GUIDE OF PRODUCT TRI TRONICS
BY LOGICBUS

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TRI-TRONICS® introduces the very first Ultrasonic Clear Label Sensor with a High Performance Graphic OLED display. The OLED display provides the user with an unprecedented view of the sensor's performance, options, program modes, and helpful simple instructions never before offered in a Clear Label Sensor. Designed into the sensor are all the Ease-of-Use characteristics that have made Tri-Tronics' sensors so well known in the industry. The Ultrasonic Clear Label Sensor is the answer to what the industry has been asking for... "a reliable, durable, high quality clear label sensor that provides visual confirmation of proper setup and function..." a simple solution, with the ability to accurately adjust for repeatable and reliable performance. Now "CONFIDENTLY" walk away from the labeling line, "KNOWING" the throughput is at peak performance and trouble free.

Features

- OLED Alphanumeric Display
- 10 Bar Graphic Contrast Indicator
- Static and Dynamic Numerical Display
- One button AUTOSET (Gap Set)
- Tweak-able (Momentary Up/Down Adjustable)
- Available Timers and Delays
- Cable and Connector Version (M12 and M8)
- Removable Gap Plate
- High Speed (200µs) (1800'/548M per minute)
- Durable and Robust Housing
- Compatible with Existing Mounting Configurations
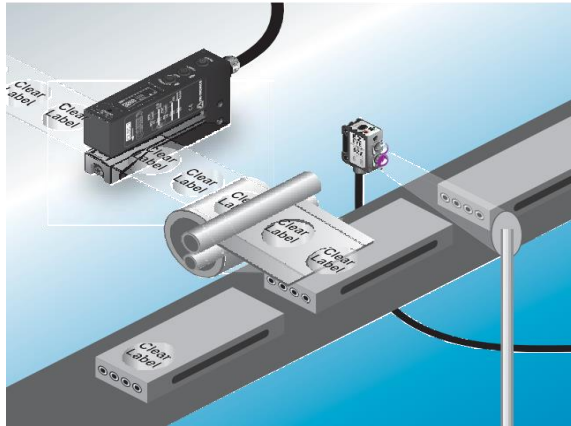
Benefits

- Easy to Set Up
- Highly Accurate and Precise
- Low Maintenance
- Affordable, Low-Cost Option
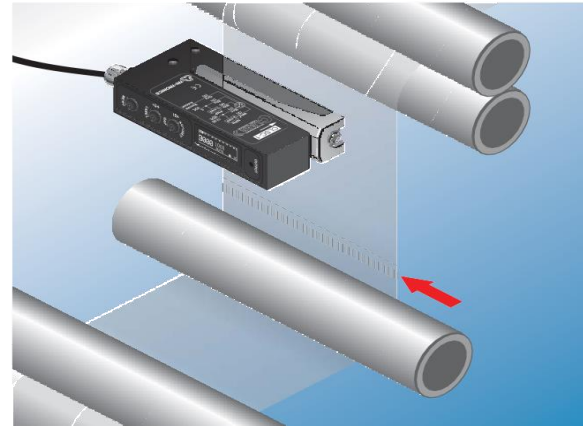- Made in USA • Durable and Reliable

Applications

- Label Rewinding
- Label Applying
- Clear, Paper, Foil, or Mylar Labels
- Splice Detection
- Fold or Crease Detection

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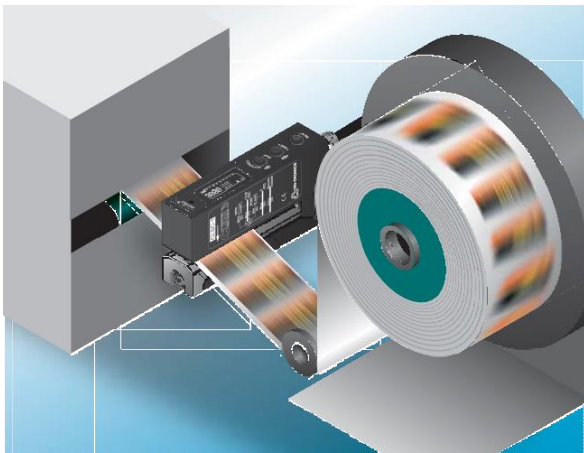GUADALAJARA, MEXI
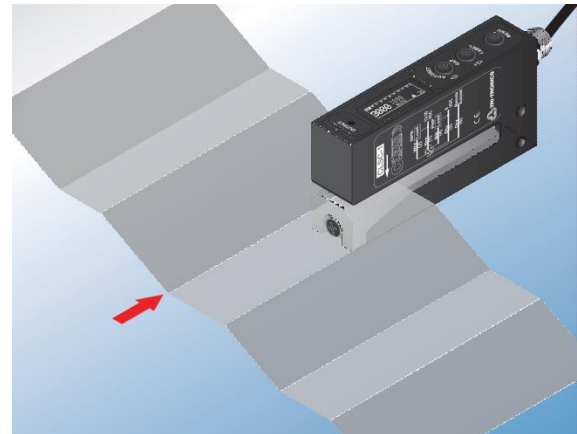+52 (33)-3854-597

Applications
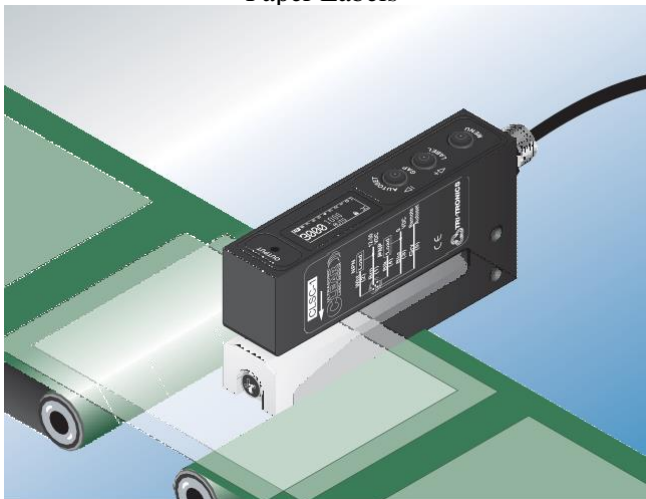

Clear Label Application
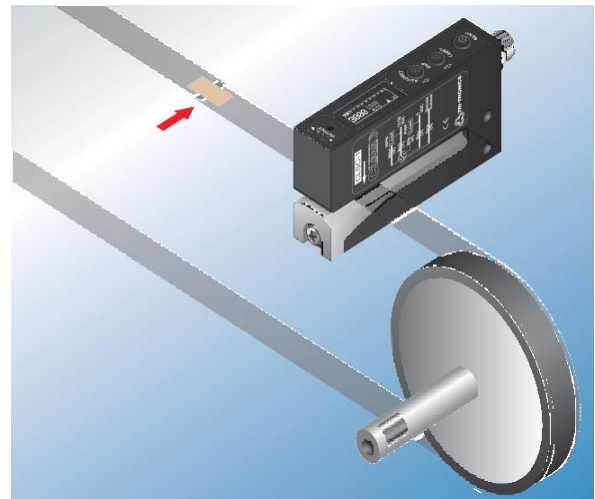

Heat Seal Detection

High Speed Rewinding...Clear, Metal Foil, or Paper Labels

Fold or Crease Detection

Double Sheet Detection

Splice Detection

Features

OUTPUT INDICATORS

Red LED illuminates when when outputs are ON

Flashes when short circuit or overload detected

AUTOSET/GAP BUTTON

1. Push and Hold with gap in view for 2 seconds for AUTOSET
2. Tap for UP on Contrast indicator, or reduce threshold
3. Changel settings in MENU options

AUTOSET/LABEL BUTTON

1. Push and Hold with gap in view for 2 seconds for AUTOSET on rare occasions when labels have multiple layers
2. Tap for UP on Contrast indicator, or increase threshold
3. Change settings in MENU options

OLED NUMERICAL DISPLAY

1. 1 to 10 bar contrast indicator
2. Numerical display for threshold and feedback number
3. Options Status Display: Button Lock or Unlock (auto adjust on/off (AUTO); output in Gap or no Label)
4. View Menu Options

MENU BUTTON

1. Push and Hold for 1 second to enter Menu Options
2. Tap to scroll through Menu Options
3. Hold during power up for additional Menu Options; Timers and Factory Diagnostics (or sensor scope)

Hardware & Accessories

4-Wire Nano Cable, M8		5-Wire Shielded MicroCable, M-12	
	• GEC-6 6' (1.8m) • GEC-15 15' (4.6m) • GEC-25 25' (7.62m)		• GSEC-6 6' (1.8m) • GSEC-15 15' (4.6m) • GSEC-25 25' (7.62m)
	• RGEC-6 6' (1.8m) right angle • RGEC-15 15' (4.6m) right angle • RGEC-25 25' (7.62m) right angle		• GRSEC-6 6' (1.8m) right angle • GRSEC-15 15' (4.6m) right angle • GRSEC-25 25' (7.6m) right angle
	GEX-9 9' (2.7m) Extension		GX-25 25' (7.6m) extension

CLS-GP Gap Plate

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The SMARTEYE® COLORMARK™ ll Registration Mark Sensor combines unique color perception ability with very high speed response. Many important features have been incorporated into the design to meet the increasing demand for precision registration control on today's higher speed packaging machinery. It provides extended operating ranges, enhanced background suppression and the elimination of saturation problems. The specific task of a photoelectric registration mark detector is to respond to printed registration marks on packaging material as they pass through the sensor's light beam. The output of the sensor must switch when the mark arrives precisely in position for the control function to occur. The resolution of the exact location of each passing registration mark is keynote to ensure that the initiation of the electromechanical response triggered by the sensor is in synchronization with the arrival of the mark.

Features

- Built-in Connectors
- Waterproof Housings
- Clutch Knob Adjustment (Offset/EDR®)
- Unique 10 LED Contrast Indicator
- Addition of EDR® (Enhanced Dynamic Range) eliminates hot spot glare effects. Works on the shiniest materials, including foils.
- Optional Pulse Stretcher guarantees a minimum of 10 milliseconds output – ample time for visual LED verification and for the control to respond.
- Choice of light source – green, red, blue, or white.

Benefits

- Minimizes downtime
- Flexible and accommodating for a variety of registration materials and marks
- Easily adjusted for optimum performance
- Very accurate and repeatable with unnoticeable migration from start up to full speed
- High Quality and High Reliability

Automation   **Sensors**   **Industrial Computers**   **Data Acquisition**   **Test & Measurement Equipment**   **North America**   **Central and South America**

Selection Guidelines

Preferred Mode: Fiber Optic Reflective (Proximity)

Based upon the characteristics of the web material, the printed mark and the sensing site conditions, the following guidelines will help to select the proper **SMARTEYE® COLORMARK™ II** to fit your sensing needs.

