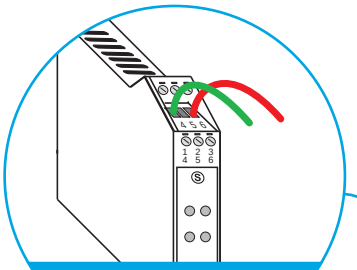
INTEGRATED COMMUNICATION

SENECA offers a wide range of communication interfaces in combination with the Z-PC Series I/O modules: IoT gateway / router, serial / USB converters, fibre optic converters, radio modules

Z-PC Series

Data Acquisition and Automation

ROBUST INDUSTRIAL DESIGN



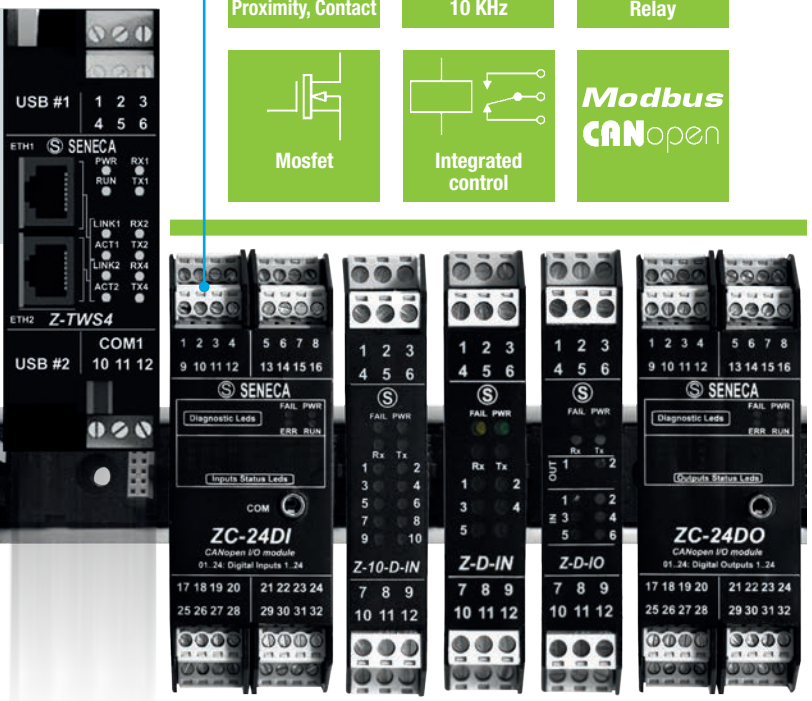
Power supply / Bus on terminals

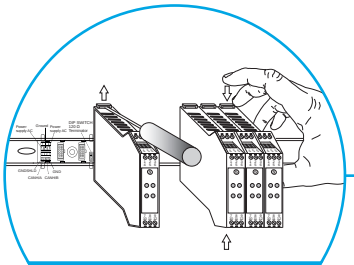
DIGITAL I/O

- Reed, PNP, NPN, Proximity, Contact
- Counters, 32 bit 10 KHz
- SPST Relay
- Mosfet
- Integrated control
- Modbus CANopen

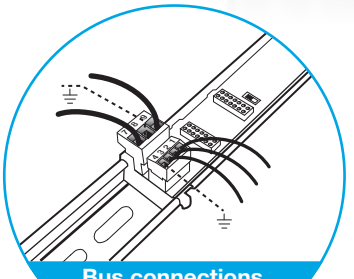
MULTIFUNCTION CONTROLLERS

- IEC 61131 Controllers
- Integrated Modems / Routers / I/Os
- Web Server, Datalogger, Gateway
- Ethernet Serial, USB communication ports,
- Management up to 1,000 I/O

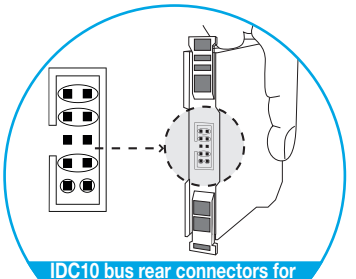




Hot swapping with 35 mm guide (DIN 46277)



Bus connections with DIN guide (Z-PC DIN)



IDC10 bus rear connectors for transmission power supply / data

Multi-way isolation 1.5 kVac

Configuration parameters on EEPROM, data retention up to 40 years

Hot swapping, insertion / hot extraction of modules

Power supply Vac/dc switching on the same hardware

ANALOG I/O

mA, mV, V, Ω

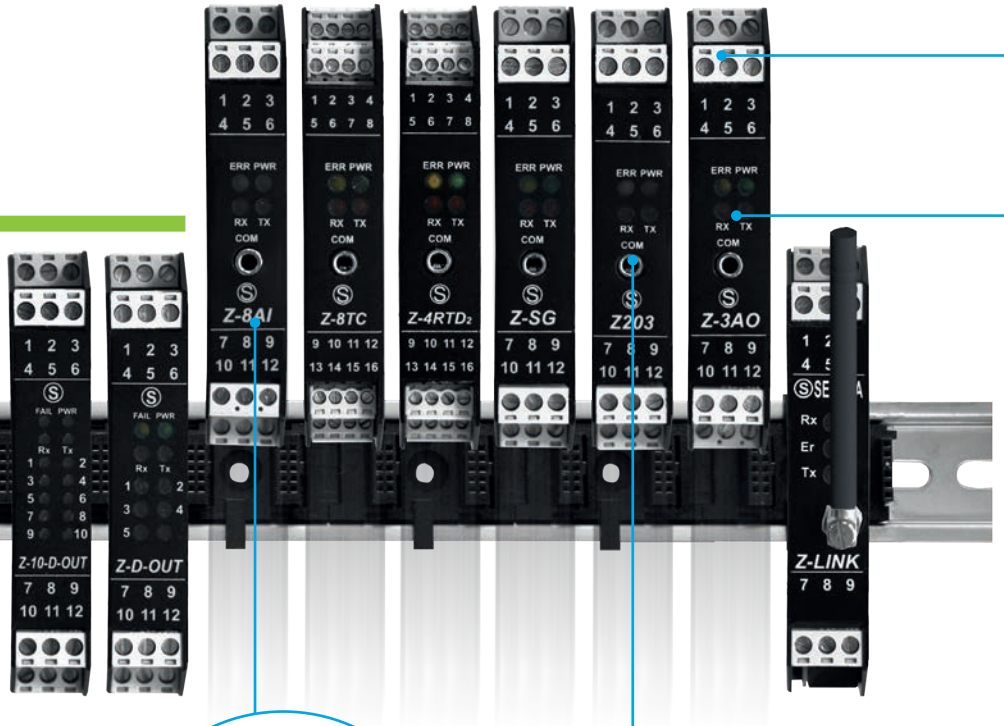
Temperature

Load cell

Electric measurements

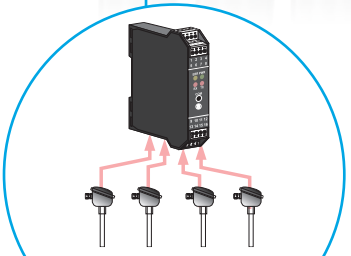
PID Regulation

Resolution up to 16 bit



Removable terminals

LED front state indicators



Sensor power supply

Front jack 3.5 mm RS232 door (COM)

PRODUCT PREVIEW

Z-8AI

MODULE 8 VOLTAGE INPUTS CURRENT / RS485

Modbus

TECHNICAL DATA

GENERAL DATA

Power supply	10..40 Vdc / 19..28 Vac / 50-60 Hz
Max absorption	0.5 W
Insulation	1,500 Vac (3-way)
Transducers power supply	Auxiliary power supply up to 8 sensors
State indicators	Power supply Error Data transmission Data receipt
Degree of protection	IP20

THERMOMECHANICAL CHARACTERISTICS

Operating temperature	-10..+65°C
Dimensions	17.5 x 100 x 112 mm
Weight	140 g approx.
Casing	Preloaded nylon 30% glass fibre self-extinguishing class V0
Connections	Screw removable terminals up to 2.5 mm² phono conductors
Assembly	DIN Guide 35 mm (IEC/EN 60715)

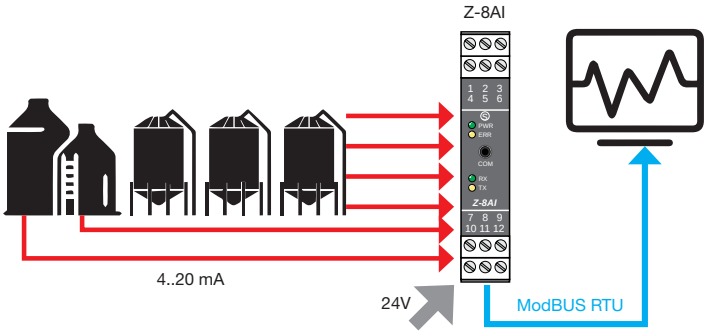
COMMUNICATION, MEMORY PROCESSING

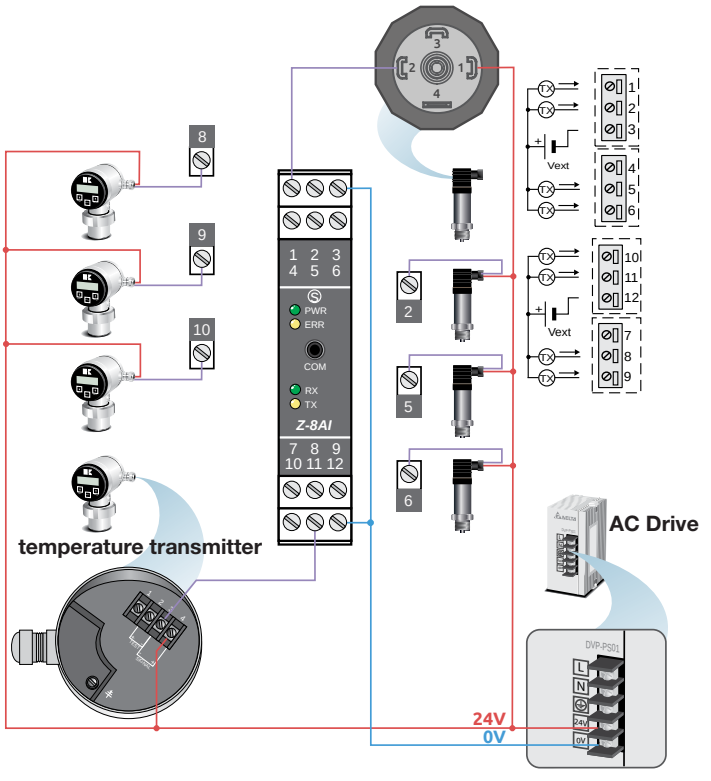
Interfaces	RS485 2 wires RS232 (stereo jack 3..5 mm)
Speed	Up to 115.200 bps
Protocol	ModBUS RTU slave
Communication time	< 10 ms (@ 38400 baud)
Distance	Up to 1,200 m
Connectivity	Max 32 nodes
Data memory	EEPROM for the configuration parameters, retention time 10 years

SIGNALS, MEASUREMENT, CONFIGURATION, STANDARDS

Number of channels	8
Type	Bipolar inputs programmable in voltage (± 2.5 Vdc, ±10 Vdc, impedance> 100 kΩ) or in current (±20 mA)
Resolution	16 bit
Precision class	0.1%
Stability	0.01%/°C
Programming	Z-NET4 (system software) EASY SETUP (plug&play software) DIP switch
Standards and approvals	UL-UR, CE, EN 61000-6-4, EN 61000-6-2, EN 61010-1

APPLICATION EXAMPLE





ORDER CODE

Code	Description
Z-8AI	Module 8 voltage inputs - current RS485
Software & Accessories	p. 51

The technical data and the diagrams in this document are indicative and not binding.

Z-4RTD2

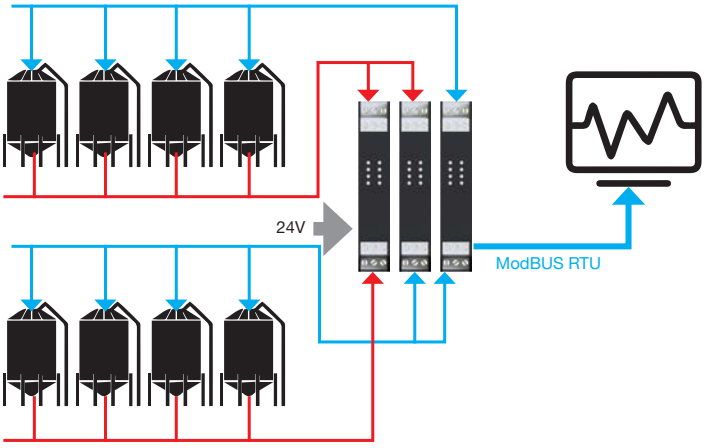
4-INPUT MODULE
WITH THERMORESISTANCES / RS485

Modbus

TECHNICAL DATA

GENERAL DATA	
Power supply	10..40 Vdc, 19..28 Vac 50..60 Hz
Max absorption	0,7 W
Insulation	1.500 Vac a 3 vie
State indicators	Power supply Error Data transmission Data receipt
Degree of protection	IP20
THERMOMECHANICAL CHARACTERISTICS	
Operating temperature	-10..+65 °C
Dimensions	17.5 x 100 x 112 mm
Weight	140 g approx.
Casing	Nylon 6 preloaded 30% glass fibre – self-extinguishing class V0
Connections	Screw removable terminals up to 2.5 mm²conductors IDC10 rear connector for DIN bar RS232 front jack (COM)
Assembly	DIN Guide 35 mm (IEC/EN 60715)
COMMUNICATION, PROCESSING, MEMORY	
Interfaces	RS485, 2 wires
Speed	Up to 115 kbps
Protocol	ModBUS RTU slave
Communication time	45..179 ms
Distance	Up to 1,200 m
Connectivity	Max 32 nodes
Data memory	EEPROM for configuration parameters, retention time 40 years
SIGNALS, MEASUREMENT, CONFIGURATION, STANDARDS	
Number of channels	4
Type	A 4 terminals (ohmeter with 2,3,4 wires) Pt100: -200..+650°C (f.s. 330 Ω) Pt500: -200..+750°C (f.s 1.800 Ω) Pt1000: -200..+210°C (f.s. 1.800 Ω) Ni100: -60..+250°C (f.s. 330 Ω)
Resolution	16 bit
Precision class	0.05%
Thermal drift	25 ppm/K
Programming	Z-NET4 (system software) EASY SETUP (plug&play software) DIP Switch
Standards and approvals	UL-UR, CE, EN 61000-6-4, EN 61000- 6-2, EN 61010, EN 60742

APPLICATION EXAMPLE



ORDER CODE

Code	Description
Z-4RTD2	4 input module with thermoresistances / RS485
Software & Accessories	p. 51

The technical data and the diagrams in this document are indicative and not binding.

Z-4TC

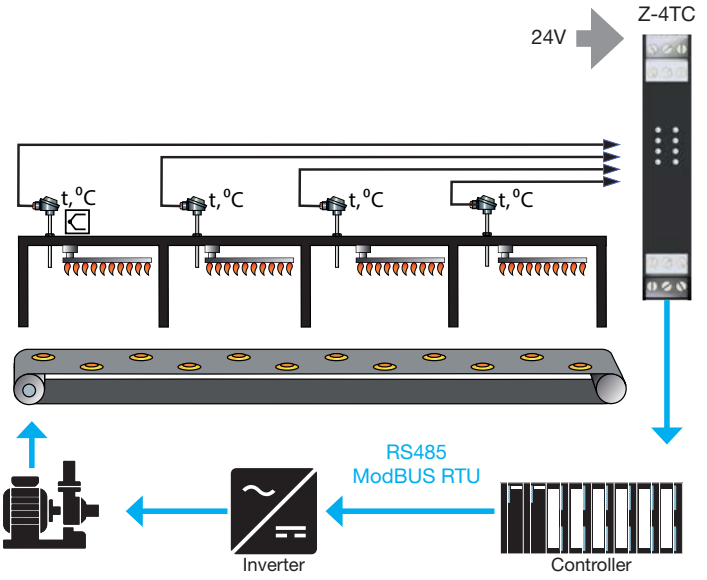
4-INPUT MODULE WITH THERMOCOUPLE / RS485

Modbus

TECHNICAL DATA

GENERAL DATA	
Power supply	10..40 Vdc / 19..28 Vac / 50-60 Hz
Max absorption	Max 2.5 W; 1.6 W @ 24 Vdc
Insulation	1.500 Vac a 3 vie
State indicators	Power supply Error Data transmission Data receipt
Degree of protection	IP20
THERMOMECHANICAL CHARACTERISTICS	
Operating temperature	-10..+65 °C
Dimensions	17.5 x 100 x 112 mm
Weight	140 g approx.
Casing	Nylon 6 preloaded 30% glass fibre – self-extinguishing class V0
Connections	Screw removable terminals for conductors up to 2.5 mm^2 Rear connector IDC10 for DIN bar RS232 front jack (COM)
Assembly	DIN Guide 35 mm (IEC/EN 60715)
COMMUNICATION, PROCESSING, MEMORY	
Interfaces	RS485, 2 wires
Speed	Up to 115 kbps
Protocol	ModBUS RTU slave
Communication time	< 20 ms (@ 38400 baud)
Distance	Up to 1,200 m
Connectivity	Max 32 nodes
Data memory	EEPROM for configuration parameters, retention time 10 years
SIGNALS, MEASUREMENT, CONFIGURATION, STANDARDS	
Number of channels	4
Type	Bipolar voltage ± 80 mVdc, impudence 10 MΩ Thermocouple J, K, R, S, T. B, E, N
Resolution	16 bit
Precision class	0.1%
Thermal drift	0.01%/°C c.d.m.
Programming	Z-NET4 (system software) EASY SETUP (plug&play software) DIP Switch
Standards and approvals	CE, EN 61000-6-4, EN 61000-6-2, EN 61010-1, EN 60742

APPLICATION EXAMPLE



ORDER CODE	
Code	Description
Z-4TC	4 input module with thermocouple / RS485
Software & Accessories	p. 51

The technical data and the diagrams in this document are indicative and not binding.

Z-8TC

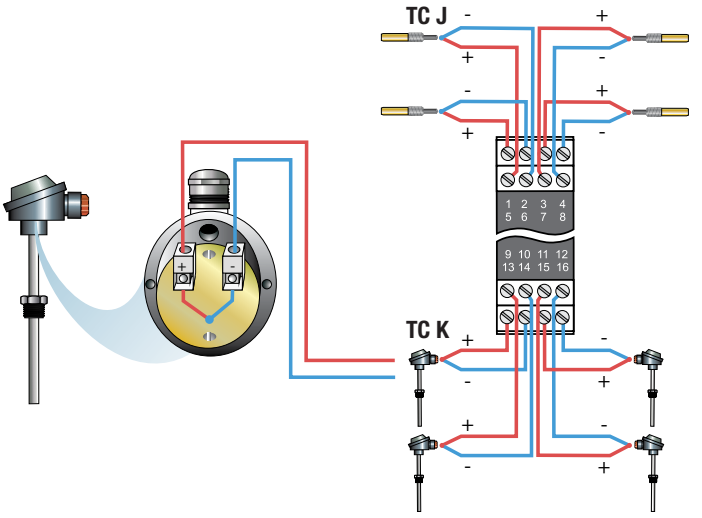
8 INPUT MODULE WITH THERMOCOUPLE AND mV / RS485

Modbus

TECHNICAL DATA

GENERAL DATA	
Power supply	10..40 Vdc; 19..28 Vac (50-60 Hz)
Max absorption	0.6 W
Insulation	1,500 Vac with 6 points
State indicators	Power supply Error Data transmission Data receipt
Degree of protection	IP20
THERMOMECHANICAL CHARACTERISTICS	
Operating temperature	-10..+65°C
Dimensions	17.5 x 100 x 112 mm
Weight	140 g approx.
Casing	Nylon 6 preloaded 30% glass fibre – self-extinguishing class V0
Connections	Screw removable terminals for 2.5 mm^2conductors IDC10 rear connector for DIN bar RS232 front jack (COM)
Assembly	DIN Guide 35 mm (IEC/EN 60715)
COMMUNICATION, PROCESSING, MEMORY	
Interfaces	RS485, 2 wires
Speed	Up to 115 kbps
Protocol	ModBUS RTU slave
Communication time	45..179 ms
Distance	Up to 1,200 m
Connectivity	Max 32 nodes
Data memory	EEPROM for configuration parameters, retention time 10 years
SIGNALS, MEASUREMENT, CONFIGURATION, STANDARDS	
Number of channels	8
Type	Thermocouple J, K, R, S, T. B, E, N (EN 60584-1, ITS-90) Range between -210 and + 1820°C Span mV: -10.1..81.4 mV Shunt up to 70 mV
Resolution	16 bit
Precision class	0.05%
Thermal drift	< 100 ppm/K
Programming	Z-NET4 (system software) EASY SETUP (plug&play software) DIP Switch
Standards and approvals	CE, EN 61000-6-4/2002, EN 61000-6-2/2002, EN 61010, EN 60742

APPLICATION EXAMPLE



ORDER CODE

Code	Description
Z-8TC	8 input module with thermocouple mV / RS485
Software & Accessories	p. 51

The technical data and the diagrams in this document are indicative and not binding.

Z-SG

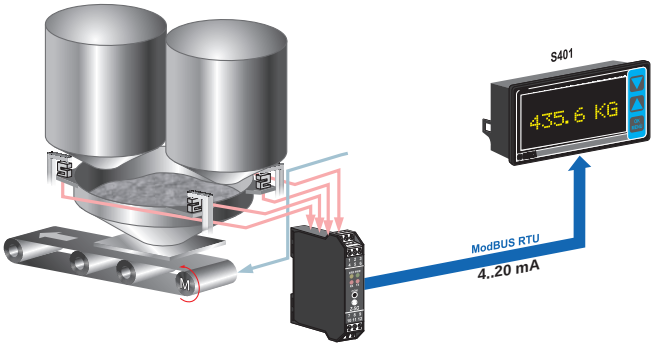
CONVERTER MODULE FOR LOAD CELLS

Modbus

TECHNICAL DATA

GENERAL DATA	
Power supply	10..40 Vdc, 19..28 Vac 50..60 Hz
Max absorption	2.5 W
Insulation	30-way Vac 1,500
State indicators	Power supply Error Data transmission Data receipt
Degree of protection	IP20
THERMOMECHANICAL CHARACTERISTICS	
Operating temperature	-10..+65°C
Dimensions	17.5 x 100 x 112 mm
Weight	140 g approx.
Casing	Nylon 6 preloaded 30% glass fibre – self-extinguishing class V0
Connections	Screw removable terminals for 2.5 mm^2conductors IDC10 rear connector for DIN bar RS232 front jack (COM)
Assembly	DIN Guide 35 mm (IEC/EN 60715)
COMMUNICATION, PROCESSING, MEMORY	
Interfaces	RS485, 2 wires
Speed	Up to 115 kbps
Protocol	ModBUS RTU slave
Communication time	< 10 ms (@ 38400 baud)
Distance	Up to 1,200 m
Connectivity	Max 32 nodes
Data memory	EEPROM for configuration parameters, retention time 40 years
SIGNALS, MEASUREMENT, CONFIGURATION, STANDARDS	
Number of channels	1
Type	Input: 1 analogue channel for reading (and power supply) up to 4 (350 Ω) or 8 (1,000 Ω) strain gauge load cells, 4 or 6-wire connection, equivalent impedance 87 Ω Output: 1 analog retransmission channel of net current weight (0..20, 4..20 mA) or voltage (0..5, 0..10 V) 1 Digital input or output for tare calibration or weight threshold Sensitivity from 1 to 64 mV/V
Resolution	24 bit
Precision class	0.01%
Thermal drift	25 ppm/K
Programming	Z-NET4 (system software) EASY SETUP (plug&play software) DIP Switch
Standards and approvals	CE, EN 61000-6-4, EN 61000-6-2, EN 61010, EN 60742, IEC 61131

APPLICATION EXAMPLE



Z-SG

ORDER CODE

Code	Description
Z-SG	Converter module for load cells
Software & Accessories	p. 51

The technical data and the diagrams in this document are indicative and not binding.

RTU MODBUS I/O SYSTEMS

1

1.1

Series Z-PC

Modbus

I/O

MODBUS DIGITAL I/O MODULES

	Z-D-IN	Z-D-OUT	Z-10-D-IN	Z-10-D-OUT
Modbus				
	Module 5 digital inputs / RS485 ModBUS RTU	**Module 5 digital outputs / RS485 ModBUS RTU**	**Module 10 digital inputs / RS485 ModBUS RTU**	**Module 10 digital outputs / RS485 ModBUS RTU**
GENERAL DATA				
Power supply	10..40 Vdc / 19..28 Vac	10..40 Vdc / 19..28 Vac	10..40 Vdc / 19..28 Vac	10..40 Vdc / 19..28 Vac / 50-60 Hz
Max absorption	2.5 W	2.5 W	3.5 W	2.5 W
Insulation	30-way Vac 1,500	30-way Vac 1,500	30-way Vac 1,500	30-way Vac 1,500
Transducers power supply	Yes, 17Vdc/20mA, max 5 sensors	-	Yes, 17Vdc/40mA, max 10 sensors	-
State indicators	Power supply Error Data Transmission Data Receipt Input Status	Power supply Error Data Transmission Data Receipt Output Status	Power supply Error Data Transmission Data Receipt Input Status	Power supply Error Data Transmission Data Receipt Input Status Diagnostics
Degree of protection	IP20	IP20	IP20	IP20
Operating temperature	-10..+65°C	-10..+65°C	-10..+65°C	-10..+65°C
Dimensions	17.5 x 100 x 112 mm	17.5 x 100 x 112 mm	17.5 x 100 x 112 mm	17.5 x 100 x 112 mm
Weight	140 g approx.	140 g approx.	140 g approx.	140 g approx.
Casing	Nylon 6 30% glass fibre self-extinguishing class V0	Nylon 6 30% glass fibre self-extinguishing class V0	Nylon 6 30% glass fibre self-extinguishing class V0	Nylon 6 30% glass fibre self-extinguishing class V0
Connections	Screw removable terminals for 2.5 mm² conductors IDC10 rear connector for DIN bar	Screw removable terminals for 2.5 mm² conductors IDC10 rear connector for DIN bar	Screw removable terminals for 2.5 mm² conductors IDC10 rear connector for DIN bar	Screw removable terminals for 2.5 mm² conductors IDC10 rear connector for DIN bar
Assembly	Guide 35 mm DIN 46277	Guide 35 mm DIN 46277	Guide 35 mm DIN 46277	Guide 35 mm DIN 46277
Programming	Z-NET4 (system software) EASY SETUP (plug&play software) DIP switch	Z-NET4 (system software) EASY SETUP (plug&play software) DIP switch	Z-NET4 (system software) EASY SETUP (plug&play software) DIP switch	Z-NET4 (system software) EASY SETUP (plug&play software) DIP switch
Data Memory	EEPROM for configuration parameters, retention time 10 years, FeRAM for counter saving	EEPROM for configuration parameters, retention time 10 years	EEPROM for configuration parameters, retention time 10 years, FeRAM for counter saving	EEPROM for configuration parameters, retention time 10 years
COMMUNICATION				
Interfaces	RS485 2 wires	RS485 2 wires	RS485 2 wires	RS485 2 wires
Speed	Up to 115.20 bps	Up to 115.20 bps	Up to 115.20 bps	Up to 115.20 bps
Protocols	ModBUS RTU slave	ModBUS RTU slave	ModBUS RTU slave	ModBUS RTU slave
Communication time	< 10 ms (@ 38400 bps)	< 10 ms (@ 38400 bps)	< 10 ms (@ 38400 bps)	< 10 ms (@ 38400 bps)
Max distance	Up to 1,200 m	Up to 1,200 m	Up to 1,200 m	Up to 1,200 m
Connectivity	Max 32 nodes	Max 32 nodes	Max 32 nodes	Max 32 nodes
INPUT / OUTPUT DATA				
Number of Channels	5 inputs	5 outputs	10 inputs	10 outputs
Type	No. 5 Reed opto-isolated inputs, Proximity, PNP, NPN, clean contact etc. Nr.5 counters @16 bit, max frequency 100 Hz; No. 1 counter @32 bit, max frequency 10 kHz Debounce filter 5..250 ms Overflow indication of each totaliser	No. 5 SPST relay outputs (NO with common) Max relay capacity 5A 250 Vac with resistive load; 2A with inductive load Total current mx 12 A on the common terminal Set relay safety status at start-up in case of communication failure Safety time adjustable from 0.5 to 25 ms	No. 10 digital inputs with 16 V self-supplied common negative protected by 600 W/ms TVS transients suppressors No. 10 inputs with 32 bit totaliser with maximum frequency 2.5 kHz Frequency measurement, period, Ton and Toff for all inputs Ability to set the totalisers for counting forward or backwards Indication of the overflow of each totaliser	Nr.10 MOSFET outputs protected against short circuit with common negative, supplied from 6 to 40 Vdc, flow rate 0.5 A, resisitive or inductive load Settable safety time 33 ms..2184 s Load power supply voltage measurement Diagnostic signalling on the front for each channel: ON/OFF /Overload/Open circuit Programmable fail-safe function (status of the outputs in case of serial communication fail)
STANDARD				
Certifications	EC	EC	UL-UR CSA, CE	UL-UR CSA, CE
Approvals and Regulations	CE, EN 50081-2; EN 55011; EN 50082-2; EN 61000-2-2/4; EN 50140/141; EN 61010-1	CE, EN 50081-2; EN 55011; EN 50082-2; EN 61000-2-2/4; EN 50140/141; EN 61010-1	UL-UR, CE, EN 50081-2; EN 55011; EN 50082-2; EN 61000-2-2/4; EN 50140/141; EN 61010-1	UL-UR, CE, EN 50081-2; EN 55011; EN 50082-2; EN 61000-2-2/4; EN 50140/141; EN 61010-1
ORDER CODE				
Code	Z-D-IN	Z-D-OUT	Z-10-D-IN	Z-10-D-OUT
Software & Accessories	p. 51	p. 51	p. 51	p. 51

MODBUS / CANOPEN DIGITAL I/O MODULES

	ZC-24DI	ZC-24DO	ZC-16DI-8DO
Modbus CANopen			
	24 digital inputs module ModBUS/CANopen	**24 digital outputs module ModBUS/CANopen**	**Modules 16 digital inputs, 8 digital outputs ModBUS/CANopen**
GENERAL DATA			
Power supply	10..40 Vdc / 19..28 Vac	10..40 Vdc / 19..28 Vac	10..40 Vdc / 19..28 Vac
Max absorption	2.5 W	2.5 W	2.5 W
Insulation	1.5 kVac (3-way)	1.5 kVac (3-way)	1.5 kVac (3-way)
Transducers power supply	Yes, 16V/70mA, max 24 sensors	-	Yes, 16V/70mA, max 16+8 sensors
State indicators	Power supply Input Status Communication	Power supply Output Status Communication	Power supply Inputs / Outputs Status Communication
Degree of protection	IP20	IP20	IP20
Operating temperature	-10..-65°C	-10..-65°C	-10..-65°C
Dimensions	35 x 100 x 112 mm	35 x 100 x 112 mm	35 x 100 x 112 mm
Weight	170 g	170 g	170 g
Casing	Nylon 6 loaded 30% glass fibre, class V0 self-extinguishing	Nylon 6 loaded 30% glass fibre, class V0 self-extinguishing	Nylon 6 loaded 30% glass fibre, class V0 self-extinguishing
Connections	Detachable 4-way screw terminals, 3.5 mm pitch IDC10 rear connector for DIN bar 3.5 mm stereo headphone jack for RS232 (COM)	Detachable 4-way screw terminals, 3.5 mm pitch IDC10 rear connector for DIN bar 3.5 mm stereo headphone jack for RS232 (COM)	Detachable 4-way screw terminals, 3.5 mm pitch IDC10 rear connector for DIN bar 3.5 mm stereo headphone jack for RS232 (COM)
Assembly	For guide 35 mm DIN 46277	For guide 35 mm DIN 46277	For guide 35 mm DIN 46277
Programming	DIP switch, Z-NET4, EASY SETUP, EDS, Codesys (IEC 61131)	DIP switch, Z-NET4, EASY SETUP, EDS, Codesys (IEC 61131)	DIP switch, Z-NET4, EASY SETUP, EDS, Codesys (IEC 61131)
Regulations and Standards	CE, EN 61000-6-4, EN 64000-6-2, EN 61010-1, CAN 2.0A, 2.0B CiA 401 v.2.01 IEC EN 61131-2	CE, EN 61000-6-4, EN 64000-6-2, EN 61010-1, CAN 2.0A, 2.0B CiA 401 v.2.01 IEC EN 61131-2	CE, EN 61000-6-4, EN 64000-6-2, EN 61010-1, CAN 2.0A, 2.0B CiA 401 v.2.01 IEC EN 61131-2
COMMUNICATION			
Interfaces	RS485, RS232	RS485, RS232	RS485, RS232
Speed	1 Mbps (CANopen); 115.200 bps (ModBUS)	1 Mbps (CANopen); 115.200 bps (ModBUS)	1 Mbps (CANopen); 115.200 bps (ModBUS)
Protocols	CAN bus standard (2.0A, 2.0B); CANopen (profile CiA 401 v.2.01); ModBUS RTU (via RS485)	CAN bus standard (2.0A, 2.0B); CANopen (profile CiA 401 v.2.01); ModBUS RTU (via RS485)	CAN bus standard (2.0A, 2.0B); CANopen (profile CiA 401 v.2.01); ModBUS RTU (via RS485)
Communication time	2.5 ms	1.2 ms	1.2..2.5 ms
Special Functions	CANopen/ModBUS protocol switching	CANopen/ModBUS protocol switching	CANopen/ModBUS protocol switching
INPUT / OUTPUT DATA			
Number of Channels	24 inputs (with 16 Vdc self-powered common negative)	24 outputs	16 inputs, 8 outputs
Type	No. 24 digital inputs with EN 61131-2 polarity type 2, synq (pnp); No. 8 counters @ 32 bit, max freq. 10 kHz; Configuration increment, reset, preset; Overflow indication; Vmax=30V; pulse width 250µs; on/off delay <3ms; TPDO < 1ms	Nr.24 Mosfet outputs (open source with common negative); supply voltage 5..30 Vc; Imax = 0.5A (from terminals) / 25 mA (from connectors); on/of delay <1ms; RPDO < 1.25 ms	Nr.16 digital inputs with EN 61131-2 polarity type 2, synq (pnp); Nr.8 counters @ 32 bit, max freq. 10 kHz; Configuration increment, reset, preset; Overflow indication; Vmax=30V; pulse width 250µs; on/off delay < 3ms; TPDO < 1ms Nr.8 Mosfet outputs (open source with common negative); supply voltage 5..30 Vc; Imax=0.5A (from terminals) / 25 mA (from connectors); on/of delay < 1ms; RPDO <1.25 ms
CANOPEN REQUIREMENTS			
NMT	Slave	Slave	Slave
Error Control	Node Guarding	Node Guarding	Node Guarding
Node ID	Software, DIP-switch	Software, DIP-switch	Software, DIP-switch
Nr PDO	RX 5	RX 5	RX 5
PDO modes	Event triggered, synq (cyclic), synq (acyclic)	Event triggered, synq (cyclic), synq (acyclic)	Event triggered, synq (cyclic), synq (acyclic)
PDO linking	Yes	Yes	Yes
PDO mapping	Variable	Variable	Variable
Nr SDO Server	1	1	1
Emergency message	Yes	Yes	Yes
Application Layer	CiA 301 v4.02	CiA 301 v4.02	CiA 301 v4.02
Profile	CiA 401 v2.01	CiA 401 v2.01	CiA 401 v2.01
ORDER CODE			
Code	ZC-24DI	ZC-24DO	ZC-16DI-8DO
Software & Accessories	p. 51	p. 51	p. 51

MODBUS ANALOG I/O MODULES

	Z-DAQ-PID	Z-4AI	Z-8AI	Z-3AO
Modbus				
	Universal I/O module with PID regulation / RTU ModBUS RS485	**Module 4 voltage inputs - current / RS485 ModBUS RTU**	**Module 8 voltage inputs - current / RS485 ModBUS RTU**	**Module 3 / current inputs / current / RS485 ModBUS RTU**
GENERAL DATA				
Power supply	10..40 Vdc / 19..28 Vac	10..40 Vdc / 19..28 Vac	10..40 Vdc / 19..28 Vac	10..40 Vdc / 19..28 Vac
Max absorption	2.5 W	2.5 W	3.5 W	3.2 W
Insulation	1.5 kVac (3-way)	1.5 kVac (3-way)	1.5 kVac (3-way)	1.5 kVac (3-way)
Transducers power supply	Yes, 17Vdc/25mA, max 1 channel	Yes, 20Vdc/40mA, max 4 channels	Yes, 13Vdc/90+90mA, max 8 channels	-
State indicators	Power supply Error Data Transmission Data Receipt	Power supply Error Data Transmission Data Receipt	Power supply Error Data Transmission Data Receipt	Power supply Error Data Transmission Data Receipt
Degree of protection	IP20	IP20	IP20	IP20
Operating temperature	-10..+65°C	-10..+65°C	-10..+65°C	-10..+65°C
Dimensions	17.5x100x112 mm	17.5x100x112 mm	17.5x100x112 mm	17.5x100x112 mm
Weight	140 g approx.	140 g approx.	140 g approx.	140 g approx.
Casing	Preloaded nylon 30% glass fibre self-extinguishing class V0	Preloaded nylon 30% glass fibre self-extinguishing class V0	Preloaded nylon 30% glass fibre self-extinguishing class V0	Preloaded nylon 30% glass fibre self-extinguishing class V0
Connections	Screw removable terminals for 2.5 mm²conductors	Screw removable terminals for 2.5 mm²conductors	Screw removable terminals for 2.5 mm²conductors	Screw removable terminals for 2.5 mm2 conductors
Assembly	Guide 35 mm DIN 46277	Guide 35 mm DIN 46277	Guide 35 mm DIN 46277	Guide 35 mm DIN 46277
Programming	System software (Z-NET4) Plug&play configurator (EASY SETUP) DIP switch	System software (Z-NET4) Plug&play configurator (EASY SETUP) DIP switch	System software (Z-NET4) Plug&play configurator (EASY SETUP) DIP switch	System software (Z-NET4) Plug&play configurator (EASY SETUP) DIP switch
Data Memory	EEPROM for configuration parameters, retention time 10 years	EEPROM for configuration parameters, retention time 10 years	EEPROM for configuration parameters, retention time 10 years	EEPROM for configuration parameters, retention time 10 years
COMMUNICATION				
Interfaces	RS485 2 wires RS232 (stereo jack 3.5 mm)	RS485 2 wires RS232 (stereo jack 3.5 mm)	RS485 2 wires RS232 (stereo jack 3.5 mm)	RS485 2 wires RS232 (stereo jack 3.5 mm)
Speed	Up to 115,200 bps	Up to 115,200 bps	Up to 115,200 bps	Up to 115,200 bps
Protocols	MosBUS RTU slave	MosBUS RTU slave	MosBUS RTU slave	MosBUS RTU slave
Communication time	< 10 ms (@38.400 bps)	< 10 ms (@38.400 bps)	< 10 ms (@38.400 bps)	< 10 ms (@38.400 bps)
Max distance	Up to 1,200 m	Up to 1,200 m	Up to 1,200 m	Up to 1,200 m
Connectivity	Max 32 nodes	Max 32 nodes	Max 32 nodes	Max 32 nodes
INPUT / OUTPUT DATA				
Number of Channels	1 input, 1 output	4 inputs	8 inputs	3 outputs (active)
Type	INPUT Millivolt: configurable from -10 to + 80 mV Voltage: configurable from 0 to 10 V Current configurable from 0 to 20 mA Potentiometer: 1 kΩ.. 100 kΩ Thermocouple J,K,E,T,N,B,R,S RTD: Pt100, Pt500, Pt1000, Ni100 OUTPUT Configurable voltage from 0-10 V Active / passive configurable current from 0-20 mA	Bipolar voltage ±10 Vdc or ±2 Vdc, impedance 100 KΩ Current bipolar current in direct current ±20 mA, impedance 100	Bipolar inputs programmable in voltage (± 2.5 Vdc, ±10 Vdc, impedance> 100 kΩ) or in current (±20 mA)	Voltage (±10 V, 0/2..10 V, controllable impedance > 600 ΩW) or in current (0/4..20 mA, controllable impedance < 600 Ω)
Resolution	14 bit + sign	16 bit	16 bit	13 bit
Precision class	0.1%	0.1%	0.1%	0.1%
Stability	0.01%/°C	0.01%/°C	0.01%/°C	0.01%/°C
STANDARD				
Certifications	EC	EC	UL-UR CSA, CE	UL-UR CSA, CE
Approvals and Regulations	EN 61000-6-4, EN 61000-6-2, EN 61010-1	EN 50081-2, EN 55011, EN 50082-2, EN 61000-2-2/4, EN 50140/141, EN 61010-1	EN 50081-2, EN 55011, EN 50082-2, EN 61000-2-2/4, EN 50140/141, EN 61010-1	EN 50081-2, EN 55011, EN 50082-2, EN 61000-2-2/4, EN 50140/141, EN 61010-1
ORDER CODE				
Code	Z-DAQ-PID	Z-4AI	Z-8AI	Z-3AO
Software & Accessories	p. 51	p. 51	p. 51	p. 51

MODBUS PROCESS I/O MODULES

	Z-4RTD2	Z-4TC	Z-8TC	Z-8NTC	Z-SG
					
	Module 4 thermoresistance inputs / RS485 ModBUS RTU	**Module 4 thermocouple inputs / RS485 ModBUS RTU**	**Module 8 thermocouple inputs and mV / RS485 ModBUS RTU**	**Module 8 thermoresistance inputs NTC / RS485 ModBUS RTU**	**Converter module for load cells / RS485 ModBUS RTU**
GENERAL DATA					
Power supply	10..40 Vdc, 19..28 Vac 50..60 Hz	10..40 Vdc, 19..28 Vac 50..60 Hz	10..40 Vdc, 19..28 Vac 50..60 Hz, bus powered	10..40 Vdc, 19..28 Vac 50..60 Hz	10..40 Vdc, 19..28 Vac 50..60 Hz
Max absorption	0.7 W	Max 2.5 W; 1.6 W (@24 Vdc)	0.6 W	TBD	2.5 W
Insulation	30-way Vac 1,500	30-way Vac 1,500	1.500 Vac a 6 vie	30-way Vac 1,500	30-way Vac 1,500
Transducers power supply	-	-	-	-	Yes, 5Vdc/60mA, max 1 sensor
State indicators	Power supply Error Data transmission Data receipt	Power supply Error Data transmission Data receipt	Power supply Error Communication RS485	Power supply Error Data transmission Data receipt	Power supply Error Data transmission Data receipt
Degree of protection	IP20	IP20	IP20	IP20	IP20
Operating temperature	-10..+65°C	-10..+65°C	-10..+65°C	-20..+70°C	-10..+65°C
Dimensions	17.5x100x112 mm	17.5x100x112 mm	17.5x100x112 mm	17.5x100x112 mm	17.5x100x112 mm
Weight	140 g approx.	140 g approx.	140 g approx.	140 g approx.	140 g approx.
Casing	Nylon 6 preloaded 30% glass fibre, class V0 self-extinguishing	Nylon 6 preloaded 30% glass fibre, class V0 self-extinguishing	Nylon 6 preloaded 30% glass fibre, class V0 self-extinguishing	Nylon 6 preloaded 30% glass fibre, class V0 self-extinguishing	Nylon 6 preloaded 30% glass fibre, class V0 self-extinguishing
Connections	Screw removable terminals for 2.5 mm^2 conductors IDC10 rear connector for DIN bar RS232 communication front jack (COM)	Screw removable terminals for 2.5 mm^2 conductors IDC10 rear connector for DIN bar RS232 communication front jack (COM)	Screw removable terminals for 2.5 mm^2 conductors IDC10 rear connector for DIN bar RS232 communication front jack (COM)	Screw removable terminals for 2.5 mm^2 conductors IDC10 rear connector for DIN bar Nr.1 micro USB	Screw removable terminals for 2.5 mm^2 conductors IDC10 rear connector for DIN bar RS232 communication front jack (COM)
Assembly	Guide 35 mm DIN 46277	Guide 35 mm DIN 46277	Guide 35 mm DIN 46277	Guide 35 mm DIN 46277	Guide 35 mm DIN 46277
Programming	System software (Z-NET4) Plug&play configurator (EASY SETUP) DIP switch	System software (Z-NET4) Plug&play configurator (EASY SETUP) DIP switch	System software (Z-NET4) Plug&play configurator (EASY SETUP) DIP switch	System software (Z-NET4) Plug&play configurator (EASY SETUP) DIP switch	System software (Z-NET4) Plug&play configurator (EASY SETUP) DIP switch
Data Memory	EEPROM for configuration parameters, retention time 10 years	EEPROM for configuration parameters, retention time 10 years	EEPROM for configuration parameters, retention time 10 years	EEPROM for configuration parameters, retention time 10 years	EEPROM for configuration parameters, retention time 40 years
COMMUNICATION					
Interfaces	Nr.1 RS485 2 wires	Nr.1 RS485 2 wires	Nr.1 RS485 2 wires	Nr.1 RS485 2 wires; Nr.1 Micro USB	Nr.1 RS485 2 wires
Speed	Up to 115,200 bps	Up to 115,200 bps	Up to 115,200 bps	Up to 115,200 bps	Up to 115,200 bps
Protocols	ModBUS RTU slave	ModBUS RTU slave	ModBUS RTU slave	ModBUS RTU slave	ModBUS RTU slave
Communication time	45..179 ms	< 20 ms (@38.400 bps)	45..179 ms	< 10 ms (@38.400 ms)	< 10 ms (@38.400 ms)
Max distance	Up to 1,200 m	Up to 1,200 m	Up to 1,200 m	Up to 1,200 m	Up to 1,200 m
Connectivity	Max 32 nodes	Max 32 nodes	Max 32 nodes	Max 32 nodes	Max 32 nodes
INPUT / OUTPUT DATA					
Number of Channels	4 inputs	4 inputs	8 inputs	8 inputs	1 input, 1 output
Type	RTD with 4 terminals (ohmeter with 2,3,4 wires) Pt100: -200..+650°C (f.s. 330 Ω) Pt500: -200..+750°C (f.s 1.800 Ω) Pt1000: -200..+210°C (f.s. 1.800 Ω) Ni100: -60..+250°C (f.s. 330 Ω)	Bipolar voltage ± 80 mVdc, impudence 10 MΩ Thermocouple J, K, R, S, T. B, E, N	Thermocouple J, K, R, S, T. B, E, N (EN60584-1, ITS-90) Range between -210 and + 1820°C Span mV: -10.1..81.4 mV	Generic NTC, user definable curve. Nominal values 1K, 10K, 50K @ 25°C; Resistance from 100 Ohm to 10 kOhm; from 1 kOhm to 100 KOhm; from 5 kOhm to 500 kOhm.	Input: 1 analogue channel for reading (and powering) up to 4 (350 Ω) or 8 (1,000 Ω) strain gauge load cells, 4 or 6-wire connection, equivalent impedance 87 Ω or voltage (0..5, 0..10 V) 1 DI/1DO tare calibration or weight threshold Sensitivity from 1 to 64 mV/V Output: 1 analog retransmission channel of the net current weight (0..20, 4..20 mA)
Resolution	16 bit	16 bit	16 bit	16 bit	24 bit
Precision class	0.1%	0.1%	0.1%	0.5%	0.01%
Thermal drift	25 ppm/K	0.01%/°C c.d.m.	< 100 ppm/K	< 100 ppm/K	25 ppm/K
STANDARD					
Certifications	CE, UL-UR	EC	EC	EC	EC
Approvals and Regulations	EN 61000-6-4/2002, EN 61000-6-2/2002, EN 61010, EN 60742	EN 50081-2, EN 55011, EN 50082-2, EN 61000-6-4/2002, EN 61000-6-2/2002, EN 61010, EN 60742	EN 61000-6-4/2002, EN 61000-6-2/2002, EN 61010, EN 60742	EN 61000-6-4, EN 61000-6-2, EN 61010, EN 60742	EN 61000-6-4/2002, EN 61000-6-2/2002, EN 61010, EN 60742, IEC 61131
ORDER CODE					
Code	Z-4RTD2	Z-4TC	Z-8TC	Z-8NTC	Z-SG
Software & Accessories	p. 51	p. 51	p. 51	p. 51	p. 51

MIXED I/O MODULES

	Z-D-IO	Z-5DI-2DO	Z-4DI-2AI-2DO
	while stocks last 	 SOON AVAILABLE	
	Mixed module 6 inputs, 2 digital outputs, RS485 MOdBUS RTU	**Mixed module 5 digital inputs, 2 digital outputs, RS485 ModBUS RTU**	**Mixed module 4 digital inputs, 2 analog inputs, 2 digital outputs, RS485 ModBUS RTU**
GENERAL DATA			
Power supply	10..40 Vdc / 19..28 Vac / 50-60 Hz	10..40 Vdc / 19..28 Vac	11.40 Vdc; 19..28 Vac
Max absorption	2 W	2 W	3.5 W
Insulation	1,500 Vac vs inputs 3,750 Vac vs outputs	1,500 Vac vs inputs 3,000 Vac vs outputs	1.500 Vac
Transducers power supply	-	-	Yes, 12V/(20)40mA, max 8 sensors
State indicators	Power supply Error Data Transmission Data Receipt Input Status Output Status	Power supply (green) Error (yellow) Data Transmission (red) Data Receipt (red) Input Status (5 green LEDs) Outputs Status (2 red LEDs)	RX/TX RS485 Error
Degree of protection	IP20	IP20	IP20
Operating temperature	-10..+65°C	-20..+70°C	-10..+65°C
Dimensions	17.5 x 100 x 112 mm	17.5 x 100 x 112 mm	35x100x112 mm
Weight	200 g approx.	140 g approx.	170 g approx.
Casing	Nylon 6 30% glass fibre self-extinguishing class V0	Nylon 6 30% glass fibre self-extinguishing class V0	Glass loaded PA6 black plastic
Connections	Screw removable terminals for 2.5 mm² conductors	Screw removable terminals for 2.5 mm² conductors Micro USB (programming)	Screw removable terminals for 2.5 mm² conductors IDC10 rear connector for DIN bar
Assembly	Guide 35 mm DIN 46277	Guide 35 mm DIN 46277	For guide 35 mm DIN 46277
Programming	Z-NET4 (system software) EASY SETUP (plug&play software) DIP switch Logic IEC 1131-2 type 1 for motors control, valves, alarms	EASY SETUP (plug&play software) DIP switch	Z-NET4 (system software) EASY SETUP (plug&play software) DIP switch
Data Memory	EEPROM for configuration parameters, retention time 10 years	EEPROM for configuration parameters, retention time 10 years, No. 5 32 bit registers, No. 5 bit overflow, FeRAM for counters saving	Flash 512 kB, FeRAM 64 kB (counters)
COMMUNICATION			
RS485	Nr.1 RS485 2 wires, up to 115.200 bps, ModBUS RTU slave, communication time < 10 ms (@38.400 bps), max distance 1,200, max 32 nodes	Nr.1 RS485 2 wires, up to 115.200 bps, ModBUS RTU slave, communication time < 10 ms (@38.400 bps), max distance 1,200, max 64 nodes without repeater	Nr.1 RS485 2 wires, up to 115.200 bps, ModBUS RTU slave, communication time from 1 to 300 ms, max distance 1,200, max 32 nodes
USB		Nr.1 Micro USB	Nr. 1 mini USB 2.0
INPUT / OUTPUT DATA			
Number of Channels	6 inputs, 2 outputs	5 inputs, 2 outputs	4 digital inputs, 2 analog inputs, 2 digital outputs,
Type	No. 6 opto-isolated inputs with common Reedm Proximity, PNP, NPN, contact, etc.; internal/external inputs supply; min pulse width 20 ms No. 2 SPST relay outputs with common, capacity 5A 250Vac, NO/NC contact	No. 5 opto-isolated inputs Reed, Proximity, PNP, NPN, contact etc. Nr. 5 counters @32 bit, max freq. 5 kHz No. 2 SPST relay outputs with common, fail-safe, 2A 250Vac range, NO/NC contact, selectable via jumper	No. 4 opto-isolated inputs Reed, Proximity, PNP, NPN, contact etc. Nr. 4 counters @32 bit, max freq. 7 kHz No. 2 SPST relay outputs with common, 2A 250Vac range, NO/NC contact, NO/NC contact selection via jumper Nr. 2 analogue mA / Vdc inputs, configurable; 16 bit
STANDARD			
Certifications	EC	EC	EC
Approvals and Regulations	CE, EN61000-6-4; EN61000-6-2; EN61010-1	EN61000-6-4; EN61000-6-2; EN61010-1	EN 61000-6-4, EN 61000-6-2, EN 61010-1, EN 60950
ORDER CODE			
Code	Z-D-IO	Z-5DI-2DO	Z-4DI-2AI-2DO
Software & Accessories	p. 51	p. 51	p. 51

The technical data and the diagrams in this document are indicative and not binding.

TCP-IP MODBUS I/O SYSTEMS

1

1.2

Series Z-PC

ETHERNET

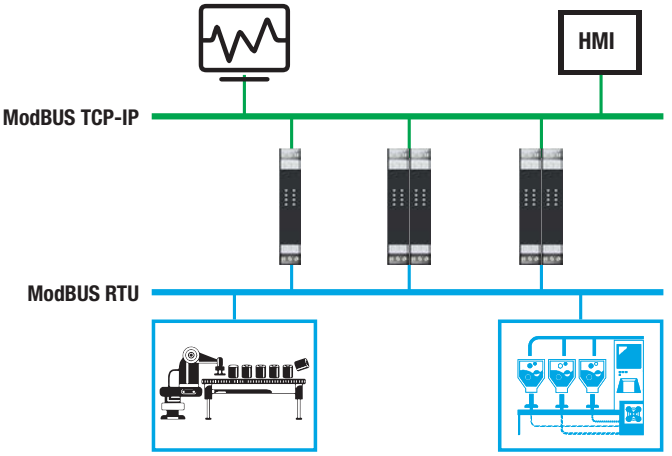
I/O

TCP-IP MODBUS I/O SYSTEMS

The mixed **I/O** modules of the **Z-PC Series** for high performance analog and digital signals are based on ARM processor. They support the ModBUS TCP-IP and ModBUS RTU communication protocols on the bus/terminal and an extended range for voltage input up to 30 V. These modules can use a 16-bit ADC converter with configurable acquisition speed from 5 to 300 ms. They also offer complete web server configurability compatible with browsers that support Html5.

TCP-IP MODBUS / RTU MODBUS DIGITAL / ANALOG MODULES

	ZE-4DI-2AI-2DO	ZE-2AI
	Modbus ETHERNET 	Modbus ETHERNET 
	Mixed module 4 digital inputs, 2 analog inputs, 2 digital outputs, ModBUS RTU / ModBUS TCP-IP	**Module 2 voltage inputs - current / RS485 / Ethernet (ModBUS TCP-IP)**
GENERAL DATA		
Power supply	11.40 Vdc; 19..28 Vac	11..40 Vdc / 19..28 Vac
Max absorption	4.5 W	1.8 W
Insulation	1,500 Vac	1,500 Vac
Transducers power supply	Yes, 12V/(20)40mA, max 8 sensors	Yes, 16V/40mA, max 2 sensors
State indicators	RX/TX RS485 - IP/DCHCP - Ethernet Activity - Ethernet Link	RX/TX RS485 - IP / DHCP - Ethernet Activity - Ethernet Link
Degree of protection	IP20	IP20
Operating temperature	-10..+65°C	-10..+65°C
Dimensions	35x100x112 mm	17.5x100x112 mm
Weight	170 g approx.	140 g approx.
Casing	Glass loaded PA6 black plastic	Glass loaded PA6 black plastic
Connections	Screw removable terminals for 2.5 mm² conductors IDC10 rear connector for DIN bar	Screw removable terminals for 2.5 mm² conductors IDC10 rear connector for DIN bar
Assembly	For guide 35 mm DIN 46277	For guide 35 mm DIN 46277
Programming	Software (EASY SETUP) DIP switch Web Server	Software (EASY SETUP) DIP switch Web Server
Data Memory	Flash 512 kB, FeRAM 64 kB (contatori)	Flash 512 kB, FeRAM 64 kB (contatori)
COMMUNICATION		
Interfaces	Nr. 1 Ethernet 10/100 Mbps Nr.2 RS485 Nr. 1 mini USB B	Nr.1 Ethernet 10/100 Mbps Nr. 2 RS485 Nr.1 mini USB B
Speed	Fino a 115.200 bps (RS485) / 100 Mbps (TCP-IP)	Fino a 115.200 bps (RS485) / 100 Mbps (TCP-IP)
Protocols	MosBUS RTU, ModBUS TCP-IP, http	MosBUS RTU, ModBUS TCP-IP, http
Communication time	From 1 to 300 Ms.	From 1 to 300 Ms.
Max distance	Up to 1,200 m	Up to 1,200 m
Connectivity	Max 32 nodes	Max 32 nodes
INPUT / OUTPUT DATA		
Number of Channels	6 inputs, 2 outputs	2 inputs
Type	No. 2 Analog Inputs 0-20 mA / 0-30 V No. 4 PNP / NPN Digital Inputs (also configurable as totalisers or counters @32 bit max 7 kHz) No. 2 Digital outputs with NO / NC relay max 5 A	No. 2 Analog Inputs 0-20 mA / 0-30 V
Resolution	16 bit	16 bit
Precision class	0.1%	0.1%
Thermal drift	100 ppm/K	100 ppm/K
STANDARD		
Certifications	EC	EC
Approvals and Regulations	EN 61000-6-4, EN 61000-6-2, EN 61010-1, EN 60950	EN 61000-6-4, EN 61000-6-2, EN 61010-1
ORDER CODE		
Code	ZE-4DI-2AI-2DO	ZE-2AI
Software and Accessories	Pag. 51	Pag. 51



Technical data and diagrams on this document are indicative and not binding.

CANOPEN I/O SYSTEMS

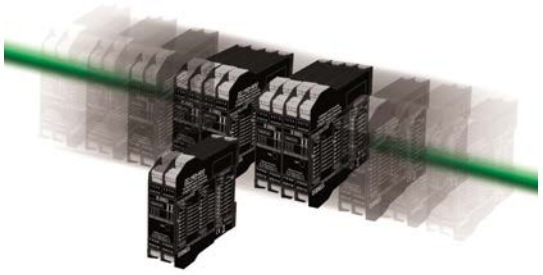
1

1.3

Series Z-PC

CANopen

I/O



Z-PC Series

DISTRIBUTED HIGH PERFORMANCE I / O SYSTEM

CANopen Z-PC series is a distributed I/O system actually based on IEC 61131 programming that does not require the use of couplers, controllers or repeaters for each communication line. All modules have a CAN communication interface with speeds of up to 1 Mbps and are therefore ideal for acquiring and controlling system signals on systems and machines where the distance between the signals plays a fundamental role.
The CANopen Z-PC Series modules can be integrated with third-party master/ network configurators and controllers, even on existing machines and installations. The advantage of not needing an end-of-line coupler significantly reduces the cost factor for medium-small installations.

I/O MODULES

I/O modules of analog inputs (8), thermocouples and resistance thermometers (4/8), digital inputs / outputs (16/24), analog outputs (3), load cells (1) etc.

CPU / INTERFACES

- Multi-function web server controller, datalogger with CAN interfaces, Ethernet, RS232/RS485, ModBUS RTU.
- CANopen repeaters - optical fibre

SETTINGS

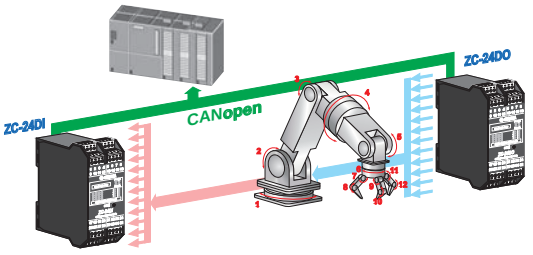
- IEC 61131 CoDeSys programming system
- EASY SETUP suite (software configurator) via RS232
- DIP-switch (address, baud rate)

HIGH PERFORMANCES

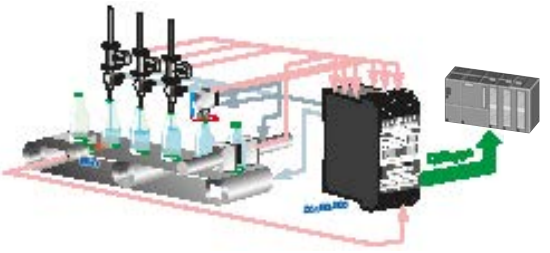
- High precision: 0.01..0.05%
- Insulation: 1.5 kVac (up to 6 ways)
- Baud rate: up to 1 Mbps
- Response time for digital channel ~ 1ms
- Response time for digital channel ~ 1ms ~ 20 ms
- Supply up to 8 sensors

APPLICATION DIAGRAMS

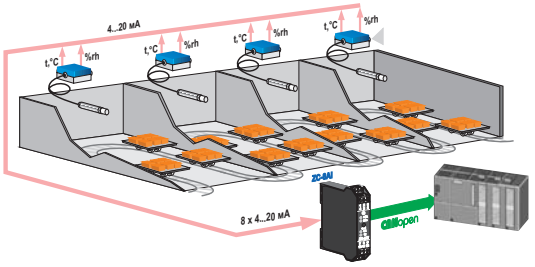
MANIPULATION SYSTEM



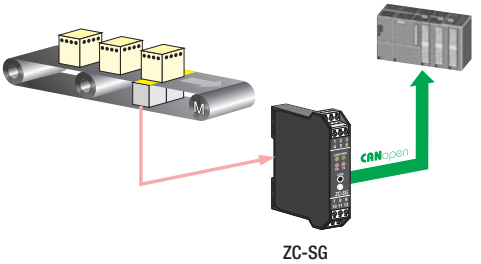
AUTOMATIC BOTTLING SYSTEM



PROCESS PARAMETERS CONTROL



CONVEYOR BELT CONTROL



ZC-SG

MODBUS / CANOPEN DIGITAL I/O MODULES

	ZC-24DI	ZC-24DO	ZC-16DI-8DO
Modbus CANopen			
	24 digital inputs module ModBUS/CANopen	**24 digital outputs module ModBUS/CANopen**	**Modules 16 digital inputs, 8 digital outputs ModBUS/CANopen**
GENERAL DATA			
Power supply	10..40 Vdc / 19..28 Vac	10..40 Vdc / 19..28 Vac	10..40 Vdc / 19..28 Vac
Max absorption	2.5 W	2.5 W	2.5 W
Insulation	1.5 kVac (3-way)	1.5 kVac (3-way)	1.5 kVac (3-way)
Transducers power supply	Yes, 16V/70mA, max 24 sensors	-	Yes, 16V/70mA, max 16+8 sensors
State indicators	Power supply Input Status Communication	Power supply Output Status Communication	Power supply Inputs / Outputs Status Communication
Degree of protection	IP20	IP20	IP20
Operating temperature	-10..+65°C	-10..+65°C	-10..+65°C
Dimensions	35 x 100 x 112 mm	35 x 100 x 112 mm	35 x 100 x 112 mm
Weight	170 g	170 g	170 g
Casing	Nylon 6 loaded 30% glass fibre, class V0 self-extinguishing	Nylon 6 loaded 30% glass fibre, class V0 self-extinguishing	Nylon 6 loaded 30% glass fibre, class V0 self-extinguishing
Connections	Detachable 4-way screw terminals, 3.5 mm pitch IDC10 rear connector for DIN bar Micro USB	Detachable 4-way screw terminals, 3.5 mm pitch IDC10 rear connector for DIN bar Micro USB	Detachable 4-way screw terminals, 3.5 mm pitch IDC10 rear connector for DIN bar Micro USB
Assembly	For guide 35 mm DIN 46277	For guide 35 mm DIN 46277	For guide 35 mm DIN 46277
Programming	DIP switch, Z-NET4, EASY SETUP, EDS, Codesys (IEC 61131)	DIP switch, Z-NET4, EASY SETUP, EDS, Codesys (IEC 61131)	DIP switch, Z-NET4, EASY SETUP, EDS, Codesys (IEC 61131)
Regulations and Standards	CE, EN 61000-6-4, EN 64000-6-2, EN 61010-1, CAN 2.0A, 2.0B CiA 401 v.2.01 IEC EN 61131-2	CE, EN 61000-6-4, EN 64000-6-2, EN 61010-1, CAN 2.0A, 2.0B CiA 401 v.2.01 IEC EN 61131-2	CE, EN 61000-6-4, EN 64000-6-2, EN 61010-1, CAN 2.0A, 2.0B CiA 401 v.2.01 IEC EN 61131-2
COMMUNICATION			
Interfaces	RS485, RS232	RS485, RS232	RS485, RS232
Speed	1 Mbps (CANopen); 115.200 bps (ModBUS)	1 Mbps (CANopen); 115.200 bps (ModBUS)	1 Mbps (CANopen); 115.200 bps (ModBUS)
Protocols	CAN bus standard (2.0A, 2.0B); CANopen (profile CiA 401 v.2.01); ModBUS RTU (via RS485)	CAN bus standard (2.0A, 2.0B); CANopen (profile CiA 401 v.2.01); ModBUS RTU (via RS485)	CAN bus standard (2.0A, 2.0B); CANopen (profile CiA 401 v.2.01); ModBUS RTU (via RS485)
Communication time	2.5 ms	1.2 ms	1.2..2.5 ms
Special Functions	CANopen/ModBUS protocol switching	CANopen/ModBUS protocol switching	CANopen/ModBUS protocol switching
INPUT / OUTPUT DATA			
Number of Channels	24 inputs (with 16 Vdc self-powered common negative)	24 outputs	16 inputs, 8 outputs
Type	No. 24 digital inputs with EN 61131-2 polarity type 2, synq (pnp); No. 8 counters @ 32 bit, max freq. 10 kHz; Configuration increment, reset, preset; Overflow indication; Vmax=30V; pulse width 250µs; on/off delay <3ms; TPDO < 1ms	Nr.24 Mosfet outputs (open source with common negative); supply voltage 5..30 Vc; Imax = 0.5A (from terminals) / 25 mA (from connectors); on/of delay <1ms; RPDO < 1.25 ms	Nr.16 digital inputs with EN 61131-2 polarity type 2, synq (pnp); Nr.8 counters @ 32 bit, max freq. 10 kHz; Configuration increment, reset, preset; Overflow indication; Vmax=30V; pulse width 250µs; on/off delay < 3ms; TPDO < 1ms Nr.8 Mosfet outputs (open source with common negative); supply voltage 5..30 Vc; Imax=0.5A (from terminals) / 25 mA (from connectors); on/of delay < 1ms; RPDO <1.25 ms
CANOPEN REQUIREMENTS			
NMT	Slave	Slave	Slave
Error Control	Node Guarding	Node Guarding	Node Guarding
Node ID	Software, DIP-switch	Software, DIP-switch	Software, DIP-switch
Nr PDO	RX 5	RX 5	RX 5
PDO modes	Event triggered, synq (cyclic), synq (acyclic)	Event triggered, synq (cyclic), synq (acyclic)	Event triggered, synq (cyclic), synq (acyclic)
PDO linking	Yes	Yes	Yes
PDO mapping	Variable	Variable	Variable
Nr SDO Server	1	1	1
Emergency message	Yes	Yes	Yes
Application Layer	CiA 301 v4.02	CiA 301 v4.02	CiA 301 v4.02
Profile	CiA 401 v2.01	CiA 401 v2.01	CiA 401 v2.01
ORDER CODE			
Code	ZC-24DI	ZC-24DO	ZC-16DI-8DO
Software and Accessories	Pag. 51	Pag. 51	Pag. 51

CANOPEN I/O MODULES

	ZC-8AI	ZC-3AO	ZC-4RTD	ZC-8TC	ZC-SG
CANopen					
	8-input module CANopen (mA, V) analogs	**Module 3 analog outputs (mA, V) CANopen**	**Module 4 inputs from CANopen thermo resistance**	**Module 8 inputs from CANopen thermocouple**	**Module 1 input for CANopen load cell**
GENERAL DATA					
Power supply	10..40 Vdc / 19..28 Vac	10..40 Vdc / 19..28 Vac	10..40 Vdc / 19..28 Vac	10..40 Vdc / 19..28 Vac	10..40 Vdc / 19..28 Vac (strain gauge powered from the instrument)
Max absorption	5 W	2.5 W	1 W	1 W	2 W
Insulation	1.5 kVac (6 ways)	1.5 kVac (5 ways)	1.5 kVac (6 ways)	1.5 kVac (6 ways)	1.5 kVac (3 ways)
Inputs Protection	Against ESD up to 4 kV	Against ESD up to 4 kV	Against ESD up to 4 kV	Against ESD up to 4 kV	Against ESD up to 4 kV
Transducers power supply	Yes, 16V/22mA, max 8 sensors	-	-	-	Yes, 5Vdc, max 8 sensors
State indicators	Power supply Communication Inputs Error	Power supply Communication Outputs Error	Power supply Communication Inputs Error	Power supply Communication Inputs Error	Power supply Communication Inputs Error
Degree of protection	IP20	IP20	IP20	IP20	IP20
Operating temperature	-10..+65°C	-10..+65°C	-10..+65°C	-10..+65°C	-10..+65°C
Dimensions	17.5 x 100 x 112 mm	17.5 x 100 x 112 mm	17.5 x 100 x 112 mm	17.5 x 100 x 112 mm	17.5 x 100 x 112 mm
Weight	170 g	170 g	170 g	170 g	170 g
Casing	Nylon 6 loaded 30% glass fibre, class V0 self-extinguishing	Nylon 6 loaded 30% glass fibre, class V0 self-extinguishing	Nylon 6 loaded 30% glass fibre, class V0 self-extinguishing	Nylon 6 loaded 30% glass fibre, class V0 self-extinguishing	Nylon 6 loaded 30% glass fibre, class V0 self-extinguishing
Connections	Detachable 4-way screw terminals, 3.5 mm pitch IDC10 rear connector for DIN bar 3.5 mm stereo headphone jack for RS232 (COM)	Detachable 4-way screw terminals, 3.5 mm pitch IDC10 rear connector for DIN bar 3.5 mm stereo headphone jack for RS232 (COM)	Detachable 4-way screw terminals, 3.5 mm pitch IDC10 rear connector for DIN bar 3.5 mm stereo headphone jack for RS232 (COM)	Detachable 4-way screw terminals, 3.5 mm pitch IDC10 rear connector for DIN bar 3.5 mm stereo headphone jack for RS232 (COM)	Detachable 4-way screw terminals, 3.5 mm pitch IDC10 rear connector for DIN bar 3.5 mm stereo headphone jack for RS232 (COM)
Assembly	For guide 35 mm DIN 46277	For guide 35 mm DIN 46277	For guide 35 mm DIN 46277	For guide 35 mm DIN 46277	For guide 35 mm DIN 46277
Programming	DIP switch, Z-NET4, EASY SETUP, EDS, Codesys (IEC 61131)	DIP switch, Z-NET4, EASY SETUP, EDS, Codesys (IEC 61131)	DIP switch, Z-NET4, EASY SETUP, EDS, Codesys (IEC 61131)	DIP switch, Z-NET4, EASY SETUP, EDS, Codesys (IEC 61131)	DIP switch, Z-NET4, EASY SETUP, EDS, Codesys (IEC 61131)
Regulations and Standards	CE, EN 61000-6-4, EN 64000-6-2, EN 61010-1 CAN 2.0A, 2.0B CiA 401 v.2.01 IEC EN 61131-2	CE, EN 61000-6-4, EN 64000-6-2, EN 61010-1 CAN 2.0A, 2.0B CiA 401 v.2.01 IEC EN 61131-2	CE, EN 61000-6-4, EN 64000-6-2, EN 61010-1 CAN 2.0A, 2.0B CiA 401 v.2.01 IEC EN 61131-2	CE, EN 61000-6-4, EN 64000-6-2, EN 61010-1 CAN 2.0A, 2.0B CiA 401 v.2.01 IEC EN 61131-2	CE, EN 61000-6-4, EN 64000-6-2, EN 61010-1 CAN 2.0A, 2.0B CiA 401 v.2.01 IEC EN 61131-2
COMMUNICATION					
Interfaces	RS485, RS232	RS485, RS232	RS485, RS232	RS485, RS232	RS485, RS232
Speed	1Mbps (CANopen)	1Mbps (CANopen)	1Mbps (CANopen)	1Mbps (CANopen)	1Mbps (CANopen)
Protocols	CAN bus standard (2.0A, 2.0B); CANopen (profile CiA 401 v.2.01); ModBUS RTU (via RS485)	CAN bus standard (2.0A, 2.0B); CANopen (profile CiA 401 v.2.01); ModBUS RTU (via RS485)	CAN bus standard (2.0A, 2.0B); CANopen (profile CiA 401 v.2.01); ModBUS RTU (via RS485)	CAN bus standard (2.0A, 2.0B); CANopen (profile CiA 401 v.2.01); ModBUS RTU (via RS485)	CAN bus standard (2.0A, 2.0B); CANopen (profile CiA 401 v.2.01); ModBUS RTU (via RS485)
Communication time	< 28 ms	< 7 ms	< 28 ms	< 28 ms	< 7 ms
INPUT / OUTPUT DATA					
Number of Channels	8 outputs (torque isolators)	3 outputs	4 isolated RTD inputs, 2, 3, 4 wire measurement	8 inputs (thermocouple or mV measurement)	1 analog input, 1 digital input/1 digital output
Type	Voltage (0-10 V); current (0-20 mA)	Voltage (± 10 V); Current (0-20, 4-20 mA)	PT100 (EN 60751/A2-ITS90), -200..+650°C PT500 (EN 60751/A2-ITS90), -200..+750°C PT1000 (EN 60751/A2-ITS90), -200..+210°C Ni100 (EN 60751/A2-ITS90), -60..+250°C	Thermocouple: J,K,E,N,S,R,B,T; EN - 60584-1 (ITS-90) Span mV: -10.1 mV..+81.4 mV Input impudence: 10 MΩ	ANALOGICAL INPUT Differential measurement with 4 / 6 wires (±5 mV..±320 mV) Load cells (strain gauge) Power voltage 5 Vdc; impudence min 87 equivalent; sensitivity from ±1mV/V to ±64 mV/V DIGITAL INPUT Calibration tare and span (max 30 V) 1 opto-isolated digital output for stable or threshold weighing (max current 50 mA, max voltage 30 V)
Resolution	15 bit	14 bit	14 bit	15 bit	24 bit
Precision class	0.05%	0.01%	0.05%	0.1%	0.01%
Thermal drift	<100 ppm/°C	<100 ppm/°C	<50 ppm/°C	<100 ppm/°C	<25 ppm/°C
CANOPEN REQUIREMENTS					
NMT	Slave	Slave	Slave	Slave	Slave
Error Control	Node Guarding	Node Guarding	Node Guarding	Node Guarding	Node Guarding
Node ID	Software, DIP-switch	Software, DIP-switch	Software, DIP-switch	Software, DIP-switch	Software, DIP-switch
Nr PDO	RX 5	RX 5	RX 5	RX 5	RX 5
PDO modes	Event triggered, synq (cyclic), synq (acyclic)	Event triggered, synq (cyclic), synq (acyclic)	Event triggered, synq (cyclic), synq (acyclic)	Event triggered, synq (cyclic), synq (acyclic)	Event triggered, synq (cyclic), synq (acyclic)
PDO linking	Yes	Yes	Yes	Yes	Yes
PDO mapping	Variable	Variable	Variable	Variable	Variable
Nr SDO Server	1	1	1	1	1
Emergency message	Yes	Yes	Yes	Yes	Yes
Application Layer	CiA 301 v4.02	CiA 301 v4.02	CiA 301 v4.02	CiA 301 v4.02	CiA 301 v4.02
Profile	CiA 401 v2.01	CiA 401 v2.01	CiA 401 v2.01	CiA 401 v2.01	CiA 401 v2.01
ORDER CODE					
Code	ZC-8AI	ZC-3AO	ZC-4RTD	ZC-8TC	ZC-SG
Software and Accessories	P. 51	P. 51	P. 51	P. 51	P. 51

The technical data and the diagrams in this document are indicative and not binding.

CONTROLLERS

1

1.4

Series Z-PC

CONTROLLERS

CONTROLLERS / RTU IEC 61131 - STRATON

		Z-TWS11	Z-TWS4	Z-MINIRTU
				
MAIN CHARACTERISTICS	**integrated I/O**	2AI	1DI, 2DO, 1DI/DO	4DI, 2DO, 2AI
	CPU	ARM 32 bit @ 120 MHz	ARM9 32-bit @400MHz	ARM9 32-bit @400MHz
	Programming system	Straton, Z-NET4	Straton, Z-NET4	Straton, Z-NET4
	Flash	8 MB	1 GB	8 MB
	RAM	256 kB	64 MB	256 kB
	Program dimension	248 kB	4 MB	248 kB
	PLC variable memory	38 kB	4 MB	38 kB
CONNECTIVITY	**Modem / Router**	-	-	2G
	Industrial protocols	ModBUS RTU/TCP	ModBUS RTU/TCP	ModBUS RTU/TCP
	IT Protocols	http, ftp, smtp	http, ftp, smtp	http, ftp, smtp, ppp
	Energy Protocols	-	IEC 60870-101/104, IEC 61850 (opt.)	-
	Supporto VPN	-	VPN Box, OpenVPN	-
	Private APN Support	-	-	Yes
	Ethernet Ports	1	2	1
	Serial Ports	2	3	2
	USB Ports	1 (Micro)	1 (Host)	1 (Micro)
APPLICATIONS	**Up to 1,000 I/O**	-	x	-
	Up to 200 I/O	x	-	x
	Advanced automation	-	x	-
	Remote control / Remote support.	-	x	x
	Microautomation	x	-	-
	Energy Management	-	x	-
	Pumps control	-	-	-
	Gas/Steam Applications	-	-	-

The technical data and the diagrams in this document are indicative and not binding.

SENECA multifunctional controllers and RTUs with high connectivity (Z-TWS11, Z-MINIRTU, Z-TWS4, Z-PASS2-S, S6001-RTU) combine PLC tasks based on the Straton IEC 61131-1 softLPLC platform with web server functionality, datalogger , remote control, remote assistance and energy management (in compliance with the IEC 60870-101/104, IEC 61850 protocols). The controllers can be used with different architectures and configurations depending on the complexity of the system and on the required hardware requirements. SENECA also provides process controllers and flow computers for predefined scenarios such as pump control, pressurisation groups (S6001-PC) and fluid regulation (Z-FLOWCOMPUTER).

		PROCESS CONTROLLERS AND CALCULATORS	
Z-PASS2-S	**S6001-RTU**	**S6001-PC**	**Z-FLOWCOMPUTER**
			
2DI, 2DO, 2DI/DO	15DI+2DI, 8DO, 4AI, 2AO	15DI+2DI, 8DO, 4AI, 2AO	4DI, 3AI, 2DO
ARM9 32-bit @400MHz	ARM9 32-bit @400Mhz	ARM9@32bit 400 MHz	ARM 32 bit @ 120 MHz
Straton, Z-NET4	Straton, Z-NET4	HMI	HMI, EASY
1 GB	1 GB	1 GB	8 MB
64 MB	64 MB	64 MB	256 kB
4 MB	4 MB	-	-
4 MB	4 MB	-	-
3G+	3G+	3G+	-
ModBUS RTU/TCP	ModBUS RTU/TCP	ModBUS RTU/TCP(Slave)	ModBUS RTU/TCP(Slave)
http, ftp, smtp, ppp	http, ftp, smtp, ppp	http, ftp, smtp, ppp	http, ftp
IEC 60870-101/104, IEC 61850 (opt.)	IEC 60870-101/104, IEC 61850 (opt.)	-	-
VPN Box, OpenVPN	VPN Box, OpenVPN	VPN Box, OpenVPN	-
Yes	Yes	Yes	-
2	1	1	1
3	3	1	1
1 (Host)	1 (Host)	1 (Host)	1 (Micro)
x	x	-	-
-	-	-	-
x	x	-	-
x	x	-	-
-	-	-	-
x	x	-	-
-	-	x	-
-	-	-	x

The technical data and the diagrams in this document are indicative and not binding.

