ATEX compliant product
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

K121

ISOLATED 2-WIRE (LOOP POWERED) UNIVERSAL TRANSMITTER, ATEX ZONE 2

Highlights

- **Powered by loop**
- **Universal Input (TC, RTD 2,3,4 wires, V, mA, Ω)**
- **Output 4..20 mA (loop powered)**
- **Accuracy class 0,1%**
- **Galvanic isolation 1,5 kVac (2 ways)**
- **PC Configuration by EASY LP / EASY SETUP**
- **Operating temperature - 20..+65 °C**
- **ATEX compliant**

K121 supports all standard thermocouples, J, K, R, S, T, B, E, N, L (EN 60584) and Pt100, Pt500, Pt1000, Ni100, NI120, NI1000, Cu50, Cu100 thermoresistances with 2, 3 or 4 wires connection.
K121 also accepts voltage signals with ± 30 V and ± 150 mV and current (± 24 mA) scales. The instrument also acquires potentiometer input with resistance between 500 Ω and 10 K Ω and resistances up to 1760 Ω. K121 features a reduced response time of only 140 ms for current and voltage input and less than 620 ms for other inputs. The accuracy class is 0.1% and the measurement conversion to 16 bit. K121 is equipped with 2-way 1500 Vac galvanic isolation and is ATEX “II 3G Ex nA IIC T4 Gc X” compliant.

Logicbus

SENECA
www.seneca.it

K121

ISOLATED 2-WIRE (LOOP POWERED) UNIVERSAL TRANSMITTER, ATEX ZONE 2

TECHNICAL DATA

GENERAL DATA

Power supply	7..30 Vdc (from loop 4..20mA)
Hot swapping	Yes
Current consumption	24 mA
Power consumption	<660 mW
A/D Conversion	16 bit
Rejection	50 o 60 Hz (configurable)
Settings	software (EASY)
Filter	Added for stable reading
Dimensions (w x h x d)	6,2 x 93,1 x 102,5 mm
Isolation	1,5 KVac (3-way)
Isolation technique	Digital (optocoupler)
Data processing	32 bit floating point
Colour	Black
Enclosure	PBT
Weght	45 g
Operating temperature	-20..+65 °C
Connections	8 Clamp terminals
Protection degree	IP 20
Precision class	0,10%
Thermal drift	< 120 ppm/K
Status indicators	Fault, alarm
Programming	PC software EASY SETUP / EASY LP (by TTL port and EASY-USB or S117P1 converter)
Advanced settings	Start / End of measuring scale 2/3/4 wire RTD connection Measuring filter Normal (4 ..20 mA) or inverted output (20 ..4 mA) Input type selection Cable resistance compensation for 2-wire measurement Setting output value in case of fault Over-range Cold junction compensation
Approvals	CE, II 3G Ex nA IIC T4 Gc X, II 3D Ex tc IIIC T135°C Dc X
Norms	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)

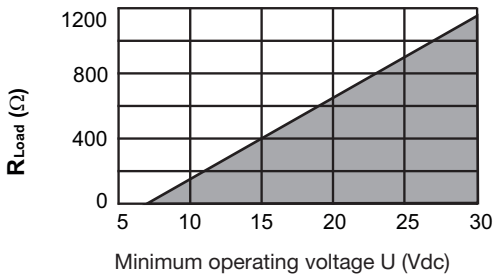
INPUT DATA

Channels	1
Type	THERMOCOUPLE J,K,R,S,T,E,B,N,L (EN 60584) RTD (Pt100, Pt500, Pt1000, Ni100, NI120, NI1000, Cu50, Cu100) 2, 3, 4 wires connection Voltage (V) ± 30V, impedance 200 kΩ Voltage (mV) ±150 mV, impedance 10 MΩ Current: ±24 mA, impedance 40 Ω Potentiometer: 500 Ω..10 KΩ Resistance: up to 1760 Ω

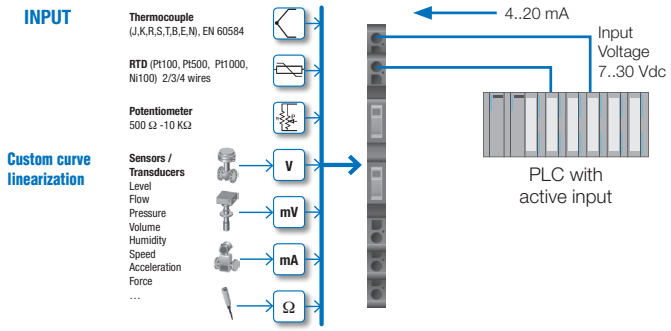
OUTPUT DATA

Channels	1
Type	CURRENT 4..20mA
Response time (10-90%)	140..620ms

LOAD RESISTANCE VS MINIMUM OPERATING VOLTAGE



APPLICATION EXAMPLE



INPUT RANGE AND MEASUREMENT ACCURACY

Type	Ingresso	Campo di Misura	Span minimo	Errore di calibrazione	Risoluzione	Standard
Thermocouple	J	-210..+1200°C	50°C	0,1%	5 µV	EN 60584
	K	-200..+1372°C	50°C	0,1%	5 µV	EN 60584
	R	-50..+1768°C	100°C	0,1%	5 µV	EN 60584
	S	-50..+1768°C	100°C	0,1%	5 µV	EN 60584
	T	-200..+400°C	50°C	0,1%	5 µV	EN 60584
	B	0..+1820°C	100°C	0,1%	5 µV	EN 60584
	E	-200..+1000°C	50°C	0,1%	5 µV	EN 60584
	N	-200..+1300°C	50°C	0,1%	5 µV	EN 60584
	L	-200..+800°C	50°C	0,1%	5 µV	GOST 8.585
RTD	Cu50	-180 ..+200°C	20°C	0,1%	6 mΩ	GOST 6651
	Cu100	-180 ..+200°C	20°C	0,1%	6 mΩ	GOST 6651
	Ni100	-60..+250°C	20°C	0,1%	6 mΩ	DIN 43760
	Ni120	-80..+260°C	20°C	0,1%	6 mΩ	DIN 43760
	Ni1000	-60..+120°C	20°C	0,1%	28 mΩ	DIN 43760
	Pt100	-200..+650°C	20°C	0,1%	6 mΩ	EN 60751/A2
	Pt500	-200..650°C	20°C	0,1%	28 mΩ	
	Pt1000	-200..+200°C	20°C	0,1%	28 mΩ	
Current	mA	-24..+24 mA	0,5 mA	0,1%	~ 1 µA	
Voltage	mV	-150..+150 mV	2,5 mV	0,1%	5 µV	
Potentiomter	Ω	500 Ω..100 kΩ	10%	0,1%	0,002%	
Resistance	Ω	0..+400 Ω	10 mΩ	0,1%	6 mΩ	
	Ω	0..+1760 Ω	50 mΩ	0,1%	28 mΩ	

ORDER CODES

Code	Description
K121	Isolated 2-wire (loop powered) universal transmitter, Atex Zone 2
K121-C	Isolated 2-wire (loop powered) universal transmitter, Atex Zone 2, configured version
ACCESSORIES	
EASY USB	USB UART TTL CONVERTER
S117P1	RS232/USB, TTL/USB, RS485/USB ASYNCHRONOUS SERIAL CONVERTER
K-SUPPLY	REDUNDANT POWER SUPPLY MODULE FOR K-LINE MODULES
K-BUS	EXPANDABLE POWER SUPPLY CONNECTOR, EN 60175
SOFTWARE	
EASY SETUP	Suite for all programmable SENECA devices
EASY LP	Sw configurator for loop powered devices

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