Sensor: Model CMSGL-1BF1 (with Pulse Stretcher) or Model CMSGL-2BF1 (w/o Pulse Stretcher). White Light Source.

Cable: Shielded cable w/connector. Right angle or straight mating connectors available.

Fiber Optic Light Guide: Model BF-A-36T (straight) or Model BF-A-36RT (right angle) as shown above. See Fiber Optic Light Guides section for availability in a wide variety of bundle sizes and shapes.

Sensing Range: From 1/4 to 3/8in. Optional lenses can be used to extend sensing ranges.

Accessories: Mounting Bracket: Model SEB-1

Alternate Mode (A): Convergent Beam V-Axis

Optional choice to detect printed registration marks on opaque or translucent packaging materials.

Sensor: Model CMSWL-1BV1G (with Pulse Stretcher) or Model CMSWL-2BV1G (w/o Pulse Stretcher). White light source.

Cable: Shielded cable w/connector. Right angle or straight mating connector available.

Sensing Range: 1in.

Accessories: Mounting Bracket: Model SEB-1

Alternate Mode (B): Fiber Optic Thru-Beam

Good choice to detect printed registration marks on transparent packaging material.

Sensor: Model CMSRL-1BF1 (with Pulse Stretcher) or Model CMSRL-2BF1 (w/o Pulse Stretcher). White light source.

Cable: Shielded cable w/connector. Right angle or straight mating connectors available.

Fiber Optic Light Guide: Model (2) F-A-36T (straight) or Model (2) F-A-36RT (right angle). See Fiber Optic Light Guides section for availability in a wide variety of bundle sizes and shapes.

Sensing Range: Recommended 2 to 3in.

Accessories: Mounting Bracket: Model SEB-1

Features

LIGHT/DARK SWITCH

Light ON/Dark ON selector switch

OUTPUT INDICATOR

Illuminates when outputs are ON.

OFFSET/EDR KNOB ADJUSTMENT

Sets initial level in relation to switch point of 5 on CONTRAST INDICATOR – also functions as a sensitivity adjustment Controls EDR® which functions to avoid glare effect

CONNECTION

M12 4-pin connector

10 LED CONTRAST INDICATOR

Provides at-a-glance analysis of the sensor's response to Light State vs Dark State sensing conditions.

INTERCHANGEABLE OPTICAL BLOCKS

Choice of two Optical Blocks: F1, V1G.

EDR INDICATOR

Intensity of GREEN LED provides indication of where in the dynamic operating range the offset, EDR® adjustment has been set.

- FULLY LIT: Operating near saturation
- OFF: Operating near maximum sensing range

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Hardware & Accessories

4-Wire Shielded MicroCable, M12		Mounting Brackets	
	• **SEC-6** 6ft (1.8m) cable • **SEC-15** 15ft (4.6m) cable • **SEC-25** 25ft (7.62m) cable		**SEB-1** Stainless L Bracket
	• **RSEC-6** 6ft (1.8m) cable/right angle connector • **RSEC-15** 15ft (4.6m) cable/right angle connector • **RSEC-25** 25ft (7.6m) cable/right angle connector		**FMB-1** (8.4 mm diam.) Standard Fiber Optic
4-Wire Extension Cable, M12			**FMB-2** (5.1 mm diam.) Mini Glass Fiber Optic
	• **BX-10** 10ft (3.1m) extension cable • **BX-25** 25ft (7.62m) extension cable		FMB-3 (3.1 mm diam.) Mini Plastic Fiber Optic

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SMARTEYE®
COLORWISE™
TRUE COLOR SENSOR

The SMARTEYE®COLORWISETM True Color Sensor is the most feature packed color sensor available. Designed to work as well as a spectrometer, this sensor can solve the most difficult color applications at higher speeds than color cameras or the closest priced competitive product. The 4-Channel monitor provides a visual confirmation of performance without having to switch channel selections or touch the sensor in any way. Providing a choice in speed versus resolution, the SMARTEYE® COLORWISETM puts the controls of the performance of the sensor in the hands of the operator; allowing for more application solutions, and removing the limits that either speed or resolution alone can offer. With control over tolerance, light intensity, output configuration (NPN or PNP), timers, input configuration (edge or gate), the SMARTEYE® COLORWISETM provides a tailored and customized solution for the most difficult color sorting or inspection problems facing today's packaging and production lines. The SMARTEYE® COLORWISETM also comes equipped with four digital and three analog outputs that not only help to sort products by color, but can determine specific color signatures as well. The SMARTEYE® COLORWISETM True Color Sensor from Tri-Tronics®: The Wisest choice you can make!

Features

- Four digital outputs (NPN or PNP)
- 4-Channel monitor for at-a-glance performance evaluation
- Three analog outputs (XYZ or xyY); 0 to 5VDC
- Adjustable tolerance for each channel
- Adjustable timers for each channel: One Shot; On Delay; Off Delay; Latch
- 14-Pin 6in (152.4mm) pigtail 1/4-turn locking connector or cable version
- Adjustable LED light intensity
- Select high speed versus high resolution (CW-1 model only)
- Short range and long range models
- Remote color capture
- Button lockout

Benefits

- Flexible and convertible for many different color applications.
- Useful for color sorting and color verification applications all in one sensor.
- No-touch setup via remote color capture wire (selectable input; NPN/Negative or PNP/Positive).
- Reduce cost and speed constraints of color cameras or spectrometers.
- Quick digital changeover.
- Tamperproof with button lockout feature.

Applications

- Automotive - trim color assembly, carpet and mat matching, paint verification
- Textile - color verification, die quality control
- Bottle industry - color sorting, color verification, quality inspection
- Food industry - cooking time control, quality inspection/control
- Graphic art - color verification, quality control, missing

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Color Sorting
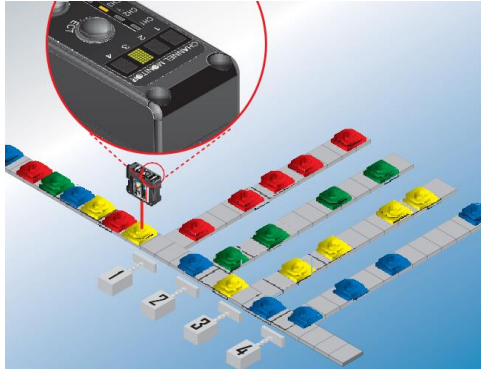
Sort items by color.

Separate grouped items by color.

Color Verification for Quality Inspection
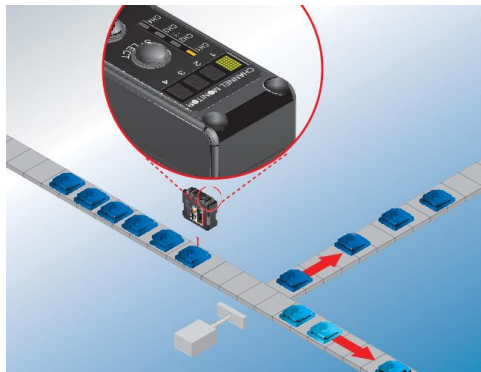
Verify proper shade of color.

Inspect for missing colors.

Color Process Control

Guarantee uniform cooking for efficient process.

Control energy usage via color process control..

Features

Color Capture (CAPT)
Setup on target color with a simple push of a button. Four individual digital channels.

Four Channel Color Monitor (CH-X)
At-a-glance visual confirmation of real time performance for all four channels. Bargraph indicates quality of color match on each channel.

Tolerance Adjustment
Precise adjustment of tolerance levels for each of the four channels provides a wide range of resolution capabilities.

Color (C) or Color + Intensity (CI)
The ability to select between color and color + intensity provides the ability to differentiate between slight color differences, or shade-to-shade changes.

Output Mode
Select LO for output ON for a color match; DO for output OFF for no color match; and MUTE to de-select channel monitor and disable output.

Speed versus Resolution
Select Uspd - Ultra High Speed (75µs); HSpd - High Speed (150µs); or HRes -high resolution (300µs).
Note: This feature available on CW-1 models only.

Light Intensity
Adjust light intensity (L100) in System Parameter from L10, dimmest to L100, brightest. Useful when mechanical restrictions limit sensor position or distance.

Timer
Timer available for each of the four channels:

Toff = No Timer; OffD = Off Delay; OnD = On Delay; Shot = One Shot; Ltch = Latch. Adjustable from 1ms to 9999ms.

Remote Capture
Pulse the Remote Capture wire to negative or positive, dependent upon the IN> setting, NPN or PNP, respectively.
Note: Each pulse on for 40ms to 400ms. The time between pulses is 40ms to 400ms.

Signal Strength Monitor
Displays the total signal strength as a number from 0 (low) to 100 (high). Useful in determining when too much or too little light is being received. Useful for setup in determining sensor position.

Input (Gate or Edge)
Provides a window of time to detect/capture the target color, allowing for inspection of color at the proper space and time during continuous product flow and normal production line speeds.

Connections
Available with standard 6ft (1.8m), 14-wire cable; or optional 6in (152.4mm) pigtail, 14-pin, 1/4-turn locking connector. Mating cable model #BCC-6.

Mounting Options
Through-hole or available bracket mounting

ALPHANUMERIC DISPLAY
1. 4-Channel Color Monitor for at-a-glance performance feedback.
2. Alphanumeric display of available options

OUTPUT INDICATORS
LED's for CH1 through CH4 ON when outputs are ON.

SELECT
1. Select sub menu.
2. Initiate color capture.
3. Alter system parameters.
4. Alter numeric values.
5. Change from Channel Monitor to Signal Strength display.

NEXT
Advance through menu options.

Note: If any output indicators (CH1 - CH4) blink, output is shorted or overloaded.