Z-TWS11

MULTIFUNCTION CONTROLLER IEC 61131, EMBEDDED PLC STRATON WITH INTEGRATED I/O

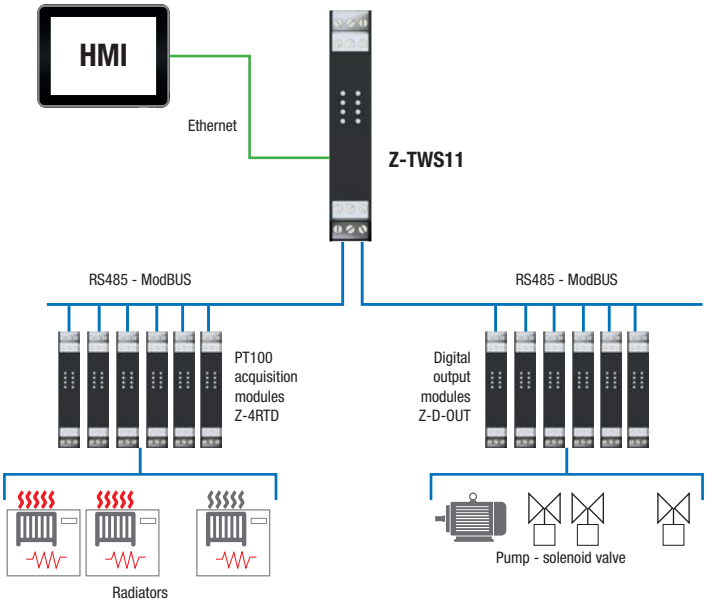
straton

TECHNICAL DATA

GENERAL DATA	
Power supply	11..40 Vdc; 19..28 Vac
Insulation	1,500 Vac
State Indicators	Power supply Serial communication Ethernet SD card
Degree of protection	IP20
Operational Temperature	-10..+50°C
Dimensions (lxhxp)	17.5 x 100 x 112 mm
Casing	Nylon 6 with 30% glass fibre self-extinguishing class V0
Connections	Removable terminals, max conductor size 2.5 mm^2
Assembly	DIN Guide 35 mm (IEC EN 60715)
COMMUNICATION	
Ethernet	No. 1 Ethernet port 10/100 Mbps (RJ45)
Serial	Nr 1 RS232 / RS485 switchable Nr. 1 RS485
USB	Nr. 1 lateral connector USB
Industrial protocols	RTU ModBUS, TCP-IP ModBUS, custom protocols
Network protocols	PPP, http, Ftp, Smtp
INPUT DATA	
Channels / Type	Nr. 1 analog inputs 0-20 mA, 0-30 Vdc
PROCESSOR / MEMORY	
Processor	ARM, 32 bit
RAM / FeRAM	256 kB / 256 byte
Slot Micro SD	SD Card up to 32 GB
CONFIGURATIONS, REGULATIONS	
System software	ZNET4 / Straton
Web server	-
Datalogger	Yes, integrated
PLC programming	IEC 61131 (Straton) dedicated libraries
Certifications	EC
Regulations	EN 61000-6-4, EN 61000-6-2

APPLICATION EXAMPLE

TEMPERATURE REGULATION SYSTEM WITH HYSTERESIS LOOP



ORDER CODE

Code	Description
Z-TWS11	IEC 61131 multifunction controller, with integrated I/O
SOFTWARE	
STRATON-D-USB	Straton activation key for IEC 61131 controllers
STRATON-IDE256	Straton development environment 256 tag with USB activation key
STRATON-IDE512	Straton development environment 512 tag with USB activation key
SSP	SENECA Straton Package - CPU Seneca Installer suite (supplied)
STRATON-WB	Straton workbench IEC 61131 free editor
Z-NET4	I/O systems configurator and IEC 61131 controllers
ACCESSORIES	
MSD	Micro SD memory card with adapter
Z-PC-DIN2-17.5	Support for rapid assembly on DIN guide 2 slot pitch 17.5 mm
Z-PC-DINAL2-17.5	Support for rapid assembly on DIN guide head + 2 slot pitch 17.5 mm
Z-POWER-115-15VA	Transformer with DIN guide 19 Vac, 115 / 15 VA with thermofuse
Z-POWER-230-15VA	Transformer with DIN guide 19 Vac, 230 / 15 VA with thermofuse
Z-POWER-230-25VA	Transformer with DIN guide 19 Vac, 230 / 25 VA with thermofuse
Z-SUPPLY	Power supply switching monophase 24V @ 1.5 A
CABLES	
CE-RJ45-RJ45-C	Crossed Ethernet cable (RJ45 / RJ45)
CE-RJ45-RJ45-R	Straight Ethernet cable (RJ45 / RJ45)
CS-DB9F-CLAMP	Serial cable RS485 (DB9F / terminals)
CS-DB9F-TIP-V	Serial cable RS485 (DB9F / tips)
CS-DB9M-TIP-V	Serial cable RS485 (DB9M / tips)
CU-A-MICROB	Cable plug USB-A Micro USB-B 5 P

Z-TWS4

MULTIFUNCTION CONTROLLER IEC 61131 STRATON/LINUX

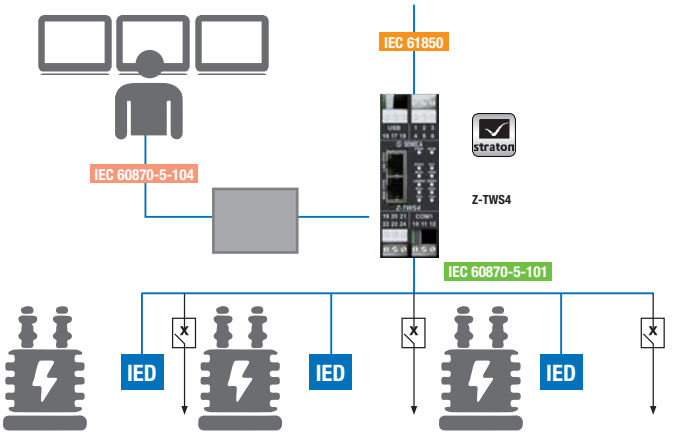
straton

NEW CHARACTERISTICS

TECHNICAL DATA

GENERAL DATA	
Power supply	11..40 Vdc; 19..28 Vac
Max absorption	Max 6 W
Insulation	Max 1.500 V
State indicators	Power Supply Ethernet Communication Ethernet Data Transmission Serial Data Transmission
Degree of protection	IP20
Operating temperature	-20..+65°C
Dimensions	35 x 100 112 mm
Weight	250 g
Casing	Nylon 6 with 30% glass fibre self-extinguishing class V0
Hot swapping	Yes
Connections	Screw removable terminals pass 5.08 IDC10 connector for DIN guide RJ45 - 4/54, RJ45, USB, mini USB Plug-in: micro SD card
Installation	DIN Guide 35 mm (IEC/EN 60715)
INPUT / OUTPUT DATA	
Digital Inputs	Nr. 1DI, max current 20 mA, current absorbed 3 (6) mA @ 12 (34) Vdc
Digital Outputs	Nr.2 DO, Vext 10-24 Vdc, max current 200mA, outputs protected against short circuit and overheating
Digital Inputs/Outputs	Nr. 1DI/DO
COMMUNICATION	
Ethernet Ports	Nr. 2 Ethernet 10/100 Mbps (RJ45)
Serial ports	Nr. 1 RS232/RS485 Nr.2 RS485
USB Ports	Nr. 1 Micro USB Nr 1 USB host
Industrial protocols	TCP-IP ModBUS, RTU ModBUS, custom protocols
Network protocols	PPP, HTTP, FTP client/server, Client/Server custom protocols ModBUS , OpenVPN
Energy Protocol	IEC 60870-101/104, IEC 61850
PROCESSOR / MEMORY	
Processor	ARM9 32-bit @ 400 Mhz
Flash Memory (dati)	1 GB
RAM	64 MB
FeRAM	4 kB
Slot Micro SD	SD card up to 32GB
CONFIGURATIONS	
Software	ZNET4 / Straton
Web Editor	Yes, integrated
Datalogger	Yes, integrated
PLC programming	IEC 61131 (Straton) dedicated libraries
STANDARD	
Certifications	EC
Regulations	EN 61000-6-4, EN 61000-6-2, EN 60950, IEC 61131

APPLICATION EXAMPLE



ORDER CODE

Code	Description
CONTROLLERS	
Z-TWS4-L-IO	IEC 61131 multifunction controller, integrated I/O, Linux based, OEM version
Z-TWS4-S-IO	IEC 61131 multifunction controller, integrated I/O, Straton workbench, OEM version
Z-TWS4-E-IO	IEC 61131 multifunction controller, integrated I/O, Straton workbench, OEM version, energy protocol
SOFTWARE	
OPC-DA-SERVER	Communication and data exchange software OPC Server WITH unlimited I/O tags (hardware licence)
OPC-UA-SERVER	Communication and data exchange software OPC Server UA I/O unlimited tags (hardware licence)
STRATON-D-USB	Straton activation key for IEC 61131 controllers
STRATON-IDE256	Straton development environment 256s tag with USB activation key
STRATON-IDE512	Straton development environment 512 tags with USB activation key
STRATON-IDEUN	Straton development environment unlimited tags with USB activation key
STRATON-870S	Activation licence IEC 60870-5-101/104 Slave
STRATON-870S-850	Activation licence IEC 60870-5-101/104 Slave + Licence IEC 61850 Client / Server
SSP	SENECA Straton Package - CPU Seneca Installer suite (supplied)
STRATON-UPGRADE1	Straton upgrade from 256 to 512 tags
STRATON-UPGRADE2	Straton upgrade from 512 to unlimited tags
STRATON-UPGRADE3	Straton upgrade from 256 to unlimited tags
STRATON-WB	Straton workbench IEC 61131 free editor (supplied)
ACCESSORIES	
Z-SUPPLY	Power supply switching monophase 24V @ 1.5 A
Z-PC-DIN1-35	Support for rapid assembly on DIN guide 1 slot format pitch 35 mm
Z-PC-DINAL1-35	Support for rapid assembly on DIN guide head + 1 slot pitch 35 mm
MSD	Micro SD memory card with adapter
USB-SW-KEY	USB key with software, libraries, platforms and development environments, manuals for multifunction controllers

Z-MINIRTU

GSM/GPRS REMOTE CONTROL EQUIPMENT, WITH INTEGRATED STRATON IO

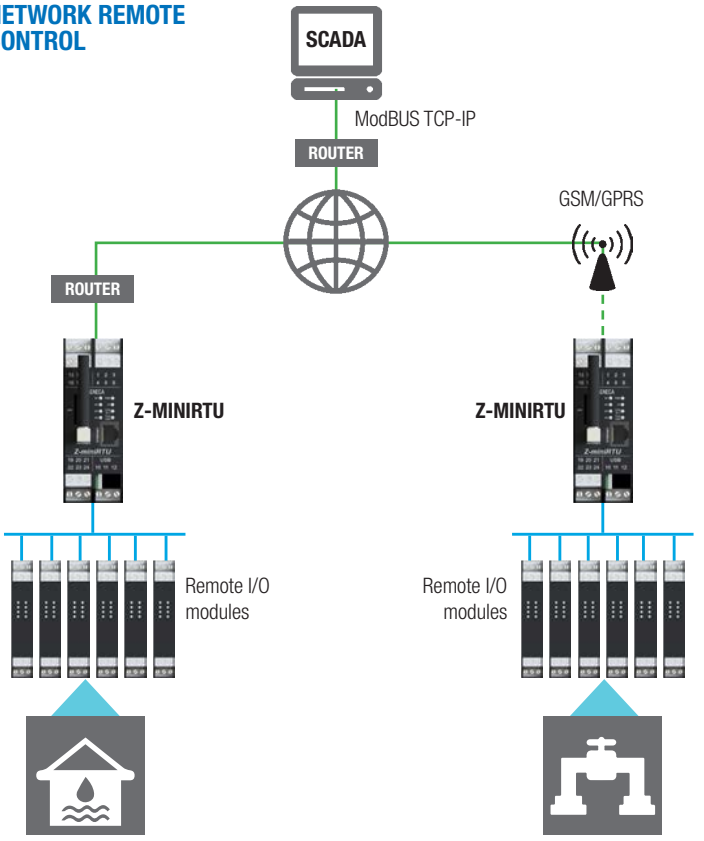
straton

TECHNICAL DATA

GENERAL DATA	
Power supply	11..40 Vdc; 19..28 Vac
Max absorption	6.5 W
UPS	Integrated (autonomy approximately 1 hour)
Insulation	3,000 Vac (power supply/outputs); (1,500 Vac (power supply / other circuits)
State Indicators	Power supply Serial communication Ethernet SD card Digital inputs state Modem state
Degree of protection	IP20
Operational Temperature	-10..+50°C
Dimensions (lxhxp)	35 x 100 x 112 mm
Casing	Nylon 6 with 30% glass fibre self-extinguishing class V0
Connections	Removable terminals, max conductor size 2.5 mm^2
Assembly	DIN Guide 35 mm (IEC EN 60715)
COMMUNICATION	
Ethernet	No. 1 Ethernet port 10/100 Mbps (RJ45)
Serial	Nr 1 RS232 / RS485 switchable Nr. 1 RS485
USB	Nr. 1 lateral connector USB
Modem	GSM, GPRS (quad band)
Industrial protocols	ModBUS TCP-IP (Client/Server), ModBUS RTU (Master/ Slave), custom protocols
Network protocols	PPP, HTTP Post, FTP Client, SMTP Client, NTP Client
INPUT DATA	
Channels / Type	Nr 4 digital inputs PNP, NPN (max voltage 30 Vdc) Nr. 1 analog inputs 0-20 mA, 0-30 Vdc
OUTPUT DATA	
Channels / Type	No. 1 SPDT relay outputs, max 2A 250 Vac
PROCESSOR / MEMORY	
Processor	ARM 32 bit @ 120 MHz
O.S.	Real-Time multitasking
FeRAM (variable retentive)	Max 4 kB
Program memory	Max 248 kB
Variables memory	Max 38 kB
Slot Micro SD	SD Card up to 32 GB
CONFIGURATIONS	
System software	Z-NET4 / Straton
Web Server	-
Datalogger	Integrated
PLC programming	IEC 61131 (Straton) dedicated libraries
STANDARD	
Certifications	EC
Regulations	EN 61000-6-4, EN 61000-6-2, EN 61010, EN 301511, EN 301489-1, EN 301489-7, EN 60950

APPLICATION EXAMPLE

NETWORK REMOTE CONTROL



ORDER CODE

Code	Description
Z-MINIRTU	GSM / GPRS remote control equipment, with integrated Straton IO
SOFTWARE	
STRATON-D-USB	Straton activation key for IEC 61131 controllers
STRATON-IDE256	Straton development environment 256 tags with USB activation key
STRATON-IDE512	Straton development environment 512 tags with USB activation key
STRATON-SP	Straton SENECA Package - CPU Seneca Installer suite
STRATON-WB	Straton workbench IEC 61131 free editor
Z-NET4	I/O systems configurator and IEC 61131 controllers
ACCESSORIES	
MSD	Micro SD memory card with adapter
Z-PC-DIN1-35	Support for rapid assembly on DIN guide 1 slot pitch 35 mm
Z-PC-DINAL1-35	Support for rapid assembly on DIN guide head + 1 slot pitch 35 mm
Z-POWER-115-15VA	Transformer with DIN guide 19 Vac, 115 / 15 VA with thermofuse
Z-POWER-230-15VA	Transformer with DIN guide 19 Vac, 230 / 15 VA with thermofuse
Z-POWER-230-25VA	Transformer with DIN guide 19 Vac, 230 / 25 VA with thermofuse
Z-SUPPLY	Power supply switching monophase 24V @ 1.5 A
CABLES	
CE-RJ45-RJ45-C	Crossed Ethernet cable (RJ45 / RJ45)
CE-RJ45-RJ45-R	Straight Ethernet cable (RJ45 / RJ45)
CS-DB9F-CLAMP	Serial cable RS485 (DB9F / terminals)
CS-DB9F-TIP-V	Serial cable RS485 (DB9F / tips)
CS-DB9M-TIP-V	Serial cable RS485 (DB9M / tips)
CU-A-MICROB	Cable plug USB-A Micro USB-B 5 P

The technical data and the diagrams in this document are indicative and not binding.

Z-PASS2-S

STRATON REMOTE CONTROLLER, INTEGRATED I/O, MODEM 3G+/4G*, ETHERNET ROUTER, GPS

straton

NEW CHARACTERISTICS

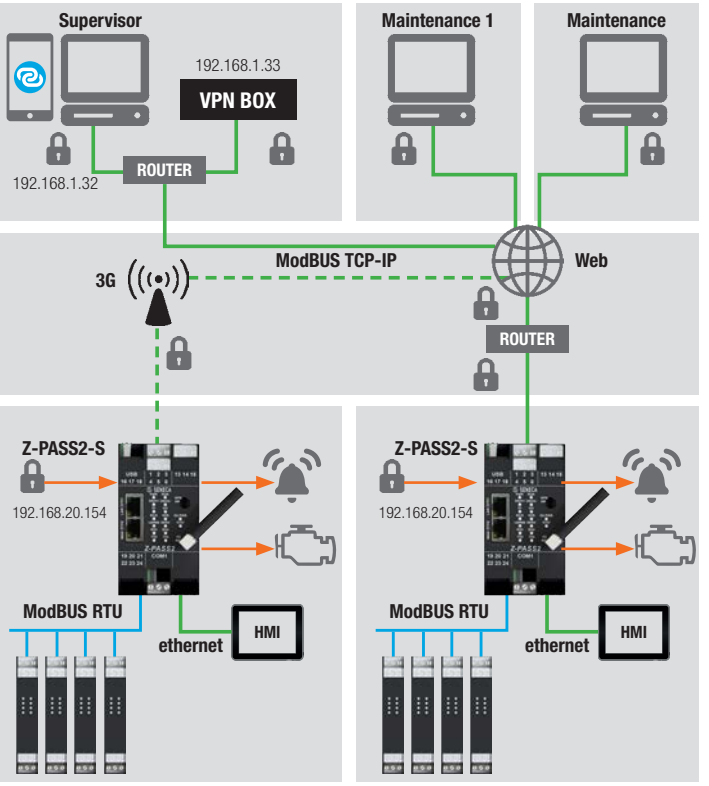
TECHNICAL DATA

GENERAL DATA	
Power supply	19..40 Vdc; 19..28 Vac
Absorption	Typical 4 W @ 24Vac, Max 6 W
Insulation	1500 Vac
State indicators	Power / Ready to use / Inputs / outputs state Remote Connection (RCD) / VPN Connection (VPN) LAN/WAN (Ethernet mode) / SERV (VPN BOX Service) Rx-Tx serial communications / Link and Ethernet traffic
Degree of protection	IP20
Operating temperature	-20°C..+65°C
Dimensions (lxhxp)	52.5 x 100 x 112 mm
Weight	280 g
Casing	Glass loaded PA6 black plastic
Installation	For guide 35 mm IEC EN 60715
COMMUNICATION	
Ethernet Ports (ETH1, ETH2)	Nr. 2 Fast Ethernet ports 10/100Tx on RJ45 front
Serial Ports (COM1, COM2, COM4)	Nr. 1 serial port RS232 / 485 switchable via software, max baud rate 115kbps on connector Nr. 1 RS485 port, max baud rate 115kbps on connector IDC10 for bus and terminals Nr. 1 RS485 port, max baud rate 115kbps on terminals
USB Ports	Nr. 1 USB host port on side connector type A
Modem / Router 3G+ Worlwide*	GSM /GPRS/EDGE Quad-band: GSM 850 MHz, GSM 900 MHZ DCS 1800 MHz, PCS 1900 MHz 850-900-1800-1900 MHZ UMTS/HSPA+ Penta-BAND : WCDMA 2100/900, 2100/850, 1900/850 MHZ GNSS: 30 Channels: 16 GPS channels and 14 GLONASS channels
Modem / Router 4G – LTE*	4G/LTE Model (Europe, Africa, Middle East, Korea, Thailand, India) GSM/GPRS/EDGE Dual-band: 1800/900 MHz UMTS/HSPA+ Tri-Band: WCDMA 2100/850/900 MHz 4G LTE BAND 6-Band: 2100/1800/ 850/ 2600/ 900/ 800 MHz GNSS: GPS/GLONASS/BeiDou/Galileo/QZSS of up to 55 channels
Industrial protocols	ModBUS TCP-IP Client/Server, ModBUS RTU Master/Slave
IT Protocols	FTP server, SFTP server, HTTP server, HTTPS server, OpenVPN
Optional energy protocols	IEC 60870-101/104, IEC 61850
Nr. Max client VPN	Point-To-Point: 1; Single LAN: 496
No. Max simultaneous TCP client connections	32
Operating mode	MOdBUS Gateway, 3G+/Ethernet Router, VPN, Single LAN Remote Control, Point-to-Point Remote Assistance, LAN/WAN, Ethernet Switch, Layer 2 - Industrial Ethernet (Point-To-Point Mode)
CPU AND MEMORY	
Processor	ARM 32 bit
Flash Memory (data)	1 GB
RAM	64 MB
FeRAM	4 kB
Slot Micro SD	Yes, Max 32 GB
I/O	
Pre-wired	1DI / 1DO VPN Connection
For generic use	1 DI / 1 DO
Mixed configurable	2 DI/DO
SAFETY	
Remote access block	Mechanical, interblock Digital Input
LAN/WAN networks disengagement	Yes
Data Encryption	128bit
Data Authentication	SHA1 160bit
Safety protocols	OpenVPN, SSL, HTTPS Server
SETTINGS & SOFTWARE	
Tools and packets	Web Server, VPN Client Communicator Seneca Discovery Device, Configurator Z-NET4 Straton programming, Log Factory, Web Factory
STANDARD	
Marking / Certifications	EC
Regulations	TSI EN 301489-7, EN 61000-6-4, EN 61000-6-2, EN 301511, EN 301489-1, EN 301489-7, IEC / EN 60950

*in alternativa

The technical data and the diagrams in this document are indicative and not binding.

APPLICATION EXAMPLE



ORDER CODE

Code	Description
ROUTER / GATEWAY	
Z-PASS2-S-IO	Straton advanced control unit with integrated VPN, 2DI, 2DO, 2DI/DO, worldwide modem 3G+/Ethernet Router, GPS
Z-PASS2-S-IO-E	Straton advanced control unit with integrated VPN, 2DI, 2DO, 2DI/DO, worldwide modem 3G+/Ethernet Router, GPS, energy protocol
Z-PASS2-SIO4GEU	Straton advanced control unit with integrated VPN, 2DI, 2DO, 2DI/DO, 4G- EU Ethernet Router, GPS
Z-PASS2-SIOE4GEU	Straton advanced control unit with integrated VPN, 2DI, 2DO, 2DI/DO, 4G- EU/ Ethernet Router, GPS, energy protocols
VPN PLATFORM	
VPN BOX	LET'S - Server VPN optimised for connections Point-to-Point / Single LAN
VPN BOX VM	LET'S - Virtual Machine Server VPN optimised for connections Point-to-Point / Single LAN
VPN BOX-D	LET'S - Service on test on VPN BOX Point-to-Point valid for 30 days max 2 device
VPN BOX VM-D	LET'S - Virtual Machine Server VPN optimised for connections Point-to-Point / Single LAN max 2 device
VPN CC	LET'S - VPN Client Communicator, Remote Access Management software
VPN CC APP	VPN CC mobile app version
TOOL SOFTWARE	
Log Factory	Display tool and datalogger data archiving Z-GPRS3, Z-LOGGER3, Z-UMTS
SDD	SENECA Discovery Device, IP scanner for Z-KEY, Z-PASS1, Z-PASS2
SESC	SENECA Ethernet to Serial Connection for Z-KEY, Z-PASS1, Z-PASS2
Straton	Environment and development licences IEC 61131 (www.seneca.it or supporto@seneca.it for detailed information)
TEMP-TAG-Z-PASS	Gateway mode tag management Excel Template - Z-PASS-1/2/2S
Web Factory	HMI / Web Editor integrated in Z-NET4
Z-NET4	Configurator I/O systems and Z-PC series controller
ACCESSORIES	
A-GPS-SMA	Antenna GPS with SMA coupling
A-GSM	External antenna GSM dual band swing cable 3.2 m
A-GSM-QUAD-N	Omnidirectional external antenna 4G/WI-FI, FME, cable 3 m
CS-TIP-MEF-PH	Serial communication cable (Tips / 4-way female connector) for Z-TWS4, Z-PASS1/2
CSDB9M-MEF-PH	Serial communication cable (DB9M / MEF PH) 3 wires 1.5 MT
CE-RJ45-RJ45-R	Straight Ethernet cable (RJ45 / RJ45) 1.5
MSD	Micro SD memory card with adapter
Z-PC-DINAL2-52.5	Support for rapid assembly on DIN guide head + 3 slot pitch 17.5 mm

S6001-RTU

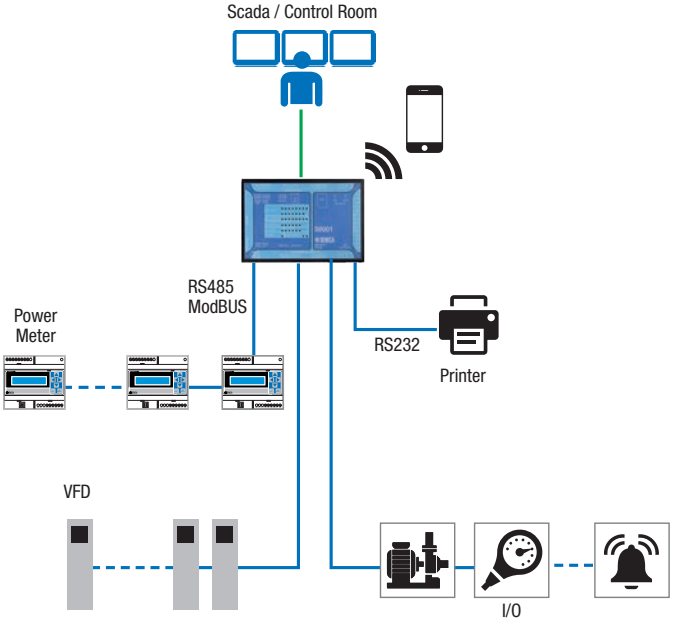
ALL-IN-ONE RTU WITH INTEGRATED I/O, 3G MODEM AND STRATON PROGRAMMING SYSTEM

straton

TECHNICAL DATA

GENERAL DATA	
Power supply	24 Vac/dc ±15%
Insulation	1,500 Vac
State Indicators	Power supply Serial communication Ethernet PLC state
Degree of protection	IP20
Operational Temperature	-20..+50°C
Dimensions (lxhxp)	190 x105 x 60 mm
Casing	Black aluminium
Connections	Removable terminals, max conductor size 2.5 mm^2
Assembly	DIN Guide 35 mm (IEC EN 60715)
COMMUNICATION	
Ethernet	No. 1 Ethernet port 10/100 Mbps (RJ45)
Serial	Nr 1 RS232 Nr2 RS485
USB	Nr 1 USB host; Nr 1 USB micro USB
Modem	Modem UMTS, HDSPA (dual band), EDGE, GPRS, GSM (quad band)
Industrial protocols	RTU ModBUS, TCP-IP ModBUS, custom protocols
Energy protocol	IEC 60870-101/104, IEC 61850
Network protocols	PPP, http, Ftp, Smtp, Open VPN
INPUT DATA	
Channels / Type	Nr 15 Digital Inputs Nr. 2 Digital Inputs (thresholds) Nr. 4 Analogic Outputs 0..20 mA
OUTPUT DATA	
Channels / Type	No. 8 SPDT relay outputs 3A - 250 Vac Nr. 1 Analogic Outputs 0..10 mA Nr. 1 Analogic Output 0..20 mA
PROCESSOR / MEMORY	
Processor	ARM 32 bit @400 MHz
Flash Memory (data)	1 GB
RAM / FeRAM	64 MB / 4 kB
Slot Micro SD	SD Card up to 32 GB
CONFIGURATION	
System software	Z-NEt4/Straton
Web server / Datalogger	Yes, integrated with Web Editor
PLC programming	IEC 61131 (Straton) dedicated libraries
STANDARD	
Certifications	EC
Regulations	EN 61000-6-4, EN 61000-6-2, EN 60950, EN 301511, EN 301489-1, EN 301489-7

APPLICATION EXAMPLE



ORDER CODE	
Code	**Description**
S6001-RTU	All-in-one RTU with integrated I/O, 3G+ modem and Straton programming system
SOFTWARE	
OPC-DA-SERVER	Communication and data exchange software OPC Server WITH unlimited I/O tags (hardware licence)
OPC-UA-SERVER	Communication and data exchange software OPC Server UA I/O unlimited tags (hardware licence)
STRATON-D-USB	Straton activation key for IEC 61131 controllers
STRATON-IDE256	Straton development environment 256 tags with USB activation key
STRATON-IDE512	Straton development environment 512 tags with USB activation key
STRATON-IDEUN	Straton development environment unlimited tags with USB activation key
STRATON-870S	Activation licence IEC 60870-5-101/104 Slave
STRATON-870S-850	Activation licence IEC 60870-5-101/104 Slave + Licence IEC 61850 Client / Server
SSP	SENECA Straton Package - CPU Seneca Installer suite (supplied)
STRATON-UPGRADE1	Straton upgrade from 256 to 512 tags
STRATON-UPGRADE2	Straton upgrade from 512 to unlimited tags
STRATON-UPGRADE3	Straton upgrade from 256 to unlimited tags
STRATON-WB	Straton workbench IEC 61131 free editor (supplied)
STRATON-IDE	IEC 61131 Straton development activation key
ACCESSORIES	
CE-RJ45-RJ45-C	Crossed Ethernet cable (RJ45 / RJ45) 1.5 MT
CE-RJ45-RJ45-R	Straight Ethernet cable (RJ45 / RJ45) 1.5
A-GSM	External antenna GSM dual band swing cable 3.2 m
A-GSM-DIR-5M	Compact directional antenna GSM-DECT-UMTS SMA-M, cable 5 m
A-GSM-OMNIDIR	Omnidirectional GSM-UMTS-WIFI antenna, 5.1 dB, SMA-M. cable 5 m
A-GSM-OMNIDIR-10	Omnidirectional GSM-UMTS-WIFI antenna, 5.1 dB, SMA-M. cable 10 m
A-GSM-QUAD-N	GSM SMA-M quadband external antenna, cable 4 m

The technical data and the diagrams in this document are indicative and not binding.

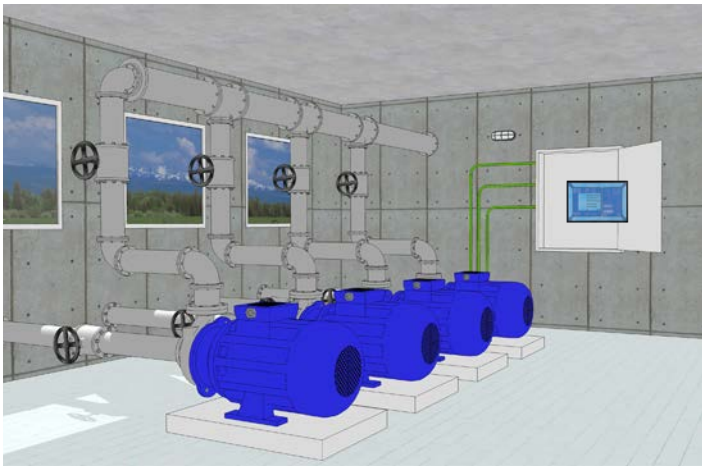
S6001-PUMP CONTROLLER

PUMP CONTROLLER WITH INTEGRATED I/O, MODEM 3G+, HMI 7”

TECHNICAL DATA

GENERAL DATA	
Alimentazione AC/DC	24 Vac /dc
Insulation	1,500 Vac
State indicators	Power supply Serial communication Ethernet Communication Gsm-Umts signal level Digital I/O State
Degree of protection	IP20
Operational Temperature	-20..+50°C
Dimensions	190 x105 x 60 mm
Casing	Aluminium, black
Connections	Removable terminals, max conductor size 1.5 mm^2
Assembly	DIN Guide 35 mm (IEC EN 60715)
COMMUNICATION	
Ethernet	Nr 1 port 10/100 Ethernet 10/100Tx - RJ45
Serial ports	Nr 2 RS485; Nr 1 RS232
USB	Nr 1 USB host; Nr 1 USB micro USB
Modem	UMTS, HSDPA (dual band) or EDGE,GPRS,GSM (quad band)
INPUT DATA	
Channels	No. 15 digital inputs Nr. 4 analogic outputs 0..20 mA Nr. 2 digital inputs for level control
OUTPUT DATA	
Channels	No. 8 SPDT relay outputs, 5A - 250 Vac Nr. 1 analogic output 0..20 mA Nr. 1 analogic outputs 0..10 mA Nr. 1 12V/50mA output for alarms
CPU / MEMORIES	
CPU	ARM 32 bit
Flash Memory (data)	1 GB
RAM	64 MB / 4 kB
Slot Micro SD	Yes with support up to SD card external 32 GB
HMI supplied	
Power supply	24 Vdc
Display	7” TFT LED backlit 800x480 pixel (WVGA), 64K colours Resistive touchscreen
Ports	Ethernet, USB
CONFIGURATION	
Configuration	Scenario can be set via HMI
Web Server	Yes
STANDARD	
Certifications	EC
Regulations	EN 301489-1, EN 301511, EN 301 489-7, EN61000-6-4, EN64000-6-2, EN60950

APPLICATION EXAMPLE



ORDER CODE

Code	Description
S6001-PC	Pump controller with integrated I/O, 3G+ modem, HMI 7”
ACCESSORIES	
CE-RJ45-RJ45-C	Crossed Ethernet cable (RJ45 / RJ45) 1.5 MT
CE-RJ45-RJ45-R	Straight Ethernet cable (RJ45 / RJ45) 1.5
A-GSM	External antenna GSM dual band swing cable 3.2 m
A-GSM-DIR-5M	Compact directional antenna GSM-DECT-UMTS SMA-M, cable 5 m
A-GSM-OMNIDIR	Omnidirectional GSM-UMTS-WIFI antenna, 5.1 dB, SMA-M. cable 5 m
A-GSM-OMNIDIR-10	Omnidirectional GSM-UMTS-WIFI antenna, 5.1 dB, SMA-M. cable 10 m
A-GSM-QUAD-N	GSM SMA-M quadband external antenna, cable 4 m
MSD	Micro SD memory card with adapter
Z-D-IO	Control module 6 digital inputs, 2 digital outputs/ RS485 ModBUS RTU

Z-FLOWCOMPUTER

FLOW COMPUTER MULTIFUNCTION

TECHNICAL DATA

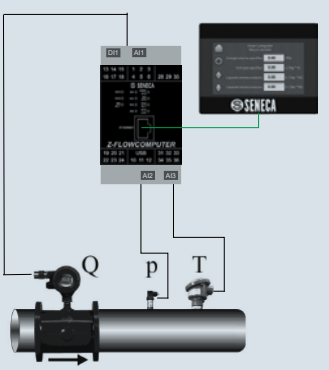
GENERAL DATA	
Power supply	11..40 Vdc; 19..28 Vac
Absorption	Max 4 W
Insulation	1,500 Vac
State indicators	Power supply Serial communication Link and Ethernet transmission SD Card Digital I/O State
Calculation standard	IAPWS IF-97 AGA8 GROSS METHOD 2 AGA8-92DC (ISO 12213-2), SGERG88 (ISO 12213-3) Redlich-Kwong (RK) Formula Redlich-Kwong-Soave (RKS) Formula Law of ideal gases
Degree of protection	IP20
Operational Temperature	-10..+55°C
Dimensions	52.5 x 100 x 112 mm
Casing	Nylon 6 preloaded 30% fibre glass, self-extinguishing class V0
Connections	Detachable 3-way terminals, 5 mm pitch
Assembly	DIN Guide 35 mm (IEC EN 60175)
COMMUNICATION	
Ethernet	Nr.1 port 10/100 Ethernet 10/100Tx (RJ45)
Serial	Nr. 1 port RS485 baud rate 115k on terminals
USB	Nr. 1 Micro USB port on side connector
Protocols supported	ModBUS RTU, ModBUS TCP-IP, http, ftp
INPUT DATA	
Channels	Nr. 1 PNP digital input, (max voltage 30Vdc) Nr. 2 analog inputs 0.20 mA / 0. 30 Vdc@16bit Nr. 1 universal input V / mA / RTD
OUTPUT DATA	
Channels	Nr. 2 SPDT relay outputs max 2A 250 Vac Nr. 1 analogic output V – mA @14 bit
PROCESSOR / MEMORY	
CPU	ARM 32 bit
Flash Memory (data)	1MB+2MB
RAM	256 kB
FeRAM	256 byte
Slot Micro SD (ext. Memory)	Yes, max 32 GB
HMI	
Power supply	24 vdc
Display	4,3", 480x272, ARM 600 MHz, TFT 16 million colours
RAM	128 MB
Communication	N.1 USB host 2.0 N.1 Ethernet
Dimensions	128x102x32 mm
CONFIGURATION	
Softwre	EASY FLOW COMPUTER
Webserver	-
Datalogger	Yes
STANDARD	
Certifications	EC
Regulations	EN 61000-6-4, EN 61000-6-2, EN 61000-1

The technical data and the diagrams in this document are indicative and not binding.

MEASUREMENT APPLICATIONS

MASS AND STEAM CALCULATION

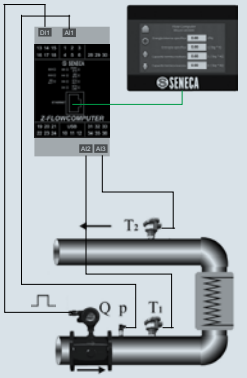
Water
Vapour



The purpose of this application is to measure the quantity of heat and of the mass of fluid flowing through the pipeline. The measuring of flow, temperature measurement and pressure are required for measurement on superheated steam. For measuring on saturated steam, flow and pressure or temperature measurements are sufficient (only one of the two). For measurement on water only the flow and temperature are required.

STEAM-WATER THERMAL DIFFERENTIAL

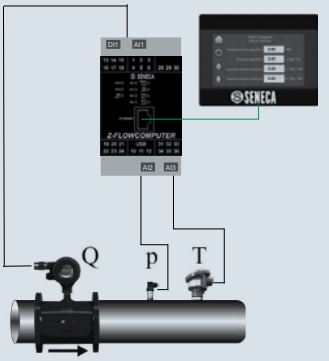
Water
Vapour



This application aims to measure the power and energy exchanged with another system. Z-FLOWCOMPUTER calculates the power in transit in the delivery pipe and in the return pipe and makes the difference; the result is the exchanged thermal power.

NATURAL / REAL GAS VOLUME CORRECTOR

Gas



The purpose of this application is to offset the flow rate and the volume correction of a gas with reference to the base conditions of temperature (Tb) and pressure (Pb), starting from measurement at the working conditions Q, P and T. To create the offsets the standard calculation algorithms referred to in the table below are used.

ORDER CODE

Code	Description
Z-FLOWCOMPUTER	Flow Computer for the calculation of flow and energy of liquids, gases and steam
ACCESSORIES	
MSD	Micro SD memory card with adapter
CE-RJ45-RJ45-R	Straight Ethernet cable (RJ45 / RJ45) 1.5
CS-DB9F-CLAMP	RS485 serial cable (DB9F / terminals) 1.5 MT
CU-A-MICROB	Cable plug USB-A Micro USB-B 5 P
SOFTWARE	
EASY FLOW COMPUTER	Z-FLOWCOMPUTER management software downloadable from www.seneca.it

HMI

1

1.5

VISUAL - Touchscreen operator panel with TFT LCD display

The **VISUAL touchscreen operator panels** are suitable to meet every application need, from small automations to the control of complex industrial processes.
With 4.3", 7", 9.7", 10.1", 15' display and widescreen format they allow more information to be displayed compared to a traditional display, ensuring at the same time the containment of external dimensions.
The operator panels can be freely oriented horizontally or vertically, depending on the requirements of the application.
The displays are TFT up to 16 million colours with LED backlight and high resolution.

TECHNICAL DATA

NEW PRODUCTS

	VISUAL1E	VISUAL2E	VISUAL3	VISUAL4
				
	4.3" HMI touchscreen Terminal colour widescreen	7" HMI touchscreen Terminal colour widescreen	4.3" HMI touchscreen colour widescreen, Ethernet interface	7" HMI touchscreen Terminal colour widescreen, Ethernet interface
DISPLAY				
Sample	4.3" TFT LCD	7" TFT LCD	4,3 " TFT LCD	7" TFT LCD
Resolution	480x272	800x480	480x272	800x480
Format	16:9	16:9	16:9	16:9
Brightness	500 cd/m2	350 cd/m2	500 cd/m2	350 cd/m2
Contrast	500:1	500:1	500:1	500:1
Backlight	LED > 30,000 hours	LED > 30,000 hours	LED, > 30,000 hours	LED, > 30,000 hours
Colours	65536	65536	16 million	16 million
Touchscreen	4 wires, resistive	4 wires, resistive	4 wires, resistive	4 wires, resistive
Precision	±2%	±2%	±2%	±2%
CONNECTIONS				
USB Client 2.0	-	-	-	1
USB Host 1.1	-	-	-	1
USB Host 2.0	1	1	1	-
Ethernet 10/100	1	1	1	1
Ethernet 10/100/1000	-	-	-	-
COM1	RS232 / RS485	RS232	RS232	RS232
COM2	RS485	RS485	RS485	RS485
COM3	-	-	-	-
GENERAL DATA				
Flash	128 MB	128 MB	128 MB	128 MB
RAM	128 MB	128 MB	128 MB	128 MB
Processor	Cortex A8 600MHz	Cortex A8 600MHz	32 bit RISC Cortex A8 600 MHz	32 bit RISC Cortex A8 600 MHz
RTC	Integrated	Integrated	Integrated	Integrated
Power supply	24 Vdc	24 Vdc	24 Vdc	24 Vdc
Absorption	400mA @ 24 Vdc	500mA @ 24 Vdc	300 mA @ 24 Vdc	350 mA @ 24 Vdc
Casing	Plastic	Plastic	Plastic	Plastic
Dimensions	128 x102 x 32 mm	200,4 x146,5 x 34 mm	128 x102 x 32 mm	200,4 x146,5 x 34 mm
Hole dimension	119x93 mm	192x138 mm		
Weight	250 g	520 g	250 g	600 g
Operating temperature	-20..+60°C	-20..+60°C	-20..+60°C	-20..+60°C
Degree of protection	NEMA4 / IP65	NEMA4 / IP65	NEMA4 / IP65	NEMA4 / IP65
Certification	EC	EC	EC	CE, UL508 Type 4X
Regulations	EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3, AS/NZS CISPR22	EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3, AS/NZS CISPR22	EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3, AS/NZS CISPR22	EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3, AS/NZS CISPR22
CONFIGURATION AND PROGRAMMING				
Programming tool	EASY BUILDER PRO	EASY BUILDER 8000	EASY BUILDER PRO	EASY BUILDER PRO
Remote access				
CAVI				
CS-DB9F-TIP-V	x	x	x	
CS-DB9M-TIP-V				x
CE-RJ45-RJ45-R			x	x

The technical data and the diagrams in this document are indicative and not binding.

The **VISUAL** terminals are designed to be installed in the harshest environmental conditions thanks to the front panel with IP65/66 protection rating.
The **VISUAL** range can be customised through the EASY BUILDER PRO design environment with a powerful editor and a simple and intuitive user interface.
Through Ethernet, USB, RS232, RS485 communication interfaces, with the support of the ModBUS RTU / TCP-IP protocols, the terminals can be combined with the most widely-used industrial controllers and with other supervision and automation systems.

	VISUAL4T	VISUAL5-PC	VISUAL5-WB	VISUAL6	VISUAL7N
					
	7" HMI touchscreen Terminal colour widescreen, Ethernet interface, aluminium casing	**7" HMI touchscreen Terminal 16:9, 64k colours, TFT LCD, Ethernet interface, version replica HMI / Web Server, CHROMIUM function**	**7" HMI touchscreen Terminal 16:9, 64k colours, TFT LCD, Ethernet interface, version spare part S6001-PC**	**7" HMI touchscreen Terminal 16:9, 64k colours, TFT LCD, Ethernet interface, version replica HMI / Web Server, CHROMIUM function**	**7" HMI touchscreen terminal colour widescreen, Ethernet interface**
	7" TFT LCD	7" TFT	7" TFT	7" TFT LCD	10,1" TFT LCD
	800x480	800X480	800X480	800x480	1024x600
	16:9	16.9	16.9	16:9	16:9
	350 cd/m2	200 cd/m2	200 cd/m2	350 cd/m2	350 cd/m2
	500:1	N.D.	N.D.	500:1	500:1
	LED, > 30,000 hours	LED, > 20,000 hours	LED, > 20,000 hours	LED, > 30,000 hours	LED > 20,000 hours
	16 million	65535	65535	16 million	262k
	4 wires, resistive	4 wires, resistive	4 wires, resistive	4 wires, resistive	4 wires, resistive
	±2%	N.D.	N.D.	±2%	±2%
	1	-	-	1	-
	-	-	-	-	-
	-	1	1	-	1
	1	1	1	-	1
	-	-	-	2	-
	RS232	RS232/RS485/RS422 configurable	RS232/RS485/RS422 configurable	RS232	RS232 (isolated)
	RS485	-	-	RS485	RS485 (isolated)
	-	-	-	-	RS485 (isolated)
	256 MB	4 GB	4 GB	128 MB	128 MB
	256 MB	512 MB	512 MB	128 MB	128 MB
	32 bit RISC Cortex A8 600 MHz	ARM Cortex A8 1 Ghz	ARM Cortex A8 1 Ghz	32 bit RISC Cortex A8 600 MHz	32 bits RISC Cortex-A8 600MHz
	Integrated	integrato	integrato	Integrated	Integrated
	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc
	350 mA @ 24 Vdc	300 mA at 24 Vdc	300 mA at 24 Vdc	350 mA @ 24 Vdc	650mA @ 24 Vdc
	Aluminium	Plastic	Plastic	Plastic	Plastic
	200.3 x 146.3 x 34 mm	187X147 X29 mm	187X147 X29 mm	200.3 x 146.3 x 34 mm	271 x 213 x 40
	192 x 138 mm			192 x 138 mm	260 x 202 mm
	900 g	600 g	600 g	600 g	1300 g
	-20..50°C	0..50 °C	0..50 °C	0..50°C	0..50°C
	NEMA4 / IP65	Front IP66 REAR IP20	Front IP66 REAR IP20	NEMA4 / IP65	NEMA4 / IP65
	EC	CE UL	CE UL	CE/UL /ATEX2	EC
	EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3, AS/NZS CISPR22	EN 61000-6-4, Immunity EN61000-6-2;EN61000-6-3; EN61000-6-1	EN 61000-6-4, Immunity EN61000-6-2;EN61000-6-3; EN61000-6-1	EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3, AS/NZS CISPR22	EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3, AS/NZS CISPR22
	EASY BUILDER PRO	-	Web Server	EASY BUILDER PRO	EASY BUILDER PRO
				EASY ACCESS	
		-			
	x	-		x	x
	x	-		x	x

HMI

High resolution TFT display up to 16 million colours, LED back-lit

Processors RISC 400 MHz CORTEX A8 /600 / 800 MHz / 1 GHz

Flash Memory 128 / 256 MB / 512 MB Recipes memory 256 kB

Communication RS232/RS485 and Ethernet with support of protocols of ModBUS RTU and ModBUS TCP-IP

Certifications CE and UL

Industrial strength with degree of protection NEMA4/ IP65 /IP66 front

Programming tool Windows with evolved editing functionality

Touchscreen 4-wire resistive

TECHNICAL DATA

	VISUAL8	VISUAL9	VISUAL10	VISUAL11	VISUAL12
					
	Terminal HMI touchscreen 10.1” colour widescreen, Ethernet interface	Terminal HMI touchscreen 10,1” HD, colour widescreen, Ethernet interface	Terminal HMI touchscreen 10,1” HD, colour widescreen, Ethernet interface, WiFi	Terminal HMI touchscreen 9.7” colour widescreen, double Ethernet interface,	Terminal HMI touchscreen 9.7” colour widescreen, double Ethernet interface, aluminium casing
DISPLAY					
Dimension	10.1" TFT LCD	10.1" TFT LCD	9.7" TFT LCD	9.7" TFT LCD	15" TFT LCD
Resolution	1024x600	1024x600	1024x768	1024x768	1024x768
Format	16:9	16:9	4:3	4:3	4:3
Brightness	350 cd/m2	350 cd/m2	350 cd/m2	300 cd/m2	4000 cd/m2
Contrast	500:1	500:1	500:1	500:1	700:1
Backlight	LED, > 50,000 hours	LED, > 50,000 hours	LED > 30,000 hours	LED > 30,000 hours	LED, > 50,000 hours
Colours	16.7 million	16.7 million	262k	262k	16.2 million
Touchscreen	4 wires, resistive	4 wires, resistive	4 wires, resistive	4 wires, resistive	4 wires, resistive
Precision	±2%	±2%	±2%	±2%	±2%
CONNECTIONS					
USB Client 2.0	1	1	1	1	2
USB Host 1.1	-	-	-	-	-
USB Host 2.0	-	-	-	-	-
Ethernet 10/100	1	1 + WiFI IEEE 802.11 b/g/n	1	-	1
Ethernet 10/100/1000	-	-	-	2	-
COM1	RS232	RS232	RS232	RS232 (isolated)	RS485 (isolated)
COM2	RS485	RS485	RS485	RS485 (isolated)	
GENERAL DATA					
Flash	128 MB	128 MB	512 MB	512 MB	256 MB
RAM	128 MB	128 MB	256 MB	256 MB	256 MB
Processor	32 bits RISC Cortex-A8 600MHz	32 bits RISC Cortex-A8 600MHz	32 bits RISC Cortex A8 1GHz	32 bits RISC Cortex-A8 1GHz	Cortex A8 32Bit RISC 1GHz
RTC	Integrated	Integrated	Integrated	Integrated	Integrated
Power supply	24 Vdc	24 Vdc	24 Vdc	24 Vdc	24 Vdc
Absorption	650 mA @ 24 Vdc	650 mA @ 24 Vdc	500 mA @ 24 Vdc	650mA @ 24 Vdc	1000 mA @ 24 Vdc
Casing	Plastic	Plastic	Plastic	Plastic	Aluminium
Dimensions	271 x 213 x 36,4	271 x 213 x 36,4	260,6 x 203,1 x 36,5	260,6 x 203,1 x 36,5	366 x 293 x 57
Hole dimension	260 x 202 mm	260 x 202 mm	250 x 192 mm	250 x 192 mm	352 x 279 mm
Weight	1000 g	1000 g	850 g	850 g	2750 g
Operating temperature	0..50°C	0..50°C	0..50°C	0..50°C	0..50°C
Degree of protection	NEMA4 / IP65	NEMA4 / IP65	NEMA4 / IP65	NEMA4 / IP65	NEMA4 / IP65
Certification	CE/UL	EC	EC	EC	EC
Regulations	EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3, AS/NZS CISPR22	EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3, AS/NZS CISPR22	EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3, AS/NZS CISPR22	EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3, AS/NZS CISPR22	EN 55022, EN 55024, EN 61000-3-2, EN 61000-3-3, AS/NZS CISPR22
CONFIGURATION AND PROGRAMMING					
Programming tool	EASY BUILDER PRO	EASY BUILDER PRO	EASY BUILDER PRO	EASY BUILDER PRO	EASY BUILDER PRO
Remote access		EASY ACCESS		EASY ACCESS	
CAVI					
CS-DB9F-TIP-V					
CS-DB9M-TIP-V	x	x	x	x	x
CE-RJ45-RJ45-R	x	x	x	x	x

The technical data and the diagrams in this document are indicative and not binding.

EASY BUILDER PRO

HMI programming environment

- Integrated windows development environment, toolbars, dialogs windows, menu bars, drag & drop drawing objects
- Multi-purpose objects for dynamic use to support user screens (graphics, buttons, alarm history, etc.)
- Support for multilingual display
- More than 250 drivers are available to ensure easy connection to PLCs, temperature controllers, bar code readers, etc.

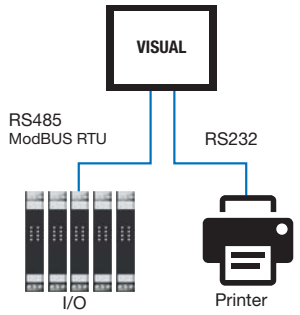
EASY ACCESS

Remote assistance tool

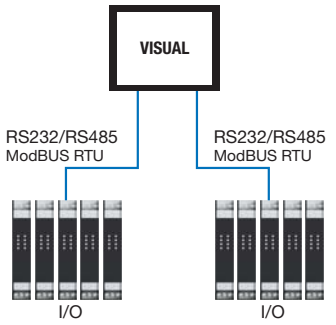
- Remote assistance system activated on HMI VISUAL with Ethernet port
- Remote access to the operator panel and, in passthrough mode, to PLCs and devices connected to it (in serial or Ethernet mode) without any network configuration
- SSL secured VPN connection for the secure exchange of data and information with minimal bandwidth usage

EXAMPLES OF CONNECTION

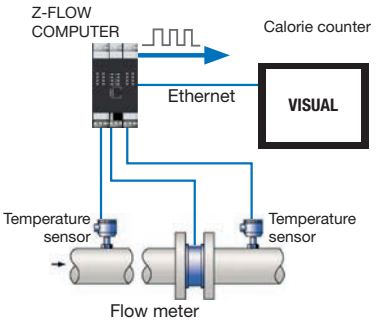
SERIAL



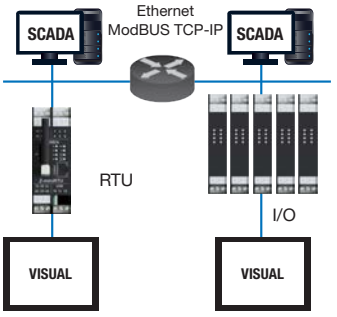
DISTRIBUTED SERIAL NETWORK



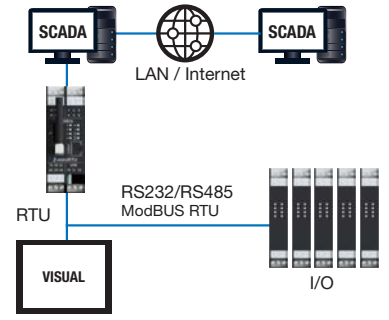
HMI FOR FLOW COMPUTER



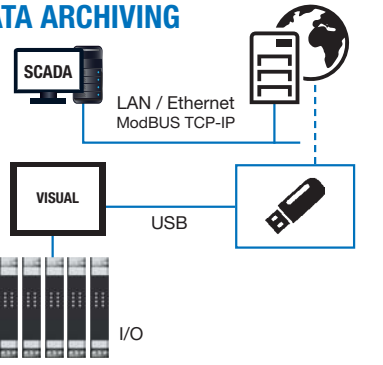
ETHERNET



REMOTE CONTROL



DATA ARCHIVING



ORDER CODE

Code	Description	Code	Description
VISUAL1E	Terminal HMI touchscreen 4.3" colour widescreen, Ethernet interface	VISUAL6	Terminal HMI touchscreen 7" colour widescreen, double Ethernet interface
VISUAL2E	Terminal HMI touchscreen 7" colour widescreen, Ethernet interface	VISUAL7N	Terminal HMI touchscreen 10.1" colour widescreen, Ethernet interface
VISUAL3	Terminal HMI touchscreen 4.3" colour widescreen, Ethernet interface	VISUAL8	Terminal HMI touchscreen 10.1" HD, colour widescreen, Ethernet interface
VISUAL4	Terminal HMI touchscreen 7" colour widescreen, Ethernet interface	VISUAL9	Terminal HMI touchscreen 10.1" HD, colour widescreen, Ethernet interface, WiFi
VISUAL4T	Terminal HMI touchscreen 7" HD, colour widescreen, Ethernet interface, aluminium casing	VISUAL10	Terminal HMI touchscreen 9.7" colour widescreen, Ethernet interface
VISUAL5-PC	7" HMI touchscreen Terminal 16:9, 64k colours, TFT LCD, Ethernet interface, version spare part S6001-PC	VISUAL11	Terminal HMI touchscreen 9.7", colour widescreen, double Ethernet interface,
VISUAL5-WB	7" HMI touchscreen Terminal 16:9, 64k colours, TFT LCD, Ethernet interface, version replica HMI / Web Server, CHROMIUM function	VISUAL12	Terminal HMI touchscreen 15" colour widescreen, Ethernet interface, aluminium casing

ACCESSORIES and SOFTWARE

CE-RJ45-RJ45-R	Straight Ethernet cable (RJ45 / RJ45)
CS-DB9F-TIP-V	Serial cable RS485 (DB9F / tips)
CS-DB9M-TIP-V	Serial cable RS485 (DB9M / tips)
EB PRO	Programming environment
EASY ACCESS	Remote assistance tool

S401-L

INDICATORE OLED WITH MODBUS INTERFACE

EASY PC | Modbus | CE | OLED | RS232 RS485

TECHNICAL DATA

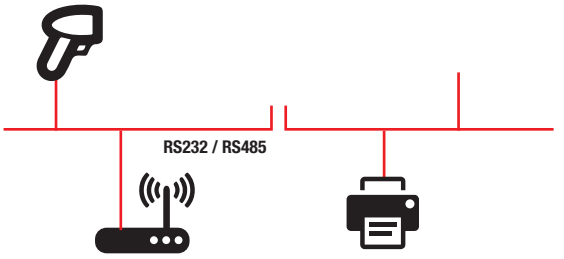
GENERAL DATA	
Power supply	10-40 Vdc / 19-28 Vac
Max absorption	1 W
Insulation	1,500 Vac
Interfacce comunicazione	2 x RS485 ModBUS RTU Master / Slave Speed 1.200..115.200 bps
Memories	RAM: 256 byte XRAM: 4kB Flash: 32 kB
DISPLAY AND MEASUREMENT	
Display	OLED 2,7", 128 x 64 pixel
Front keys	3 navigation keys
Display	Up to 20 measurements (max 3 per page) freely programmable
Serial communication	Address, parity, baud rate, delayed response, transmission delay, receipt timeout
Data archiving	RAM, tabella 20x4 byte
THERMO-MECHANICAL DATA	
Operating temperature	-10..+60°C
Front protection	IP65
Dimensions (w x h x d)	96x48x40 mm
SETTINGS, REGULATIONS	
Software	Max 20 freely selectable interrogations, data management (EASY S401)
Settings	Communication parameters, language, contrast, brightness, scale, measurement unit offset
Conformity	CE, EN 61000-6-4/2002, EN 61000-6-2/2005, EN 61010-1/2001

ORDER CODE

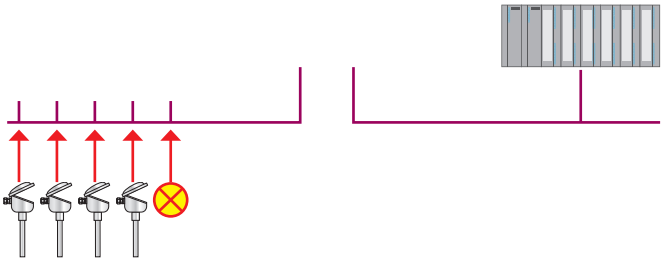
Code	Description
S401-L	Indicator with OLED display and ModBUS interface

APPLICATION EXAMPLES

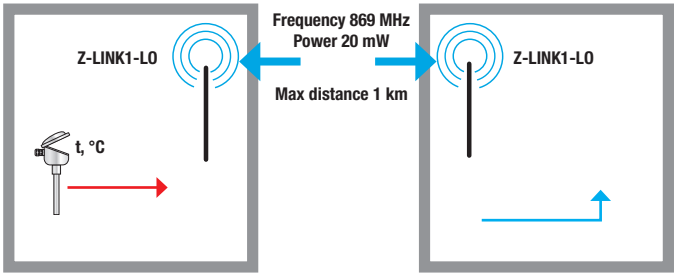
SERIAL CONNECTION



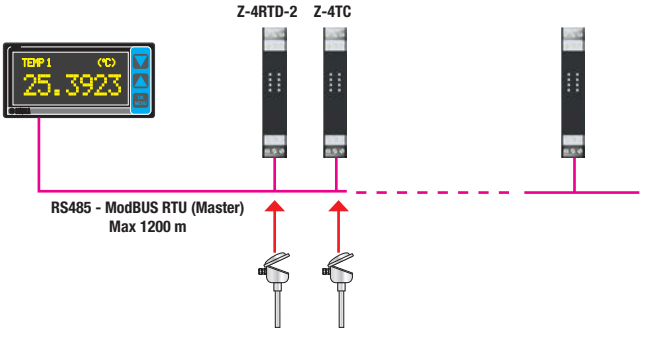
PLC LOCAL CONTROL



SIGNAL RETRANSMISSION



TEMPERATURE ACQUISITION



The technical data and the diagrams in this document are indicative and not binding.

SOFTWARE AND ACCESSORIES

1

1.6

SOFTWARE

The SENECA software suite includes powerful system configurators, programming environments complete with libraries, acquisition tools, access and management of data, events and alarms. Z-NET-4, designed for the configuration of CPUs / controllers, I / O modules and ModBUS device also allows management and creation of the database of machine / system variables (IEC 61131, OPC, trend, log). Alternatively, the EASY SETUP plug & play software is also available for rapid configuration of the I / O modules, in the Android app version. The programming strategy of SENECA controllers is based on the industrial standard for PLCs IEC 61131, in particular on the Straton softPLC development environment which includes libraries and protocols for energy management. Integrated within the Z-NET4 platform, Web Factory allows development of the html / web supervision pages loaded in the CPUs, starting from the general project. Data Recorder and Trend Viewer are flexible tools for data acquisition, trend display, events, variables, alarms as well as management of logs and archives. With the OPC Server technology, it is possible to exchange real-time data with Scada and other Client applications.

EASY SETUP
Plug&play configuration suite for SENECA programmable instruments

Z-NET4
Complete configuration environment for Z-PC Series system

WEB FACTORY
Integrated HMI/Web editor in Z-NET4

DATA RECORDER
DAQ Software (Data Acquisition) integrated in Z-NET4

TREND VIEWER
Display software trend integrated in Z-NET4

STRATON
Programming environment IEC 61131-3

OPC SERVER
Data exchange software and real-time variables management

	EASY SETUP	Z-NET4	WEB FACTORY	DATA RECORDER	TREND VIEWER	STRATON	OPC Server
Licence	free	free	free	USB key	free	USB key	USB key
Hardware configuration and I/O	✓	✓					
System complete configuration	✓	✓					
Communication setting	✓	✓		✓		✓	✓
Variables advanced setting		✓				✓	✓
Alarms management		✓		✓		✓	
Control logics		✓		✓		✓	
Remote control functions		✓				✓	
Mathematics functions				✓		✓	
Log / events archive						✓	
Diagnostics		✓		✓		✓	✓
Data Acquisition	✓	✓	✓	✓		✓	✓
Real-time variables acquisition / simulations	✓	✓	✓	✓		✓	✓
Data display (graphics / trends)			✓	✓	✓		
Data Import / Export					✓		✓
Variables configuration Import / Export		✓			✓	✓	✓

ORDER CODE

Code	Description
CODESYS	
CODESYS	CODESYS IEC 61131 v.2.3 platform for Z-TWS5 programming
CODESYS-SP	CODESYS SENECA PACKAGE (CODESYS 2.3.9.22, JMobile 2.0.0.324, Windows CE Remote Host 3.00, Z-NET4 1.31, OPC Server IO 2.07, CODESYS Seneca Library 1.1.0 and 2.0.0)
DATA RECORDER	
DR-02	2-channel Data Recorder, data acquisition and display software for Modbus I/O modules (alarms, mathematic, report)
DR-04	4-channel Data Recorder, data acquisition and display software for Modbus I/O modules (alarms, mathematic, report)
DR-08	8-channel Data Recorder, data acquisition and display software for Modbus I/O modules (alarms, mathematic, report)
DR-16	16-channel Data Recorder, data acquisition and display software for Modbus I/O modules (alarms, mathematic, report)
DR-32	32-channel Data Recorder, data acquisition and display software for Modbus I/O modules (alarms, mathematic, report)
DR-64	64-channel Data Recorder, data acquisition and display software for Modbus I/O modules (alarms, mathematic, report)
DR-UN	Unlimited data recorder, data acquisition and display software for Modbus I/O modules (alarms, mathematic, report)
DR-02-PLUS	Data Recorder 2 channels + packet plus multi-client
DR-04-PLUS	Data Recorder 4 channels + packet plus multi-client
DR-08-PLUS	Data Recorder 8 channels + packet plus multi-client
DR-16-PLUS	Data Recorder 16 channels + packet plus multi-client
DR-32-PLUS	Data Recorder 32 channels + packet plus multi-client
DR-64-PLUS	Data Recorder 64 channels + packet plus multi-client
DR-UN-PLUS	Data Recorder unlimited channels + packet plus multi-client
DR-UPGRADE	Data Recorder licence upgrade service
Driver, Kit, Libraries	
D-USB	Driver USB (S107USB, K107USB, EASY USB, S117P1)
EDS	EDS file collection for CANopen I/O modules
KIT-USB	Programming kit for instruments with USB interface
LS-C	Libraries SENECA - CoDeSys
LS-I	Librerie SENECA - Isagraf
LS-S	Librerie SENECA - Straton
LS-VI	Librerie SENECA - LabVIEW Driver VI
EASY	
EASY FLOW COMPUTER	Z-FLOWCOMPUTER management software
EASY LP	Plug&play collection configuration instruments loop powered (K120RTD, K121, T120, T121)
EASY SETUP	Plug&play configurator suite for SENECA programmable instruments
OPC	
OPC-DA-SERVER	Communication and data exchange software OPC Server WITH unlimited I/O tags (hardware licence)
OPC-UA-SERVER	Communication and data exchange software OPC Server UA I/O unlimited tags (hardware licence)
SEAL	
SEAL	SENECA Advanced language, MYALARM2, Z-LOGGER3, Z-GPRS3, Z-UMTS advanced programmable graphics software
STRATON	
STRATON-D-USB	Straton activation key for IEC 61131 controllers
STRATON-IDE256	Straton development environment 256 tags with USB activation key
STRATON-IDE512	Straton development environment 512 tags with USB activation key
STRATON-IDEUN	Straton development environment unlimited tags with USB activation key
STRATON-870S	Activation licence IEC 60870-5-101/104 Slave
STRATON-870S-850	Activation licence IEC 60870-5-101/104 Slave + Licence IEC 61850 Client / Server
SSP	SENECA Straton Package - CPU Seneca Installer suite (supplied)
STRATON-UPGRADE1	STRATON UPGRADE from 256 to 512 tags
STRATON-UPGRADE2	STRATON UPGRADE from 512 to unlimited tags
STRATON-UPGRADE3	STRATON UPGRADE from 256 to unlimited tags
STRATON-WB	Straton workbench IEC 61131 free editor (supplied)
Z-NET	
Z-NET3	Z-TWS3 systems configuration software, standard configurator, including Web Editor development environment, Trend Viewer, Data Recorder
Z-NET4	Z-PC Series I/O Systems and Controller Configurator, including Web Editor development environment, Trend Viewer, Data Recorder

DATA RECORDER

SOFTWARE DAQ (DATA ACQUISITION) INTEGRATED IN Z-NET4

Data Recorder is an open, scalable and cost-effective software recorder on a Windows PC basis, ideal for testing sessions, laboratories, test rooms, process measurement monitoring.
The physical data acquisition takes place via Z-PC Series distributed I/O modules (with or without CPU), and in general with any standard ModBUS RTU slave device. The communication between hardware and PC can be serial (RS232/RS485/ModBUS RTU) or Ethernet / ModBUS TCP, on a wired or wireless physical medium. Licensing is managed with a USB key and covers a display range of 2 to unlimited channels, whether analog, digital, impulsive or calculated. The normalised graphical representation can be set to nibs or to display (digit). The realtime display offers multiple selection possibilities: channel groups, representation interval, screen scroll direction. Consultation of the historical archive (data and alarms) with a dedicated display tool is also guaranteed. An optional Plus package is included which includes: alarm management (with implementation of digital outputs), report management (with trigger events) and mathematical package with algebraic, linear, trigonometric, boolean (digital channels) functions, average calculation, compensation and deviations on the measurements.

INSTRUMENTS / OPTIONS

Minimum Hardware requirements
O.S. Windows 8 or subsequent
RAM 128 MB
HD 3G
SVGA 800x600

Data acquisition and measurements via SENECA Z-PC Series remote I/O system

Windows & OPC tested & supported

Portable measuring kits ready for use

HIGHLIGHTS

2 a software licences unlimited channels

Real-time data recording in nib or display mode

Data archiving in csv format and display through the Trend Viewer software tool

Data integration and project development through the environment of Z-NET configuration

PLUS package multi-client

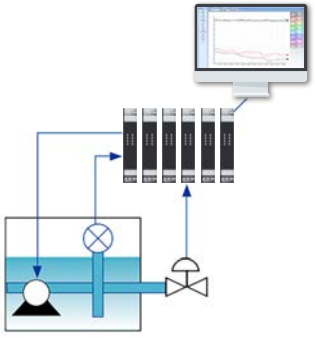
Scheduling of recordings

Support connections serial, Ethernet and wireless

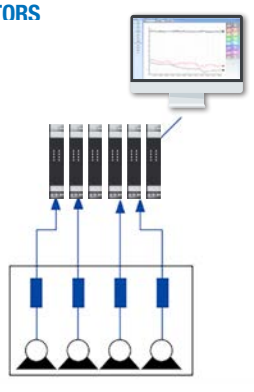
Advanced calibration for temperature sensors

APPLICATION DIAGRAMS

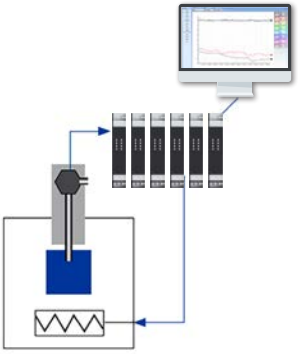
PARAMETER MONITORING OF WATER QUALITY



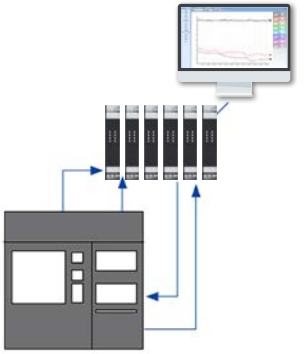
TESTING, INSPECTIONS AND ACQUISITION DATA FOR ELECTRIC MOTORS



MONITORING OF TEMPERATURE AND HUMIDITY

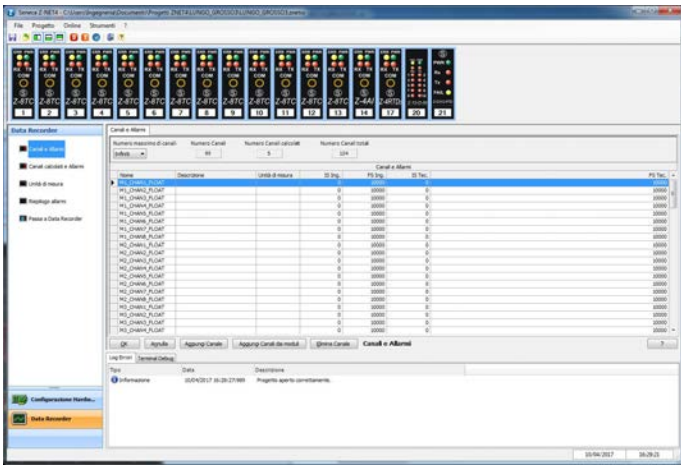


MONITORING OF CLIMATIC CHAMBERS



CONFIGURATION STEPS

1 Z-NET4 - SYSTEM CONFIGURATION



- General hardware and project configuration
- Configuration of communication parameters
- Channel configuration (I/O, variables, tags, name, description, start/full scale)
- Mathematical functions
- Alarm setting
- Online test configuration

2 DATA RECORDER

- Data acquisition from 2 to unlimited channels (minimum 1 second sampling period)
- Display pages setting
- Visualisation in nib or display mode
- Start / stop / pause recording commands
- Selection of scroll, range, channel groups
- Display of real-time measurement values
- Automatic report generation
- Scheduling of recordings
- Alarm display
- Thermocouple calibration
- Independent multi-user recording sessions

3 TREND VIEWER

- Trend display
- Independent display for groups of different signals
- Events/alarms log
- Archiving and access to historical data
- Statistical processing
- Printing and data conversion in csv and Excel-compatible formats
- SQLite database management

ORDER CODE	
Code	**Description**
DR-02	Data Recorder 2 channels, data acquisition and display software for Modbus devices
DR-02	Data Recorder 4 channels, data acquisition and display software for Modbus devices
DR-08	Data Recorder 8 channels, data acquisition and display software for Modbus devices
DR-16	Data Recorder 16 channels, data acquisition and display software for Modbus devices
DR-32	Data Recorder 32 channels, data acquisition and display software for Modbus devices
DR-64	Data Recorder 64 channels, data acquisition and display software for Modbus devices
DR-UN	Unlimited data recorder channels, data acquisition and display software for Modbus device

ORDER CODE	
Code	**Description**
DR-02-PLUS	Data Recorder 2 channels + multi-client packet
DR-04-PLUS	Data Recorder 4 channels + multi-client packet
DR-08-PLUS	Data Recorder 8 channels + multi-client packet
DR-16-PLUS	Data Recorder 16 channels + multi-client packet
DR-32-PLUS	Data Recorder 32 channels + multi-client packet
DR-64-PLUS	Data Recorder 64 channels + multi-client packet
DR-UN-PLUS	Data Recorder unlimited channels + packet multi-client

MSD
MICROSD CARD WITH SD ADAPTER

Order codes P.58

WORK VOLTAGE: 2.7 ~ 3.6V
OPERATING TEMPERATURE: -25 ~ 85°C
DURATION: 10,000 insertion / removal cycles
SD COMPATIBILITY: SD card spec. v1.1, MultiMediaCard upward compatibility, SD Association File System Specification
MECHANICAL PROTECTION: Switch with microSD adapter
FORM FACTOR: 11x15x1 mm

S20ADP-CM-S
INPUT ADAPTER CARD FOR SINUSOIDAL SENSORS

Order codes P.58

VERSION: DIN module
POWER SUPPLY: Self-powered by the output circuit (square wave NPN)
INPUTS: Photoelectric sensor, AICHI turbine

COMPATIBLE MODULES
K111, K112, S111, S112A/D/M, S20N, S21, S30, S311D, Z-10-D-IN - Z111, ZC-16DI-8DO, ZC-24DI, Z-D-IN, Z-D-IO

SG-EQ4
EQUALISATION AND CONNECTION SYSTEM FOR LOAD CELLS

Order codes P.58

4-wire / 6-wire load cells
Trimmer setting for 4-wire load cells
Internal jumpers

COMPATIBLE MODULES Z-SG, ZC-SG

Z-8R-10A
8- RELAY BOARD, CAPACITY 250 VAC - 10 A

Order codes P.58

POWER SUPPLY: 24 Vdc
CONNETTORI: IDC 10, 16 (2), 20-pins for flat cable; extractable terminals 3.5 mm pitch
RELAY CAPACITY: 250 Vac, 10 A
CHANNELS: 8
DIMENSIONS (bxhxp): 160 mm x 80 mm x 46 mm

COMPATIBLE MODULES
ZC-24DO, ZC-16DI8DO, Z-10-D-OUT

Z-POWER
19 VAC VOLTAGE TRANSFORMERS FOR ASSEMBLY ON DIN GUIDE

Order codes P.58

PRIMARY VOLTAGE: 230 (115) Vac ± 10%
CASING: Self-extinguishing thermoplastic material (class V-0)
PROTECTION: With thermal fuse
DIMENSIONS: 3 DIN modules (version 15 VA), 5 DIN modules (25 VA)
PROTECTION DEGREE: IP 40

COMPATIBLE MODULES I/O AND CPU

Z-SUPPLY
SWITCHING POWER UNIT SINGLE PHASE 24V @ 1.5 A

Order codes P.58

INPUT: 110..230 Vac @ 47-63 Hz 0,7 A; 110..315 Vdc, 0.7 A
OUTPUT: 24 Vdc ± 2%
REDUNDANCY: In parallel of two Z-SUPPLY modules (from IDC10 connector only)
OUTPUT CURRENT: 1.5 A
OUTPUT CONTROL: "Power Good" output relay
INTERNAL FUSE: 1.25A T-type (delayed)
ASSEMBLY: On DIN guide 46277
INSULATION: Up to 3KV in output and output voltage

COMPATIBLE MODULES I/O AND CPU

Z-PC DIN
BUS SUPPORT FROM RAPID ASSEMBLY FOR DIN GUIDE

Order codes P.58

ASSEMBLY: ON guide 35 mm (DIN 46277)
HOT SWAPPING: Yes
MATERIAL: 30% glass fibre loaded PA6 Nylon
TERMINAL: Power supply / Data

COMPATIBLE MODULES I/O AND CPU

CABLES
SERIAL COMMUNICATION CABLES ETHERNET, USB

Order codes P.58

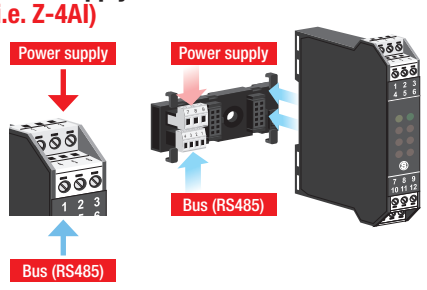
Z-PC-DIN – COMMUNICATION BUS REAR SUPPORT / POWER SUPPLY FOR Z-PC SERIES MODULES

Category	Code	Width	Z-PC-IN system: power supply+bus for communication with IDC10 interface			Obligatory for Z-PC Series	Connection mode
			Z-PC DINAL2 17.5	Z-PC DINAL1 35	Z-PC DINAL2 52.5		
Digital I/O Modules ModBUS	Z-D-IN	17.5 mm	x			No	A
	Z-D-OUT	17.5 mm	x			No	A
	Z-10-D-IN	17.5 mm	x			Yes	C
	Z-10-D-OUT	17.5 mm	x			Yes	C
	Z-D-IO	17.5 mm	x			Yes	C
	Z-8NTC	17.5 mm	x			Yes	C
Digital I/O Modules ModBUS/CANopen	ZC-24DI	35 mm		x		Yes	C
	ZC-24DO	35 mm		x		Yes	C
	ZC-16DI-8DO	35 mm		x		Yes	C
Modbus Analog I/O modules	Z-DAQ-PID	17.5 mm	x			Yes, only for RS485 ModBUS communication	B
	Z-4AI	17.5 mm	x			No	A
	Z-8AI	17.5 mm	x			Yes	C
	Z-3AO	17.5 mm	x			No	A
	Z-4RTD2	17.5 mm	x			Yes	C
	Z-4TC	17.5 mm	x			No	A
	Z-8TC	17.5 mm	x			Yes	C
	Z-5DI-2DO	17.5 mm	x			Yes	C
	Z-SG	17.5 mm	x			Yes, only for RS485 ModBUS communication	B
Mixed I/O modules ModBUS / Ethernet	ZE-2AI	17.5 mm	x			No	A
	ZE-4DI-2AI-2DO	35 mm		x		No	A
	Z-4DI-2AI-2DO	35 mm		x		No	A
CANopen analog I/O Modules	ZC-8AI	17.5 mm	x			Yes	C
	ZC-3AO	17.5 mm	x			Yes	C
	ZC-4RTD	17.5 mm	x			Yes	C
	ZC-8TC	17.5 mm	x			Yes	C
	ZC-SG	17.5 mm	x			Yes	C
CANopen Analog I/O modules	Z203-1	17.5 mm	x			Yes, only for RS485 ModBUS communication	B
	Z204-1	35 mm		x		No	A
Controllers	Z-TWS4	35 mm		x		No	A
	Z-TWS11	17.5 mm		x		Yes, with 2 serial ports enabled	D
	Z-PASS2-S	52.5 mm			x	No	E
	Z-MINIRTU	35 mm		x		Yes, with 2 serial ports enabled	D
	Z-FLOWCOMPUTER	52.5 mm				No	A
Datalogger	Z-UMTS	35 mm		x		Yes, with 2 serial ports enabled	D
	Z-GPRS3	35 mm		x		Yes, with 2 serial ports enabled	D
	Z-LOGGER3	35 mm		x		Yes, with 2 serial ports enabled	D
Networking	Z-KEY	17.5 mm	x			Yes, with 2 serial ports enabled	D
	Z-PASS1	35 mm		x		No	A
	Z-PASS2	52.5 mm			x	No	E
	Z-MODEM	35 mm		x		No	A
	Z-MODEM-3G	17.5 mm	x			Yes	C

CONNECTION MODE

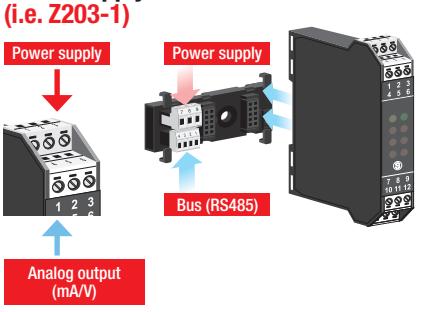
A BUS (RS485): TERMINALS OR IDC10

Power supply: TERMINALS OR IDC10
(i.e. Z-4AI)



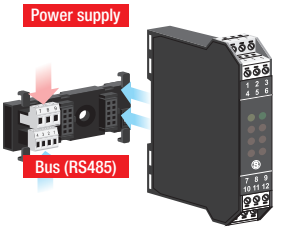
B BUS (RS485): ONLY IDC10

Power supply: Terminals or IDC10
(i.e. Z203-1)



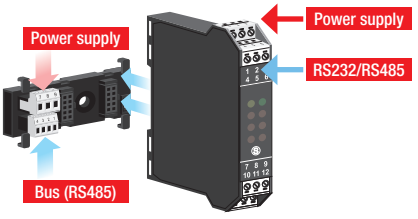
C BUS (RS485): ONLY IDC10

Power supply: IDC10
(i.e. Z-8TC)



D BUS (RS485): IDC10 ONLY WITH NO. 2 SERIAL PORTS ENABLED

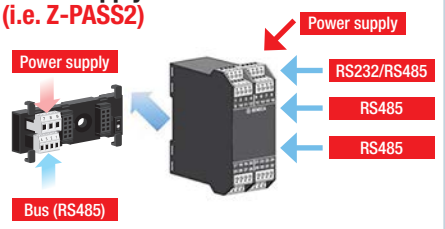
Power supply: Terminals or IDC10
(I.E. Z-KEY)



Independent serial ports
No. 1 RS232/RS485 port (terminals))
Nr.1 RS485 port (bus/IDC10)

E BUS (RS485): IDC10 ALTERNATIVE TO 1 OF THE 3 SERIAL PORTS ENABLED

Power supply: Terminals or IDC10
(i.e. Z-PASS2)

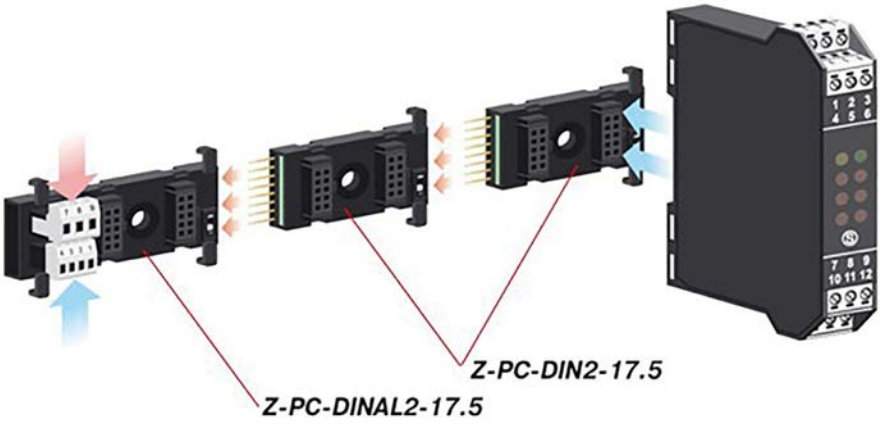


Independent serial ports
No. 1 RS232/RS48t port (terminals))
No. 1 RS485 port (terminals))
Nr.1 RS485 port (bus/IDC10)

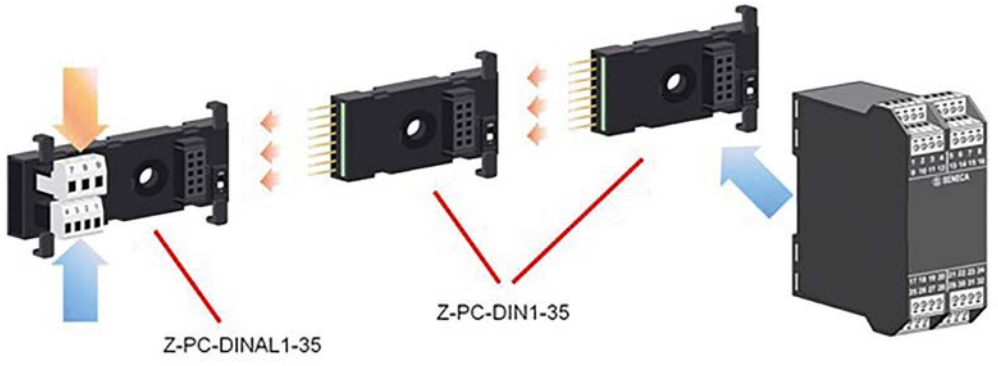
MODELS Z-PC-DIN

	DESCRIPTION	SLOT	STEP	TERMINAL POWER SUPPLY / BUS	HOT SWAPPING	DIN GUIDE ASSEMBLY
	**Z-PC-DINAL1-35** DIN guide rapid assembly support – head +1 slot P=35 mm	1	35 mm	Yes	Yes	Yes
	**Z-PC-DINAL2-17.5** DIN guide rapid assembly support – head +2 slot P=17.5mm	2	17.5 mm	Yes	Yes	Yes
	Z-PC DINAL2-52.5 DIN guide rapid assembly support – head +2 slot P=525mm	2	52.5 mm	Yes	Yes	Yes
	**Z-PC-DIN1-35** DIN guide rapid assembly support – 1 slot P=35mm	1	35 mm	-	Yes	Yes
	**Z-PC-DIN2-17.5** DIN guide rapid assembly support – 1 slot P=17.5mm	2	17.5 mm	-	Yes	Yes
	**Z-PC-DIN4-35** DIN guide rapid assembly support – 4 slot P=35mm	4	35 mm	-	Yes	Yes
	**Z-PC-DIN8-17.5** DIN guide rapid assembly support – 8 slot P=17.5mm	8	17.5 mm	-	Yes	Yes

EXAMPLE OF CONNECTION FOR MODULES DIN 17.5 mm



EXAMPLE OF CONNECTION FOR MODULES DIN 35 mm



ORDER CODES

Code	Description
CABLES	
CE-RJ45-RJ45-C	Crossed Ethernet cable (RJ45 / RJ45) 1.5 MT
CE-RJ45-RJ45-R	Straight Ethernet cable (RJ45 / RJ45) 1.5
CS-DB9F-CFV10	RS232 connection cable (DB9F-CFV10) for M-RTU
CS-DB9F-CLAMP	RS485 serial cable (DB9F / terminals) 1.5 MT for HMI VISUAL and Z-FLOWCOMPUTER
CS-DB9F-DB9F	RS232 serial cable (DB9F / DB9F)
CS-DB9F-TIP	K107B RS232 communication cable (DB9F - tips)
CS-DB9F-TIP-V	RS485 serial cable (DB9F / leads) 1.5 MT for HMI VISUAL1/2/3
CS-DB9M-DB9F	RS232 straight serial cable for programming (DB9M / DB9F)
CS-DB9M-DB9M	RS232 serial cable (DB9M / DB9M)
CS-DB9M-MEF-1012	Serial communication cable Z-KEY (DB9M / MEF 10-12) 1.5 MT
CS-DB9M-MEF-PH	Serial communication cable (DB9M / MEF PH) 3 wires 1.5 MT
CS-DB9M-MICROB	Serial communication cable (DB9M / Micro USB) for Z-TWS5
CS-DB9M-TIP	Serial cable RS485 for radiomodem (DB9M / Tips)
CS-DB9M-TIP-V	Serial cable RS485 (DB9M / tips) for HMI VISUAL4
CS-JACK-DB9F	Serial programming cable (Z109REG, Z109REG2, Z-4AI-D, Z-4TC-D, Z3AO, Z8AI, Z-8TC) (Jack / DB9F)
CS-RJ10-DB25M-1	Modem communication cable (RJ10 / DB25M)
CS-RJ10-DB25M-2	Modem and HMI communication cable (RJ10 / DB25M)
CS-RJ10-DB9F	Serial cable RS232 serial cable (RJ10 / DB9F)
CS-RJ10-DB9M	Modem serial cable (RJ10 / DB9M)
CS-RJ10-TIP	Serial communication cable (RJ10/ 4 Tips) 1.5 m
CS-TIP-MEF-PH	Serial communication cable (Tips / 4-way female connector) for Z-TWS4, Z-PASS1/2
CS-TIP-MICROB	Serial communication cable (Tips / Micro USB) - Z-TWS5
CS-TPW-TIP	Serial cable RS485 Tp-wire (Tp-wire / Tips)
CS-TPW-TPW	Cable Tp-Wire (Tp-wire / Tp-wire)
CU-A-MICROB	Cable plug USB-A Micro USB-B 5 P (KIT-USB, MY2, Z109REGBP)
CU-A-MINIB-1	Cable plug USB-A Mini USB-B 5 P, 1 meter (MY2, Z-GPRS2, Z-TWS4, Z-modem, Z-miniTWS, Z-BRIDGE2, Z-GATEWAY, Z-miniRTU, S203TA-D, S203RC-D, Z109REGBP, Z113-1)
CU-A-MINIB-2	Cable plug USB-A Mini USB-B 5 P, 2 meters (MY2, Z-GPRS2, Z-TWS4, Z-modem, Z-miniTWS, Z-BRIDGE2, Z-GATEWAY, Z-miniRTU, S203TA-D, S203RC-D, Z109REGBP, Z113-1)
CU-A-MICRO-OTG	Adapter cable Micro USB OTG – USB Female A type
MEMORIES	
MSD	Micro SD memory card with adapter
ADAPTERS	
FD01	PULSECAP, photodetector for counting pulses from electronic meter, max freq 10 Hz
S20ADP-CM-S	Sinusoidal pulse adapter card in NPN square wave
SG-EQ4	Equalisation card with up to 4 load cells
SG-EQ4-BOXPG7	Card + equalisation box with up to 4 load cells
Z-8R-10A	Interface board 8 relays 24 Vdc, capacity 250 Vac - 10 A (accessory Z-10-D-OUT)
BUS SYSTEM	
Z-PC-DIN1-35	Support for rapid assembly on DIN guide 1 slot pitch 35 mm
Z-PC-DIN2-17.5	Support for rapid assembly on DIN guide 2 slot pitch 17.5 mm
Z-PC-DIN4-35	Support for rapid assembly on DIN guide 4 slot pitch 35 mm
Z-PC-DIN8-17.5	Support for rapid assembly on DIN guide 8 slot pitch 17.5 mm
Z-PC-DINAL1-35	Support for rapid assembly on DIN guide head + 1 slot pitch 35 mm
Z-PC-DINAL2-17.5	Support for rapid assembly on DIN guide head + 2 slot pitch 17.5 mm
Z-PC-DINAL2-52.5	Support for rapid assembly on DIN guide head + 3 slot pitch 17.5 mm
POWER SUPPLY UNITS	
Z-POWER-115-15VA	Transformer with DIN guide 19 Vac, 115 / 15 VA with thermofuse
Z-POWER-230-15VA	Transformer with DIN guide 19 Vac, 230 / 15 VA with thermofuse
Z-POWER-230-25VA	Transformer with DIN guide 19 Vac, 230 / 25 VA with thermofuse
Z-SUPPLY	Power supply switching monophase 24V @ 1.5 A

INDUSTRIAL AND REMOTE CONTROL COMMUNICATION

2

Industrial and Remote Control Communication

The Industrial Communication and Remote Control line includes industrial modems and gateways, VPN routers, UHF / VHF radio devices, serial and fibre optic communication interfaces, remote control units, remote alarms and remote assistance. The Seneca industrial communication products support the main http, ftp, SMTP, TCP-IP network protocols, as well as the 3G+ and web server technologies. The SENECA communication devices allow extension of the networks to be increased and allow the passage of process data between different levels of the IT and industrial communication architecture. SENECA solutions for networking and remote control ensure openness, scalability and maximum connectivity in the transmission of data to and from supervisory centres.

2.1 Remote alarm and datalogger units

2.2 Advanced dataloggers

2.3 RTU for applications of remote control

2.4 Industrial Modem

2.5 IoT Gateway

2.6 IoT / VPN remote control remote assistance platform

2.7 Solutions for IoT / Scada / Cl

2.8 Serial/USB converters

2.9 Fibre optic converters

2.10 Modules Radio

REMOTE ALARM AND DATALOGGER UNITS

2

2.1

REMOTE ALARM AND DATALOGGER UNITS

The **SENECA remote alarm and datalogging devices** are designed to remotely control, monitor and implement small automations for homes, buildings, systems and production machines through simple commands sent with SMS messages. With any mobile phone or smartphone, it is possible to control the switching on and off of a technical system, to activate a contact and to receive an anomaly or an alarm. These professional and universal devices are easily programmable and are based on a GSM/GPRS module that acts as a telephone communicator capable of intelligently managing calls, commands, directories and data archiving.

HIGHLIGHTS

INSTANT ALARM MESSAGING — B M

MULTILINGUAL SUPPORT UNICODE — B M

INTEGRATED MODEM AND I/O — B M

SMS COMMANDS / ZERO COST CALL — B M

LIST OF UP TO 250 USERS PER APPLICATION — B M

RECHARGEABLE LI-ON BATTERY — B M

COMPATIBLE WITH ALL TYPES OF STANDARD VOICE/DATA SIMS — B M

E-TIMER COUNTER MANAGEMENT — B M

DATA ARCHIVING AND DISPLAY — M

INTEGRATED TEMPERATURE SENSOR — M

E-MAIL MANAGEMENT — M

PRE-SET SCENARIOS — M

DTMF COMMANDS, VOICE ALARMS (10 HOURLY PROGRAMS, 83 ALARM SOURCES) — M

DIGITAL OUTPUTS OPTION — M

CASING OPTION IP66 — M

SD MICRO SUPPLIED (MY2S MODEL) — M

PROGRAMMING TOOL

M B EASY MYALARM2 / EASY SETUP (BASE CONFIGURATION)
I/O management, acquisition time, log (MYALARM2 only), commands, alarms, SIM, GSM communication, audio files (MYALARM2 only), administration functions (password, credit, message redirection, etc.)