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ColorWiseRangeGuideline

0.08 in. / 2mm
0.20 in. / 5mm

0.24 in. / 6.00mm
0.22 in. / 5.50mm

0.39 in. / 10mm

0.20 in. / 5.00mm

0.59 in. / 15mm

0.19 in. / 4.75mm

0.79 in. / 20mm

0.23 in. / 5.75mm

0.98 in. / 25mm

0.31 in. / 7.75mm
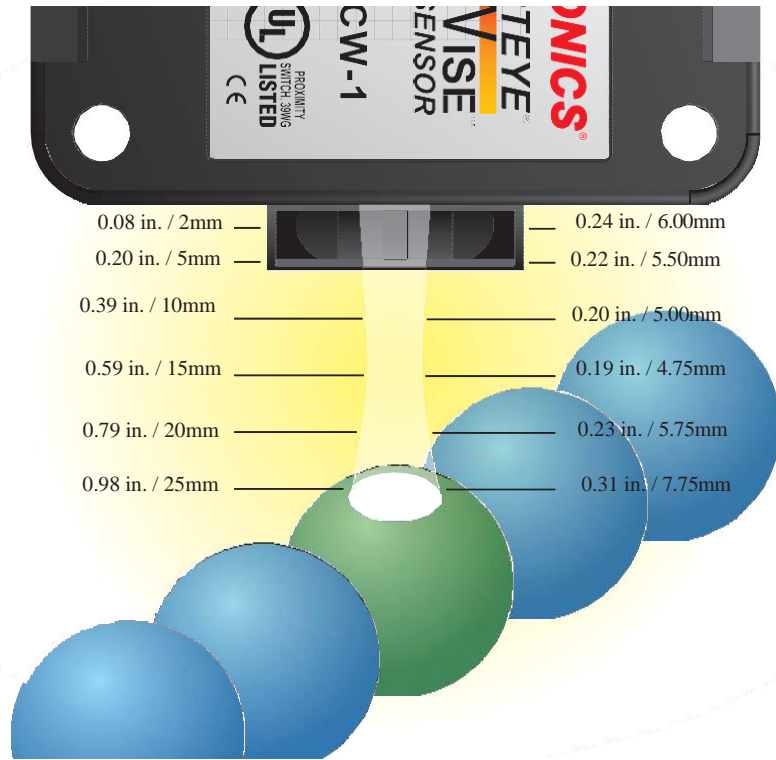
Short Range Guideline (CW-1/CW-1S)

The short range version is useful when the color is consistent across the entire product, when product is small, when the target is a color registration mark, or when the target is a specific color on a label. Applications that may be solved with the short range models are cap color, registration marks, label orientation, pharmaceutical color coding, tote sorting, etc. The short range version allows for a selection of speed versus resolution to resolve high speed color applications as well as low levels of color shade changes.

Hardware & Accessories

Extension Cable and Bracket Selection Guide
Standard ColorWise Cable

Single Channel ColorWise Cable

GSEC-6 6ft (1.8m) cable
GSEC-15 15ft (4.6m) cable
GSEC-25 25ft (7.62m) cable

GRSEC-6 6ft (1.8m) right angle
GRSEC-15 15ft (4.6m) right angle
GRSEC-25 25ft (7.6m) right angle

Mounting Brackets

XMB-1L Left

XMB-1R Right

XMB-2 *FrontMount*

SEB-4 *Stainless Steel Mounting Bracket*

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EZ™ EYE

The EZ-EYE™ miniature sensors fulfill the need for an affordable, push-button sensor that is EZ to align and EZ to adjust. Optimized for machine control automation, the setup is easy with the unique one-touch AUTOSET routine. Place the sensor in the Light State condition and push the button once for a perfect setting. Easy to select higher excess gain, tap the button twice to increase the excess gain (sensitivity). Note: Initiating the AUTOSET routine followed by tapping the button emulates a screwdriver adjustment. Unique lensed optical blocks are molded of solid, optical grade, high-impact plastic. This innovative concept helps to prevent condensation on the inside of the lens. Ten varieties of optical blocks are available for operating the EZ-EYE, such as retroreflective, polarized retroreflective, proximity, fiber optic or convergent sensing modes. A simple change of the optical block can be useful in determining the best sensing mode for your specific sensing task. These inexpensive, interchangeable optical blocks eliminate the need for discarding a complete sensor in the case of damage to the optical block.

Features

- Single button push AUTOSET
- NPN and PNP outputs
- Cable or quick disconnect
- Interchangeable optical blocks
- 500 microsecond response time
- Immune to most ambient light

Benefits

- Easy to use
- Small and compact for mechanical space issues
- Lower maintenance costs
- Reduce downtime • Increase machine throughput

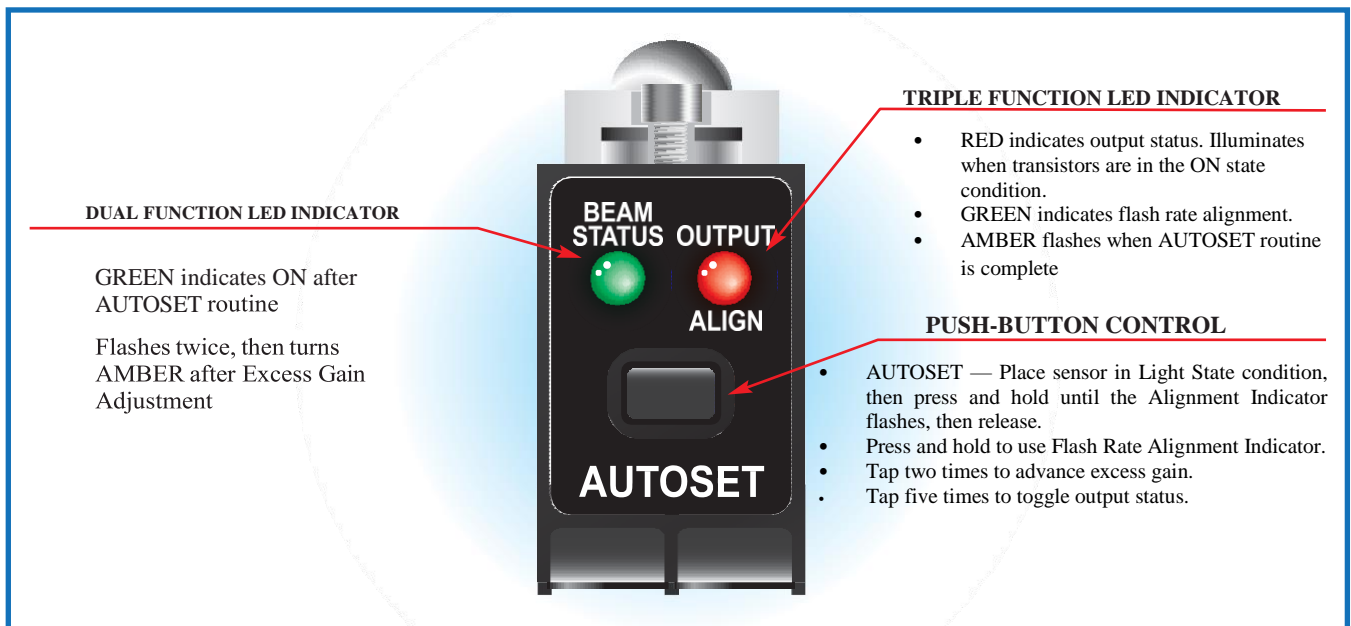### Applications

- Product presence/absence
- High speed counting
- Object detector
- Printing/Marking/Coding
- Inspection trigger

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The EZ-EYE™photoelectric sensor by TRI-TRONICS® fulfills the need for an affordable, push-button sensor that is EZ to align and EZ to adjust.

FEATURES & BENEFITS

- EZ to adjust: AUTOSET routine requires a single push of a button.
- EZ to align: Flash Rate Indicator monitors received light intensity.
- EZ to select higher excess gain: tap the button twice to increase excess gain (sensitivity). Note: Initiating the AUTOSET routine followed by tapping the button emulates a screwdriver adjustment.
- EZ to select sensing mode: choose from ten completely interchangeable optical blocks.
- EZ-EYE™ sensors are available with either infrared or red LED light sources.
- EZ EYE™ sensors are equipped with both NPN and PNP output transistors.
- Power supply requirements: 10 to 24VDC.
- Responds to sensor's pulsed modulated light source, resulting in high immunity to most ambient light, including strobes.

DUAL FUNCTION LED INDICATOR

GREEN indicates ON after AUTOSET routine

Flashes twice, then turns AMBER after Excess Gain Adjustment

TRIPLE FUNCTION LED INDICATOR

- RED indicates output status. Illuminates when transistors are in the ON state condition.
- GREEN indicates flash rate alignment.
- AMBER flashes when AUTOSET routine is complete

PUSH-BUTTON CONTROL

- AUTOSET — Place sensor in Light State condition, then press and hold until the Alignment Indicator flashes, then release.
- Press and hold to use Flash Rate Alignment Indicator.
- Tap two times to advance excess gain.
- Tap five times to toggle output status.

BEAM STATUS OUTPUT ALIGN AUTOSET

Light Source Guidelines

INVISIBLE INFRARED LIGHT SOURCE (880nm)	RED LIGHT SOURCE (660nm)
A. Best choice in most opaque object sensing tasks. B. Provides longest possible sensing range. C. Best choice in penetrating lens contamination. D. Preferred for use with small glass fiber optic light guides Note: Not recommended for plastic fiber optic light guides. E. Best for sensing dark colored (black, blue, green, etc.) objects in the proximity mode. F. Useful in penetrating containers for verification of contents, or detecting overlapped splices in dense materials.	A. Best choice for use with plastic fiber optic light guides. B. Useful when sensing translucent objects in proximity mode. B. Useful when sensing transparent objects in fiber optic retroreflective mode. C. Can be polarized for retroreflective sensing to reduce proxing on shiny objects. D. Opposed fiber optic light guides can be polarized for sensing some translucent plastic containers. E. Used as red filter for color perception advantages

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Accessories

4-Wire Nano Cable, M8

- GEC-6 6ft (1.8m) cable
- GEC-15 15ft (4.6m) cable
- GEC-25 25ft (7.62m) cable

- RGEC-6 6ft (1.8m) right angle
- RGEC-15 15ft (4.6m) right angle
- RGEC-25 25ft (7.6m) right angle

4-Wire Extension Cable, M8

- GEX-9 9ft (2.7m) extension cable

Mounting Brackets

EEB-1 Vertical Mount | **EEB-2** Horizontal Mount | **LK-4** Lens Kit (includes F4, F5, O4, O5, R4, R5, V4, V4A, V6, V8 alan wrenches and screws)

Fiber Optic Mounting Brackets
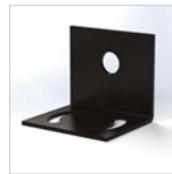
FMB-1 (8.4mm diam.) Standard Fiber Optic Mounting Bracket | **FMB-2** (5.1mm diam.) Miniature Glass Fiber Optic Mounting Bracket | **FMB-3** (3.1mm diam.) Plastic Fiber Optic Mounting Bracket

Screw Mount Reflectors

78P 4.4in x 1.9in (111.8mm x 48.3mm) | **AR3** 3in (76.2mm) diam

Prismatic High Performance Reflectors

AR4060 (40.5 x 60mm) | **AR6151, AR6151G** 2.4in x 2.0in (61 x 51mm) | **AR46** (46mm) diam.