M EASY MYALARM2 (WITH SCENARIOS)
Custom pre-programmed applications: advanced automation, datalogger, solar panel control, automatic gate control, hour meter, power blackout control, alarm control on analog / digital inputs, water / gas leakage control, swimming pool control, timer automation, boiler control

M LOG FACTORY
History file display and archiving

M SENECA SMS
Android / iOS APP for the sending and customisation of SMS controls

M SENECA TEMP
Android APP for thermostat temperature and function management

USE SCENARIOS

DOMOTICS

AUTOMATIC BARRIER CONTROL (GATES, DOORS, GARAGE, BARRIERS, ETC.)

CONTROL OF BOILERS AND HVAC SYSTEMS

ANTI-INTRUSION SYSTEMS

ANTI-FLOOD SYSTEMS

SYSTEM MONITORING

ALARMS MANAGEMENT MAINS WATER NETWORK

REMOTE CONTROL SYSTEMS TECHNOLOGICAL SYSTEMS

WATER CONSUMPTION AND LOSS

COLD CELLS

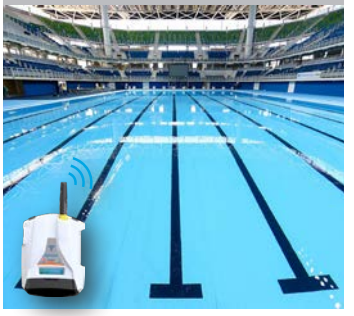
AUTOMATIONS

AUTOMATIC IRRIGATION SYSTEMS

PUMP ROTATION

EMBARKATIONS CONTROL

SWIMMING POOL



ENERGY MANAGEMENT

NETWORK VOLTAGE CONTROL AND BLACKOUT ALARMS MANAGE-MENT

SOLAR PANELS AND ENERGY CONSUMPTION CONTROL

REMOTE ALARMS

CONTROL OF THE CONTINUITY OF FIBRE OPTIC

MONITORING OF ACCESSES AND PRESENCES

REMOTE ALARM AND DATALOGGER UNITS

	B-ALARM	MYALARM2
	 NEW PRODUCT	
	1DI / 1DO remote alarm unit with basic functions	GSM / GPRS datalogger with remote alarm functions, remote measurement and remote management
GENERAL DATA		
Power supply	10..28 Vdc	6..15 Vdc
Absorption	Typical 1.2 W, maximum 3.5 W	3.5 W (max)
Degree of protection	IP20	IP20
Rechargeable spare battery	NiMh, 600 mAh, autonomy up to 60 min	Li-On (1,000 mAh), autonomy from 8 to 16 h
Status reports	Power supply - GSM network coverage - Input / Output status	Power supply - GSM network coverage - Device status
Operating temperature	-10..+55°C	-10..+55°C (with battery not being recharged); 0..+45°C (during recharge)
Integrated NTC sensor	No	Yes
Connections	Detachable screw terminals, 3.5 mm step PUSH-PUSH type SIM-CARD connector Screw connector for stylus antenna Micro USB port for configuration	Detachable spring clamps, 3.5 mm step SIM card type PUSH-PULL connector SMA connector for GSM antenna Micro USB port for configuration Push-push slot for Micro SD card
SD supplied	No	Yes (MY2S model)
Protocols	SMS	SMS, FTP client, SMTP client, SMTPS with SSL client
Display	No	Graphic LCD 32x128 pixels - Display scroll button - Area visibile 29 x 8.6 mm
GSM	Quad band (850 / 900 / 1800 / 1900 MHz)	Quad band 850 / 900 / 1800 / 1900 MHz; SIM push-pull port slot, voice/data SIM card support
Dimensions (lxhxp)	54 x 114 x 32 mm	80 x 105 x 30 mm
Weight	80 g	150 g
Material	ABS polycarbonate	ABS polycarbonate
Installation	DIN Guide or wall	DIN Guide or wall
FUNCTIONS AND SOFTWARE		
Basic configuration	Software (EASY SETUP)	Software (EASY MYALARM2)
Pre-set scenarios	No	Software (EASY MYALARM2)
Datalogger	No	Yes
Commands / SMS Alarms / Call	Yes	Yes
DTMF Commands / Voice alarms	No	Yes (MY2S model)
Incremental alarms	Yes	Yes
Email management	No	Yes
List	5 users (1 administrator), max 250 additional contacts, ring function	20 users (1 administrator), max 250 additional contacts, ring function
Zero cost ring commands	Yes	Yes
Fast / timed commands	Yes	Yes
Management of counters and timers	1 counter, 4 timers	4 counters, 10 timers
SMS and temperature management App	No	Yes
Unicode Support	Yes	Yes
DIGITAL INPUTS		
Channels	1	4
Type	Reed, contact, NPN 2 wires, FD01 photodiode	REED Contact, PNP, Pulscap, relay
Max. frequency	5 Hz	30 Hz
ANALOG INPUTS		
Channels	-	2
Type	-	Current 0..20 mA (max impedance 60 Ω); voltage 0..30 V (max impedance 100 kΩ); 16 bit resolution, precision 0.1% f.s.
DIGITAL OUTPUTS		
Channels	1	2 ((optional)
Type	Relay SPDT 2 A / 250 Vac	Relay SPST 3 A / 250 Vac
STANDARD		
Certification	EC	EC
Regulations	ETSI EN 301 489-7, EN301 511, EN301 489-1, IEC / EN 60950	EN60950, EN 301 511, EN 301 489-7, EN 301 489-1

ORDER CODES

Code	Description	Code	Description
B-ALARM	Remote alarm 1DI / 1DO with basic functions	**ACCESSORIES**	
MY2B-0-0-M-B	MyAlarm2, base / datalogger, terminals, blue	A-GSM	External antenna GSM dual band swing cable 3.2 m
MY2B-0-0-M-G	MyAlarm2, base / datalogger, terminals, grey	A-GSM-DIR-5M	Compact directional antenna GSM-DECT-UMTS SMA-M, cable 5 m
MY2B-R-0-M-B	MyAlarm2, base / datalogger, relay, terminals, blue	A-GSM-OMNIDIR	Omnidirectional GSM-UMTS-WIFI antenna, 5.1 dB, SMA-M. cable 5 m
MY2B-R-0-M-G	MyAlarm2, base / datalogger, relay, terminals, grey	A-GSM-OMNIDIR-10	Omnidirectional GSM-UMTS-WIFI antenna, 5.1 dB, SMA-M. cable 10 m
MY2B-0-0-M-B-4X	MyAlarm2, base / datalogger, terminals, blue, IP66 casing	A-GSM-QUAD-N	Omnidirectional external antenna 4G/WI-FI, FME, cable 3 m
MY2B-0-0-M-G-4X	MyAlarm2, base / datalogger, terminals, grey, IP66 casing	ALIM-MY2	Power supply unit 230 V / 12 V for MYALARM2 and B-ALARM
MY2B-R-0-M-B-4X	MyAlarm2, base / datalogger, relay, terminals, blue, IP66 casing	BATT-MY2	3.7V lithium battery - 1.200mAh for MYALARM2
MY2B-R-0-M-G-4X	MyAlarm2, base / datalogger, relay, terminals, grey, IP66 casing	FD01	PULSECAP, photodetector for counting pulses from electronic meter, max freq 10 Hz
MY2S-0-0-M-B	MyAlarm2, security audio, SD card, terminals, blue	MSD	Micro SD memory card with adapter
MY2S-0-0-M-G	MyAlarm2, security audio, SD card, terminals, grey	MY2-KITIP66	ABS kit for rapid assembly with IP66 protection grade for field applications
MY2S-R-0-M-B	MyAlarm2, security audio, SD card, relay, terminals, blue	**SOFTWARE E APP**	
MY2S-R-0-M-G	MyAlarm2, security audio, SD card, relay, terminals, grey	LOG FACTORY	Data acquisition and display software
MY2S-0-0-M-B-4X	MyAlarm2, security audio, SD card, terminals, blue, IP66 casing	EASY MYALARM2	MYALARM2 configurator
MY2S-0-0-M-G-4X	MyAlarm2, security audio, SD card, terminals, grey, IP66 casing	EASY SETUP	SENECA programmable product configurator
MY2S-R-0-M-B-4X	MyAlarm2, security audio, SD card, relay, terminals, blue, IP66 casing	SMS SENECA	iOS / Android App for MYALARM2 remote configuration and interrogation
MY2S-R-0-M-G-4X	MyAlarm2, security audio, SD card, relay, terminals, grey, IP66 casing	SENECA TEMP	iOS MYALARM2 App for MYALARM2 temperature control

ADVANCED DATALOGGERS

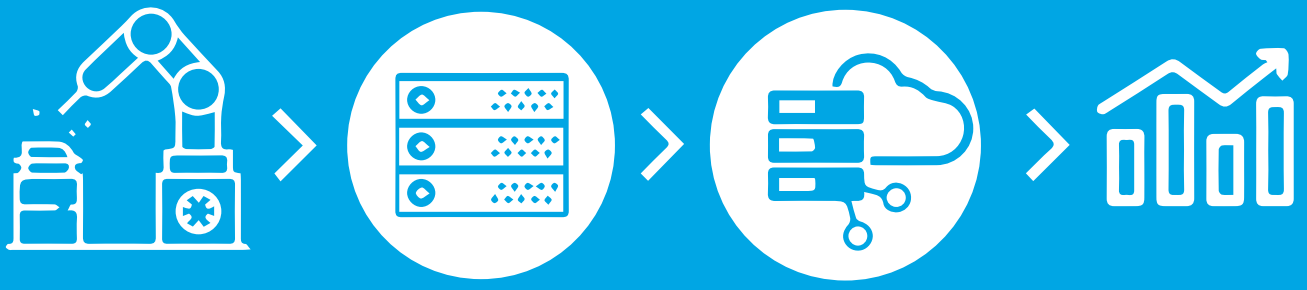
2

2.2

ADVANCED DATALOGGERS

OVERVIEW

The advanced Z-LOGGER3, Z-GPRS3 and Z-UMTS dataloggers represent a platform able to meet the growing needs of data collection, real-time analysis and integration with IT systems present in automation and in system monitoring, in line with the new productivity and communication models of Industry 4.0 and the Internet of Things. Designed to perform remote alarm, remote measurement and datalogging functions, these devices are available with integrated I / O channels, dedicated programming and supervision software, support for serial communication, Ethernet and wireless in models equipped with 2G / 3G + modem. Optionally, dataloggers can be combined with Cloud BOX, an IoT / Cloud solution proposed by SENECA that allows the centralising data, the managing of remote connections and the creation of multi-user customisable supervision pages.



- **DATA MEASUREMENTS AND COLLECTION AND SENSORS / ACTUATORS INTERFACE**
- **INTEGRATION WITH AUTOMATION SYSTEM (HMI / SCADA / PLC)**
- **REMOTE MANAGEMENT (REMOTE ALARM, REMOTE CONTROL, REMOTE MEASUREMENT)**
- **FLEXIBLE PROGRAMMING AND CONFIGURATION**

HIGHLIGHTS

DATALOGGING SYNCHRONOUS / ASYNCHRONOUS / ON TRIGGER

DATA LOG REDUNDANT

ALARMS MANAGEMENT VIA SMS / DTMF

SEND EMAIL / FTP FILE

PROGRAMMING ENVIRONMENT AND CONTROL FUNCTIONS

MODEM 2G / 3G+

INTEGRATED I/O

COMMUNICATION PORTS: SERIAL / ETHERNET

IT / MODBUS COMMUNICATION PROTOCOLS

CLOUD SUPPORT

PROTOCOLS SUPPORTIoT (MQTT, HTTP REST)

TRANSPARENT GATEWAY

BACKUP BATTERY

MEMORY EXPANDABLE UP TO 32 GB WITH MICRO SD CARD

SIM SUPPORT WITH IP PUBLIC / APN / DYNDNS

UNICODE/UTF8 SUPPORT

HARDWARE

Z-LOGGER3, Z-GPRS3, Z-UMTS are devices with a high technological concentration. They can operate stand-alone or as a Master unit of the SENECA Z-PC Series distributed I/O system. They offer maximum openness outwardly and to third parties thanks to the technological standards they comply with. They have 8 built-in I/O channels, 2 serial interfaces supporting Modbus protocol, 1 Micro USB port and 1 10/100 Mbps Ethernet port. Models with 2G/3G + modem support different types of SIM. They are equipped with 8MB Flash memory slot for an expandable Micro SD card.

POWER SUPPLY
- Voltage range 11(19)..40 Vdc; 19..28 Vac
- Integrated UPS with up to 1 hour of autonomy

MODEM
- GSM / GPRS Quad Band (ZGPRS3)
- GSM / GPRS Quad Band / UMTS / HSPA+ (Z-UMTS)
- DTMF Commands and audio alarms
- ftp, smtp, http rest, MQTT protocols

ETHERNET
- Ethernet – ModBUS TCP-IP Client / Server Interface, 10/100 Mbps, RJ45
- ftp, smtp, http rest protocols
- ftp, smtp, http rest, MQTT protocols

SERIAL INTERFACES
- RS485 ModBUS Master / Slave COM1- IDC10 (rear) for I/O expansions
- RS232 / RS485 ModBUS Master / Slave COM2 on terminals

USB
USB Micro types B host for local programming

CONNECTORS, BUTTONS AND LED
- SIM slot
- Push pull connector for Micro SD card insertion
- On/off button
- Diagnostics LED

CPU / MEMORIES
- ARM @32bit
- RTOS multitasking
- Flash Log 8MB
- Slot for Micro SD card up to 32GB

I/O
- 4 Digital Inputs PNP, NPN (counters / totalisers @32 bit, max 30 Hz)
- 2 Analog Inputs 0..20 mA, 0..30 V
- 2 SPDT relay outputs, max 2 A - 250 Vac

PROGRAMMING

SENECA's advanced data loggers ensure open and flexible programming thanks to a dedicated environment for the development of control logic (SEAL), an integrated Web Server, an app for direct management of commands via SMS, a tool for importing and displaying data (Log Factory). The HMI interface of the "Cloud BOX" system completes the possibility of managing data through responsive web pages that can be customised with widgets. They can also be integrated with Scada, Cloud systems, databases and third-party web portals already available on systems or arranged by end users.

SEAL
LOGICAL-MATHEMATICAL SYSTEM AND FUNCTIONS CONFIGURATION

CLOUD BOX
REMOTE CONNECTIONS MANAGEMENT HMI FUNCTIONS, DATA FILE ARCHIVE

WEB SERVER
MONITORING AND SETTING PARAMETERS

LOG FACTORY
ARCHIVING AND DISPLAY HISTORIC FILES

SMS SENECA
ANDROID APP / IOS FOR THE SENDING AND PERSONALISATION OF SMS COMMANDS

THIRD PARTIES SYSTEMS
SCADA, CLOUD, DATABASE SYSTEMS AND WEB PORTALS OF THIRD PARTIES

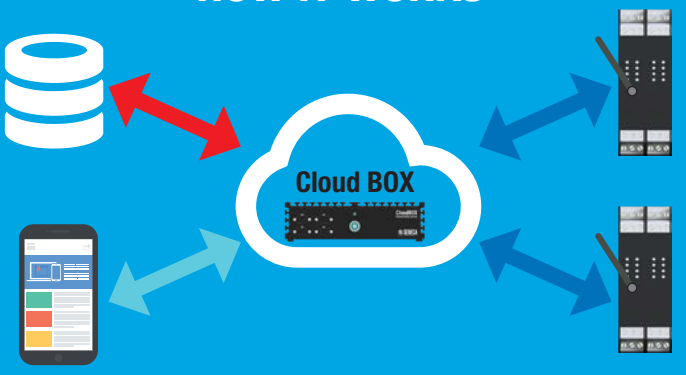
CLOUD BOX - INDUSTRIAL IoT BOX WITH MICRO SCADA FUNCTIONS

WHAT ITIS

The Cloud - IoT solution for centralising data, managing remote connections, creating multi-user customisable supervision pages.

HOW IT WORKS

- **Sending commands to datalogger**
- **Saving data received from devices in the field on a centralised database**
- **Access to Cloud BOX through customisable web pages**



HIGHLIGHTS

SUPERVISION
Creation of responsive web pages with dashboards, synoptics and integrated widgets for the supervision of devices in the field

DATA ARCHIVING
Centralised data storage alarms of connected devices

DATA DISPLAY
Displaying data with web pages in graphical mode

DATA EXPORT
Data export in csv format

DATA/ALARMS HISTORY
Display of time series data, events, alarms on web pages

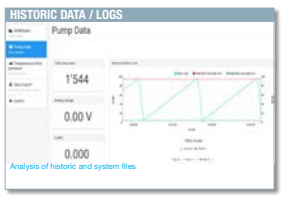
SENDING OF COMMANDS
Sending of commands to connected devices bypassing of any SIM blocks and firewalls (compatibility with any data/M2M SIM)

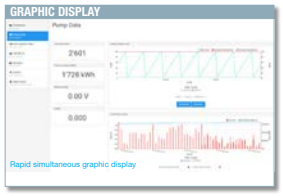
REMOTE CONNECTION
Communication management with datalogger via 2G / 3G+ / Ethernet with HTTP, HTTPS, FTP protocols

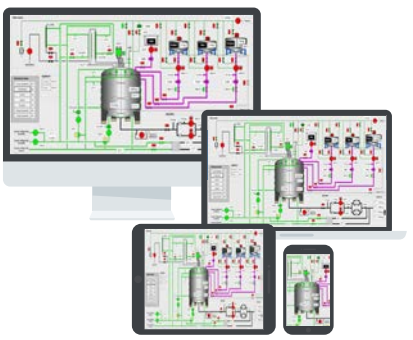
SENDING OF EMAIL
Sending of alarm email to a user list

HMI / SCADA FUNCTIONS

Cloud BOX provides numerous widgets (input status, charts, bars, etc.), i.e. components that represent the status of connected devices. Starting from these widgets, responsive web pages (for PCs, tablets, smartphones) of the dashboard type (e.g. historical data, commands, events management, trend management) or supervisory synoptics can be created.





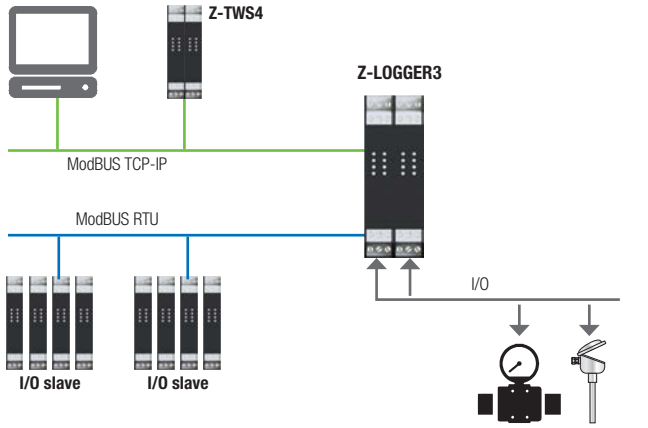


TECHNICAL DATA

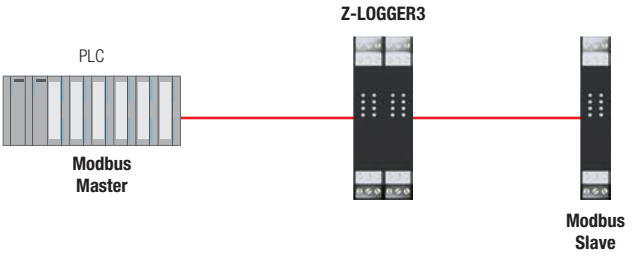
Power supply voltage	12 Vdc
Operating temperature	0..40°C
Dimensions (lxhxd)	185x48x165 mm
Conformity	CE, FCC, RoHS, ErP Ready
Casing	Compact / fanless
Assembly	On wall or on DIN guide
Processor	Intel Celeron J1900 2.0 GHz Quad-Core
SSD	64GB mSATA
LAN controller	Intel 211 AT Gigabit LAN
Interfaces	Nr.4 USB ports, Nr.2 RJ45 ports
Monitoring instruments	Dashboard, synoptics, widgets
Real-time display	Yes
Analysis of historic data, alarm and event log	Yes
Sampling time	Min 1 minute
Data export	CSV
Connectable Seneca Devices	Max 200
Total number of Tags	Max 5.000
Connection protocols	http, https, Ftp

APPLICATION DIAGRAMS

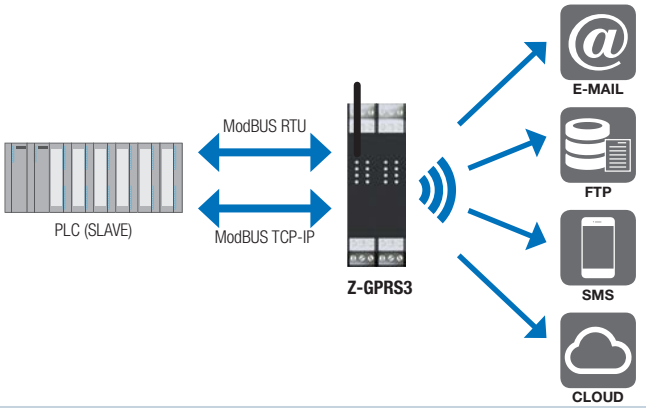
DATA ACQUISITION AND RETRANSMISSION



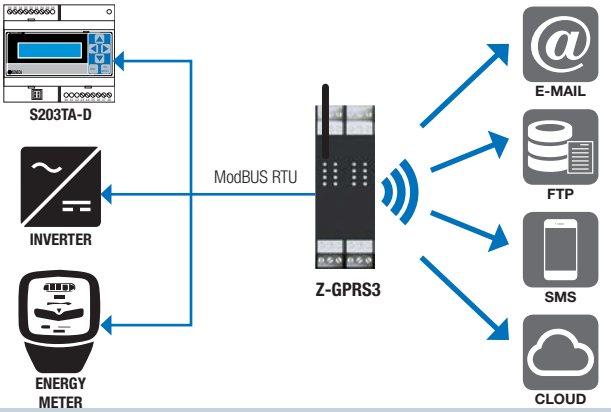
MASTER / SLAVE SIMULTANEOUS OPERATION



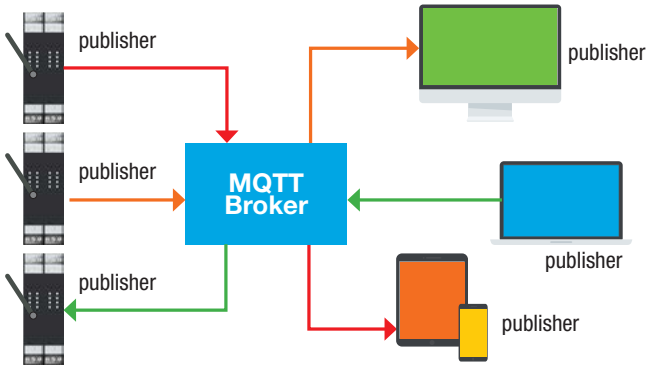
PLC REMOTE MANAGEMENT



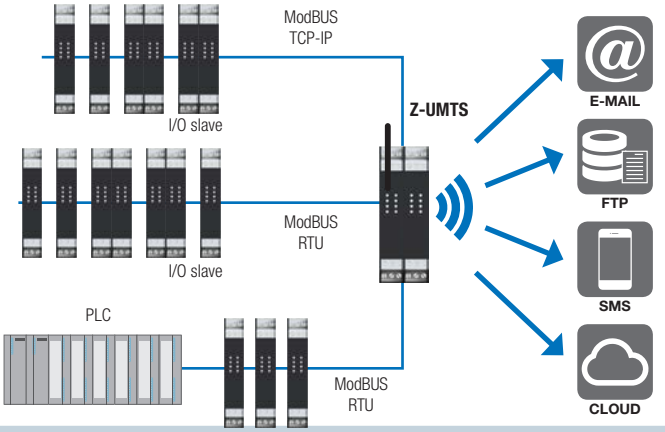
ENERGY MEASUREMENT SUPERVISION AND CONTROL



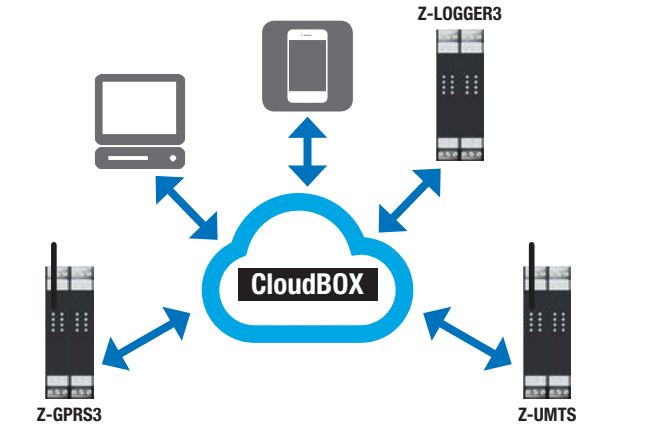
MQTT ARCHITECTURE



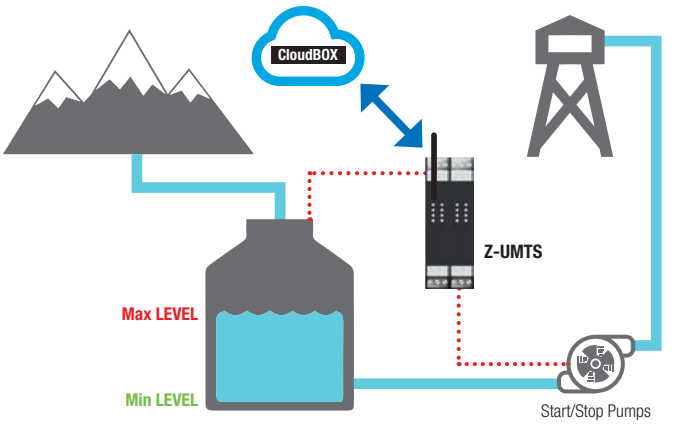
DATA LOGGING AND DATA RETRANSMISSION



REMOTE MONITORING IoT



PUMPS REMOTE MONITORING



ADVANCED DATALOGGERS

	Z-LOGGER3	Z-GPRS3	Z-UMTS
	 NEW CHARACTERISTICS	 NEW CHARACTERISTICS	 NEW CHARACTERISTICS
	Datalogger with integrated I/O and alarm management functions	**GSM/GPRS data logger with integrated I/O, remote control functions and voice commands**	**3G+ data logger with integrated I/O, remote control functions and voice commands**
GENERAL DATA			
Power supply	11..40 Vdc / 19..28 Vac	11..40 Vdc/ 19..28 Vac	19..40 Vdc/ 19..28 Vac
Transducers power supply	Yes	Yes	Yes
Consumption	Max 3.5 W	Max 6.5 W	Max 6.5 W
Integrated UPS	YES (autonomy max 60 minutes)	YES (autonomy max 60 minutes)	YES (autonomy max 60 minutes)
On/off button	Yes	Yes	Yes
SD extraction button	Yes	Yes	Yes
Voice Alarms and DTMF Commands	No	Yes	Yes
Insulation	1,500 Vac	1,500 Vac	1,500 Vac
Degree of protection	IP20	IP20	IP20
Operational Temperature	-10..+50°C	-10..+50°C	-10..+50°C
Weight	250 g	280 g	280 g
Dimensions (lxhxp)	35x100x112 mm	35x100x112 mm	35x100x112 mm
Installation	DIN Guide	DIN Guide	DIN Guide
I/O CHANNELS			
Digital Inputs	No. 4 channels PNP, NPN (counters / totalisers @32 bit, max 30 Hz)	No. 4 channels PNP, NPN (counters / totalisers @32 bit, max 30 Hz)	No. 4 channels PNP, NPN (counters / totalisers @32 bit, max 30 Hz)
Analog Inputs	No.2 channels, range 0..20 mA, 0..30 V, 16 bit	N°2 channels, range 0..20 mA, 0..30 V, 16 bit	N°2 channels, range 0..20 mA, 0..30 V, 16 bit
Digital Outputs	N°2 SPDT relay channels max 2 A 250 Vac	N°2 SPDT relay channels max 2 A 250 Vac	N°2 SPDT relay channels max 2 A 250 Vac
COMMUNICATION			
Ethernet Interface	10/100 Mbps (RJ45)	10/100 Mbps (RJ45)	10/100 Mbps (RJ45)
Serial interface #1	RS485 ModBUS, programmable baud rate	RS485 ModBUS, programmable baud rate	RS485 ModBUS, programmable baud rate
Serial interface #2	RS232/RS485 switchable, programmable baud rate, on terminal	RS232/RS485 switchable, programmable baud rate, on terminal	RS232/RS485 switchable, programmable baud rate, on terminal
USB Interface	Micro USB type B HOST (local)	Micro USB type B HOST (local)	Micro USB type B HOST (local)
Protocols	Ftp, Smtp, http rest, ModBUS RTU, ModBUS TCP-IP, MQTT	Ftp, Smtp, Smtps, http rest, https, ModBUS RTU, ModBUS TCP-IP, MQTT	Ftp, Smtp, Smtps, http rest, https, ModBUS RTU, ModBUS TCP-IP, MQTT
Modem	-	2G (GSM/GPRS)	3G+ / 3G+ worldwide GNSS*
Transparent Gateway	Yes	Yes	Yes
DATA PROCESSING, ARCHIVING			
CPU	ARM 32 bit	ARM 32 bit	ARM 32 bit
RTOS Multitasking	Yes	Yes	Yes
Integrated Flash log	8 MB	8 MB	8 MB
Log expandable memory	Micro SD card supplied (up to 4GB) expandable up to 32 GB (dedicated slot)	Micro SD card supplied (up to 4GB) expandable up to 32 GB (dedicated slot)	Micro SD card supplied (up to 4GB) expandable up to 32 GB (dedicated slot)
Datalogger	Measurements, alarms, events, log on Micro SD card and Flash	Measurements, alarms, events, log on Micro SD card and Flash	Measurements, alarms, events, log on Micro SD card and Flash
Synchronous datalogger	Minimum sampling time 1 minute	Minimum sampling time 1 minute	Minimum sampling time 1 minute
Asynchronous datalogger	Up to 8 trigger events with max input frequency 1 Hz	Up to 8 trigger events with max input frequency 1 Hz	Up to 8 trigger events with max input frequency 1 Hz
PROGRAMMING			
Platform	SEAL	SEAL	SEAL
No. max logic blocks (SEAL)	32	32	32
No. max manageable variables per device	100 + integrated I/O	100 + integrated I/O	100 + integrated I/O
Web Server	Yes, on Ethernet	Yes, on Ethernet, Private SIM APN, public SIM IP, DDNS	Yes, on Ethernet, Private SIM APN, DDNS public SIM IP
FUNCTIONS			
Management of alarms and commands	Yes	Yes	Yes
Advanced mathematical functions	Yes	Yes	Yes
Auxiliary functions (DynDNS / Syslog / UniCode/UTF8)	Yes	Yes	Yes
Alarm no GSM/Ethernet communication	No	Yes	Yes
Updating of remote firmware (ftp, web server)	Yes	Yes	Yes
STANDARD			
Regulations	EN 61000-6-4, EN 64000-6-2, EN 61010-1	EN 301511, EN 301489-1/7, EN 60950	EN 301511, EN 301489-1/7, EN 60950

ORDER CODE

Code	Description	Code	Description
Z-LOGGER3	Datalogger with integrated I/O and alarm management functions	MSD	Micro SD memory card with adapter
Z-GPRS3	GSM/GPRS data logger with integrated I/O, remote control and voice alarm functions	Z-PC-DIN1-35	Support for rapid assembly on DIN guide 1 slot pitch 35 mm
Z-UMTS	4G/LTE* datalogger with integrated I/O, remote control and voice alarm functions	Z-PC-DINAL1-35	Support for rapid assembly on DIN guide head + 1 slot pitch 35 mm
CLOUD BOX	Micro SCADA – Iot Cloud-in-a-box	Z-PC-DIN4-35	Support for rapid assembly Z-PC-DIN4-35 on DIN guide 4 slot pitch 35 m
A-GSM	External antenna GSM dual band swing cable 3.2 m	CU-A-MICROB	Cable plug USB-A Micro USB-B 5 P
A-GSM-DIR-5M	Compact directional antenna GSM-DECT-UMTS SMA-M, cable 5 m	Z-SUPPLY	Power supply switching monophase 24V @ 1.5 A
A-GSM-OMNIDIR	Omnidirectional Antenna GSM-UMTS-WIFI, 5.1 dB, SMA-M, 5 m cable	SOFTWARE / APP	
A-GSM-QUAD-N	GSM SMA-M quadband external antenna, cable 4 m	SEAL	SENECA Advanced language, advanced software prog.
FD01	PULSECAP, photodetector for counting pulses from electronic meter, max freq. 10 Hz	LOG FACTORY	Import, archive and display data tool
KIT-USB	Programming kit for instruments with USB interface	SMS SENECA	iOS / Android App for the sending of commands

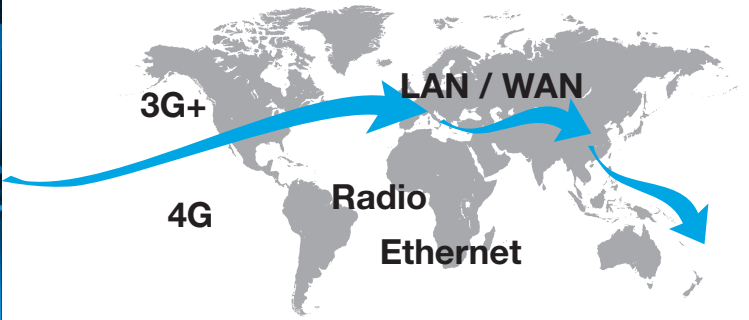
* Available by 2018

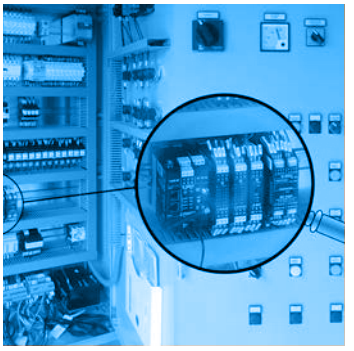
The technical data and the diagrams in this document are indicative and not binding.

RTU FOR REMOTE CONTROL APPLICATIONS

OVERVIEW

The SENECA remote control equipment is a perfect combination between the world of remote control and automation. The RTU range includes solutions for small systems, all-in-one solutions that concentrate I/O, control logic and communication system, devices for special applications (unattended sites, pumping stations, energy management). The use of compatible platforms and the most popular technological standards offers the user the opportunity to improve the efficiency and quality of investments in their applications. SENECA RTUs can be integrated with SENECA hardware (I/O modules, HMI, communication interfaces) and with those of third parties as well as with the LET'S remote assistance platform. They also provide flexible programming tools and dedicated libraries for remote monitoring.





WIDE RTU RANGE FOR MULTISECTORAL APPLICATIONS

REMOTE CONTROL SYSTEMS H24

ADVANCED ALARMS

REDUCTION OF OPERATING COSTS

ENERGY MONITORING

DATA STORAGE

OPENING SCADA / OPC

COMANDI E NOTIFICA VIA
COMMANDS AND NOTIFICATION VIA

SOFT PLC IEC 61131 - STRATON

SUPPORT VPN / SSL

LET'S PLATFORM VPN/IOT (REMOTE ASSISTANCE / REMOTE CONTROL)

I/O INTEGRATED

INTEGRATION WITH THIRD PARTY DEVICES AND COMMUNICATION EQUIPMENT

INTEGRATED MODEMS / ROUTERS 2G / 3G+ / 4G

SERIAL INTERFACES / MODBUS / ETHERNET

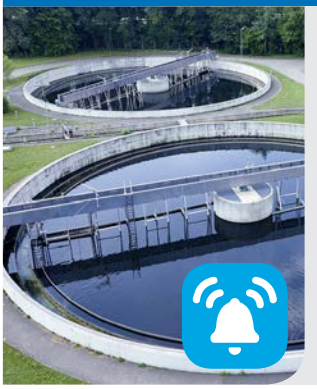
SPECIAL APPLICATIONS (PUMP CONTROLLER, LOW POWER)

KEY FUNCTIONS

DATA ACQUISITION

- Acquisition and exchange of data from sensors, actuators, meters, analysers, thresholds
- Distributed I/O system
- Range of modules with density from 5 to 24 points
- 3-way galvanic isolation
- ModBUS RTU, ModBUS TCP-IP, CANopen protocols
- Self-diagnosis management and safety status
- Hot swapping

ALARMS INTEGRATED MANAGEMENT

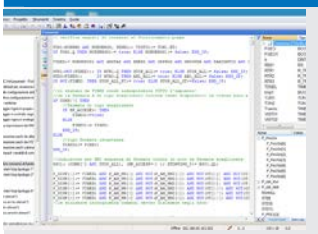


- Early warning in case of fault
- Event actions towards external actuators
- Transmission of alarms to maintenance personnel via SMS
- Receiving and sending of commands via SMS, email or app
- Consultation and verification of alarms, events and statuses and of the system

MULTISTANDARD COMMUNICATION

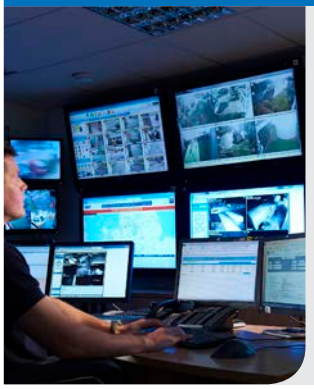
- Modem / Router 2G/3G+/4G/ GNSS/GPS
- Fast Ethernet, serial, USB ports
- Point-point, point-multipoint connections
- Management of «Always ON» and «ON Demand» connections
- ModBUS RTU, TCPIP, ASCII support
- Data log transfer via ftp, smtp (email), pre-set time threshold

PROGRAMMING AND LIBRARIES



- Control logic based on SoftPLC Straton IEC 61131
- Sending of email/SMS
- Creation, storage and display of data logs
- Management of alarms and signals
- Automatic management of motorised users
- Counting of operating hours
- Management of counters and totalisations
- Capacities calculation

OPC / SCADA



- Opening to SCADA with OPC UA / OPC DA technology
- Field integration and supervision with ModBUS RTU or TCP/IP protocol
- Integrated Web Factory display environment
- Front End of real-time communication between field and Scada

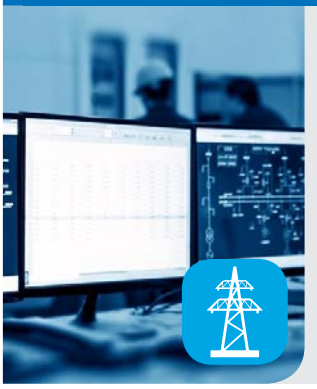
PLATFORMS IoT / VPN

- Controllers that can be integrated into the remote access platform, LET'S
- Support of VPN and SSL technologies.
- Centralised supervision
- Predictive maintenance and diagnostics
- Remote assistance
- Remote software update
- Access to data and installations in 'Single LAN' and 'Point-to-Point' modes

CONTROL OF PUMPS AND PRESSURISATION GROUPS

- Sending of commands via SMS
- Calculation of the capacity
- Configuration via HMI 7" touchscreen
- Regulation, start, stop and acceleration
- Elimination of water hammer
- Extension of pump life
- Adjustment of pressures, levels, flow rates

ENERGY SECTOR APPLICATIONS



- RTU for transmission systems and electricity distribution
- Availability of the IEC 61850 protocol for local communication between equipment in medium and high voltage electrical systems
- Availability IEC 60870 (101 and 104) for communication in the distributed networks of transport and distribution of electricity.

RTU - A COMPLETE RANGE OF PERIPHERAL UNITS AND REMOTE CONTROLLERS FOR UTILITIES, ENERGY AND INFRASTRUCTURE

		REMOTE ALARM AND DATALOGGER UNITS		DATALOGGER WITH REMOTE CONTROL FUNCTIONS		
		B-ALARM	MYALARM2	Z-LOGGER3	Z-GPRS3	Z-UMTS
		 NEW PRODUCT		 NEW CHARACTERISTICS	 NEW CHARACTERISTICS	 NEW CHARACTERISTICS
Caratteristiche principali	Power supply	10..28 Vdc, rechargeable battery Li-On autonomy 100 minutes	6..15 Vdc, rechargeable battery Li-On autonomy 8/16 hours	11..40 Vdc / 19..28 Vac, rechargeable battery NiMh, autonomy 60 minutes	11..40 Vdc / 19..28 Vac, rechargeable battery NiMh, autonomy 60 minutes	19..40 Vdc / 19..28 Vac, rechargeable battery NiMh, autonomy 60 minutes
	I/O integrati	1DI, 1DO	4DI, 2AI, 2DO (opz.)	4DI, 2AI, 2DO	4DI, 2AI, 2DO	4DI, 2AI, 2DO
	Programming system	EASY SETUP	EASY MYALARM2	SEAL	SEAL	SEAL
	Flash	-	512 kB+2MB (log)	8 MB	8 MB	8 MB
	RAM	-	128 kB	256 kB	256 kB	256 kB
	Micro SD Card	-	Up to 32 GB	Up to 32 GB	Up to 32 GB	Up to 32 GB
	Program dimension	-	-	-	-	-
	PLC variable memory	-	-	-	-	-
	Variables managed	2	8	Up to 100 I/O	Up to 100 I/O	Up to 100 I/O
	Integrated functions of automation, remote control and data management	-	-	Sending of data log, states email/sms, commands and alarms	Sending of data log, states email/sms, commands and alarms	Sending of data log, states email/sms, commands and alarms
	Datalogging	-	Yes	Yes	Yes	Yes
	Data display	-	Log Factory	Log Factory, Cloud BOX	Log Factory, Cloud BOX	Log Factory, Cloud BOX
	Third party integration	-	.	Yes	Yes	Yes
Connectivity	Modem / Router	2G (modem)	2G (modem)	External router	2G (modem)	3G+ / 3G+ worldwide GNSS* (modem)
	Ethernet Ports			1	1	1
	Serial Ports			2	2	2
	USB Ports	1	1	1	1	1
	Industrial protocols			ModBUS RTU/TCP	ModBUS RTU/TCP	ModBUS RTU/TCP
	IT Protocols	SMS	SMS, Ftp/Smtp Client, Smtps with SSL	Ftp, Smtp, http rest, MQTT	Ftp, Smtp, http rest, MQTT	Ftp, Smtp, http rest, MQTT
	Energy Protocols	-	-	-	-	-
	VPN support	-	-	-	-	-
	Private APN Support		-	-	Yes with DynDNS	Yes with DynDNS
	Cloud Support	-	-	Yes	Yes	Yes
Applications	Advanced automation	-	-	-	-	-
	Distributed automation			x	x	x
	On machine	-	-	-	-	-
	Control of Pumps and Pressurisation Groups	-	-	-	-	-
	Domotics / Security	x	x	x	x	x
	Energy Management	-	-	x	x	x
	Infrastructures and Transportation			x	x	x
	Laboratories / Testing / DAQ	-	-	x	x	x
	Small automations	-	x	x	x	x
	Process (Utilities, Energy, Oil&Gas)	-	-	-	-	-
	Remote alarm	x	x	-	x	x
	Remote control / Remote assistance (LET'S)	-	-	-	-	-

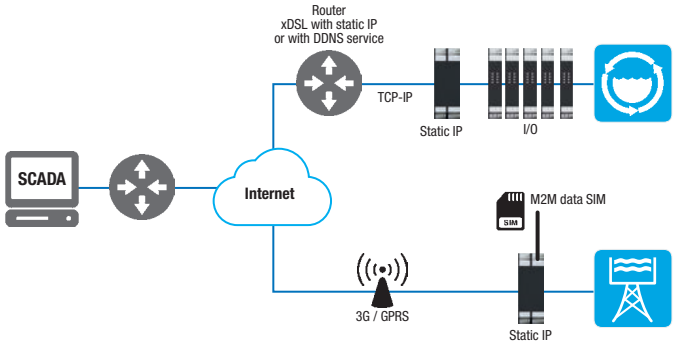
For order codes, accessories, software and further information visit https://www.seneca.it/linee-di-prodotto/comunicazione-industriale-e-telecontrollo/

* Available by 2018

RTU IEC 61131 - STRATON FOR REMOTE CONTROL APPLICATIONS			RTU LOW POWER	PUMP CONTROLLER
Z-MINI-RTU	**Z-PASS2-S**	**S6001-RTU**	**RTU-LP-ST**	**S6001-PC**
	 NEW CHARACTERISTICS		 NEW PRODUCT	
11..40 Vdc / 19..28 Vac	11..40 Vdc / 19..28 Vac	24 Vac/dc ±15%	8..30 Vdc, rechargeable battery Li-On, max autonomy 2 years	24 Vac/dc ±15%
4DI, 2DO, 2AI	2DI, 2DO, 2DI/DO	15DI+2DI, 8DO, 4AI, 2AO	4DI, 2AI, 2DO	15DI+2DI, 8DO, 4AI, 2AO
Straton, Z-NET4	Straton, Z-NET4	Straton, Z-NET4	EASY RTU-LP	HMI
8 MB	1 GB	1 GB	2 MB	1 GB
256 kB	64 MB	64 MB	.	64 MB
Up to 32 GB	Up to 32 GB	Up to 32 GB	Up to 32 GB	Up to 32 GB
248 kB	4 MB	4 MB	-	-
38 kB	4 MB	4 MB	-	-
Up to 200 I/O	Up to 1,000 I/O	Up to 1,000 I/O	8	Up to 1,000 I/O
-	Sending of data log, states email/ sms, commands and alarms	Sending of data log, states email/ sms, commands and alarms	Sending of data log, states email/ sms, commands and alarms	-
Yes	Yes	Yes	Yes	Yes
-	Web Factory	Web Factory		-
Yes	Yes	Yes	-	-
Sì 2G (no router)	3G+ / 4G / GPS / GNSS	3G+	2G (modem)	3G+
1	2	1	-	1
2	3	3	1	1
1	1	1	-	1
ModBUS RTU/TCP	ModBUS RTU/TCP	ModBUS RTU/TCP	ModBUS RTU	ModBUS RTU/TCP(Slave)
http, ftp client, smtp client, Modbus tcp server, Modbus tcp client, ppp	http, ftp client, ftp server, smtp client, ppp, Modbus tcp client, Modbus tcp server	http, ftp client, ftp server, smtp client, ppp, Modbus tcp client, Modbus tcp server	Ftp client, SMS	http, ftp, smtp, ppp
-	IEC 60870-101/104, IEC 61850 (opz.)	IEC 60870-101/104, IEC 61850 (opz.)	-	-
-	Yes, OpenVPN	Yes, OpenVPN	-	Yes, OpenVPN
Yes	Yes	Yes		Yes
-	-	-	-	-
	x	x	-	-
x	x	x	-	-
-	x	-	-	-
-	-	-	-	x
x	-	-	-	-
	x	x	-	-
-	x	x	-	-
-	-	-	-	-
-	-	-	x	-
x	x	x		-
-	-	-	x	-
-	x	x	-	x

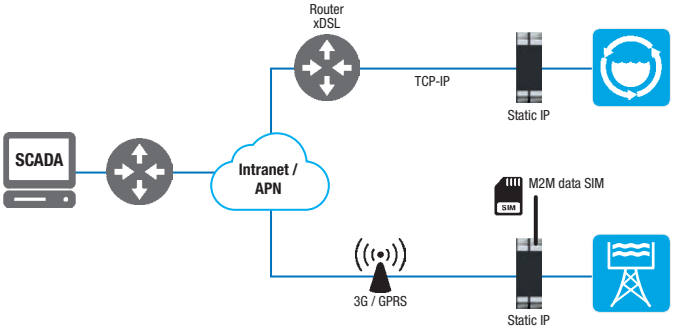
REMOTE CONTROL ARCHITECTURES

REMOTE CONTROL VIA WEB



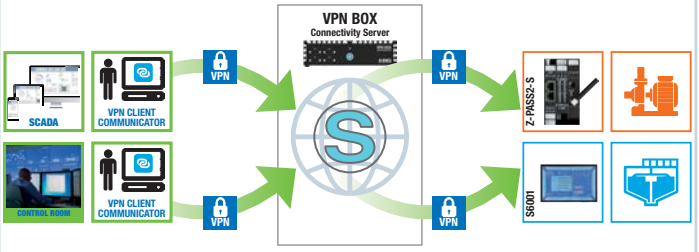
Remote monitoring via the Internet offers remote viewing services, alarm notification, remote system management, collection supervision and data analysis, use of the Internet, the 3G/GPRS standard and the DDNS technology.

PRIVATE INTRANET / APN REMOTE CONTROL



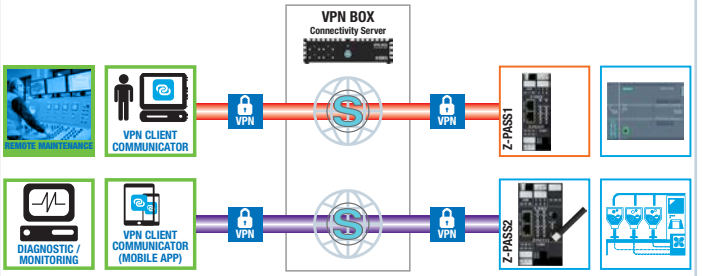
Intranet / APN remote control systems require an Intranet with private APN (static IP addresses on peripheral SIMs).

REMOTE CONTROL ALWAYS ON



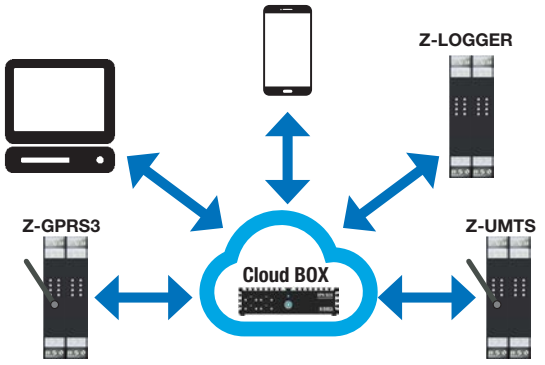
In Single LAN Remote Control mode (always on connection) a Static and public IP is assigned to the VPN BOX server. Communication is simultaneous and always active between all remote sites and the different subnets that are part of the overall system.

ON DEMAND REMOTE ASSISTANCE



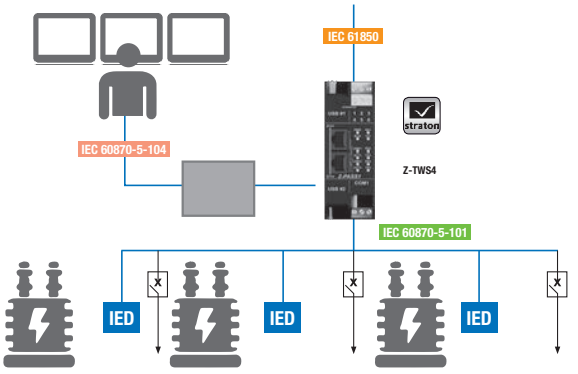
The Point-to-Point Remote Assistance mode (on demand communication) establishes a point-to-point connection between supervision and the machine. Ideal for remote maintenance and diagnostics applications.

MONITORING IOT / CLOUD



The Cloud - IoT solution proposed by SENECA centralises data, manages remote connections and creates customisable multi-user supervision pages.

ENERGY SECTOR MONITORING



The SENECA controllers for Energy Management applications can act as IEC 61850 Servers, as a ModBUS-RTU conversion system - ModBUS TCP, as equipment for the creation of virtual networks via the Internet and point-to-point tunnels.

Z-MINIRTU

GSM/GPRS REMOTE CONTROL EQUIPMENT, WITH INTEGRATED IO AND STRATON IDE

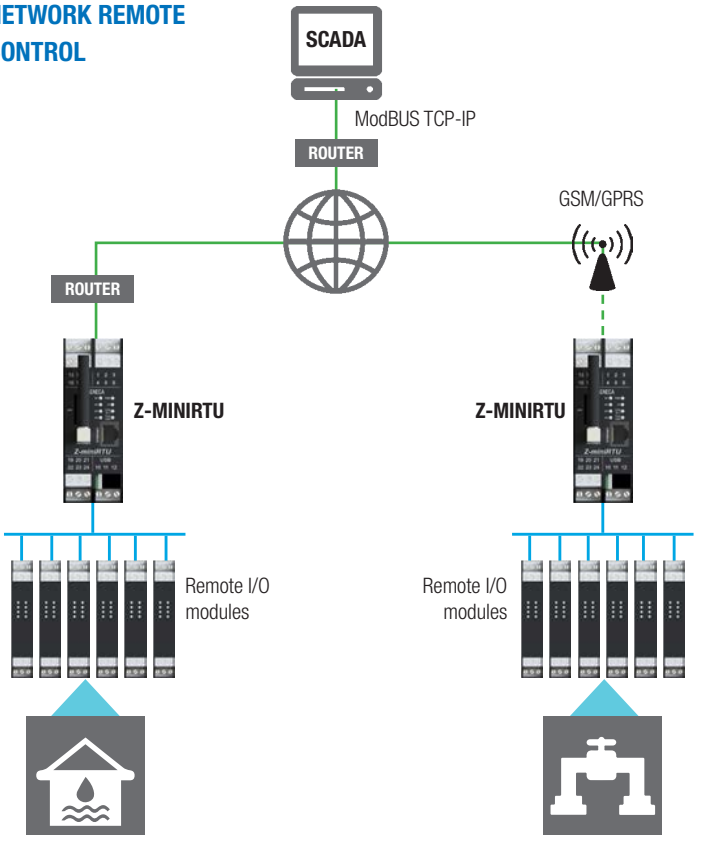
straton

TECHNICAL DATA

GENERAL DATA	
Power supply	11..40 Vdc; 19..28 Vac
Max absorption	6.5 W
UPS	Integrated (autonomy approximately 1 hour)
Insulation	3,000 Vac (power supply/outputs); (1,500 Vac (power supply / other circuits)
State Indicators	Power supply Serial communication Ethernet SD card Digital inputs state Modem state
Degree of protection	IP20
Operational Temperature	-10..+50°C
Dimensions (lxhxp)	100 x 35 x 112 mm
Casing	Nylon 6 with 30% glass fibre self-extinguishing class V0
Connections	Removable terminals, max conductor size 2.5 mm^2
Assembly	DIN Guide 35 mm (IEC EN 60715)
COMMUNICATION	
Ethernet	No. 1 Ethernet port 10/100 Mbps (RJ45)
Serial	Nr 1 RS232 / RS485 switchable Nr. 1 RS485
USB	Nr. 1 lateral connector USB
Modem	GSM, GPRS (quad band)
Industrial protocols	ModBUS TCP-IP (Client/Server), ModBUS RTU (Master/ Slave), custom protocols
Network protocols	PPP, HTTP Post, FTP Client, SMTP Client, NTP Client
INPUT DATA	
Channels / Type	Nr 4 digital inputs PNP, NPN (max voltage 30 Vdc) Nr. 1 analog inputs 0-20 mA, 0-30 Vdc
OUTPUT DATA	
Channels / Type	No. 1 SPDT relay outputs, max 2A 250 Vac
PROCESSOR / MEMORY	
Processor	ARM 32 bit @ 120 MHz
O.S.	Real-Time multitasking
FeRAM (variable retentive)	Max 4 kB
Program memory	Max 248 kB
Variables memory	Max 38 kB
Slot Micro SD	SD Card up to 32 GB
CONFIGURATIONS	
System software	Z-NET4 / Straton
Web Editor	Integrated
Datalogger	Integrated
PLC programming	IEC 61131 (Straton) dedicated libraries
STANDARD	
Certifications	EC
Regulations	EN 61000-6-4, EN 61000-6-2, EN 61010, EN 301511, EN 301489-1, EN 301489-7, EN 60950

APPLICATION EXAMPLE

NETWORK REMOTE CONTROL



ORDER CODE

Code	Description
Z-MINIRTU	GSM / GPRS remote control equipment, with integrated Straton IO
SOFTWARE	
STRATON-D-USB	Straton activation key for IEC 61131 controllers
STRATON-IDE256	Straton development environment 256 tags with USB activation key
STRATON-IDE512	Straton development environment 512 tags with USB activation key
SSP	Straton SENECA Package - CPU Seneca Installer suite
STRATON-WB	Straton workbench IEC 61131 free editor
Z-NET4	I/O systems configurator and IEC 61131 controllers
ACCESSORIES	
MSD	Micro SD memory card with adapter
Z-PC-DIN1-35	Support for rapid assembly on DIN guide 1 slot pitch 35 mm
Z-PC-DINAL1-35	Support for rapid assembly on DIN guide head + 1 slot pitch 35 mm
Z-POWER-115-15VA	Transformer with DIN guide 19 Vac, 115 / 15 VA with thermofuse
Z-POWER-230-15VA	Transformer with DIN guide 19 Vac, 230 / 15 VA with thermofuse
Z-POWER-230-25VA	Transformer with DIN guide 19 Vac, 230 / 25 VA with thermofuse
Z-SUPPLY	Power supply switching monophase 24V @ 1.5 A
CABLES	
CE-RJ45-RJ45-C	Crossed Ethernet cable (RJ45 / RJ45)
CE-RJ45-RJ45-R	Straight Ethernet cable (RJ45 / RJ45)
CS-DB9F-CLAMP	Serial cable RS485 (DB9F / terminals)
CS-DB9F-TIP-V	Serial cable RS485 (DB9F / tips)
CS-DB9M-TIP-V	Serial cable RS485 (DB9M / tips)
CU-A-MICROB	Cable plug USB-A Micro USB-B 5 P

The technical data and the diagrams in this document are indicative and not binding.

Z-PASS2-S

STRATON REMOTE CONTROLLER, INTEGRATED I/O, MODEM 3G+/4G*, ETHERNET ROUTER, GPS

straton

NEW CHARACTERISTICS

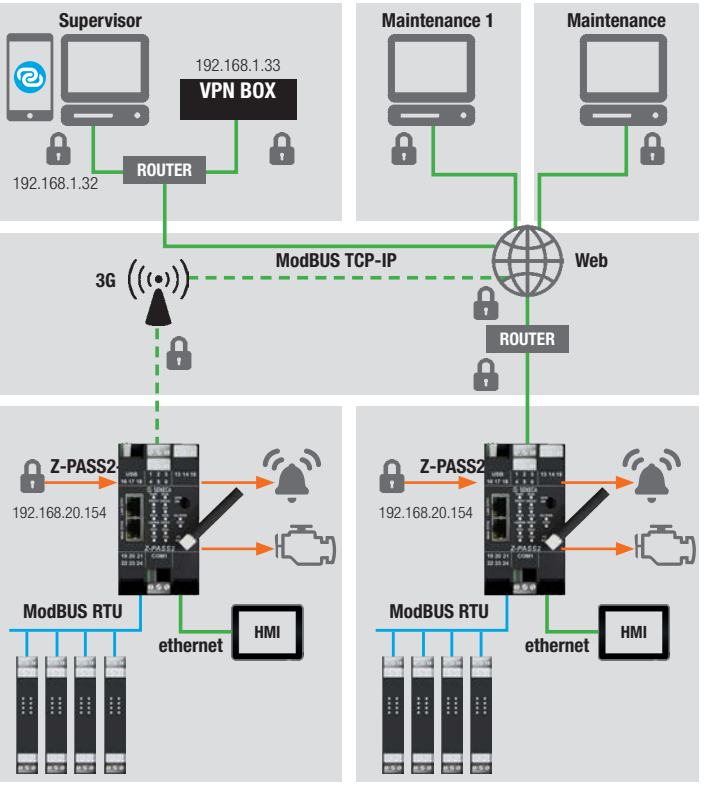
TECHNICAL DATA

GENERAL DATA	
Power supply	19..40 Vdc; 19..28 Vac
Absorption	Typical 4 W @ 24Vac, Max 6 W
Insulation	1500 Vac
State indicators	Power / Ready to use / Inputs / outputs state Remote Connection (RCD) / VPN Connection (VPN) LAN/WAN (Ethernet mode) / SERV (VPN BOX Service) Rx-Tx serial communications / Link and Ethernet traffic
Degree of protection	IP20
Operating temperature	-20°C..+65°C
Dimensions (lxhxp)	100 x 52.5 x 112 mm
Weight	280 g
Casing	Glass loaded PA6 black plastic
Installation	For guide 35 mm IEC EN 60715
COMMUNICATION	
Ethernet Ports (ETH1, ETH2)	Nr. 2 Fast Ethernet ports 10/100Tx on RJ45 front
Serial Ports (COM1, COM2, COM4)	Nr. 1 serial port RS232 / 485 switchable via software, max baud rate 115kbps on connector Nr. 1 RS485 port, max baud rate 115kbps on connector IDC10 for bus and terminals Nr. 1 RS485 port, max baud rate 115kbps on terminals
USB Ports	Nr. 1 USB host port on side connector type A
Modem / Router 3G+ Worlwide*	GSM /GPRS/EDGE Quad-band: GSM 850 MHz, GSM 900 MHZ DCS 1800 MHz, PCS 1900 MHz 850-900-1800-1900 MHZ UMTS/HSPA+ Penta-BAND : WCDMA 2100/900, 2100/850, 1900/850 MHZ GNSS: 30 Channels: 16 GPS channels and 14 GLONASS channels
Modem / Router 4G – LTE*	4G/LTE Model (Europe, Africa, Middle East, Korea, Thailand, India) GSM/GPRS/EDGE Dual-band: 1800/900 MHz UMTS/HSPA+ Tri-Band: WCDMA 2100/850/900 MHz 4G LTE BAND 6-Band: 2100/1800/ 850/ 2600/ 900/ 800 MHz GNSS: GPS/GLONASS/BeiDou/Galileo/QZSS of up to 55 channels
Industrial protocols	ModBUS TCP server, ModBUS RTU master, ModBUS RTU slave.
IT Protocols	FTP server, SFTP server, HTTP server, HTTPS server, OpenVPN
Optional energy protocols	IEC 60870-101/104, IEC 61850
Nr. Max client VPN	Point-To-Point: 1; Single LAN: 496
No. Max simultaneous TCP client connections	32
Mode of operation	MOdBUS Gateway, 3G+/Ethernet Router, VPN, Single LAN Remote Control, Point-to-Point Remote Assistance, LAN/WAN, Ethernet Switch, Layer 2 - Industrial Ethernet (Point-To-Point Mode)
CPU AND MEMORY	
Processor	ARM 32 bit
Flash Memory (data)	1 GB
RAM	64 MB
FeRAM	4 kB
Slot Micro SD	Yes, Max 32 GB
I/O	
Pre-wired	1DI / 1DO VPN Connection
For generic use	1 DI / 1 DO
Mixed configurable	2 DI/DO
SAFETY	
Remote access block	Mechanical, interblock Digital Input
LAN/WAN networks disengagement	Yes
Data Encryption	128bit
Data Authentication	SHA1 160bit
Safety protocols	OpenVPN, SSL, HTTPS Server
SETTINGS & SOFTWARE	
Tools and packets	Web Server, VPN Client Communicator Seneca Discovery Device, Configurator Z-NET4 Straton programming, Log Factory, Web Factory
STANDARD	
Marking / Certifications	EC
Regulations	TSI EN 301489-7, EN 61000-6-4, EN 61000-6-2, EN 301511, EN 301489-1, EN 301489-7, IEC / EN 60950

*in alternativa

The technical data and the diagrams in this document are indicative and not binding.

APPLICATION EXAMPLE



ORDER CODE

Code	Description
ROUTER / GATEWAY	
Z-PASS2-S-IO	Straton advanced control unit with integrated VPN, 2DI, 2DO, 2DI/DO, worldwide modem 3G+/Ethernet Router, GPS
Z-PASS2-S-IO-E	Straton advanced control unit with integrated VPN, 2DI, 2DO, 2DI/DO, worldwide modem 3G+/Ethernet Router, GPS, energy protocol
Z-PASS2-SIO4GEU	Straton advanced control unit with integrated VPN, 2DI, 2DO, 2DI/DO, 4G- EU Ethernet Router, GPS
Z-PASS2-SIOE4GEU	Straton advanced control unit with integrated VPN, 2DI, 2DO, 2DI/DO, 4G- EU/ Ethernet Router, GPS, energy protocols
VPN PLATFORM	
VPN BOX	LET'S - Server VPN optimised for connections Point-to-Point / Single LAN
VPN BOX VM	LET'S - Virtual Machine Server VPN optimised for connections Point-to-Point / Single LAN
VPN BOX-D	LET'S - Service on test on VPN BOX Point-to-Point valid for 30 days max 2 device
VPN BOX VM-D	LET'S - Virtual Machine Server VPN optimised for connections Point-to-Point / Single LAN max 2 device
VPN CC	LET'S - VPN Client Communicator, Remote Access Management software
VPN CC APP	VPN CC mobile app version
TOOL SOFTWARE	
Log Factory	Display tool and datalogger data archiving Z-GPRS3, Z-LOGGER3, Z-UMTS
SDD	SENECA Discovery Device, IP scanner for Z-KEY, Z-PASS1, Z-PASS2
SESC	SENECA Ethernet to Serial Connection for Z-KEY, Z-PASS1, Z-PASS2
Straton	Environment and development licences IEC 61131 (www.seneca.it or supporto@seneca.it for detailed information)
TEMP-TAG-Z-PASS	Gateway mode tag management Excel Template - Z-PASS-1/2/2S
Web Factory	HMI / Web Editor integrated in Z-NET4
Z-NET4	Configurator I/O systems and Z-PC Series controller
ACCESSORIES	
A-GPS-SMA	Antenna GPS with SMA coupling
A-GSM	External antenna GSM dual band swing cable 3.2 m
A-GSM-QUAD-N	Omnidirectional external antenna 4G/WI-FI, FME, cable 3 m
CS-TIP-MEF-PH	Serial communication cable (Tips / 4-way female connector) for Z-TWS4, Z-PASS1/2
CSDB9M-MEF-PH	Serial communication cable (DB9M / MEF PH) 3 wires 1.5 MT
CE-RJ45-RJ45-R	Straight Ethernet cable (RJ45 / RJ45) 1.5
MSD	Micro SD memory card with adapter
Z-PC-DINAL2-52.5	Support for rapid assembly on DIN guide head + 3 slot pitch 17.5 mm

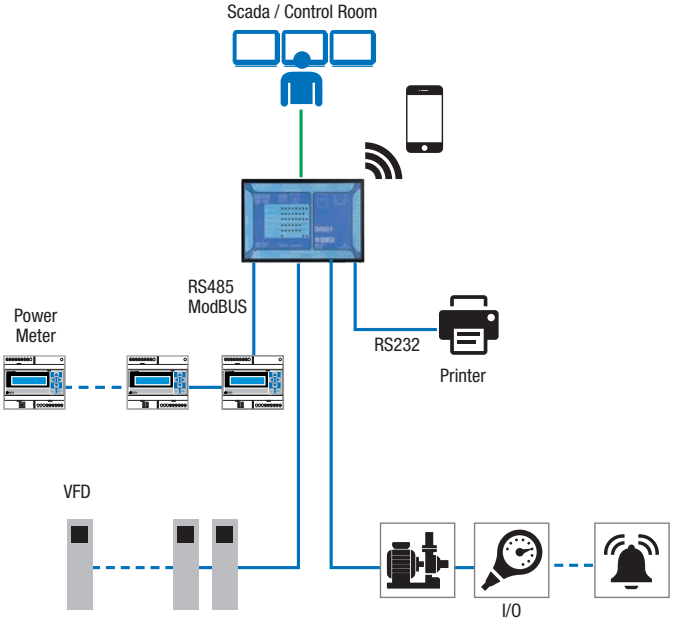
S6001-RTU

ALL-IN-ONE RTU WITH INTEGRATED I/O, 3G MODEM AND STRATON PROGRAMMING SYSTEM

TECHNICAL DATA

GENERAL DATA	
Power supply	24 Vac/dc ±15%
Insulation	1500 Vac
State Indicators	Power supply Serial communication Ethernet PLC state
Degree of protection	IP20
Operational Temperature	-20..+50°C
Dimensions (lxhxp)	105 x 190 x 60 mm
Casing	Black aluminium
Connections	Removable terminals, max conductor size 2.5 mm^2
Assembly	DIN Guide 35 mm (IEC EN 60715)
COMMUNICATION	
Ethernet	No. 1 Ethernet port 10/100 Mbps (RJ45)
Serial	Nr 1 RS232 Nr2 RS485
USB	Nr 1 USB host; Nr 1 USB micro USB
Modem	Modem UMTS, HDSPA (dual band), EDGE, GPRS, GSM (quad band)
Industrial protocols	RTU ModBUS, TCP-IP ModBUS, custom protocols
Energy protocol	IEC 60870-101/104, IEC 61850
Network protocols	PPP, http, Ftp, Smtp, Open VPN
INPUT DATA	
Channels / Type	Nr 15 Digital Inputs Nr. 2 Digital Inputs (thresholds) Nr. 4 Analogic Outputs 0..20 mA
OUTPUT DATA	
Channels / Type	No. 8 SPDT relay outputs 3A - 250 Vac Nr. 1 Analogic Outputs 0..10 mA Nr. 1 Analogic Output 0..20 mA
PROCESSOR / MEMORY	
Processor	ARM 32 bit @400 MHz
Flash Memory (data)	1 GB
RAM / FeRAM	64 MB / 4 kB
Slot Micro SD	SD Card up to 32 GB
CONFIGURATION	
System software	Z-NEt4/Straton
Web server / Datalogger	Yes, integrated with Web Editor
PLC programming	IEC 61131 (Straton) dedicated libraries
STANDARD	
Certifications	EC
Regulations	EN 61000-6-4, EN 61000-6-2, EN 60950, EN 301511, EN 301489-1, EN 301489-7

APPLICATION EXAMPLE



ORDER CODE

Code	Description
S6001-RTU	All-in-one RTU with integrated I/O, 3G+ modem and Straton programming system
SOFTWARE	
OPC-DA-SERVER	Communication and data exchange software OPC Server WITH unlimited I/O tags (hardware licence)
OPC-UA-SERVER	Communication and data exchange software OPC Server UA I/O unlimited tags (hardware licence)
STRATON-D-USB	Straton activation key for IEC 61131 controllers
STRATON-IDE256	Straton development environment 256 tags with USB activation key
STRATON-IDE512	Straton development environment 512 tags with USB activation key
STRATON-IDEUN	Straton development environment unlimited tags with USB activation key
STRATON-870S	Activation licence IEC 60870-5-101/104 Slave
STRATON-870S-850	Activation licence IEC 60870-5-101/104 Slave + Licence IEC 61850 Client / Server
SSP	SENECA Straton Package - CPU Seneca Installer suite (supplied)
STRATON-UPGRADE1	Straton upgrade from 256 to 512 tags
STRATON-UPGRADE2	Straton upgrade from 512 to unlimited tags
STRATON-UPGRADE3	Straton upgrade from 256 to unlimited tags
STRATON-WB	Straton workbench IEC 61131 free editor (supplied)
ACCESSORIES	
STRATON-IDE	IEC 61131 Straton development activation key
CE-RJ45-RJ45-C	Crossed Ethernet cable (RJ45 / RJ45) 1.5 MT
CE-RJ45-RJ45-R	Straight Ethernet cable (RJ45 / RJ45) 1.5
A-GSM	External antenna GSM dual band swing cable 3.2 m
A-GSM-DIR-5M	Compact directional antenna GSM-DECT-UMTS SMA-M, cable 5 m
A-GSM-OMNIDIR	Omnidirectional GSM-UMTS-WIFI antenna, 5.1 dB, SMA-M. cable 5 m
A-GSM-OMNIDIR-10	Omnidirectional GSM-UMTS-WIFI antenna, 5.1 dB, SMA-M. cable 10 m
A-GSM-QUAD-N	Antenna esterna omnidirezionale 4G/Wi-Fi, FME, cavo 3 mt

RTU-LP-ST

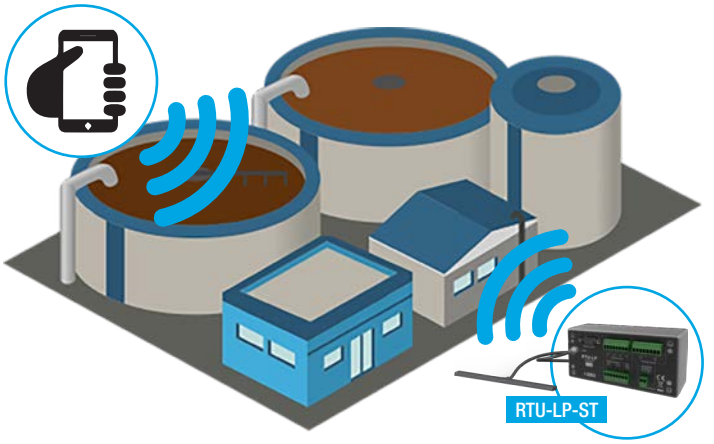
RTU / DATALOGGER LOW POWER WITH GSM/GPRS MODEM AND INTEGRATED I/O

NEW PRODUCT

TECHNICAL DATA

GENERAL DATA	
Power supply	8..30 Vdc
Average absorption	3.7 mW
Sensor power supply	Max 100 mA (with automatic pre-ignition function)
Batteries (optional)	Lithium-thionyl Chloride 13,000 mA/h @ 10.8V
Autonomy	Up to 3 years
Insulation	500 Vac
Degree of protection	IP40
LED status indicators	GSM relay status
Operating Temp	-20..+70 °C
Temp. Warehousing	-20..+85°C
Umidità	30..90% @40°C non-condensing
Altitude	2,000 m
Dimensions (lxhxp)	132x65x67 mm (batteries excluded)
Weight	290 g
Container	ABS, black
Connections	DB9F connector for RS232 SMA-socket antenna connector Removable terminal I/O connectors step 3.5 mm
COMMUNICATION, PROCESSING, MEMORY	
Communication ports:	N.1 RS232 half duplex port
Modem	GSM/GPRS quad-band 850/900/1800/1900 MHz GPRS multi slot class 10, speed GPRS max. 86 kbps (DL) Coding scheme CS-1, CS-2, CS-3, CS-4
CPU	ARM 32 bit
Flash Memory (datalogger)	2 MB
EEPROM	64 kB
Clock	Internal RT; max error: 75 ppm ((-20..+70°C)
System protocols	ModBUS RTU, FTP CLIENT (sending of log), SMS
I/O CHANNELS	
Digital inputs	No. 4 galvanically isolated channels 1,500 Vac, freq. Sampling of digital channels max 1 Hz 4 32-bit totalisers (max 1 Hz)
Analog inputs	No. 2 voltage/current channels protected against overvoltages and overcurrents Range: ±2 V, ±20 V, ±50 V, ±20 mA Resolution: 15 bit + sign Precision: 0.1% F.S. at 20°C Input impudence: > 1 MOhm
Digital outputs	No. 2 bistable relays Capacity: 30 Vdc – 1 A max (resistive load)
PROGRAMMING AND FUNCTIONALITY	
SMS parameters	Yes
Programming software	EASY RTU-LP
Sending/receipt functions	Periodic sending of data logs, statuses and events via SMS or FTP Server Temporary switching on of the modem for sending of data Receipt of commands and configuration parameters
Firmware update	Via RS232, RS232/USB converter (i.e. S117P1), CS-DB9M-DB9F-CR cable and EASY RTU-LP software
Datalogger	2MB internal flash memory Maximum Analog Log Speed 30 s Maximum Digital Log Speed 1 s
STANDARD	
Approvals	EC
Regulations	EN61000-6-4, EN6100-6-2, EN 301511, EN 301489-1, EN 60950

APPLICATION EXAMPLE



Remote control of the purification system with GSM/GPRS battery-powered and low consumption equipment

ORDER CODE

Code	Description
RTU / DATALOGGER	
RTU-LP-ST	RTU / low power datalogger, FTP version, 4DI, 2AI, 2DO, GSM external antenna, DIN hook, 2 serial cables
RTU-LP-ST1	RTU / low power datalogger, FTP version, 4DI, 2AI, 2DO, GSM external antenna, DIN hook, 2 serial cables, standard battery pack
RTU-LP-ST2	RTU / low power datalogger, FTP version, 4DI, 2AI, 2DO, GSM external antenna, DIN hook, 2 serial cables, double battery pack
BATTERIE	
BATT-S	Lithium-thionyl Chloride battery pack 3 cells 10.8 V - 12.5 Ah
BATT-2S	Lithium-thionyl Chloride double battery pack 3 cells 10.8 V - 25 Ah
ANTENNAS	
A-GSM	External antenna GSM dual band swing cable 3.2 m
A-GSM-DIR-5M	Compact directional antenna GSM-DECT-UMTS SMA-M, cable 5 m
A-GSM-OMNIDIR	Omnidirectional GSM-UMTS-WIFI antenna, 5.1 dB, SMA-M. cable 5 m
A-GSM-OMNIDIR-10	Omnidirectional GSM-UMTS-WIFI antenna, 5.1 dB, SMA-M. cable 10 m
A-GSM-QUAD	4G omnidirectional external antenna, SMA-M, 5 m cable
CABLES	
CS-DB9M-DB9F	Configuration serial cable
CS-DB9M-DB9F-CR	Firmware update serial cable
OTHER ACCESSORIES	
BOX-RTU-IP65	IP65 box with support for installation of 290x140x108 mm batteries
S117P1	RS232-TTL-RS485/USB serial converter
S-DIN	Support for DIN guide
SOFTWARE	
EASY RTU LP	RTU-LP equipment software configurator

INDUSTRIAL MODEM

2

2.4

WIRELESS INDUSTRIAL MODEM

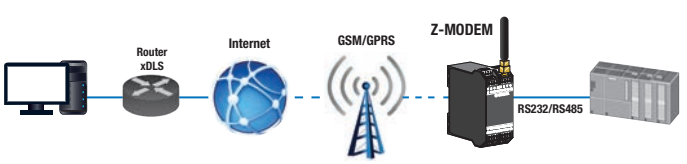
With the new range of wireless modems, SENECA offers GSM, GPRS, Quadband and 3G+ connectivity devices ideal for use in industrial and professional environments. Applications include remote control, automation, telemetry, M2M connections and data transfer on every type of system and installation.

SENECA's wireless modems manage remote applications of any serial device. Equipped with an RS232 or Micro USB interface, the Vac/dc power supply supports data transfer via TCP/IP Socket in a compact and robust design for DIN rail mounting.

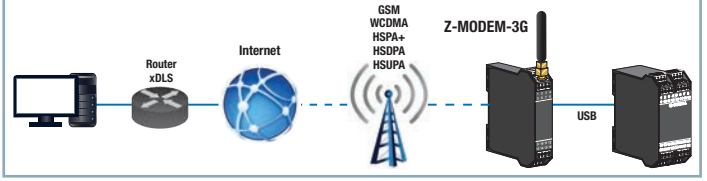
	Z-MODEM	Z-MODEM-3G
		
	GSM/GPRS Quadband industrial modem with RS232 serial port	3G industrial modem with USB micro interface
GENERAL DATA		
Power supply	10..40 Vdc; 19..28 Vac	10..40 Vdc; 19..28 Vac
Absorption	2W (standby), 6.5 W (MAX)	2W (standby), 5 W (MAX)
Degree of protection	IP20	IP20
Insulation	1.500 Vac Power supply / RS232	1.500 Vac Power supply / 3G USB
LED signalling	Power supply, communication	Power supply, communication
Antenna connector	SMA type	SMA type
SIM card	Standard (25 x15 mm)	Standard (25 x 15 mm)
Installation	DIN Guide 35 mm (IEC/EN 60715)	DIN Guide 35 mm (IEC/EN 60715)
Connections	Removable terminals for 2.5 mm² conductors	Removable terminals for 2.5 mm² conductors
Operating temperature	-10..+65°C	-10..+65°C
Material, colour	Black, glass loaded PA6 Nylon	Black, glass loaded PA6 Nylon
Dimensions	100 x 35 x 112 mm	100 x 17.5 x 112 mm
Weight	280 g	225 g
COMMUNICATION		
Interface	RS232 connector IDC10)	Micro USB
Modem frequency	GSM/GPRS/EDGE Quad Band 850 MHz, EGSM 900 MHz, DCS 1800 MHz, PCS 1900 MHz	GSM/GPRS/EDGE Quad Band 850 / 900 MHz, DCS 1800 MHz, PCS 1900MHz Quad Band WCDMA 850 / 900 / 1900 / 2100 MHz 3G HSPA+, HSDPA, HSUPA
Connection speed	Downlink max 85.6 kbps, Uplink max 42.8 kbps	Downlink max 14.4 Mbps, Uplink max 5.76 Mbps
STANDARD		
Certifications	EC	EC
Regulations	EN 61000-6-4, EN 61000-6-2, EN 301511, EN 301489-1, EN 301489-7, EN 60950	FCC part 15 class B, EN 55024, EN 301511, EN 301489-7, EN 301489-1, EN 60950

APPLICATION EXAMPLES

DATA TRANSMISSION VIA MODEM WITH SERIAL CONNECTION TO PLC



DATA TRANSMISSION VIA MODEM WITH USB CONNECTION TO Z-TWS4 / Z-PASS1



ORDER CODE

Code	Description
Z-MODEM	GSM/GPRS Quadband industrial modem with RS232 serial port
Z-MODEM-3G	3G+ industrial modem with USB micro interface

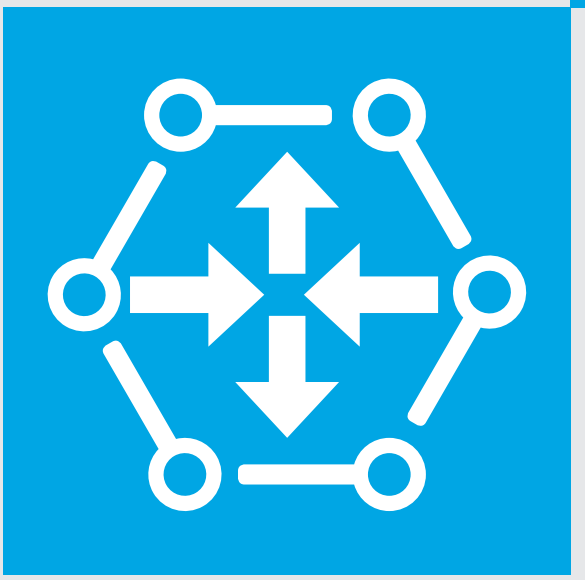
ACCESSORIES

Code	Description	Z-MODEM	Z-MODEM-3G
A-GSM	External antenna GSM dual band swing cable 3.2 m	x	x
CU-A-MICROB	Cable plug USB-A Micro USB-B 5 P		x
CS-DB9M-DB9F	RS232 straight serial cable for programming (DB9M / DB9F)	x	
CS-DB9F-CFV10	RS232 connection cable (DB9F-CFV10) with adapter	x	
Z-PC-DINAL1-35	Support for rapid assembly on DIN guide head + 1 slot pitch 35 mm	x	
Z-PC-DIN1-35	Support for rapid assembly on DIN guide 1 slot format pitch 35 mm	x	
Z-PC-DINAL2-17.5	Support for rapid assembly on DIN guide head + 2 slot pitch 17.5 mm		x
Z-PC-DIN2-17.5	Support for rapid assembly on DIN guide 2 slot pitch 17.5 mm		x

IOT
GATEWAY

2

2.5



IOT GATEWAY

OVERVIEW

SENECA's IoT gateways connect new and legacy systems and promote a secure and seamless flow of data between peripheral devices and centralised servers. Gateways establish two-way communication between field and supervision, as well as offering processing and data storage capabilities to provide services with secure VPN connections and to manage real-time devices in the field. The new SENECA range of industrial routers/gateways includes devices able to increase the extension of networks and allow the passage of process data between different levels of the IT and industrial communication architecture.