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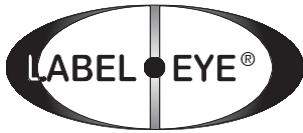
Ultra-High Speed LABEL•EYE

The Ultra-High Speed LABEL•EYE is a special purpose slot sensor optimized to sense adhesive labels adhering to a roll of backing paper and detect them to within .004in of position at web speeds of 2000 feet per minute. The web of labels is directed from a roll across a peeler plate or around a sharp edge. As the web passes around the sharp edge of the peeler plate, the adhesive label peels from the backing material. The function of the sensor is to look through the backing paper to detect the gap between the labels and signal the labeling machine to stop the dispensing mechanism before the label is completely dislodged from the backing material. With the next label protruding off the end of the peeler plate, it is now perfectly positioned to be applied to the next product as it passes by on a conveyor.

Features

- 10μs response time
- 5μs repeatability
- One button AUTOSET
- Tweakable Up/Down adjustment
- M12, M8, or cable models
- Robust electrical and mechanical design
- Remote AUTOSET on M12 models
- Waterproof

Benefits

- Easy to set up
- Highly accurate and precise
- Low maintenance
- Affordable, low-cost option
- Made in USA
- Durable and reliable

Applications

- Label rewinding
- Label applying
- Splice detection
- High speed counting
- Perforation detection
- Weld seam detection
- Registration mark sensing
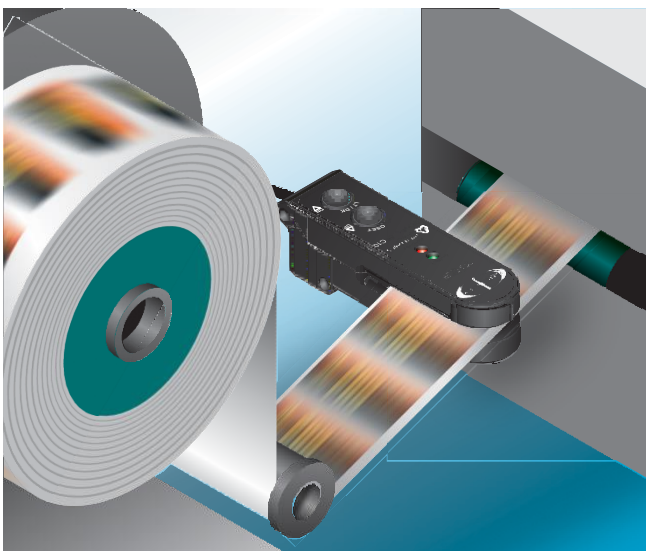
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Features

LOCATOR TABS

Helps to center gap for proper detection

AUTOSET BUTTON

1. Hold AUTOSET for 1 second when gap is in view.
2. Tap UP to increase time from threshold (less sensitive).

LT/DK BUTTON

1. Hold for one second to switch from Light On Output to Dark On Output.
2. Tap DN to decrease time to threshold (more sensitive).

CENTER OF DETECTION

This point marks the exact center of light source and receiver through-beam.

RED LED OUTPUT INDICATOR

Illuminates when output is on. Flashes when sensor is shorted or overloaded.

GREEN LED AUTOSET

Flashes rapidly during AUTOSET, for about 1/2 a second, and remains illuminated when complete.

Flashes rapidly during AUTOSET, for about one second, and then flashes slowly with red LED output indicator four times when AUTOSET incomplete.

Hardware & Accessories

4-Wire Nano Cable, M8

- **GEC-6** 6ft (1.8m)
- **GEC-15** 15ft (4.6m)
- **GEC-25** 25ft (7.62m)

- GSEC-6 6ft (1.8m)
- GSEC-15 15ft (4.6m)
- GSEC-25 25ft (7.62m)

- RGEC-6 6ft (1.8m) right angle
- RGEC-15 15ft (4.6m) right angle
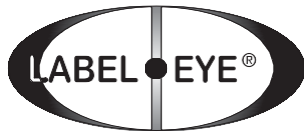- RGEC-25 25ft (7.62m) right angle

- GRSEC-6 6ft (1.8m) right angle
- GRSEC-15 15ft (4.6m) right angle
- GRSEC-25 25ft (7.6m) right angle

- GEX-9 9ft (2.7m) extension cable

- GX-25 25ft (7.6m) extension cable

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Label Sensor

The LABEL•EYE® is a special purpose gap or slot sensor optimized to sense adhesive labels adhering to a roll of backing paper. The web of labels is directed from a roll across a peeler plate or around a sharp edge. As the web passes around the sharp edge of the peeler plate, the adhesive label peels from the backing material. The function of the LABEL•EYE® is to look through the backing paper to detect the gap between the labels and signal the labeling machine to stop the dispensing mechanism before the label is completely dislodged from the backing material. With the next label protruding off the end of the peeler plate, it is now perfectly positioned to be applied to the next product as it passes by on a conveyor.

Features

- 100µs response time
- Two AUTOSET Modes: Normal or Translucent
- Cable and quick disconnect models
- NPN and PNP outputs
- One button AUTOSET

Benefits

- Easy to Setup
- Accurate and repeatable
- Easy to mount
- Common style and configuration for compatibility

Applications

- Double sheet detection
- Envelope contents sensing
- Edge guiding
- Splice detection
- Label counting
- Winder, re-winder
- Die cutter
- Label hot-printing
- High speed dispensing

Features

LOCATOR TABS

Helps to center gap for proper detection.

NORMAL BUTTON

1. AUTOSET: Press and hold for one second when backing is paper, mylar, plastic, or opaque material.
2. Hold down both buttons for two seconds to change output from Dark On to Light On.

TRANSLUCENT BUTTON

1. AUTOSET: Press and hold for one second when backing is translucent or transparent.
2. Hold down both buttons for 2 seconds to change output from Dark On to Light On.

NOTE: Optimized for opaque label sensing.

CENTER OF DETECTION

This point marks the exact center of light source and receiver through-beam.

RED LED OUTPUT INDICATOR

Illuminates when output is on. Flashes when sensor is shorted or overloaded.

RED LED OUTPUT INDICATOR

Flashes rapidly during AUTOSET, for about 1/2 a second, and remains illuminated when complete.

Flashes rapidly during AUTOSET, for about one second, and then flashes slowly with red LED output indicator four times when AUTOSET incomplete.

LABEL EYE

PLACE GAP OR WEB ON DOT

OUTPUT

AUTOSET

TRI-TRONICS®
www.ttco.com
MODEL LERC
LABEL OPACITY

NORMAL

TRANSLUCENT

Made in U.S.A.

Hardware & Accessories

4-Wire Nano Cable, M8

- **GEC-6** 6ft (1.8m)
- **GEC-15** 15ft (4.6m)
- **GEC-25** 25ft (7.62m)

- **RGEC-6** 6ft (1.8m) right angle
- **RGEC-15** 15ft (4.6m) right angle
- **RGEC-25** 25ft (7.62m) right angle

- **GEX-9** 9ft (2.7m) extension cable

5-Wire Shielded MicroCable, M12

- **GSEC-6** 6ft (1.8m)
- **GSEC-15** 15ft (4.6m)
- **GSEC-25** 25ft (7.62m)

- **GRSEC-6** 6ft (1.8m) right angle
- **GRSEC-15** 15ft (4.6m) right angle
- **GRSEC-25** 25ft (7.6m) right angle

- **GX-25** 25ft (7.6m) extension cable

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Opacity Mode Registration Mark Gap Sensor

The MARK•EYE® is a registration mark sensor designed to see printed registration marks on most packaging materials on a continuous web. The Mark•Eye utilizes a white LED light source that is optimized to detect printed registration marks on translucent, transparent, and many metallized films and paper. Most packaging materials (except foil) are translucent. Many of the translucent packaging materials allow light to penetrate either the backing material or the registration mark. Because this sensor operates in the opacity sensing mode, the color of the registration mark simply doesn't matter. The one-touch setup enables the sensor to be adjusted with a single push of a button. There is no more guess work, making the operator's adjustment procedure easy

Features

- One touch AUTOSET
- Two AUTOSET options; background lighter than mark or background darker than mark
- 100μs response time
- Remote AUTOSET; repeats last button pushed
- 15ms pulse stretcher
- Cable or M12 quick disconnect
- Accurate edge detection
- White light LED

Benefits

- Fast & Easy setup minimizes down time
- Accessible in hard to reach areas
- Reliable and repeatable performance
- Consistent detection of mark from startup to full speed, unnoticeable migration
- Simple mounting configurations - throughholes and threaded inserts

Automation   Sensors   Industrial Computers   Data Acquisition   Test & Measurement Equipment   North America   Central and South America
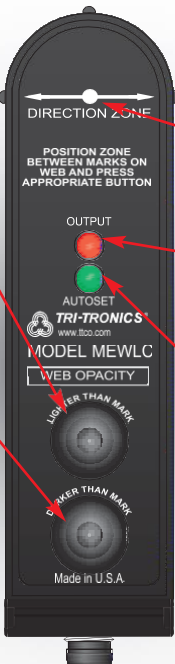
Features

LOCATOR TABS

Helps to center optics for proper detection of registration marks.

LIGHTER THAN MARK

1.   AUTOSET: Press and hold for one second with light background in view.
2.   Hold down both buttons for two seconds to change output from Dark ON to Light ON.

DARKER THAN MARK

3.   AUTOSET: Press and hold for one second with dark background in view.
4.   Hold down both buttons for two seconds to change output from Dark ON to Light ON.

NOTE: Optimized for registration mark sensing.

PULSE STRETCHER: To enable Pulse Stretcher, please refer to Setup Instructions.

DIRECTION ZONE

POSITION ZONE BETWEEN MARKS ON WEB AND PRESS APPROPRIATE BUTTON

OUTPUT

AUTOSET

TRI-TRONICS
www.ttco.com
MODEL MEWLC
WEB OPACITY

LIGHTER THAN MARK

DARKER THAN MARK

Made in U.S.A.

CENTER OF DETECTION

This point marks the exact center of light

RED LED OUTPUT INDICATOR

Illuminates when output is on. Flashes when sensor is shorted or overloaded.

CENTER OF DETECTION

Flashes rapidly during AUTOSET, for about 1/2 a second, and remains illuminated when complete. Flashes rapidly during AUTOSET, for about one second, and then flashes slowly with red LED Output Indicator four times when AUTOSET is incomplete.

Hardware & Accessories

5-Wire Shielded MicroCable, M12

- GSEC-6 6ft (1.8m) cable
- GSEC-15 15ft (4.6m) cable
- GSEC-25 25ft (7.62m) cable

5-Wire Extension Cable, M12

- GX-25 25ft (7.6m) extension cable

- GRSEC-6 6ft (1.8m) right angle connector
- GRSEC-15 15ft (4.6m) right angle connector
- GRSEC-25 25ft (7.6m) right angle connector

- GSEC-2MU 6.5ft (2.0m) unshielded cable
- GSEC-5MU 16.4ft (5.0m) unshielded cable

White Light Source

(Broadband Color Spectrum) The white light LED light source built into the MARK•EYE® promotes easy detection of the largest variety of color marks printed on the largest variety of colored web materials. • The best choice for detecting printed registration marks on packaging materials • The best choice for detecting pale yellow marks on white backgrounds.

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MARK·EYE® PRO

The MARK•EYE® PRO sensor detects printed registration marks on a continuous web running at high-speeds. It delivers high-resolution by utilizing the broadband characteristics of a white light LED for detecting the greatest variety of color combinations on any color background. The one-touch AUTOSET routine can be accomplished by pushing the appropriate button on the sensor or from a remote push-button switch. Simply put the background in view: and press the black button if the background is darker than the registration mark; or press the white button if the background is lighter than the registration mark. Utilize either apertured V-axis (V4A) lens or fiber optic light guides. We recommend using glass fiber optic light guides for detecting low contrast registration marks. Plastic light guides can also be used as well as a variety of fiber optic accessory lenses to enhance sensing performance.

Features

- White Light LED
- 175µs or 45µs models available
- Interchangeable optical blocks; Fiber Optic or V-axis lens.
- Pulse Stretch Timers; 10ms, 25ms, or 50ms selectable.
- One button push setup
- Outputs automatically configured for mark
- Remote AUTOSET wire
- Button lock
- Cable or connector version

Benefits

- Highly accurate for precise detection of marks at high speeds
- High resolutions for a variety of colored marks on various colored backgrounds
- Timers to assist in overcoming inconsistent web materials, or false triggers
- Remote setup for hard to reach areas
- Flexibility in sensing applications reduces inventory costs and setup time

Setup Guide

TRI-TRONICS MARK•EYE® PRO Series Sensors are easier to set up than conventional color mark sensors because of their unique built-in Contrast Indicator. Examples of setup instructions for various materials are shown below.

Opaque or Transparent Web Material

1. Position the sensor or fiber optic light guide to view material looking straight down.
2. Place background in view of fiber optic light guide.
3. Push button as follows: A. For dark mark on light background, push and hold the white AUTOSET button for about one second with background in view. The contrast indicator will illuminate from 1 to 5, flash, and then remain on 5. B. For a light mark on a dark background, push and hold the black AUTOSET button for about one second with background in view. The contrast indicator will illuminate from 5 to 1, flash, and then remain on 1.
4. Move mark into view to test the setup. The contrast indicator should move from 5 to 1 on a dark mark, and 1 to 5 on a light mark. If the contrast is less than a full swing, then use the buttons to manually adjust the sensor by tapping up or down to dial in the proper contrast. If the contrast is less than 5 bars of deviation, then move closer to the web.

Hints and Tips:

1. False tripping or erratic operation is usually caused by excessive web flutter, wrinkles, or variations in material background color or marks. Minor adjustments of the manual Up/Down adjustment can help to eliminate erratic operation.
2. A metal guide plate for the material to flow across provides several necessary advantages: A. Helps to iron out wrinkles. B. Helps to eliminate web flutter. C. Provides shiny background when sensing marks on transparent material.
3. For foil or shiny material with black mark, angle the sensor or fiber optic light guide slightly, 10 degrees or more.
4. For foil or shiny material with white mark, angle the sensor or fiber optic light guide by 30 degrees or more
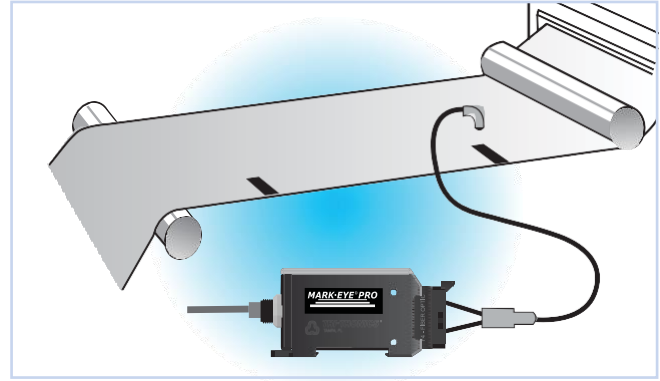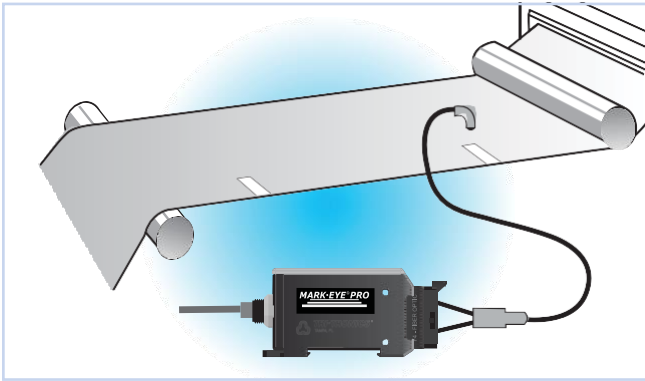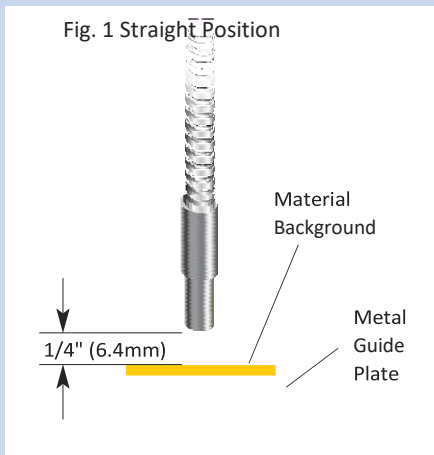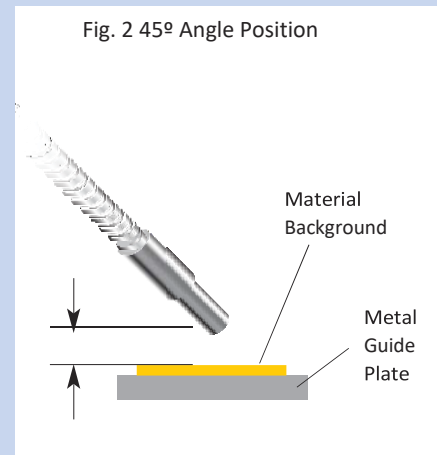
Fig. 1 Straight Position

Material Background

1/4" (6.4mm)

Metal Guide Plate

Fig. 2 45º Angle Position

Material Background

Metal Guide Plate

Features

AGS

AGS (Automatic Gain Select) provides automatic digital selection of the amplifier gain based upon application requirements.

AUTOSET

The AUTOSET adjustment routine requires only pushing one button once. Even in dynamic operating conditions, with ongoing input events, just one push of one button to get a perfect setting.

EDR®

The EDR (Enhanced Dynamic Range) circuit is digitally controlled. EDR prevents dark state saturation and expands the operating range without reducing amplifier gain.

REMOTE AUTOSET

Remotely adjust the sensor from a push button momentary switch or a touch screen to PLC instantaneously. The AUTOSET routine can occur during static or dynamic operating conditions.

5-LED DUAL FUNCTION INDICATOR AND CONTRAST INDICATOR

Provides at-a-glance performance data during both setup and operation.

STATUS INDICATOR

The Status Indicator displays status of three selectable functions:

Lock – When this feature is enabled the sensor becomes tamperproof. Note: The remote AUTOSET is not affected by the lock.

Output Invert – Allows the sensor to be programmed for the output transistors to be ON or OFF when the registration mark comes into view.

Timer – When the OFF delay pulse stretcher is enabled, the output duration is extended by 10, 25, or 50 milliseconds (not additive). Enabling the Timer allows ample time for the controller to respond. The time durations of the gap between marks must be less than the selected delay.

HIGH SPEED

45 or 175 microsecond response when detecting light or dark marks.

LED LIGHT SOURCE
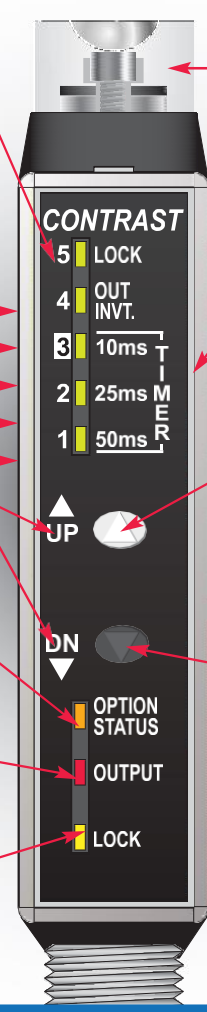
(Broadband Color Spectrum) The white light LED light source promotes easy detection of the largest variety of color marks printed on the largest variety of colored web materials.

CONNECTIONS

Built-in M12 connector or 6ft cable.

MOUNTING OPTIONS

Built-in DIN rail Snap-On design, through-hole, or bracket mounts.

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Dual Function Bar Graph

Primary function: Contrast Indicator
Secondary function: Status Indicator of five selectable options

5 Selectable Options

- #5 LOCK – for tamperproof operation
- #4 Output Invert
- #3 10 ms pulse stretcher/OFF delay
- #2 25 ms pulse stretcher/OFF delay
- #1 50 ms pulse stretcher/OFF delay

Option Status Mode Select

Push both buttons for three seconds to switch bargraph display to status indicator of selectable options.

Option Status Indicator

Illuminates when in Option Status mode.

Output Status Indicator

Illuminates when outputs are ON.

Lock Status Indicator

Illuminates when sensor buttons are locked.