HIGHLIGHTS

MODBUS GATEWAY FOR UNIVERSAL USES

SIMULTANEOUS COMMUNICATION UP TO SIMPLIFIED

TAG MANAGEMENT VIA EXCEL

DISPLAY SERIAL PORT (SENECA DRIVER, TRANSPARENT GATEWAY)

CONFIGURATION VIA SOFTWARE AND WEB SERVER

SERIAL / USB / ETHERNET INTERFACES

COMMUNICATION PROTCOL SUPPORT (IT / MODBUS/ SECURITY)

INDUSTRIAL STRENGTH
(POWER SUPPLY, ISOLATION)
MTBF, TEMPERATURE)

INTEGRATION WITH VPN PLATFORM P2P / SINGLE LAN

LET'S

INTEGRATED I/O FOR GENERIC AND PREASSIGNED USE

INTEGRATED MODEM 3G+ WORLWIDE / 4G LTE (GPS/GNSS)

3G+4G

TRAFFIC SNIFFER SERIAL PORT

CONFIGURATION TOOL

WEB SERVER
- Device and network parameter configuration
- Firmware update
- Saving of Configuration
- Access through authentication
- Custom Web Server pages saved on SD card
- Webpage template downloadable from www.seneca.it
- Variable configuration via SMS
- Datalogging on SD card

SESC (SENECA ETHERNET TO SERIAL CONNECTION)
- Management interface
- Assigning of IP address and TCP port to Virtual COM

SDD (SENECA DISCOVERY DEVICE)
- Automatic identification of all the devices connected
- Management and modification of the network parameters of the devices

EXCEL TEMPLATE
- Immediate configuration of ModBUS RTU and TCP-IP variable tags, recordings, addresses, serial ports
- File export

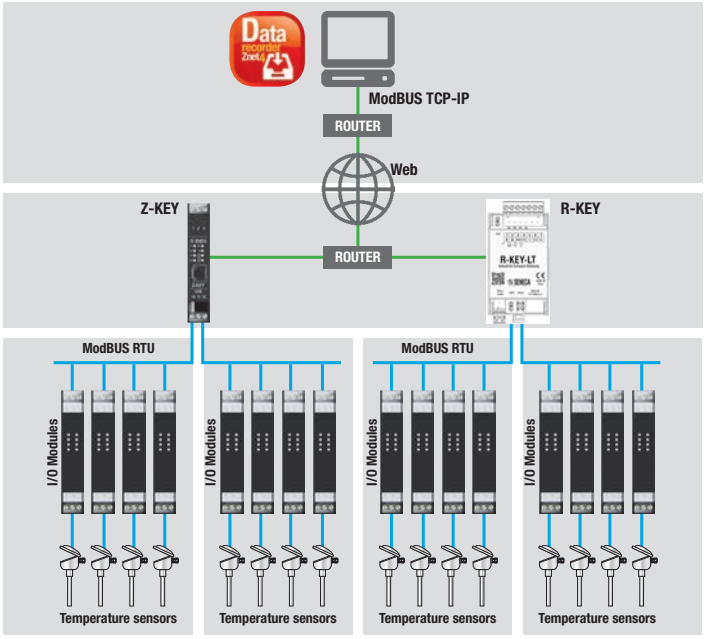
VPN TOOL
- P2P / Single LAN connections
- Access with credentials
- Client authentication
- OpenVPN client configuration

	R-KEY	Z-KEY	Z-PASS1	Z-PASS2
	 NEW PRODUCT	 NEW CHARACTERISTICS	 NEW CHARACTERISTICS	 NEW CHARACTERISTICS
	1-Port ModBUS RTU/ASCII Industrial Gateway	**2-Port ModBUS RTU Industrial Gateway / Serial Device Server**	**VPN Industrial Gateway - Serial Device Server, 1DI, 2DO, integrated 1DI/DO**	**VPN Industrial Gateway - Serial Device Server, 2DI, 2DO, integrated 2DI/DO, worldwide modem**
GENERAL DATA				
Power supply	10..40 Vdc; 19..28 Vac	10..40 Vdc; 19..28 Vac	11..40 Vdc; 19..28 Vac	19..40 Vdc; 19..28 Vac
Absorption	1 W	2 W @ 24 Vac (typical)	Typical 3 W @ 24Vac, Max 4 W	Typical 4 W @ 24Vac, Max 6 W
Insulation	1,500 Vac	1,500 Vac	1500 Vac (power supply // remaining circuits b.t.)	1500 Vac
Degree of protection	IP20	IP20	IP20	IP20
Flash Memory (data)	-	-	1 GB	1 GB
RAM	-	-	64 MB	64 MB
SD Micro Card	-	Max 32 GB	Max 32 GB	Max 32 GB
Integrated I/O	-	-	1 DI for VPN enabled, 1 DO for VPN in progress) 1 DO generic use, 1 configurable DI/DO	1 DI for VPN enabled, 1 DO for VPN in progress) 1 DI generic use, 1 DO for generic use, 2 configurable DI/DO
Operating temperature	-20..+70°C	-20°C..+50 °C	-20°C..+65°C	-20°C..+65°C
Dimensions (lxhxp)	53 x 90 x 32 mm	17.5 x 100 x 112 mm	35 x 100 x 112 mm	52.5 x 100 x 112 mm
Weight	80 g	170 g	220 g	280 g
Casing	UL94-V0 self-extinguishing PC/ABS in RAL 7035 Grey	Nylon 6 com 30& glass fibre, self-extinguishing class V0	PA6 black plastic loaded glass, black	Glass loaded PA6 black plastic
Installation	For DIN guide (IEC EN 60715)	For DIN guide (IEC EN 60715)	For guide 35 mm IEC EN 60715	For guide 35 mm IEC EN 60715
OPERATING MODES				
ModBUS Gateway	Yes	Yes	Yes	Yes
ModBUS Gateway 'shared memory'	-	Yes	Yes	Yes
Transparent Gateway	-	Yes	Yes	Yes
Serial Serial Sniffer	Yes	-	-	-
Switch Ethernet	-	-	Yes	Yes
COMMUNICATION				
Ethernet Ports (ETH1, ETH2)	Nr 1 Fast Ethernet port 10/100 Tx, RJ45 frontal	Nr 1 Fast Ethernet port 10/100 Tx, RJ45 frontal	Nr. 2 Fast Ethernet ports 10/100Tx on RJ45 front	Nr. 2 Fast Ethernet ports 10/100Tx on RJ45 front
Serial Ports (COM1, COM2, COM4)	Nr. 1 serial port RS232 / RS485 switchable , max baud rate 115k on connector	Nr. 1 serial port RS232 / RS485 switchable , max baud rate 115k on connector Nr. 1 RS485 port, max baud rate 115k on connector IDC10 for bus and terminals	Nr. 1 serial port RS232 / 485 switchable via software, max baud rate 115k on connector Nr. 1 RS485 port, max baud rate 115kbps on connector IDC10 for bus and terminals Nr. 1 RS485 port, max baud rate 115kbps on terminals	Nr. 1 serial port RS232 / 485 switchable via software, max baud rate 115k on connector Nr. 1 RS485 port, max baud rate 115kbps on connector IDC10 for bus and terminals Nr. 1 RS485 port, max baud rate 115kbps on terminals
USB Ports	-	No. 1 Micro USB port on side connector	Nr. 1 USB host port on side connector type A	Nr. 1 USB host port on side connector type A
Modem 3G+/GPS/GNSS **	-	-	-	3G+ worldwide connectivity modem GSM, GPRS, EDGE, DCS, PCS, UMTS, HSPA+, WCDMA GNSS 30 channels (16 GPS, 14 Glonass)
Modem 4G+/GPS/GNSS **	-	-	-	4G/LTE Model (Europe, Africa, Middle East, Korea, Thailand, India) GSM/GPRS/EDGE UMTS/HSPA+ GNSS: GPS/GLONASS/BeiDou/Galileo/ QZSS of up to 55 channels
GPS			-	Si: GPS & GLONASS
Protocols	ModBUS TCP-IP, ModBUS RTU, Modbus ASCII	ModBUS TCP-IP, ModBUS RTU	ModBUS TCP, ModBUS RTU, FTP server, SFTP server, HTTP server, HTTPS server, OpenVPN, SSL	ModBUS TCP, ModBUS RTU, FTP server, SFTP server, HTTP server, HTTPS server, OpenVPN, SSL
Server Mode	Max 8 client ModBUS TCP	Max 8 client ModBUS TCP	Max 32 client ModBUS TCP	Max 32 client ModBUS TCP
Client Mode	Max 10 server ModBUS TCP	Max 10 server ModBUS TCP*	-	-
SAFETY				
Remote access block	-	-	Mechanical, Digital Input	Mechanical, Digital Input
LAN/WAN networks division	-	-	Yes	Yes
Data Encryption / VPN)	-	-	128bit / SHA1 160 bit	128bit / SHA1 160 bit
Handshake	-	-	x509 – RSA 1024 with Diffie-Helman	x509 – RSA 1024 with Diffie-Helman
Web Server Authentication	Yes	Yes	Yes	Yes
Safety protocols	-	-	OpenVPN, SSL , HTTPS, FTPS	OpenVPN, SSL , HTTPS, FTPS
SETTINGS AND FUNCTIONS				
DIP switch	Yes	Yes	-	-
Web server	Yes	Yes	Yes	Yes
VPN management software	-	-	VPN BOX Manager, OpenVPN, VPN Client Communicator (PC software and app)	VPN BOX Manager, OpenVPN, VPN Client Communicator (PC software and app)
Connections management tool	SDD (Seneca Discovery Device)	SDD (Seneca Discovery Device), SESC (Seneca Ethernet to Serial Connection), EASY Z-KEY	SDD (Seneca Discovery Device), SESC (Seneca Ethernet to Serial Connection)	SDD (Seneca Discovery Device), SESC (Seneca Ethernet to Serial Connection)
Variable I/O configuration via SMS*	-	-	-	Yes
Advanced diagnostics*	-	Yes	-	-
Data logging on SD Card*	-	-	Yes	Yes
IF THEN ELSE* Logic	-	-	Yes	Yes
MQTT and Third Party Cloud* Support	-	-	Yes	Yes
Cloud BOX* support	-	Yes	Yes	Yes
REGULATIONS				
Marking / Certifications	EC	EC	EC	EC
Regulations	EN61000-6-4, EN 61000-6-2, EN 61010-1	EN61000-6-4, EN 61000-6-2, EN 61010-1	EN61000-6-4, EN 61000-6-2, EN 61010-1	ETSI EN 301489-7, EN 61000-6-4, EN 61000-6-2, EN 301511, EN 301489-1, EN 301489-7, IEC / EN 60950

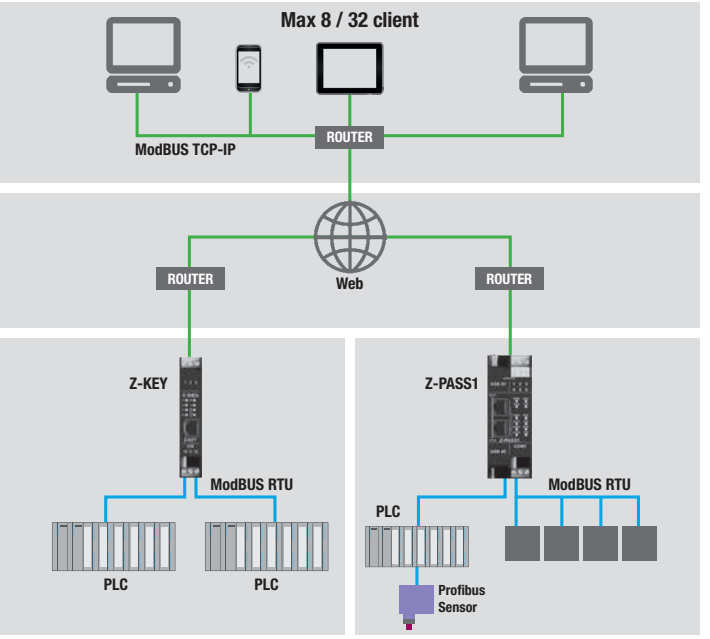
* Functions available by Q3-2018 ** alternatively

APPLICATION EXAMPLES

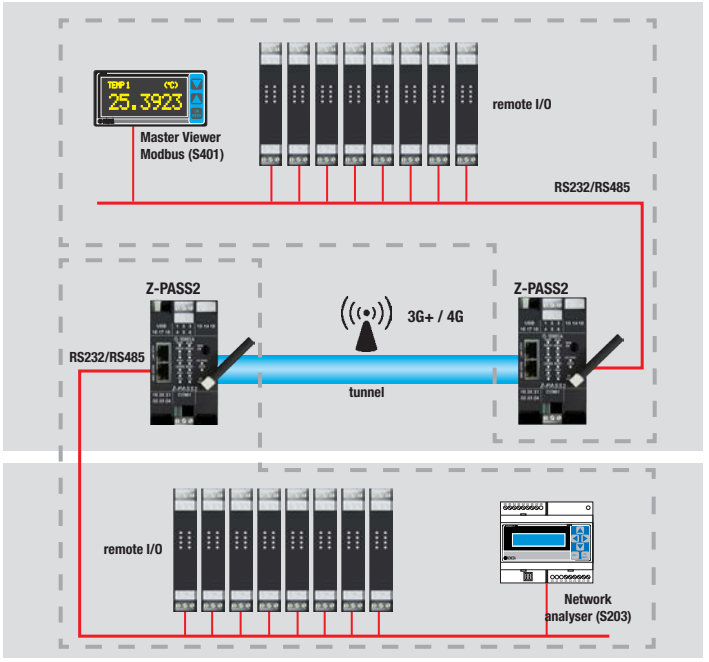
TRANSPARENT GATEWAY / DAQ



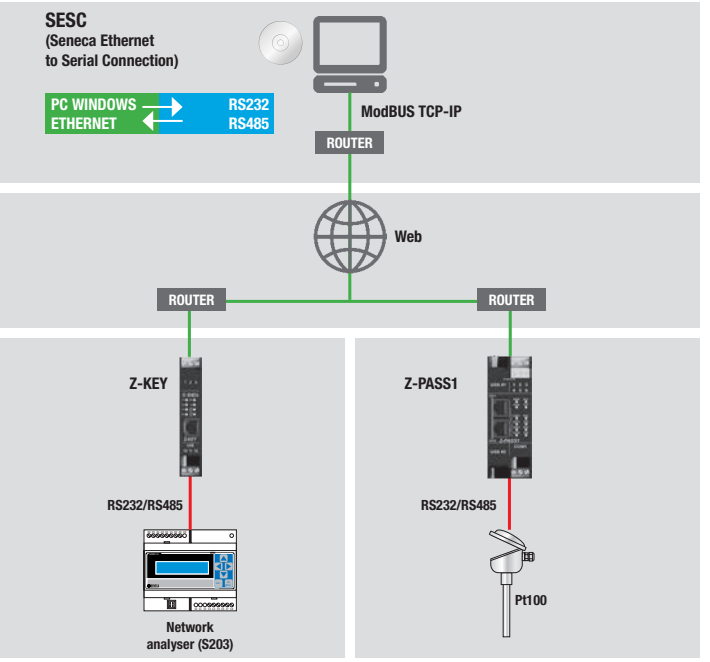
MODBUS GATEWAY SHARED MEMORY



SERIAL TUNNEL POINT-TO-POINT



SERIAL DEVICE SERVER – VIRTUAL COM



ORDER CODE

Code	Description
ROUTER / GATEWAY	
R-KEY-LT	1-Port ModBUS RTU/ASCII Industrial Gateway
Z-KEY	2-Port ModBUS RTU Industrial Gateway / Serial Device Server
Z-PASS1-IO	VPN Industrial Gateway - Serial Device Server, 1DI, 2DO, integrated 1DI/DO
Z-PASS2-IO	VPN Industrial Gateway - Serial Device Server, 2DI, 2DO, 2DI/DO, modem pentaband 3G+/ Ethernet Router, GPS
Z-PASS2-IO-4G-EU	VPN Industrial Gateway - Serial Device Server, 2DI, 2DO, integrated 2DI/DO, modem 4G-Eu/ Ethernet Router, GPS
SERVER VPN	
VPN BOX	LET'S - Server VPN optimised for connections Point-to-Point / Single LAN
VPN BOX VM	LET'S - Virtual Machine Server VPN optimised for connections Point-to-Point / Single LAN
VPN BOX-D	LET'S - Test service on VPN BOX SENECA valid for 30 days max 2 devices
VPN BOX VM-D	LET'S - Virtual Machine Server VPN optimised for connections Point-to-Point / Single LAN max 2 devices (DEMO version)
VPN BOX MANAGER	LET'S - VPN BOX configuration software and VPN network management
VPN CC	LET'S - VPN Client Communicator, Remote Access Management Software
TOOL SOFTWARE	
EASY Z-KEY	IP Z-KEY address configuration tool
SDD	SENECA Discovery Device, IP scanner for Z-KEY, Z-PASS1, Z-PASS2
SESC	SENECA Ethernet to Serial Connection for Z-KEY, Z-PASS1, Z-PASS2
TEMP-TAG-Z-PASS	Excel template tag management gateway mode - Z-PASS-1/2/2S
TEMP-TAG-Z-KEY	Gateway mode tag management Excel Template - Z-PASS-1/2/2S
TEMP-WEB-Z-KEY	Z-KEY web page template

ORDER CODE

Code	Description
ACCESSORIES	
A-GSM	External antenna GSM dual band swing cable 3.2 m
A-GSM-QUAD-N	GSM SMA-M quadband external antenna, cable 4 m
A-GPS-SMA	Antenna GPS with SMA coupling
CS-TIP-MEF-PH	Serial communication cable (Tips / 4-way female connector) for Z-TWS4, Z-PASS1/2
CS-DB9M-MEF-PH	Serial communication cable (DB9M connector / 4 way female connector) 3 wires 1.5 m
CE-RJ45-RJ45-R	Straight Ethernet cable (RJ45 / RJ45)
MSD	Micro SD memory card with adapter
Z-PC-DIN1-35	Support for rapid assembly on DIN guide 1 slot pitch 35 mm
Z-PC-DIN4-35	Support for rapid assembly on DIN guide 4 slot pitch 35 mm
Z-PC-DINAL1-35	Support for rapid assembly on DIN guide head + 1 slot pitch 35 mm
Z-PC-DINAL2-52.5	Support for rapid assembly on DIN guide head + 2 slot pitch 52.5 mm

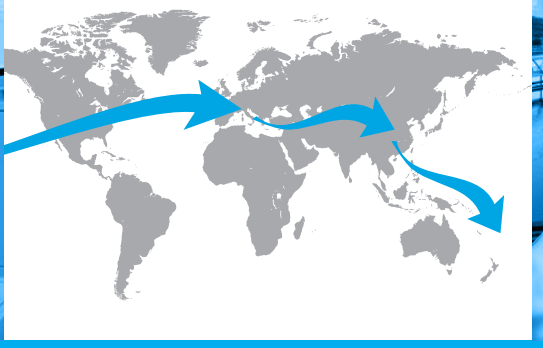
IOT / VPN REMOTE ASSISTANCE REMOTE CONTROL PLATFORM

2

2.6

IOT / VPN REMOTE ASSISTANCE / REMOTE CONTROL PLATFORM

LET'S
IOT CONNECTIVITY
SOLUTIONS



- **PREDICTIVE MAINTENANCE AND DIAGNOSTICS**
- **REMOTE ASSISTANCE AND REMOTE CONTROL**
- **REMOTE SOFTWARE UPDATE**
- **ACCESS TO DATA AND INSTALLATIONS IN 'SINGLE LAN' AND 'POINT-TO-POINT' MODES**

LET'S is the SENECA VPN - IoT platform that reduces maintenance costs for automation and management of machines and systems, offering an integrated connectivity service on 3 levels: remote access to data, programmable control, network monitoring. Based on the VPN BOX Server module, LET'S allows "Always ON" connections (Remote control / Single LAN mode) for systems supervision or «ON Demand» connections (Remote service / Point-to-Point mode) to third-party machines and devices and for services maintenance or data collection. Communication from a PC or mobile device is via desktop software or VPN Client Communicator APP. The industrial VPN - IoT gateways of the LET'S platform extend the serial networks over Ethernet as well as supporting complex architectures and safety critical applications. The ZPASS2 model, with integrated 3G+/4G LTE modem, also functions as a router, DynDNS Server and a redundant communication device. One of the main innovations of the platform is the integration of the remote access functions with those of programmable automation thanks to the SENECA controllers on the basis of IEC 61131.

HIGHLIGHTS

- Configurable integrated I/O
- Integration with PLC and third party device
- PLC / SoftPLC IEC 61131 - Straton
- R/W from Plc siemens S7 Protocol" for CPU with Straton
- Server in House (HW/SW/Virtual Machine)
- VPN based on Standard OpenVPN
- Single LAN / P2P (Remote control and remote support)
- Mobile app for VPN client connectivity
- Datalogging
- Advanced alarms
- Support Modbus
- Serial connections (RS232, RS485, custom)
- 3G+ / 4G Connectivity
- Rapid configuration via Web Server
- 100% Made & Designed In Italy
- Industry 4.0 ready

THE PLATFORM

CONNECTIVITY MODULE - VPN SERVER

VPN BOX

Connections management

- A server that can be installed on the customer's network with a public static IP
- Remote connection mode management Remote assistance/Point-to-Point or Remote control/Single LAN
- Max 496 networks supported in Single LAN mode, virtually unlimited in Point-To-Point mode

System Configuration

- Registering of Client VPN BOX through certificates: automated operation, following client authentication (password)
- Server configuration through dedicated software
- Security management through SSL/TLS protocols
- Upgradable via USB flash drive

Versions

- HW device / appliance
- Software / Virtual Machine

GATEWAY / ROUTER VPN CLIENT

Z-PASS1 Z-PASS2

FUNCTIONALITY	Z-PASS1	Z-PASS2
ModBUS Gateway (from Modbus TCP to Modbus RTU)	X	X
ModBUS Gateway Shared memory	X	X
ModBUS calls optimisation	X	X
Serial communication diagnostics	X*	X*
ModBUS Gateway Reverse (from Modbus RTU to Modbus TCP)	X*	X*
Client Modbus TCP (Gateway Shared Memory)	X*	X*
Remote / Virtual COM Port	X	X
Serial Tunnel Point-To-Point (TCP-UDP) / Point-To-Multi-Point (UDP)	X	X
3G+ / 4G Router (DHCP Server, Firewall, DynDNS)		X
Network Redundancy		X
Client OpenVPN Standard	X	X
Client VPN BOX for Always ON connections	X	X
Client VPN BOX for On Demand connections	X	X
Integrated Web Server	X	X
Web pages safety device	Basic Authentication	Basic Authentication
Ethernet LAN/WAN	X	X
Ethernet SWITCH	X	X
Integrated I/O	4	6
Update firmware/configuration via USB	X	X
Remote connection block	X	X
Data Logging	X*	X*
Modbus IO/TAG Management via SMS	X*	X*

X* functionalities available by Q2 2018

VPN CLIENT CONTROLLERS

Z-PASS2-S
Z-TWS4
S6001-PC
S6001-RTU

FUNCTIONALITY	Z-TWS4	Z-PASS2-S	S6001-RTU	S6001-PC
Modem / Router	-	3G+ / 4G	3G+	3G+
Ethernet Ports	2	2	1	1
Serial Ports	3	3	3	3
USB Ports	1	1	1	1
Industrial protocols	ModBUS RTU/TCP-IP, CAN	ModBUS RTU/TCP-IP	ModBUS RTU/TCP-IP	ModBUS RTU/TCP-IP (only slave)
Network protocols	http, ftp, smtp	http, ftp, smtp, ppp	http, ftp, smtp, ppp	http, ftp, smtp, ppp
Energy protocol	IEC 60870-101/104, IEC 61850 (opt.)	IEC 60870-101/104, IEC 61850 (opt.)	IEC 60870-101/104, IEC 61850 (opt.)	-
OpenVPN - VPN BOX Support	x	x	x	x
VPN / LAN Single Remote control	x	x	x	x
VPN / Point-To-Point Remote assistance	x	x	x	x
Integrated I/O	1DI/DO for VPN connection 1DI/DO for general use 2DI/DO configurable	No. 1 DI for VPN Connection Enabled Nr.1 DI for general use No. 1 DO for VPN connection in progress No. 1 DO for general use Nr.2 DI / DO configurable	Nr.15+2DI, Nr.8DO, Nr.4AI, Nr.2AO	Nr.15+2DI, Nr.8DO, Nr.4AI, Nr.2AO
Management software	Straton, ZNET4	Straton, ZNET4	Straton, ZNET4	HMI
Availability of Straton OEM libraries	x	x	x	-

PROGRAMMING TOOL

WEB SERVER

WEBSERVER
- Network, gateway, router configuration
- VPN Client Configuration
- RTC Configuration
- Firmware update

- **OPENVPN (PC and Mobile App)**
- Open VPN client flexible configuration
- Client authentication
- TUN, TAP interfaces support

VPN CLIENT COMMUNICATOR

VPN CLIENT COMMNICATOR (App PC and Mobile)
- P2P / SINGLE LAN connections
- Access with credentials
- Certified automatic installation

STRATON
- IEC 61131 SoftPLC automation logic
- R/W functions from Siemens PLC with S7 Protocol

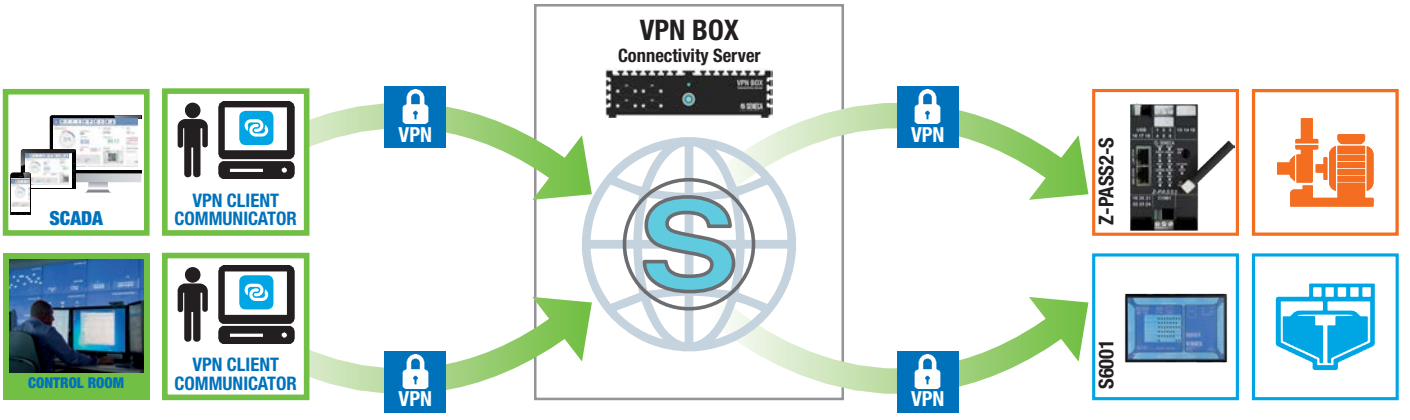
SINGLE LAN / REMOTE CONTROL CONNECTION

In Remote control / Single LAN mode (always on connection) VPN BOX functions as a network server to which a static and public IP is assigned.
The communication is simultaneous and always active between all the remote sites and the server, as well as with the different subnets that are part of the overall system. This type of connection is ideal for real-time monitoring and for the implementation of supervisory systems.

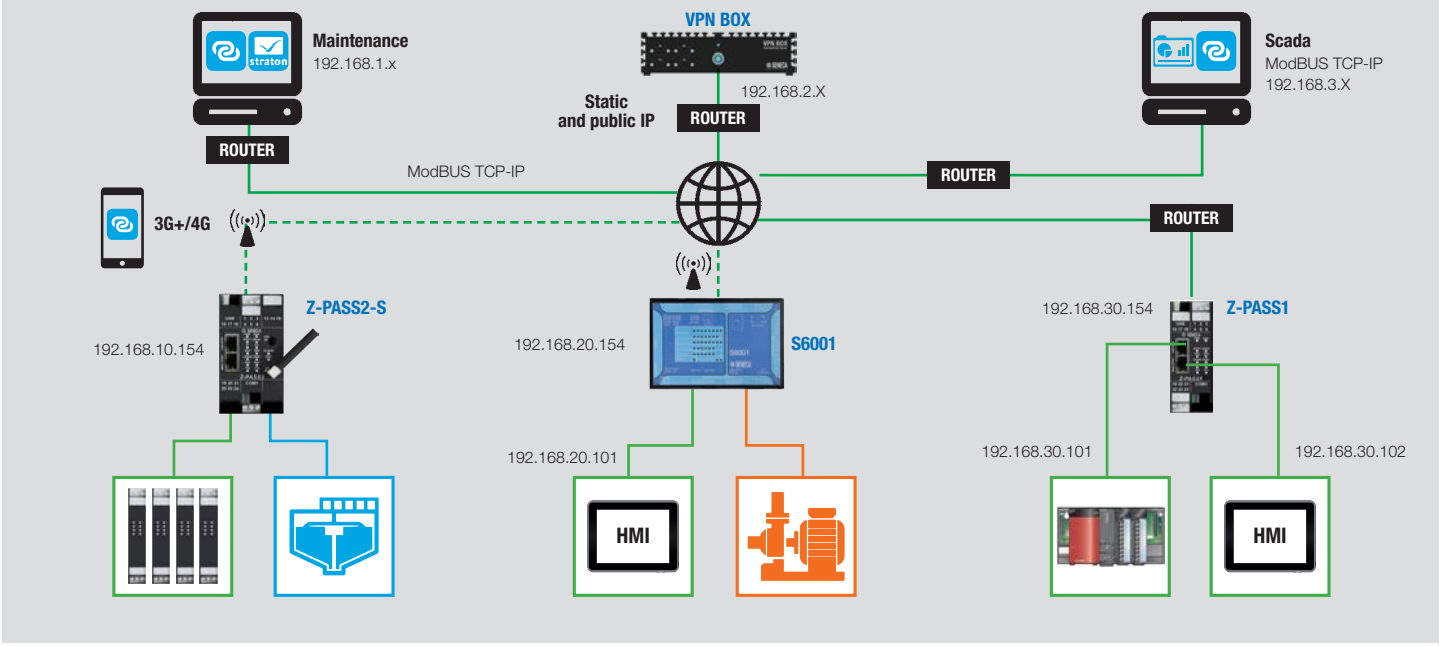
Typical applications	Monitoring, maintenance, supervision, data acquisition, local automation, alarms
Type of connection	Always ON . Contemporary and always active on all remote sites. Connection between different networks (e.g. 192.168.30.x, 192.168.40.x…) via VPN
Communication between VPN subnets	Yes, systems visible/accessible to all VPN clients
Subnet access	Via local addresses
Multi-user management	No
Network configurations	Differentiated in different sites
SIM supported	All
Benefits	• Remote and simultaneous access on different systems • Possibility to consult the devices as if you were in the field (local) • Integration of heterogeneous networks

LOGIC MODEL

«ALWAYS ON» CONNECTION



EXAMPLE OF ARCHITECTURE



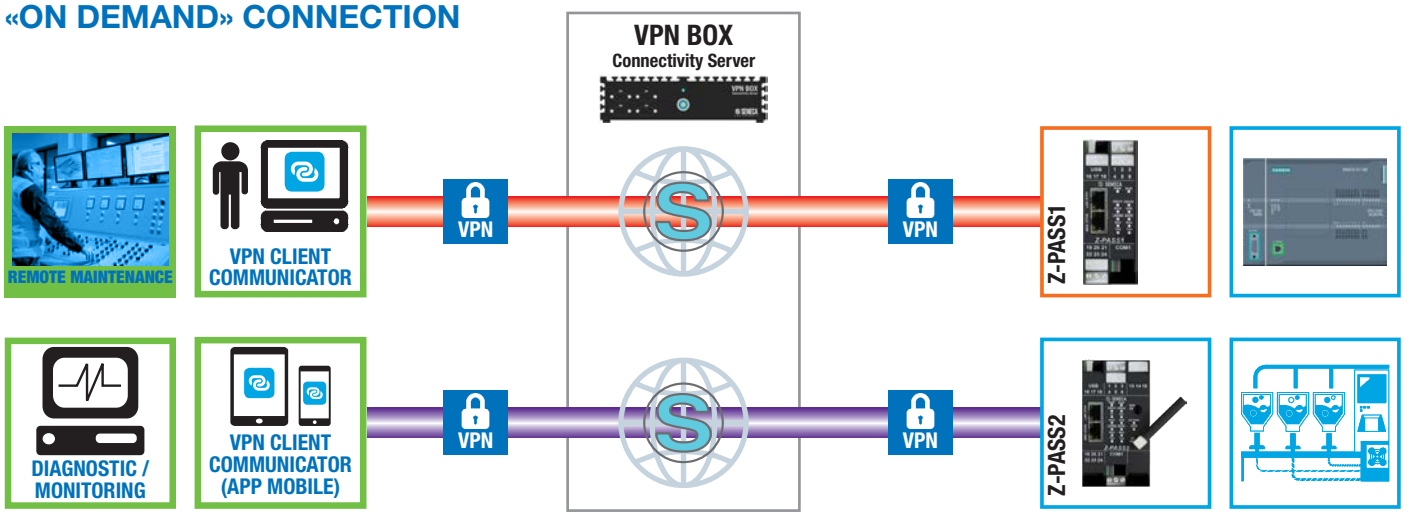
POINT TO POINT CONNECTION

In the Remote service / Point-To-Point mode (connection on demand) VPN BOX works as a concentrator and establishes communication between PC (or mobile device) and machine / system.
It also requires the assignment of a static and public IP or possibly of a DynDNS address.
Ideal for remote maintenance and diagnostics applications. This type of connection allows the coexistence of multiple types of users.

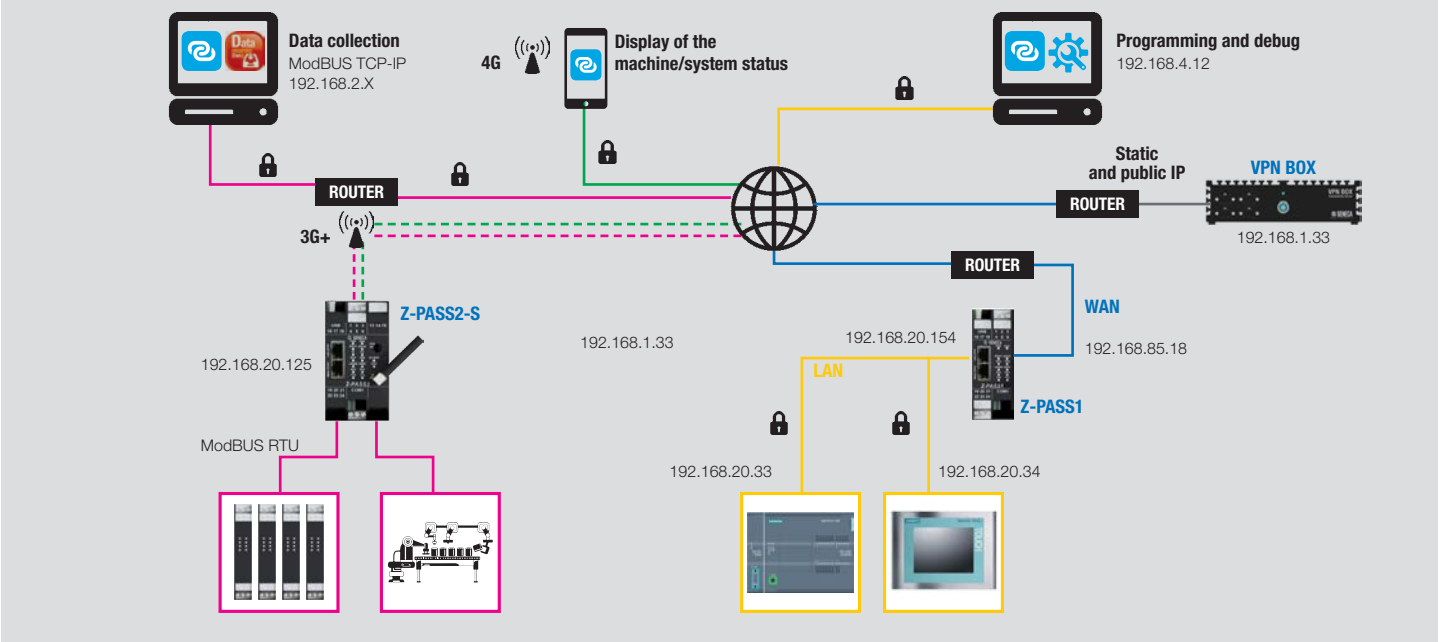
Typical applications	Maintenance, diagnostics, Systems start-up, customer support in real time
Type of connection	ON Demand. P2P Pc user connection / Mobile device and device / machine. If required and not contemporary for the different sites.
Communication between VPN subnets	No
Subnet access	Via local addresses
Multi-user management	YES
Network configurations	Equal at the different sites (e.g. 192.168.20.x).
SIM supported	All
Benefits	• Reduction of logistics and maintenance costs • Remote machine control • User Profiling

LOGIC MODEL

«ON DEMAND» CONNECTION



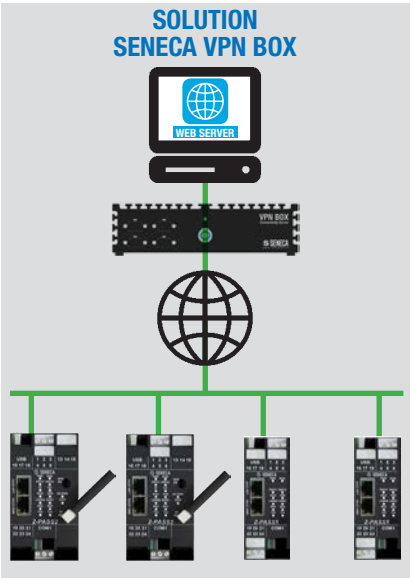
EXAMPLE OF ARCHITECTURE



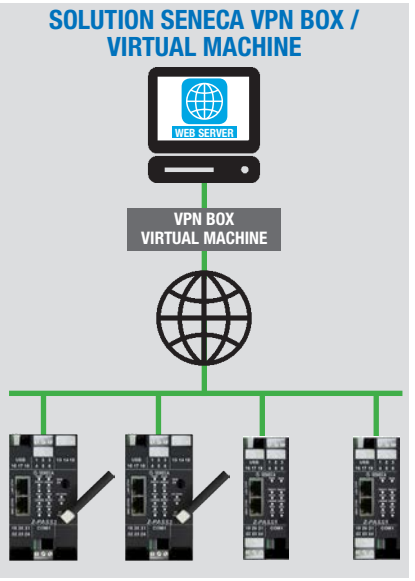
IOT / VPN REMOTE ASSISTANCE / REMOTE CONTROL PLATFORM

VPN SOLUTIONS

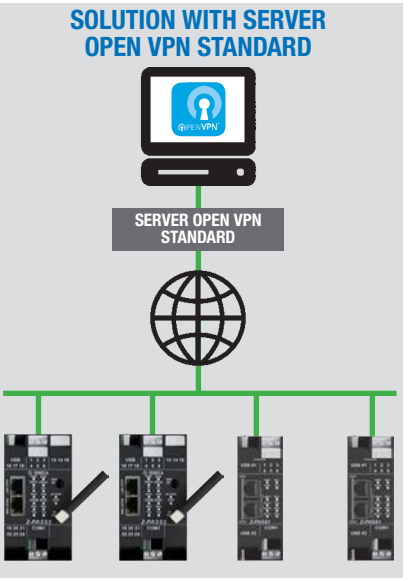
SOLUTION SENECA VPN BOX



SOLUTION SENECA VPN BOX / VIRTUAL MACHINE



SOLUTION WITH SERVER OPEN VPN STANDARD



APPLICATION SECTORS

- BUILDING AUTOMATION
- ENVIRONMENT / WATER TREATMENT
- REMOTE ASSISTANCE / REMOTE CONTROL
- INTEGRATION WITH IT SYSTEMS
- TRAFFIC & TRANSPORTATION
- ENERGY
- SURVEILLANCE & SECURITY
- OIL & GAS

ORDER CODE

Code	Description
GATEWAY / ROUTER	
Z-PASS1-IO	VPN Industrial Gateway - Serial Device Server, 1DI, 2DO, integrated 1DI/DO
Z-PASS2-IO	VPN Industrial Gateway - Serial Device Server, 2DI, 2DO, integrated 2DI/DO, worldwide modem 3G+//Ethernet Router, GPS
Z-PASS2-IO-4G-EU	VPN Industrial Gateway - Serial Device Server, 2DI, 2DO, integrated 2DI/DO, modem 4G-Eu/ Ethernet Router, GPS
SERVER VPN	
VPN BOX	VPN Server optimised for Point-to-Point / Single LAN connections
VPN BOX VM	Virtual Machine Server VPN optimised for Point-to-Point / Single LAN connections
VPN BOX-D	Test service on VPN BOX Point-to-Point valid for 30 days max 2 devices
VPN BOX VM-D	Virtual Machine Server VPN optimised for Point-to-Point / Single LAN connections max 2 devices
VPN CC	VPN Client Communicator, Remote Access Management software
VPN CC APP	VPN Client Communicator, mobile APP
VPN CONTROLLERS	
Z-TWS4-L-IO	IEC 61131 multifunction controller, integrated I/O, Linux based, OEM version
Z-TWS4-S-IO	IEC 61131 multifunction controller, integrated I/O, Straton workbench, OEM version
Z-TWS4-E-IO	IEC 61131 multifunction controller, integrated I/O, Straton workbench, OEM version, energy protocol
Z-PASS2-S-IO	Straton advanced control unit with integrated VPN, 2DI, 2DO, 2DI/DO, worldwide modem 3G+/ Ethernet Router, GPS
Z-PASS2-S-IO-E	Straton advanced control unit with integrated VPN, 2DI, 2DO, 2DI/DO, worldwide modem 3G+/ Ethernet Router, GPS, energy protocol
Z-PASS2-SIO4GEU	Straton advanced control unit with integrated VPN, 2DI, 2DO, 2DI/DO, 4G- EU/Ethernet Router, GPS
Z-PASS2-SIOE4GEU	Straton advanced control unit with integrated VPN, 2DI, 2DO, 2DI/DO, 4G- EU/Ethernet Router, GPS, energy protocols
S6001-PC	Pump controller with integrated I/O, Straton e HMI 7" programming system
S6001-RTU	All-in-one RTU with integrated I/O, 3G modem and Straton programming system
S6001-RTU-E	All-in-one RTU with integrated I/O, 3G modem and Straton programming system, Energy protocols

ORDER CODE

Code	Description
TOOL SOFTWARE	
SDD	SENECA Discovery Device, IP scanner
SESC	SENECA Ethernet to Serial Connection
STRATON-D-USB	Straton activation key for IEC 61131 controllers
STRATON-IDE256	Straton development environment 256 tags with USB activation key
STRATON-IDE512	Straton development environment 512 tags with USB activation key
STRATON-IDEUN	Straton development environment unlimited tags with USB activation key
STRATON-870S	Activation licence IEC 60870-5-101/104 Slave
STRATON-870S-850	Activation licence IEC 60870-5-101/104 Slave + Licence IEC 61850 Client / Server
SSP	SENECA Straton Package - CPU Seneca Installer suite (supplied)
STRATON-UPGRADE1	Straton upgrade from 256 to 512 tags
STRATON-UPGRADE2	Straton upgrade from 512 to unlimited tags
STRATON-UPGRADE3	Straton upgrade from 256 to unlimited tags
STRATON-WB	Straton workbench IEC 61131 free editor (supplied)
Z-NET4	Z-PC Series I/O Systems and Controller Configurator, including Web Editor development environment, Trend Viewer, Data Recorder
ACCESSORIES	
A-GPS-SMA	Antenna GPS with SMA coupling
A-GSM	External antenna GSM dual band swing cable 3.2 m
A-GSM-QUAD-N	Omnidirectional external antenna 4G/WI-FI, FME, cable 3 m
MSD	Micro SD memory card with adapter
Z-PC-DINAL2-52.5	Support for rapid assembly on DIN guide head + 3 slot pitch 17.5 mm
Z-PC-DIN1-35	Support for rapid assembly on DIN guide 1 slot pitch 35 mm
Z-PC-DIN4-35	Support for rapid assembly on DIN guide 4 slot pitch 35 mm

IOT Solutions
CLOUD

2

2.7

IOT / CLOUD SOLUTIONS: CLOUD BOX

Industrial IoT BOX

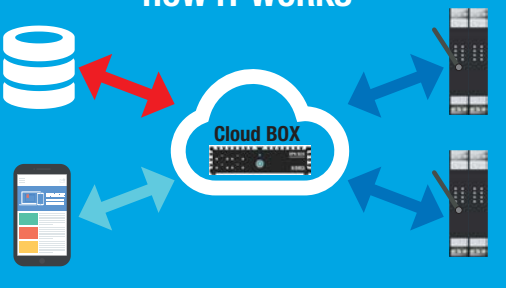
NEW CHARACTERISTICS

WHAT ITIS

The Cloud - IoT solution for centralising data, managing remote connections, creating multi-user customisable supervision pages.

- Sending of commands to datalogger, RTU and communication devices
- Saving data received from devices in the field on a centralised database
- Access to Cloud BOX through customisable web pages

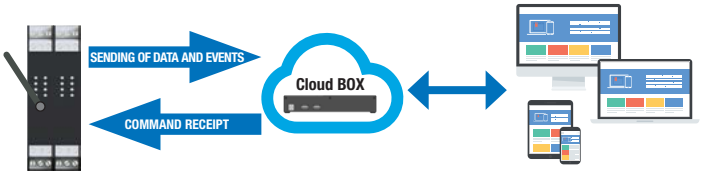
HOW IT WORKS



TECHNICAL DATA

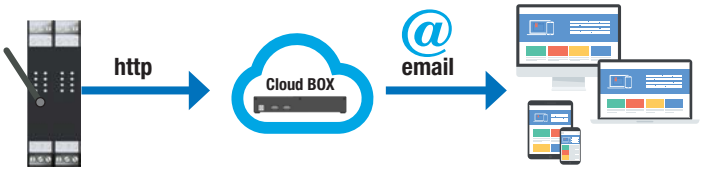
GENERAL DATA	
Power supply voltage	12 Vdc (including power supply unit)
Operating temperature	0..40°C
Storage temperature	-20..+85 °C
Dimensions (lxhxp)	185x48x165 mm
Factory IP address	Configured in DHCP
CPU Casing / Cooling	Compact / Fanless
Conformity	CE, FCC, RoHS, ErP Ready
Assembly	On wall or on DIN guide
Compatible SENECA products	Z-LOGGER3, Z-GPRS3, Z-UMTS
HARDWARE DATA	
Processor	Intel Celeron J1900 2.0 GHz Quad-Core
Memory capacity	4 GB DD3L-1333
SSD	64GB mSATA
LAN Controller	Intel 211-AT Gigabit LAN
INTERFACES	
USB	No. 3 USB ports 2.0 No. 1 USB port 3.0
LAN	Nr.2 RJ45
Video	VGA, HDMI
FUNCTIONS	
Real-time telemetric display	Yes
Historic data analysis	Yes
Analysis of alarm and event log	Yes
Sending of commands to the connected SENECA devices	Yes
Dashboard	Yes
Synoptics	Yes
Widget	Yes
Data storage	Local storage on DB
Data export	CSV
Sampling time	Minimum 1 minute
Connectable SENECA device	Maximum 200
Total number of tags	Max 5000
Compatible browser	Google Chrome
Compatible media	Desktop, Tablet, Smartphone, Smart TV
Compatible operating systems	Windows, Android, iOS
Related softwares	SeAL, Log Factory, SDD (Seneca Discovery Device)
CONNECTIONS	
VPN network configuration	No
Server Configuration	Yes
Static and Public IP Request	Yes
Connection protocols	HTTP, HTTPS, FTP
VPN P2P connections (On Demand)	No
VPN Single LAN connections (Always On)	No

LOGIC CONNECTION



Each Cloud BOX connection can receive data from devices and send asynchronous commands based on widget settings in the dashboard.
If the device is unable to send data to the Cloud BOX, it is stored in it. When the connection is restored, the Cloud BOX recovers the data interval that is missing from the device.

ALARM DISPATCHER



It is possible to define a list with a virtually unlimited number of users to send alarm mails to. Cloud BOX receives real-time alarms from the field and forwards them to users.

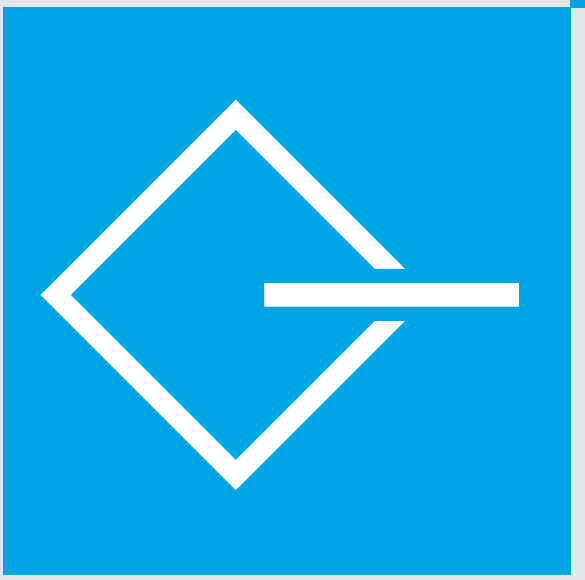
ORDER CODE	
Code	**Description**
CLOUD BOX	Industrial IoT BOX
SOFTWARE	
SEAL	SENECA Advanced language, advanced software prog.
SDD	SENECA Discovery Device, IP scanner
SUPPORTED SENECA DEVICES*	
Z-LOGGER3	Data logger with integrated I/O, voice alarms
Z-GPRS3	GSM/GPRS data logger with integrated I/O, remote control and voice alarms
Z-UMTS	3G+ data logger with integrated I/O , remote control, voice alarms

The technical data and the diagrams in this document are indicative and not binding.

SERIAL/USB CONVERTERS

2

2.8



SERIAL CONVERTERS

	Z107/S107P	Z-4AI-D	Z-4TC-D	K107A	K107B
					
	Serial converters RS232 - RS485/422	**A/D converter for 4 analog signals**	**A/D converter for 4 thermocouples**	**Serial repeater converter optoisolated RS485 / RS485**	**Serial repeater converter optoisolated RS232 / RS485**
GENERAL DATA					
Power supply	Z107: 19..40 Vdc, 19..28 Vac S107P: 9..12 Vdc (power supply unit 220 Vac supplied)	9..30 (option) - 19..40 Vdc 19..28 Vac (50..60 Hz)	9..30 (option) - 19..40 Vdc 19..28 Vac (50..60 Hz)	19,2..30 Vdc 22 mA (24 Vdc)	19,2..30 Vdc 22 mA (24 Vdc)
Max absorption	Z107: 2,5 W -S107P: 1 W	2.5 W	2 W	0.5 W	0.5 W
Insulation	1,500 Vac (3-way)	1,500 Vac (3-way)	1,500 Vac (3-way)	1,500 Vac (3-way)	1,500 Vac (3-way)
State indicators	Power supply RST signal status Data transmission Data receipt	Power supply Error Data transmission Data receipt	Power supply Error Data transmission Data receipt	Data presence Reversed connection Power supply	Data presence Reversed connection Power supply
Degree of protection	IP20	IP20	IP20	IP20	IP20
Operating temperature	0..+55 °C	0..+50 °C	0..+50 °C	-20..+65°C	-20..+65°C
Dimensions	17.5 x 100 x 112 mm	17.5 x 100 x 112 mm	17.5 x 100 x 112 mm	6.2 x 93.1 x 102.5 mm	6.2 x 93.1 x 102.5 mm
Weight	200 g	200 g	200 g	45 g	45 g
Casing	Z107: nylon 6 preloaded 30% glass fibre – self-extinguishing class V0 S107P: ABS	nylon 6 preloaded 30% glass fibre – self-extinguishing class V0	nylon 6 preloaded 30% glass fibre – self-extinguishing class V0	PBT, black	PBT, black
Connections	Z107: :Screw removable terminals for 2.5 mm^2conductors	Screw removable terminals	Screw removable terminals	Spring terminals	Spring terminals
Assembly	Z107: DIN Guide 35 mm (IEC/EN 60715)	DIN Guide 35 mm (IEC/EN 60715)	DIN Guide 35 mm (IEC/EN 60715)	DIN Guide 35 mm (IEC/EN 60715)	DIN Guide 35 mm (IEC/EN 60715)
COMMUNICATION, PROCESSING					
Interfaces	Z107 RS232 on RJ45 connector on the front RS485/RS422, extractable terminals, screw connection S107P RS232, DB9 connector RS485/RA422, removable terminal block 5-pole screw connection	Serial RS232 (configuration)	Serial RS232 (configuration)	RS485 half duplex, 31 nodes, terminator, protection up to 30 Vdc RS485 half duplex, 31 nodes, terminator, protection up to 30 Vdc	RS232B, protection up to 30 Vdc RS485 half duplex, 31 nodes, terminator, protection up to 30 Vdc
Inlet	-	VOLTAGE (V) 2..10 V f.s 16,000 point resolution Impedance: 100 KΩ CURRENT (mA) ± 20 mA (bipolar) 16,000 point resolution Impedance: 100 Ω	VOLTAGE ± 80 mV Impedance 10 MΩ THERMOCOUPLE Type J, K, R, S, T, E; B, N	-	-
Output	-	4 digital channels from/to control unit (1 can be set as clock or reset input)	4 digital channels from/to control unit (1 can be set as clock or reset input)	-	-
Change of direction	Automatic timed, controlled by RTS RS232 interface			Automatic timed	Automatic timed
Speed	Up to 115 kbps	-	-	Up to 250 kbps	Up to 250 kbps
Protocol	ModBUS RTU slave	-	-	ModBUS RTU slave	ModBUS RTU slave
Distance	Up to 1,200 m	-	-	Up to 1,200 m	Up to 1,200 m
CONFIGURATIONS, REGULATIONS					
Programming	DIP switch (speed, communication, change of direction)	IEC 61131 PLC libraries DIP switch (filter time, input time, scales, serial interface) Z-PROG (PC software)	IEC 61131 PLC libraries DIP switch (filter time, input time, scales, serial interface) Z-PROG (PC software)	DIP switch	DIP switch
Standards and approvals	CE, EN 61000-6-4, EN61000-6-2, EN61010-1	CE, EN 61010-1, EN 50081-2, EN 50082-2, EN 60742, IEC 61131	CE, EN 61010-1, EN 50081-2, EN 50082-2, EN 60742, IEC 61131	UL-UR, CE, EN 61010-1, EN 60742, EN 61000-6-2, EN 61000-6-4	UL-UR, CE, EN 61010-1, EN 60742, EN 61000-6-2, EN 61000-6-4
ORDER CODE					
Code	Z107 (panel version) S107P (portable version)	Z-4AI-D	Z-4TC-D	K107A	K107B

The technical data and the diagrams in this document are indicative and not binding.

USB CONVERTERS

	K107USB	S117P1	S107USB	EASY-USB
				
	Opto-isolated serial converter RS485 / USB (panel vers.)	**Asynchronous serial converter RS232/USB, TTL/USB, RS485/USB**	**Opto-isolated serial converter RS485 / USB (portable vers.)**	**Converter USB - UART TTL**
GENERAL DATA				
Power supply	Via USB port of the PC	Via USB port of the PC	Via USB port of the PC	With PC 5 V @ 100 mA
Max absorption	0.5W	0.35W	0.5W	0.35W
Insulation	1,500 Vac	1,500 Vac	1,500 Vac	
State indicators	Data presence, Inverter connection Power supply	Power Supply, Data Transmission Data receipt	Power Supply, Data Transmission Data receipt	
Degree of protection	IP20	IP20	IP20	IP20
THERMOMECHANICAL CHARACTERISTICS				
Operating temperature	-20..+65°C	-20..+65°C	0..+55 °C	-10..+65°C
Dimensions	6.2 x 93.1 x 102.5 mm	90 x 50 x 25 mm	40 x 48 x 20.17 mm	84 x21 x 17 mm
Weight	45 g	50 g	ABS	
Casing	PBT, black	ABS	ABS	PVC, transparent
Connections	Spring terminals	DB9 (RS232 connector) RJ10 (TTL connector)	5-pole terminal block	USB
Assembly	DIN Guide 35 mm (IEC/EN 60715)			
COMMUNICATION, PROCESSING				
Interfaces	RS485, 31 nodes, spring terminal USB 1.0 and 2.0 standard interface, connectors USB A and MINI USB B, connection multiple on the same PC	RS232 USB 1.0, 1.1 and 2.0	RS485, termination and speed (from 1,200 bps to 250 kbps) settable Standard USB 1.0 and 2.0 interface, USB A and MINI USB B connectors, multiple connection on the same PC	Serial UART TTL, RJ11 connector USB, standard type A connector, USB compatibility 1.0, 1.1, 2.0
Change of direction	Automatic timed	Automatic timed	Automatic timed	
Speed	Up to 250 kbps	From 300 bps to 250 kbps	Up to 250 kbps	From 300 bps to 250 kbps
Protocol	ModBUS RTU slave		ModBUS RTU slave	
Distance	Up to 1,200 m		Up to 1,200 m	
CONFIGURATIONS, REGULATIONS				
Programming	Cd with driver, USB connection cable	Windows support driver CD; Mac OS-X; Linux	Cd with driver, USB connection cable	Cd with driver, TTL connection cable
Standards and approvals	UL-UR, CE, EN 61010-1, EN 60742, EN 61000-6-2, EN 61000-6-4	CE, EN 61000-6-4, EN 61000-6-2, EN 61010-1	CE, EN 61010-1, EN 60742, EN 61000-6-2, EN 61000-6-4	CE, EN 61010-1, EN 60742, EN 61000-6-2, EN 61000-6-4, EN 60742
ORDER CODE				
Code	K107USB	S117P1	S107USB	EASY-USB

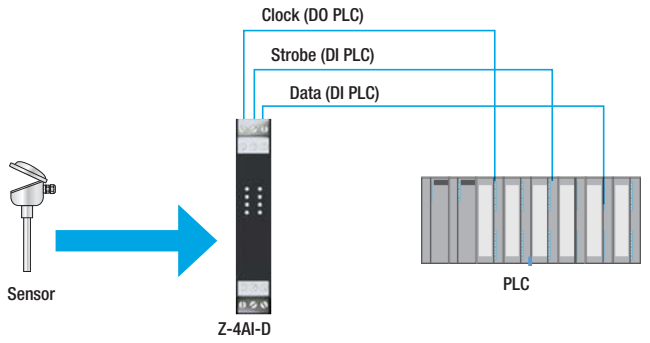
PROGRAMMING KIT

D-USB	**Programmable kits**	**K107USB S107USB** USB <-> RS485	**S117P1** USB <-> RS485 USB <-> RS232 USB <-> TTL	**EASY USB** USB <-> TTL
 **Free download on www.seneca.it**	Z-PC Line ModBUS / CANopen (Z-DIN, Z-D-OUT, Z-10-D-IN, Z-10-D-OUT, Z-D-IO, Z-4AI, Z-8AI, Z-3AO, Z-4TC, Z-8TC, Z-4RTD2, Z-SG, Z-DAQ-PID, ZC-24DI, ZC-24DO, ZC-16DI-8DO, Z203-1, Z204-1)	x	x	-
Driver for O.S. Windows, Mac OS, OS-X, Linux	S Series (S203T, S203TA)	x	x	-
CS-JACK-DB9F	HMI (S401)	x	x	-
	Indicators (S311A and S311D with optional board, S312A)	x	x	-
Programming serial cable (Z109REG, Z109REG2, Z-4AI-D, Z-4TC-D, Z3AO, Z8AI, Z-8TC...) (Jack / DB9F)	Serie Z (Z109REG, Z109REG2, Z109UI2, Z203-1, Z204-1, Z109PT2, Z170REG)	-	x	-
	K Series (K121, K111, K120RTD)	-	x	x
	T Series (T120, T121)	-	x	x

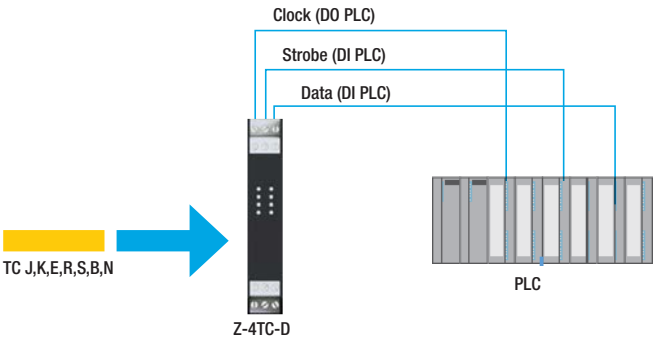
The technical data and the diagrams in this document are indicative and not binding.

APPLICATION DIAGRAMS

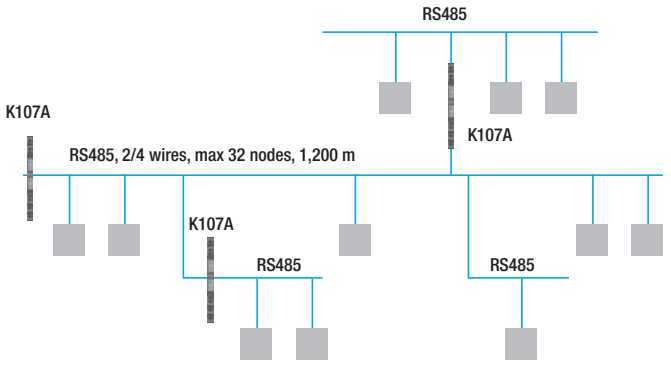
A/D conversion for mA/V input signals



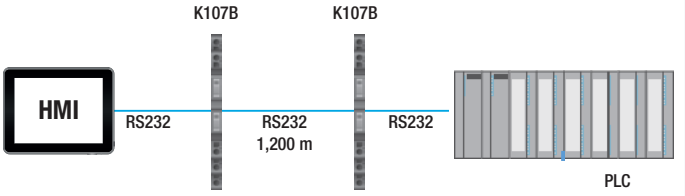
A/D conversion for thermocouples



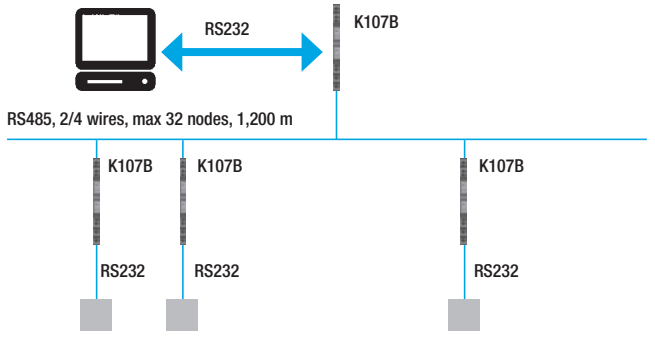
Connection of several RS485 serial lines (ModBUS) with electrical isolation



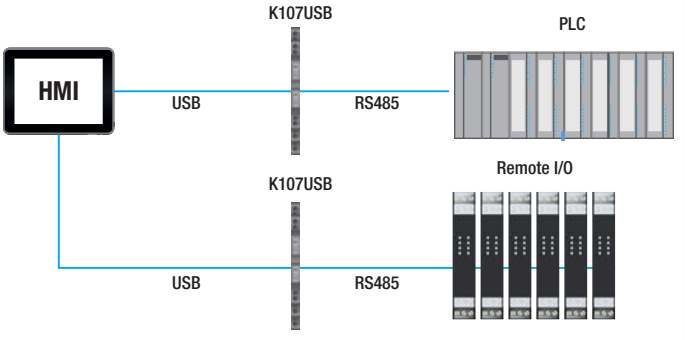
Remote transmission RS232 / RS485 bidirectional with electrical isolation



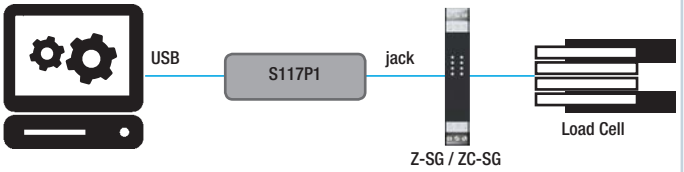
Bidirectional RS232 / RS485 remote transmission with electrical isolation up to 32 nodes



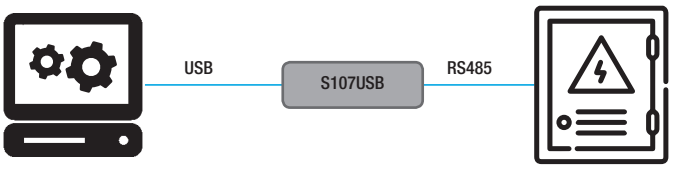
Multiple connection and data transmission with USB / RS485 electrical isolation



Connection for configuration strain gauge module



On-board diagnostics



CONVERTERS FOR FIBRE OPTICS

2

2.9

CONVERTERS FOR FIBRE OPTICS

The SENECA S232, S485, SETH and SCAN fibre optic converters also offer the possibility of extending any type of network/bus (LAN/Ethernet, CAN or serial) on the optical fibre at the same time.
They also guarantee high levels of safety and reliability. The modules make it possible to use both mono-modal and multi-modal fibre, ensuring solid, reliable and extremely high-speed communication. The application of optical fibre includes industrial and civil environments, energy production plants and telecommunication and control systems.

HIGH SPEED COMMUNICATION

NOT NECESSARY PHYSICAL SEPARATION OF THE POWER DATA LINES

ABSOLUTE PROTECTION FROM ELECTRICAL DISCHARGES

EASIER AND MORE IMMEDIATE NETWORK DIAGNOSTICS

DATA TRANSMISSION IN REAL TIME

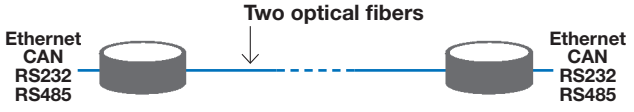
DURABLE COMMUNICATION MEANS

EXTENSION OF DISTANCES

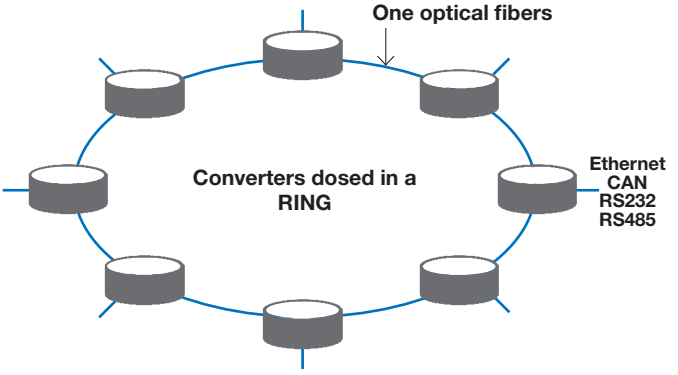
TOTAL IMMUNITY FROM NOISE

TYPE OF CONNECTION

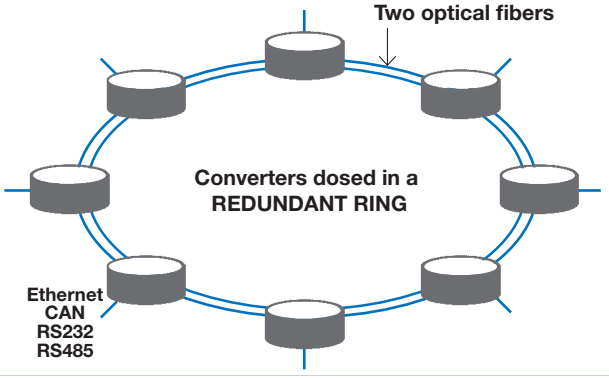
1. POINT TO POINT (LINKED DIRECTLY)



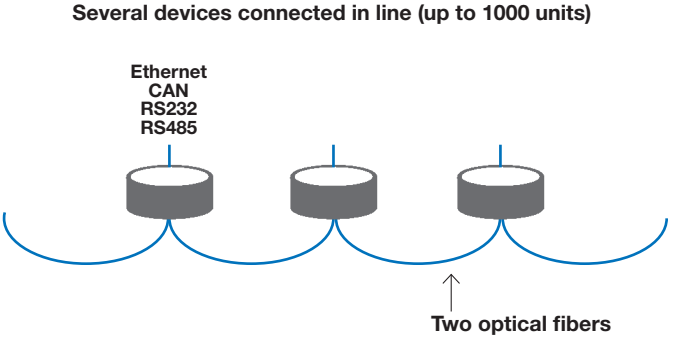
2. RING (SINGLE LOOP)



3. REDUNDANT RING (DOUBLE LOOP)



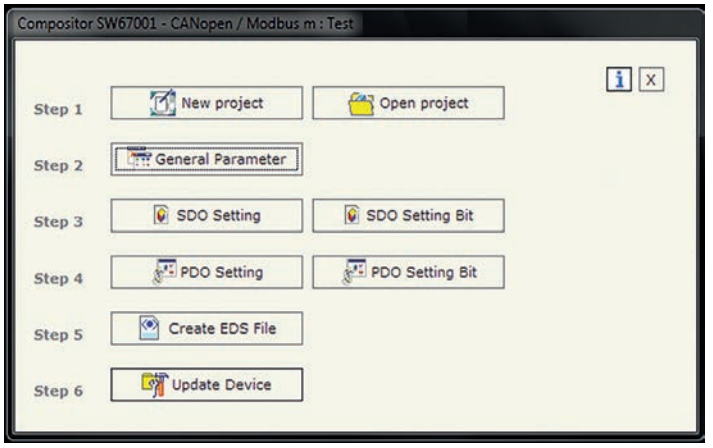
4. MULTI-DROP (IN-LINE)

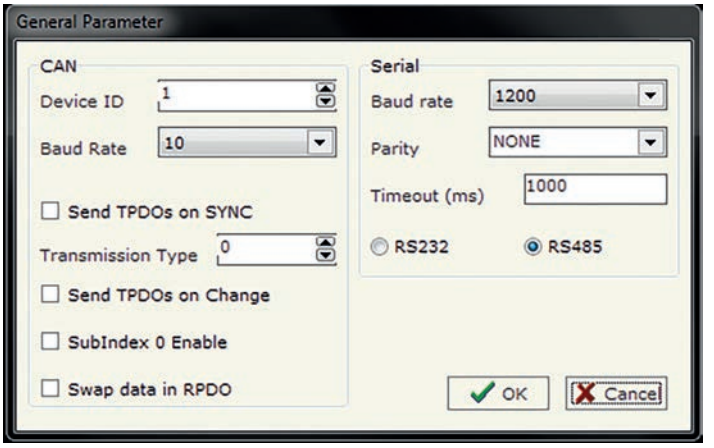


	SERIAL CONVERTERS		BUS CONVERTERS	
	S232-FO	**S485-FO**	**SETH-FO**	**SCAN-FO**
				
	Single / double loop single-mode / multimode RS232 converter	**RS485 converter in single-mode / multimode single / double loop fibre**	**Single-mode / multimode single / double loop fibre-optic converter**	**CAN converter in single-mode / multimode single / double loop fibre**
GENERAL DATA				
Power supply	12..35 Vdc; 8..24 Vac	12..35 Vdc; 8..24 Vac	12..35 Vdc; 8..24 Vac	12..35 Vdc; 8..24 Vac
Max absorption @24V	4 W	4 W	4 W	4 W
Insulation	4 kV 3-way	4 kV 3-way	4 kV 3-way	4 kV 3-way
State indicators	Fibre optic communication, serial communication, device status	Fibre optic communication, serial communication, device status	Fibre optic communication, Ethernet communication, device status	Fibre optic communication, CAN communication, device status
Operating temperature	-40..+85°C	-40..+85°C	-40..+85°C	-40..+85°C
Dimensions (lxhxd)	71 x 95 x 60 mm	71 x 95 x 60 mm	71 x 95 x 60 mm	71 x 95 x 60 mm
Weight	200 g	200 g	200 g	200 g
Casing	PVC, white	PVC, white	PVC, white	PVC, white
Assembly	DIN Guide 46277	DIN Guide 46277	DIN Guide 46277	DIN Guide 46277
Programming	Software COMPOSITOR (S232-FO-MONO) DIP Switch (S232-FO-MULTI)	Software COMPOSITOR (S485-FO-MONO) DIP Switch (S485-FO-MULTI)	Software COMPOSITOR	Software COMPOSITOR
Integrated self-diagnostics	Yes	Yes	Yes	Yes
Conformity	EC	EC	EC	EC
Regulations	EN 61000-6-4, EN 61000-6-2	EN 61000-6-4, EN 61000-6-2	EN 61000-6-4, EN 61000-6-2	EN 61000-6-4, EN 61000-6-2
COMMUNICATION				
Communication ports:	No.1 opto-isolated RS232	No.1 RS485 opto-isolated	No.1 RJ45 Ethernet port 100 Mbps, cable cat.7E	No.1 CAN port
Type	Single Loop (S232-SL- …) Double Loop (S232-DL-…)	Single Loop (S485-SL- …) Double Loop (S485-DL- …)	Single Loop (SETH-SL- …) Double Loop (SETH-DL- …)	Single Loop (SCAN-SL-…) Double Loop (SCAN-DL- …)
Max no. of converters in series	1,000	1,000	1,000	1,000
Max no. of independent networks	6	6	6	6
Fibre optics and connectors	Single-mode, LC/LC connectors (S232-FO-MONO) Multi-mode (62,5/125 or 50/125 µm), ST/ST connectors (S232-FO-MULTI)	Single-mode, LC/LC connectors (S485-FO-MONO) Multi-mode (62,5/125 or 50/125 µm), ST/ST connectors (S485-FO-MULTI)	Single-mode, LC/LC connectors (SETH-FO-MONO) Multi-mode, LC connectors (SETH-FO-MULTI)	Single-mode, LC/LC connectors (SCAN-FO-MONO) Multi-mode, LC connectors (SCAN-FO-MULTI)
Coverage	10 km (S232-FO-MONO) 2 km (S232-FO-MULTI)	10 km (S232-FO-MONO) 2 km (S232-FO-MULTI)	10 km (SETH-FO-MONO) 500 m (SETH-FO-MULTI)	10 km (SCAN-FO-MONO) 500 m (SCAN-FO-MULTI)
Interface and protocols	ModBUS RTU, transparent to communication protocols	ModBUS RTU, transparent to communication protocols	Ethernet, ModBUS TCP-IP, transparent to communication protocols	CAN (CAN 2.0, CANopen), transparent to communication protocols
Speed	From 1,200 to 115,200 bps	From 1,200 to 115,200 bps	10 / 100 MHz	From 5 kHz to 1 MHz

The technical data and the diagrams in this document are indicative and not binding.

SOFTWARE DI CONFIGURAZIONE





Through the **COMPOSITOR** software freely downloadable from www.seneca.it it is possible to carry out configuration of the projects and of the network parameters, to identify the devices on the network and the respective connections in addition to performing diagnostics and monitoring. The diagnostics networks logs can be read directly and easily from SCADA and management software.

ORDER CODE	
SERIAL CONVERTERS	
S232-FO-MONO-SL	Single loop single-mode fibre RS232 converter
S232-FO-MONO-DL	Double loop single-mode fibre RS232 converter
S485-FO-MONO-SL	Single loop single-mode fibre RS485 converter
S485-FO-MONO-DL	RS485 converter in single-loop double-mode fibre
S232-FO-MULTI-SL	Multi-drop fibre optic converter ↔ RS232 single loop
S232-FO-MULTI-DL	Multi-drop fibre optic converter ↔ RS232 double loop
S485-FO-MULTI-SL	Multi-drop fibre optic converter ↔ RS485 double loop
S485-FO-MULTI-DL	Multi-drop fibre optic converter ↔ RS485 single loop
ETHERNET CONVERTERS	
SETH-FO-MONO-SL	Single loop single-mode fibre Ethernet converter
SETH-FO-MONO-DL	Double loop single-mode fibre Ethernet converter
SETH-FO-MULTI-SL	Single loop multi-mode fibre Ethernet converter
SETH-FO-MULTI-DL	Double loop multi-mode fibre Ethernet converter
CONVERTITORI CAN	
SCAN-FO-MONO-SL	Single loop multi-mode fibre CAN converter
SCAN-FO-MONO-DL	Double loop multi-mode fibre CAN converter
SCAN-FO-MULTI-SL	Single loop multi-mode fibre CAN converter
SCAN-FO-MULTI-DL	Double loop multi-mode fibre CAN converter
CABLES	
CU-A-MINIB-1	Cable plug USB-A Mini USB-B 5 P, 1 meter
CU-A-MINIB-2	Cable plug USB-A min USB-B 5 P, 2 metres
CE-RJ45-RJ45-C	Crossed Ethernet cable (RJ45 / RJ45)
CE-RJ45-RJ45-R	Straight Ethernet cable (RJ45 / RJ45)
SOFTWARE	
COMPOSITOR	Configuration and test tool for fibre optic converters
FO TEST	Automatic test environment for fibre optic converters

RADIO MODULES

2

2.10

RADIO MODULES

Z-LINK1-NM, Z-LINK1-LO,Z-AIR-1, RM169-1, RTURADIO-169

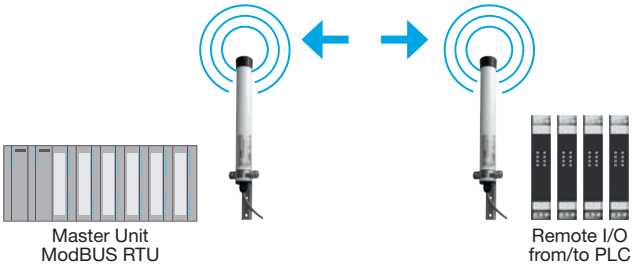
With its experience in interface technology, the SENECA proposal for radio and radiomodem modules is one of the key elements of automation and communication systems, in particular in the transport of signals from a few meters to tens of kilometres. The use of UHF / VHF devices allows the reaching of distances of multiple km with maximum reliability.
It also allows remote control functions, remote interrogations and diagnostics of devices in the field through point-to-point and multipoint connections, broadcasting, signal repetition.
The Radio devices comply with the essential requirements of the RED Directive (Radio Equipment Directive) 2014/53/EU and can be freely marketed within the European Union.

Modulation NBFM / GFSK	Interfaces RS232/RS485	Vac/dc extended power supply	I/O integrated	Transmission power 25..500 mW	Technologies ModBUS and LoRa	Operating bands 169/869 Mhz	Versions for outdoors and for extreme environments

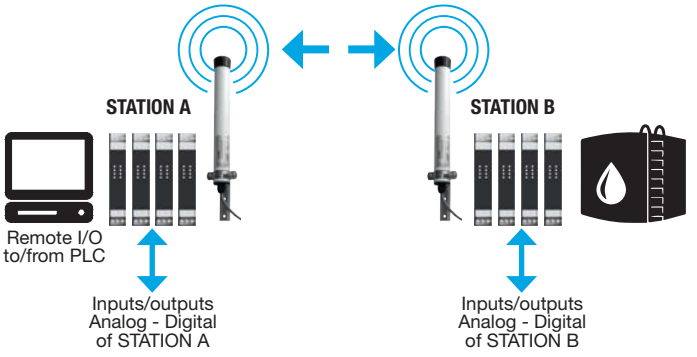
Z-AIR-1 ANTENNA WITH RADIOMODEM 868 - 870 MHZ INTEGRATED

Radio frequency: License free
External protection degree: IP65
Configuration: Via software (Z-AIR-1-SETUP)
Axial antenna: Incorporated
Power supply: 8-32 Vdc
Operating band: 868 - 870 MHz
Modulation: NBFM / GFSK
Transmission power: 25 / 150 / 500 mW
Integrated I/O
Interfaces: RS485
Operating mode:
Point-to-Point, Point-to-Multipoint, Broadcasting, Digipeater, LBT (Listen Before Talk), Agility

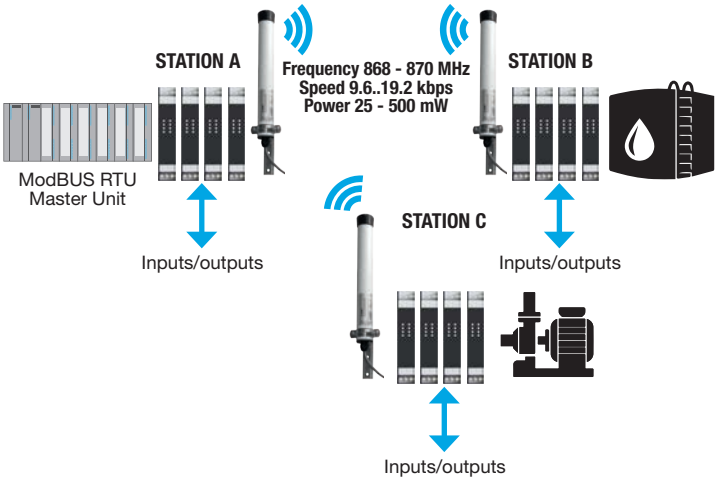
Data transmission from Master controller



Trasmissione dati punto-punto (es. Ripetizione I/O)



Point- multipoint data transmission



Glossary

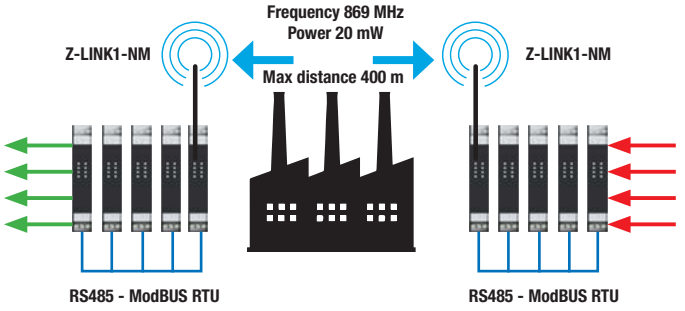
AGILITY
A system that combines multiple radio communication technologies with security systems, alarm management, remote control, web applications and smartphones.
BROADCASTING
Transmission of information from a transmitting system to a set of receiving systems not defined a priori, typically by a radio transmitter of great power and with a high number of receivers. Broadcast transmission is unidirectional.
The information is sent from the transmitter to the receivers, without a return channel and without security that the same can be delivered.
DIGIPEATER (Digital repeater)
Use of the device for the receipt and retransmission of a signal typically at a higher power so that its propagation can be guaranteed even over long distances or to overcome obstacles without excessive attenuation / degradation of the signal.
GFSK (Gaussian Frequency Shift Keying)
Numerical frequency modulation technique or scheme, in which the modulating signal containing information shifts the frequency of the carrier in output from one to the other of two predetermined values.
LBT (Listen Before Talk)
Data transmission technique in which the initial monitoring on the radio channel is foreseen. If this is occupied by another transmitter, it cannot be transmitted. In the licensed bands, the radio station scheduler decides who to allocate the transmission resources to.
NBFM (Narrow Band Frequency Modulation)
Narrowband modulation able to reduce disturbances on the frequency of interest by reducing the receipt channel of the radio receiver and consequent limitation of the listening channel.
POINT-TO-MULTIPOINT
Connection mode in which a single network segment communicates with multiple stations serving a series of users (clients) from a central location.
POINT-TO-POINT
ISO/OSI model link level network protocol, commonly used to establish straight line connections between two nodes.

	Z-LINK1-NM	Z-LINK1-LO	Z-AIR-1	RM169-1	RTURADIO-169
			 NEW CHARACTERISTICS	 NEW CHARACTERISTICS	
	869 MHz radio modem with RS232/RS485 interface	**869 MHz radio modem with RS232 / RS485 interface and LoRa technology**	**Radiomodem simplex/half duplex, 868 - 870 MHz with integrated antenna**	**Radiomodem 169 MHz, aluminium case, RS232/ RS485 interface**	**Radiomodem 169 MHz, aluminium housing, integrated I/O, RS485 interface**
GENERAL DATA					
Power supply	10..40 Vdc; 19..28 Vac	10..40 Vdc; 19..28 Vac	9..32 Vdc	9..32 Vdc	9-32 Vdc with limited power source; 3.3-4.8 Vdc with battery power supply
External modules supply	No	No	No	No	Yes
Absorption	1W @ 12 Vdc	1W @ 12 Vdc	30 mA (Rx) / 200 mA (Tx)@12Vdc	30 mA (Rx) / 200 mA (Tx)@12Vdc	30 mA (Rx) / 600 m (Tx); <10 µA (DTR OFF)
State indicators	Power Supply / Error / Rx Tx Data	Power Supply / Error / Rx/Tx Data	ONAIR/On	ONAIR / On / Data	ONAIR / On / Data / I/O
Operating band	g3, annex 1 ERC 70-03 (869.4 MHz – 869.650 MHz)	g3, annex 1 ERC 70-03 (869.4 MHz – 869.650 MHz)	868 – 870 MHz	169.400 – 169.475 Mhz	169.400 - 169.475 MHz
N° canali			3 @ CH 25 kHz , 6 @ CH 12.5 kHz – European Resolution 2005/928/EC	3 @ CH 25 kHz , 6 @ CH 12.5 kHz – European Resolution 2005/928/EC	3 @ CH 25 kHz , 6 @ CH 12.5 kHz – European Resolution 2005/928/CE
Channelling			12.5 kHz or 25 kHz	12.5 kHz or 25 kHz	12.5 kHz or 25 kHz
Modulation	GFSK	DSSS	9K00F1D (@ 12.5 kHz of channelling); 18K00F1D (@ 25 kHz of channelling)	9K00F1D or 18K0F1D (NBFM / GFSK)	9K00F1D or 18K0F1D (NBFM / GFSK)
Data speed (radio)	-	-	9.6 kbps (@ 25 kHz of channelling); 19.2 kbps(@50kHz of channelling)	4.8 kbps (@ 12.5 kHz of channelling); 9.6 kbps (@ 25 kHz of channelling); 19.2 kbps(@50kHz of channelling)	4.800 bps @ 12.5 kHz – 9.600 bps @ 25 kHz
Frequency stability	-	-	± 1 ppm/°C	±500 Hz	±500 Hz
Encryption	AES 128 bit	AES 128 bit	AES 128 bit	AES 128 bit	AES 128 bit
RTC	-	-	-	Integrated on board for custom applications	Integrated on board for custom applications
Antenna	ANT Mag (standard) SMA male , ANT-LINK1-MG (opt)	ANT Mag (standard) SMA male , ANT-LINK1-MG (opt)	λ/2 integrated	λ/4 - λ/2 or 3 elements Yagi	Short vertical stylusλ1/2 / λ1/4 / Yagi with 3 elements
Connectors	RJ10 connector for RS232 serial port Connector for antenna Stereo jack connector for programming IDC10 connector for Seneca bus Screw removable terminals for conductors, 3-way	RJ10 connector for RS232 serial port Connector for antenna Stereo jack connector for programming IDC10 connector for Seneca bus Screw removable terminals for conductors, 3-way	9-pin connector for VCC/GND/ RTX/RS 485/On air/GND and PWR ON	Screw removable terminals	Screw removable terminals
Dimensions	17.5 x 100 x 112 mm	17.5 x 100 x 112 mm	Ø 40 x L 320 mm	90 x 100 x 40 mm	140 x 110 x 50 mm
Operational Temperature	0..55°C	0..55°C	-30..+70 °C	-30..70°C	-30..70°C
Weight	200 g	200 g	750 g	210 g	330 g
Container	PA6, black	PA6, black	IP65 Fibreglass	Aluminium	Aluminium
Degree of protection	IP20	IP20	IP65 (suitable for outdoor installation)	IP20	IP20
Assembly	DIN Guide 35 mm (IEC IEN 60715)	DIN Guide 35 mm (IEC IEN 60715)	Wall mounting bracket stainless steel (included)	On plate/wall	On plate/wall
Integrated I/O	-	-	-	No. 1 Digital Input, 5-24 Vdc or 3.50-20 Vac. Zinp. 2.2 kΩ (opto-isolated) Nr.1 Relay output, N.O. 28 Vac @ 0.5 A or 60 Vdc @ 1 A	No. 4 Digital Inputs, No. 4 PNP 0-12 Vdc + 1 Counter 10Hz Nr. 2 Relay outputs, N.O. 28 Vac @ 0.5 A or 60 Vdc @ 1 A Nr.2 Analog Inputs (4-20 mA) Nr.2 Analog outputs (4-20 mA)
Mode of operation	Point-to-point, Point-to-multipoint, I/O repeater	Point-to-point, Point-to-multipoint, I/O repeater, Bridge, Remote IO	Point-to-point, Multipoint, broadcasting, digirepetear; routing table support for addressing	Point-to-point, Multipoint, broadcasting, digirepetear; routing table support for addressing	Point-to-point, point-to-multipoint, broadcasting, Modbus (master/ slave), support for Mesh networks (static)
Programming	EASY SETUP, DIP-switch	EASY SETUP, DIP-switch	Z-AIR SETUP	RM169-SETUP	RTURADIO-SETUP
COMMUNICATION					
Interfaces	No.1 RS232, No. 1 RS485	No.1 RS232, No. 1 RS485	RS485	RS232 / RS485	RS485
Protocol	ModBUS RTU	ModBUS RTU	Transparent to the protocol (max 1024 buffer bytes)	Transparent to the protocol (max 1024 buffer bytes)	Transparent to the protocol (max 448 buffer bytes)
Data speed	From 1,200 to 115,200 bps	From 1,200 to 115,200 bps	From 1.2 to 57.6 kbps	From 1.2 to 57.6 kbps	From 2,400 to 57,400 bps
Output power	20 mW	40mW	25/150/500 mW based on the operational sub-band	0.2 WERP - 0.5 WERP	500 mWERP
Receiver	-	-	CLASS 2 - LBT and AGILITY BER <10^{-3} @ 9.600 bps < -107 dBm @ 25 kHz	CLASS 2 - LBT and AGILITY <-110 dBm @ 12,5 kHz - <-107 dBm @ 25 kHz BER 10-2	CLASS 1 - LBT and AGILITY <-110 dBm @ 9.600 bps
Communication Mode / Data Format	Half Duplex	Half Duplex	Simplex Half - Duplex / asynchronous communication	Simplex or half-duplex	Simplex or half-duplex
Coverage	Up to 400 m in free field with BER <10-3 @ 57.6 kbaud (fixed conditions in free zone and with antenna 2 m above ground)	Up to 1,000 m in free field with BER <10-3 @ 9.6 kbaud (fixed conditions in free zone and with antenna 2 m above ground)	Up to 7 km in open field with directive antenna in a dominant position	Up to 10 km in open field with directive antenna	Up to 10 km in open field with directive antenna
STANDARD					
Approval	CE, ETSI	CE, ETSI	EC	EC	EC
Regulations	ETSI EN 300 220-2 V2.1.2 (2007-06) ETSI EN 301 489-3 V1.4.1 (2002-08) CEI EN 61010 Electromagnetic compatibility directive 2004/108/EC Low Voltage equipment directive 2006/95/EC ERC REC 70-03	ETSI EN 300 220-2 V2.1.2 (2007-06) ETSI EN 301 489-3 V1.4.1 (2002-08) CEI EN 61010 Electromagnetic compatibility directive 2004/108/EC Low Voltage equipment directive 2006/95/EC ERC REC 70-03	EN 50401, EN 60950-1, EN 301489-1/3, EN 300220-1/2 v 2.3.1, ERC 70-03, RED Directive (Radio Equipment Directive) 2014/53/UE, Direttiva 1999/5/CE, 2012/19/EU Directive	EN 300 220-1 v2.3.1 , EN 300 220-2 v2.3.1, RED Directive 2014/53/EC	EN 300 220-1 v2.3.1 EN 300 220-2 v2.3.1

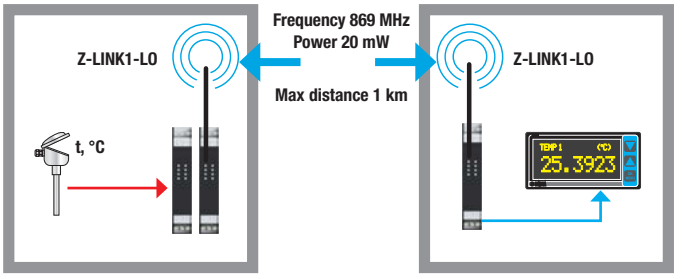
The technical data and the diagrams in this document are indicative and not binding.