CONTRAST
5 LOCK
4 OUT INVT.
3 10ms
2 25ms T I M E R
1 50ms
▲ UP
DN ▼
OPTION STATUS
OUTPUT
LOCK

Interchangeable Optical Blocks

Choice of three interchangeable optical blocks:

1. F4 (Glass fiberoptic light guides)
2. F5 (Plastic fiberoptic light guides)
3. V4A (Apertured V-Axis Convergent lens)

Optional Timer

10, 25, or 50 millisecond pulse stretcher/OFF delay

White Push-button - three functions

1. Manual UP adjustment
2. AUTOSET on light background
3. Toggle selected option to opposite state and return to normal operation.

Black Push-button - three functions

1. Manual DOWN adjustment
2. AUTOSET on dark background
3. When in Option Status mode, tap to desired function to be altered.

Hardware & Accessories

5-Wire Shielded MicroCable, M12

- GSEC-6 6ft (1.8m) cable
- GSEC-15 15ft (4.6m) cable
- GSEC-25 25ft (7.62m) cable

- GRSEC-6 6ft (1.8m) right angle connector
- GRSEC-15 15ft (4.6m) right angle connector
- GRSEC-25 25ft (7.6m) right angle connector

5-Wire Unshielded Cable, M12

- GSEC-2MU 6.5ft (2.0m) cable
- GSEC-5MU 16.4ft (5.0m) cable

5-Wire Extension Cable, M12

- GX-25 25ft (7.6m) extension cable

Mounting Brackets

FMB-1 (8.4 mm diam.) Standard Fiber Optic

SEB-3 Stainless L Bracket

FMB-2 (5.1 mm diam.) Mini Glass Fiber Optic   **FMB-3** (3.1 mm diam.) Mini Plastic Fiber Optic

Lens Kit

LK-4
Includes: F4, F5, O4, O5, R4, R5, V4, 4A, V6, V8

Automation   Sensors   Industrial Computers   Data Acquisition   Test & Measurement Equipment   North America   Central and South America

MINI-EYE™

The TRI-TRONICS MINI-EYE™ sensors are designed to be low in cost and high in value. The sensors are waterproof and are enclosed in a highimpact plastic housing.

Through-Beam Models utilize a separate light source and receiver for Beam Break sensing. Recommended for long-range sensing or for use in environments where dust or dirt buildup may cover the lens. The sensors provide a narrow beam path from the light source to the receiver and are perfect for sensing small gaps or precise sensing tasks, which is critical when attempting to resolve the exact location of passing objects. The light source requires a simple two-wire connection and functions independently of other receivers.

Retroreflective Models operate in either the Beam Make or Beam Break sensing mode and are designed to be used with a prismatic reflector. Detection occurs when the light beam is broken by a passing target. The visible, red, polarized model helps to prevent proxing or responding to undesirable light reflecting from shiny objects, such as cans, glass, and clear plastic. The infrared light source model is recommended for long-range sensing.

Proximity Models are designed for close range sensing tasks and operate by detecting the reflected light from targeted objects. The red LED light source is recommended for detecting transparent objects, such as clear glass or plastic bottles. The invisible infrared LED light source is recommended for general purpose sensing tasks.

All MINI-EYE™ sensors are available with a quick disconnect M8 or M12 4-PIN connector or a potted 6' (1.8 m) 4-wire cable, and with a red or infrared LED light source. The MINI-EYE is easy to set up and can operate in either the light ON or dark ON mode. For light ON operation, connect the white wire to negative and for dark ON operation, connect the white wire to positive.

The MINI-EYE™ is a tough little sensor that outperforms anything in its price range.

Features

- 18mm mounting • Laser through-beam
- NPN or PNP output transistor
- Fixed Optics - Proximity, Retroreflective, Polarized Retroreflective, and Through-Beam
- Selectable Light ON or dark ON operation
- High immunity to ambient light and strobes • Waterproof with high-impact housing
- Available in 6 foot 4-Wire cable, M8 4-Pin connector, or M12 4-Pin 6 inch pigtail
- Reverse polarity protection
- Short circuit protection
- Power-up output suppression
- 5VDC models available (please consult factory)
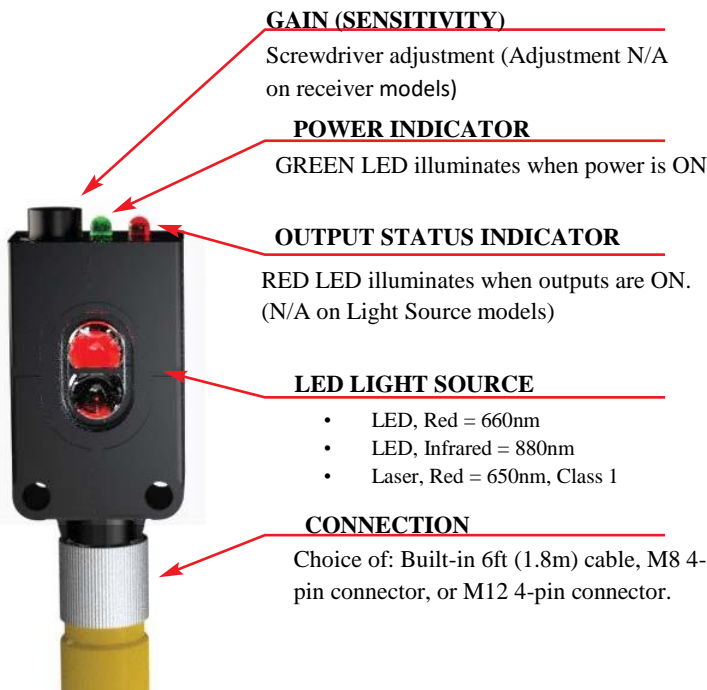
Benefits

- Easy to use
- Lower inventory costs
- Lower maintenance costs
- Flexible

Applications

- Presence/Absence Detection
- Material Handling
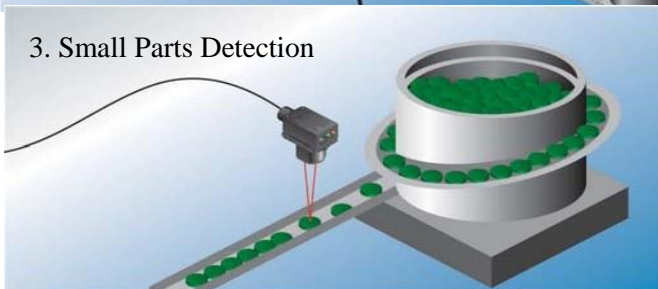- Counting
- Sorting
- Orientation
- Web Break Detection

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Features

GAIN (SENSITIVITY)

Screwdriver adjustment (Adjustment N/A on receiver models)

POWER INDICATOR

GREEN LED illuminates when power is ON

OUTPUT STATUS INDICATOR

RED LED illuminates when outputs are ON. (N/A on Light Source models)

LED LIGHT SOURCE

- LED, Red = 660nm
- LED, Infrared = 880nm
- Laser, Red = 650nm, Class 1

CONNECTION

Choice of: Built-in 6ft (1.8m) cable, M8 4-pin connector, or M12 4-pin connector.

18mm Mounting

18mm nNut included with 18mm models.
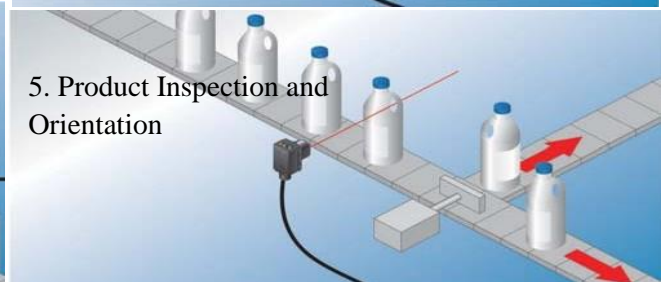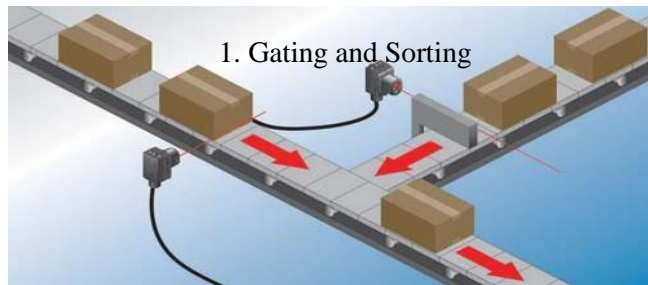
Sensor

OUT
PWR
SENS

Light Source

PWR
SENS

Receiver

OUT
PWR

Typical Applications

1. Gating and Sorting

2. Cap Detection and Position Ejection

3. Small Parts Detection

4. Opaque Objects Detection

5. Product Inspection and Orientation

6. Beam Break Detection

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Accessories

4-Wire Nano Cable, M8

- **GEC-6** 6ft (1.8m) cable
- **GEC-15** 15ft (4.6m) cable
- **GEC-25** 25ft (7.62m) cable

4-Wire Extension Cable, M8

- GEX-9 9ft (2.7m) extension cable

- RGEC-6 6ft (1.8m) right angle
- RGEC-15 15ft (4.6m) right angle
- RGEC-25 25ft (7.6m) right angle

Screw Mount Reflectors

Prismatic High Performance Reflectors

78P Screw Mount
4.4in x 1.9in
(111.8mm x 48.3mm)

AR3 Screw Mount
3in (76.2mm) diam.

AR4060 Screw
Mount

AR6151, AR6151G
Screw Mount
(chemical resistant
glass cover) 2.4in x
2.0in (61 x 51mm)
(40.5 x 60mm)

AR46 Screw Mount
(46mm) diam.

Optional Mounting Brackets

MB-18 18mm Bracket, for
use with TA-18

MIB-1 MINI•EYE™
Stainless Bracket
Assembly

MIB-2 MINI•EYE™
Stainless Bracket
Assembly

MIB-3 MINI•EYE™
Standard Mounting
Bracket

MIB-4 MINI•EYE™
18mm Mounting Bracket

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Designed for Trouble-Free Operation

Many design features have been incorporated into the MITY•EYE® to prevent mechanical or electrical damage and to provide troublefree operation. The sensitivity pot is protected with a clutch to prevent damage from over-travel. The entire sensor is epoxy-encapsulated to ensure mechanical strength. The case itself is rugged and watertight. To prevent electrical mishaps, the optically isolated AC solid state switch is protected by an MOV (Metal Oxide Varistor). In addition, the AC switch turns on synchronously at near zero volts which helps to prevent electrical line noise generated by hard relay contacts or inductive loads. MITY•EYE's unique lensed optical blocks are molded of solid optical grade, high-impact plastic. This innovative concept helps to prevent condensation or fog buildup on the inside of the lens. Multiple varieties of optical blocks are available for operating the MITY•EYE® in either the retroreflective, polarized (nonglare), proximity, fiber optic, or convergent sensing modes. A simple change of the optical block can be useful in determining the best sensing mode for use in specific sensing tasks. These inexpensive, interchangeable optical blocks reduce the inventory burden of replacement parts and eliminate the need for discarding a complete sensor in the case of damage to the optical block.