APPLICATION EXAMPLES

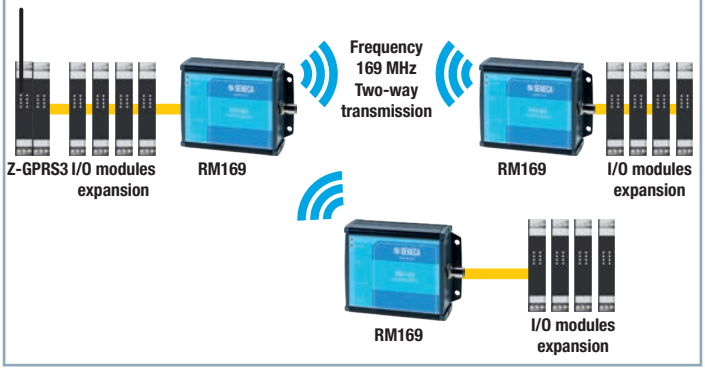
Z-LINK1-NM
CONVERSION AND RETRANSMISSION OF ANALOG SIGNALS



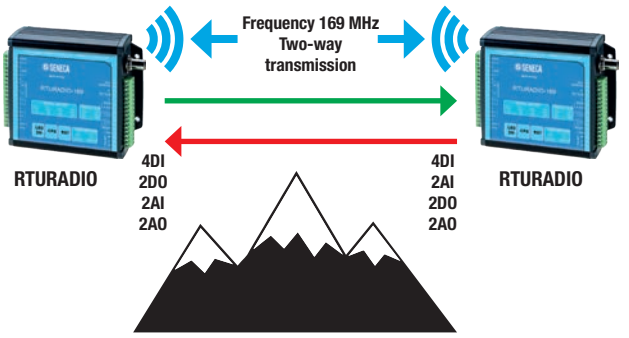
Z-LINK1-LO
«SHORT RANGE» SIGNAL REPETITION



RM169-1
EXPANSION MODBUS I/O - POINT / MULTI-POINT



RTURADIO
MIRRORING I/O - REPLICA REMOTELY OF SIGNALS



ORDER CODE

Code	Description
Z-LINK1	
Z-LINK1-NM	869 Mhz radio modem with RS232/RS485 interface
Z-LINK1-LO	869 MHz radio modem with RS232 / RS485 interface and LoRa technology
CS-RJ10-DB9F	Serial cable RS232 serial cable (RJ10 / DB9F)
Z-PC-DIN2-17.5	Support for rapid assembly on DIN guide 2 slot pitch 17.5 mm
Z-PC-DINAL2-17.5	Support for rapid assembly on DIN guide head + 2 slot pitch 17.5 mm
A-DIR-10-869	Directive external antenna for 10 elements UHF 824-960 MHz
A-DIR-6-869	Directive external antenna for 6 elements UHF 824-960 MHz
ANT-LINK1-MG	SMA 4 dbi dual band magnetic outdoor antenna, 2.5 m cable
EASY SETUP	Configuration software
Z-AIR	
Z-AIR-1	Radiomodem 868-870 MHz with integrated antenna, IP65 protection degree, RED directive
S107USB	Serial converter USB/RS485 portable
Z-AIR-1-SETUP	Z-AIR radiomodem configuration software
RM169-1	
RM169-1	Radiomodem 169MHZ 0.2W, 1DI,1DO,1 RS485 BNC F connector, RED directive
RM169-1-169DV12	Radiomodem 169MHZ 0.2W, 1DI,1DO,1 RS485 + antenna dip. vert. lambda/2 (A-169DV12) and 5 m. cable RG58U
RM169-1-169YAGI	Radiomodem 169MHZ 0.2W, 1DI,1DO,1 RS485 + antenna Yagi 3 elements (A-169DVYAGI) and 10m. cable RG58U
RM169-1-169DV14	Radiomodem 169MHZ 0.2W, 1DI,1DO,1 RS485 + antenna stylus vert. lambda/4 (A-169DV14)
A-169DV12	Antenna 169MHz, vertical dipole lambda/2, BNC M, 5 m low loss cable, bracket
A-169DV14	Antenna 169MHz, vertical stylus lambda/4, BNC M, L=450 mm, without cable
A-169YAGI	Antenna 169MHz, Yagi with 3 elements, BNC M, 10 m low loss cable, bracket
RM169-SETUP	RM169 radiomodem configuration software
RTURADIO-169	
RTURADIO-169	Rtu Radio 169MHZ 0.5W, 4DI, 2 DO, 1 meter,2 AO,2 AI,1 RS485, BNC-F connector
RTURADIO-169DV14	Rtu Radio 169MHZ 0,5W, 4DI, 2 DO, 1 meter,2 AO,2 AI,1 RS485, connector BNC-F+front stylus vert. λ/4 (A-169DV14)
RTURADIO-169DV12	Rtu Radio 169MHZ 0,5W, 4DI, 2 DO, 1 meter,2 AO,2 AI,1 RS485, connector BNC-F+front dip. vert. λ/2 (A-169DV12)+5m cable
RTURADIO-169YAGI	Rtu Radio 169MHZ 0,5W, 4DI, 2 DO, 1 meter,2 AO,2 AI,1 RS485, connector BNC-F+front Yagi 3 elem. (A-169YAGI)+10 m cable
S117P1	Serial converter RS232-TTL-RS485/USB portable
RTURADIO-SETUP	RTURADIO radiomodem configuration software

ENERGY AND ELECTRICAL READINGS

3

Energy and Electrical Readings

The SENECA Energy and Electrical Measurement systems include consumption monitoring systems such as multifunction Modbus network analysers with web server, harmonic analysis and Rogowski sensors and energy meters with Modbus/Ethernet/M-bus protocols also available with MID certification. There are also a complete series of AC/DC current transformers with a patented magnetic or hall effect magnetic measuring principle and the traditional multistandard switch converters for electrical quantities (Vrms, Irms, Watt, VAR, frequency, Energy, etc.) with Modbus or analog output. The reliability and wide range of this instrumentation allows the achievement of fundamental objectives of cable reduction, energy-saving, revamping and retrofitting of existing installations and energy efficiency with maximum ease of use.

3.1 Network Analyser ModBUS - S203 Series

3.2 Network Analyser S604 Series multifunction ModBUS

3.3 Network Analyser Front panel ModBUS - S711 Series

3.4 Sensors Rogowski

3.5 Energy Meters S500 Series

3.6 Current transducers T201 Series

3.7 Converters for electrical measurements

3.8 Controllers for Energy Management

MODBUS NETWORK ANALYSERS - S203 SERIES

3

3.1

Serie S203

MODBUS NETWORK ANALYSERS WITH ANALOG OUTPUT

The **network analysers** are specifically designed to detect the characteristics of the power supply in the single-phase or three-phase networks and utilities. They allow the analysis of energy and power and thus **controlling of the power supply quality**. At the same time in many versions they are also used to continuously record the progress of the alternating quantities available.
The measurement and event reporting functions provide a basis of information useful for controlling the correct functioning of a machine, **maximising energy efficiency**.

600 Vac

INPUT VOLTAGE

The S203 series analysers support voltage inputs with a maximum range of up to 600 Vac (50-60 Hz)

100 mA
5 Arms
4,000 A

INPUT CURRENT

The S203 series analysers manage current inputs up to 100 mA (S203T), 5 Arms (S203TA, S203TA-D), 4,000 A (S203RC-D).

MEASURED VALUES

The S203 series analysers provide the single-phase and three-phase values of the main electrical quantities via the analogue mA/V output: effective voltage, effective current, active power, reactive power, apparent, frequency, power factor, energy (bidirectional). The configurable analogue output also allows the analyser to be used as a measuring transducer.

ENERGY COUNTING

The S203TA-D and S203RC-D models are equipped with pulsed digital output and retentive memory for energy metering.

Modbus

COMMUNICATION

Equipped with a mini-USB (S203TA-D and S203RC-D) and RS485 programming port, all models support the ModBUS RTU protocol up to a maximum of 32 nodes and 115,200 bps without the use of amplifiers or repeaters.

PROGRAMMING

All models can be configured using the free EASY SET-UP software and with an easily accessible front USB port connection.
Versions without display are also programmable by DIP-switch.

LCD

DISPLAY

The S203 Series includes models with high brightness LCD display front (2 lines x 16 characters) backlit

CONNECTIONS

Depending on the versions, the main types of insertion possible are: single-phase, Aron three-phase, 4-wire three-phase.
The analysers can be connected to commercial CTs with secondary max 5A, precision transformers with f.s. from 15 to 100 A, Rogowski sensors max 4,000 A.

INSULATION CONFIGURATION

The versions with display are configurable through the Android EASY SET-UP APP downloadable from Play Store

4,000 Vac

APP

The analysers have protection against ESD discharges up to 4 kV, insulation between power input and other circuits up to 4,000 Vac and insulation between communication (or analog output) and power supply of 1500 Vac.

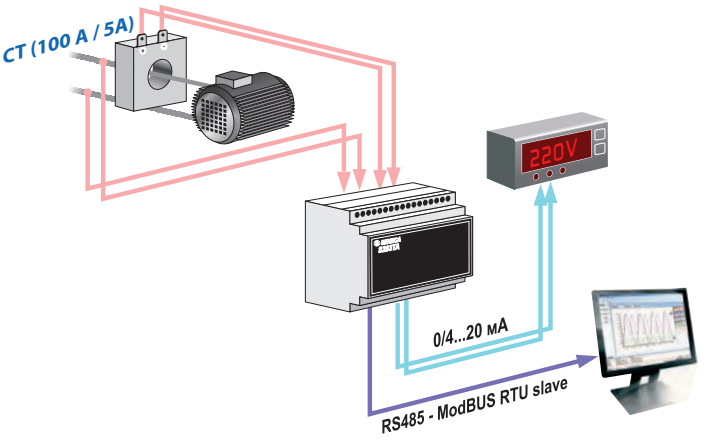
S203T

THREE-PHASE NETWORK ANALYSER, 600 Vac FOR PRECISION TA, ANALOG OUTPUT

TECHNICAL DATA

GENERAL DATA	
Power supply	10–40 Vdc, 19–28 Vac (50-60 Hz)
Max absorption	2.5 W
Insulation	4 kVac between measurement input and other circuits 1,500 Vac between power supply and communication // retransmitted output
State indicators	Power supply, Fail, RS485 communication
Installation Category	350 V CAT II
Retransmission error	0.1% (maximum field)
Passing band	7 kHz
Precision class	0.2% (voltmeter, ammeter, wattmeter)
Insertion type	Single-phase, Aron three-phase, 4-wire three-phase
Connections	Precision TA with 15 a full scale 100 A, precision 0.1%
Degree of protection	IP20
Assembly	DIN Guide 35 mm (IEC/EN 60715)
Connections	Screw terminals, 5.08 mm pitch
Operating temperature	-10..+65°C
Dimensions	105 x 89 x 60 mm
Weight	200 g
Casing	UL V0 plastic
COMMUNICATION	
Interfaces	RS485, 2 wires
Speed	Sample time 25 ms
Protocol	ModBUS RTU slave
Distance	Up to 1,200 m
Connectivity	Max 32 nodes
I/O	
Channels	1 input, 1 output
Input type	VOLTAGE Up to 600 Vac, frequency 50 or 60 Hz CURRENT Nominal flow: 15 (25, 100) mArms * TA; max. poss. crest 4; max current: 100 (400) mApeak *TA;
Output Type	VOLTAGE 0..5, 0..10 Vdc, min load resistance 2 kΩ CURRENT 0..20, 4..20 mA, min. Load resistance 500 Ω
PROGRAMMING	
Configuration	DIP switch Sofware (EASY SETUP / Z-NET4)
STANDARD	
Certifications	EC
Regulations	EN 61000-6-4, EN 61000-6-2, EN 61010-1

APPLICATION EXAMPLE



ORDER CODE	
Code	**Description**
S203T	Three-phase mains analyser, 600 Vac / 100 mA, class 0.2, analog output, precision TA
ACCESSORIES	
TA100	Precision amperometric transformer for S203T, f.s.100 A, class 0.1% (1/10000)
TA15	Precision amperometric transformer for S203T, f.s.15 A, class 0.1% (1/10000)
TA25	Precision amperometric transformer for S203T, f.s.25 A, class 0.1% (1/10000)
SOFTWARE	
Z-NET4	I/O systems configurator and Z-PC Series controllers
EASY SETUP	SENECA programmable instrumentation configurator

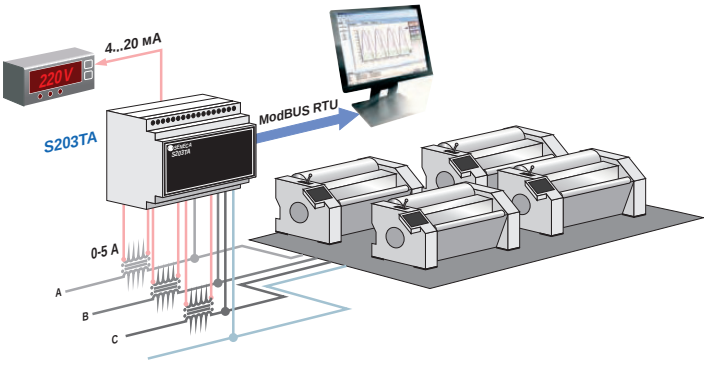
S203TA

THREE-PHASE NETWORK ANALYSER, 600 VAC / 5 ARMS, OUTPUT ANALOG, TA STANDARD

TECHNICAL DATA

GENERAL DATA	
Power supply	10–40 Vdc, 19–28 Vac (50-60 Hz)
Max absorption	2.5 W
Insulation	4 kVac between measurement input and other circuits 1,500 Vac between power supply and communication // retransmitted output
State indicators	Power supply, Fail, RS485 communication
Installation Category	350 V CAT II
Retransmission error	0.1% (maximum field)
Passing band	7 kHz
Precision class	0.2% (voltmeter, ammeter, wattmeter)
Insertion type	Single-phase, three-phase, three-phase, 4-wire
Connections	Commercial TA with secondary max 5A, typical precision 0.5%
Degree of protection	IP20
Assembly	DIN Guide 35 mm (IEC/EN 60715)
Connections	Screw terminals, 5.08 mm pitch
Operating temperature	-10..+65°C
Dimensions	105 x 89 x 60 mm
Weight	200 g
Casing	UL V0 plastic
COMMUNICATION	
Interfaces	RS 485 2 wires
Speed	1.200..115 kbps
Protocol	ModBUS RTU
Distance	Up to 1,200 m
Connectivity	Max 32 nodes
I/O	
Channels	1 input, 1 output
Input type	VOLTAGE Up to 600 Vac, frequency 50 or 60 Hz CURRENT Nominal flow: defined by Iprimaria TA; max. poss. crest: 3; max current: 3*Iprimary TA;
Output Type	VOLTAGE 0..5, 0..10 Vdc, min load resistance 2 kΩ CURRENT 0..20, 4..20 mA, min. Load resistance 500 Ω
PROGRAMMING	
Configurations	DIP switch Sofware (EASY SETUP / Z-NET4)
STANDARD	
Certifications	EC
Regulations	EN 61000-6-4, EN 61000-6-2, EN 61010-1, EN 60742

APPLICATION EXAMPLE



ORDER CODE

Code	Description
S203TA	Three-phase network analyser, 600 Vac / 5 Arms, class 0.2, analogue output, standard CT
SOFTWARE	
Z-NET4	I/O systems configurator and Z-PC Series controllers
EASY SETUP	SENECA programmable instrumentation configurator

The technical data and the diagrams in this document are indicative and not binding.

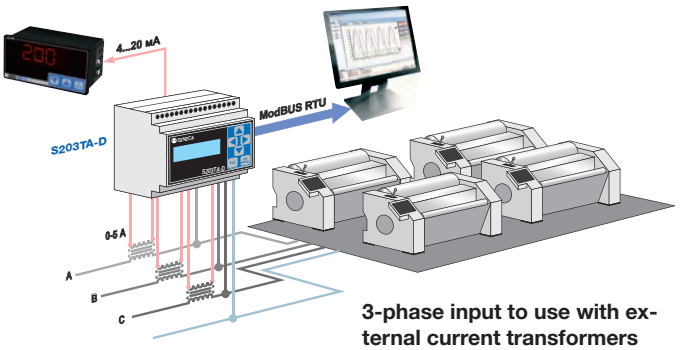
S203TA-D

THREE-PHASE NETWORK ANALYSER, 600 VAC / 5 ARMS, ANALOG AND PULSE OUTPUTS, STANDARD TA, LCD DISPLAY

TECHNICAL DATA

GENERAL DATA	
Power supply	10..40 Vdc; 19..28 Vac (50-60 Hz)
Max absorption	2.5 W
Insulation	4 kV Vac (from/to power circuits) 1.500 Vac (other circuits)
State indicators	Power supply, Fail, RS485 communication
Installation Category	350 V CAT II
Display	Front LCD 2 lines x 16 alphanumeric characters backlit
Retransmission error	0.1% (maximum field)
Passing band	7 kHz
Precision class	0.2% (voltmeter, ammeter, wattmeter)
Insertion type	Single-phase, Aron three-phase, 4-wire three-phase
Connections	Commercial TA with secondary max 5A, typical precision 0.5%
Degree of protection	IP20
Assembly	DIN Guide 35 mm (IEC/EN 60715)
Connections	Screw terminals, 5.08 mm pitch
Operating temperature	-10..+65°C
Dimensions	105 x 89 x 60 mm
Weight	200 g
Casing	UL V0 plastic
COMMUNICATION	
Interfaces	No.1 RS485 port, no.1 USB port
Speed	1 reading every 25 ms
Protocol	ModBUS RTU
Distance	Up to 1,200 m
Connectivity	Max 32 nodes
I/O	
Channels	1 input, 2 outputs
Input type	VOLTAGE Up to 600 Vac (50-60 Hz); CURRENT Up to 5 Arms
Output Type	VOLTAGE 0..5, 0..10 Vdc min load resistance 2 kΩ, CURRENT 0..20, 4..20 mA, max load resistance 500 Ω DIGITAL IMPULSIVE for metres of energy produced/absorbed, flow 50 mA
PROGRAMMING	
Configurations	Front keys DIP switch Sofware (EASY SETUP / Z-NET4) AppAndroid (EASY SETUP APP)
STANDARD	
Certifications	EC
Regulations	EN 61000-6-4, EN 61000-6-2, EN 61010-1

APPLICATION EXAMPLE



3-phase input to use with external current transformers

ORDER CODE

Code	Description
S203TA-D	Three-phase network analyser, 600 Vac / 5 Arms, analog and pulse outputs, standard TA, LCD display, Micro app
SOFTWARE	
Z-NET4	I/O systems configurator and Z-PC Series controllers
EASY SETUP	SENECA programmable instrumentation configurator

The technical data and the diagrams in this document are indicative and not binding.

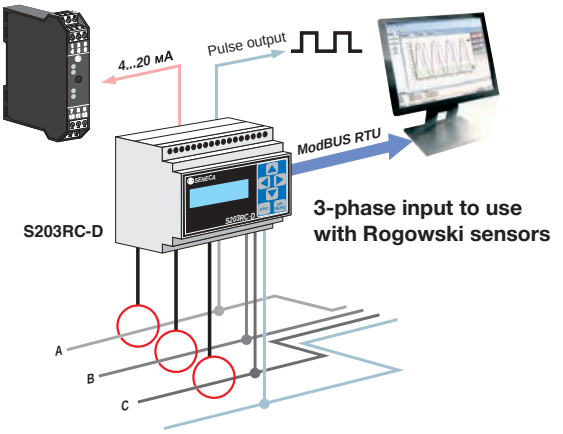
S203RC-D

THREE-PHASE NETWORK ANALYSER, 600 VAC FOR ROGOWSKI TRANSDUCERS, ANALOGUE AND IMPULSIVE OUTPUTS, LCD DISPLAY

TECHNICAL DATA

GENERAL DATA	
Power supply	10..40 Vdc; 19..28 Vac (50-60 Hz)
Max absorption	2.5 W
Insulation	4 kV Vac (from/to power circuits) 1.500 Vac (other circuits)
State indicators	Power supply, Fail, RS485 communication
Installation Category	350 V CAT II
Display	Front LCD 2 lines x 16 alphanumeric characters backlit
Retransmission error	0.1% (maximum field)
Passing band	7 kHz
Precision class	0.5% (voltmeter, ammeter, wattmeter)
Insertion type	Single-phase, Aron three-phase, 4-wire three-phase
Connections	Rogowski Transducers with max output 100 mV RMS
Degree of protection	IP20
Assembly	DIN Guide 35 mm (IEC/EN 60715)
Connections	Screw terminals, 5.08 mm pitch
Operating temperature	-10..+65°C
Dimensions	105 x 89 x 60 mm
Weight	200 g
Casing	UL V0 plastic
COMMUNICATION	
Interfaces	No.1 RS485 port, no.1 USB port
Speed	1 reading every 25 ms
Protocol	ModBUS RTU
Distance	Up to 1,200 m
Connectivity	Max 32 nodes
I/O	
Channels	1 input, 2 outputs
Input type	VOLTAGE up to 600 Vac (50-60 Hz), CURRENT from Rogowski transducers with max output 100 mV RMS
Output Type	VOLTAGE 0..5, 0..10 Vdc, min load resistance 2 kΩ CURRENT 0..20, 4..20 mA, max load resistance 500 Ω DIGITAL IMPULSIVE for metres of energy produced/absorbed, flow 50 mA
PROGRAMMING	
Configurations	Front keys DIP switch Sofware (EASY SETUP / Z-NET4) AppAndroid (EASY SETUP APP)
STANDARD	
Certifications	EC
Regulations	EN 61000-6-4, EN 61000-6-2, EN 61010-1

APPLICATION EXAMPLE



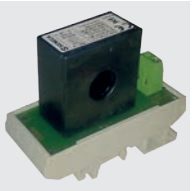
ORDER CODE

Code	Description
S203RC-D	Three-phase network analyser, 600 Vac / 1000 Arms, Rogowski, analog and pulse outputs, LCD display, Micro USB app
SOFTWARE	
Z-NET4	I/O systems configurator and Z-PC Series controllers
EASY SETUP	SENECA programmable instrumentation configurator
ACCESSORIES	
RC150-025-100-3M	Rogowski Sensor L=25cm Øint.8cm,100mV/1KA-50Hz,cable L=3m.
RC150-040-100-3M	Rogowski Sensor L=40cm Øint.12cm,100mV/1KA-50Hz,cable L=3m.
RC150-060-100-3M	Rogowski Sensor L=60cm Øint.19cm,100mV/1KA-50Hz,cable L=3m.

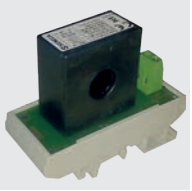
The technical data and the diagrams in this document are indicative and not binding.

ACCESSORIES

CURRENT TRANSFORMERS FOR S203T



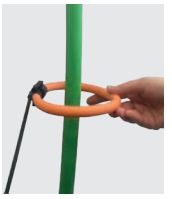
TA25
Precision amperometric transformer (f.s. 25 A)
Cod. TA25



TA15
Precision amperometric transformer (f.s. 15 A)
Cod. TA15

TA100
High precision current transformer (f.s.100A)
Cod. TA100

ROGOWSKI SENSORS FOR S203RC-D



RC-V250-100
First generation Rogowski sensor, output 100 mV/kA, 50-60 Hz, Ø 115 mm

RC-V400-050
First generation Rogowski sensor, output 50 mV/kA, 50-60 Hz, Ø 115 mm

RC-V400-100
First generation Rogowski sensor, output 100 mV/kA, 50-60 Hz, Ø 115 mm

RC-V500-100
First generation Rogowski sensor, output 100 mV/kA, 50-60 Hz, Ø 147 mm

RC150
Second generation, high performance Rogowski sensor, max error <1%, Ø 8 mm, 100 mV / 1k

SOFTWARE

Z-NET4

- Input / output settings
- Communication parameters
- Variable addressing
- Setting of counters and retransmitted output
- TA/TV parameters
- Energy accounting
- Test

- **Free download from www.seneca.it**
- **Available for S203T, S203TA, S203TA-D**

EASY SETUP
EASY SETUP APP

- Communication parameters
- Modbus parameters
- Reading, writing, testing
- Setting of measured and retransmitted variable values

Mobile Phone with USB OTG support

- **Free download from www.seneca.it on Google Play**
- **Available for S203T, S203TA, S203TA-D, S203RC-D**

ORDER CODE

Code	Description
ACCESSORIES	
RC150-025-100-3M	Rogowski Sensor L=25cm Øint.8cm,100mV/1KA-50Hz,cable L=3m.
RC150-040-100-3M	Rogowski Sensor L=40cm Øint.12cm,100mV/1KA-50Hz,cable L=3m.
RC150-060-100-3M	Rogowski Sensor L=60cm Øint.19cm,100mV/1KA-50Hz,cable L=3m.
TA15	Precision amperometric transformer for S203T, f.s.15 A, class 0.1% (1/10000)
TA25	Precision amperometric transformer for S203T, f.s.25 A, class 0.1% (1/10000)
TA100	Precision amperometric transformer for S203T, f.s.100 A, class 0.1% (1/10000)

MULTI-FUNCTION NETWORK ANALYSERS S604 SERIES

3

3.2

S604 Series

MULTI-FUNCTION NETWORK ANALYSERS

The S604 Series multifunction network analysers are innovative tools for the measuring and storing of electrical parameters. They are particularly suitable when a device for analysis and consumption control is needed, with an excellent price/performance ratio. In the versions with the Rogowski current transducers, the S604 series analysers offer an extremely easy connection and can be used in applications with high currents, linear measurements, retrofitting, energy audits, etc. On request, the instruments can communicate through the RS485 serial port with ModBUS RTU/ASCII protocol or through the LAN port with ModBUS TCP-IP protocol.
The ENERGY POWER PACK software is also provided for remote management of the instrument. A Web server interface is also available for management of the instrument from any PC connected to the LAN/Internet network.

POWER SUPPLY INSERTION

- From 3x230/400 V to 3x240/415 V 4-wire three-phase
- From 3x400 V to 3x415 V 3-wire three-phase
- 230 V to 240 V single-phase

METHOD

- Self-powered models
- Models with auxiliary power supply

DIGITAL I/O

- No.1/2 outputs for alarms/pulses
- No.1 input for the calculation of average values (DMD)

DATA ARCHIVING

- Recording average values of active and reactive powers
- Up to 24 parameters selectable from instantaneous variables for recording MIN/MED/MAX values
- Up to 8 MB of memory for data recording

TYPICAL APPLICATIONS

- Energy monitoring and control systems
- Monitoring of the load of individual machines
- Control of power tips
- Control panels, generators, motor control, etc.
- Remote consumption detection and cost calculation

PROGRAMMING

Possibility to remotely manage the instrument through ENERGY POWER PACK software or via Web server interface

COMMUNICATION

On request models are available with MODBUS RTU/ASCII communication via RS485 port or in MODBUS TCP via LAN port

ENERGY MEASUREMENTS

- Total counters
- Separate inductive/capacitive meters
- Bidirectional measurement on four quadrants for all energies and powers
- Measurement of all the main parameters necessary for an effective consumption analysis

THD & HARMONICS

THD values of voltage and current
THD Values of voltage and current + harmonics up to 15°

INPUTS

- Standard CT versions of 1 or 5 A, for direct insertion up to 80 A or for Rogowski coils

PANEL MULTI-FUNCTION NETWORK ANALYSERS

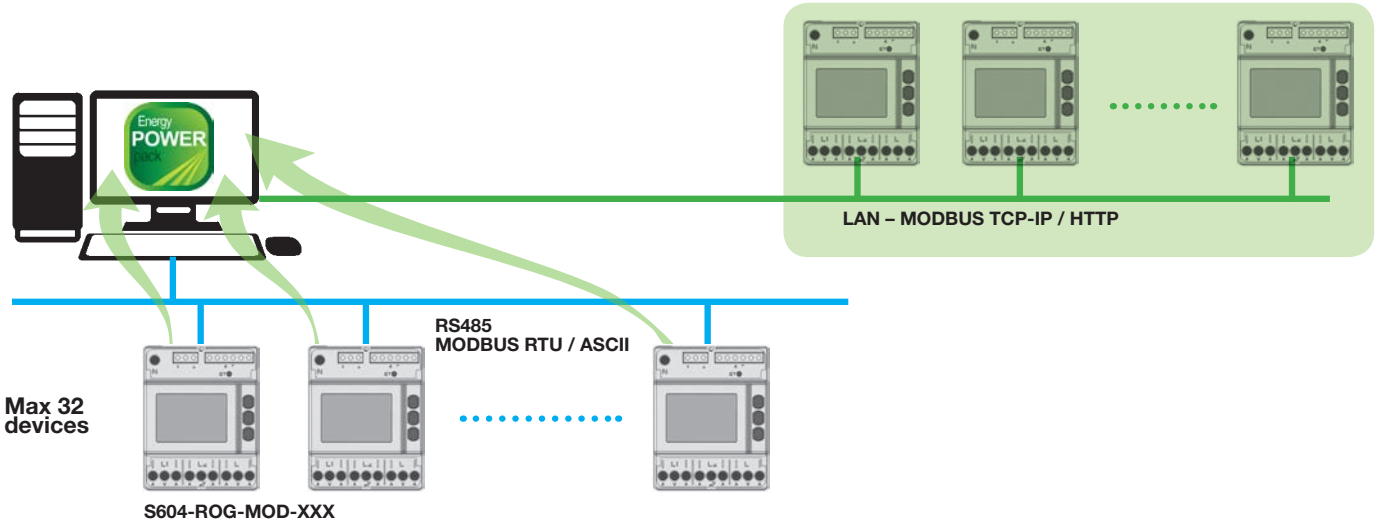
	S604B	S604E	S604E-ROG
			
	Three-phase network analysers with advanced functions for CT inputs 1/5 A, direct 80 A, BASIC version	**Three-phase network analysers with advanced functions for CT inputs 1/5 A, direct 80 A, ENERGY PLUS version**	**Three-phase network analysers with advanced func., vers. ENERGY PLUS Rogowski sensor triad**
GENERAL DATA			
Power supply	180..285 Vac line-neutral, Cat III (self-powered models) 85.265 Vac, Aux, Cat II (models with auxiliary power supply)	85.265 Vac, Aux, Cat II (models with auxiliary power supply)	85.265 Vac, Aux, Cat II (models with auxiliary power supply)
Max absorption	3.5 VA - 1 W for single phase (self-powered models) 1.6 VA - 1 W (models with auxiliary power supply, RS485 interface) 4.5 VA - 1.6 W (models with auxiliary power supply, Ethernet interface)	1.6 VA - 1 W (models with auxiliary power supply, RS485 interface) 4.5 VA - 1.6 W (models with auxiliary power supply, Ethernet interface)	1.6 VA - 1 W (models with auxiliary power supply, RS485 interface) 4.5 VA - 1.6 W (models with auxiliary power supply, Ethernet interface)
Display	LCD, backlit, 43x29 mm, 3 lines, 4 digits+symbols	LCD, backlit, 43x29 mm, 3 lines, 4 digits+symbols	LCD, backlit, 43x29 mm, 3 lines, 4 digits+symbols
Function keys	3 front keys, 1 protected key	3 front keys, 1 protected key	3 front keys, 1 protected key
Operating temperature	-25..+55°C	-25..+55°C	-25..+55°C
Sinusoidal vibration amplitude	50 Hz ± 0.075 mm	50 Hz ± 0.075 mm	50 Hz ± 0.075 mm
Memory (instruments with communication port)	1 MB	8 MB	8 MB
Recordings	Average values for active and reactive powers	Min/med/max values for all selectable powers	Min/med/max values for all selectable powers
THD & Harmonics	Voltage and current THD values	Voltage and current THD values Harmonic values of voltage and current up to the 15th	Voltage and current THD values Harmonic values of voltage and current up to the 15th
Apparent Energy Counters	Total or separate counters (inductive / capacitive)	Total or separate counters (inductive / capacitive)	Total or separate counters (inductive / capacitive)
Connection modes	Single-phase Three phase, 4 wires, 3 currents Three phase, 4 wires, 2 currents (aux models)	Single-phase Three phase, 4 wires, 3 currents Three phase, 4 wires, 2 currents (aux models)	Single-phase Three phase, 4 wires, 3 currents Three phase, 4 wires, 2 currents (aux models)
Front degree of protection	IP51	IP51	IP51
Terminals degree of protection	IP20	IP20	IP20
Dimensions	72x90x65 mm	72x90x65 mm	72x90x65 mm
Weight	436 g	436 g	436 g
PRECISION			
Voltage	±0.2% reading 10% FS...FS (FS=full scale value)	±0.2% reading 10% FS...FS (FS=full scale value)	±0.2% reading 10% FS...FS (FS=full scale value)
Current	±0.4% reading in 5% FS...FS	±0.4% reading in 5% FS...FS	±0.4% reading in 5% FS...FS
Power	±0.5% reading ±0.1% FS (PF=1)	±0.5% reading ±0.1% FS (PF=1)	±0.5% reading ±0.1% FS (PF=1)
Frequency	±0.1% reading ±1 digit in the range 45...65 Hz	±0.1% reading ±1 digit in the range 45...65 Hz	±0.1% reading ±1 digit in the range 45...65 Hz
Active Energy	Class 1 according to IEC/EN 62053-21	Class 1 according to IEC/EN 62053-21	Class 1 according to IEC/EN 62053-21
Reactive Energy	Class 2 according to IEC/EN 62053-23	Class 2 according to IEC/EN 62053-23	Class 2 according to IEC/EN 62053-23
COMMUNICATION			
Serial Port*	RS485 optoisolated, 300..57,600 bps (optional)	RS485 optoisolated, 300..57.600 bps	RS485 optoisolated, 300..57.600 bps
Ethernet Port*	10/100 Mbps, RJ45 connector (optional)	10/100 Mbps, RJ45 connector	10/100 Mbps, RJ45 connector
Protocols supported	ModBUS RTU/ASCII (RS485); http, Ntp, Dhcp, ModBUS TCP-IP (Ethernet)	ModBUS RTU/ASCII (RS485); http, Ntp, Dhcp, ModBUS TCP-IP (Ethernet)	ModBUS RTU/ASCII (RS485); http, Ntp, Dhcp, ModBUS TCP-IP (Ethernet
I/O			
Voltage input	3x180/310..3x285/495 Vacm Cat III, 300 V (self-powered models) 3x10/17…3x285/495 Vac, Cat III 300 V (models with auxiliary power supply)	3x180/310..3x285/495 Vacm Cat III, 300 V (self-powered models) 3x10/17…3x285/495 Vac, Cat III 300 V (models with auxiliary power supply)	3x180/310..3x285/495 Vacm Cat III, 300 V (self-powered models) 3x10/17…3x285/495 Vac, Cat III 300 V (models with auxiliary power supply)
Current input	6A (1/5A models with TA); 80 A (models with 80 A insertion)	6A (1/5A models with TA); 80 A (models with 80 A insertion)	3 selectable scales: 500 / 4.000 / 20.000 A via Rogowski Sensors
Digital Inputs	No. 1 opto-isolated active channel (models without communication port), range of average values DMD 80..276 Vac/dc	-	
Digital output	Nr 1 (models RS485) / 2 (models without communication port) opto-isolated passive channels, IEC / EN 62053-31	Nr 1 (models RS485) / 2 (models without communication port) opto-isolated passive channels, IEC / EN 62053-31	Nr 1 (models RS485) / 2 (models without communication port) opto-isolated passive channels, IEC / EN 62053-31
PROGRAMMING			
Configuration systems	Front keys Energy Power Pack software (ModBUS/Ethernet models) Webserver (Ethernet models)	Front keys Energy Power Pack software (ModBUS/Ethernet models) Webserver (Ethernet models)	Front keys Energy Power Pack software (ModBUS/Ethernet models) Webserver (Ethernet models)
STANDARD			
Certifications	EC	EC	EC
Directives	2006/95/EC, 2004/108/EC	2006/95/EC, 2004/108/EC	2006/95/EC, 2004/108/EC
Regulations	EN 61010-1, EN 61010-2-030, EN 61326-1, EN 55011, EN 61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11, EN61000-6-2	EN 61010-1, EN 61010-2-030, EN 61326-1, EN 55011, EN 61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11, EN61000-6-2	EN 61010-1, EN 61010-2-030, EN 61326-1, EN 55011, EN 61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11, EN61000-6-2

*** Alternatively**

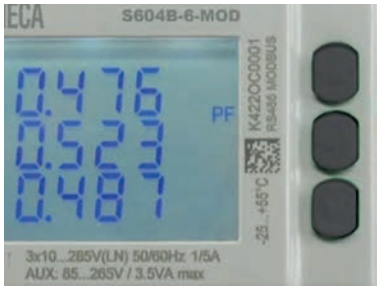
The technical data and the diagrams in this document are indicative and not binding.

PROGRAMMING SYSTEMS

MODBUS / ETHERNET CONNECTIONS



FRONT KEYS



Readings, settings and recordings are available via front keys with the possibility of managing up to 7 groups of pages on the instrument display.

The ENERGY POWER PACK package is a program compatible with all models of the S604 network analyser. It communicates via Modbus RTU and ModBUS TCP protocol and performs multiple management of devices, up to a maximum of 32. ENERGY POWER PACK ensures the reading and display of all measurements, provides a complete parameter set-up, downloads and converts recordings and manages the remote connection.

For versions with an integrated Ethernet port or with an external communication module, a Web Server accessible via a browser is available. With this system it is possible to view all the values available in the module and to associate a recording with file exportable in csv format.

ORDER CODE

Code	Description
S604B-6-MOD	BASE network analyser x TA1/5A-RS485 Modbus,1MB log. mem.
S604B-6-ETH	BASE network analyser x TA1/5A-Ethernet,1MB log. mem.
S604B-80-MOD	BASE network analyser 80A-RS485 Modbus,1MB log. mem.
S604B-80-ETH	BASE network analyser 80A-Ethernet,1MB log. mem.
S604B-ROG-MOD-30	BASE network analyser RS485 Modbus,1MB mem. Log.+3 Rogowski RC150 L= 30cm Øint. 9.5 cm
S604B-ROG-MOD-45	BASE network analyser RS485 Modbus,1MB mem. Log.+3 Rogowski RC150 L= 45cm Øint. 14 cm
S604B-ROG-MOD-70	BASE network analyser RS485 Modbus,1MB mem. Log.+3 Rogowski RC150 L= 70cm Øint. 22 cm
S604E-6-MOD	Energy PLUS Network Analyser x TA1/5A-RS485 Modbus,8MB log. Harmonics
S604E-6-ETH	Energy PLUS Network Analyser x TA1/5A-Ethernet,8MB Harmonics
S604E-80-ETH	Energy PLUS Network Analyser 80A-Ethernet,8MB log. Harmonics
S604E-ROG-MOD-30	Energy PLUS Network Analyser RS485 Modbus,8MB log.Arm.+3 Rogowski RC150 L= 30cm Øint.9,5cm
S604E-ROG-MOD-45	Network Analyser Kit Energy PLUS RS485 Modbus,8MB log.Arm.+3 Rogowski RC150 L= 45cm Øint.14cm
S604E-ROG-MOD-70	Energy PLUS Network Analyser RS485 Modbus,8MB log.Arm.+3 Rogowski RC150 L= 70cm Øint.22cm
S604E-ROG-ETH-30	Energy PLUS Network Analyser Ethernet,8MB log.Arm.+ 3 Rogowski RC150 L= 30 cm Øint. 9.5 cm
S604E-ROG-ETH-45	Energy PLUS Network Analyser Ethernet,8MB log.Arm.+ 3 Rogowski RC150 L= 45 cm Øint. 14cm
S604E-ROG-ETH-70	Energy PLUS Network Analyser Ethernet,8MB log.Arm.+ 3 Rogowski RC150 L= 70cm Øint. 22cm

Code	Description
SOFTWARE	
E-POWER PACK	S604 series multifunction network analyser management software
E-MODBUS PACK	Series 500 energy meter management software with Modbus / Ethernet communication
E-M-BUS PACK	Series 500 energy meter management software with M-BUS communication
ACCESSORIES	
RC150-025-100-3M	Rogowski Sensor L=25cm Øint.8cm,100mV/1KA-50Hz,cable L=3m.
RC150-035-100-3M	Rogowski Sensor L=35cm Øint.11cm,100mV/1KA-50Hz,cable L=3m.
RC150-040-100-3M	Rogowski Sensor L=40cm Øint.12cm,100mV/1KA-50Hz,cable L=3m.
RC150-060-100-3M	Rogowski Sensor L=60cm Øint.19cm,100mV/1KA-50Hz,cable L=3m.
RC150-090-100-3M	Rogowski Sensor L=90cm Øint.28cm,100mV/1KA-50Hz,cable L=3m
RC150-120-100-3M	Rogowski Sensor L=120cm Øint.38cm,100mV/1KA-50Hz,cable L=3m.
RC150-180-100-3M	Rogowski Sensor L=180cm Øint.57cm,100mV/1KA-50Hz,cable L=3m.
RC150-RIC-KIT30	Rogowski reel Kit Spare Part RC150 L= 30cm Ø int. 9,5 cm, 100mV/1KA-50Hz,cable L=3mt.
RC150-RIC-KIT45	Rogowski reel Kit Spare Part RC150 L= 45cm Ø int. 14 cm, 100mV/1KA-50Hz,cable L=3mt.
RC150-RIC-KIT70	Rogowski reel Kit Spare Part RC150 L= 70cm Ø int. 22 cm, 100mV/1KA-50Hz,cable L=3mt.
RC190-030-333-3M	Rogowski Sensor L=30cm Øint.9.5cm,333mV/1KA-50H,cable L=3m.

NETWORK ANALYSER MULTIFUNCTION PANEL FRONT S711 SERIES

3

3.3

S711 Series

PANEL FRONT NETWORK ANALYSERS

The S711 Series network analysers are characterised by compact front dimensions (96x96 mm) for only 39 mm depth. The S711 models ensure bidirectional measurement on four quadrants for all energies and powers and in general the measurement of all the main parameters necessary for an effective consumption analysis.
The Rogowski versions (S711EROG) are available in kits with sensors of length 30, 45 and 70 cm. The ENERGY PLUS versions (S711E, S711EROG) allow recording of up to 8 MB of memory and 24 parameters that can be selected from the instantaneous variables for the recording of MIN/MED/MAX values and harmonics up to the fifteenth. The S711 series is available with models that support communication in ModBUS RTU/ASCII via RS485 port or in ModBUS TCP-IP via Ethernet port. The analysers can also be configured remotely with ENERGY POWER PACK software or via the Web Server.

POWER SUPPLY

- Measurement of voltages up to 600V, currents for TA1/5A or Rogowski sensors
- Measurement of all energies and bidirectional powers on all four quadrants

INSERTION METHOD

- Self-powered models
- Models with auxiliary power supply

DIGITAL I/O

- No.1/2 outputs for alarms/pulses
- No.1 input for the calculation of average values (DMD)

DATA ARCHIVING

- Up to 24 parameters selectable from instantaneous variables for recording MIN/MED/MAX values
- Up to 8 MB of memory for data recording

DIMENSIONI

- 96x96 mm compact front dimensions
- 39 mm depth
- Backlit LCD display, 78x61 mm

PROGRAMMING

Possibility to remotely manage the instrument through ENERGY POWER PACK software or via Web server interface

COMMUNICATION

On request models are available with MODBUS RTU/ASCII communication via RS485 port or MODBUS TCP via Ethernet port

ENERGY MEASUREMENTS AND ACCOUNTING

- Total counters
- Separate inductive/capacitive meters
- Bidirectional measurement on four quadrants for all energies and powers
- Measurement of all the main parameters necessary for an effective consumption analysis

THD & HARMONICS

Voltage and current THD values
THD values of voltage and current+harmonics up to 15°

INPUTS

- Standard CT versions of 1 or 5 A, for direct insertion up to 80 A or for Rogowski coils
- Rogowski sensor versions with 3 scales for current measurement

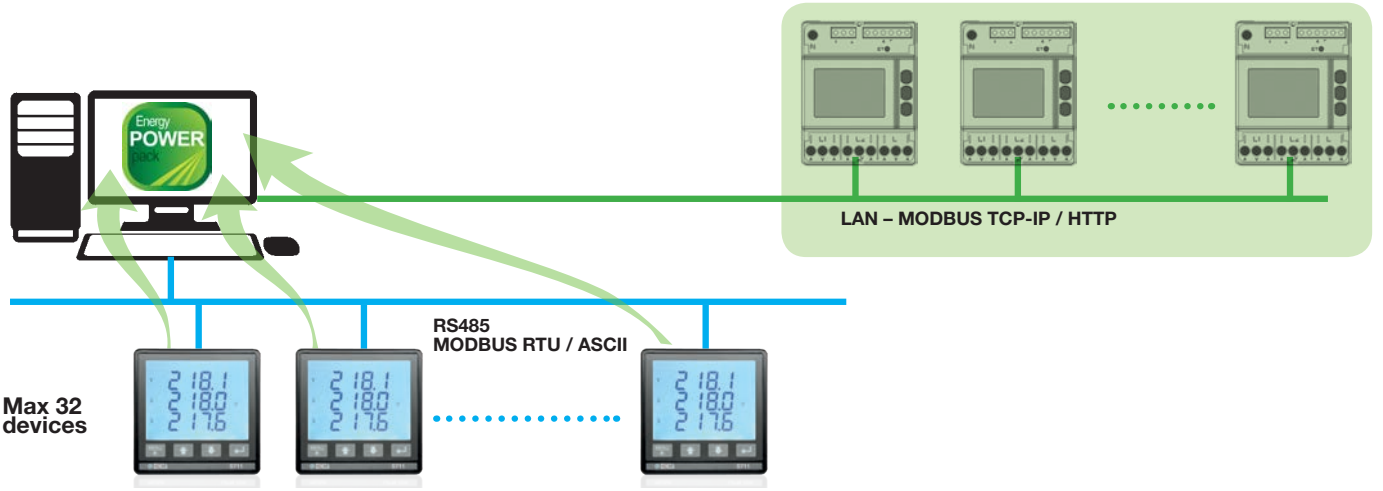
PANEL FRONT MULTIFUNCTION NETWORK ANALYSERS

	S711B	S711E	S711ER0G
			
	96x96 LCD three-phase network analyser BASIC version	**96x96 LCD three-phase network analyser, ENERGY Plus version**	**96x96 three-phase LCD network analyser, ENERGY PLUS version, with three Rogowski sensors**
GENERAL DATA			
Power supply	230 Vac ±15%, 50-60 Hz (versions with RS485 port)	230 Vac ±15%, 50-60 Hz (versions with RS485 port) 85..265 Vac (versions with Ethernet port)	230 Vac ±15%, 50-60 Hz (versions with RS485 port) 85..265 Vac (versions with Ethernet port)
Display	LCD, backlit 78x61 mm, 3 lines,4 figures + symbols	LCD, backlit 78x61 mm, 3 lines,4 figures + symbols	LCD, backlit 78x61 mm, 3 lines,4 figures + symbols
Function keys	4 front keys	4 front keys	4 front keys
Operating temperature	-25..+55°C	-25..+55°C	-25..+55°C
Sinusoidal vibration amplitude	50 Hz ± 0.075 mm	50 Hz ± 0.075 mm	50 Hz ± 0.075 mm
96x96 LCD three-phase network analyser BASIC version	96x96 LCD three-phase network analyser, ENERGY Plus version	96x96 three-phase LCD network analyser, ENERGY PLUS version, with three Rogowski sensors	96x96 three-phase LCD network analyser, ENERGY PLUS version, with three Rogowski sensors
Memory (instruments with communication port)	1 MB	8 MB	8 MB
Recordings	Average values for active and reactive powers	Min/med/max values for instantaneous variables Energy meters	Min/med/max variable instantaneous values Energy meters
THD & Harmonics	Voltage and current THD values	Voltage and current THD values Harmonic values of voltage and current up to the 15th	Voltage and current THD values Harmonic values of voltage and current up to the 15th
Apparent Energy Counters	Total or separate counters (inductive / capacitive)	Total or separate counters (inductive / capacitive)	Total or separate counters (inductive / capacitive)
Connection modes	Three phase, 4 wires, 3 currents Three phase, 3 wires, 2 currents Single-phase	Three phase, 4 wires, 3 currents Three phase, 3 wires, 2 currents Single-phase	Three phase, 4 wires, 3 currents Three phase, 3 wires, 2 currents Single-phase
Front degree of protection	IP51	IP51	IP51
Terminals degree of protection	IP20	IP20	IP20
Thread diameter for measurement terminals	2.5 mm^2 / 14 AWG	1.5.. 6 mm^2 (models with TA)	1.5.. 6 mm^2 (models with TA)
Diametro filo per morsetti I/O/ alimentazione/COM	1.5.mm^2 / 16 AWG	1.5.. 35 mm^2 (models with 80A insertion)	1.5.. 35 mm^2 (models with 80A insertion)
Dimensions	96x96x39 mm	96x96x39 mm	96x96x39 mm
Weight	310 g	436 g	436 g
PRECISION			
Voltage	±0.2% reading 10% FS...FS (FS=full scale value)	±0.2% reading 10% FS...FS (FS=full scale value)	±0.2% reading 10% FS...FS (FS=full scale value)
Current	±0.4% reading in 5% FS...FS	±0.4% reading in 5% FS...FS	±0.4% reading in 5% FS...FS
Power	±0.5% reading ±0.1% FS (PF=1)	±0.5% reading ±0.1% FS (PF=1)	±0.5% reading ±0.1% FS (PF=1)
Frequency	±0.1% reading ±1 digit in the range 45...65 Hz	±0.1% reading ±1 digit in the range 45...65 Hz	±0.1% reading ±1 digit in the range 45...65 Hz
Active Energy	Class 1 according to IEC/EN 62053-21	Class 1 according to IEC/EN 62053-21	Class 1 according to IEC/EN 62053-21
Reactive Energy	Class 2 according to IEC/EN 62053-23	Class 2 according to IEC/EN 62053-23	Class 2 according to IEC/EN 62053-23
COMMUNICATION			
Serial Port	RS485 for ModBUS RTU / ASCII communication	RS485 for ModBUS RTU / ASCII communication (ModBUS models)	RS485 for ModBUS RTU / ASCII communication (ModBUS models)
Ethernet Port		Ethernet 10/100 Mbps for http, ModBUS TCP-IP communication (Ethernet models)	Ethernet 10/100 Mbps for http, ModBUS TCP-IP communication (Ethernet models)
Protocols supported	ModBUS RTU/ASCII (RS485)	ModBUS RTU/ASCII (RS485); http, Ntp, Dhcp, ModBUS TCP-IP (Ethernet)	ModBUS RTU/ASCII (RS485); http, Ntp, Dhcp, ModBUS TCP-IP (Ethernet)
MEASUREMENT INPUT			
Voltage input	Max measurable voltage: 600 Vac max L-L 20/35 VCA (*rep. TV, in case of TV use) Input impudence: ›1.3 MOhm Frequency: 45 -65 Hz	Max measurable voltage: 600 Vac max L-L 20/35 VCA (*rep. TV, in case of TV use) Input impudence: ›1.3 MOhm Frequency: 45 -65 Hz	Max measurable voltage: 600 Vac max L-L 20/35 VCA (*rep. TV, in case of TV use) Input impudence: ›1.3 MOhm Frequency: 45 -65 Hz
Current input	Input from TA Max value: 7 A Start-up current (Ist): 2 mA TA Load: max 0.15 VA for phase Min value for the FFT calculation: 100 mA * TA ratio	Input from TA Max value: 7 A Start-up current (Ist): 2 mA TA Load: max 0.15 VA for phase Min value for the FFT calculation: 100 mA * TA ratio	3 selectable scales: 500 / 4.000 / 20.000 A via Rogowski Sensors
I/O			
Digital Inputs	Nr1 channel for synchronisation calculation of mean values (DMD), opto-isolated range 80..265 Vac/dc	Nr1 channel for synchronisation calculation of mean values (DMD), opto-isolated range 80..265 Vac/dc	No. 1 opto-isolated active channel (models without communication port), range of average values DMD 80..276 Vac/dc
Digital output	No. 2 channels for alarm / pulse emission events, passive optocoupled NPN/PNP, maximum value 27 VDC - 27 mA, pulse duration 50 ± 2 ms, maximum reaction time at output 1 s	No. 2 channels for alarm / pulse emission events, passive optocoupled NPN/PNP, maximum value 27 VDC - 27 mA, pulse duration 50 ± 2 ms, maximum reaction time at output 1 s	No. 2 channels for alarm / pulse emission events, passive optocoupled NPN/PNP, maximum value 27 VDC - 27 mA, pulse duration 50 ± 2 ms, maximum reaction time at output 1 s
Analog output		Nr 1 active opto-isolated channel 0/4..20 mAcc, max load 500 W (model S711E6MODAO)	Nr 1 active opto-isolated channel 0/4..20 mAcc, max load 500 W (model S711ER0GMOD30AO
PROGRAMMING			
Configuration systems	Front keys Energy Power Pack software (ModBUS/Ethernet models)	Front keys Energy Power Pack software (ModBUS/Ethernet models) Webserver (Ethernet models)	Front keys Energy Power Pack software (ModBUS/Ethernet models) Webserver (Ethernet models)
STANDARD			
Certifications	EC	EC	EC
Directives	2006/95/EC, 2004/108/EC	2006/95/EC, 2004/108/EC	2006/95/EC, 2004/108/EC
Regulations	EN 61010-1, EN 61010-2-030, EN 61326-1, EN 55011, EN 61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11, EN61000-6-2	EN 61010-1, EN 61010-2-030, EN 61326-1, EN 55011, EN 61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11, EN61000-6-2	EN 61010-1, EN 61010-2-030, EN 61326-1, EN 55011, EN 61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11, EN61000-6-2
DOTAZIONE AGGIUNTIVA			
Rogowski Sensors	-	-	Nr 3 Rogoski reels RC150 of 30, 45 or 70 cm (inner diam 10/14/22 cm), 3 m cable

The technical data and the diagrams in this document are indicative and not binding.

PROGRAMMING SYSTEMS

MODBUS / ETHERNET CONNECTIONS



FRONT KEYS

Readings, settings and recordings are available via front keys with the possibility of managing up to 7 groups of pages on the instrument display.

Energy POWER pack

The ENERGY POWER PACK package is a program compatible with all models of the S604 network analyser. It communicates via Modbus RTU and ModBUS TCP protocol and performs multiple management of devices, up to a maximum of 32. ENERGY POWER PACK ensures the reading and display of all measurements, provides a complete parameter set-up, downloads and converts recordings and manages the remote connection.

WEB SERVER

For versions with an integrated Ethernet port or with an external communication module, a Web Server accessible via a browser is available. With this system it is possible to view all the values available in the module and to associate a recording with file exportable in csv format.

ORDER CODE

Code	Description
S711B6MOD	Network Analyser LCD 96x96 BASIC for TA1/5A-RS485 Modbus,1MB log. mem.,1 DI 2 DO
S711E6MOD	Network Analyser LCD 96x96 Energy PLUS x TA1/5A-RS485 Modbus,8MB log.,1 DI 2 DO, Harmonics
S711E6MODAO	Network Analyser LCD 96x96 Energy PLUS x TA1/5A-RS485 Modbus,8MB log.,1 DI 2 DO 1AO, Harmonics
S711E6ETH	Network Analyser LCD 96x96 Energy PLUS x TA1/5A-Ethernet,8MB log, 1 DI 2 DO, Harmonics
S711EROGMOD30	Analyser Kit Network 96x96 RS485+3 Rogowski L= 30cm Øint. 9.5cm v. Energy PLUS RS485 Modbus 8MB data log,1DI 2DO, reading 15^ Harmonics, MIN/MED/MAX values
S711EROGMOD45	Analyser Kit Network 96x96 RS485+3 Rogowski L= 45 cm Øint. 14cm v. Energy PLUS RS485 Modbus 8MB data log,1DI 2DO, reading 15^ Harmonics, MIN/MED/MAX values
S711EROGMOD70	Analyser Kit Network 96x96 RS485+3 Rogowski L= 70cm Øint. 22cm v. Energy PLUS RS485 Modbus 8MB data log,1DI 2DO, reading 15^ Harmonics, MIN/MED/MAX values
S711EROGMOD30AO	O Analyser Kit Network 96x96 RS485+3 Rogowski L= 30cm Øint. 9.5cm v. Energy PLUS RS485 Modbus 8MB data log,1DI 2DO, 1AO reading 15^ Harmonics, MIN/MED/MAX values
S711EROGMOD30AO	O Analyser Kit Network 96x96 RS485+3 Rogowski L= 45 cm Øint. 14cm v. Energy PLUS RS485 Modbus 8MB data log,1DI 2DO, 1AO reading 15^ Harmonics, MIN/MED/MAX values
S711EROGMOD70AO	O Analyser Kit Network 96x96 RS485+3 Rogowski L= 70cm Øint. 22cm v. Energy PLUS RS485 Modbus 8MB data log,1DI 2DO, 1AO reading 15^ Harmonics, MIN/MED/MAX values
S711EROGETH30	Analyser Kit Network 96x96 ETHERNET+3 Rog. L= 30cm Øint. 9.5cm v. Energy PLUS Ethernet 8MB data log,1DI 2DO, reading 15^ Harmonics, MIN/MED/MAX values
S711EROGETH45	Analyser Kit Network 96x96 ETHERNET+3 Rog. L= 45 cm Øint. 14cm v. Energy PLUS Ethernet 8MB data log,1DI 2DO, reading 15^ Harmonics, MIN/MED/MAX values
S711EROGETH70	Analyser Kit Network 96x96 ETHERNET+3 Rog. L= 70cm Øint. 22cm v. Energy PLUS Ethernet 8MB data log,1DI 2DO, reading 15^ Harmonics, MIN/MED/MAX values

Code	Description
SOFTWARE	
E-POWER PACK	S604 series multifunction network analyser management software
E-MODBUS PACK	Series 500 energy meter management software with Modbus / Ethernet communication
E-M-BUS PACK	Series 500 energy meter management software with M-BUS communication
ACCESSORIES	
RC150-025-100-3M	Rogowski Sensor L=25cm Øint.8cm,100mV/1KA-50Hz,cable L=3m.
RC150-035-100-3M	Rogowski Sensor L=35cm Øint.11cm,100mV/1KA-50Hz,cable L=3m.
RC150-040-100-3M	Rogowski Sensor L=40cm Øint.12cm,100mV/1KA-50Hz,cable L=3m.
RC150-060-100-3M	Rogowski Sensor L=60cm Øint.19cm,100mV/1KA-50Hz,cable L=3m.
RC150-090-100-3M	Rogowski Sensor L=90cm Øint.28cm,100mV/1KA-50Hz,cable L=3m
RC150-120-100-3M	Rogowski Sensor L=120cm Øint.38cm,100mV/1KA-50Hz,cable L=3m.
RC150-180-100-3M	Rogowski Sensor L=180cm Øint.57cm,100mV/1KA-50Hz,cable L=3m.
RC150-RIC-KIT30	Rogowski reel Kit Spare Part RC150 L= 30cm Ø int. 9.5 cm, 100mV/1KA-50Hz,cable L=3mt.
RC150-RIC-KIT45	Rogowski reel Kit Spare Part RC150 L= 45cm Ø int. 14 cm, 100mV/1KA-50Hz,cable L=3mt.
RC150-RIC-KIT70	Rogowski reel Kit Spare Part RC150 L= 70cm Ø int. 22 cm, 100mV/1KA-50Hz,cable L=3mt.
RC190-030-333-3M	Rogowski Sensor L=30cm Øint.9.5cm,333mV/1KA-50H,cable L=3m.

ROGOWSKI SENSORS

3

3.4

RC150
ROGOWSKI SENSORS

A flexible coil without a toroid-shaped magnetic core is placed around the currentconductor. The variable magnetic field produced by the current induces a voltage in the coil.
The output voltage is proportional to the rate of variation of the current and, after an integrating circuit, is proportional to the actual value of the current (as for an Amperometric transformer).
The length of the reel varies from 25 to 300 cm for a reduced cord diameter up to about 8 mm..

TECHNOLOGY
- Coupling point insensitive both to the position of the internal conductor and to the currents of external conductors
- Coil and cable shielded against electromagnetic noise

ENGINEERING
- Reel diameter reduced by up to approximately 8 mm
- High flexibility

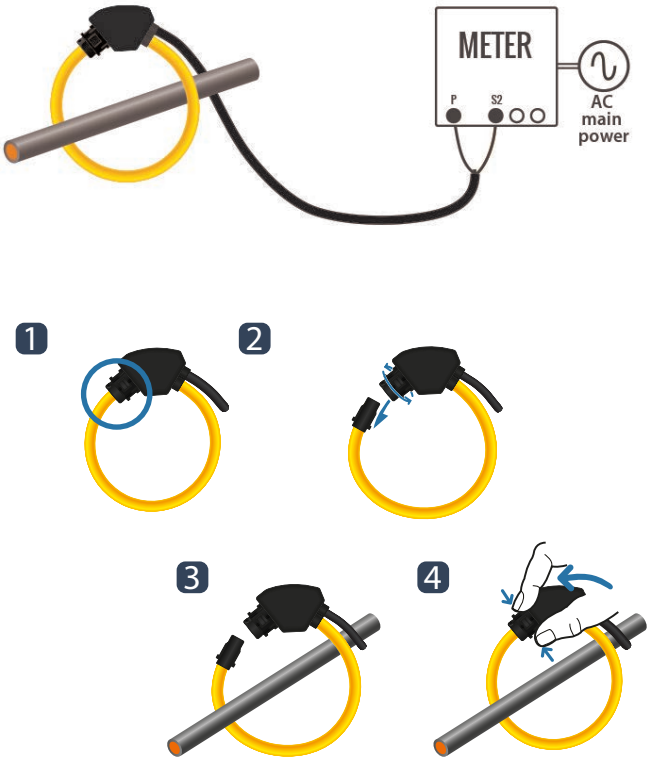
CALIBRATION
- Better than 1% accuracy even close to the reel closing point
- Calibration point easily accessible for recalibration

OPTIMAL CLOSURE
- Safe closure even in the presence of vibrations and/or tractions
- Stable closure that ensures measurement repeatability

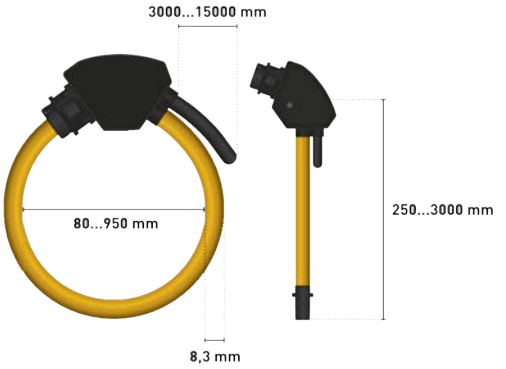
INSTALLATION
- Applications with difficult access
- Non-intrusiveness in the measuring circuit

TYPICAL APPLICATIONS
- High current measurement
- Harmonic supervision, transients, machinery load, power and consumption
- Laboratory measuring instruments
- Control of welding machines

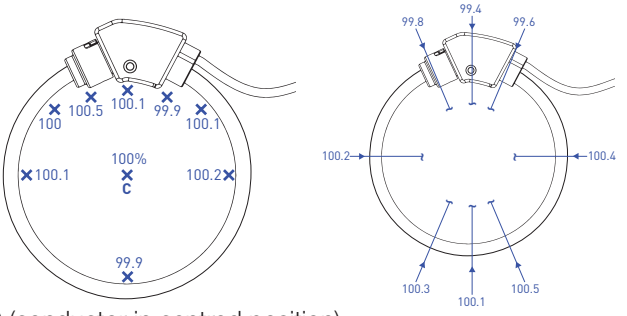
INSTALLATION PHASES



DIMENSIONS



PRECISION RANGE



C (conductor in centred position)

HIGH EFFICIENCY ROGOWSKI FLEXIBLE TRANSDUCERS

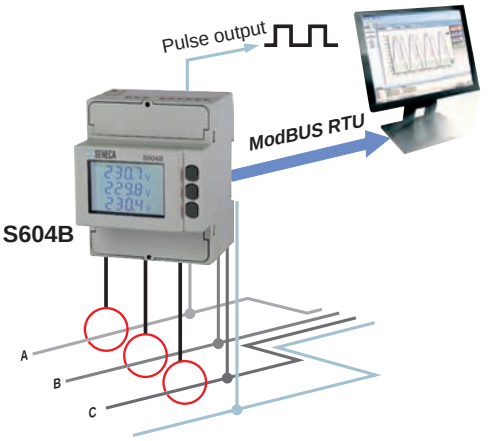
RC150

Suitable for measuring currents from mA to hundreds of kA, the Rogowski RC150 Series **Sensors** ensure high linearity, wide dynamic range and are very useful with large or irregularly shaped conductors. Lightness and flexibility make them optimal even in locations with reduced access. The transducers do not present dangers for open secondaries and cannot be damaged by large overloads. The absence of a magnetic core gives this range a very wide frequency response. All these factors makes them particularly suitable for the measurement of harmonic or transient content.
The bayonet lock equipped with electronics ensures linear detection at any distance between the conductor and transducer, even if not perpendicular to each other.

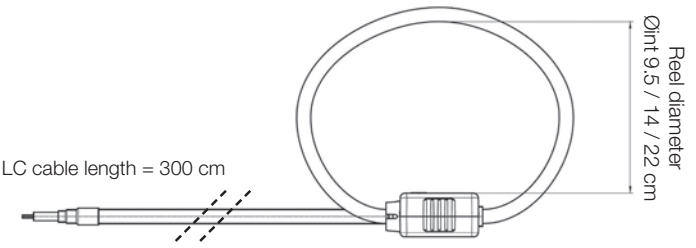
TECHNICAL SPECIFICATIONS

GENERAL DATA	
Reel length	From 25 to 300 cm
Reel diameter	From 8 ±0.2 mm to 57 cm
Cable length	3 m
Bayonette	Closure
IP67	Degree of protection
Material	UL94-V0 Thermoplastic
Operational Temperature	-30..+80°C
Weight	from 150 to 500 g
ELECTRICAL SPECIFICATIONS	
Output level (RMS)	100 mV / 1 kA @50 Hz (standard)
Transducer resistance	70..900 Ω (RC150) 300..2.000 Ω (RC190)
Precision	Better than ±1% of reading (with a conductor diameter of 15 mm) across the entire diameter of the coil
Frequency	from approx. 40 Hz to 20 kHz
Work voltage	1.000 Vrms CAT III, 600 Vrms CAT IV, contamination degree 2
Voltage test	7.400 Vrms / 1 min
STANDARD	
Certification	EC
Regulations	EN 61010-1, EN 61010-031, EN 61010-2-031, EN 61010-2-032

APPLICATION EXAMPLE



KIT / SPARE PARTS AND ACCESSORIES



S604E-ROG and S711EROG are supplied in KITS combined with 3 Rogowski coils available with 3 different circumferences (30, 45, 70 cm).

Kit / Coil length	Order coil	Øint (inner diameter)	Length cable
30 cm	S604B-ROG-MOD-30 S604E-ROG-MOD-30 S604E-ROG-ETH-30	9.5 cm	300 cm
45 cm	S604B-ROG-MOD-45 S604E-ROG-MOD-45 S604E-ROG-ETH-45	14 cm	300 cm
70 cm	S604B-ROG-MOD-70 S604E-ROG-MOD-70 S604E-ROG-ETH-70	22 cm	300 cm

ORDER CODE

Code	Description
RC150-025-100-3M	Rogowski Sensor L=25cm Øint.8cm,100mV/1KA-50Hz,cable L=3m.
RC150-035-100-3M	Rogowski Sensor L=35cm Øint.11cm,100mV/1KA-50Hz,cable L=3m.
RC150-040-100-3M	Rogowski Sensor L=40cm Øint.12cm,100mV/1KA-50Hz,cable L=3m.
RC150-060-100-3M	Rogowski Sensor L=60cm Øint.19cm,100mV/1KA-50Hz,cable L=3m.
RC150-090-100-3M	Rogowski Sensor L=90cm Øint.28cm,100mV/1KA-50Hz,cable L=3m
RC150-120-100-3M	Rogowski Sensor L=120cm Øint.38cm,100mV/1KA-50Hz,cable L=3m.
RC150-180-100-3M	Rogowski Sensor L=180cm Øint.57cm,100mV/1KA-50Hz,cable L=3m.
RC150-RIC-KIT30	Rogowski reel Kit Spare Part RC150 L= 30cm Ø int. 9.5 cm, 100mV/1KA-50Hz,cable L=3mt.
RC150-RIC-KIT45	Rogowski reel Kit Spare Part RC150 L= 45cm Ø int. 14 cm, 100mV/1KA-50Hz,cable L=3mt.
RC150-RIC-KIT70	Rogowski reel Kit Spare Part RC150 L= 70cm Ø int. 22 cm, 100mV/1KA-50Hz,cable L=3mt.
RC150-CAVEX-ROG1	Extension over 3 meters. standard of the Rogowski coil connection cable L.1
RC150-CAVEX-ROG2	Extension over 3 meters. standard of the Rogowski coil connection cable L.12
RC150-CAVEX-ROG3	Extension over 3 meters. standard of the Rogowski coil connection cable L.3

The technical data and the diagrams in this document are indicative and not binding.

ENERGY METERS
S500 SERIES

3

3.5

S500 Series
ENERGY METERS

The S500 Series energy meters in DIN format are used for energy measurement in industrial and civil environments. They are available with integrated, remote and MID certification. The totalisers and instantaneous powers are shown on the LCD display. For remote management the ENERGY MODBUS PACK tools are available for meters with ModBUS interface and ENERGY M-BUS PACK for meters with M-BUS interface as well as the Web Server for versions with Ethernet interface. The S500 meters are built in complete compliance with the EN 50470-1 standard. The accuracy of the active energy refers to the standard IEC/EN 62053-21 class 1. The accuracy of the reactive energy refers to the IEC/EN 62053-23 class 2.

M-BUS COMMUNICATION (OPTIONAL)
- Standard for remote reading of energy meters, sensors and actuators
- Simplified 2-wire bus connection
- High number of network nodes (max 250 per branch)

MID CERTIFICATION (OPT.)
- Tools suitable for tax use
- European Directive 2044/22/EC for measuring instruments
- Additional metrology marking

S0 OUTPUT / TARIFF INPUT
- Nr 1 input tariff
- Nr 2 S0 outputs for re-emission of energy pulses

COMMUNICATION PROTOCOLS
- External communication modules with lateral optical port or integrated in the module
- Support for ModBUS, Ethernet, M-BUS and Konnex protocols

PRECISION
- Active Energy: class B, EN 50470-3
- Reactive Energy: class 2 IEC EN 62053-23

CONNECTIONS
- For 3/4-wire networks with balanced/ unbalanced load
- Current: direct connection or via TA
- Single-phase / Three-phase voltages

CONFIGURATION
- Via front keys
- Software ENERGY MODBUS PACK
- Software ENERGY M-BUS PACK
- Web Server

TYPICAL APPLICATIONS
- Energy totalisation for industrial machinery
- Remote consumption monitoring
- Energy distribution
- Energy and tax accounting

	S501-40	S502-80	S504C	S534
	 MID NEW PRODUCT	 MID	 MID	 MID
	40A single-phase energy meter, 2 wires, 1 DIN, certif. MID	**80A single-phase energy meter, 2 wires, 2 DIN, certif. MID**	**6A/80A three-phase energy meter, 4 wires, 4 DIN, integrated communication, certif. MID**	**6A/80A three-phase energy meter, 3/4 wires, 4 DIN, certif. MID**
GENERAL DATA				
Power supply	Voltage derived from the measurement circuit	Voltage derived from the measurement circuit	Voltage derived from the measurement circuit	Voltage derived from the measurement circuit
Max absorption	1.5 VA - 1 W	7.5 VA - 0.5 W (for single phase)	7.5 VA - 0,5 W (for single phase) - M-BUS version 3.5 VA - 1 W (for single phase) -Modbus/Ethernet version	7.5 VA - 0.5 W (for single phase)
Precision	Active energy class 1 according to IEC/EN 62053-21 and class B according to EN 50470-3 (MID) Reactive energy class 2 according to IEC/EN 62053-23	Active energy class B according to EN 50470-3 Reactive energy class 2 according to IEC/EN 62053-23	Active energy class B according to EN 50470-3 Reactive energy class 2 according to IEC/EN 62053-23	Active energy class B according to EN 50470-3 Reactive energy class 2 according to IEC/EN 62053-23
Tariff input		Active opto-isolated Voltage range for tariff 2: 80..276 Vac/dc	Active opto-isolated Voltage range for tariff 2: 80..276 Vac/dc	Active opto-isolated Voltage range for tariff 2: 80..276 Vac/dc
Metrologic LED	Meter constant 5000 imp/kWh Pulse duration 4±0.1 ms	Meter constant 1000 imp/kWh	Meter constant 10000 imp/kWh Pulse duration 10±2 ms	Meter constant 10000 imp/kWh Pulse duration 10±2 ms
Meter reset	Optional	Optional		Optional
Operational Temperature	-25..+55°C	-25..+55°C	-25..+55°C	-25..+55°C
Degree of protection	IP51 (front), IP20 (terminals)	IP51 (front), IP20 (terminals)	IP51 (front), IP20 (terminals)	IP51 (front), IP20 (terminals)
Dimensions	18x90x64 mm	36x90x64 mm	72x90x64 mm	72x90x64 mm
VOLTAGE				
Nominal value	230 V, 50-60 Hz	230 V 50 Hz 240 V 50 Hz 230 V 50/60 Hz 230..240 V 50/60 Hz	3x230/400..3x240/415 V 50/60 Hz	3x230/400 V 50 Hz 3x240/415 V 50 Hz 3x230/400 V 50/60 Hz 3x230/400..3x240/415 V 50/60 Hz
CURRENT				
1st start-up current	20 mA	20 mA	2 mA (S504C-6) / 20 mA (S504C-80)	2 mA (S534-6) / 20 mA (S534-80)
Imin minimum current	250 mA	250 mA	10 mA (S504C-6) / 250 mA (S504C-80)	10 mA (S534-6) / 250 mA (S534-80)
Itr transition current	500 mA	500 mA	50 mA (S504C-6) / 500 mA (S504C-80)	50 mA (S534-6) / 500 mA (S534-80)
Iref reference current (Ib)	5 A	5 A	1 A (S504C-6) / 5 A (S504C-80)	1 A (S534-6) / 5 A (S534-80)
Imax maximum current	40 A	80 A	6 A (S504C-6) / 80 A (S504C-80)	6 A (S534-6) / 80 A (S534-80)
S0 OUTPUTS / ENERGY PULSE EMISSION				
Qty/Type	1 opto-isolated passive	2 opto-isolated passives	2 opto-isolated passives	2 opto-isolated passives
Maximum values	27 Vdc - 27 mA	250 Vac/dc - 100 mA	27 Vdc - 27 mA	250 Vac/dc - 100 mA
Pulse duration	100±0.5 ms	50±2 ms	50±2 ms	50±2 ms
Meter constant	1000 imp/kWh			
COMMUNICATION				
Protocols supported	ModBUS, M-BUS, Ethernet	ModBUS, M-BUS, Ethernet, Konnex	ModBUS, M-BUS, Ethernet	ModBUS, M-BUS, Ethernet, Konnex
Comunicazione ModBUS	RS485 port, Modbus RTU/ASCII, 30..57600 bps		RS485 port, Modbus RTU/ASCII, 30..57600 bps	
Comunicazione M-BUS	EN 1434-3 wired port, M-BUS, 300..38400 bps		EN 1434-3 wired port, M-BUS, 300..38400 bps	
Ethernet Communication	10/100BaseT, http, Ntp, Dhcp, Modbu TCP, 10/100 Mbps, data recording, web server		10/100BaseT, http, Ntp, Dhcp, Modbu TCP, 10/100 Mbps, data recording, web server	
Type	Integrated / Via external interface	Via external interface	Integrated	Via external interface
CONFIGURATION				
Front keys	Yes	Yes	Yes	Yes
Software PC Windows	E-MODBUS-PACK, E-MBUS-PACK	E-MODBUS-PACK, E-MBUS-PACK	E-MODBUS-PACK, E-MBUS-PACK	E-MODBUS-PACK, E-MBUS-PACK
STANDARD				
Regulations	EN 50740-3, IEC/EN 62053-21/23	EN 50740-3	EN 50470-3, EN 62053-23	EN 50470-1, EN 50470-3, EN 62053-23
Certifications	CE, MID	CE, MID	CE, MID	CE, MID

The technical data and the diagrams on this document are indicative and not binding.

S500 SERIES - PROGRAMMING

FRONT KEYS

By using the front keys on all the models the following functions can be performed:

- **Scroll pages and groups**
- **Temporary display of secondary values**
- **Access / exit of programming pages**
- **Start / stop / reset partial meter**
- **Parameters setting**
- **Display test**

WEBSERVER

All S500 Series Ethernet meters with integrated or external COM have an accessible WEB SERVER available
through secure connection.
The WEB SERVER makes available the values present in the module and defines a registration with file that can be exported to .csv.

ENERGY MODBUS PACK

Models with Modbus communication can be configured via the ENERGY MODBUS PACK software package downloadable from www.seneca.it.

- **Serial port setting**
- **Search / add counters on the network**
- **Configuration of the network parameters for a single counter**

ENERGY M-BUS PACK

Models with M-BUS communication can be configured via the ENERGY M-BUS PACK software package downloadable from www.seneca.it.

- **Serial port setting**
- **Search / add counters on the network**
- **Configuration of the network parameters for a single counter**

ORDER CODE

Code	Description
METERS	
S501-40-0	Energy meter 40A single-phase 2-wire 1 DIN
S501-40-0-MID	Energy Meter 40A single-phase 2-wire 1 DIN, cert. MID
S501-40-MOD-MID	Energy Meter 40A single-phase 2-wire 1 DIN, RS485 Modbus, cert. MID
S501-40-MBU-MID	Energy Meter 40A single-phase 2-wire 1 DIN, M-Bus, cert. MID
S502-80-MOD	Energy Meter 80A single-phase 2-wire 2 DIN, RS485 Modbus
S502-80-MBU	Energy Meter 80A single-phase 2-wire 2 DIN, M-BUS
S502-80-ETH	Energy Meter 80A single-phase 2-wire 2 DIN, Ethernet
S502-80-MID	Energy Meter 80A single-phase 2-wire 2 DIN, certif. MID
S502-80-R	Energy Meter 80A single-phase 2-wire 2 DIN, reset all counters
S504C-6-MOD-MID	Energy Meter 1/5A single-phase 4-wire 4 DIN-RS485 Modbus, certif. MID
S504C-6-MBU-MID	Energy Meter 1/5A three-phase 3/4 wire 4 DIN-MBus, certif. MID
S504C-6-ETH-MID	Energy Meter 1/5A three-phase 4 wire 4 DIN-Ethernet, certif. MID
S504C-80-MOD-MID	Energy Meter 80A three-phase 4-wire 4 DIN-RS485 Modbus, certif. MID
S504C-80-MBU-MID	Energy Meter 80A three-phase 4 wire 4 DIN-MBus, certif. MID
S504C-80-ETH-MID	Energy Meter 80A three-phase 4 wire 4 DIN-Ethernet, certif. MID
S534-6-MID	Energy Meter 1/5A three-phase 3/4 wire 4 DIN, certif. MID
S534-80-MID	Energy Meter 80A three-phase 3/4 wire 4 DIN, certif. MID
ACCESSORIES	
S107USB	Serial converter USB/RS485 portable
S117P1	Configuration kit K121, K120RTD, K111, T120, T121 - Serial converter RS232-TTL-RS485/USB portable
S107MBU	USB - M-BUS Converter / adapter, portable version
S500-MOD	Optical communication interface - RS485 Modbus Rtu standard
S500-MBU	Optical communication interface - M-Bus
S500-ETH	Optical communication interface - LAN Modbus TCP-IP, web server
S500-KNX	Optical communication interface – KNX (Konnex)
SOFTWARE	
E-MODBUS PACK	Series 500 energy meter management software with Modbus / Ethernet communication
E-M-BUS PACK	Series 500 energy meter management software with M-BUS communication

AC/DC CURRENT TRANSDUCERS T201 SERIES

3

3.6

T201 Series

AC/DC current transducers

T201 Series AC/DC **Current Transducers** are devices that convert the measured current value (up to 300A) into a standardised 4..20mA or 0..10V industrial signal. Most **T201**Series models are UL certified and are characterised by low power consumption, comfortable measurement scales that can be set by means of DIP-switches and a high precision guaranteed by the absence of thermal drift. 12 models with different measurement principles are available: rectified medium, magnetic balancing (with patented technology), Hall effect or TRMS with bipolar input range. Three models are equipped with an RS485 interface with the support of the ModBUS RTU protocol.

INPUT
Current input
withselectable wide range via DIP switch up to 300 A, mono or bi-polar scales

OUTPUT
NO. 1 CHANNEL
- 4-20 mA (2 wires)
- 0-10 V

APPLICATIONS
Direct use without shunt also for pulsed currents

MODBUS INTERFACE
RS485 / ModBUS RTU

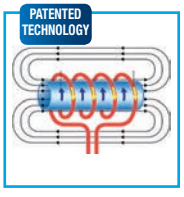
MEASUREMENT OPTIONS
- **Magnetic induction (patented technology)**
- **Hall Effect**
- **AC/DC TRMS**
- **Bipolar**

PRECISION CLASS
0.2..0.5%

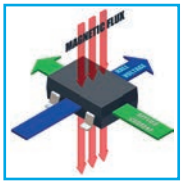
ENERGY EFFICIENCY
- **Power supply on measurement loop / auxiliary power supply**
- **Absorption < 21 mA**

CERTIFICATIONS
- **CE, UL**
- **Patented measured technology**

MEASUREMENT PRINCIPALS



MAGNETIC INDUCTION
The transducers that take advantage of magnetic induction measurement technology (international patent SENECA No. PD2009A000005) are long-lasting devices thanks to the measurement principle that avoids thermal drifts and which exploits the generation of a current induced at the output of the transducer, through variation of a magnetic field. Their direct use is possible without external shunts, also for pulsed currents.



HALL EFFECT
In Hall Effect transducers, when a magnetic field is applied perpendicular to a conductor a voltage transverse to the direction of the current flow is generated. Hall effect transducers are used as an alternative to shunts when high voltages and galvanic isolation are involved.