Features

- Cable or pigtail quick disconnect
- AC or DC models available
- NPN and PNP outputs or triac output, depending on model
- Interchangeable optical blocks
- 500 microsecond response time on DC models
- Potentiometer adjustment
- Light On/Dark On switch
- Bracket or through-hole mounting

Benefits

- Lower inventory costs
- Reduce maintenance costs
- Improve machine throughput
- Easy to use
- Small and compact for mechanical constraints

Applications

- Feeder bowl sensor
- Small parts detector
- High speed counting
- Printing/Marking/Coding

Typical Applications

High Speed Applications:

The 500μs response time provides the MITY•EYE® with the ability to detect fast moving targets accurately for counting, labeling, printing, and filling applications. The interchangeable optical block feature allows for many different sensing options including fiber optic, retroreflective, and long range and short proximity
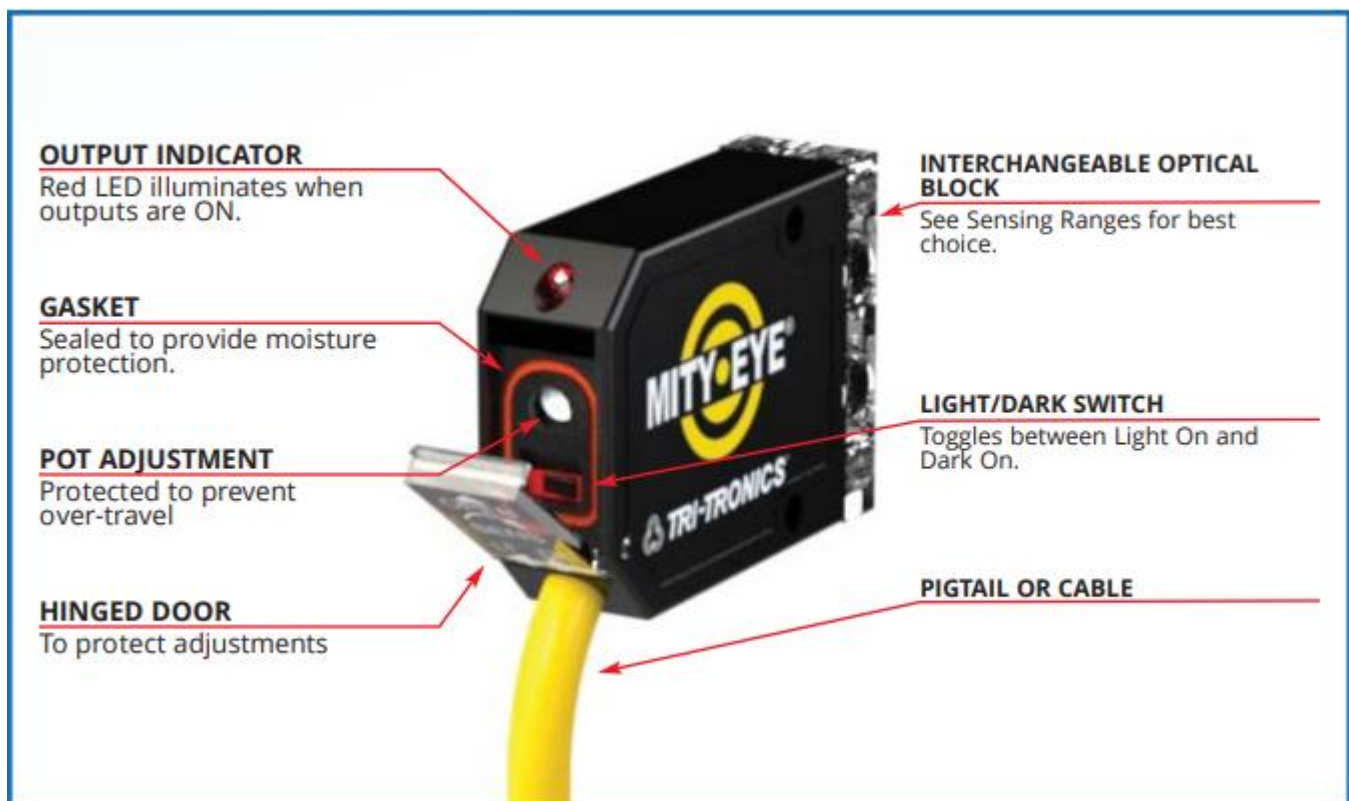
Small Target Detection:

The small, compact size of the MITY•EYE® is perfect for Small Target applications. Having the ability to change to a pin point fiber optic light guide, or spot focus convergent lens provides a solution for small targets that is accurate, repeatable, and easy to change.

Multiple Target Sensing:

The small, compact size of the MITY•EYE® is desirable for applications that require multiple sensors in close mechanical spacing constraints. Being able to gang together the sensors in tight physical space is helpful as a solution.

Features

OUTPUT INDICATOR
Red LED illuminates when outputs are ON.

GASKET
Sealed to provide moisture protection.

POT ADJUSTMENT
Protected to prevent over-travel

HINGED DOOR
To protect adjustments

INTERCHANGEABLE OPTICAL BLOCK
See Sensing Ranges for best choice.

LIGHT/DARK SWITCH
Toggles between Light On and Dark On.

PIGTAIL OR CABLE

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Accessories

4-Wire AC Mity•Eye Cable, M8

CAC15 25ft (7.6m) cable

4-Wire DC Mity•Eye Cable, M12

- SEC-2MU 6.5ft (2.0m) cable
- SEC-5MU 16.4ft (5.0m) cable

Fiber Optic Mounting Brackets

FMB-1 (8.4mm diam.) Standard Fiber Optic Mounting Bracket

FMB-2 (5.1mm diam.) Miniature Glass Fiber Optic Mounting Bracket

FMB-3 (3.1mm diam.) Plastic Fiber Optic Mounting Bracket

FMB-3 (3.1mm diam.) Plastic Fiber Optic Mounting Bracket

TA-18 18mm adapter

MB-18 18mm Bracket, for use with TA-18

LK-4 Lens Kit (includes F4, F5, O4, O5, R4, R5, V4, V4A, V6, V8 alan wrenches and screws)

OPTI-EYE®

The OPTI-EYE® Sensor is high performance and versatile when applied to tough industrial sensing tasks. The OPTI-EYE provides a combination of high gain and high speed of response (500 microseconds). High gain enables the sensor to resolve low contrast sensing tasks. High speed response provides resolution of the exact position of objects traveling at high speed. The OPTI-EYE® offers many unique features including a range adjustment (light source intensity) and three LED setup indicators. The range adjustment allows operation over a wide dynamic range. The green beam status LED indicator illuminates when the received light level exceeds the sensor's light state switch point. The yellow light intensity LED indicator displays the intensity of the sensor's light source and provides the installer an idea of where in the overall dynamic operating range the adjustment has been set (this is particularly important when using the invisible IR light source). The red output LED illuminates when the output transistors are in the ON state. Setting up and adjusting the sensor is as easily as monitoring the status of three LED indicators. With seven interchangeable optical blocks; DIN rail, side, and bracket mounting; as well as cable or connector version options, the OPTI-EYE is versatile, low cost, general purpose sensors available. Opti-mal for most high contrast sensing applications.

Features

- 500 microseconds response time
- Potentiometer range adjustment
- Cable or quick disconnect
- NPN and PNP outputs
- DIN rail, bracket, or through-hole mounting
- Interchangeable Optical Blocks

Benefits

- Easy to use
- •Lower maintenance costs
- Reduce downtime
- Improve machine throughput

Applications

- High speed counting
- Product/object detector
- Inspection sensing
- Product Orientation
- Labeling
- Printing/Marking/Coding

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Five Mounting Options

1. Snap Mount onto a DIN rail with Universal Bracket Model DRB-1

2. Screw mount at sensing site with Universal Bracket Model DRB-1

3. Through-hole mount with 18mm threaded barrel adapter Model TA-18 and MB-18

4. Screw mount with L-shaped stainless steel Bracket Model SEB-3

5. Screw mount directly to the machine

Features

OUTPUT INDICATOR

Red LED illuminates when outputs are

LIGHT SOURCE INTENSITY INDICATOR

YELLOW LED illuminates proportionally to the Light Source intensity as determined by

BEAM STATUS INDICATOR

GREEN LED illuminates when received light level exceeds the sensor's light state switch

INTERCHANGEABLE OPTICAL BLOCK

See Sensing Ranges for best choice.

LIGHT/DARK ON SWITCH

Turn all the way counter clockwise for Light On operation.

Turn all the way clockwise for Dark On operation.