AC/DC CURRENT TRANSDUCERS WITH 4-20 mA OUTPUT

	T201	T201DC	T201DC100
		PATENTED TECHNOLOGY 	PATENTED TECHNOLOGY 
	Alternate current transformer 0..40 Aac, 8 input scales, output 4..20 mA loop powered	**Bipolar DC transducer 0..40 Adc, 8 input scales, 4..20 mA output, patented inductive measurement technology**	**Bipolar DC transducer 0..100 Adc, 8 input scales, 4..20 mA output, patented inductive measurement technology**
GENERAL DATA			
Power supply	Loop powered (5..28 Vdc)	Loop powered (6..100 V)	Loop powered (6..100 V)
Absorption	< 21 mA	< 21 mA	< 21 mA
Insulation and protections	3 kVdc (on bare conductors)	3 kVdc (on bare conductors)	3 kVdc (on bare conductors)
Front LED	-	-	-
Overvoltage category	300 V CAT III (bare conductor) 600 V CAT III (insulated conductor)	300 V CAT III (bare conductor) 600 V CAT III (insulated conductor)	300 V CAT III (bare conductor) 600 V CAT III (insulated conductor)
Measurement polarity	Positive (label site entry current)	Positive (label site entry current)	Positive (label site entry current)
Degree of protection	IP20	IP20	IP20
Precision class	AC: 0.2% f.s.	DC: 0.2% f.s.	DC: 0.2% f.s.
Configuration	DIP switch	DIP switch	DIP switch
Data Log	-	-	-
Operating temperature	-20..+65°C	-10..+65°C	-10..+65°C
Temperatura stoccaggio	-40..+85°C	-40..+85°C	-40..+85°C
Umidità	10rH..90% non-condensing	10rH..90% non-condensing	10rH..90% non-condensing
Altitude	Up to 2,000 m above sea level	Up to 2,000 m above sea level	Up to 2,000 m above sea level
Connections	Removable terminals (5 poles), 5 mm pitch for cables up to 2.5 mm2	Removable terminals (5 poles), 5 mm pitch for cables up to 2.5 mm2	Removable terminals (5 poles), 5 mm pitch for cables up to 2.5 mm2
Passing hole diameter	12.3 mm	12.3 mm	20.8 mm
Dimensions (lxhxd)	41x44x26 mm	41x44x26 mm	95x68x26 mm
Assembly	Free and on DIN Guide IEC EN 60715 (35 mm) via supplied accessories	Free and on DIN Guide IEC EN 60715 (35 mm) via supplied accessories	Free and on DIN Guide IEC EN 60715 (35 mm) via supplied accessories
Container	PA6, black	PA6, black	PA6, black
Weight	47 g	47 g	120 g
COMMUNICATION			
Communication port	-	-	-
Protocol	-	-	-
Speed	-	-	-
INPUT DATA			
Channels	1	1	1
Range	5, 10, 15, 20, 25, 30, 35, 40 A	Single pole 0..5, 0..10, 0..20.0.. 40 A Bipolar -5..5, -10..10, -5..20, -10..40 A	Single pole 0..10, 0..25, 0..50, 0..100 A Bipolar -10..10, -25..25, -10..50, -25..100 A
Type of Measurement	Adjusted average	Magnetic balancing	Magnetic balancing
Bipolar balancing	No	Yes	Yes
Hysteresis			
Overload	800 A	800 A	2000 A (impulsive)
Passing band	20..1.000 Hz	n.d.	n.d.
Crest factor	2	1.2	1.2
OUTPUT DATA			
Channels	1	1	1
Range	4..20 mA (2 fili)	4..20 mA (2 fili)	4..20 mA (2 fili)
Resolution	infinite	12 bit	12 bit
Max load	< 5000 Ohm @ 100 Vdc		
Error for EMI	< 40µA	< 50µA	< 50µA
Thermal drift	< 150 ppm/K	< 150 ppm/K	< 150 ppm/K
Response time	100 ms (without filter) 2.5 s (with filter)	100 ms (without filter) 600 ms (with filter)	100 ms (without filter) 600 ms (with filter)
STANDARD			
Certifications	CE, UL-UR	CE, UL-UR, European patent	CE, UL-UR European patent
Regulations	EN60688 EN61000-6-4 EN61000-6-2 EN61010-1	EN61000-6-4 EN61000-6-2 EN61010-1	EN61000-6-4 EN61000-6-2 EN61010-1

The technical data, diagrams and images are to be considered indicative and not binding

HALL EFFECT CURRENT TRANSDUCERS WITH 0-10 OUTPUT

	T201DCH	T201DCH100	T201DCH300
	HALL EFFECT 	HALL EFFECT 	HALL EFFECT 
	Transducer with continuous or alternate current (± 50 A) with Hall TRMS effect with 0..10 V output	**Transducer with continuous or alternate current (± 100 A) with Hall TRMS effect with 0..10 V output**	**Transducer with continuous or alternate current (± 300 A) with Hall TRMS effect with 0..10 V output**
GENERAL DATA			
Power supply	10..28 Vdc	12..28 Vdc	12..28 Vdc
Absorption	< 25 mA	< 25 mA	< 25 mA
Insulation and protections	3 kVdc (on bare conductors)	3 kVdc (on bare conductors)	3 kVdc (on bare conductors)
Front LED	-	-	-
Overvoltage category	300 V CAT III (bare conductor) 600 V CAT III (insulated conductor)	300 V CAT III (bare conductor) 600 V CAT III (insulated conductor)	300 V CAT III (bare conductor) 600 V CAT III (insulated conductor)
Measurement polarity	Positive (label site entry current)	Positive (label site entry current)	Positive (label site entry current)
Degree of protection	IP20	IP20	IP20
Precision class	0.3% f.s. (DC bipolar, AC TRMS)	0.3% f.s. (DC bipolar, AC TRMS)	0.3% f.s. (DC bipolar, AC TRMS)
Configuration	DIP switch	DIP switch	DIP switch
Data Log	-	-	-
Operating temperature	-10..+65°C	-20..+70°C	-20..+70°C
Storage temperature	-40..+85°C	-40..+85°C	-40..+85°C
Humidity	10rH..90% non-condensing	10rH..90% non-condensing	10rH..90% non-condensing
Altitude	Up to 2,000 m above sea level	Up to 2,000 m above sea level	Up to 2,000 m above sea level
Connections	Removable terminals (5 poles), 5 mm pitch for cables up to 2.5 mm2	Removable terminals (5 poles), 5 mm pitch for cables up to 2.5 mm2	Removable terminals (5 poles), 5 mm pitch for cables up to 2.5 mm2
Passing hole diameter	12.3 mm	20.8 mm	20.8 mm
Dimensions (lxhxp)	54 x 41 x 30 mm	95x68x26 mm	95x68x26 mm
Assembly	Free and on DIN Guide IEC EN 60715 (35 mm) via supplied accessories	Free and on DIN Guide IEC EN 60715 (35 mm) via supplied accessories	Free and on DIN Guide IEC EN 60715 (35 mm) via supplied accessories
Container	PA6, black	PA6, black	PA6, black
Weight	47 g	120 g	120 g
COMMUNICATION			
Communication port	-	-	-
Protocol	-	-	-
Speed	-	-	-
INPUT DATA			
Channels	1	1	1
Range	0..25, 0..50 Aac/dc TRMS	0-50 A, 0-100 Aac/dc TRMS ±50 A, ±100 A Bipolar	0-150 A, 0-300 Aac/dc TRMS ±150 A, ±300 A Bipolar
Type of Measurement	AC/DC TRMS	AC/DC TRMS or DC Bipolar	AC/DC TRMS or DC Bipolar
Bipolar balancing	No	Yes	Yes
Hysteresis	0.1 % f.s.	0.1 % f.s.	0.1 % f.s.
Overload	2000 A (impulsive)	2000 A (impulsive)	2000 A (impulsive)
Passing band	1 kHz	1 kHz	1 kHz
Crest factor	1.2	2	2
OUTPUT DATA			
Channels	1	1	1
Range	0..10 V	0..10 V	0..10 V
Resolution	12 bit	12 bit	12 bit
Max load	> 2 kOhm	> 2 kOhm	> 2 kOhm
Error for EMI			
Thermal drift	< 200 ppm/K	< 200 ppm/K	< 200 ppm/K
Response time	Fast filter 800 ms Slow filter 2 s	Fast filter 800 ms Slow filter 2 s	Fast filter 800 ms Slow filter 2 s
STANDARD			
Certifications	CE, UL-UR	CE, UL-UR	CE, UL-UR
Regulations	EN61000-6-4 EN61000-6-2 EN61010-1	EN61000-6-4 EN61000-6-2 EN61010-1	EN61000-6-4 EN61000-6-2 EN61010-1

The technical data, diagrams and images are to be considered indicative and not binding

HALL EFFECT CURRENT TRANSDUCERS WITH OUTPUT OF 4-20mA

	T201DCH50-LP	T201DCH100-LP	T201DCH300-LP
	HALL EFFECT 	HALL EFFECT 	HALL EFFECT 
	Transducer with continuous or alternate current (± 50 A) with Hall TRMS effect with output of 4..20 mA loop powered	**Transducer with continuous or alternate current (± 100 A) with Hall TRMS effect with output of 4..20 mA loop powered**	**Transducer with continuous or alternate current (± 300 A) with Hall TRMS effect with output of 4..20 mA loop powered**
GENERAL DATA			
Power supply	Loop powered (9..28 Vdc)	Loop powered (9..28 Vdc)	Loop powered (9..28 Vdc)
Absorption	< 22 mA	< 22 mA	< 22 mA
Insulation and protections	3 kVdc (on bare conductors)	3 kVdc (on bare conductors)	3 kVdc (on bare conductors)
Front LED	-	-	-
Overvoltage category	300 V CAT III (bare conductor); 600 V CAT III (insulated conductor)	300 V CAT III (bare conductor) 600 V CAT III (insulated conductor)	300 V CAT III (bare conductor) 600 V CAT III (insulated conductor)
Measurement polarity	Positive (label site entry current)	Positive (label site entry current)	Positive (label site entry current)
Degree of protection	IP20	IP20	IP20
Precision class	AC: 0.5% f.s,; DC: 1% f.s.	AC: 0.5% f.s,; DC: 1% f.s.	AC: 0.5% f.s,; DC: 1% f.s.
Configuration	DIP switch	DIP switch	DIP switch
Data Log	-	-	-
Operating temperature	-20..+70°C	-20..+70°C	-20..+70°C
Storage temperature	-40..+85°C	-40..+85°C	-40..+85°C
Humidity	10rH..90% non-condensing	10rH..90% non-condensing	10rH..90% non-condensing
Altitude	Up to 2,000 m above sea level	Up to 2,000 m above sea level	Up to 2,000 m above sea level
Connections	Removable terminals (5 poles), pitch 5 mm for cables up to 2.5 mm^2	Removable terminals (5 poles), 5 mm pitch for cables up to 2.5 mm^2	Removable terminals (5 poles), pitch 5 mm for cables up to 2.5 mm^2
Passing hole diameter	12.3 mm	20.8 mm	20.8 mm
Dimensions (lxhxp)	41x44x26 mm	95x68x26 mm	95x68x26 mm
Assembly	Free and on DIN Guide IEC EN 60715 (35 mm) via supplied accessories	Free and on DIN Guide IEC EN 60715 (35 mm) via supplied accessories	Free and on DIN Guide IEC EN 60715 (35 mm) via supplied accessories
Container	PA6, black	PA6, black	PA6, black
Weight	47 g	120 g	120 g
COMMUNICATION			
Communication port	-	-	-
Protocol	-	-	-
Speed	-	-	-
INPUT DATA			
Channels	1	1	1
Range	0..50 Aac/dc TRMS ±50 Adc bipolar	0-50 A, 0-100 Aac/dc TRMS ±50 A, ±100 A bipolar	0-150 A, 0-300 Aac/dc TRMS ±150 A, ±300 A Bipolar
Type of Measurement	AC/DC TRMS or DC Bipolar	AC/DC TRMS or DC Bipolar	AC/DC TRMS or DC Bipolar
Bipolar balancing	Yes	Yes	Yes
Hysteresis	0.3% f.s.	0.3% f.s.	0.3% f.s.
Overload	300 A uninterrupted 2,000 A (impulsive)	500 A uninterrupted 2,000 A (impulsive)	500 A uninterrupted 2,000 A (impulsive)
Passing band	1 kHz	1 kHz	1 kHz
Crest factor	1.3	1.3	1.3
OUTPUT DATA			
Channels	1	1	1
Range	4..20 mA nominal 3,6 mA fault indication 22 mA max indication	4..20 mA nominal 3,6 mA fault indication 22 mA max indication	4..20 mA nominal 3,6 mA fault indication 22 mA max indication
Resolution	12 bit	12 bit	12 bit
Max load	< 1 kOhm @28 Vdc	< 1 kOhm @28 Vdc	< 1 kOhm @28 Vdc
Error for EMI	< 1%	< 1%	< 1%
Thermal drift	< 200 ppm/K	< 200 ppm/K	< 200 ppm/K
Response time	Fast filter 500 ms Slow filter 1 s	Fast filter 500 ms Slow filter 1 s	Fast filter 500 ms Slow filter 1 s
STANDARD			
Certifications	CE, UL-UR	CE, UL-UR	CE, UL-UR
Regulations	EN 61326, EN 61010-1	EN 61326, EN 61010-1	EN 61326, EN 61010-1

The technical data, diagrams and images are to be considered indicative and not binding

HALL EFFECT CURRENT TRANSDUCERS WITH 0-10 OUTPUT 0-10 V / MODBUS

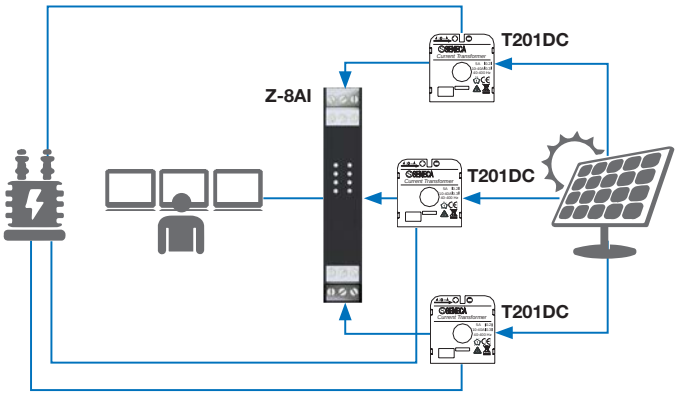
	T201DCH50-M	T201DCH100-M	T201DCH300-M
	HALL EFFECT ModBUS NEW PRODUCT 	HALL EFFECT ModBUS NEW PRODUCT 	HALL EFFECT ModBUS NEW PRODUCT 
	Transducer of direct or alternating current (± 50 A) with Hall TRMS effect with 0..10 V output, ModBUS interface	**Transducer with continuous or alternate current (± 100 A) with Hall TRMS effect with output of 0..10 mA, ModBUS interface**	**Transducer of direct or alternating current (± 300 A) with Hall TRMS effect with 0..10 V output, ModBUS interface**
GENERAL DATA			
Power supply	10..28 Vdc	12..28 Vdc	12..28 Vdc
Absorption	< 25 mA	< 25 mA	< 25 mA
Insulation and protections	3 kVdc (on bare conductors)	3 kVdc (on bare conductors)	3 kVdc (on bare conductors)
Front LED	Power Supply / Communication RS485	Power Supply / Communication RS485	Power Supply / Communication RS485
Overvoltage category	300 V CAT III (bare conductor) 600 V CAT III (insulated conductor)	300 V CAT III (bare conductor) 600 V CAT III (insulated conductor)	300 V CAT III (bare conductor) 600 V CAT III (insulated conductor)
Measurement polarity	Positive (label site entry current)	Positive (label site entry current)	Positive (label site entry current)
Degree of protection	IP20	IP20	IP20
Precision class	0.3% f.s. (DC bipolar, AC TRMS)	0.3% f.s. (DC bipolar, AC TRMS)	0.3% f.s. (DC bipolar, AC TRMS)
Configuration	DIP switch, Software (EASY SETUP)	DIP switch, Software (EASY SETUP)	DIP switch, Software (EASY SETUP)
Data Log	Yes	Yes	Yes
Operating temperature	-20..+70°C	-20..+70°C	-20..+70°C
Storage temperature	-40..+85°C	-40..+85°C	-40..+85°C
Humidity	10rH..90% non-condensing	10rH..90% non-condensing	10rH..90% non-condensing
Altitude	Up to 2,000 m above sea level	Up to 2,000 m above sea level	Up to 2,000 m above sea level
Connections	Removable terminals (5 poles), pitch 5 mm for cables up to 2.5 mm^2	Removable terminals (5 poles), 5 mm pitch for cables up to 2.5 mm^2	Removable terminals (5 poles), pitch 5 mm for cables up to 2.5 mm^2
Passing hole diameter	20.8 mm	20.8 mm	20.8 mm
Dimensions (lxhxp)	95x68x26 mm	95x68x26 mm	95x68x26 mm
Assembly	Free and on DIN Guide IEC EN 60715 (35 mm) via supplied accessories	Free and on DIN Guide IEC EN 60715 (35 mm) via supplied accessories	Free and on DIN Guide IEC EN 60715 (35 mm) via supplied accessories
Container	PA6, black	PA6, black	PA6, black
Weight	120 g	120 g	120 g
COMMUNICATION			
Communication port	RS485	RS485	RS485
Protocol	ModBUS RTU slave	ModBUS RTU slave	ModBUS RTU slave
Speed	1.200..115200 bps	1.200..115200 bps	1.200..115200 bps
INPUT DATA			
Channels	1	1	1
Range	0..25, 0..50 Aac/dc TRMS ±25 A, ±50 Adc Bipolar	0-50 A, 0-100 Aac/dc TRMS ±50 A, ±100 Adc Bipolar	0-150 A, 0-300 Aac/dc TRMS ±150 A, ±300 Adc Bipolar
Type of Measurement	AC/DC TRMS or DC Bipolar	AC/DC TRMS or DC Bipolar	AC/DC TRMS or DC Bipolar
Bipolar balancing	Yes	Yes	Yes
Hysteresis	0.3% f.s.	0.3% f.s.	0.3% f.s.
Overload	300 A (uninterrupted) 2,000 A (impulsive)	300 A (uninterrupted) 2,000 A (impulsive)	300 A (uninterrupted) 2,000 A (impulsive)
Passing band	1 kHz	1 kHz	1 kHz
Crest factor	2	2	2
OUTPUT DATA			
Channels	1	1	1
Range	0..10 V	0..10 V	0..10 V
Resolution	13 bit (10,000 points)	13 bit (10,000 points)	13 bit (10,000 points)
Max load	> 2 kOhm	> 2 kOhm	> 2 kOhm
Error for EMI	<0.5%	<0.5%	<0.5%
Thermal drift	< 200 ppm/K	< 200 ppm/K	< 200 ppm/K
Response time	Fast filter 800 ms Slow filter 2 s	Fast filter 800 ms Slow filter 2 s	Fast filter 800 ms Slow filter 2 s
STANDARD			
Certifications	EC	EC	EC
Regulations	EN61000-6-4 EN61000-6-2 EN61010-1	EN61000-6-4 EN61000-6-2 EN61010-1	EN61000-6-4 EN61000-6-2 EN61010-1

The technical data, diagrams and images are to be considered indicative and not binding

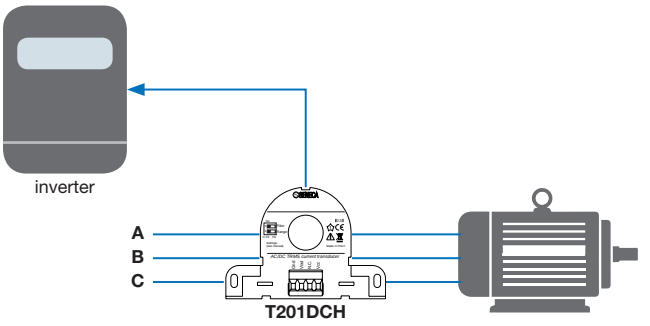
APPLICATION DIAGRAMS

CONTINUOUS CURRENT TRANSDUCER WITH DIRECT OUTPUT 4-20 mA

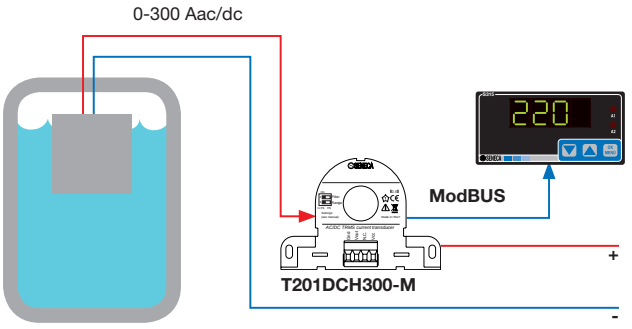
PATENTED TECHNOLOGY



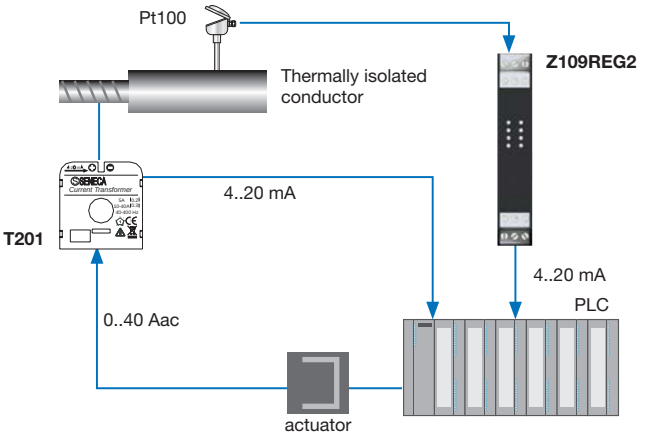
TRANSDUCER CURRENT IN OUTPUT FROM ELECTRIC MOTOR IN SIGNAL 0-10 V



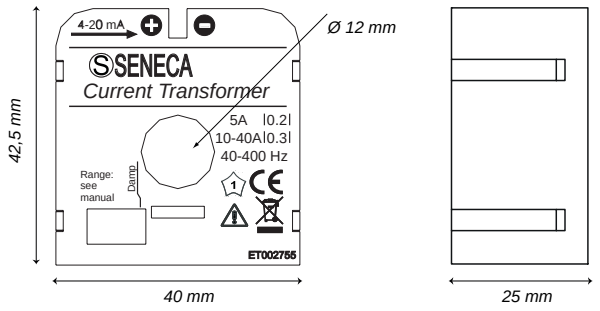
METAL SURFACES GALVANIC TREATMENT



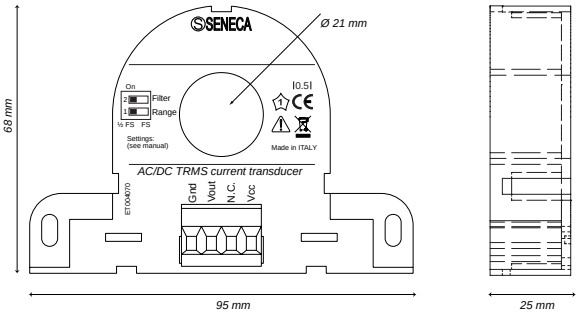
INDUCED CURRENT MEASUREMENT



DIMENSIONS



T201 / T201DC / T201DCH / T201DCH-LP



T201DC100 / T201DCH100 / T201DCH300 / T201DCH100-LP / T201DCH300-LP / T201DCH50-M / T201DCH100-M / T201DCH300-M

ORDER CODE	
T201	AC current transformer 0..40 Aac, 8 input scales, 4..20 mA loop powered output
T201DC	Bipolar DC transducer 0..40 Adc, 8 input scales, 4..20 mA output, patented inductive measurement technology
T201DC100	Bipolar DC transducer 0..100 Adc, 8 input scales, 4..20 mA output, patented inductive measurement technology
T201DCH	Transducer of alternating or direct current (± 50 A) with Hall effect TRMS with output 0..10 V
T201DCH100	Transducer of alternating or direct current (± 100 A) with Hall effect TRMS with output 0..10 V
T201DCH300	Transducer of alternating or direct current (± 300 A) with Hall effect TRMS with output 0..10 V
T201DCH50-LP	Transducer of direct or alternating current (± 50 A) with Hall effect TRMS with 4..20 mA loop powered output
T201DCH100-LP	Transducer of direct or alternating current (± 100 A) with Hall effect TRMS with 4..20 mA loop powered output
T201DCH300-LP	Transducer of direct or alternating current (± 300 A) with Hall effect TRMS with 4..20 mA loop powered output
T201DCH50-M	Transducer of direct or alternating current (± 50 A) with Hall TRMS effect with 0..10 V output, ModBUS interface
T201DCH100-M	Transducer of direct or alternating current (± 100 A) with Hall TRMS effect with 0..10 V output, ModBUS interface
T201DCH300-M	Transducer of direct or alternating current (± 300 A) with Hall TRMS effect with 0..10 V output, ModBUS interface
ACCESSORIES	
A-DIN-T201	Plastic DIN guide hook for T201 series
S107USB	RS485/USB asynchronous serial converter, portable version (for ModBUS versions)
S117P1	Opto-isolated and asynchronous serial converter RS232/USB, TTL/USB, RS485/USB (for ModBUS versions)
SOFTWARE	
EASY SETUP	Configuration suite for programmable instruments (for ModBUS versions)

MODULAR CONVERTERS FOR ELECTRIC READINGS

3

3.7

Modular converters for electric readings

The converters for electric readings measure the values of voltage and current (alternate and/or continuous) converting them into a standard signal in current or voltage at the output terminals, proportional to the value of the input.
The scale parameters of the inputs and outputs can be selected via software or DIP switches.
The modules ensure a high precision class (from 0.1 to 0.5%) and very high multiview galvanic isolation up to 4,000 V.
In addition to the presence of power or error, the modules equipped with the ModBUS interface also offer the RS485 LED indication on the front panel.

WIDE MEASUREMENT RANGE FOR CURRENTS AND VOLTAGES

- Alternate
- Continuous
- TRMS

SIMPLIFIED CONNECTIONS

Screw terminals 2,5 mm²

FLEXIBLE CONFIGURATION

DIP switch
Software

COMPLETE POWER SUPPLY OPTIONS

Vac/dc switching
Loop/Self powered

REDUCED DIMENSIONS

17,5 / 35 mm

INTERNATIONAL REGULATIONS

CE, UL

HIGH ISOLATION

Fino a 4.000 Vac

E-BUS SIGNAL INTERFACES

Uscita Analogica
RS485 Modbus RTU

HIGH PRECISION CLASS

0.3 ± 0.5 %

STATE INDICATORS FOR CONTROL AND DIAGNOSTICS

CONVERTITORI PER MISURE ELETTRICHE

	Z201	Z201-H	Z202	Z202-H	Z202-LP
					
	Alternate current converter 10..40 Vdc; 19..28 Vac	**Alternate current converter 85..265 Vac/dc**	**Alternate voltage converter 10..40 Vdc; 19..28 Vac**	**Alternate voltage converter, 85..265 Vac/dc**	**Alternate voltage converter loop powered**
GENERAL DATA					
Power supply	10..40 Vdc; 19..28 Vac	85..265 Vac/dc	10..40 Vdc; 19..28 Vac	85..265 Vac/dc	5..28 Vdc (dal loop)
Max absorption	< 2,5 W	< 2,5 W	< 1,5 W	< 1,5 W	<1 mA
Insulation	3.750 Vac (input/output/power supply) 1.500 Vac (output/power supply)	4.000 Vac (input/output/power supply)	3.750 Vac (input/output; input/power supply) 1.500 Vac (output/power supply)	3.750 Vac (input/output; input/power supply) 1.500 Vac (output/power supply)	4.000 Vac (input/output)
Degree of protection	IP20	IP20	IP20	IP20	IP20
LED status indicators	Power supply	Power supply	Power supply	Power supply	Power supply
Response time	< 200 ms	< 100 ms	< 30 ms	< 100 ms	< 100 ms
Interfaces					
Precision class	0.3%	0.3%	0.25%	0.3%	0.3%
Thermal Drift	<200 ppm/K	<200 ppm/K	<150 ppm/K	+150 ppm/K	+150 ppm/K
Configuration	DIP switch	DIP switch	DIP switch	DIP switch	DIP switch
Operating temperature	0..+55°C	-10..+65°C	0..+60°C	-10..+65°C	-20..+65°C
Dimensions	17.5 x 100 x 112 mm	17.5 x 100 x 112 mm	17.5 x 100 x 112 mm	17.5 x 100 x 112 mm	17.5 x 100 x 1122mm
Connections	Screw removable terminals	Screw removable terminals	Screw removable terminals	Screw removable terminals	Screw removable terminals
Casing	Nylon 6 30% glass fibre	Nylon 6 30% glass fibre	Nylon 6 30% glass fibre	Nylon 6 30% glass fibre	Nylon 6 30% glass fibre
Assembly	35 mm DIN rail (IEC/EN 60715)	35 mm DIN rail (IEC/EN 60715)	35 mm DIN rail (IEC/EN 60715)	DIN Guide 35 mm (IEC/EN 60715)	DIN Guide 35 mm (IEC/EN 60715)
Weight	200 g	200 g	200 g	200 g	200 g
Certifications	EC	EC	EC	EC	EC
Regulations	EN 61000-6-4, EN 61000-6-2, EN 61010-1	EN 61000-6-4, EN 61000-6-2, EN 61010-1	EN 61000-6-4, EN 61000-6-2, EN 61010-1	EN 61000-6-4, EN 61000-6-2, EN 61010-1	EN 61000-6-4, EN 61000-6-2, EN 61010-1
INPUT DATA					
Channels	1	1	1	1 (single phase load)	1
Type	ALTERNATE CURRENT 0..5 / 0..10 Aac	ALTERNATE CURRENT 0..5 / 0..10 Aac	TENSIONE ALTERNATA 0..500 Vac (41 scale), inlet impudence 2.000 Ω/V Frequency 10 Hz..1 kHz	ALTERNATE VOLTAGE 0..500 Vac (41 scales), inlet impudence 2.000 Ω/V Frequency 10 Hz..1 kHz	ALTERNATE VOLTAGE 0..500 Vac CONTINUOUS VOLTAGE 0..540 Vdc, max voltage 710 Vpk Frequency DC / 20 Hz..20 kHz
OUTPUT DATA					
Channels	1	1	1	1	1
Type	CURRENT 0..20 / 4..20 mA, max load 600 Ω, active / passive connection VOLTAGE 0..5 / 0..10 / 1..5 / 2..10 Vdc, min load 2.500 Ω	CURRENT 0..20 / 4..20 mA, max load 600 Ω, active / passive connection VOLTAGE 0..5 / 0..10 / 1..5 / 2..10 Vdc, min load 2.500 Ω	CURRENT 0..20 / 4..20 mA, max load 600 Ω, active / passive connection VOLTAGE 0..5 / 0..10 / 1..5 / 2..10 Vdc, min load 2.500 Ω	CURRENT 0..20 / 4..20 mA, max load 600 Ω, active / passive connection VOLTAGE 0..5 / 0..10 / 1..5 / 2..10 Vdc, min load 2.500 Ω	CURRENT 4..20 mA, passive
ORDER CODES	Z201	Z201-H	Z202	Z202-H	Z202-LP

The technical data and the diagrams in this document are indicative and not binding.

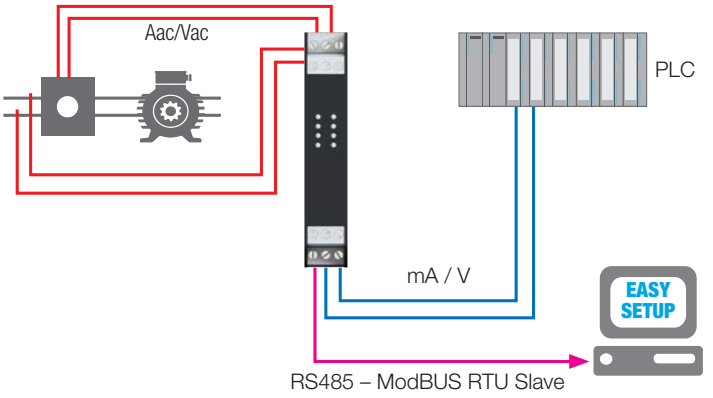
Z203-1

SINGLE-PHASE NETWORK ANALYSER

TECHNICAL DATA

GENERAL DATA	
Power supply	10..40 Vdc 19..28 Vac (50..60 Hz)
Absorption	< 2,5 W
Insulation	3,750 Vac (input/output/power supply)
State indicators	Power supply, Error Communication RS485
Response time	< 10 ms
Communication interfaces	RS485 (backplane): As an alternative to the analogue output, speed up to 115,200 bps, ModBUS RTU protocol RS232 (front connector for programming): baud rate, address, parity, data/stop bit
Precision class	0.5%
Thermal drift	+150 ppm/K
Operating temperature	-10..+65°C
Connections	Screw removable terminals
Dimensions	17.5 x 100 x 112 mm
Weight	140 g
Settings	Dip-switch (address, baud rate, line terminator, input range) EASY-SETUP (Plug&Play software)
Certifications	EC
Regulations	EN 61000-6-4, EN 61000-6-2, EN 61010-1, EN 60742
Weight	200 g
Approvals	CE, UL
Norms	EN 61000-6-4, EN 61000-6-2, EN 61010-1
INPUT DATA	
Channels	1 (7 measurements)
Type	ALTERNATE VOLTAGE Max capacity 500 Vac, frequency 50-60 Hz ALTERNATE CURRENT Nominal flow rate 5 A rms, max crest factor 3, max current 15 A, frequency 50 – 60 Hz
OUTPUT DATA	
Channels	1 analogic, 1 digital
Type	VOLTAGE 0-5, 0-10, 1-5, 2-10 V Analog retransmission Vrms, Irms, Watt, Var, frequency, cosϕ, energy CURRENT 0-20, 4-20 mA DIGITAL TBD meter

APPLICATION EXAMPLE



ORDER CODE

Code	Description
Z203-1	Mono-phase network analyser

The technical data and the diagrams in this document are indicative and not binding.

Z204-1

TRMS CONTINUOUS AND ALTERNATE VOLTAGE CONVERTER

TECHNICAL DATA

GENERAL DATA

Power supply	10..40 Vdc 19..28 Vac (50..60 Hz)
Absorption	1 W
Insulation	4,000 Vac (input/output, input/power supply) 1,500 Vc (output/power supply)
State indicators	Power supply, Error Communication RS485
Response time	For a step variation 1 s from 10 to 90 %
Communication interfaces	RS485 (backplane): As an alternative to the analogue output, speed up to 115,200 bps, ModBUS RTU protocol RS232 (front connector for programming): baud rate, address, parity, data/stop bit
Precision class	0,5% input; 0,1% outputs.
Thermal drift	+100 ppm/K
Operating temperature	-20..+65°C
Connections	Screw removable terminals
Dimensions	35 x 100 x 112 mm
Weight	140 g
Settings	Dip-switch (address, baud rate, line terminator, input range) EASY-SETUP (Plug&Play software)
Certifications	EC
Regulations	EN 61000-6-4, EN61000-6-2, EN61010-1

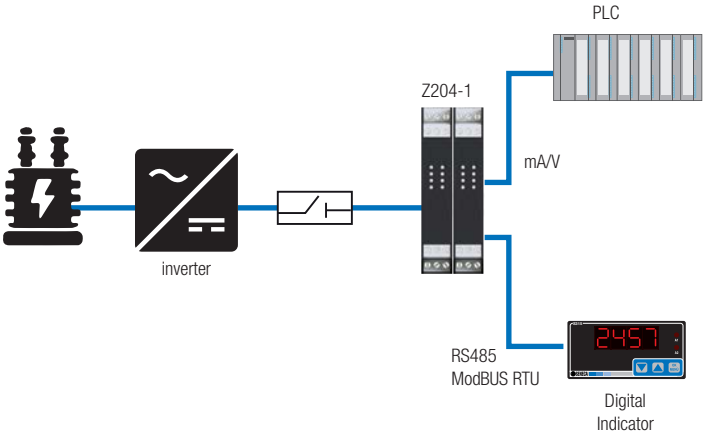
INPUT DATA

Channels	1
Type	CONTINUOUS VOLTAGE: 0..1,200 Vdc; ALTERNATE VOLTAGE 0..850 Vac Input impudence: 800 kΩ Frequency: 30..300 Hz

OUTPUT DATA

Channels	1
Type	CURRENT Range: 0..20 mA; max impudence: 500 Ω VOLTAGE Range: 0..10 V; Min impudence: 1 kΩ

APPLICATION EXAMPLE



ORDER CODE

Code	Description
Z204-1	TRMS alternate and continuous voltage converter

The technical data and the diagrams in this document are indicative and not binding.

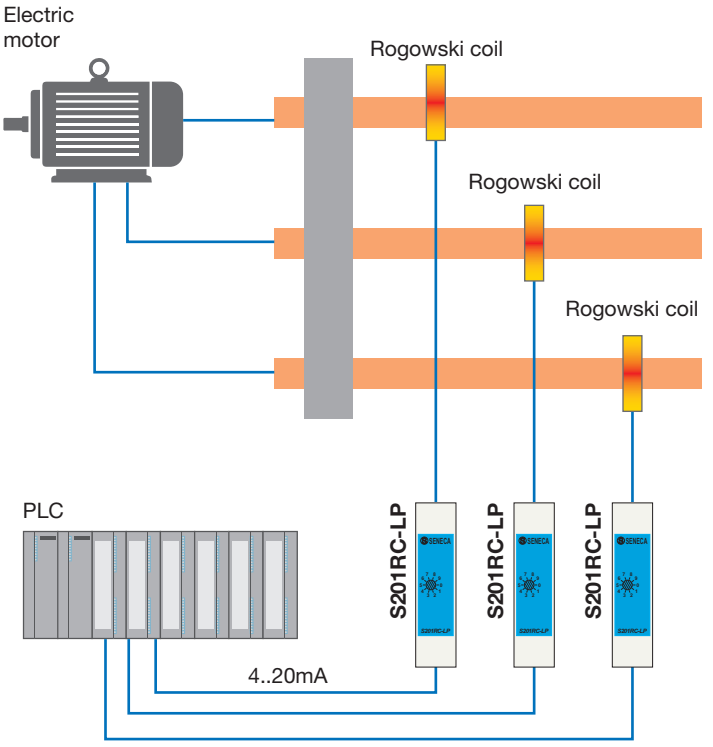
S201RC-LP

LOOP-POWERED CONVERTER FOR ROGOWSKI SENSORS

TECHNICAL DATA

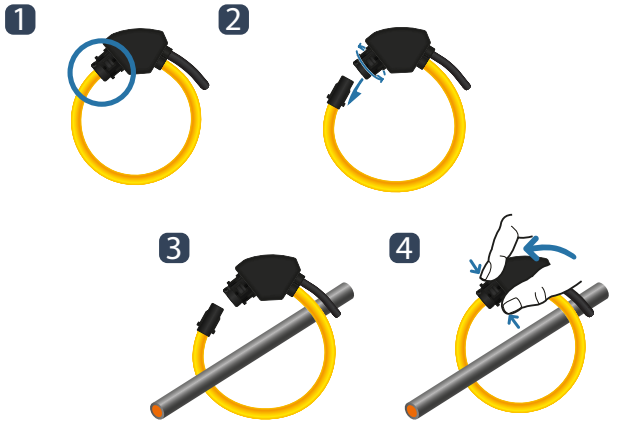
GENERAL DATA	
Power supply	From outlook loop 4..20 mA
Max absorption	< 0.6 W
Degree of protection	IP20
LED status indicators	Off scale alarm
Response time	0.5 / 1 s
Precision class	0.5 % of the f.s. (@ 40..120 MHz)
Thermal Drift	<200 ppm/°C
Configuration	Choice of f.s. and filter
Operating temperature	-25 … 70°C
Storage temperature	-40… 85°C
Humidity	10 - 90 % non-condensing
Altitude	Up to 2000 m above sea level
Dimensions (bxhxp)	18x105x62 mm including terminals
Connections	Removable connectors pitch 5mm for cables up to 2.5 mm²
Casing	Self-extinguishing PC-ABS material, grey
Assembly	DIN Guide 35 mm (IEC/EN 60715)
Certifications	EC
Regulations	EN61326 (EMC), EN61010-1 (SAFETY)
INPUT DATA	
Channels	1
Type	ROGOWSKI SENSORS 100 mV/kA (330 mV/kA) Measurement type: TRMS Scales 250, 500, 1000, 2000, 4000 A (50-60 Hz) Passing band: 3 kHz Overload: 10 kA (1 Vrms) Protection: Overvoltage and polarity reversal Damper filter FAST = 0.5 s, SLOW = 1 s
OUTPUT DATA	
Channels	1
Type	CURRENT Power supply / Output 4..20 mA Maximum output: 22 mA Power supply voltage: 9-28 Vdc Maximum load: 600 Ohm

APPLICATION EXAMPLE



ORDER CODE	
Code	**Description**
S201RC-LP	Loop-powered converter for Rogowski sensors
RC150-025-100-3M	Rogowski Sensor L=25cm Øint.8cm,100mV/1kA-50Hz,cable L=3m.
RC150-035-100-3M	Rogowski Sensor L=35cm Øint.11cm,100mV/1kA-50Hz,cable L=3m.
RC150-040-100-3M	Rogowski Sensor L=40cm Øint.12cm,100mV/1kA-50Hz,cable L=3m.
RC150-060-100-3M	Rogowski Sensor L=60cm Øint.19cm,100mV/1kA-50Hz,cable L=3m.
RC150-090-100-3M	Rogowski Sensor L=90cm Øint.28cm,100mV/1kA-50Hz,cable L=3m
RC150-120-100-3M	Rogowski Sensor L=120cm Øint.38cm,100mV/1kA-50Hz,cable L=3m.
RC150-180-100-3M	Rogowski Sensor L=180cm Øint.57cm,100mV/1kA-50Hz,cable L=3m.
RC150-RIC-KIT30	Rogowski reel Kit Spare Part RC150 L= 30cm Ø int. 9.5 cm, 100mV/1kA-50Hz,cable L=3mt.
RC150-RIC-KIT45	Rogowski reel Kit Spare Part RC150 L= 45cm Ø int. 14 cm, 100mV/1kA-50Hz,cable L=3mt.
RC150-RIC-KIT70	Rogowski reel Kit Spare Part RC150 L= 70cm Ø int. 22 cm, 100mV/1kA-50Hz,cable L=3mt.
RC150-CAVEX-ROG1	Extension over 3 meters. standard of the Rogowski coil connection cable L.1
RC150-CAVEX-ROG2	Extension over 3 meters. standard of the Rogowski coil connection cable L.12
RC150-CAVEX-ROG3	Extension over 3 meters. standard of the Rogowski coil connection cable L.3
RC190-030-333-3M	Rogowski Sensor L=30cm Øint.9.5cm,333mV/1kA-50H,cable L=3m.

ESEMPIO DI INSTALLAZIONE SENSORI ROGOWSKI



The technical data and the diagrams in this document are indicative and not binding.

CONTROLLERS FOR ENERGY MANAGEMENT

3

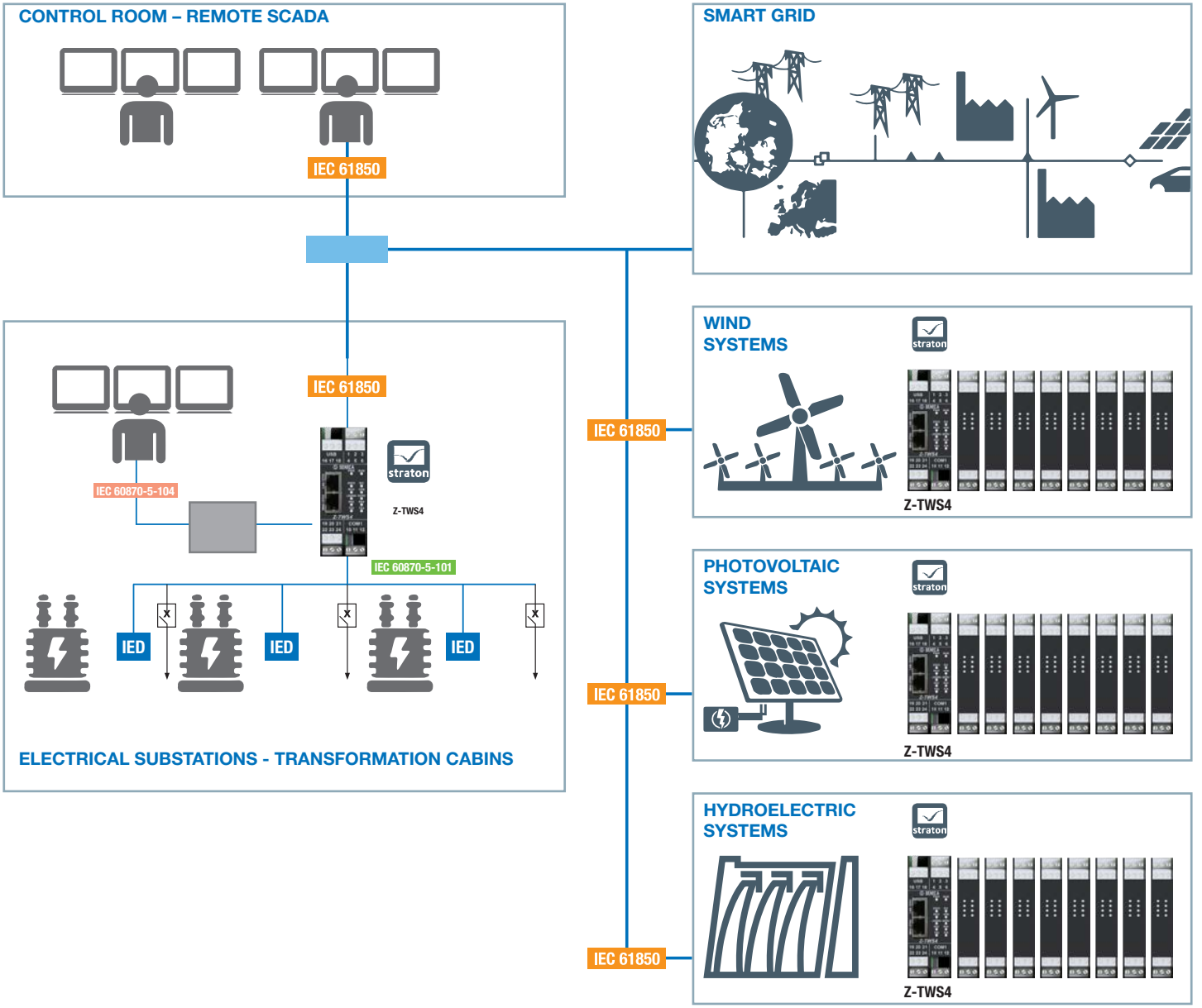
3.8

CONTROLLERS AND RTU FOR ENERGY MANAGEMENT

For Energy Management applications SENECA offers different types of controllers, Z-TWS4-E, Z-PASS2-S-E, S6001-RTU-E with the support of the IEC 60870-101/104 and IEC 61850 communication protocols. These units can be used as redundant controllers for system automation, management of the energy produced, management of renewable energy systems (biomass, photovoltaic, wind power, etc.), development of smart grids etc. They can also be configured as web servers and TCP-IP nodes and can be integrated with the SCADA, EMS and Web supervisory platforms.

- **APPLICATIONS ENERGY MANAGEMENT**
- **STRATON SOFT PLC IEC 61131-3**
- **SUPPORT VPN**
- **CONNECTIVITY MODBUS RTU / TCP-IP**
- **IEC 60870-101-104 SLAVE**
- **IEC 61850 CLIENT / SERVER**
- **SMART GRID**
- **PLATFORMS SCADA / WEB**

ARCHITETTURE



MULTIFUNCTION CONTROL UNIT WITH ENERGY PROTOCOLS

	Z-TWS4-E	Z-PASS2-S-E	S6001-RTU-E
	 NEW CHARACTERISTICS	 NEW CHARACTERISTICS	
	Advanced multi-function control unit with Energy protocols	**Straton advanced control unit with 3G+ (4G) / Eth routers and Energy protocols**	**All-in-One RTU with integrated I/O, 3G+ modem, Energy protocols**
GENERAL DATA			
Power supply	10..40 Vdc; 19..28 Vac	10..40 Vdc; 19..28 Vac	10..40 Vdc; 19..28 Vac
Max absorption	6 W	6 W	6 W
Insulation	1.500 V	1.500 V	1.500 V
State Indicators	Power Supply; Serial communication	Power Supply; Serial communication Ethernet; Stato PLC	Power Supply; Serial communication Ethernet; Stato PLC
Degree of contamination	2	2	2
Degree of protection	IP20	IP20	IP20
Operational Temperature	-20..+55°C	-20..+55°C	-20..+50°C
Dimensions	35x100x112 mm	52.5x100x112 mm	190x105x60 mm
Weight	250 g	450 g	600 g
Casing	Nylon 6 with 30% glass fibre self-extinguishing class V0	Nylon 6 with 30% glass fibre self-extinguishing class V0	Nylon 6 with 30% glass fibre self-extinguishing class V0
Connections	Removable terminals with 5.08 mm pass screw IDC10 rear connector for DIN guide Removable 4 pin connector Nr 2 RJ45 connectors Nr 2 USB connectors (type A, micro USB)	Removable terminals with 5.08 mm pass screw IDC10 rear connector for DIN guide Removable 4 pin connector Nr 2 RJ45 connectors Nr 2 SMA antenna connectors (Main, Diversity)	Removable terminals, max conductor size 2.5 mm^2 Removable connectors DB9 connector Nr 1 RJ45 connector Nr 2 USB connectors (type A, mini USB) Nr 2 SMA antenna connectors (Main, Diversity) Plug in Micro SD card
Assembly	DIN Guide 35 mm (IEC EN 60715)	DIN Guide 35 mm (IEC EN 60715)	Guida DIN 35 mm (IEC EN 60715) / Parete
COMMUNICATION			
Ethernet	Nr 2 Fast Ethernet ports 10/100 Mbps (RJ45)	Nr 2 Fast Ethernet ports 10/100 Mbps (RJ45)	Nr 2 Fast Ethernet ports 10/100 Mbps (RJ45)
Serial Ports	Nr. 1 RS232 Nr. 1 RS485 Nr. 1 RS485 ModBUS	Nr. 1 RS232 Nr. 1 RS485 Nr. 1 RS485 ModBUS	Nr 2 RS485 Nr 1 RS232
USB	Nr 1 USB host type A Nr. 1 micro USB Virtual COM	Nr 1 USB host type A Nr. 1 micro USB Virtual COM	Nr 1 USB host type A N1 1 mini USB type B
Modem / Router		3G+ Worldwide o 4G LTE (EMEA, Korea, Thailand, India)	3G/HSPA; Standard GSM (GSM 850 MHz, EGSM 900 MHz, DCS 1800 MHz, PCS 1900 MHz), WCDMA (850/900/1900/2100 MHz), HSPA (HSDPA, HSUPAm HSPA+), DRX; 14.4 Mbps in downlink, 5.76 Mbps in uplink; Slot 3V Mini SIM
Industrial protocols	TCP-IP ModBUS, RTU ModBUS, custom protocols	TCP-IP ModBUS, RTU ModBUS, custom protocols	TCP-IP ModBUS, RTU ModBUS, custom protocols
Network protocols	PPP, HTTP, FTP, SMTP, OpenVPN	PPP, HTTP, FTP, SMTP, OpenVPN	PPP, HTTP, FTP, SMTP, OpenVPN
Energy Protocols	IEC 60870-101/104, IEC 61850	IEC 60870-101/104, IEC 61850	IEC 60870-101/104, IEC 61850
Operating modes			ModbUS Bridge/Gateway*, Single LAN Remote Control, Serial Tunnelling, 3G/ETH Modem/Router, 3G/ETH Redundancy, VPN, Point-to-point remote assistance (* programmable supports)
INPUT / OUTPUT DATA			
Channels / Type	Nr.1 DI VPN connection enabled No.1 DO VPN connection in progress No.1 DO for general use Nr.1 Configurable DI/DO	Nr.1 DI VPN connection enabled No.1 DO VPN connection in progress Nr.1 DI for general use No.1 DO for general use Nr.2 Configurable DI/DO	Nr 15 DI PNP, NPN (max voltage 24 Vdc) Nr 2 DI (level switches) Nr 4 DI 0..20 mA Nr 8 DO SDPT 5A - 250 Vac Nr 1 AO 0..10 V Nr 1 AO 0..20 mA
PROCESSOR / MEMORY			
Processor	ARM9 32-bit	ARM9 32-bit	ARM9 32-bit
Flash Memory (data)	1 GB	1 GB	1 GB
RAM / FeRAM	64 MB / 8 kB	64 MB / 8 kB	64 MB / 8 kB
Slot Micro SD	SD Card up to 32 GB	SD Card up to 32 GB	SD Card up to 32 GB
CONFIGURAZIONE / NORME			
System software	Z-NET4 / StratON / OPC Server	Z-NET4 / Straton / OPC Server	Z-NET4 / Straton / OPC Server
Web Editor	Yes, integrated	Yes, integrated	Yes, integrated
Web Configurator	Yes, integrated	Yes, integrated	Yes, integrated
Datalogger	Yes, integrated	Yes, integrated	Yes, integrated
PLC programming	IEC 61131 (Straton) dedicated libraries	IEC 61131 (Straton) dedicated libraries	IEC 61131 (Straton) dedicated libraries
Certifications	EC	EC	EC
Regulations	EN 61000-6-4, EN 61000-6-2, EN 60950, IEC 61131	EN 61000-6-4, EN 61000-6-2, EN 60950	EN 61000-6-4, EN 61000-6-2, EN 60950, EN 301511, EN 301489-1, EN 301489-7

The technical data and the diagrams in this document are indicative and not binding.

ORDER CODE	
Code	**Description**
CONTROLLERS	
Z-TWS4-E-IO	IEC 61131 multifunction controller, integrated I/O, Straton workbench, OEM version, energy protocol
Z-PASS2-S-IO-E	Straton advanced control unit with integrated VPN, 2DI, 2DO, 2DI/DO, worldwide modem 3G+/Ethernet Router, GPS, energy protocol
Z-PASS2-SIOE4GEU	Straton advanced control unit with integrated VPN, 2DI, 2DO, 2DI/DO, 4G- EU/Ethernet Router, GPS, energy protocols
S6001-RTU-E	All-in-one RTU with integrated I/O, 3G modem and Straton programming system, Energy protocols
SOFTWARE IEC 61131 / ENERGY MANAGEMENT	
STRATON-D-USB	Straton activation key for IEC 61131 controllers
STRATON-IDE256	Straton development environment 256 tags with USB activation key
STRATON-IDE512	Straton development environment 512 tags with USB activation key
STRATON-IDEUN	Straton development environment unlimited tags with USB activation key
STRATON-870S	Activation licence IEC 60870-5-101/104 Slave
STRATON-870S-850	Activation licence IEC 60870-5-101/104 Slave + Licence IEC 61850 Client / Server
SSP	SENECA Straton Package - CPU Seneca Installer suite (supplied)
STRATON-UPGRADE1	Straton upgrade from 256 to 512 tags
STRATON-UPGRADE2	Straton upgrade from 512 to unlimited tags
STRATON-UPGRADE3	Straton upgrade from 256 to unlimited tags
STRATON-WB	Straton workbench IEC 61131 free editor (supplied)
Z-NET4	Z-PC Series I/O Systems and Controller Configurator, including Web Editor development environment, Trend Viewer, Data Recorder
ACCESSORIES	
MSD	Micro SD memory card with adapter
Z-SUPPLY	Power supply switching monophase 24V @ 1.5 A
USB-SW-KEY	USB key with software, libraries, platforms and development environments, manuals for multifunction controllers
Z-PC-DIN1-35	Support for rapid assembly on DIN guide 1 slot pitch 35 mm
Z-PC-DINAL1-35	Support for rapid assembly on DIN guide head + 1 slot pitch 35 mm
Z-PC-DINAL2-52.5	Support for rapid assembly on DIN guide head +2 slot pitch 52.5mm
VPN PLATFORM	
VPN BOX	VPN server connectivity module optimised for remote assistance and remote control
VPN BOX VM	Virtual VPN server (Virtual Machine) optimised for remote assistance and remote control
VPN BOX MANAGER	Configuration software for VPN BOX, Server management, access credentials
VPN CC	VPN Client Communicator. Software tool for managing network connections to be installed on client PC
ANTENNAS	
A-GSM	External antenna GSM dual band swing cable 3.2 m
A-GSM-QUAD	Quadband GSM Antenna

PANEL AND MEASUREMENT INSTRUMENTATION

4

Panel and measurement instrumentation

There are signal converters, digital indicators, totalisers, predeterminators, overvoltage protections, stabilised power supplies, temperature and humidity probes in the Instrumentation and Measurement line.
With a broad proposal dedicated to the instrumentation for industrial monitoring, SENECA offers the most advanced optical, capacitive and inductive technologies for the normalisation of field signals from sensors and actuators, galvanic isolation, electrical protection, measurement loop connection and parameter control of electrical and environmental parameters. Signal conditioning products can be used in universal applications also in combination with other SENECA products. Their electrical and mechanical structure minimises the wiring and maintenance activities.

4.1 Multistandard isolator converters

Z series

4.2 Compact isolator converters

K series

4.3 High isolation converters

S series

4.4 Temperature transmitters

T120-T121 series

4.5 Protections against overvoltages

S400 series

4.6 LED digital indicators

S series

4.7 Batch Controller

S20N1-S21N1 Series

4.8 Professional portable measurement systems

MY Series

4.9 Multifunction Calibrators

PRODUCTS PREVIEW

Z109REG2-1

HIGH PERFORMANCE UNIVERSAL CONVERTER WITH USB MICRO PORT

TECHNICAL DATA

GENERAL DATA

Power supply	10..40 Vdc; 19..28 Vac
Transducers power supply	Ingresso attivo a 2 fili (min 20 Vdc)
Max absorption	2,5 W (max) - 1,6 W (24 Vdc, 20 mA)
Insulation	1,500 Vac
Protections	Impulsive overvoltages protection 400 W /ms
Degree of protection	IP20
LED status indicators	Power supply - Error - Alarm
Response time	35 ms (11 bit)..140 ms (16 bit) 35
Interfaces	Micro USB
Precision class	0.10%
Thermal Drift	0.01%/K
Linearity	0,05% / 0.4%
Configuration	DIP switch - Software (EASY SETUP) - App (EASY SETUP)
Operating temperature	-20..+60°C
Dimensions	17.5 x 100 x 112 mm
Connections	Removable terminals with 2.5 mm2 screw
Casing	Nylon 6 with 30% glass fibre
Assembly	DIN Guide 35 mm (IEC/EN 60175)
Weight	200 g
Certifications	CE, UL
Regulations	EN 61000-6-4, EN 61000-6-2, EN 61010-1

INPUT DATA

Channels	1 analog, 1 strobe
Type	• VOLTAGE (mV, V): Bipolar 75 mV 20 V, 15 bit resolution + sign • CURRENT (mA): Bipolar up to 20 mA, 1 µA resolution • RTD: Pt100, Pt500, Pt1000, Ni100, KTY81, KTY84, NTC, 3, 4 wire measurement, Scale: -200..600 °C, Resolution 0.1°C • THERMOCOUPLE: Type J, K, R, S, T, E, B, N, 2.5 µV resolution • POTENTIOMETER: 500 Ω ..100 kΩ • REOSTATE: 500 Ω..25 kΩ • STROBE: Output relay alternative

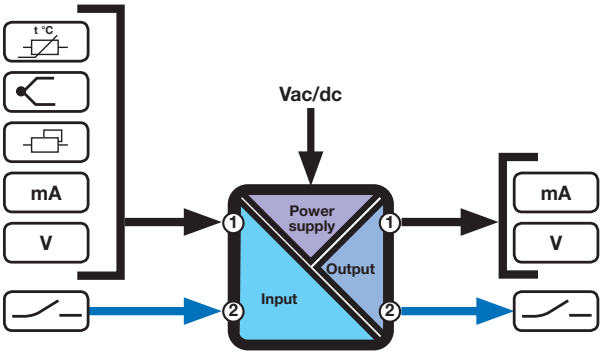
OUTPUT DATA

Channels	1 analog, 1 relay
Type	• VOLTAGE (V): 4 scales: 0/1..5V, 0/2..10V, Min load resistance: 2 kΩ • CURRENT (mA): 2 scales: 0/4..20 mA, Max load resistance: ≥ 600 MΩ • RELAY: Alternative to the NC / NA strobe input in the event of an alarm

ORDER CODE

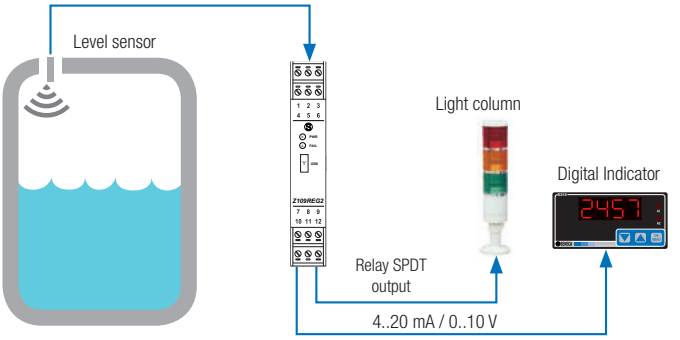
Code	Description
Z109REG2-1	Universal converter with galvanic isolation, relay output, micro USB 9..40 Vdc/19..28 Vac
CU-A-MINIB-1	Cable plug USB-A Mini USB-B 5 P, 1 meter
CU-A-MINIB-2	Cable plug USB-A min USB-B 5 P, 2 metres
CU-A-MICRO-OTG	Adapter cable Micro USB OTG – USB Female A type
EASY SETUP	Plug&play configurator suite for SENECA programmable instruments
EASY SETUP APP	App Android Suite Complete EASY SET-UP
Z-POWER-115-15VA	Transformer with DIN guide 19 Vac, 115 / 15 VA with thermofuse
Z-POWER-230-15VA	Transformer with DIN guide 19 Vac, 230 / 15 VA with thermofuse
Z-POWER-230-25VA	Transformer with DIN guide 19 Vac, 230 / 25 VA with thermofuse
Z-SUPPLY	Power supply switching monophase 24V @ 1.5 A

SIGNALS/ISOLATIONS DIAGRAM

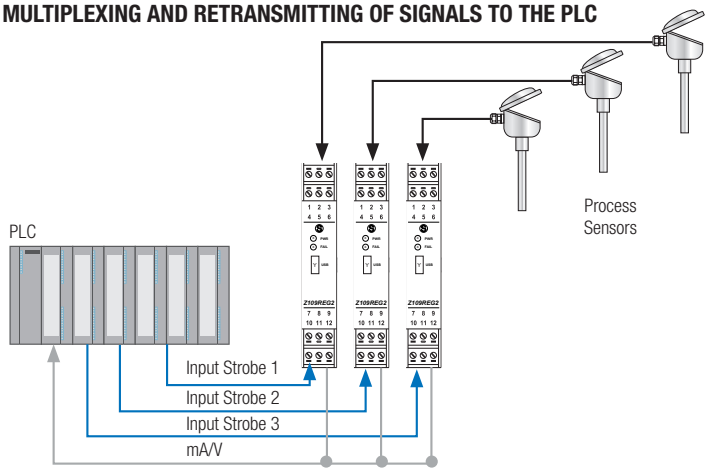


APPLICATION DIAGRAMS

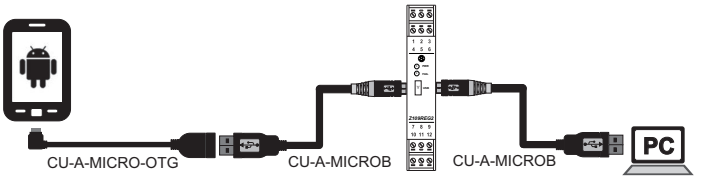
CONVERSION AND TRANSMISSION OF ANALOGUE SIGNAL AND RELAY OUTPUT



MULTIPLEXING AND RETRANSMITTING OF SIGNALS TO THE PLC



CONFIGURAZIONE TRAMITE INTERFACCIA USB



The technical data and the diagrams in this document are indicative and not binding.

Z170REG-1

UNIVERSAL CONVERTER WITH 2 GALVANICALLY SEPARATED ANALOG OUTPUTS

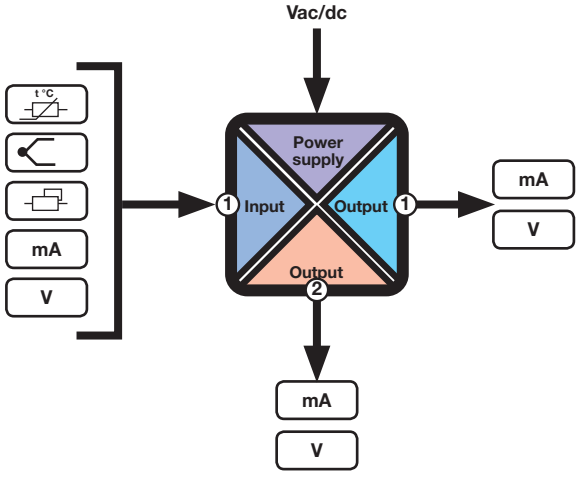
TECHNICAL DATA

GENERAL DATA	
Power supply	10..40 Vdc; 19..28 Vac
Transducers power supply	Si max 25 mA, 17 Vdc
Max absorption	0.5..2 W
Insulation	1,500 Vac 4 way with input // power supply // output 1 // output 2
Degree of protection	IP20
LED status indicators	Power supply Alarm
Response time	< 25 ms
Interfaces	Micro USB (front)
Precision class	0.1%
Thermal Drift	0.01% /K
Linearity	<1% (input), 0.01% (output)
Configuration	DIP switch Software (EASY SETUP) App (EASY SETUP)
Operating temperature	-20..+60°C
Dimensions	17.5 x 100 x 112 mm
Connections	Screw removable terminals
Casing	Nylon 6 30% glass fibre
Assembly	DIN Guide 35 mm (IEC/EN 60715)
Weight	200 g
Certifications	CE, UL
Regulations	EN 61000-6-4, EN 61000-6-2, EN 61010-1

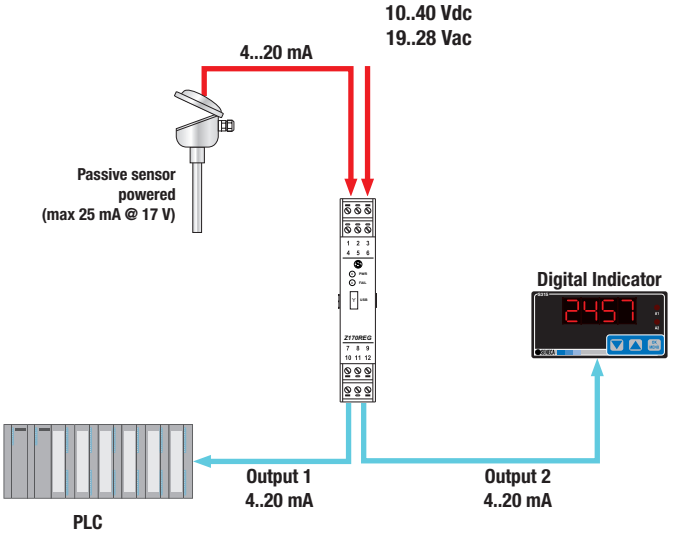
INPUT DATA	
Channels	1
Type	VOLTAGE: configurable scale 0..10 V CURRENT: configurable scale 0..20 mA (active / passive module) Potentiometer: configurable scale 1 kΩ ..100 kΩ THERMOCOUPLE: J,K,R,S,T,B,E,N THERMISTOR: Pt100, Pt500, Pt1000, Ni100 14 bit resolution Configurable sampling period from 5 to 20 ms

OUTPUT DATA	
Channels	2
Type	VOLTAGE: configurable scale 0..10 V CURRENT: configurable scale 0..20 mA (active / passive) 14 bit resolution

SIGNALS/ISOLATIONS DIAGRAM



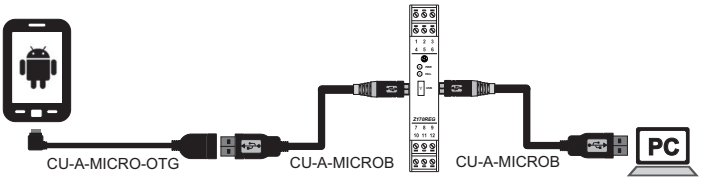
APPLICATION DIAGRAM



ORDER CODE

Code	Description
Z170REG-1	Universal converter with 2 galvanically separated analog outputs, Micro USB port, configurable from App, 24 Vac/dc
CU-A-MICROB	Cable plug USB-A Micro USB-B 5 P
CU-A-MICRO-OTG	Adapter cable Micro USB OTG – USB Female A type
EASY SETUP	Plug&play configurator suite for SENECA programmable instruments
EASY SETUP APP	App Android Suite Complete EASY SET-UP
Z-POWER-115-15VA	Transformer with DIN guide 19 Vac, 115 / 15 VA with thermofuse
Z-POWER-230-15VA	Transformer with DIN guide 19 Vac, 230 / 15 VA with thermofuse
Z-POWER-230-25VA	Transformer with DIN guide 19 Vac, 230 / 25 VA with thermofuse
Z-SUPPLY	Power supply switching monophase 24V @ 1.5 A

CONFIGURAZIONE TRAMITE INTERFACCIA USB



The technical data and the diagrams in this document are indicative and not binding.

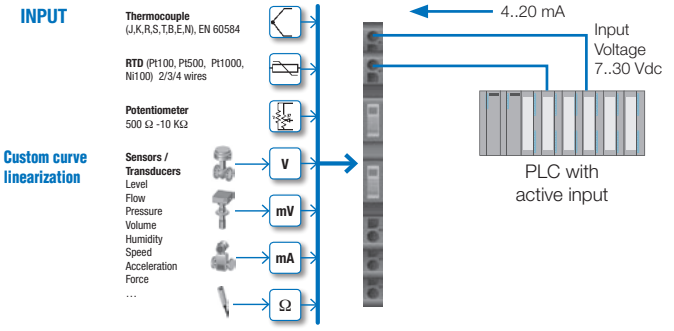
K121

UNIVERSAL CONVERTER
(mA, V, OHM, RTD, TC) ISOLATED LOOP POWERED

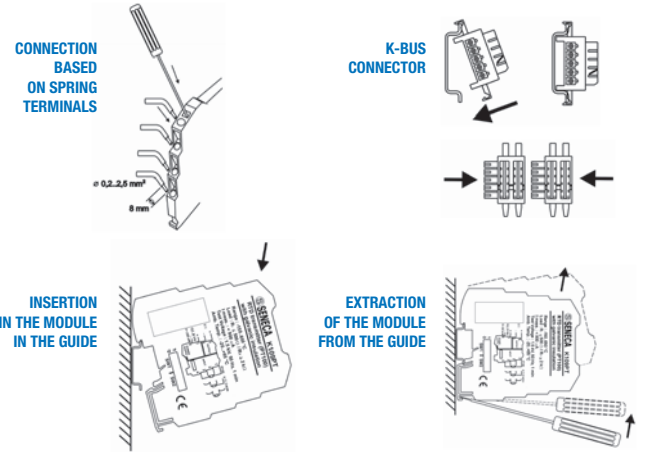
TECHNICAL DATA

GENERAL DATA	
Power supply range	7..30 Vdc (with loop 4..20mA)
Hot swapping	Yes
Absorption current	<24 mA
Absorption	<660 mW
A/D conversion	16 bit
Rejection	50 / 60 Hz (configurable)
Configuration	Software (EASY)
Dimensions	6.2 x 93.1 x 102.5 mm
Insulation	1.5 kVac (2 ways)
Isolation technology	Digital (optocoupler)
Data processing	32 bit floating point
Casing	Black, PBT
Weight	45 g
Operating temperature	-20..+65°C
Connections	8 Spring terminals
Degree of protection	IP20
Precision class	0.1
Thermal drift	120 ppm/K
State indicators	Error, alarm
Special Functions	Cold coupling offset Measurement filter Output inversion
Certifications	CE, II 3G Ex nA IIC T4 Gc X, II 3D Ex tc IIIC T135°C Dc X
Regulations	Safety (EN 61010-1), EMC (EN 61000-6-2, EN 61000-6-4, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-11), Atex (EN 60079-0, EN 60079-15)
INPUT DATA	
No. of channels	1
Type	Thermocouple J, K, R, S, T, E, B, N (EN 60584) RTD (Pt100, Pt500, Pt1000, Ni100) with connection with 2, 3, 4 wires Voltage (V): ± 30V, impudence 200 kΩ Voltage (mV): ±150 mV, impudence 10 MΩ Current: ± 24V, impudence 40 kΩ Potentiometer: 500 Ω..10 kΩ, impudence 10 MΩ
Absolute value	
OUTPUT DATA	
No. of channels	1
Type	Current 4..20 mA
Response time (10-90%)	140..620ms

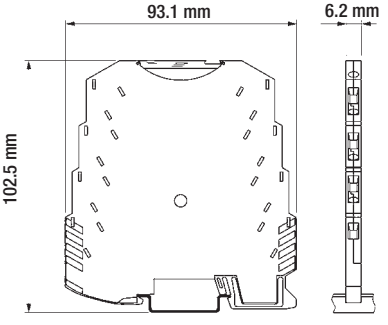
APPLICATION EXAMPLE



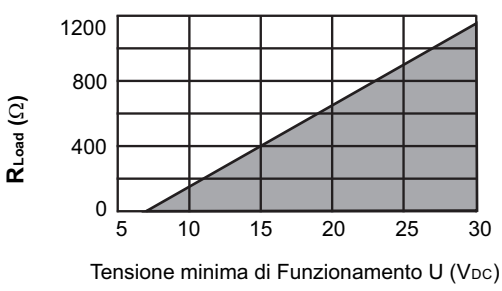
INSTALLATION



DIMENSIONS



LOAD RESISTANCE DIAGRAM / MINIMUM OPERATION VOLTAGE



ORDER CODES	
Code	**Description**
K121	Universal converter (mA, V, Ohm, RTD, TC) isolated loop powered
ACCESSORIES	
EASY USB	Converter USB - UART TTL with CD and programming software
S117P1	Serial converter RS232-TTL-RS485/USB portable
K-SUPPLY	Power supply module with electronic line protections
K-BUS	Expandable connector 2 DIN guide slots 35 mm for fast power supply, black
SOFTWARE	
EASY SETUP	Plug&play configurator suite for SENECA programmable instruments
EASY LP	Configurator plug & play loop powered tools

The technical data and the diagrams in this document are indicative and not binding.

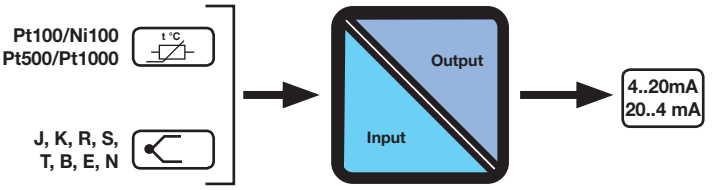
T121

UNIVERSAL TEMPERATURE TRANSMITTER ISOLATED LOOP POWERED

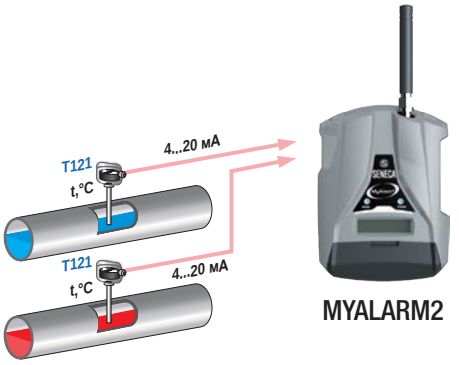
TECHNICAL DATA

GENERAL DATA	
Power supply	7..30 Vdc (loop powered)
Insulation and protections	1.5 kVac
Response time	< 1 s
Precision class	0.1% (min 0.1°C for RTD and 1°C for TC)
Thermal drift	-
Configurations	EASY SETUP software (Start / full scale, rejection, RTD type, cable resistance, over-range etc.)
Operating temperature	-40..+85°C
Connections	Spring terminals
Dimensions	Ø 43.7 x 20 mm
Certifications	EC
Regulations	EN 61000-6-4, EN 61000-6-2 , EN 61010
INPUT DATA	
Numero	1
Type	• Pt100 (EN 60751/A2, -200..+650°C, min span 20°C) • Ni100 (-60..+250°C, min span 20°C) • Pt500 2,3,4 wires from -200 to 650°C • Pt1000 2,3,4 wires from -200 to +200°C • TC J , K, R, S, T, B, E, N • Potentiometer: 450..1.800 ohm • Voltage: -150..+150 mV
OUTPUT DATA	
Number	1
Type	CURRENT (mA) 4..20, 20..4 mA (2 wires)

SIGNALS / ISOLATIONS DIAGRAM



APPLICATION DIAGRAM



ORDER CODES	
Code	**Description**
T121	Standard isolated universal temperature transmitter
T121-C	Calibrated isolated universal temperature transmitter
ACCESSORIES AND SOFTWARE	
EASY-USB	USB Converter↔ UART-TTL
EASY-SETUP	Configuration software, free download from www.seneca.it
EASY-LP	Configuration software for loop powered instruments SENECA, free download from www.seneca.it
FLEX-DIN	Coupling for DIN guide
S117P1	RS232/TTL/RS485 USB serial converter complete with USB cable, TTL cable, CD driver + EASYLP

S315

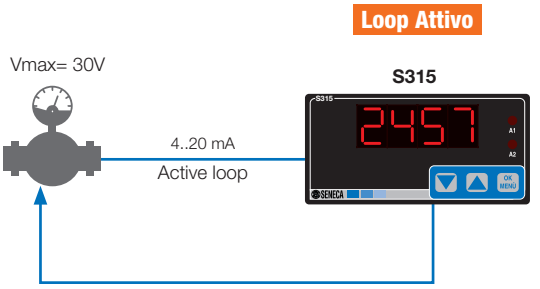
4-FIGURE LOOP POWERED INDICATOR
4-20 INPUTmA

TECHNICAL DATA

GENERAL DATA	
Power supply	From measurement loop (max 30 V)
Max voltage drop	7 V
Memories	EEPROM, 10 years
Operating temperature	-10..+65°C
Container	Self-extinguishing PPO, DIN 43700 format
Front protection	IP65
Terminal blocks	With removable screw: 2 way / pitch 5.08 mm (power supply)
Dimensions	96 x 48 x 40 mm
Panel drilling dimensions	91x45 mm
Weight	100 g
DISPLAY AND MEASUREMENT	
Display	4 digit, red LEDS
Front keys	Three buttons for menu navigation
Precision	0.05%
Stability	0,005%/°K
Linearity	0.0005
Max resolution	16 bit
Electromagnetic interference	<1%
INPUT DATA	
Channels	1
Type and range	4..20 mA
SETTINGS	
Front keys	Front keys (Password enable, input type, start / end scale, start / end display scale, decimal point position, filter level)
Access protection	Via password
Calibration	Yes, factory settings
STANDARD	
Certifications	EC
Regulations	EN 61000-6-4, EN 64000-6, EN 61010-1, EN 60742

APPLICATION DIAGRAM

ANALOG SIGNAL DISPLAY FROM TRANSDUCER WITH ACTIVE LOOP



Also available in the version with external IP66 casing

ORDER CODE	
Code	**Description**
S315	4-digit loop powered indicator, standard 4-20 mA input
S315-IP66	4-digit powered loop indicator, 4-20 mA input with IP66 casing (130x80x60 mm)
S315-IP66D	4-digit loop powered indicator, 4-20 mA input, No. 2 instruments and dual IP66 casing

The technical data and the diagrams on this document are indicative and not binding.

MULTISTANDARD ISOLATOR CONVERTERS

4

4.1

Z Series

Z-Series

Multistandard signal isolator converters with universal power supply

The modules of the **Z Series** are reliable signal conditioners, oriented towards ease of use and installation.
Available in multiple power standards, they respond to the most common interface and conditioning needs.
Most models are characterised by a 3-way galvanic separation equal to 1.5 kVac, reduced overall dimensions (standard width 17.5 mm), installation on DIN 42677 guide, extended temperature range, high precision and the possibility to power the sensors connected to them.
Z Series Zis the ideal solution for conditioning analog industrial,
electric signals, from temperature sensors, from load, serial, digital and impulsive cells.

UNIVERSAL POWER SUPPLY
Vac/dc switching; measurement loop power supply

TRANSDUCER POWER SUPPLY
Loop power supply of current in output (min 20 Vdc)

REDUCED ABSORPTION
< 2.5 W

HIGH ISOLATION MULTI-WAY
power OUT IN
From kVac to 4kVac

PRECISION
Up to 0.1%

STANDARD SIGNALS
mA, mV, A, V, Ohms, RTD, TC, load cell, Reed, Pnp, Npn, Effect hall, photoelectric sens., imp.24V

RESISTANCE
Operating temperature up to -20..+65%, RH 90%

RELIABILITY
MTBF>500,000 h

CERTIFICATIONS
c UL us LISTED

DIMENSIONS COMPACT
Width 17.5 mm

The SENECA Z-Series converters offer 3 configuration modes.
Almost all the models allow configuration of the standard parameters by means of DIP switches accessible on the side of the instrument.
In addition, some models ensure expanded functionality that can be set using the "EASY SETUP" PC software.
Other models, equipped with Micro USB port on the front, are programmable via the App "EASY SETUP APP" for Android terminals.

FLEXIBLE CONFIGURATION

DIP Switch

EASY Software SETUP

EASY SETUP APP

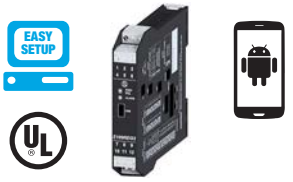
Removable terminals 2.5 screw mm²

Installation on DIN guide 35 mm (IEC/EN 60175)

Front jack 3.5 mm RS232 (COM)

Communication port Micro USB

CONVERTERS FOR ANALOG SIGNALS

	Z109REG	Z109REG2-1	Z109REG2-H
			
	Universal converter with galvanic separation	**Universal converter with galvanic isolation, relay output, Micro USB 9..40 Vdc/19..28 Vac**	**Universal converter with galvanic isolation, micro USB,**
GENERAL DATA			
Power supply	10..40 Vdc; 19..28 Vac	10..40 Vdc; 19..28 Vac	85..265 Vac/dc
Transducers power supply	Active input 2 wires (min 18 Vdc)	Active input 2 wires (min 20 Vdc)	Active input 2 wires (min 20 Vdc)
Max absorption	2.5 W	2.5 W (max) 1.6 W (24 Vdc, 20 mA)	2.5 W (max) 1.6 W (24 Vdc, 20 mA)
Insulation	1.500 Vac (3-way)	1.500 Vac (3-way)	1.500 Vac (input/output); 3.750 Vac (power supply//input-output
LED status indicators	Power supply Error	Power supply Error	Power supply Error
Response time	35 ms	35 ms (11 bit)..140 ms (16 bit)	35 ms (11 bit)..140 ms (16 bit)
Interfaces	Front jack 3.5 mm RS232 (COM)	Micro USB	Front jack 3.5 mm RS232 (COM)
Precision class	0.1%	0.1%	0.1%
Thermal Drift	0.01%/°K	0.01%/°K	0.01%/°K
Linearity	0.05% (V,I), 0.2% (RTD),1°C (TC)	0.05% / 0.4%	0.05% / 0.4%
Configuration	DIP switch Software (EASY SETUP)	DIP switch Software (EASY SETUP) App Android	DIP switch Software (EASY SETUP)
Operating temperature	-20..+60°C	-20..+60 °C	-20..+60 °C
Dimensions	17.5 x 100 x 112 mm	17.5 x 100 x 112 mm	17.5 x 100 x 112 mm
Connections	Removable terminals 2.5 mm^2	Removable terminals 2.5 mm^2	Removable terminals 2.5 mm^2
Casing	Nylon 6 with 30% glass fibre	Nylon 6 with 30% glass fibre	Nylon 6 with 30% glass fibre
Assembly	DIN Guide 35 mm (IEC/EN 60175)	DIN Guide 35 mm (IEC/EN 60175)	DIN Guide 35 mm (IEC/EN 60175)
Weight	200 g	200 g	200 g
Certifications	EC	CE- UL-UR CSA	CE- UL-UR CSA
Regulations	EN 50081-1, EN 50082-2, EN 61010-1	EN 61000-6-4 / 2002, EN 61000-2-2/2005 / EN 61010-1, EN 60742	EN 61000-6-4 / 2002, EN 61000-2-2/2005 / EN 61010-1, EN 60742
INPUT DATA			
Channels	1	1 analog, 1 strobe	1 analog, 1 strobe
Type	• VOLTAGE (mV, V) Bipolar 0..2, 0..5, 0..10 V • CURRENT (mA) Bipolar 0..20 mA • RTD Pt100 (-200..+600°C) • THERMOCOUPLE Type J, K, R, S, T, E, B, N • POTENTIOMETER: 0.5..15 kΩ	• VOLTAGE (mV, V) Bipolar from 75 mV to 20 V Resolution 15 bit + sign • CURRENT (mA) Bipolar up to 20 mA Resolution 1 µA • RTD Pt100, Pt500, Pt1000, Ni100, KTY81, KTY84, NTC Measurement 3, 4 wires Scale: -200..600 °C Resolution 0.1°C • THERMOCOUPLE Type J, K, R, S, T, E, B, N Resolution 2.5 µV • POTENTIOMETER: 500 Ω ..10 kΩ • REOSTATE: 500 Ω..25 kΩ • STROBE: Output relay alternative	• VOLTAGE (mV, V) Bipolar from 75 mV to 20 V Resolution 15 bit + sign • CURRENT (mA) Bipolar up to 20 mA Resolution 1 µA • RTD Pt100, Pt500, Pt1000, Ni100, KTY81, KTY84, NTC Measurement 3, 4 wires Scale: -200..600 °C Resolution 0.1°C • THERMOCOUPLE Type J, K, R, S, T, E, B, N Resolution 2.5 µV • POTENTIOMETER: 500 Ω ..10 kΩ • REOSTATE: 500 Ω..25 kΩ • STROBE: Output relay alternative
OUTPUT DATA			
Channels	1	1 analog, 1 relay	1 analog, 1 relay
Type	• VOLTAGE (V) 4 scales: 0..2, 0..10 V • CURRENT (mA) 2 scales: 0..20, 4..20 mA	• VOLTAGE (V) 4 scales: 0/1..5V, 0/2..10V Min load resistance: 2 kΩ • CURRENT (mA) 2 scales: 0/4..20 mA Max load resistance: 600 Ω • RELAY Alternative to the NC/NA strobe input in the event of an alarm	• VOLTAGE (V) 4 scales: 0/1..5V, 0/2..10V Min load resistance: 2 kΩ • CURRENT (mA) 2 scales: 0/4..20 mA Max load resistance: 600 Ω • RELAY Alternative to the NC/NA strobe input in the event of an alarm
ORDER CODE			
Code	Z109REG	Z109REG2-1	Z109REG2-H
Software and Accessories	pg.172	pg.172	pg.172

The technical data and the diagrams in this document are indicative and not binding.

Z109UI2-1	Z109REG-BP	Z109S-DI	Z109S
			
MA-V converter with galvanic separation, micro USB	**Universal converter with voltage / current bipolar output, micro USB**	**Galvanic separator for high isolation current loop**	**Galvanic separator for current loop**
10..40 Vdc; 19..28 Vac	10..40 Vdc; 19..28 Vac	10..40 Vdc; 19..28 Vac	9..40 Vdc; 19..28 Vac
Active input 2 wires (min 20 Vdc)	Active input 2 wires (17 Vdc)	Active input 2 wires (17 Vdc)	Active input 2 wires (17 Vdc)
2.5 W	2.5 W	2.5 W	2.5W
1.500 Vac (3-way)	1.500 Vac (power supply / input)	3.500 Vac (3-way)	1.500 Vac (3-way)
Power supply	Power supply Error	Power supply	Power supply
35 ms (11 bit)..140 ms (16 bit)	35 ms (11 bit)..140 ms (16 bit)	< 200 us	< 60 ms
Micro USB	Micro USB	-	
0.1%	0.1%	0.2% or 10µA	0.2%
0.01%/°K	0.01%/°K	0.02%/°K	0.02 % f.s. / °C
0.05 % (V,I), 0.01% (Vout)			0.05%
DIP switch Software (EASY SETUP) App (EASY SETUP) App Android	DIP switch Software (EASY SETUP) App Android		
-20..+60°C	-20..+65°C	-20..+60°C	-20..+60°C
17.5 x 100 x 112 mm	17.5 x 100 x 112 mm	17.5 x 100 x 112 mm	17.5 x 100 x 112 mm
Removable terminals 2.5 mm^2	Removable terminals 2.5 mm^2	Removable terminals 2.5 mm^2	Removable terminals 2.5 mm^2
Nylon 6 with 30% glass fibre	Nylon 6 with 30% glass fibre	Nylon 6 with 30% glass fibre	Nylon 6 with 30% glass fibre
DIN Guide 35 mm (IEC/EN 60175)	DIN Guide 35 mm (IEC/EN 60175)	DIN Guide 35 mm (IEC/EN 60175)	DIN Guide 35 mm (IEC/EN 60175)
200 g	200 g	200 g	200 g
CE- UL-UR CSA	EC	EC	CE - UL
EN 55011, EN 61000-4-2, EN 61000-4-4, EN 50140 / 141	EN 61000-6-2; EN 61000-6-4; EN 61010-1	EN 61000-6-2; EN 61000-6-4; EN 61010-1	EN 55011, EN 61000-4-2, EN 61000-4-4, EN 50140 / 141
1	1	1	1
• VOLTAGE (mV, V) Bipolar from 75 mV a to 20 V 9 scale Resolution 15 bit + sign • CURRENT (mA) Bipolar up to 20 mA Resolution 1 µA	• VOLTAGE Bipolar from 75 mV to 20 V • CURRENT Bipolar up to 20 mA • RTD Pt100, Pt500, Pt1000, Ni100, KTY81,KTY84, NTC Measurement 2.3, 4 wires • THERMOCOUPLE Type J, K, R, S, T, E, B, N • POTENTIOMETER: 500 Ω ..100 kΩ • REOSTATE: 500 Ω..25 kΩ	CURRENT 0…20 / 4..20 mA	CURRENT 2 scales: 0/4..20 mA
1	1 (bipolar)	1	1
• VOLTAGE (V) 4 scales: 0/1..5V, 0/2..10V Min load resistance: 2 kΩ • CURRENT (mA) 2 scales: 0/4..20 mA Max load resistance: 600 Ω	Voltage from -10 to +10 Vdc, min load 1000 Ω Current from -20 to + 20 mA, max load 500 Ω	Current, 0/4..20 mA, max load 600 Ω	• CURRENT (mA) 2 scales: 0/4..20 mA Max load resistance: 600 Ω
Z109UI2-1	**Z109REG-BP**	**Z109S-DI**	**Z109S**
pg.172	**pg.172**	**pg.172**	**pg.172**

The technical data and the diagrams in this document are indicative and not binding.

CONVERTERS FOR ANALOG SIGNALS

	Z102	Z110S	Z110D	Z170REG-1
				
	Potentiometric converter	**Galvanic separator self-powered single-channel**	**Galvanic separator self-powered double channel**	**Universal converter with 2 galvanically separated analog outputs, micro USB**
GENERAL DATA				
Power supply	9..30 (opt.) - 19..40 Vdc 19..28 Vac	Self--powered from input loop	Self--powered from input loop	10..40 Vdc; 19..28 Vac
Transducers power supply				Sì max 25 mA, 17 Vdc
Max absorption	2.5 W			0.5..2 W
Insulation	1.500 Vac (3-way)	1,500 Vac	1,500 Vac	1.500 Vac (4-way)
Degree of protection	IP20	IP20	IP20	IP20
LED status indicators	Power supply			Power supply Alarm
Response time	< 40 ms	< 100 ms	< 100 ms	< 25 ms
Interface				Micro USB (front)
Communication with PLC				
Precision class	0.2%	0.1%	0.1%	0.1%
Thermal Drift	0.02 % f.s. / °C	0.02 % f.s. / °C	0.02 % f.s. / °C	0.01% /K
Linearity	0.05%	0.1 % f.s.	0.1 % f.s.	<1% (input), 0.01% (output)
Configuration	DIP switch			DIP switch Software (EASY SETUP) App (EASY SETUP)
Operating temperature	0..+50 °C	0..+50 °C	0..+50 °C	-20..+60°C
Dimensions	17.5 x 100 x 112 mm	17.5 x 100 x 112 mm	17.5 x 100 x 112 mm	17.5 x 100 x 112 mm
Connections	Screw removable terminals	Screw removable terminals	Screw removable terminals	Screw removable terminals
Casing	Nylon 6 30% glass fibre	Nylon 6 30% glass fibre	Nylon 6 30% glass fibre	Nylon 6 30% glass fibre
Assembly	DIN Guide 35 mm (IEC/EN 60715)	DIN Guide 35 mm (IEC/EN 60715)	DIN Guide 35 mm (IEC/EN 60715)	DIN Guide 35 mm (IEC/EN 60715)
Weight	200 g	200 g	200 g	200 g
Certifications	EC	EC	EC	CE- UL-UR CSA
Regulations	EN 61000-6-4, EN 61000-6-2, EN 61010-1	EN 61000-6-4, EN 61000-6-2, EN 61010-1	EN 61000-6-4, EN 61000-6-2, EN 61010-1	EN 61000-6-4, EN 61000-6-2, EN 61010-1
INPUT DATA				
Channels	1	1	2	1
Type	• REOSTATE 2 wires: 0..300 Ω (I=6mA); 0..500 Ω (I=3.6 mA); 0..1 K Ω (I=1.8 mA) • POTENTIOMETER: 3 wires: Vref=1,8 Vcc, from 200 Ω to 1 M Ω	• CURRENT (mA) 4..20 mA	• CURRENT (mA) 4..20 mA	• VOLTAGE configurable scale 0..10 V • CURRENT configurable scale 0..20 mA (active / passive module) • POTENTIOMETER configurable scale 1 kΩ ..100 kΩ THERMOCOUPLE: J,K,R,S,T,B,E,N • THERMISTOR: Pt100, Pt500, Pt1000, Ni100 14 bit resolution Sampling period configurable from 1 to 20 ms.
OUTPUT DATA				
Channels	1	1	2	2
Type	• VOLTAGE (V) 4 scales: 0..5, 1..5, 0..10, 0..10 V Load impudence > 2.5 K Ω • CURRENT (mA) 2 scales: 0..20, 4..20 mA Loop impudence < 600 Ω	• CURRENT (mA) 4..20 mA	• CURRENT (mA) 4..20 mA	• VOLTAGE configurable scale 0..10 V • CURRENT configurable scale 0..20 mA (active / passive) 14 bit resolution
ORDER CODE				
Code	**Z102**	**Z110S**	**Z110D**	**Z170REG-1**
Software and Accessories	**pg.172**	**pg.172**	**pg.172**	**pg.172**

The technical data and the diagrams in this document are indicative and not binding.

A/D CONVERTERS

Z190	Z-SG	Z-4AI-D	Z-4TC-D
			
Signal subtracter adder with galvanic separation	**Converter for load cell**	**A/D converter for 4 analog signals**	**A/D converter for 4 thermocouples**
9..30 (opz.) - 19..40 Vdc 19..28 Vac	9..30 (opz.) - 19..40 Vdc 19..28 Vac	9..30 (option) - 19..40 Vdc 19..28 Vac (50..60 Hz)	9..30 (option) - 19..40 Vdc 19..28 Vac (50..60 Hz)
Active input 2 wires (min 20 vdc)	-		
2.5 W	2 W	2.5 W	2 W
1.500 Vac (3-way)	1.500 Vac (3-way)	1,500 Vac (3-way)	1,500 Vac (3-way)
IP20	IP20	IP20	IP20
Power supply	Power supply Error Data Transmission Data Receipt	Power supply RST signal status Data transmission Data receipt	Power supply RST signal status Data transmission Data receipt
	< 10 ms		
	Front jack 3.5 mm RS232 (COM) IDC10 ModBUS RTU RS485	Front jack 3.5 mm RS232 (COM)	Front jack 3.5 mm RS232 (COM)
		Synchronous three-wire serial: CLOCK, DATA, STROBE, standard 24V pnp levels	Synchronous three-wire serial: CLOCK, DATA, STROBE, standard 24V pnp levels
0.2%	0.01%		
0,02% f.s./°C	0.0025 % f.s. / °C		
0.05%	0.01%		
DIP switch	DIP switch Software (EASY SETUP)	IEC 61131 PLC libraries DIP switch Z-PROG (PC software)	IEC 61131 PLC libraries DIP switch Z-PROG (PC software)
0..50°C	-20..+65°C	0..+55°C	0..+55°C
17.5 x 100 x 112 mm	17.5 x 100 x 112 mm	17.5 x 100 x 112 mm	17.5 x 100 x 112 mm
Screw removable terminals	Screw removable terminals	Screw removable terminals	Screw removable terminals
Nylon 6 30% glass fibre	Nylon 6 30% glass fibre	Nylon 6 30% glass fibre	Nylon 6 30% glass fibre
DIN Guide 35 mm (IEC/EN 60715)	DIN Guide 35 mm (IEC/EN 60715)	DIN Guide 35 mm (IEC/EN 60715)	DIN Guide 35 mm (IEC/EN 60715)
200 g	200 g	200 g	200 g
EC	EC	CE, UL	CE, UL
EN 50081-1, EN 50081-2, EN 61010-1	EN 61000-6-4, EN 61000-6-2, EN 61010-1, EN 60742, IEC 61131	EN 61010-1, EN 50081-2, EN 50082-2, EN 60742, IEC 61131	EN 61010-1, EN 50081-2, EN 50082-2, EN 60742, IEC 61131
2	1 analogic, 1 digital	4	4
VOLTAGE (V) 4 scales: 0..1, 0..5, 0..10, 2..10 V Input impudence 500 kΩ CURRENT (mA) 2 scales: 0/4..20 mA Active connection: loop powered 20 Vdc not stabilised Passive connection: inlet impudence 100 Ω	• ANALOG Strain gauge load cell, 4 or 6-wire connection, min 87 Ω for 1..4 load cells (350 Ω) or 1..8 load cells (1,000 Ω); Sensitivity: 1..64 mV/V • DIGITAL Tare calibration	VOLTAGE (V) 2..10 V f.s 16,000 point resolution Impedance: 100 KΩ CURRENT (mA) ± 20 mA (bipolar) 16,000 point resolution Impedance: 100 Ω	VOLTAGE (mV) ± 80 mV Impedance 10 MΩ THERMOCOUPLE Type J, K, R, S, T, E; B, N
1	1 analogic, 1 digital		
VOLTAGE (V) 4 scales: 0..5, 0..10, 1..5, 2..10 V, min load resistance 2 kΩ CURRENT (mA) 2 scales: 0/4..20 mA Passive / active connection (max impedance loop 600 Ω)	CURRENT (mA) 0..20, 4..20 mA VOLTAGE (V) 0..10, 0..5 Vdc DIGITAL Weight threshold		
Z190	**Z-SG**	**Z-4AI-D**	**Z-4TC-D**
Software and Accessories p.172	**Software and Accessories p.172**	**Software and Accessories p.172**	**Software and Accessories p.172**

The technical data and the diagrams in this document are indicative and not binding.

CONVERTERS FOR ELECTRIC READINGS

	Z201	Z201-H	Z202
			
	Alternate current converter 10..40 Vdc; 19..28 Vac	**Alternate current converter 85..265 Vac/dc**	**Alternate voltage converter 10..40 Vdc; 19..28 Vac**
GENERAL DATA			
Power supply	10..40 Vdc; 19..28 Vac	85..265 Vac/dc	10..40 Vdc; 19..28 Vac
Max absorption	< 2.5 W	< 2.5 W	< 1.5 W
Insulation	3.750 Vac (input/output/power supply) 1.500 Vac (output/power supply)	4.000 Vac (input/output/power supply)	3,750 Vac (input/output, input/power supply) 1.500 Vac (output/power supply)
Degree of protection	IP20	IP20	IP20
LED status indicators	Power supply	Power supply	Power supply
Response time	< 200 ms	< 100 ms	< 30 ms
Interfaces			
Precision class	0.3%	0.3%	0.25%
Thermal Drift	<200 ppm/K	<200 ppm/K	<150 ppm/K
Configuration	DIP switch	DIP switch	DIP switch
Operating temperature	0..+55°C	-10..+65°C	0..+60°C
Dimensions	17.5 x 100 x 112 mm	17.5 x 100 x 112 mm	17.5 x 100 x 112 mm
Connections	Screw removable terminals	Screw removable terminals	Screw removable terminals
Casing	Nylon 6 30% glass fibre	Nylon 6 30% glass fibre	Nylon 6 30% glass fibre
Assembly	35 mm DIN rail (IEC/EN 60715)	35 mm DIN rail (IEC/EN 60715)	35 mm DIN rail (IEC/EN 60715)
Weight	200 g	200 g	200 g
Certifications	EC	EC	EC
Regulations	EN 61000-6-4, EN 61000-6-2, EN 61010-1	EN 61000-6-4, EN 61000-6-2, EN 61010-1	EN 61000-6-4, EN 61000-6-2, EN 61010-1
INPUT DATA			
Channels	1	1	1
Type	ALTERNATE CURRENT 0..5 / 0..10 Aac	ALTERNATE CURRENT 0..5 / 0..10 Aac	ALTERNATE VOLTAGE 0..500 Vac (41 scales), inlet impudence 2.000 Ω/V Frequency 10 Hz..1 kHz
OUTPUT DATA			
Channels	1	1	1
Type	CURRENT 0..20 / 4..20 mA, max load 600 Ω, active / passive connection VOLTAGE 0..5 / 0..10 / 1..5 / 2..10 Vdc, min load 2.500 Ω	CURRENT 0..20 / 4..20 mA, max load 600 Ω, active / passive connection VOLTAGE 0..5 / 0..10 / 1..5 / 2..10 Vdc, min load 2.500 Ω	CURRENT 0..20 / 4..20 mA, max load 600 Ω, active / passive connection VOLTAGE 0..5 / 0..10 / 1..5 / 2..10 Vdc, min load 2.500 Ω
ORDER CODE			
Code	**Z201**	**Z201-H**	**Z202**
Software and Accessories	**pg.172**	**pg.172**	**pg.172**

The technical data and the diagrams in this document are indicative and not binding.

CONVERTERS FOR ELECTRIC READINGS

Z202-H	Z202-LP	Z203-1	Z204-1
			
Alternate voltage converter, 85..265 Vac/dc	**Alternate voltage converter loop powered**	**Monophase network analyser**	**TRMS alternate and continuous voltage converter**
85..265 Vac/dc	5..28 Vdc (dal loop)	10..40 Vdc; 19..28 Vac	10..40 Vdc; 19..28 Vac
< 1.5 W	<1 mA	< 2.5 W	< 1 W
3.750 Vac (input/output; input/power supply) 1.500 Vac (output/power supply)	4.000 Vac (input/output)	3,750 Vac (input/output/power supply)	4,000 Vac (input/output, input/power supply) 1.500 Vac (output/power supply)
IP20	IP20	IP20	IP20
Power supply	Power supply	Power supply Error Communication RS485	Power supply Error Communication RS485
< 100 ms	< 100 ms	< 10 ms	For a step variation 1 s from 10 to 90 %
		RS232 (front connector for programming): baud rate, address, parity, data/stop bit RS485 (backplane), as an alternative to the analogue output, speed up to 115.200 bps, ModBUS RTU protocol	RS232 (front connector for programming): baud rate, address, parity, data/stop bit RS485 (backplane), as an alternative to the analogue output, speed up to 115.200 bps, ModBUS RTU protocol
0.3%	0.3%	0.5%	0,5% input; 0.1% output
+150 ppm/K	+150 ppm/K	+150 ppm/K	+100 ppm/K
DIP switch	DIP switch	DIP switch Software (EASY SETUP)	DIP switch Software (EASY SETUP)
-20..+65°C	-20..+65°C	-20..+65°C	-20..+65°C
17.5 x 100 x 112 mm	35 x 100 x 112 mm	17.5 x 100 x 112 mm	35 x 100 x 112 mm
Screw removable terminals	Screw removable terminals	Screw removable terminals	Screw removable terminals
Nylon 6 30% glass fibre	Nylon 6 30% glass fibre	Nylon 6 30% glass fibre	Nylon 6 30% glass fibre
DIN Guide 35 mm (IEC/EN 60715)	DIN Guide 35 mm (IEC/EN 60715)	DIN Guide 35 mm (IEC/EN 60715)	DIN Guide 35 mm (IEC/EN 60715)
200 g	200 g	200 g	200 g
EC	EC	EC	EC
EN 61000-6-4, EN 61000-6-2, EN 61010-1	EN 61000-6-4, EN 61000-6-2, EN 61010-1	EN 61000-6-4, EN 61000-6-2, EN 61010-1	EN 61000-6-4, EN 61000-6-2, EN 61010-1
1 (single phase load)	1	1 (single phase load)	1
ALTERNATE VOLTAGE 0..500 Vac (41 scales), inlet impudence 2.000 Ω/V Frequency 10 Hz..1 kHz	ALTERNATE VOLTAGE 0..500 Vac CONTINUOUS VOLTAGE 0..540 Vdc, max voltage 710 Vpk Frequency DC / 20 Hz..20 kHz	ALTERNATE VOLTAGE Max capacity 500 Vac, frequenza 50-60 Hz ALTERNATE CURRENT Nominal flow rate 5 A rms, max crest factor 3, max current 15 A, frequency 50 – 60 Hz	CONTINUOUS VOLTAGE: 0..1,200 Vdc; ALTERNATE VOLTAGE 0..850 Vac Input impudence: 800 kΩ Frequency: 30..300 Hz
1	1	1 analogic, 1 digital	1
CURRENT 0..20 / 4..20 mA, max load 600 Ω, active / passive connection VOLTAGE 0..5 / 0..10 / 1..5 / 2..10 Vdc, min load 2.500 Ω	CURRENT 4..20 mA, passive	VOLTAGE 0-5, 0-10, 1-5, 2-10 V Analog retransmission Vrms, Irms, Watt, Var, frequency, cosϕ, energy CURRENT 0-20, 4-20 mA DIGITAL TBD meter	CURRENT Range: 0..20 mA; max impudence: 500 Ω VOLTAGE Range: 0..10 V; min impudence: 1 k Ω
Z202-H	**Z202-LP**	**Z203-1**	**Z204-1**
pg.172	**pg.172**	**pg.172**	**pg.172**

The technical data and the diagrams in this document are indicative and not binding.

RELAY THRESHOLD CON CONVERTERS

	Z112A	Z112D	Z113S	Z113D	Z113T	Z113-1
						
	Power supply-amplifier for digital contacts, 1 relay output	**Power supply-amplifier for digital contacts, 2 relay outputs**	**Single adjustable alarm threshold**	**Double adjustable alarm threshold**	**Triple adjustable alarm threshold**	**Double alarm threshold with universal analogue input and relay output**
GENERAL DATA						
Power supply	19..40 (9..30 opz.) Vdc; 19..28 Vac	19..40 (9..30 opz.) Vdc; 19..28 Vac	19..40 (9..30 opz.) Vdc; 19..28 Vac	19..40 (9..30 opz.) Vdc; 19..28 Vac	19..40 (9..30 opz.) Vdc; 19..28 Vac	10..40 Vdc; 19..28 Vac
Transducers power supply	Yes, 2 wire active input (min 20 Vdc)	Yes, 2 wire active input (min 20 Vdc)	Yes, 2 wire active input (min 20 Vdc)	Yes, 2 wire active input (min 20 Vdc)	Yes, 2 wire active input (min 20 Vdc)	Yes, 2 wire active input
Max absorption	2.5 W	2.5 W	2.5 W	2.5 W	2.5 W	2.5 W
Insulation	1.500 Vac (power supply/ input)c 4.000 Vac (input/power supply./outlet)	1,500 Vac	1.500 Vac (power supply/ input) 4.000 Vac (input/power supply./outlet)	1,500 Vac	1,500 Vac	1.500 Vac (3-way)
Degree of protection	IP20	IP20	IP20	IP20	IP20	IP20
LED status indicators	Power supply Attracted relay	Power supply Attracted relay	Power supply Exceeding of threshold	Power supply Exceeding of threshold	Power supply Exceeding of threshold	Power supply Alarm
Interfaces						Micro USB (front)
Thermal Drift	0.01%/°C	0.01%/°C	0.01%/°C	0.01%/°C	0.01%/°C	0.01%/°K
Linearity	0.05%	0.05%	0.05%	0.05%	0.05%	0.05%
Configuration	DIP switch Trimmer	DIP switch Trimmer	DIP switch Trimmer	DIP switch Trimmer	DIP switch Trimmer	DIP switch Software (EASY SETUP)
Operating temperature	0..+50°C	0..+50°C	0..+50°C	0..+50°C	0..+50°C	-20..+65°C
Dimensions	17.5 x 100 x 112 mm	17.5 x 100 x 112 mm	17.5 x 100 x 112 mm	17.5 x 100 x 112 mm	17.5 x 100 x 112 mm	17.5 x 100 x 112 mm
Connections	Screw removable terminals	Screw removable terminals	Screw removable terminals	Screw removable terminals	Screw removable terminals	Screw removable terminals
Casing	Nylon 6 30% glass fibre	Nylon 6 30% glass fibre	Nylon 6 30% glass fibre	Nylon 6 30% glass fibre	Nylon 6 30% glass fibre	Nylon 6 30% glass fibre
Assembly	DIN Guide 35 mm (IEC/EN 60715)	DIN Guide 35 mm (IEC/EN 60715)	DIN Guide 35 mm (IEC/EN 60715)	DIN Guide 35 mm (IEC/EN 60715)	DIN Guide 35 mm (IEC/EN 60715)	DIN Guide 35 mm (IEC/EN 60715)
Weight	200 g	200 g	200 g	200 g	200 g	200 g
Certifications	EC	EC	EC	EC	EC	EC
Regulations	EN 61000-6-4, EN 61000-6-2, EN 61010-1	EN 61000-6-4, EN 61000-6-2, EN 61010-1	EN 61000-6-4, EN 61000-6-2, EN 61010-1	EN 61000-6-4, EN 61000-6-2, EN 61010-1	EN 61000-6-4, EN 61000-6-2, EN 61010-1	EN 61000-6-4, EN 61000-6-2, EN 61010-1
INPUT DATA						
Channels	1	2	1	1	1	1
Type	impulse (mechanical contact, reed, npn, pnp, Namur, imp. 24 Vdc, photoelectric sensor, Hall effect sensor), freq. Max 400 Hz	Impulse (mechanical contact, reed, npn, pnp, Namur, imp. 24 Vdc, photoelectric sensor, Hall effect sensor), freq. Max 400 Hz	Voltage (V), 4 scales (0/1..5 Vdc, 0/2..10 Vdc); input impedance 500 kW Current (mA), 2 scales (0..20, 4..20 mA); active/ passive connection; input impedance 100Ω	Voltage (V), 4 scales (0/1..5 Vdc, 0/2..10 Vdc); input impedance 500 kW Current (mA), 2 scales (0..20, 4..20 mA); active/ passive connection; input impedance 100Ω	Voltage (V), 4 scales (0/1..5 Vdc, 0/2..10 Vdc); input impedance 500 kW Current (mA), 2 scales (0..20, 4..20 mA); active/ passive connection; input impedance 100Ω	Voltage up to 10 V Bipolar current up to 20 mA Thermistors Pt100, Pt500, Pt1000, Ni100 Thermocouples type J,K,R,S,T,B,E,N Potentiometer up to 100 kΩ
OUTPUT DATA						
Channels	1	2	1	2	3	2
Type	SPDT 1A relay - 30Vdc / 5A - 250 Vac (resistive load)	SPST relay reed, max capacity 0.5A - 100 Vac/ dc (10 VA resistive load)	SPDT 1A relay - 30Vdc / 5A - 250 Vac (resistive load)	SPST relay, max capacity 0.1A - 30 Vac/dc (10 VA resistive load)	SPST relay, max capacity 0.1A - 30 Vac/dc (10 VA resistive load)	SPST relay, 1 common contact, 2 NO contacts, capacity 250 Vac - 3 A
ORDER CODE						
Code	**Z112A**	**Z112D**	**Z113S**	**Z113D**	**Z113T**	**Z113-1**
Software and Accessories	**pg.172**	**pg.172**	**pg.172**	**pg.172**	**pg.172**	**pg.172**

The technical data and the diagrams in this document are indicative and not binding.

MULTISTANDARD ISOLATOR CONVERTERS - Z SERIES

	CONVERTERS FOR TEMPERATURE SENSORS		CONVERTERS FOR FREQUENCY SIGNALS	
	Z109PT2-1	**Z109TC2-1**	**Z104**	**Z111**
	 **Thermoresistance isolator converter with Micro USB interface**	 **Thermocouple isolator converter with Micro USB interface**	 **MA / V converter - frequency with galvanic separation**	 **Frequency converter - mA / V with galvanic isolation**
GENERAL DATA				
Power supply	9..40 Vdc; 19..28 Vac	9..40 Vdc; 19..28 Vac	19..40 Vdc; 19..28 Vac	19..40 Vdc; 19..28 Vac
Transducers power supply			Yes, 20 Vdc, max 20 mA, 2 wires	
Max absorption	2.5 W	2 W	2.5 W	2.5 W
Insulation	1.500 Vac (3-way)	1.500 Vac (3-way)	1.500 Vac (3-way)	1.500 Vac (3-way)
Degree of protection	IP20	IP20	IP20	IP20
LED status indicators	Power supply Setting error Off scale	Power supply Error	Power supply Output (attracted relay)	Power supply Error
Response time	35..140 ms	35..140 ms	350 ms	250 ms
Interfaces	Micro USB (front)	Micro USB (front)		
Precision class	0.1% (RTD) - 0.3% (output under voltage)	0.1% (TC) - 0.3% (output under voltage)	0.2%	0.3%
Thermal Drift	0.01%/°K	0.01%/°K	0,02% f.s./°C	0.01% f.s./°C
Configuration	DIP switch Software (EASY SETUP) APP Android	DIP switch Software (EASY SETUP) APP Android	DIP switch Trimmer (full scale)	DIP switch Trimmer (full scale)
Operating temperature	-20..+60°C	-20..+60°C	0..+50°C	0..+50°C
Dimensions	17.5 x 100 x 112 mm	17.5 x 100 x 112 mm	17.5 x 100 x 112 mm	17.5 x 100 x 112 mm
Connections	Screw removable terminals	Screw removable terminals	Screw removable terminals	Screw removable terminals
Casing	Nylon 6 30% glass fibre	Nylon 6 30% glass fibre	Nylon 6 30% glass fibre	Nylon 6 30% glass fibre
Assembly	DIN Guide 35 mm (IEC/EN 60715)	DIN Guide 35 mm (IEC/EN 60715)	DIN Guide 35 mm (IEC/EN 60715)	DIN Guide 35 mm (IEC/EN 60715)
Weight	200 g	200 g	200 g	200 g
Certifications	EC	EC	EC	CE, UL-UR CSA
Regulations	EN 61000-6-4, EN 61000-6-2, EN 61010-1	EN 61000-6-4, EN 61000-6-2, EN 61010-1	EN 61000-6-4, EN 61000-6-2, EN 61010-1	EN 61000-6-4, EN 61000-6-2, EN 61010-1
INPUT DATA				
Channels	1	1	1	1
Type	RTD Pt100, Pt500, Pt1000, Ni100 2, 3, 4-wire connection Excitation current 1mA Resolution 0.1°C	THERMOCOUPLE Tipo: J, K, R, S, T, E, B, N Resolution 5 µV Automatic interruption detection	VOLTAGE (V) 4 scales (0..1, 0..5, 0..10, 2..10 V); input impudence 1 MΩ CURRENT (mA) 2 scales (0/4..20 mA); active connection loop powered 15 Vdc not stabilised; passive connection input impedance 100 Ω	Pulse (mechanical contact, reed, npn, pnp, Namur, imp. 24 Vdc, photoelectric sensor, Hall effect sensor, TTL variable reluctance), freq. measurable from 1 mHz to 9.99 kHz
OUTPUT DATA				
Channels	1	1	1	1
Type	VOLTAGE (V) 4 scales: 0..5, 0..10, 1..5, 2..10 V Min. load impudence 2 kΩ Resolution: 2.5 µA / 1.25 mV CURRENT (mA) 2 scales: 0..20, 4..20 mA Max load impudence 600 Ω Resolution: 2.5 µA / 1.25 mV	VOLTAGE (V) 4 scales: 0..5, 1..5, 0..10, 2..10 V Min. load impudence 2.5 KΩ Resolution: 0.025%..0.032 % CURRENT (mA) Active / passive connection 2 scales: 0..20, 4..20 mA Max load impudence: 600 Ω Resolution: 0.025..0.032 %	Pulse npn open collector, 30 Vcc, 300 mA; reed relay 30 Vac/dc, 100 mA, max frequency 10 kHz	VOLTAGE (V) 4 scales (0..5, 0..10, 0..5, 2..10 V); min load resistance 1 MW CURRENT (mA) 2 scales 0/4..20 mA, max load resistance 600 Ω
ORDER CODE				
Code	**Z109PT2-1**	**Z109TC2-1**	**Z104**	**Z111**
Software and Accessories	**Software and Accessories p.172**	**Software and Accessories p.172**	**Software and Accessories p.172**	**Software and Accessories p.172**

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SOFTWARE & ACCESSORIES

EASY SETUP

Configuration software

Programmable models:
Z109REG, Z109REG2-1, Z109UI-2, Z109REG-BP, Z170REG-1, Z-SG, Z203-1, Z204-1, Z113-1, Z109PT2-1, Z109TC2-1
Minimum hardware requirements:
CPU 1GHz, 256 MB free in HD, graphic board resolution 1024x769 pixel
Download: free from **www.seneca.it**

- Automatic connection to the module
- Setting of operation and communication parameters
- Parameter monitoring
- Automatic configuration of modules
- Testing and replication of the configuration

EASY SETUP APP

Configuration app for Android terminal

Programmable models:
Z109REG2-1, Z109UI2-1, Z109REG-BP, Z170REG-1, Z109PT2-1, Z109TC2-1
Android version: 4.0 or later
Compatible terminals: Android Smartphone/Tablet with OTG function
Download: Google Play Store

Mobile Phone with USB OTG support
Google play

- Automatic connection to the module
- Setting of operation and communication parameters
- Parameter monitoring
- Automatic configuration of modules
- Testing and replication of the configuration

S117P1

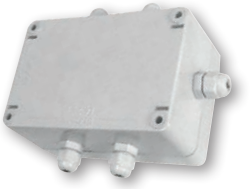
S117P1 SERIAL CONVERTER RS232↔USB, TTL↔USB, RS485↔USB

- Asynchronous serial conversion RS232, RS485, TTL
- Multiple connection possibility of multiple S117P1 units on the same PC
- USB 1.0, 1.1, 2.0 standard compatibility
- RS485 communication, max 32 nodes
- External modules power supply (100 mA, 12 Vdc)
- Supplied accessories: USB cable, TTL cable, driver CD

ORDER CODE

Code	Description
S117P1	Asynchronous serial converter RS232↔USB, TTL↔USB, RS485↔USB

EQUALISATION AND CONNECTION SYSTEM FOR LOAD CELLS



ORDER CODE

Code	Description
SG-EQ4	Equalisation board and connection up to 4 load cells in parallel
SG-EQ4-BOXPG7	Equalisation board and connection up to 4 parallel load cells + IP67 containment box complete with cable glands with 7 mm diameter and 2 hole covers

Z-POWER

19 Vac transformers for DIN guide mounting

- Primary voltage 230 (115) Vac ± 10%Housing in self-extinguishing thermoplastic material (class V-0)
- Protection with thermal fuse
- Dimensions 3 DIN modules (15 VA), 5 DIN modules (25 VA)
- Dimensions 3 DIN modules (15 VA), 5 DIN modules (25 VA)
- IP 40

ORDER CODE

Code	Description
Z-POWER 230-15VA	Transformer 19 Vac, 230-15 VA
Z-POWER 230-25VA	Transformer 19 Vac, 230-25 VA
Z-POWER 115-15VA	Transformer 19 Vac, 115-15 VA

Z-SUPPLY

Power supply switching monophase 24V @ 1.5 A

- **Input:** 110..230 Vac @ 47-63 Hz 0,7 A; 110..315 Vdc, 0.7 A
- **Output:** 24 Vdc ± 2%
- **Redundancy I**n parallel with two Z-SUPPLY modules (only from IDC10 connector)
- **Output current:** 1.5 A
- **Output control:** "Power Good" output relay
- **Internal fuse:** 1.25A T-type (delayed)
- **Assembly:** On DIN guide 46277
- **Insulation:** Up to 3KV in output and output voltage

ORDER CODE

Code	Description
Z-SUPPLY	Power supply switch monophase 24V @ 1.5 A

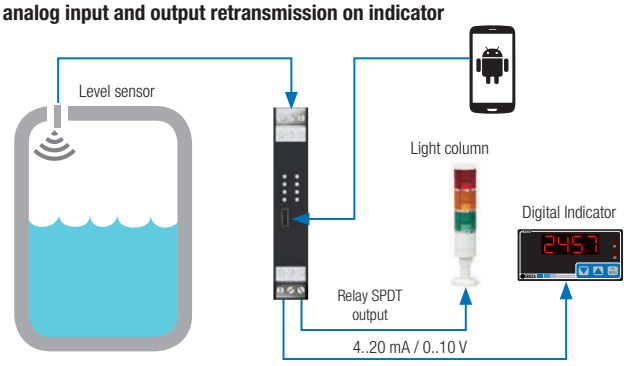
CABLES

ORDER CODE

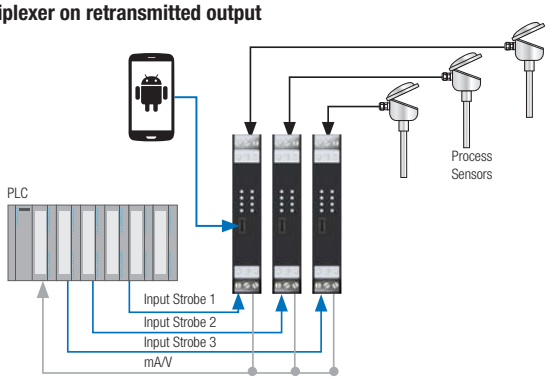
Code	Description
CS-JACK-DB9F	Programming serial cable (Jack / DB9F)
CU-A-MICROB	Cable plug USB-A Micro USB-B 5 P
CU-A-MICRO-OTG	Adapter cable Micro USB OTG – USB Female A type

APPLICATION EXAMPLES

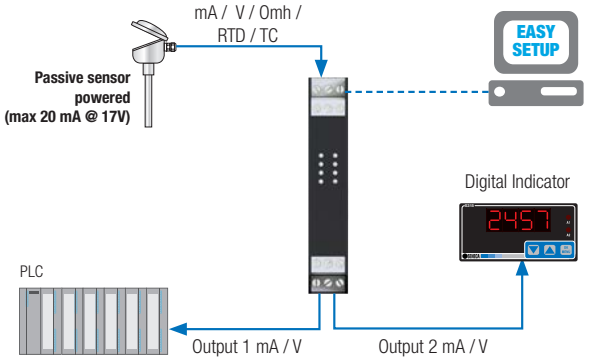
Z109REG2-1
Isolation and conversion with alarm threshold on analog input and output retransmission on indicator



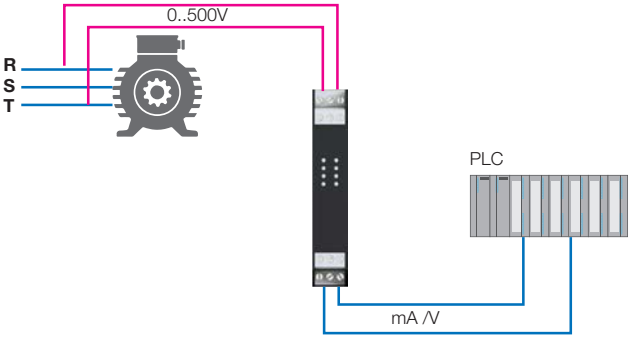
Z109REG2-1
Isolation and analog conversion with function of multiplexer on retransmitted output



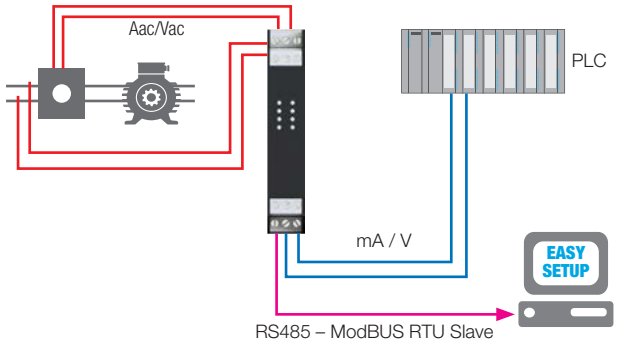
Z170REG-1
Duplication and retransmission of analogue signal



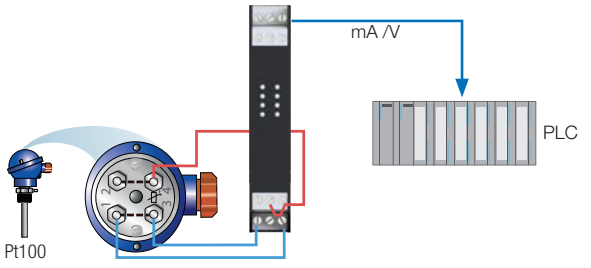
Z202
Conversion of the alternating voltage into a normalised mA/V signal



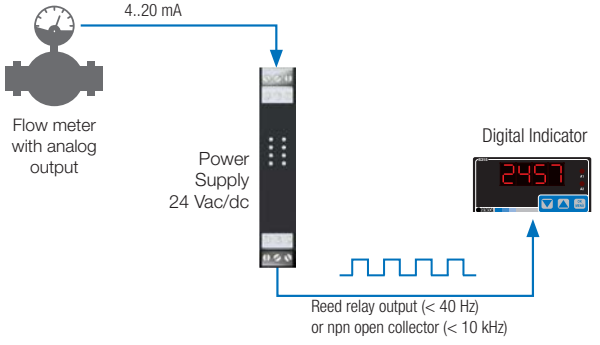
Z203-1
Single-phase network analyser with output signal retransmission



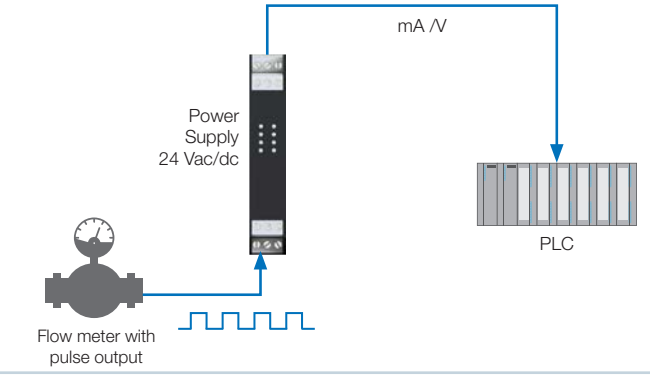
Z109PT2-1
Temperature conversion from Pt100 into a standard analogue signal



Z104
Pulse count from flow meter with analogue output



Z111
Instantaneous flow acquisition from meter with pulse output



RAPID SELECTION

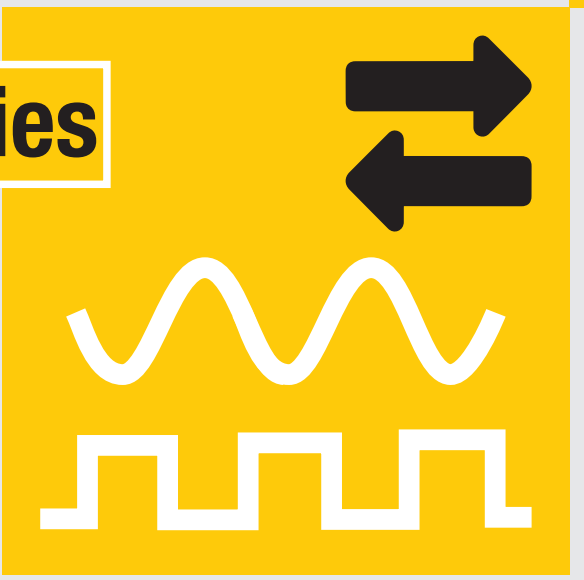
CODE INSTRUMENT	CONVERSION				POWER SUPPLY					OTHER CHARACTERISTICS	
	IN	OUT	No. INPUTS	No. OUTPUTS	19..40 Vdc (9..30 Vdc opz.); 19..28 Vac	10..40 Vdc; 19..28 Vac	85..265 Vac/dc	External / From measurement loop	POWER SUPPLY SENSORS / ACTIVE INPUT	MAX INSULATION	PRECISION CLASS
CONVERTERS FOR ANALOG SIGNALS											
Z102	Ohm	mA, V	1	1	x					1.5 kVac	0.2%
Z109REG	mA, mV, V, Ohm, TC (J,K,R,S,T,B,E,N), Pt100	mA, V	1	1	x				18 Vdc	1.5 kVac	0.2%
Z109REG2-1	mA, mV, V, Ohm, TC (J,K,R,S,T,B,E,N), Pt100, Pt500, Pt1000, Ni100, KTY81,KTY84, NTC, (Strobe)	mA, V, (SPST relay)	2	2		x			20 Vdc	1.5 kVac	0.1%
Z109REG2-H	mA, mV, V, Ohm, TC (J,K,R,S,T,B,E,N), Pt100, Pt500, Pt1000, Ni100, KTY81,KTY84, NTC, (Strobe)	mA, V, (SPST relay)	2	2			x		20 Vdc	1.5 kVac	0.1%
Z109REG-BP	mA, mV, V, Ohm, TC (J,K,R,S,T,B,E,N), Pt100, Pt500, Pt1000, Ni100, KTY81,KTY84, NTC	mA, V	1	1		x			17 Vdc	1.5 kVac	0.1%
Z109S	mA	mA	1	1	x				20 Vdc	1.5 kVac	0.2%
Z109S-DI	mA	mA	1	1		x			17 Vdc	3.5 kVac	0.2%
Z109UI2-1	mA, V, mV	mA, V	1	1		x				1.5 kVac	0.1%
Z110D	mA	mA	2	2				x		1.5 kVac	0.1%
Z110S	mA	mA	1	1				x		1.5 kVac	0.1%
Z170REG-1	mA, mV, V, Ohm, TC (J,K,R,S,T,B,E,N), Pt100, Ni100, Pt500, Pt1000, (Strobe)	mA, V, (SPST relay)	1	2		x				1.5 kVac	0.1%
Z190	mA, V	mA, V	2	1	x				20 Vdc	1.5 kVac	0.2%
Z-SG	mV, load cell	mA, V, RS485 ModBUS	1	1		x				1.5 kVac	0.01%
A/D CONVERTERS											
Z-4AI-D	mA, V	Serial / Signals 24V PNP (Clock, Data, Strobe)	4	3	x					1.5 kVac	0.1%
Z-4TC-D	TC, mV	Serial / Signals 24V PNP (Clock, Data, Strobe)	4	3	x					1.5 kVac	0.1%
ELECTRIC MEASUREMENT CONVERTERS											
Z201	Aac	mA, V	1	1	x					1.5 k Vac	0.3%
Z201-H	Aac	mA, V	1	1			x			4 kVac	0.3%
Z202	Vac	mA, V	1	1		x				3.75 k Vac	0.25%
Z202-H	Vac	mA, V	1	1			x			4 kVac	0.25%
Z202LP	Vac/dc	mA, V	1	1				x		4 kVac	0.25%
Z203-1	A, V	mA, V, RS485 ModBUS	1	1		x				3.75 kVac	0.5%
Z204-1	Vac/dc	mA, V, RS485 ModBUS	1	1		x				4 kVac	0.5%
CONVERTERS WITH RELAY THRESHOLDS											
Z112A	Contact, Reed, NPN, PNP, Namur, Photoelectric, Hall, Var. Reluctance, Imp. 24 V, TTL, Volumetric Meter	SPDT Relay	1	1	x				20 Vdc	1.5 kVac	
Z112D	Contact, Reed, NPN, PNP, Namur, Photoelectric, Hall, Var. Reluctance, Imp. 24 V, TTL, Volumetric Meter	SPST relay	2	2	x				20 Vdc	1.5 kVac	
Z113D	mA, V	SPST relay	1	2	x				20 Vdc	1.5 kVac	
Z113S	mA, V	SPDT Relay	1	1	x				20 Vdc	1.5 kVac	
Z113T	mA, V	SPST relay	1	3	x				20 Vdc	1.5 kVac	
Z113-1	mA, V, Ohm, RTD, TC	SPST relay	1	2		x				1.5 kVac	
TEMPERATURE SENSOR CONVERTERS											
Z109PT2-1	Pt100, Ni100, Pt500, Pt1000	mA, V	1	1		x				1.5 kVac	0.1%
Z109TC2-1	TC (J,K,R,S,T,B,E,N)	mA, V	1	1		x				1.5 kVac	0.2%
CONVERTERS FOR FREQUENCY SIGNALS											
Z104	mA, V	NPN Open Collector, Reed Relay	1	1	x				20 Vdc	1.5 kVac	0.2%
Z111	Contact, Reed, NPN, Namur, Photo-electric, Hall, Var. Reluctance, Imp. 24 V, TTL, Volumetric Meter	mA, V	1	1	x				20 Vdc	1.5 kVac	0.2%

CONVERTERS
ISOLATORI COMPATTI

4

4.2

K Series



K series

Signal Converters
Compact galvanic isolators

The SENECA **K Series** converter modules are characterised by 1.5 kVac 3-way isolation in digital technology, precision class 0.1%, supply range from 19.2 to 30 Vdc, compact dimensions (102.5 x 93.1 x 6.2) mm), reduced consumption, Mtbf of over 500,000 hours. Signal configuration is immediate with DIP switches or software. The supply technique is standard (on the spring clamp) or with a distributed system, based on an expandable connector (K-BUS) that can be snapped onto the 35 mm DIN guides according to the EN 60715 standard.

ROBUST INDUSTRIAL DESIGN

HIGH RELIABILITY

>500.000 h

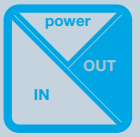
WIDE OPERATING TEMPERATURE RANGE

-20..+65°C

REDUCED CONSUMPTION

<25mA

MULTI-WAY INSULATION



1,5 kV

COMPACT DIMENSIONS

6.2 mm

HIGH PRECISION

0.1%

SPECIAL FUNCTIONS

Filter for stabilisation of readying

Scale inversion for input / output

Linearisation for horizontal cylinder tanks

Root extraction

SETTINGS

FLEXIBLE CONFIGURATION VIA DIP-SWITCH

ON
OFF

PROGRAMMING VIA PC

EASY SETUP

POWER SUPPLY

POWER SUPPLY DISTRIBUTED / DIRECT ON TERMINAL

19.2..30 Vdc

EXPANDABLE POWER SUPPLY CONNECTOR

CERTIFICATIONS

STANDARD INTERNATIONAL

CE, UL, CSA

ATEX CONFORMITY (K121)

II 3G Ex nA IIC T4 Gc X (gas)
II 3D Ex tc IIIC T135°C Dc X (dust)
EN 60079-0:2012
EN 60079-15:2010

	UNIVERSAL	ANALOG		
	K121	**K109UI**	**K109S**	**K109LV**
				
	Universal converter (mA, V, Ohm, RTD, TC) isolated loop powered	**V-I / V-I opto-isolated converter**	**opto-isolated converter V-I / V-I with active input (transducer power supply)**	**opto-isolated converter shunt / V-I**
GENERAL DATA				
Power supply	7..30 Vdc (with loop 4..20 mA)	19.2.. 30 Vdc	19.2.. 30 Vdc	19.2.. 30 Vdc
Power supply on side terminals		Yes	Yes	Yes
Max current absorbed	24 mA	22 mA (24 Vdc)	23 mA (24 Vdc); 45 mA (with aux. power supply)	22 mA (24 Vdc)
Max power dissipated	<660 mW	500 mW	500 mW	500 mW
A/D conversion	16 bit	14 bit	14 bit	14 bit
Rejection	50 or 60 Hz (programmable))	50 or 60 Hz (programmable))	50 or 60 Hz (programmable))	50 or 60 Hz (programmable))
Configurability	Software (EASY SETUP)	DIP Switch	DIP Switch	DIP Switch
Filtro	Additional for reading stabilisation	Additional for reading stabilisation	Additional for reading stabilisation	Additional for reading stabilisation
Dimensions	6.2 x 93.1 x 102.5 mm	6.2 x 93.1 x 102.5 mm	6.2 x 93.1 x 102.5 mm	6.2 x 93.1 x 102.5 mm
Insulation	1.5 kVac (2 ways)	1.5 kVac (3-ways)	1.5 kVac (3-ways)	1.5 kVac (3-ways)
Isolation technology	Digital / optocoupler	Digital / optocoupler	Digital / optocoupler	Digital / optocoupler
Processing	Calculation of floating point 32 bit	Calculation of floating point 32 bit	Calculation of floating point 32 bit	Calculation of floating point 32 bit
Colour	Black	Black	Black	Black
Casing material	PBT	PBT	PBT	PBT
Weight	45 g	45 g	45 g	45 g
Operating temperature	-20..+65°C	-20..+65°C	-20..+65°C	-20..+65°C
Connection	8 spring terminals	Spring and/or BUS	Spring and/or BUS	Spring and/or BUS
Degree of protection	IP 20	IP 20	IP 20	IP 20
Precision class	0.1%	0.1%	0.1%	0.1%
Thermal drift	< 120 ppm/K	< 120 ppm/K	< 120 ppm/K	< 120 ppm/K
LED	Anomaly, alarm	Anomaly, alarm	Anomaly, alarm	Anomaly, alarm
Special functions	Cold coupling offset Filter that can be inserted Output inversion	Root extraction Signal inversion Configurable scales Tank linearisation Programmable cut-off	Root extraction Signal inversion Tank linearisation Programmable cut-off Auxiliary power supply 17..20 V, max current 25 mA	Fault and programmable cut-off Filter that can be inserted
Approvals	CE, II 3G Ex nA IIC T4 Gc X, II 3D Ex tc IIIC T135°C Dc X	CE, UL-UR CSA	CE, UL-UR CSA	EC
Regulations	EN 61010-1, EN 61000-6-2, EN 61000-6-4, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-11, EN 60079-0, EN 60079-15	EN 61000-6-4, EN 61010-6-2, EN 61010-1	EN 61000-6-4, EN 61010-6-2, EN 61010-1	EN 61000-6-4, EN 61010-6-2, EN 61010-1
INPUT DATA				
Channels	1	1	1	1
Type	Thermocouple J,KR,S,T,B,E,N (EN 60584) RTD (Pt100, Pt500, Pt1000, Ni100) 2,3,4 wire connection Voltage (V): ± 30 V, impudence 200 kΩ Voltage (mV): ±150 mV, impudence 10 MΩ Current: ± 24V, impudence 40 kΩ Potentiometer: 500 Ω..10 k Ω Resistance up to 1.760 Ω	VOLTAGE Range: 0..10 / 10..0 / 0..5 / 1..5/ 0..15 / 0..30 V (can be reversed) Impedance: 110 kΩ - 325 kΩ CURRENT Range: 4..20 / 20..4 / 0..20 / 20..0 mA Impedance: 35 Ω	VOLTAGE Range: 0..10 / 10..0 / 0..5 / 1..5 V Impedance: 110 kΩ CURRENT Range: 4..20 / 20..4 / 0..20 / 20..0 mA Impedance: 35 Ω	SHUNT Range: ±25, 50, 60, 75, 80, 100, 120, 150, 200, 250, 300, 400, 500, 1000, 2000 mV (da Dip switch)
OUTPUT DATA				
Channels	1	1	1	1
Type	Current 4-20 mA	VOLTAGE Range: 0..10 / 10..0 / 0..5 / 1..5 V Minimum load resistance: 2 kΩ CURRENT Range: 4..20 / 20..4 /0..20 / 20..0 mA Max load resistance: 500Ω Protection: 25 mA	VOLTAGE Range: 0..10 / 10..0 / 0..5 / 1..5 V Minimum load resistance: 2 kΩ CURRENT Range: 4..20 / 20..4 /0..20 / 20..0 mA Max load resistance: 500Ω Protection: 25 mA	VOLTAGE Range: 0..10 / 10..0 / 0..5 / 1..5 V Minimum load resistance: 2 kΩ CURRENT Range: 4..20 / 20..4 /0..20 / 20..0 mA Max load resistance: 500Ω Protection: 25 mA
Auxiliary static relay				
Response time (10-90%)	140..620ms	< 40 ms (without filter) < 88 ms (with filter)	< 40 ms (without filter) < 88 ms (with filter)	< 25 ms (without filter) < 55 ms (with filter
Conversion D/A resolution				
ORDER CODE				
Code	K121	K109UI	K109S	K109LV
Software and Accessories	Pg.182	Pg.182	Pg.182	Pg.182

The technical data and the diagrams in this document are indicative and not binding.

TEMPERATURE

K109PT	K109PT-HPC	K109PT1000	K120RTD	K109TC
				
opto-isolated converter Pt100 / V-I	**opto-isolated converter Pt100 / V-I ad alta precisione**	**opto-isolated converter Pt1000 / V-I**	**Converter not isolated Pt100, Ni100 loop powered**	**TC opto-isolated converter / V-I with adjustable threshold**
19,2..30 Vdc	19,2..30 Vdc	19,2..30 Vdc	Loop powered (5..30 Vdc)	19,2..30 Vdc
Yes	Yes	Yes	-	Yes
21..25 mA (24 Vdc)	21..25 mA (24 Vdc)	21..25 mA (24 Vdc)	21..25 mA (24 Vdc)	21..25 mA (24 Vdc)
500 mW	500 mW	500 mW	500 mW	500 mW
14 bit	14 bit	14 bit	14 bit	14 bit
50 or 60 Hz (programmable)	50 or 60 Hz (programmable)	50 or 60 Hz (programmable)	50 or 60 Hz (programmable)	50 or 60 Hz (programmable)
DIP Switch	DIP Switch	DIP Switch	DIP Switch, Software (EASY SETUP)	DIP Switch
Additional for reading stabilisation	Additional for reading stabilisation	Additional for reading stabilisation	Additional for reading stabilisation	Additional for reading stabilisation
6.2 x 93.1 x 102.5 mm	6.2 x 93.1 x 102.5 mm	6.2 x 93.1 x 102.5 mm	6.2 x 93.1 x 102.5 mm	6.2 x 93.1 x 102.5 mm
1.5 kVac 3 ways (50 Hz, 1 min)	1.5 kVac 3 ways (50 Hz, 1 min)	1.5 kVac 3 ways (50 Hz, 1 min)	-	1.5 kVac 3 ways (50 Hz, 1 min)
Digital (optocoupler)	Digital (optocoupler)	Digital (optocoupler)	-	Digital (optocoupler)
Calculation of floating point 32 bit	Calculation of floating point 32 bit	Calculation of floating point 32 bit	Calculation of floating point 32 bit	Calculation of floating point 32 bit
Black	Black	Black	Black	Black
PBT	PBT	PBT	PBT	PBT
45 g	45 g	45 g	45 g	45 g
-20..+65°C	-20..+65°C	-20..+65°C	-20..+65°C	-20..+65°C
Spring and/or BUS	Spring and/or BUS	Spring and/or BUS	Spring	Spring and/or BUS
IP 20	IP 20	IP 20	IP 20	IP 20
0,1% (max range)	0,1% (max range)	0.1%	0.1%	0.1%
< 100 ppm/K	< 100 ppm/K	< 100 ppm/K	< 100 ppm/K	< 100 ppm/K
Anomaly, alarm	Anomaly, alarm	Anomaly, alarm	Anomaly, alarm	Anomaly, alarm Auxiliary output status
Fault and programmable cut-off Filter that can be inserted	Fault and programmable cut-off Filter that can be inserted	Fault and programmable cut-off Filter that can be inserted	Type / RTD connection / filter measurement range, error, inversion output and over-range	Fault and programmable cut-off Filter that can be inserted
CE, UL-UR CSA	EC	EC	EC	CE, UL-UR CSA
EN 61000-6-4, EN 61000-6-2, EN 61010-1	EN 61000-6-4, EN 61000-6-2, EN 61010-1	EN 61000-6-4, EN 61000-6-2, EN 61010-1	EN 61000-6-4, EN 61000-6-2, EN 61010-1	EN 61000-6-4, EN 61000-6-2, EN 61010-1
1	1	1	1	1
PT100 Standard IEC 751 / EN 60751 – ITS90 Range: -150..+650 °C Minimum span: 50 °C Current on transmitter 900 µA 2, 3, 4 wire connection Max cable resistance: 20 Ω	PT100 Standard IEC 751 / EN 60751 – ITS90 Range: -200..+160 °C Minimum span: 20 °C Current on transmitter 900 µA 2, 3, 4 wire connection Max cable resistance: 20 Ω	PT1000 Standard EN 60751/A2 – ITS90 Range: -200..+210 °C Minimum span: 30 °C Corrente sul trasmettitore < 350µA 2, 3, 4 wire connection Max cable resistance: 50 Ω	Pt100 (EN 60751/A2-ITS90) Range: -200..+650 °C Minimum span: 20 °C 2, 3, 4 wire connection Ni100 Range: -60..+250 °C Minimum span: 20 °C 2, 3, 4 wire connection	THERMOCOUPLE Type J,K,E,N,S,R,B,T (ITS90) Minimum span 100°C Impedance 10 MΩ Cold semiconductor coupling, ADC 13 bit, precision 0.15°C, update 10 s Max voltage ± 32V
1	1	1	1	1
VOLTAGE Range: 0..10 / 10..0 / 0..5 /1..5 V Minimum load resistance: 2 kΩ CURRENT Range: 4..20 / 20..4 / 0..20 / 20..0 mA Max load resistance: 500 Ω Protection: 25 mA	VOLTAGE Range: 0..10 / 10..0 / 0..5 /1..5 V Minimum load resistance: 2 kΩ CURRENT Range: 4..20 / 20..4 / 0..20 / 20..0 mA Max load resistance: 500 Ω Protection: 25 m	VOLTAGE Range: 0..10 / 10..0 / 0..5 /1..5 V Minimum load resistance: 2 kΩ CURRENT Range: 4..20 / 20..4 / 0..20 / 20..0 mA Max load resistance: 500 Ω Protection: 25 mA	CURRENT Range: 4..20 / 20..4 (2 wires) Load resistance: 1 kΩ Resolution: 0.5 µA (15 bit+sign) Protection: 30 mA	VOLTAGE Range: 0..10 / 10..0 / 0..5 /1..5 V Minimum load resistance: 2 kΩ CURRENT Range: 4..20 / 20..4 / 0..20 / 20..0 mA Max load resistance: 500 Ω
				Nominal voltage: 24 Vac/dc Current: 60 mA Overvoltage protections: 50 V Settable hysteresis / alarm threshold
< 50 ms (without filter) < 200 ms (with filter)	< 50 ms (without filter) < 200 ms (with filter)	< 50 ms (without filter) < 200 ms (with filter)	< 220 ms (without filter) < 620 ms (with filter)	< 40 ms (without filter) < 88 ms (with filter)
1 mV, 2 µA	1 mV, 2 µA	1 mV, 2 µA	1 mV, 2 µA	1 mV, 2 µA
K109PT	K109PT-HPC	K109PT1000	K120RTD	K109TC
Pg.182	Pg.182	Pg.182	Pg.182	Pg.182

The technical data and the diagrams in this document are indicative and not binding.

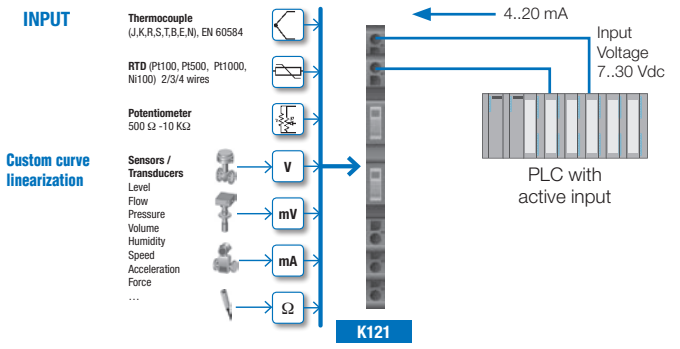
COMPACT ISOLATOR CONVERTERS - K SERIES

	FREQUENCY			SERIALS		
	K111	**K111D**	**K112**	**K107A**	**K107B**	**K107USB**
						
	Frequency threshold with two isolated outputs	**Frequency divider and repeater with two isolated outputs**	**Isolated output double channel digital coupler**	**Opto-isolated serial repeater converter RS485 / RS485**	**Optoisolated serial converter RS232 / RS485**	**Serial converter optoisolato RS485 / USB**
GENERAL DATA						
Power supply	19.2.. 30 Vdc	19,2..30 Vdc	19.2.. 30 Vdc	19,2..30 Vdc	19,2..30 Vdc	Via USB port
Power supply on side terminals	Yes	Yes	Yes	Yes	Yes	-
Hot swapping	Yes	Yes	Yes	Yes	Yes	Yes
Max current absorbed	< 25 mA	< 25 mA	< 25 mA	22 mA (24 Vdc)	22 mA (24 Vdc)	60 mA
Max power dissipated	500 mW	500 mW	500 mW	500 mW	500 mW	-
A/D conversion	14 bit	14 bit	14 bit	-	-	-
Rejection	50 or 60 Hz (programmable)	50 or 60 Hz (programmable)	50 or 60 Hz (programmable)	50 or 60 Hz (programmable)	50 or 60 Hz (programmable)	50 or 60 Hz (programmable)
Configurability	DIP Switch, Software (EASY SETUP)	DIP switch, Software (EASY SETUP)	DIP Switch	DIP Switch	DIP Switch	DIP Switch
Filtro	Programmable	Programmable				
Dimensions	6.2 x 93.1 x 102.5 mm	6,2x93,1x102,5 mm	6.2 x 93.1 x 102.5 mm	6.2 x 93.1 x 102.5 mm	6.2 x 93.1 x 102.5 mm	6.2 x 93.1 x 102.5 mm
Insulation	1.5 kVac (3-ways)	1.5 kVac (3 ways)	1.5 kVac (3-ways)	1.5 kVac 3 ways (50 Hz, 1 min)	1.5 kVac 3 ways (50 Hz, 1 min)	1,5 kVac (USB / RS485)
Isolation technology	Digital / Optocoupler	Digital / Optocoupler	Digital / Optocoupler	Digital (optocoupler)	Digital (optocoupler)	Digital (optocoupler)
Processing	Calculation of floating point 32 bit	Calculation of floating point 32 bit	Calculation of floating point 32 bit	-	-	-
Colour	Black	Black	Black	Black	Black	Black
Casing material	PBT	PBT	PBT	PBT	PBT	PBT
Weight	45 g	45 g	45 g	45 g	45 g	45 g
Operating temperature	-20..+65°C	-20..+65°C	-20..+65°C	-20..+65°C	-20..+65°C	-20..+65°C
Connection	Spring and/or BUS	Spring and/or BUS	Spring and/or BUS	Spring and/or BUS	Spring and/or BUS	Spring and/or BUS
Degree of protection	IP 20	IP20	IP 20	IP20	IP20	IP20
LED	Presence of power supply, active thresholds, error	Outputs state	Presence of power supply, output state	Power supply Data presence Reversed connection	Power supply Data presence Reversed connection	Power supply Data presence Reversed connection
Communication		-		Automatic handshake Baud rate: 1.200..115.200 bps	Automatic handshake Baud rate: 1.200..115.200 bps	Settable termination of the RS485 line Baudrate: 1.200..115.200 bps RS485 serial communication via ModBUS RTU, max 32 nodes
Special functions	Frequency divider Average measurement in a window of N pulses (N <= 256) Direct operation	Frequency divider Average measurement in a window of N pulses (N <= 256) Direct operation				Supported operating systems: Windows 98, 2000, XP, Vista, 7, 10, Linux 2.24.0 and later
Approvals	EC	EC	EC	CE, UL-UR CSA	CE, UL-UR CSA	CE, UL-UR CSA
Regulations	EN 61000-6-4, EN 61010-6-2, EN 61010-1	EN 61000-6-4, EN 61010-6-2, EN 61010-1	EN 61000-6-4, EN 61010-6-2, EN 61010-1	EN 61000-6-4, EN 61000-6-2, EN 61010-1	EN 61000-6-4, EN 61000-6-2, EN 61010-1	EN 61000-6-4, EN 61000-6-2, EN 61010-1
INPUT DATA						
Channels	1	1	1	1	1	1
Type	Contact IEC 1131.2 (type 1) Namur (DIN 19234, EN 60947-5-6) NPN / PNP (12 or 22 V) with 2/3 wires Reed Photocell Max voltage: ±28 Vdc Frequency: Max 20 kHz, min 1 pulse every 116 minutes	Contact IEC 1131.2 (type 1) Namur (DIN 19234, EN 60947-5-6) NPN / PNP (12 or 22 V) with 2/3 wires Reed Photocell Max voltage: ±28 Vdc Frequency: Max 20 kHz, min 1 pulse every 116 minutes	Contact IEC 1131.2 (type 1) Namur (DIN 19234, EN 60947-5-6) NPN / PNP (12 or 22 V) with 2/3 wires Reed Photocell Max. frequency: 400 Hz	SERIAL RS485 half duplex, 31 nodes, terminator, protection up to 30 Vdc	SERIAL RS232B, protection up to 30 Vdc	SERIAL USB standard 1.0 e 2.0, connectors USB A and MINI USB B
OUTPUT DATA						
Channels	2	2	2	1	1	1
Type	PNP independent channels up to 200 mA, protected against short circuit	PNP independent channels up to 200 mA, protected against short circuit	Independent PNP and NPN channels	SERIAL RS485 half duplex, 31 nodes, terminator, protection up to 30 Vdc	SERIAL RS485 half duplex, 31 nodes, terminator, protection up to 30 Vdc	SERIAL RS485, 31 nodes, spring clamp, ModBUS protocol RTU Slave half duplex, max 1.200 m and 31 nodes
ORDER CODE						
Code	K111	K111D	K112	K107A	K107B	K107USB (complete with programming cable and CD ROM)
Software and Accessories	Pg.182	Pg.182	Pg.182	Pg.182	Pg.182	Pg.182

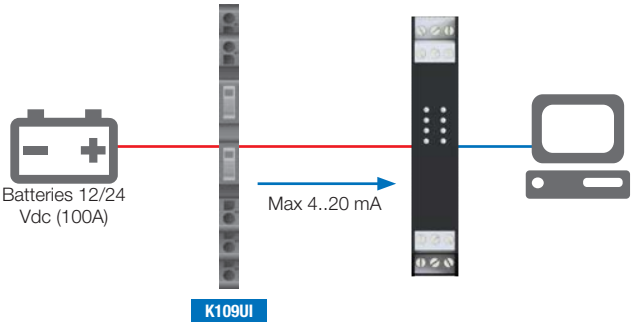
The technical data and the diagrams in this document are indicative and not binding.

APPLICATION EXAMPLES

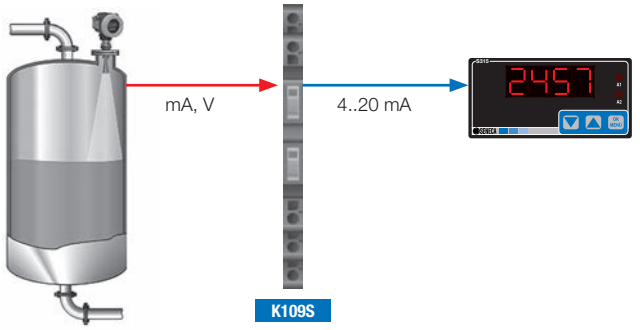
CONVERSION AND TRANSMISSION TO THE PLC OF A UNIVERSAL ANALOGUE SIGNAL



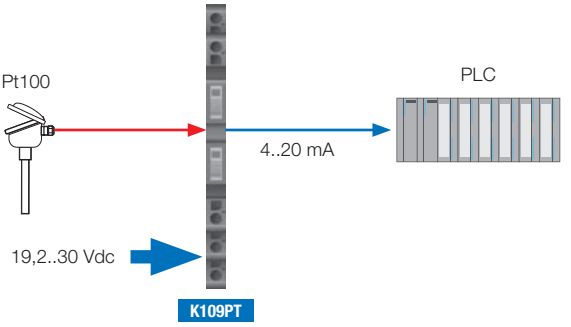
MONITORING OF THE BATTERY CHARGE VOLTAGE



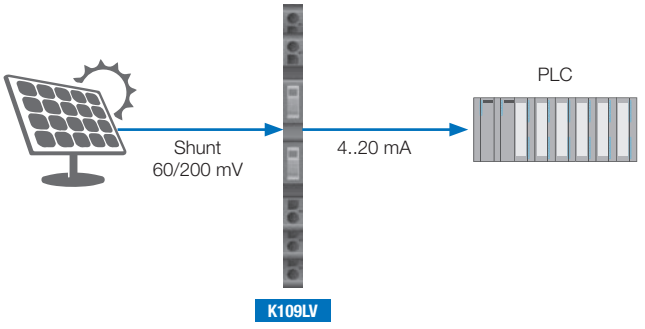
CONVERSION, ISOLATION AND SIGNAL RETRANSMISSION ANALOGUE FROM 2 WIRE IN TECNICA SENSOR



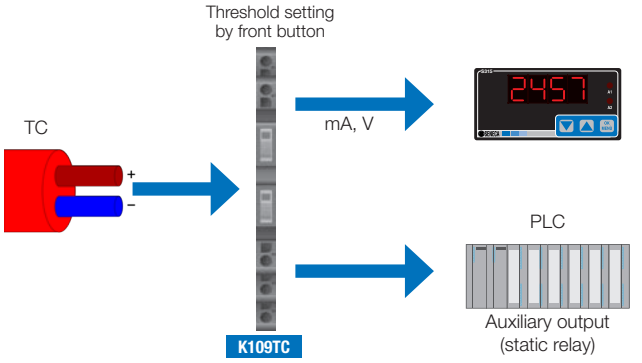
TEMPERATURE CONVERSION FROM PT100 INTO A STANDARD ANALOGUE SIGNAL



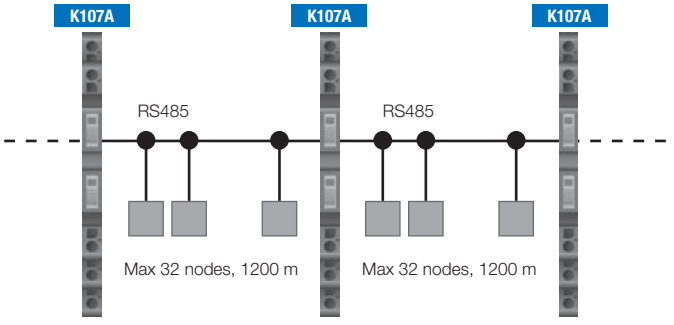
CONVERSION AND MEASUREMENT OF STRING CURRENT IN PHOTOVOLTAIC SYSTEMS



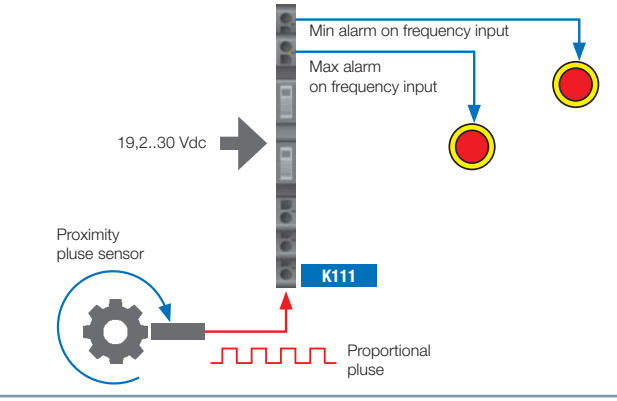
CONVERSION AND RETRANSMISSION OF THERMOCOUPLE TEMPERATURE VALUE



RS485 SERIAL REPETITION WITH GALVANIC ISOLATION



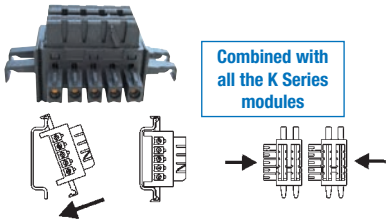
PULSE CONVERSION WITH ALARM THRESHOLD



ACCESSORIES & SOFTWARE

K-BUS

Expandable connector for rapid power supply (EN 60175)



Combined with all the K Series modules

ORDER CODE	
K-BUS	Expandable 2-way connector for fast power supply

K-SUPPLY

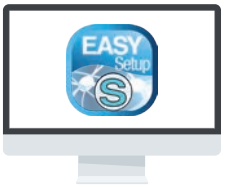
Redundant power supply with overvoltage protection

Combined with all the K Series modules

ORDER CODE	
K-SUPPLY	Power supply module with electronic line protections

EASY SETUP / EASY LP

Complete collection of SENECA programmable instruments plug&play configurators



K111
K121
K120RTD

Free download from www.seneca.it

EASY USB USB - UART TTL CONVERTER

Power supply	Of PC 5V @ 100 mA
Degree of protection	IP20
Serial UART TTL	RJ11 connector, baud rate from 300 bps to 250 Kbps
Serial USB	USB type A compatible standard 1.0, 1.1 and 2.0
Dimensions	84 x 21 x 17 mm
Operating systems supported	Windows, Mac OS-X, Linux

ORDER CODE	
EASY-USB	USB - UART TTL CONVERTER

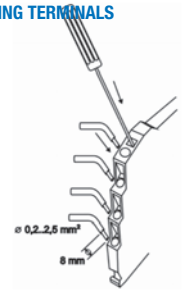
S117P1 Serial Converter RS232-USB, TTL-USB, RS485-USB

- Asynchronous serial conversion RS232, RS485, TTL
- Multiple connection possibility of multiple S117P1 units on the same PC
- USB 1.0, 1.1, 2.0 standard compatibility
- RS485 communication, max 32 nodes
- External modules power supply (100 mA, 12 Vdc)
- Supplied accessories: USB cable, TTL cable, driver CD + EASYLP (K120RTD, K121, T120 and T121 configuration software)

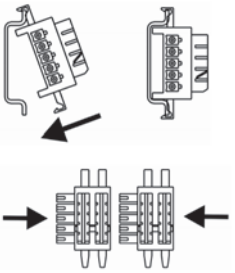
ORDER CODE	
S117P1	Asynchronous serial converter RS232λUSB, TTLλUSB, RS485λUSB complete with USB cable, TTL cable, Cd driver + EASYLP (K120RTD, K121, T120 and T121 configuration software)

CONNECTIONS AND INSTALLATION

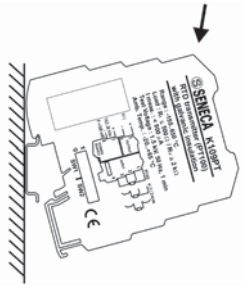
CONNECTION BASED ON SPRING TERMINALS



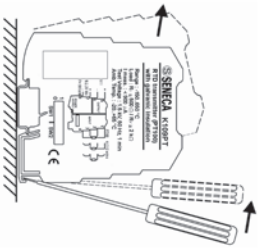
K-BUS CONNECTOR



INSERTION OF THE MODULE IN THE GUIDE



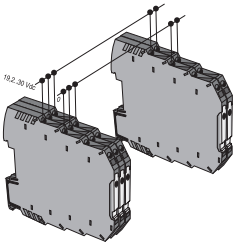
EXTRACTION OF THE MODULE FROM THE GUIDE



POWER SUPPLY TECHNOLOGIES

With the exception of the "loop powered" ones that do not have a bus power supply, the K Series signal conditioners offer 3 power options, one in traditional technology and two with the SMART SUPPLY distributed system. The direct power supply of the modules involves connecting of the source (24 Vdc) to the terminals of each instrument. The SMART SUPPLY system is based on the use of the K-BUS connector. Up to approximately 16 modules, the bus power distribution takes place by supplying a single module, provided that the total absorption is less than 400 mA. K-SUPPLY, an accessory with overvoltage protection and differential mode filter, supplies batteries with up to 75 modules, with maximum current absorption equal to 1.6 A (approximately 21 mA per module). It is also equipped with 2 independent inputs that allow it to be used as a redundant power supply system, guaranteeing the presence of power even if the source of one of the inputs fails.

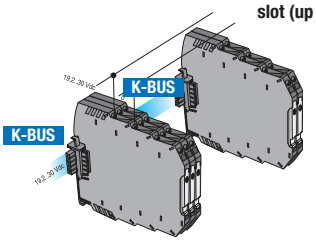
DIRECT POWER ON THE SPRING CLAMP



1

SMART SUPPLY SYSTEM

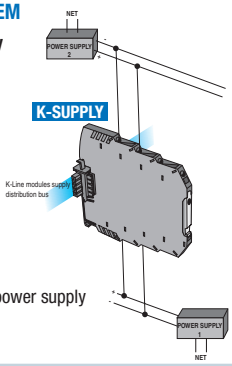
Distributed power supply with 2-K-BUS connector slot (up to 16 modules)



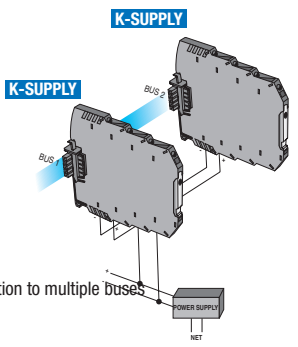
2

SMART SUPPLY SYSTEM

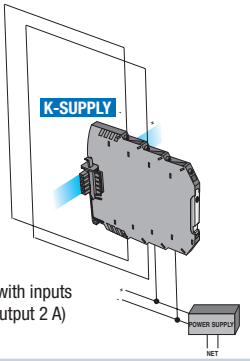
Distributed power supply via K-SUPPLY and K-BUS (up to 75 modules)



Redundant power supply



Connection to multiple buses



Connection with inputs in parallel (output 2 A)

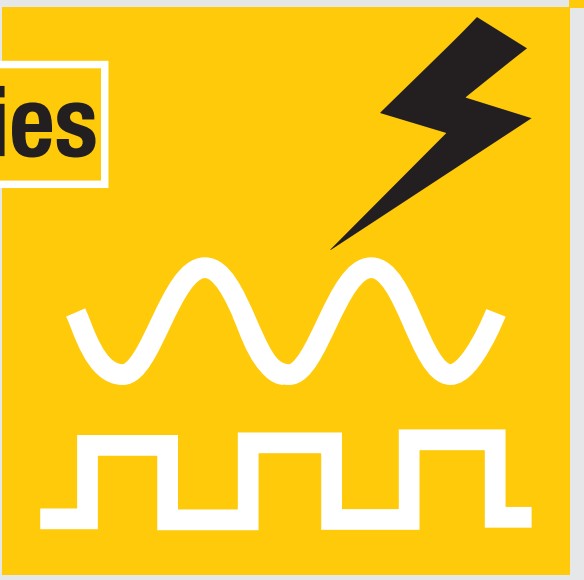
3

CONVERTERS WITH HIGH ISOLATION

4

4.3

S Series



CONVERTERS, ISOLATORS, HIGH ISOLATION POWER SUPPLIES - S SERIES

ANALOGUE CONVERTERS

S109REG


S109S


S102


S109PT


S170


S2000


IMPULSIVE CONVERTERS

S104


S111


CONTROL RELAY

S112

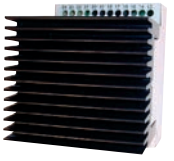

S113

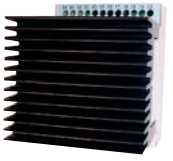

S105


STABILISED POWER SUPPLY UNITS

S50


S100S


S200


S200REG


S200G


S200D


S200DP


GENERAL CHARACTERISTICS	
Power supply	115/230 V
Transducers power supply	20Vdc
Insulation	Up to 4.5 kVac
Converted quantities	Analog, Pt100, impulsive signals
Signals output	mA, V, pulses, SPDT / SPST relay
Installation	Su profilato 35 mm (DIN 46277)

ORDER CODE	
S SERIES - ANALOGUE CONVERTERS	
S109REG-1-ST	V-I / V-I converter with galvanic isolation, power supply 115 / 230 Vac
S109REG-1-X7	V-I / V-I converter with galvanic isolation, input up to 200 Vdc
S109S-1-ST	Galvanic isolation for loop 4..20 mA, power supply 115 / 230 Vac
S102-1-ST	Ohm / V-I converter, power supply 115 / 230 Vac
S109PT-1-ST	Galvanically isolated Pt100 / V-I converter, power supply 115 / 230 Vac
S SERIES - IMPULSIVE CONVERTERS	
S104-1-ST	Isolated V-I / frequency converter, power supply 115 / 230 Vac
S111-1-ST	Frequency converter / isolated V-I , power supply 115 / 230 Vac
S SERIES - ANALOGUE PROCESSORS	
S170-1-ST	Converter duplicator, power supply 115 / 230 Vac
S190-1-ST	Summing box – subtracter, power supply 115 / 230 Vac
S2000-1-ST	Microprocessor calculation module, power supply 115 / 230 Vac
S2000-23-ST	Modulo di cacolo a microprocessore, alim. 24 Vac / dc
S-TOOL	Configuration kit Z-PROG + Z-SETUP + ZSETUP2 + Libraries Z-4XX-D + Soft2000 DOS + Soft2000WIN + communication cable
S SERIES - CONTROL RELAY	
S112A-1-ST	Power supply - amplifier for on-off sensor, 1 relay output, power supply 115 / 230 Vac
S112D-1-ST	Power supply - amplifier for on-off sensor, 2 relay output, power supply 115 / 230 Vac
S112M-1-ST	Power supply - amplifier for on-off sensor, 5 relay output, power supply 115 / 230 Vac
S112M-23-ST	Power supply - amplifier for on-off sensor, 5 relay output, power supply 24 Vac / dc
S113S-1-ST	Alarm threshold, 1 relay output
S113T-1-ST	Soglia di allarme, 3 uscite relè
Alarm threshold, 3 relay outputs	Control relay for three-phase voltages, single-phase voltages, 230 V, powered contact output
S105CS1-C	Control relay for single-phase voltages, 230 V, SPDT exchange output
S105TCS-1	Control relay for three-phase voltages, three-phase voltages, 380 V, SPDT exchange output
S105TCS-2	Control relay for three-phase voltages, three-phase voltages, 230 V, SPDT exchange output
S105TCS-3	Control relay for three-phase voltages, three-phase voltages, 400 V, SPDT exchange output
S108	Protection relay for alternating currents, power supply 115 / 230 Vac
SERIES S - STABILISED POWER SUPPLIES	
S50-1-ST	Power supply for current loop, power supply 115 / 230 Vac
S50-3-ST	Power supply for current loop, power supply 24 Vac
S100S-1-ST	Dual power supply for current loop, power supply 115 / 230 Vac
S100S-3-ST	Dual power supply for current loop, power supply 24 Vac
S109S-1-ST	Galvanic isolation for loops 0 / 4..20 mA, power supply 115 / 230 Vac
S109REG-1-ST	Converter V-I/V-I, Power Supply 115 / 230 Vac
S109REG-1-X7	V-I / V-I converter, Input up to 200 Vdc
S200-1-ST	Dual stabilised power supply, power supply 115 / 230 Vac
S200REG-16	Adjustable stabilised power supply, 14..18 Vdc - Imax 500 mA
S200REG-24	Adjustable stabilised power supply, 22..26 Vdc - Imax 350 mA
S200G	Signal generator 0..20 mA, power supply 115 / 230 Vac
S200D-1-ST	3½ digit indicator with power supply, power supply 115 / 230 Vac
S200DP-1-ST	3½ digit indicator with power supply, with settable setpoint, power supply 115 / 230 Vac

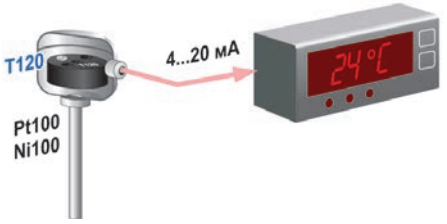
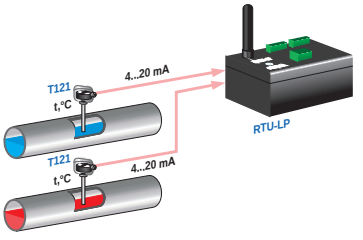
TEMPERATURE TRANSMITTERS

4

4.4

Series T120-T121

TEMPERATURE TRANSMITTERS

	T120	T121
		
	Transmitters for Pt100 and Ni100 probes with 2 loop powered wires	**Isolated universal temperature transmitter loop powered**
GENERAL DATA		
Power supply	5..30 Vdc (loop powered)	7..30 Vdc (loop powered)
Insulation and protections	-	1.5 kVac
Response time	<220 ms (<620 ms con reiezione 50-60 Hz)	< 1 s
Precision class	0.10%	0.1% (min 0.1°C for RTD and 1°C for TC)
Thermal drift	< 100 ppm (30 ppm tipico)	-
Configurations	EASY SETUP software (start / measurement full scale, connection and RTD type, rejection, measurement filter, cable resistance, fault / over-range output)	EASY SETUP software (Start / full scale, rejection, RTD type, cable resistance, over-range etc.)
Operating temperature	-40..+85°C	-40..+85°C
Connections	Spring terminals	Spring terminals
Dimensions	Ø 43.7 x 20 mm	Ø 43.7 x 20 mm
Certifications	EC	EC
Regulations	EN 61000-6-4, EN 61000-6-2 , EN 61010	EN 61000-6-4, EN 61000-6-2 , EN 61010
INPUT DATA		
Number	1	1
Type	• Pt100 Standard: EN 60751/A2 (ITS-90) Range di misura: -200..+650°C Minimum span: 20°C 2, 3, 4-wire connection • Ni100 Range di misura: -60..+650°C Minimum span: 20°C 2, 3, 4-wire connection	• Pt100 (EN 60751/A2, -200..+650°C, min span 20°C) • Ni100 (-60..+250°C, min span 20°C) • Pt500 2,3,4 wires of -200 at 650°C • Pt1000 2,3,4 wires from -200 to +200°C • TC J , K, R, S, T, B, E, N • Potentiometer: 450..1.800 ohm • Voltage: -150..+150 mV
OUTPUT DATA		
Number	1	1
Type	CURRENT (mA) 4..20, 20..4 mA (2 wires)	CURRENT (mA) 4..20, 20..4 mA (2 wires)
APPLICATION DIAGRAMS		
		

ORDER CODE				
Code	T120	Looped 2 wire transmitter for Pt100 and Ni100 probes, standard	T121	Standard isolated universal temperature transmitter
	T120-C	Looped 2 wire transmitter for Pt100 and Ni100 probes, calibrated	T121-C	Calibrated isolated universal temperature transmitter

ACCESSORIES AND SOFTWARE

Code	Description
EASY-USB	USB Converter↔ UART-TTL
EASY-SETUP / EASY-LP	Configuration software, free download from www.seneca.it
FLEX-DIN	Coupling for DIN guide
S117P1	RS232/TTL/RS485 USB serial converter complete with USB cable, TTL cable, CD driver + EASYLP

PT100 THERMOPROBES

Code	Description
PT100-100	Pt100 std Length 100 mm
PT100-100-MA	Pt100 std Length 100 mm with 4-20 mA output
PT100-150	Pt100 std Length 150 mm
PT100-150-MA	Pt100 std Length 150 mm with 4-20 mA output
PT100-200	Pt100 std Length 200 mm
PT100-200-MA	Pt100 std Length 200 mm with 4-20 mA output
PT100-250	Pt100 std Length 250 mm
PT100-250-MA	Pt100 std Length 250 mm with 4-20 mA output
PT100-300	Pt100 std Length 300 mm
PT100-300-MA	Pt100 std Length 300 mm with 4-20 mA output
PT100-50	Pt100 std Length 50 mm
PT100-50-MA	Pt100 std Length 50 mm with 4-20 mA output
PT100-A	Pt100 ambient
PT100-A-MA	Pt100 ambient with 4-20mA output
PT100-SOLAR	Pt100 single element sensor 3 Wires for photovoltaic modules
PT100-SOLAR -MA	Pt100 single element sensor 3 wires for photovoltaic modules, 4-20 mA output

The technical data and the diagrams in this document are indicative and not binding.

PROTECTION AGAINST OVERVERVOLTAGES

4

4.5

S400 Series

S400 SERIES

High efficiency Overvoltage Protections

The SENECA **S400**0 surge protectors are designed to protect electrical systems and equipment against transient and impulsive overvoltages caused by atmospheric phenomena and electrical manoeuvres. The S400 range includes:

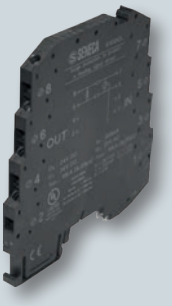
- **Scaricatori di tipo 2 e 3 per sistemi di alimentazione industriali**
- **Protections for control, measurement and regulation systems that can be used in binary and analog circuits, such as pulses, 0..10 Vdc signals and 0/4..20 mA current loop**
- **Surge protection for IT and communication networks (Token Ring, ISDN, DS1, Ethernet, Power over Ethernet, RS232 / 422/485 etc.) with extremely high transmission speed and dispersion capacity.**

S400HV-2

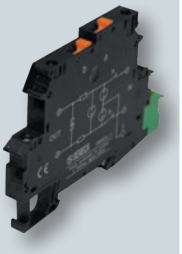
S400LV-1

S400NET

K400CL



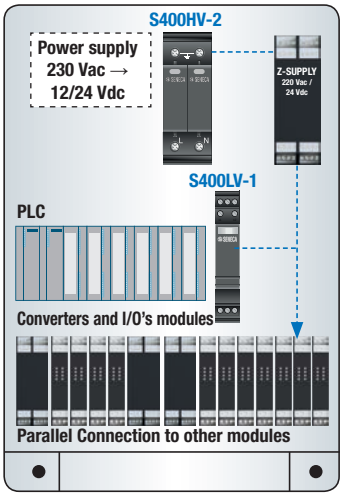
S400CL-1



S400ETH-DSK

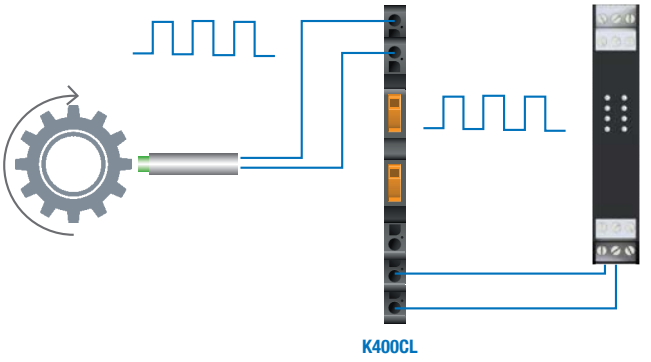
APPLICATION EXAMPLES

PROTEZIONE E ISOLAMENTO PER L'ALIMENTAZIONE TIPO 2 E TIPO 3

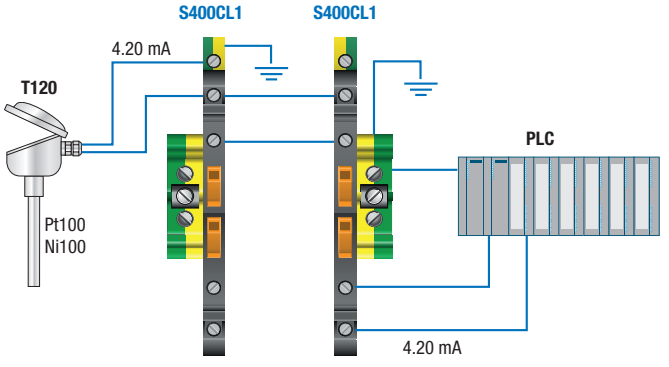


Automation panels, marshalling panels, PLC / DCS control panels and machine control, distribution panels, electrical panels, power centres, MCC panels

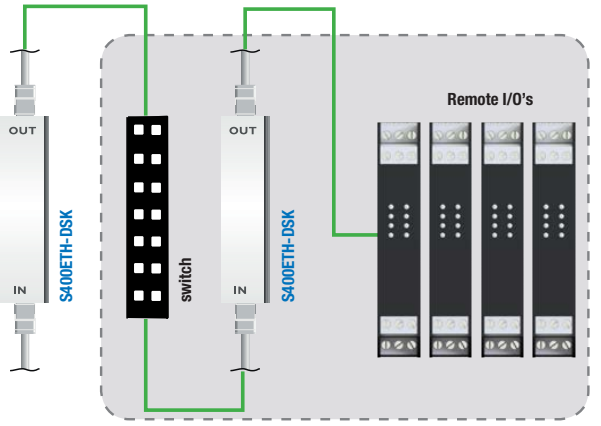
PROTECTION OF AN IMPULSIVE MEASURING DEVICE (REED, NAMUR, PNP, NPN, ECC. HALL EFFECT)



PROTECTION OF AN ANALOG MEASURING DEVICE



IT SIGNALS PROTECTION



Collegamento Ethernet con lo switch posizionato nel Quadro Elettrico in locale

HIGH EFFICIENCY INTELLIGENT OVERVOLTAGE PROTECTIONS

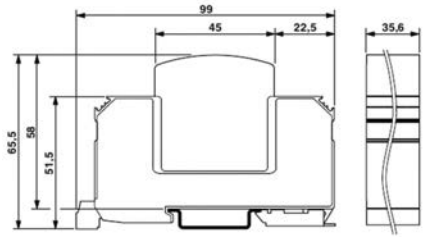
	TYPE 2/3 FOR POWER SUPPLY SYSTEMS		FOR MEASUREMENT AND CONTROL DEVICES		FOR INFORMATION NETWORKS E TLC	
	S400HV-2	**S400LV-1**	**K400CL**	**S400CL-1**	**S400ETH-DSK**	**S400NET-1**
						 NEW PRODUCT
	230 Vac overvoltage protection, type 2 with 3 conductors (L, N, PE)	**24 Vac / dc overvoltage protection, with FM contact, 3-conductor type 3 (L, N, PE)**	**Overvoltage protection for analog and logical signals, slim format. 6.2 mm**	**Overvoltage protection for analog and logic signals with knife switch**	**Overvoltage protection for Class.D/Cat.5 Ethernet networks (100 Mbps)/5e (1Gbps), PoE**	**Overvoltage protection for Ethernet, serial and bus networks field, 5 wires**
ELECTRICAL PROTECTION DATA (L-N / N-PE / L-PEN)						
IEC/EN type test class	II / T2	III / T3	C1 / C2 / C3 / D1	B2 / C1	C1 / C2 / C3 / D1	C1 / C2 / C3 / D1
UN nominal voltage	240 Vac	24 Vac/dc	24 Vdc		5 Vdc	12 Vdc
Max. permanent voltage UC	L-N 335 Vac / N-PE 260 Vac	34 Vac/dc	30 Vdc / 21 Vac	±5 Vdc (±57 Vdc / PoE+)	5,2 Vdc / 3,6 Vac	5,2 Vdc / 3,6 Vac
Nominal current dispersed In (8/20) µs	L-N 20 kA / L-PE 20 kA / N-PE 20 kA	1 kA	(wires-wire) 5 kA / (wire-earth) 5 kA	(wire-wire) 350 A / (wire-earth) 350 A	(wire-wire) 10 kA / (wire-earth) 10 kA	(wire-wire) 10 kA / (wire-earth) 10 kA
Max. Imax leak current (8/20) µs	L-N 40 kA / L-PE 40 kA / N-PE 40 kA	1 kA			(wire-wire) 10 kA / (wire-earth) 10 kA	(wire-wire) 10 kA / (wire-earth) 10 kA
Atmospheric test curr. I imp (10/350) µs per conductor			500 A			
Nominal current In			300 mA (40°C)	≤1.5 A (25°C)	450 mA (45°C)	450 mA (45°C)
Cumulative current (8/20) µs			10 kA		20 kA	20 kA
Up protection level	L-N ≤ 1,5 kV / L-PE ≤ 1,5 kV / N-PE ≤ 1,5 kV	L-N ≤ 180 V / L-PE ≤ 550 / N-PE ≤ 550	(wire-wire) ≤ 45 V / (wire-earth) ≤ 650 V	(wire-wire) ≤90 V (B2-1kV/25A) ≤ (wire-earth) 700 V (B2-1kV/25A)	(wire-wire) ≤ 45 V (C3-25A) / (wire-earth) ≤ 45 V (C3- 25A)	(wire-wire) ≤ 45 V (C3-25A) / (wire-earth) ≤ 45 V (C3- 25A)
5 kA residual voltage	L-N ≤ 1.2 kV / L-PE ≤ 1.2 kV / N-PE ≤ 150 V					
Uoc combined pulse		2 kV				
Intervention time tA	L-N ≤ 25 ns / N-PE ≤ 100 ns	L-N ≤ 25 ns / L-PE ≤ 100 ns / N-PE ≤ 100 ns	(wire-wire) ≤1 ns / (wire-earth) ≤100 ns	(wire-wire) ≤1 ns / (wire-earth) ≤100 ns	(wire-wire) ≤500 ns / (wire-earth) ≤500 ns	(wire-wire) ≤500 ns / (wire-earth) ≤500 ns
GENERAL DATA						
Back-up fuse according to IEC standard	125 A (gG) - 80 A (gG) through wiring	16 Aac - 10 Adc	315 mA	315 mA		500 mA
Resistance against short circuits (with back-up fuse) Ip	25 kA					
Frequency limit fg (3dB) symmetrical in the 50 Ohm system			type 6 MHz	type 6 MHz	> 100 MHz	type 60 MHz
Resistance for conductor			3,3 Ohm	3,3 Ohm		2,2 Ohm
Output voltage limitation to 1 kV/µs wire-wire/earth-earth					(core-core) ≤ 35V / (core-ground) ≤ 700V	(core-core) ≤ 15V / (core-ground) ≤ 15 V
Data of rigid / flexible connection	1.5..35 mm² / 1.5..25 mm²	0.2..4 mm² / 0.2..2.5 mm²	0.14..2,5 mm² / 0.2..2.5 mm²	0.2..2,5 mm² / 0.2..2.5 mm²		0.2..4 mm² / 0.2..2.5 mm²
Dimensions (lxhxp)	35.6 x 90 x 58 mm	17.7 x 90 x 65.5 mm	6.2 x 93 x 102.5 mm	6.2 x 94.8 x 69.1 mm	28 x 110 x 60 (76 with connection) mm	17.7 x 90 x 65.5 mm
Temperature range	-40°C.. +80°C	-40°C.. +80°C	-40°C.. +80°C	-40°C.. +80°C	-40°C.. +80°C	-40°C.. +80°C
Degree of Protection	IP20	IP20	IP20	IP20	IP20	IP20
UL 94 standard combustibility class	V0	V0	V0	V0	V0	V0
Casing material	PA 6.6	PA 6.6	PBT	PA 6.6	ABS	PA
Connection interface	Screw connection	Screw connection	Screw connection	Screw connection	RJ45	Screw connection (together with the base element)
Fieldbus supported					Token Ring, ISDN, DS1, Ethernet, Power over Ethernet	PROFIBUS DP, RS485, RS422, INTERBUS remote bus, CAN Bus, ModBUS RTU/ASCII/ TCP-IP
Test standards	IEC 61643-11 / EN 61643-11	EN 61643-11	IEC 61643-21 / DIN EN 61643-21 / IEC 60664-1 / EN 60079-11		IEC 61643-21 / EN 50173-1 / ISO/IEC 11801-Am.1	IEC 61643-21/A1 / EN 61643.-21/A1
Approvals	CE, UL/cUL/cULus Recognized	CE, GL, EAC	CE, UL Listed	EC	CE, UL Listed	CE, UL Listed
CONTATTO FM						
Data of rigid / flexible connection		0.2..4 mm² / 0.2..2.5 mm²				
Max operating voltage		250 Vac / 30 Vdc				
Max operating current		1.5 Aac (250 Vac) / 1 Adc (30 Vdc)				

The technical data and the diagrams in this document are indicative and not binding.

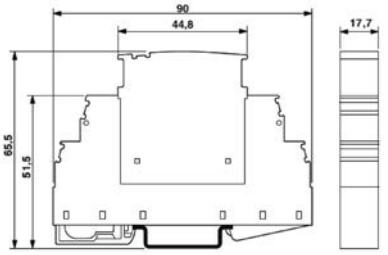
S400 SERIES

Dimensions

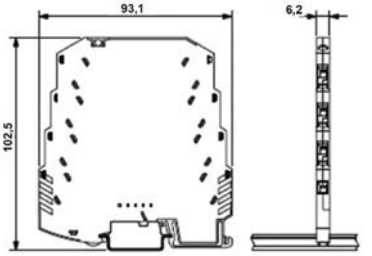
S400HV-2



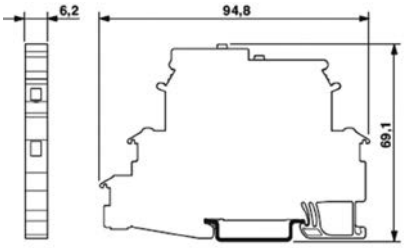
S400LV-1



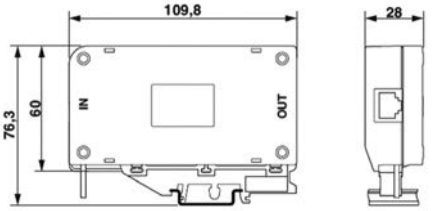
K400CL



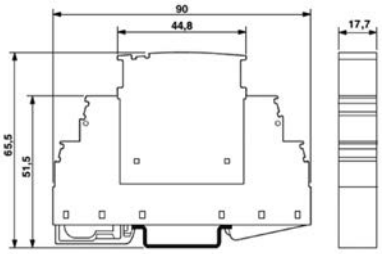
S400CL1



S400ETH-DSK



S400NET-1



Accessories

S400HV-2-RIC-SL

S400HV-2-RIC-SN

S400LV-1-RIC-SL

S400LV-1-RIC-SL

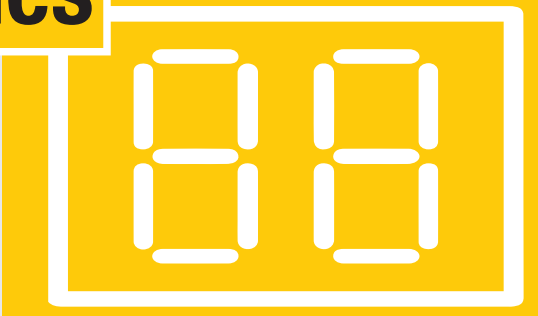
ORDER CODE	
Code	**Description**
K400CL	Overvoltage protection for analog and logical signals, slim format. 6.2 mm
K400CL-10	Kit 10 p.zi K400CL
S400HV-2	Overvoltage protection 230 Vac, type 2 with 3 conductors (L, N, PE)
S400HV-2-RIC-SL	1L-N/PE plug spare part for S400HV-2, no FM contact
S400HV-2-RIC-SN	N/PE plug spare part for S400HV2
S400LV-1	Overvoltage protection 24VAac/dc with FM contact, 3-conductor type 3 (L, N, PE)
S400LV-1-RIC-SL	Spare part 24VAC/DC plug for S400LV-1, with FM contact
S400CL-1	Overvoltage protection for analog and logic signals with knife switch
S400CL-1-15	Kit 15 p.zi S400CL-1
S400CL-1-P5	Pack of 5 pieces wall closing for S400CL-1 module
S400NET-1	Overvoltage protection for Ethernet, serial and fieldbus networks, 5 wires
S400NET-1-RIC-CL	Spare part plug for S400NET-1
S400ETH-DSK	Overvoltage protection for Class.D/Cat.5 Ethernet networks (100 Mbps)/5e (1Gbps), PoE

DIGITAL INDICATORS

4

4.6

S Series



S Series

Digital indicators with high brightness and precision

S Seriesis a family of high-brightness, high-precision LED digital indicators for industrial applications. Equipped with scalable displays with 4, 6, 8, 4 + 7 digits, the S Series digital indicators manage universal analog and digital inputs and temperature sensors with output retransmission, with ModBUS interface and relay alarm activation via optional card. The available power ranges are 80-265 Vac, 10-40 Vdc, 19-28 Vac.

The indicators allow the multiple display of instantaneous, integrated and totalised increase or decrease values. In addition to using front buttons, programming is carried out using EASY SETUP software.

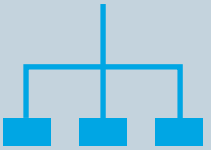
UNIVERSAL INPUT

Analog, Digital, Temperatures (RTD, TC)

RETRANSMISSION OUTPUT

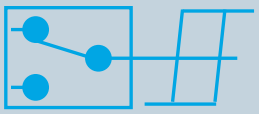
Analog or digital

OPTIONAL BOARD



ModBUS interface RS485, relay outputs SPDT, reset input

ACTIVATION ALARMS (RELAY)

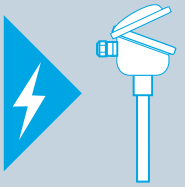


Management on threshold or hysteresis

EXTENDED threshold or hysteresis

Range 80-265 Vac; 10-40 Vdc / 19-28 Vac loop powered (S315)

TRANSDUCERS POWER SUPPLY



Scalable display with high brightness (4, 6, 8, 4 + 7 digits)

SPECIAL FUNCTIONS

TOTALISER

S311A
S311D

Integrated values (S311A) and increase / decrease totalised (S311D)

GENERATOR

S311G

Signal generation mA/V in auto/man mode, bumpless filter

BATCH COUNTER

S311D

Batch count associated with threshold (alarm / action on totaliser)

Alarm LED

Front navigation and setting keys

Self-extinguishing recessed PPO container according to DIN 43700

PRECISION

Class 0.1%
Conv. A/D 14-16 bit

ISOLATION

Output
Input

1,500 Vac

PROGRAMMING

EASY SETUP

Software PC – Windows EASY SETUP accessible via serial conv. (e.g.S107USB)

IP66 VERSIONS

S311AK
S315

PROTECTED ACCESS

FILTER IN FREQUENCY

S311D

HIGH-BRIGHTNESS AND PRECISION DIGITAL LED INDICATORS

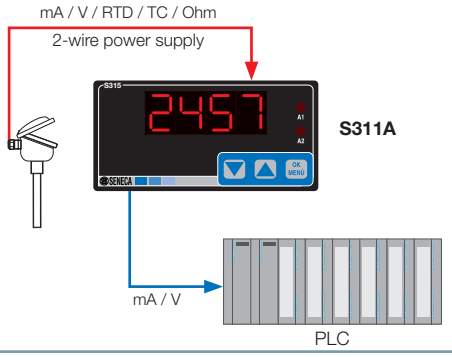
	INDICATORS / TOTALISERS COMBINABLE WITH UNIVERSAL ANALOGUE INPUT				INDICATORS / GENERATORS WITH ANALOG-ICAL INPUT
	S311A-4	**S311A-6**	**S311A-8**	**S311A-11**	**S311G**
					
	4-digit Indicator / Totaliser with input universal analogue	**6-digit Indicator / Totaliser with input universal analogue**	**8-digit Indicator / Totaliser with input universal analogue**	**11-digit Indicator / Totaliser with input universal analogue**	**Indicator Generator with 4 digits with analogue input**
GENERAL DATA					
Power supply	80-265 Vac (version H) 10-40 Vdc / 19-28 Vac (version L)	80-265 Vac (version H) 10-40 Vdc / 19-28 Vac (version L)	80-265 Vac (version H) 10-40 Vdc / 19-28 Vac (version L)	80-265 Vac (version H) 10-40 Vdc / 19-28 Vac (version L)	80-265 Vac (version H) 10-40 Vdc / 19-28 Vac (version L)
Transducers power supply	Max 18 V, 25 mA	Max 18 V, 25 mA	Max 18 V, 25 mA	Max 18 V, 25 mA	Max 18 V, 25 mA
Max absorption	3 W	3 W	3 W	3 W	3 W
Insulation	1,500 Vac	1,500 Vac	1,500 Vac	1,500 Vac	1,500 Vac
Communication interfaces	ModBUS RTU slave (optional board)	ModBUS RTU slave (optional board)	ModBUS RTU slave (optional board)	ModBUS RTU slave (optional board)	ModBUS RTU slave (optional board)
Operating temperature	-10..+60 °C	-10..+60 °C	-10..+60 °C	-10..+60 °C	-10..+60 °C
Front protection	IP65	IP65	IP65	IP65	IP65
Terminal blocks	A extraction, pitch 3.5 - 5.08 mm	A extraction, pitch 3.5 - 5.08 mm	A extraction, pitch 3.5 - 5.08 mm	A extraction, pitch 3.5 - 5.08 mm	A extraction, pitch 3.5 - 5.08 mm
Dimensions	96x48x98 mm	96x48x98 mm	96x48x98 mm	96x48x98 mm	96x48x98 mm
Weight	200 g	200 g	200 g	200 g	200 g
Display	4-digit LED	6-digit LED	8-digit LED	4+7-digit LED	4-digit LED
State indicators	2 alarm LEDs (can be activated on threshold)	2 alarm LEDs (can be activated on threshold)	2 alarm LEDs (can be activated on threshold)	2 alarm LEDs (can be activated on threshold)	2 Automatic / Manual LEDs
Front keys	3 navigation keys	3 navigation keys	3 navigation keys	3 navigation keys	3 navigation keys
Precision	0.1%	0.1%	0.1%	0.1%	0.1%
Programming	EASY SETUP Software, front keys	EASY SETUP Software, front keys	EASY SETUP Software, front keys	EASY SETUP Software, front keys	EASY SETUP Software, front keys
Special Functions	Integrator	Integrator	Integrator	Integrator	Auto/Man Mode, Signal Generator, bumpless filter
Certifications	EC	EC	EC	EC	EC
INPUT DATA					
Channels	1	1	1	1	1
Type and range	Voltage: 0-10 V Active / passive current: 0-20 mA Potentiometer: 1..100 kΩ Pt100 2,3,4 wires (IEC 751 / EN 60751 – ITS90) Thermocouple J,K,R,S,T,B,E,N	Voltage: 0-10 V Active / passive current: 0-20 mA Potentiometer: 1..100 kΩ Pt100 2,3,4 wires (IEC 751 / EN 60751 – ITS90) Thermocouple J,K,R,S,T,B,E,N	Voltage: 0-10 V Active / passive current: 0-20 mA Potentiometer: 1..100 kΩ Pt100 2,3,4 wires (IEC 751 / EN 60751 – ITS90) Thermocouple J,K,R,S,T,B,E,N	Voltage: 0-10 V Active / passive current: 0-20 mA Potentiometer: 1..100 kΩ Pt100 2,3,4 wires (IEC 751 / EN 60751 – ITS90) Thermocouple J,K,R,S,T,B,E,N	Voltage: 0-10 V Active / passive current: 0-20 mA Potentiometer: 1..100 kΩ
Frequency					
Reset	Yes, with digital input and front keys	Yes, with digital input and front keys	Yes, with digital input and front keys	Yes, with digital input and front keys	-
OUTPUT DATA					
Channels	1	1	1	1	1
Type and range	0-10 V (min 1 kΩ) 0-20 / 4-20 mA (max 500 Ω)	0-10 V (min 1 kΩ) 0-20 / 4-20 mA (max 500 Ω)	0-10 V (min 1 kΩ) 0-20 / 4-20 mA (max 500 Ω)	0-10 V (min 1 kΩ) 0-20 / 4-20 mA (max 500 Ω)	0-10 V (min 1 kΩ) 0-20 / 4-20 mA (max 500 Ω)
Relay outputs	N°2 SPDT 220 Vac 5A (resistive), 2A (inductive) - optional board	N°2 SPDT 220 Vac 5A (resistive), 2A (inductive) - optional board	N°2 SPDT 220 Vac 5A (resistive), 2A (inductive) - optional board	N°2 SPDT 220 Vac 5A (resistive), 2A (inductive) - optional board	-

The technical data and the diagrams in this document are indicative and not binding.

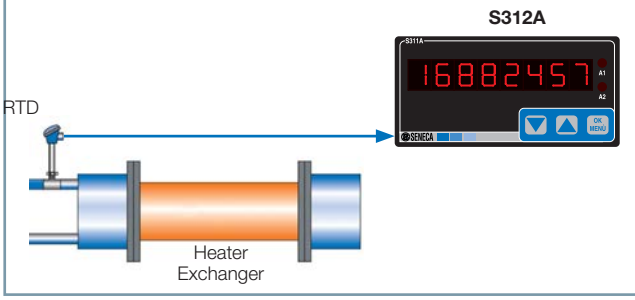
INDICATORS / COMPACTS WITH ANALOGICAL INPUT			INDICATORS / TOTALISERS / BATCH COUNTERS COMBINABLE WITH DIGITAL INPUT			
S311AK	**S312A**	**S315**	**S311D-4**	**S311D-6**	**S311D-8**	**S311D-11**
						
4-digit indicator with analogue mA/V input	**4-digit indicator with universal analogue input, 4 relay outputs, ModBUS interface**	**4-digit indicator with 4-20 mA input, loop powered**	**Indicator / Totaliser / 4-digit Batch counter with digital / frequency input**	**Indicator / Totaliser / 6-digit Batch counter with digital / frequency input**	**Indicator / Totaliser / 8-digit Batch counter with digital / frequency input**	**Indicator / Totaliser / 11-digit Batch counter with digital / frequency input**
10-40 Vdc, 19-28 Vac	80-265 Vac (version H) 10-40 Vdc / 19-28 Vac (version L)	From measurement loop (max 30 V)	80-265 Vac (version H) 10-40 Vdc / 19-28 Vac (version L)	80-265 Vac (version H) 10-40 Vdc / 19-28 Vac (version L)	80-265 Vac (version H) 10-40 Vdc / 19-28 Vac (version L)	80-265 Vac (version H) 10-40 Vdc / 19-28 Vac (version L)
Max 16 V, 25 mA	Max 16 V, 25 mA	-	Max 18 V, 25 mA	Max 18 V, 25 mA	Max 18 V, 25 mA	Max 18 V, 25 mA
0.9 W	3 W	-	3 W	3 W	3 W	3 W
1,500 Vac	1,500 Vac	-	1,500 Vac	1,500 Vac	1,500 Vac	1,500 Vac
-	ModBUS RTU slave	-	ModBUS RTU slave (optional board)	ModBUS RTU slave (optional board)	ModBUS RTU slave (optional board)	ModBUS RTU slave (optional board)
-10..+65°C	-10..+65°C	-10..+65°C	-10..+60 °C	-10..+60 °C	-10..+60 °C	-10..+60 °C
IP65	IP65	IP65	IP65	IP65	IP65	IP65
With detachable screw, pitch 5.08 mm	With detachable screw, pitch 5.08 mm	With detachable screw, pitch 5.08 mm	A extraction, pitch 3.5 – 5.08 mm	A extraction, pitch 3.5 – 5.08 mm	A extraction, pitch 3.5 – 5.08 mm	A extraction, pitch 3.5 – 5.08 mm
96 x 48 x 40 mm	96x 48x 96 mm	96 x 48 x 40 mm	96x48x98 mm	96x48x98 mm	96x48x98 mm	96x48x98 mm
100 g	200 g	100 g	200 g	200 g	200 g	200 g
4-digit LED	4-digit LED	4-digit LED	4-digit LED	6-digit LED	8-digit LED	4+7-digit LED
-	Alarms	-	2 alarm LEDs (can be activated on threshold)	2 alarm LEDs (can be activated on threshold)	2 alarm LEDs (can be activated on threshold)	2 alarm LEDs (can be activated on threshold)
3 navigation keys	3 navigation keys	3 navigation keys	3 navigation keys	3 navigation keys	3 navigation keys	3 navigation keys
0.05%	0.05%	0.05%	0.1%	0.1%	0.1%	0.1%
Front keys	EASY SETUP Software, front keys	Front keys	EASY SETUP Software, front keys	EASY SETUP Software, front keys	EASY SETUP Software, front keys	EASY SETUP Software, front keys
-	-	-	Totalizer, Threshold alarm (batch)	Totalizer, Threshold alarm (batch)	Totalizer, Threshold alarm (batch)	Totalizer, Threshold alarm (batch)
EC	EC	EC	EC	EC	EC	EC
1	1	1	1	1	1	1
Voltage: 0-10 V Current: 0-20 mA	Voltage: 0..10 V Current: 0..20 mA Potentiometer: 1..100 kΩ Pt100 2,3,4 wires (IEC 751/EN 60751 – ITS90) Thermocouple J,K,R,S,T,B,E,N	Current 4..20 mA	Mechanical, Reed, Npn 2 and 3-wire contact, 3-wire Pnp with 24 Vdc power supply, Namur, Photoelectric, Variable Reluctance, 24V Pulse, TTL	Mechanical, Reed, Npn 2 and 3-wire contact, 3-wire Pnp with 24 Vdc power supply, Namur, Photoelectric, Variable Reluctance, 24V Pulse, TTL	Mechanical, Reed, Npn 2 and 3-wire contact, 3-wire Pnp with 24 Vdc power supply, Namur, Photoelectric, Variable Reluctance, 24V Pulse, TTL	Mechanical, Reed, Npn 2 and 3-wire contact, 3-wire Pnp with 24 Vdc power supply, Namur, Photoelectric, Variable Reluctance, 24V Pulse, TTL
-	-	-	0.00015 Hz .. 10 kHz	0.00015 Hz .. 10 kHz	0.00015 Hz .. 10 kHz	0.00015 Hz .. 10 kHz
-	-	-	Yes, with digital input and front keys	Yes, with digital input and front keys	Yes, with digital input and front keys	Yes, with digital input and front keys
	1 analog, 4 relays	-	1	1	1	1
-	0-10 V (min 1kΩ) 0-20 / 4-20 mA (max 500 Ω)	-	0-10 V (min 1kΩ) 0-20 / 4-20 mA (max 500 Ω)	0-10 V (min 1kΩ) 0-20 / 4-20 mA max 500 Ω)	0-10 V (min 1kΩ) 0-20 / 4-20 mA max 500 Ω)	0-10 V (min 1kΩ) 0-20 / 4-20 mA max 500 Ω)
-	Relay Capacity 5A - 250 Vac	-	N°2 SPDT 220 Vac 5A (resistive), 2A (inductive) - optional board	N°2 SPDT 220 Vac 5A (resistive), 2A (inductive) - optional board	N°2 SPDT 220 Vac 5A (resistive), 2A (inductive) - optional board	N°2 SPDT 220 Vac 5A (resistive), 2A (inductive) - optional board

APPLICATION EXAMPLES

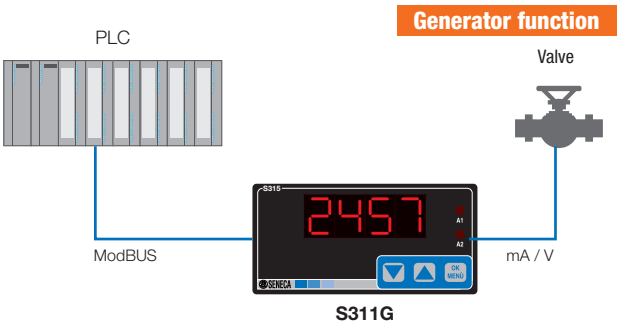
DISPLAY OF ANALOGUE AND RETRANSMISSION SIGNAL TO PLC



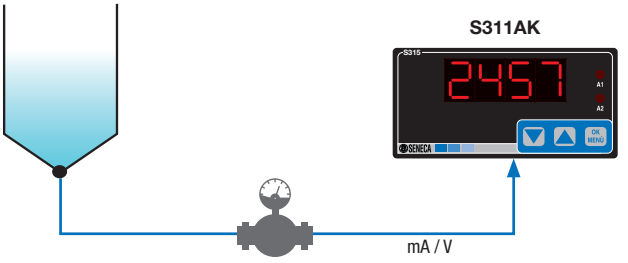
DATA DISPLAY FOR CALCULATION OF CONSUMPTIONS – HEAT EXCHANGER



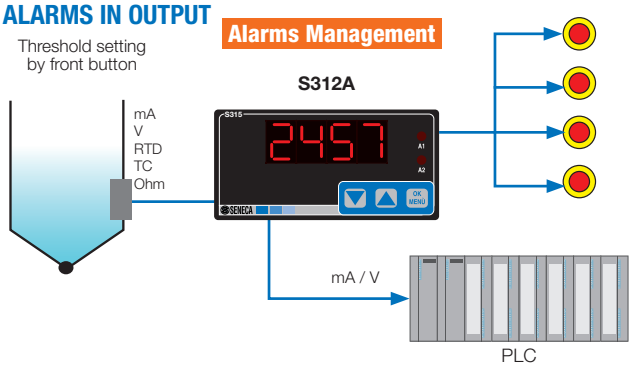
SIGNAL GENERATION IN AUTO/MAN MODE AND BUMPLESS FUNCTION



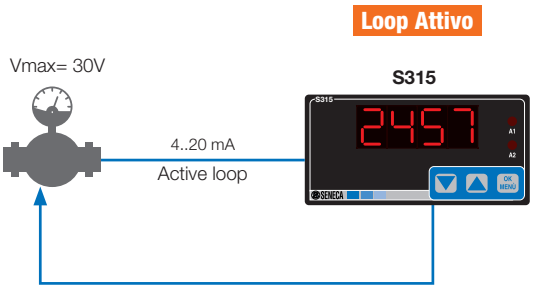
INSTANT DISPLAY ANALOG SIGNAL FROM SENSOR



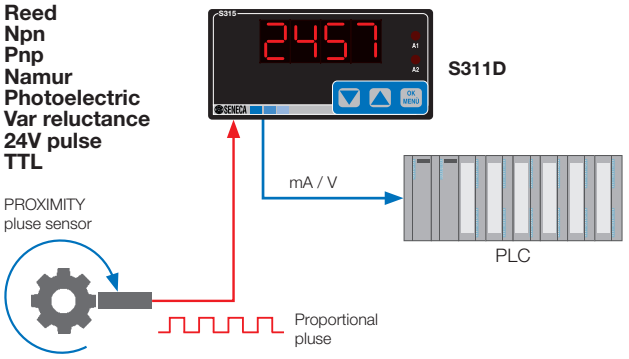
SIGNAL DISPLAY AND RETRANSMISSION WITH ALARMS IN OUTPUT



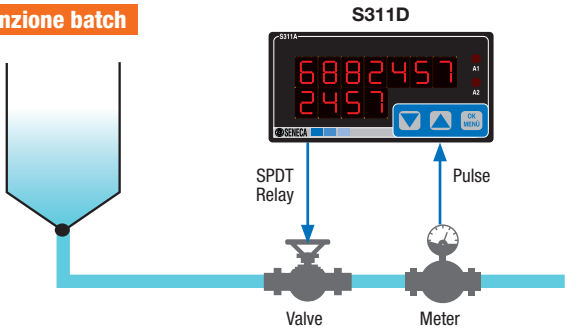
ANALOG SIGNAL DISPLAY FROM TRANSDUCER WITH ACTIVE LOOP



VISUALIZATION AND TOTALISATION OF IMPULSIVE SIGNAL



OUTPUT ACTIVATION WITH TOTALISER FUNCTION / BATCH COUNTER



ORDER CODES

MODULAR INDICATORS / TOTALISERS WITH UNIVERSAL ANALOGUE INPUT

Code		Description
Base model	S311A	Indicator / totaliser with universal analog input
Display	-4	4-digit LED
	-6	6-digit LED
	-8	8-digit LED
	-11	4+7-digit LED
Power supply	-L	10-40 Vdc / 19-28 Vac
	-H	80-265 Vac
Scheda opzionale	-0	Board no. 2 SPDT relay, ModBUS RTU interface, reset input

INDICATORS / GENERATORS WITH ANALOGUE INPUT

Code		Description
Base model	S311G	Indicatore / generatore di segnale con ingresso analogico
Display	-4	4-digit LED
Power supply	-L	10-40 Vdc / 19-28 Vac
	-H	80-265 Vac
Optional board	-0	ModBUS RTU

COMPACT INDICATORS / TOTALISERS WITH ANALOGUE INPUT

Code	Description
S311AK-4-L	4-digit indicator with analogue mA/V input, 10-40 Vdc, 19-28 Vac
S311AK-4-L-IP66	4-digit indicator with analogue mA/V input, 10-40 Vdc, 19-28 Vac, with IP66 casing (130x80x60 mm)
S311AK-4-L-IP66D	4-digit indicator with analogue mA/V input, 10-40 Vdc, 19-28 Vac, 2 instruments and double IP66 casing
S312A-4-H-4R	Indicator with 4-digit display, universal analog input, 4 relay outputs, ModBUS interface, 85-265 Vac
S312A-4-L-4R	Indicator with 4-digit display, universal analog input, 4 relay outputs, ModBUS interface, 10-40 Vdc, 19-28 Vac
S315	4-digit loop powered indicator, 4-20 mA input4-digit indicator with analogue mA/V input, 10-40 Vdc, 19-28 Vac
S315-IP66	4-digit powered loop indicator, 4-20 mA input with IP66 casing (130x80x60 mm)
S315-IP66D	4-digit loop powered indicator, 4-20 mA input, 2 instruments and dual IP66 casing

MODULAR BATCH INDICATORS / TOTALISERS / COUNTERS WITH DIGITAL INPUT

Code		Description
Base model	S311D	Indicator / totaliser / batch counter with digital / frequency input
Display	-4	4-digit LED
	-6	6-digit LED
	-8	8-digit LED
	-11	4+7-digit LED
Power supply	-L	10-40 Vdc / 19-28 Vac
	-H	80-265 Vac
Optional board	-0	Board no. 2 SPDT relay, ModBUS RTU interface, reset input

ACCESSORIES AND SOFTWARE

Code	Description
EASY SETUP	Configuration software for S311A, S311D, S312A models
S3110PZ	Option card 2 SPDT relay alarms, Modbus interface, reset input for S311A / S311D / S311G indicators (ModBUS only)
S311-T	Calibration service for indicators - S311 Series totalisers

HIGH BRIGHTNESS LED INDICATORS WITH ANALOGUE INPUT

	S200 / S201	S301 / S301 B	S310 / S320A
			
	3 ½ digit digital indicators	**4-digit indicators with input universal analog and retransmitted output**	**3½ digit indicators with analogue input (V, I) and SPDT relay alarms**
GENERAL DATA			
Power supply	115 - 230 Vac ± 10% 50 - 60 Hz	115 - 230 Vac ± 10% 50 - 60 Hz	115 - 230 Vac ± 10% 50 - 60 Hz
Transducers power supply	+15 Vdc 350 mA e -15 Vdc 75 mA; 24 Vdc, 500 mA		
Max absorption	11 VA	4 VA	3,5 VA
Rejection	40 dB	-	-
Communication interfaces	-	RS232 / RS485, 9.600 bbs, max 1.000 m and 31 tools	-
Memories	-	EEPROM, 10 years	-
DISPLAY AND MEASUREMENT			
Display	3 ½ cifre LED red 14 mm	4 digits Bargraph 20 elements (50 mm) LED red 14 mm	3 ½ cifre LED red 14 mm
Precision	0.3%	0.1% (voltage / current input, retransmitted output) 0.2% (thermo resistance, potentiometer)	0.3%
Stability	0.01%/°C	0.01%/°C	0.01%/°C
Linearity	-	From 0.01 to 0,5%	-
Cold coupling	-	1°C (20-40°C)	-
INPUT DATA			
Channels	1	1	1
Type and range	Current: 0 – 20, 4 - 20 mA Voltage: 0 – 5/ 1-5/ 0 –10/ 2 -10 Vdc	Voltage from 200 mV to 10 V (4 scales) Current up to 20 mA Potentiometer up to 15 kOhm Pt100 (-200..+650°C) TC J,K,R,S,T,B	Current 0-20, 4-20 mA Voltage 0-2/0,4-2/0-5/1-5 (0-10, 2-10 on request) Vdc Pt100 (optional) TC K,J (optional)
Frequency		3 readings a second	
OUTPUT DATA (ANALOG)			
Channels	1	1	1
Type and range	Precision potentiometer setpoint (0/1-5 Vdc; 4-20mA active	Impressed current 0..20/4..20 mA Voltage 0..5 / 0..10 / 1..5 / 2..10 v	Active/passive opto-isolated retransmitted output 0..20 / 4..20 mA
Resolution		From 0.025% to 0.032%	
OUTPUT DATA (ALARMS)			
Contacts	-	3, 4	1, 2
Type	-	Relay SPDT 5A – 250 Vac Open collector 35 Vdc – 200 mA	Relay SPDT 5A – 250 Vac (resistive load)
THERMO-MECHANICAL DATA			
Operating temperature	-10..+60°C	-10..+55°C	0..50°C
Container	Self-extinguishing Noryl "V0" shockproof	Self-extinguishing Noryl "V0" shockproof	Self-extinguishing Noryl "V0" shockproof
Front protection	IP41	IP41	IP41
Terminal blocks	Removable	Removable	Removable
Dimensions	96x96x117 mm	96x48x148 mm (S301); 96x96x148 mm (S301B)	96x48x148 mm (S310); 96x96x148 mm (S320A)
Weight	750 g	500 g (S301); 600 g (S301B)	500 g (S310); 600 g (S320A)
SETTINGS, REGULATIONS			
Software	-	Data request and writing	-
Front keys	-	Diagnostics and programming	-
Trimmer	Zero, display span (from -999 to 1.999)	-	Zero, display span (from -999 to 1,999); alarms
Jumpers / Shunt	Decimal point	-	Full scale, alarms, input type, decimal point, retransmitted output
Conformity	EC	EC	EC

ORDER CODE	
Code	**Description**
S200-1-ST	Dual stabilised power supply, Power supply. 115 / 230 Vac
S200D-1-ST	3 ½ digit indicator with power supply, Power supply. 115 / 230 Vac
S201D-1-ST	3 ½ digit indicator with power supply, Power supply. 115 / 230 Vac, power supply 24 Vdc transducer
S201DP-1-ST	3 ½ digit indicator with power supply, Power supply. 115 / 230 Vac, power supply 24 Vdc transducer + setpoint
S301-1-R	4-digit indicator with µP universal input and retransmitted output, Power supply. 115 / 230 Vac
S301-1-R-AOC-S	4-digit indicator with µP universal input and retransmitted output, Power supply. 115 / 230 Vac, 4 open collector alarms, RS232/RS485
S301-1-R-AR-S	4-digit indicator with µP universal input and retransmitted output, Alim. 115 / 230 Vac, 3 SPDT alarms, RS232/RS485
S301-23-R	4-digit indicator with µP universal input and retransmitted output, Power supply. 24 Vac/dc
S301-23-R-AOC-S	4-digit indicator with µP universal input and retransmitted output, Alim. 24 Vac/dc, 4 open collector alarms, RS232/RS485
S301-23-R-AR-S	4-digit indicator with µP universal input and retransmitted output, Alim. 24 Vac/dc, 3 SPDT alarms, RS232/RS485

ORDER CODE	
Code	**Description**
S301B-1-R	4-digit µP indicator with universal input bargraph and retransmitted output, Power supply. 115 / 230 Vac
S301B-1-R-AOC-S	4-digit µP indicator with universal input bargraph and retransmitted output, Power supply. 115 / 230 Vac, open collector alarms, RS232/RS485
S301B-1-R-AR-S	4-digit µP indicator with universal input bargraph and retransmitted output, Supply 115 / 230 Vac, 3 SPDT, RS232/RS485 alarms
S301B-23-R	4-digit µP indicator with universal input bargraph and retransmitted output, Power supply. 24 Vac/dc
S301B-23-R-AOC-S	4-digit µP indicator with universal input bargraph and retransmitted output, Alim. 24 Vac/dc, 4 open collector alarms, RS232/RS485
S301B-23-R-AR-S	4-digit µP indicator with universal input bargraph and retransmitted output, Power supply. 24 Vac/dc, 3 SPDT alarms, RS232/RS485
S320A-1-ST	3 ½ digit indicator with V / I input and 2 relay alarms, dim. 96x96, Power supply. 115 / 230 Vac
S320A-1-ST-R	3 ½ digit indicator with V / I input and 2 relay alarms, dim. 96x96, Alim. 115 / 230 Vac, retransmitted output
S320A-23-ST	3 ½ digit indicator with V / I input and 2 relay alarms, dim. 96x96, Power supply. 24 Vac / dc
S320A-23-ST-R	3 ½ digit indicator with V / I input and 2 relay alarms, dim. 96x96, Alim. 24 Vac / dc, retransmitted output

The technical data and the diagrams in this document are indicative and not binding.

BATCH CONTROLLER

4

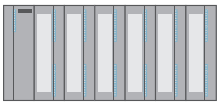
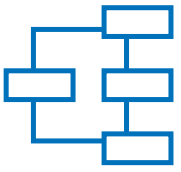
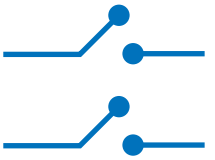
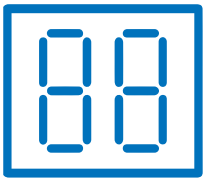
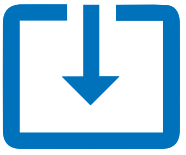
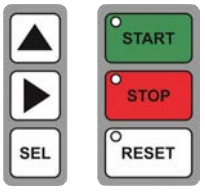
4.7

S20N1-S21N1 Series

S20N1 / S21N1

BATCH CONTROLLER WITH PULSE INPUT, LED DISPLAY AND MODBUS INTERFACE

The SENECA S20N1 and S21N1 batch controllers represent economical, simplified and safe solutions for process automation. Equipped with a 72x144 mm polycarbonate frontal membrane with 2 high-brightness red LED 5-digit numerical displays, 7 LEDs indicating the operating states and 6 front programming buttons, S20N1 and S21N1 acquire digital signals from contact, clean, contact reed, NPN transistor, namur sensor, hall effect sensor or photoelectric sensor.
The systems are designed to control measuring probes and operate valves or motors in order to manage the dosing, filling, sampling and regeneration of fluids in an automatic, timed and extremely precise form. The batch controllers S20N1 and S21N1 can be used as a stand-alone dosing unit or as an "auto-manual" station. In this second mode they act as local control units in order to correct, integrate or «manually» interrupt the dosages remotely controlled by the PLC. The flexibility and redundancy of the system, the ability to dose and develop recipes, and the energy efficiency of the controlled processes are thus improved.

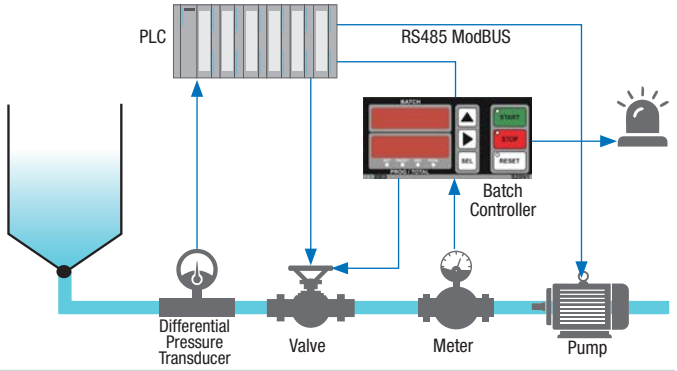
STAND-ALONE OPERATION OR AUTO-MANUAL STATION COMBINED WITH PLC	FLEXIBLE RECIPE MANAGEMENT	1 CONFIGURABLE IMPULSIVE INPUT (MAX FREQ. 2.2 KHZ)	2 DIGITAL RELAY OUTPUTS SPDT (CAPACITY 5 A, 250 V, RESISTIVE LOAD)
			
CONFIGURABLE SERIAL PORT RS485 MODBUS	**RS232 SERIAL PORT ON CONNECTOR FOR IMPACT PRINTER**	**CONTROL BOARD S20N1KIT FOR BUTTONS AND EXTERNAL LIGHTS**	**2 5-DIGIT RED LED NUMERIC DISPLAYS, HIGH-BRIGHTNESS (SET+DOSAGE)**
RS485 ModBUS			
MICRO CONNECTOR USB FOR SW/FW UPDATE	**6 FRONT PROGRAMMING BUTTONS**	**SPECIAL VERSIONS EX E IP65**	**SELF-POWERED BOARDS AMPLIFICATION INPUT**
			

APPLICATION SECTORS

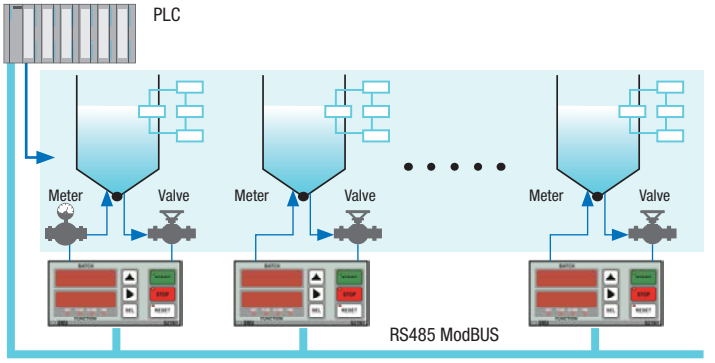
WATER TREATMENT	WASTE WATER	PRODUCTION OF WINE, BEER AND ALCOHOLIC	PAPER MILLS
			
FOOD & BEVERAGE	**PHARMACEUTICAL AND BIOENGINEERING**	**OIL & GAS**	**PRODUCTION OF SOLVENTS, DILUENTS, PAINTS**
			

APPLICATION EXAMPLES

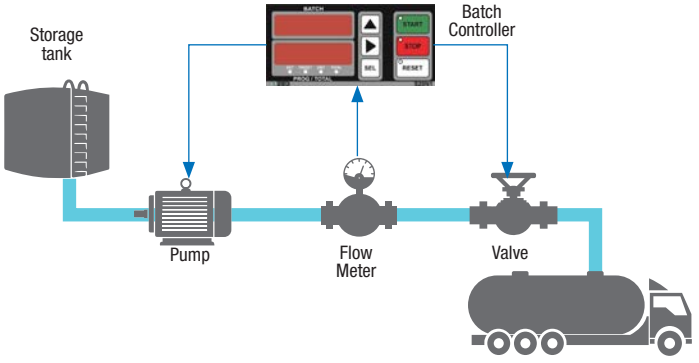
BATCH MANAGEMENT IN COMBINATION WITH PLC



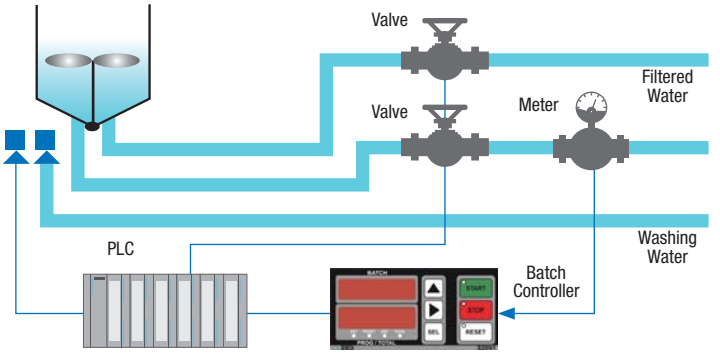
MULTI-RECIPES MANAGEMENT WITH REMOTE (PLC) OR LOCAL (AUTO-MANUAL STATION) CONTROL



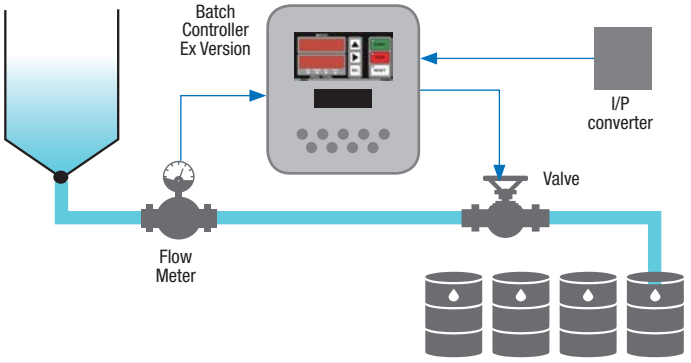
BATCH CONTROL FOR TANK TRUCK FILLING



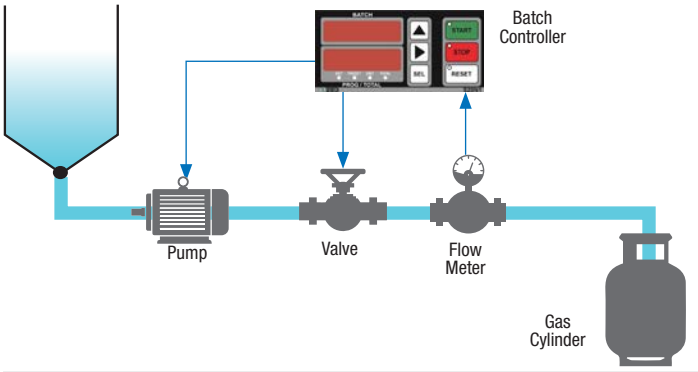
FILTER REGENERATION SYSTEM FOR THE WATER SUPPLY SECTOR



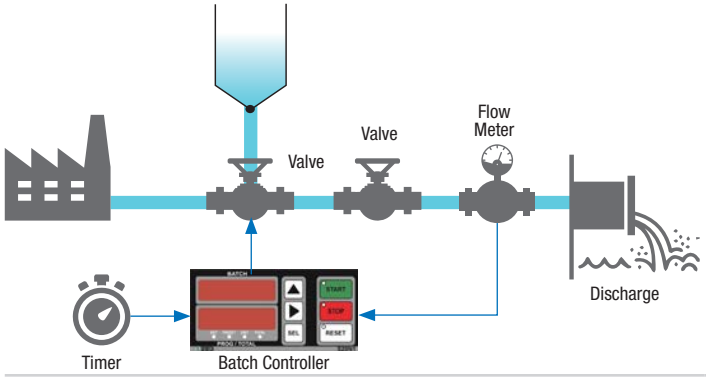
SYSTEM FOR DRUM FILLING IN A DANGEROUS ENVIRONMENT



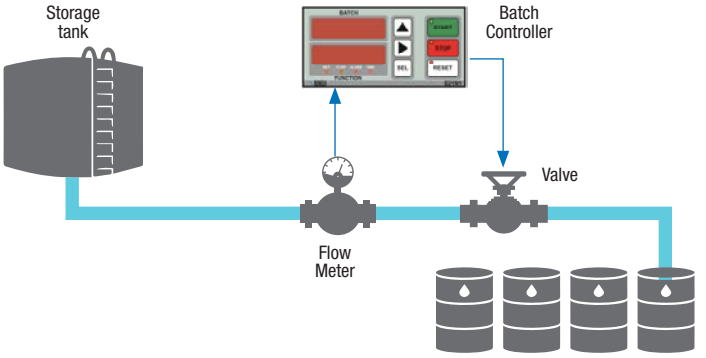
GAS REPLENISHMENT SYSTEM FOR THE ENELOGICAL SECTOR



INDUSTRIAL DISCHARGE CONTROL SYSTEM



REPETITIVE DRUM FILLING SYSTEM WITH 2-SPEED VALVE CONTROL



TOTALISERS

	S20N1	S21N1
		
	Base totaliser	**Totaliser with clock**
GENERAL DATA		
Power supply	115/230 Vac ± 50/60 Hz; 24 Vac/dc	115/230 Vac ± 50/60 Hz; 24 Vac/dc
Transducers power supply	12/24 Vdc, 30 mA (max)	12/24 Vdc, 30 mA (max)
Max absorption	10 VA	10 VA
Data archiving	EEPROM, data	EEPROM, data
Clock		Clock with autonomous battery, data memory, automatic correction of summer time
Interfaces	No. 1 RS232 (printer command) Nr.1 RS485 / MosBUS (control and monitoring data) No. 1 Micro USB (firmware update)	No. 1 RS232 (printer command) Nr.1 RS485 / MosBUS (control and monitoring data) No. 1 Micro USB (firmware update)
DISPLAY AND MEASUREMENT		
Display	2 numeric LED displays 5 digits	2 numeric LED displays 5 digits
State indicators	Start, stop, reset	Start, stop, reset
INPUT DATA		
Number of channels	1 (isolated)	1 (isolated)
Type	From sensor reed, npn (2/3 wires), Namur, Hall effect, photoelectric	From sensor reed, npn (2/3 wires), Namur, Hall effect, photoelectric
Frequency	1,000 Hz, min. pulse duration 0.1 ms	1,000 Hz, min. pulse duration 0.1 ms
Control	3 inputs (start, stop, reset)	3 inputs (start, stop, reset)
OUTPUT DATA		
Number of channels	2	2
Type	SPDT relay, range 5 A 250 B (resistive load)	SPDT relay, range 5 A 250 B (resistive load)
THERMO-MECHANICAL DATA		
Operational Temperature	0..50°C	0..50°C
Container	Self-extinguishing Noryl V0	Self-extinguishing Noryl V0
Front Protection	Polycarbonate frontal membrane	Polycarbonate frontal membrane
Connections	Removable rear terminal blocks	Removable rear terminal blocks
Dimensions (l x h x d)	144 x 72 x 130 mm	144 x 72 x 130 mm
Panel drilling dimensions	135 x 67 mm	135 x 67 mm
Weight	800 g	800 g
SETTINGS, REGULATIONS		
Programming / Dosage	Via front keys	Via front keys
Mode of operation	Stand-alone or Auto-Manual in conjunction with remote management from PLC (via RS485 - ModBUS)	Stand-alone or Auto-Manual in conjunction with remote management from PLC (via RS485 - ModBUS)
Max no. recipes	1	8
Conformity	EC	EC

ORDER CODE	
Code	**Description**
Batch Controller - Standard Versions	
S20N1-1-ST	Batch controller with pulse input, LED display and ModBUS interface, power supply 115 / 230 Vac
S20N1-23-ST	Batch controller with pulse input, LED display and ModBUS interface, power supply 24 Vac/dc
S21N1-1-ST	Batch controller with pulse input, LED display, ModBUS interface and self-powered clock, power supply 115 / 230 Vac
S21N1-23-ST	Batch controller with pulse input, LED display, ModBUS interface and self-powered clock, power supply 24 Vac/dc
Batch Controller - Versioni EX	
S20N1EX-1-ST	Batch controller with pulse input, LED display and ModBUS interface in Eexd explosion-proof casing, power supply 115 / 230 Vac
S20N1EX-23-ST	Batch controller with pulse input, LED display and ModBUS interface n Eexd explosion-proof casing, power supply 24 Vac/dc
S21N1EX-1-ST	Batch controller with pulse input, LED display, ModBUS interface and self-powered clock in Eexd explosion proof housing, power supply 115 / 230 Vac
S21N1EX-23-ST	Batch controller with pulse input, LED display, ModBUS interface and self-powered clock in Eexd explosion proof housing, power supply 24 Vac/dc

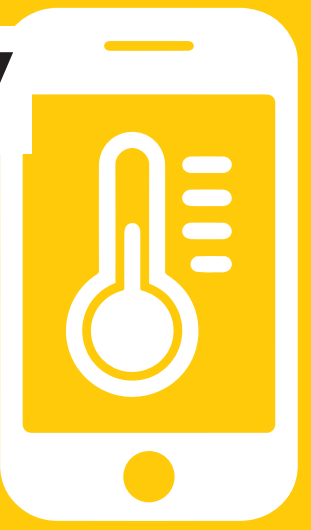
ORDER CODE	
Code	**Description**
Batch Controller - Versions IP65	
S20N1IP65-1-ST	Batch controller with pulse input, LED display and ModBUS interface in casing with IP65 protection rating, power supply 115 / 230 Vac
S20N1IP65-23-ST	Batch controller with pulse input, LED display and ModBUS interface in casing with IP65 protection rating, power supply 24 Vac/dc
S21N1IP65-1-ST	Batch controller with pulse input, LED display, ModBUS interface and self-powered clock in housing with IP65 rating, power supply. 115 / 230 Vac
S21N1IP65-23-ST	Batch controller with pulse input, LED display, ModBUS interface and self-powered clock in housing with IP65 rating, power supply. 24 Vac/dc
Accessories	
FH190-24	24 column impact printer for S21N1, power supply 9-40 Vdc
S20ADP	Standard input amplification board
S20ADP-CM	Input amplification board in modular container
S20ADP-IP65	Input amplification board in a watertight container
S20N1-KIT-1-ST	Board for power supply keys, power supply 115 / 230 Vac
S20N1-KIT-23-ST	Board for power supply keys, power supply 24 Vac/dc

PORTABLE PROFESSIONAL MEASUREMENT SYSTEMS

4

4.8

Serie MY



MY Series

PROFESSIONAL PORTABLE PROBES FOR TEMPERATURE AND HUMIDITY MEASUREMENTS

The **MY Series** is a range of portable transmitters able to transform mobile devices such as smartphones or tablets into data acquisition systems.
Easily configurable using a dedicated app, the MY Series allows the display of temperature values (RTD, TC) and humidity in analog or digital form, with sharing of the current measurement through SMS, e-mail and other data platforms.
The MY Series is the ideal candidate for professional, certified and industrial measurements in various contexts (machinery, climatic chambers, food storage and transportation, laboratories, HVAC systems) both for diagnostic purposes and for the monitoring of environmental parameters.

PIV - APP

Google play

IMMEDIATE DISPLAY OF SENSOR DATA ON SMARTPHONE OR TABLET

FREE APP AVAILABLE FOR ANDROID DEVICES WITH MICRO USB OTG

INSTANT MEASUREMENT AND SHARING VIA E-MAIL, SMS, WHATSAPP, FACEBOOK, TWITTER ETC.

PROBES AVAILABLE TYPE RTD, THERMOCOUPLE, RELATIVE HUMIDITY AND TEMPERATURE

ANALOGUE OR DIGITAL DISPLAY OF THE MEASUREMENT

MANAGEMENT OF SEVERAL TRANSMITTERS WITH THE SAME APP

RAPID SELECTION OF THE SCALES AND MEASUREMENT UNITS

M121M CONNECTOR FOR RELIABLE AND PRECISE COUPLING WITH SENSITIVE ELEMENT

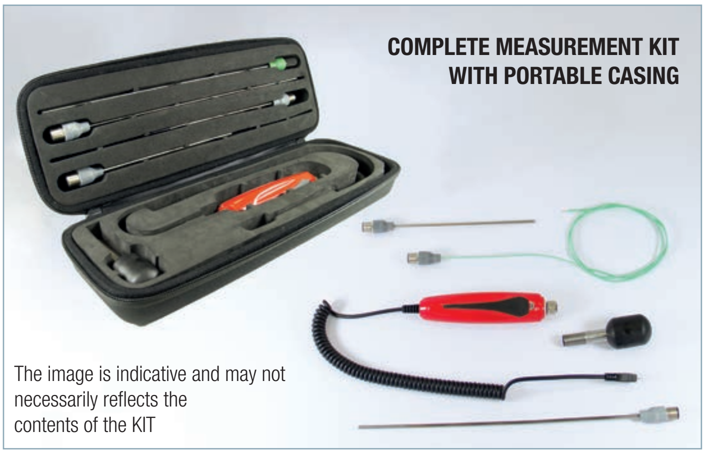
PT100 • MY-PT PROBES

	MY-PT-150-3	MY-PT-250-2	MY-PT-150-3R
			
	Portable probe PT100 class B, d=3 mm, L = 150 mm, rounded tip, M12M connector	Portable probe PT100 class B, d=2 mm, L = 250 mm, rounded tip, M12M connector	Portable probe PT100 class B, d=3 mm, L = 150 mm, rounded tip, M12M connector
GENERAL DATA			
Type of Measurement	Temperature	Temperature	Temperature
Power supply	Supplied from the USB port	Supplied from the USB port	Supplied from the USB port
Environmental conditions	-20..+50°C (grip)	-20..+50°C (grip)	-20..+50°C (grip)
Interface	Micro USB	Micro USB	Micro USB
Precision	Class B (sensor), conversion error (the highest of 1% measurement/ 0.5°C)	Class B (sensor), conversion error (the highest of 1% measurement/ 0.5°C)	Class B (sensor), conversion error (the highest of 1% measurement/ 0.5°C)
Measurement Field	-30..300°C	-30..300°C	-30..300°C
Response time	15 s	15 s	15 s
Probe connector	M12	M12	M12
Configuration system	App Android PIV APP via smarthone USB OTG	App Android PIV APP via smarthone USB OTG	App Android PIV APP via smarthone USB OTG
Functions / settings (via app)	Analogue and digital display of the measurement Maximum and minimum session storage Reset of the measurement session with indication of the measurement time Scale modification in analogue mode Changing the unit of measurement K, °C, °F, °R Recording of the current measurement with date, time, value and possibility to send it via share (on SMS, E-mail, Whatsapp)	Analogue and digital display of the measurement Maximum and minimum session storage Reset of the measurement session with indication of the measurement time Scale modification in analogue mode Changing the unit of measurement K, °C, °F, °R Recording of the current measurement with date, time, value and possibility to send it via share (on SMS, E-mail, Whatsapp)	Analogue and digital display of the measurement Maximum and minimum session storage Reset of the measurement session with indication of the measurement time Scale modification in analogue mode Changing the unit of measurement K, °C, °F, °R Recording of the current measurement with date, time, value and possibility to send it via share (on SMS, E-mail, Whatsapp)
Marking	EC	EC	EC
Regulations	EN 61326, EN 61010-1	EN 61326, EN 61010-1	EN 61326, EN 61010-1
SENSORE			
Thermoelement	Pt100, precision according to IEC 751	Pt100, precision according to IEC 751	Pt100, precision according to IEC 751
Insulation	100 MΩ a 100 Vcc	100 MΩ a 100 Vcc	100 MΩ a 100 Vcc
Connessione Elettrica	4-contact molded nylon connector with M12x1 screw-on coupling (DIN-VDE0627) with metal thread	4-contact molded nylon connector with M12x1 screw-on coupling (DIN-VDE0627) with metal thread	4-contact molded nylon connector with M12x1 screw-on coupling (DIN-VDE0627) with metal thread
Degree of Protection	IP67	IP67	IP67
Costruzione	High compact mineral insulation (MgO), sheath in AISI 316 stainless steel	High compact mineral insulation (MgO), sheath in AISI 316 stainless steel	High compact mineral insulation (MgO), sheath in AISI 316 stainless steel
Diameter	3 mm	2 mm	3 mm
Length	150 mm	250 mm	150 mm

ORDER CODE

MEASURING SYSTEM FOR PT100

Code	Description
TRANSMITTER	
MY-PT-150-3	Portable transmitter for PT100 with PT-150-3-M12 probe
MY-PT-250-2	Portable transmitter for PT100 with PT-250-2-M12 probe
MY-PT-150-3R	Portable transmitter for PT100 with PT-150-3R-M12 probe
ACCESSORIES / SPARE PARTS	
PT-150-3-M12	PT100 class B, d=3 mm, L= 150 mm, connector coupling M12
PT-250-2-M12	PT100 class B, d=2 mm, L= 250 mm, connector coupling M12
PT-150-3R-M12	PT100 class B, d = 3 mm, L = 150 mm, tapered terminal, M12 connector connection
COMPLETE MEASUREMENT KIT	
MY-PT-KIT	Portable transmitter for PT100 with PT-150-3-M12, PT-250-3-M12 and PT-150-3R-M12 probes



COMPLETE MEASUREMENT KIT WITH PORTABLE CASING

The image is indicative and may not necessarily reflects the contents of the KIT

The technical data and the diagrams on this document are indicative and not binding.

THERMOCOUPLE PROBES TYPE K • MY-TC

	MY-TC-250-3	MY-TC-250-1.5	MY-TC-AC	MY-UT
				
	Portable thermocouple probe K, d=3 mm, L=250 mm, rounded tip, M12M connector	**Portable thermocouple probe K, d=1.5 mm, L=250 mm, rounded tip, M12M connector**	**K-type thermocouple portable probe with arch, M12M connector**	**Portable probe for temperature and relative humidity measurement, M12M connector**
GENERAL DATA				
Type of Measurement	Temperature	Temperature	Temperature	Temperature / Relative humidity
Power supply	Supplied from the USB port	Supplied from the USB port	Supplied from the USB port	Supplied from the USB port
Environmental conditions	-20..+50°C (grip)	-20..+50°C (grip)	-20..+50°C (grip)	-20..+50°C (grip)
Interface	Micro USB	Micro USB	Micro USB	Micro USB
Precision	Greater of 1% of the measurement / 2° C	Greater of 1% of the measurement / 2° C	Greater of 1% of the measurement / 2° C	±3% RH (20..80% RH) ±5% (<20%UR, >80%UR) ±0.5°C at 25°C 1.5°C between -10..+60°C
Measurement Field	0..1,150 °C	0..1,150 °C	0..1,150 °C	-40..+120°C (Temp.) / 0..100% (UR)
Response time	15 s	15 s	15 s	10 s
Probe connector	M12	M12	M12	M12
Configuration system	App Android PIV APP via smarthone USB OTG	App Android PIV APP via smarthone USB OTG	App Android PIV APP via smarthone USB OTG	App Android PIV APP via smarthone USB OTG
Functions / settings (via app)	Analogue and digital display of the measurement Maximum and minimum session storage Reset of the measurement session with indication of the measurement time Scale modification in analogue mode Changing the unit of measurement K, °C, °F, °R Recording of the current measurement with date, time, value and possibility to send it via share (on SMS, E-mail, Whatsapp)	Analogue and digital display of the measurement Maximum and minimum session storage Reset of the measurement session with indication of the measurement time Scale modification in analogue mode Changing the unit of measurement K, °C, °F, °R Recording of the current measurement with date, time, value and possibility to send it via share (on SMS, E-mail, Whatsapp)	Analogue and digital display of the measurement Maximum and minimum session storage Reset of the measurement session with indication of the measurement time Scale modification in analogue mode Changing the unit of measurement K, °C, °F, °R Recording of the current measurement with date, time, value and possibility to send it via share (on SMS, E-mail, Whatsapp)	Analogue and digital display of the measurement Maximum and minimum session storage Reset of the measurement session with indication of the measurement time Scale modification in analogue mode Changing the unit of measurement K, °C, °F, °R Recording of the current measurement with date, time, value and possibility to send it via share (on SMS, E-mail, Whatsapp)
Marking	EC	EC	EC	EC
Regulations	EN 61326, EN 61010-1	EN 61326, EN 61010-1	EN 61326, EN 61010-1	EN 61326, EN 61010-1
SENSORE				
Thermoelement	Single element K thermocouple according to IEC 584 class 2 (ASTM and 230)	Single element K thermocouple according to IEC 584 class 2 (ASTM and 230)	T/C K thermocouple with compact arch	Integrated capacitive temperature and relative humidity sensor
Insulation	100 MΩ at 500 Vcc	100 MΩ at 500 Vcc	100 MΩ at 500 Vcc	
Electrical connection	Male nylon compensated connector with screw-on coupling M12x1 (DIN-VDE0627) with metal thread	Male nylon compensated connector with screw-on coupling M12x1 (DIN-VDE0627) with metal thread	Male nylon compensated connector with screw-on coupling M12x1 (DIN-VDE0627) with metal thread	Male connector in nylon molded with screw-on coupling M12x1 (DIN-VDE0627) with metal thread
Degree of Protection	IP67	IP67		
Construction	With compact mineral insulation (MgO) with insulated hot joint, Inconel 600 sheath	With compact mineral insulation (MgO) with insulated hot joint, Inconel 600 sheath	With compact mineral insulation (MgO) with insulated hot joint	Steel AISI 316 S.S. (d=6 mm)
Diameter	3 mm	1.5 mm	12 mm	6 mm
Length	250 mm	250 mm	82 mm	120 mm
Additional equipment	K thermocouple, L=1000 mm, ANSI flat FEP wire, M12M connector	K thermocouple, L=1000 mm, ANSI flat FEP wire, M12M connector	K thermocouple, L=1000 mm, ANSI flat FEP wire, M12M connector	

ORDER CODE

MEASUREMENT SYSTEM FOR TC-K

Code	Description
TRANSMITTER	
MY-TC-250-3	Portable thermocouple transmitter with TCK-250-3-M12 and TCK-W-1000-M12 probe
MY-TC-250-1.5	Portable thermocouple transmitter with TCK-250-1.5-M12 and TCK-W-1000-M12 probe
MY-TC-AC	Portable thermocouple transmitter with TCK-AC-M12 and TCK-W-1000-M12 probe
ACCESSORIES / SPARE PARTS	
TCK-250-3-M12	Thermocouple K, d=3 mm, L=250 mm, connector M12
TCK-250-1.5-M12	Thermocouple K, d=1.5 mm, L=100 mm, connector M12
TCK-W-1000-M12	K thermocouple, exposed joint, L=1000 mm, M12 connector coupling
TCK-AC-M12	K-type thermocouple with arch, M12 connector
COMPLETE MEASUREMENT KIT	
MY-TC-KIT	Portable transmitter for thermocouple with probes TCK-AC-M12, TCK-250-3-M12, TCK-250-1,5-M12 and TCK-W-1000-M12

MEASUREMENT SYSTEM FOR TEMPERATURE/HUMIDITY

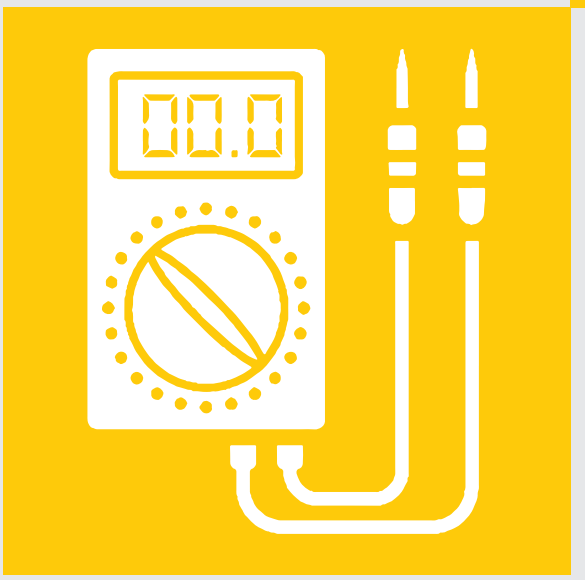
Code	Description
TRANSMITTER	
MY-UT	Temperature/humidity portable transmitter with UT-M12 probe
ACCESSORIES/SPARE	
UT-M12	Temperature / relative humidity probe, M12 connector coupling
APP DI CONFIGURAZIONE	
CONFIGURATION APP	Android app for viewing, scaling and sharing data. Working with USB OTG smartphone

The technical data and the diagrams in this document are indicative and not binding.

MULTIFUNCTION CALIBRATORS

4

4.9



Test-4

GENERATOR, PORTABLE METER WITH RAMP FUNCTION FOR ANALOGUE SIGNALS

Test-4 is a valid support for calibration sessions, laboratory tests and for the simulation of analog measurements controlled by industrial devices (PLC, regulators, data acquisition systems, etc.). With a total accuracy of less than 0.1%, a resolution of 1 µA / 1 mV, Test-4 guarantees optimal calibration results. It allows the simulation of both voltage and current ramps (active or passive).
Test-4 can be powered from a 220 Vac network through a dedicated power supply or with 2 NiMh batteries that ensure an average life of 20 hours.

TECHNICAL SPECIFICATIONS

GENERAL DATA

Power supply	2 x AA batteries of 2650 mAh type Autonomy: 8 hours (minimum load max), 20 hours (average) From 220 Vac network through dedicated power supply/battery charger
Degree of protection	IP 20
Operating temperature	0..50°C (recommended)
Humidity	30..90 % non-condensing
Dimensions	140 x 75 x 33 mm
Weight	250 g
Insulation	Battery powered instrument, intrinsically isolated
Rejection	50-60 Hz
Freq. Sampling	10 Hz
Input / output signals	Voltage measurement/generation: 0..11 V Current measurement/generation: 0..21 mA Protection ± 30 V
Precision	0.1% for each type of input/output
Resolution	0.002 mA 0.001 V
Regulations	EN61000-6-4; EN61000-6-2; EN61010-1

DATI DI FUNZIONAMENTO

Operation keys	The ESC key for functions ESC / ON/OFF device and restoring from screen saver after 7 minutes of inactivity The knob: to increase / decrease current value / voltage (exerting rotation); "weight" variation with value*10N, N=0, 1, 2, 3 (exerting pressure)
Languages available	Italian, English, German, French, Spanish
Contrast	15 levels
Screensaver	Vertical scroll display content after 7 minutes of non-use. Reset when the ESC / ON/OFF button is pressed
Function menu	General setup (selection of type of operation, type of signal, language, display contrast, encoder sensitivity) Generation (selection of voltage / current / passive current) Measurement (voltage / current selection) Generation of currents and voltages in ramp mode
Error warnings	Overvoltage Voltage reading above 11 V Under voltage Reading voltage below -0.2 V Over current Current reading greater than 21 mA Under current Current reading lower than -0.1 mA Flashing value Generating voltage / current failed

CONNECTIONS

Input / Output	Tips diameter 2 mm
Power supply	Battery charger socket, battery compartment on the back, under the protective rubber cover
Micro USB	For future implementations

EQUIPMENT

Tips

Power unit

2 NiMh batteries type AA 2650 mAh

Trasport bag

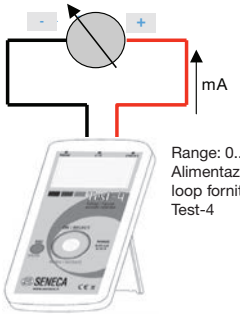
ORDER CODE

Code	Description
TEST-4	Signal generator, portable V-mA meter with ramp simulation
TEST-4-PK	Precision Kit (set of precision tips and crocodile clips) for Test-4
TEST-4-R	Precision tip set for Test-4
TEST-4-T	ISO 9001 calibration certificate for Test-4

CONNECTION DIAGRAMS

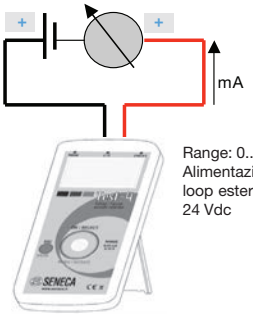
GENERAZIONE DI SEGNALE

CORRENTE ATTIVA



Range: 0..21 mA, Alimentazione loop fornita da Test-4

CORRENTE PASSIVA



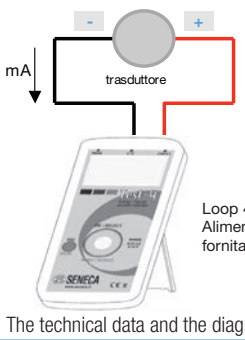
Range: 0..21 mA, Alimentazione loop esterna, max 24 Vdc

TENSIONE

Range: 0..11 V Impedenza di carico 1 kΩ

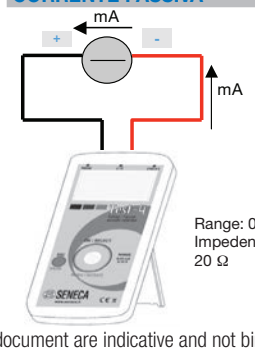
MISURA DI SEGNALE

CORRENTE ATTIVA



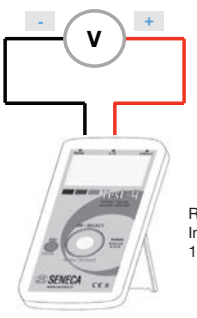
Loop 4..21 mA Alimentazione 11 V fornita da Test-4

CORRENTE PASSIVA



Range: 0..21 mA Impedenza interna 20 Ω

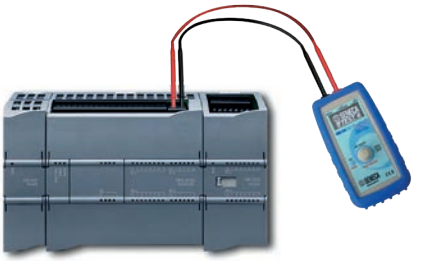
TENSIONE



Range: 0..11 V Impedenza interna 100 kΩ

APPLICATION EXAMPLE

SIMULATION OF SIGNALS FROM THE FIELD



PROCESS CALIBRATION FOR SENSORS, ACTUATORS, POSITIONERS, PLC, REGULATORS, ETC.

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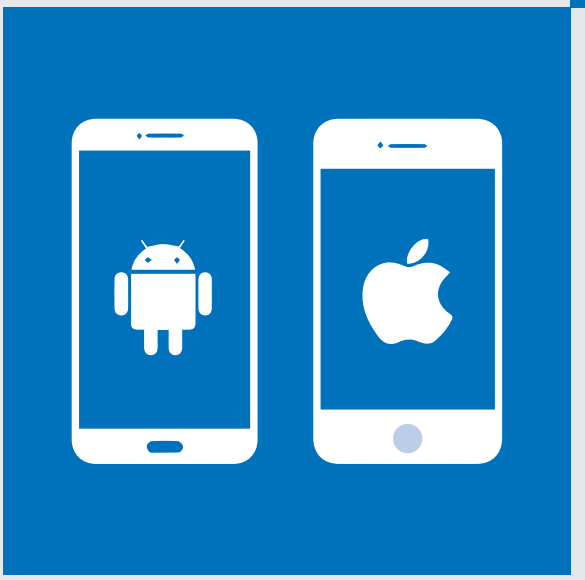
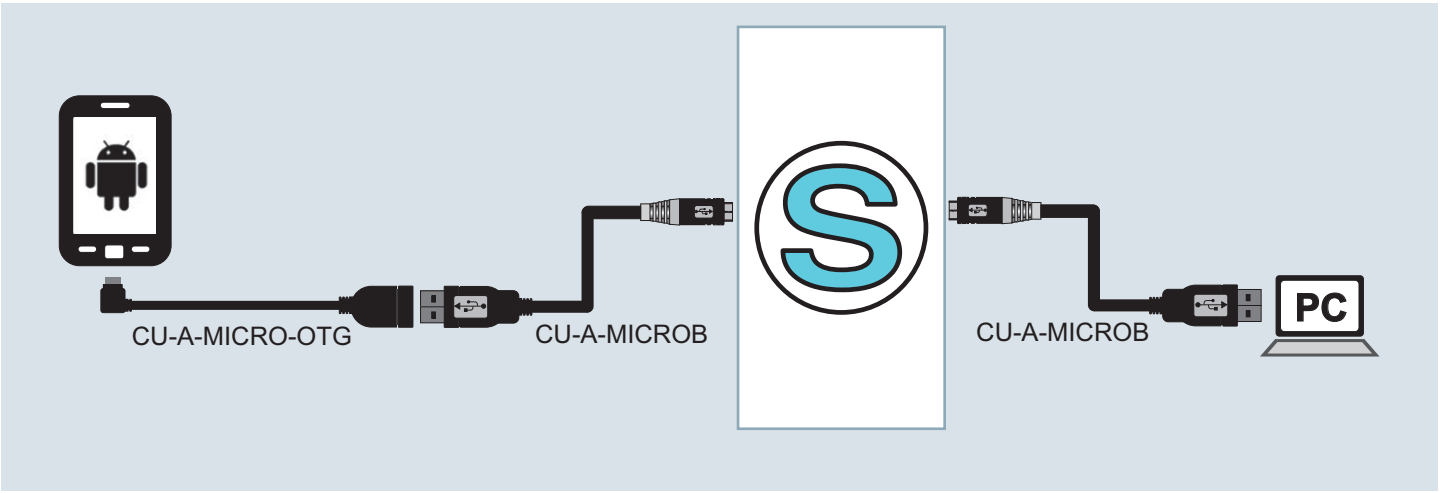
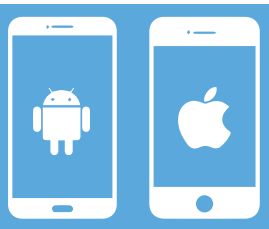
SENECA APP FOR ANDROID / IOS TERMINALS



SENECA APP FOR ANDROID / IOS TERMINALS

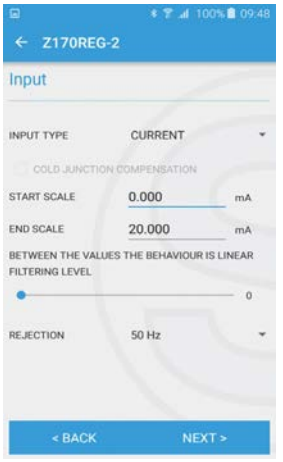


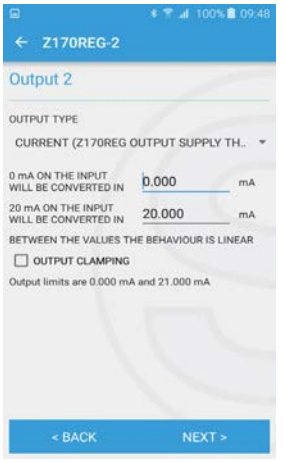


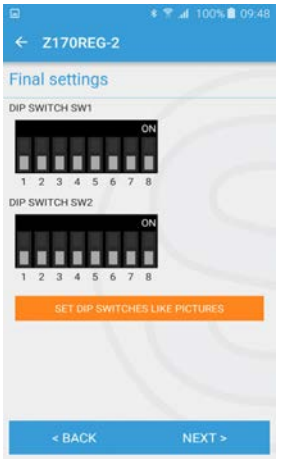
Mobile Phone with USB OTG support

Google play

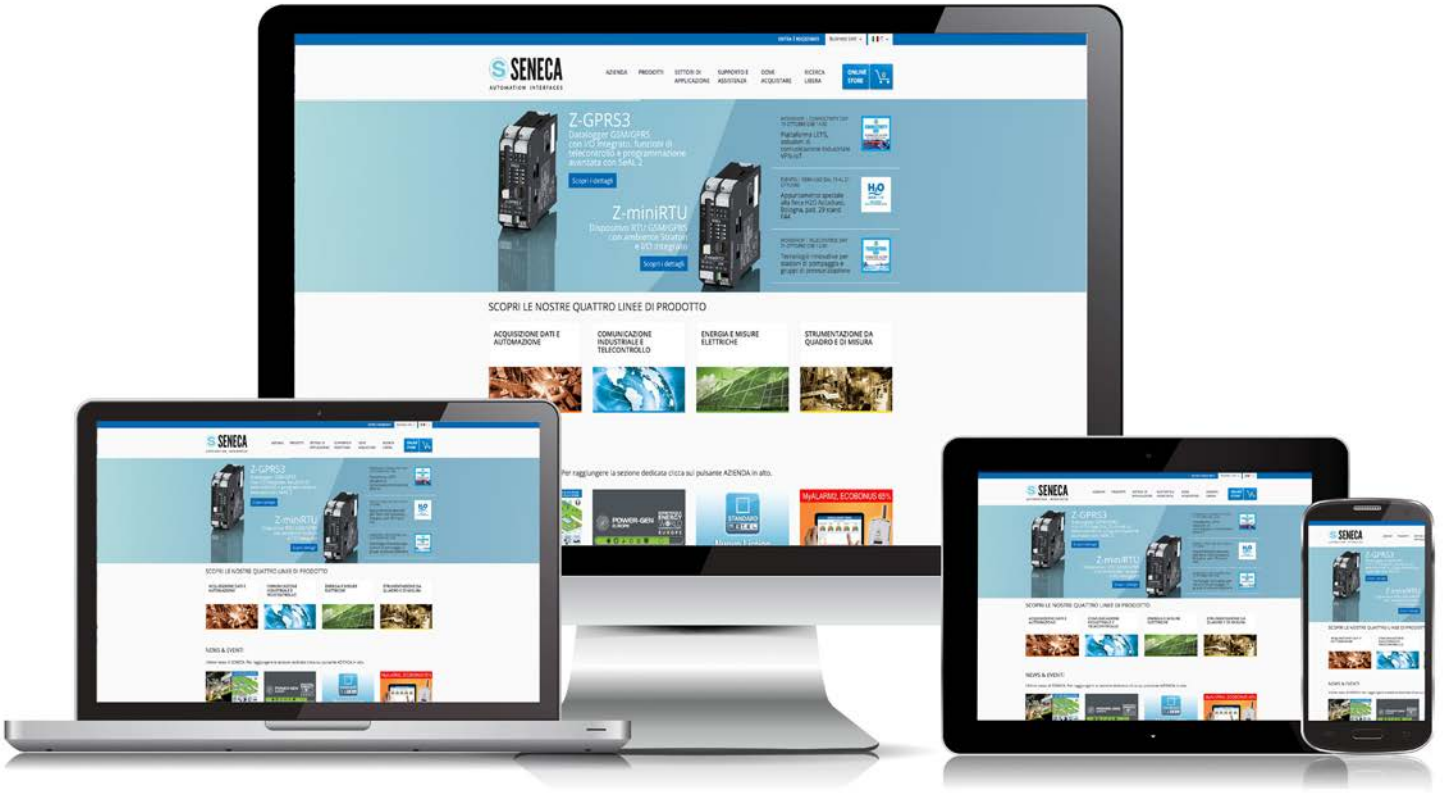
- Direct access and settings via user friendly interface
- No programming skills required
- Upload/Download quick configuration and configuration replication
- Availability of operating manuals on smartphones
- Your smartphone becomes the best configurator







PROGRAMMABLE PRODUCTS	APP	GOOGLE PLAY	APPLE STORE	USB OTG
EASY SETUP APP	Z170REG-1, Z109REG2-1, Z1090REG-BP, Z109PT2-1, Z109UI2-1 Z109TC-1, Z-KEY, S203RC-D, S203TA-D		-	
PIV APP	MY-PT, MY-UT, MY-TC		-	
SMS SENECA	MY2, Z-GPRS2-SEAL, Z-GPRS3			-
SENECA TEMP	MY2, Z-GPRS2-SEAL, Z-GPRS3		-	-
VPN CC	VPN BOX			-



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CONTACTS AND INFORMATION

Addresses

Address of Registered Office and Operating Headquarters: Via Austria 26 - 35127 Padua (I)
Tel. +39 049 8705 359 (408)
Fax +39 049 8706287

Web

Website: www.seneca.it
Documentation: www.seneca.it/cataloghi-flyers/
Support: www.seneca.it/supporto-e-assistenza/
E-commerce: www.seneca.it/vetrina/

E-mail

General information: info@seneca.it
Sales office: commerciale@seneca.it
Quality Assurance: qualita@seneca.it
Product technical support: supporto@seneca.it

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