RANGE ADJUSTMENT

15 turn Light Source intensity control

Accessories

4-Wire Shielded MicroCable, M12

- **SEC-6** 6ft (1.8m) cable
- **SEC-15** 15ft (4.6m) cable
- **SEC-25** 25ft (7.62m) cable

- **RSEC-6** 6ft (1.8m) right angle connector
- **RSEC-15** 15ft (4.6m) right angle connector
- **RSEC-25** 25ft (7.6m) right angle connector

FMB-1 (8.4mm diam.) Standard Fiber Optic Mounting Bracket

FMB-2 (5.1mm diam.) Miniature Glass Fiber Optic Mounting Brackets

FMB-3 (3.1mm diam.) Miniature Plastic Fiber Optic Mounting Brackets

FTA-18 18mm Adapter

MB-18 18mm Bracket, for use with TA-18

DRB-1 Din Rail Bracket

4-Wire Extension Cable, M12

- **BX-10** 10ft (3.1m) extension cable
- **BX-25** 25ft (7.62m) extension cable

SEB-3 Opti-Eye Stainless Bracket Assembly

LK-4 Lens Kit (includes F4, F5, O4, O5, R4, R5, V4, V4A, V6, V8 alan wrenches and screws)

5-Wire Unshielded Cable, M12

- **GSEC-2MU** 6.5ft (2.0m) cable
- **GSEC-5MU** 16.4ft (5.0m) cable

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High Performance Clear Object Sensor

Many of today's industrial control functions require a sensor that can provide dependable detection of position or presence of transparent containers. The RetroSmart™ will provide a single, nonchattering output for each transparent container that passes by, independent of size, shape, empty, or full. Imagine: just point the RetroSmart™ sensor's red, narrow light beam at the reflector and push the AUTOSET button one time. Now sit back and watch the sensor flawlessly detect any size PET bottle filled with water, with no need to worry about burn-through or double signals. When the efficiency of an entire production line depends on the performance of a photoelectric sensor, the RetroSmart™ is the smart choice

Features

- 100μs response time
- Polarized retroreflective - from a few inches up to 8 feet
- Remote AUTOSET
- Light State Tracking
- Button lockout
- Cable or quick disconnect versions
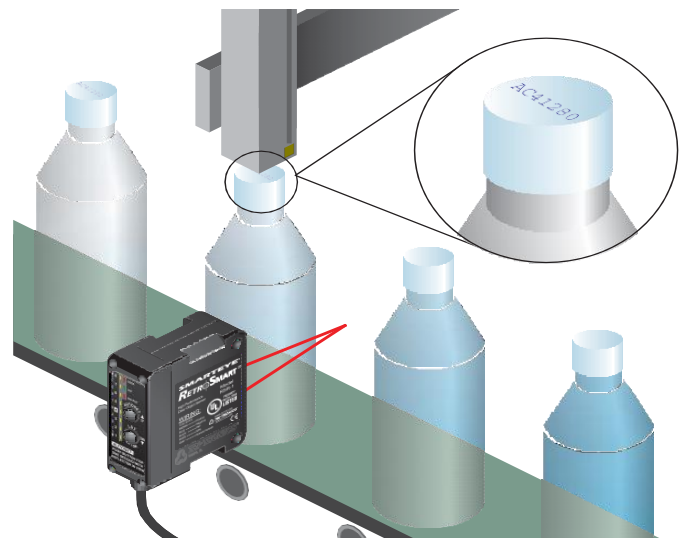- Immune to most ambient light, including strobes

Benefits

- Reliable and repeatable detection of the clearest and shiniest of materials from leading to trailing edge
- No false triggers
- Easy Remote AUTOSET for hard to reach areas
- Through-hole or bracket mounting for easy installation
- Robust design to improve up-time

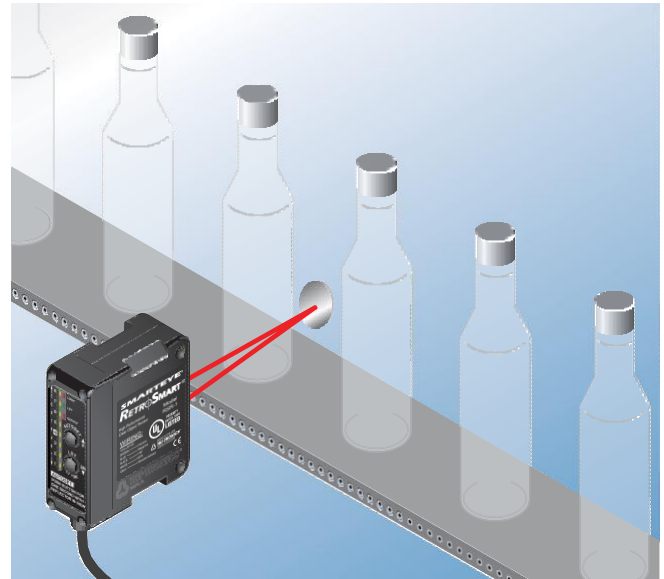# Applications

Trigger Sensor for Code Marking

- Accurate from leading edge to trailing edge.
- No false triggers
- Remove print distortion errors
- Easy setup
- Available with glass lens for ink-jet applications

Automation   Sensors   Industrial Computers   Data Acquisition   Test & Measurement Equipment   North America   Central and South America
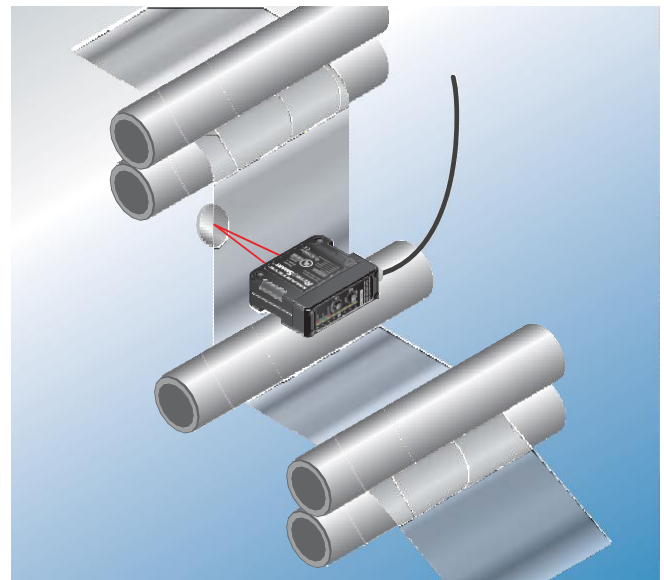
Detection of Transparent Containers

- Full or empty, no false triggers
- Solid, repeatable performance regardless of the shape, shininess, or transparency
- Works on glass, plastic, acrylic, or clear Mylar films

Clear Detection Applications

- Clear bottles, vials, food containers (clamshell boxes), syringes, liquids, etc.
- Clear web break/web splice
- Inspection systems for glass bottles, PET bottles, food products, etc.
- No false signals sensing shiny bags, foil webs, orcans

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Features

AGS

AGS (Automatic Gain Select) provides automatic digital selection of amplifier gain based upon the sensing requirements.

AUTOSET ADJUSTMENT

The AUTOSET adjustment routine only requires the push of one button, one time. Even in a dynamic operating condition, with ongoing input events, all you have to do is push the button for a perfect setting.

EDR®

The digitally controlled EDR® (Enhanced Dynamic Range) circuit prevents dark state saturation and expands the operating range without reducing amplifier gain.

REMOTE AUTOSET

To remotely AUTOSET the sensor, apply a momentary contact closure from the AUTOSET input wire to negative as shown in the wiring diagram.

8 LED DUAL FUNCTION INDICATOR

Contrast indicator – provides at-a-glance performance data.

LOCK

When Lock is enabled the sensor becomes tamperproof. Note: The remote AUTOSET is not affected by the Lock.

LST

LST (Light State Tracking) automatically adjusts the sensor up to maintain a perfect setting. When diminishing conditions occur, as in a dusty environment or slight misalignment issues, the sensor will bump up the gain to compensate for the reduced performance.

HIGH SPEED

100 microsecond response time for high-speed bottling, filling, or printing applications.

CONNECTIONS

Built-in 12mm connector or 6ft cable.

MOUNTING OPTIONS

Through-hole, or bracket mount.

CONTRAST INDICATOR

CONTRAST INDICATOR BAR 8

Remains illuminated when Light State signal strength is 8 or above.

SWITCH POINT BAR 4

Sensor outputs toggle or switch to opposite state when the signal level passes above or below 4.

CONTRAST INDICATOR BAR 1

Extinguishes when Light State signal strength is below 1.

PUSH-BUTTON – 3 FUNCTIONS

1. LST (Light State Tracking) Depress and hold for six seconds to toggle.

2. Light/Dark Output Status Depress and release after two seconds to toggle.

3. Manual Down Adjust Tap and release for less than 1/4 second.

LOCK INDICATOR

Illuminates when buttons are disabled. Depress both buttons for two seconds to toggle.

LST INDICATOR

(Light State Tracking) Illuminates when LST is enabled

OUTPUT STATUS

When illuminated, Option Status indicator is enabled

PUSH-BUTTON – 2 FUNCTIONS

1. AUTOSET Depress for one second to initiate Light State AUTOSET routine.

2. Manual UP Adjust Tap and release for less than 1/4 second.

Automation   **Sensors**   **Industrial Computers**   **Data Acquisition**   **Test & Measurement Equipment**   **North America**   **Central and South America**

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Hardware & Accessories

Cables
5-Wire Shielded MicroCable, M12

- **GSEC-6** 6ft (1.8m) cable
- **GSEC-15** 15ft (4.6m) cable
- **GSEC-25** 25ft (7.62m) cable

- **GRSEC-6** 6ft (1.8m) right angle
- **GRSEC-15** 15ft (4.6m) right angle
- **GRSEC-25** 25ft (7.6m) right angle

- **GPSEC-15** 15ft (4.6m) cable , non-metallic shell

5-Wire Unshielded Cable, M12, Low Cost

- **GSEC-2MU** 6.5ft (2.0m) cable
- **GSEC-5MU** 16.4ft (5.0m) cable

5-Wire Extension Cable, M12

- **GX-25** 25ft (7.6m) extension cable

Reflectors
Screw Mount

- **AR4060** 1.6in x 2.36in (40.5 x 60mm)

- **AR6151** 2.4in x 2.0in (61 x 51mm)
- **AR6151G** (Chemical resistant glass cover) 2.4in x 2.0in (61 x 51mm)

Glue Mount

- **AR46** 1.8in diam. (46mm diam.)

Economical Adhesive Backing

- **PRD1** 1in x .03in (25mm x .75mm)
- **PRD2** 2in x .03in (50mm x .75mm)

Mounting Bracket

- **SEB-4** Stainless Steel Mounting Bracket

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SMARTEYE® SMARTDOT® LASER SENSOR

Precision Laser Sensor

The SMARTEYE® SmartDot Laser Sensor uses a laser beam to maintain a focused visible light spot on the object or feature to be sensed. The SmartDot is easily aligned, easily setup, and designed for repeatability of performance from sensor to sensor. The intuitive graphic OLED display provides all necessary information and visual confirmation of sensing stability giving the user confidence as to the long-term performance of the sensor. The consistently small laser beam is used to detect such things as a tab on a battery, a misaligned or missing bottle cap, or a cross-threaded can lid. The SmartDot is useful not only in general purpose applications such as a product detector for vision systems, and simple inspection applications but also for high precision applications for small parts detection, critical identifying feature inspection, and detection of micro electronic packages.

Features

- OLED graphic display
- 180° rotating connector
- NPN and PNP outputs
- M12, 5 pin connector, or cable
- 240μs response time
- Threshold and set-point numeric graphic
- Timers; on-delay, off-delay, one-shot
- Sensor scope diagnostics
- Built-in digital instructions

Benefits

- Easily align replacement sensors
- See through tight spaces at long distances
- Easy setup
- Low maintenance
- Confident setup
- Robust and durable
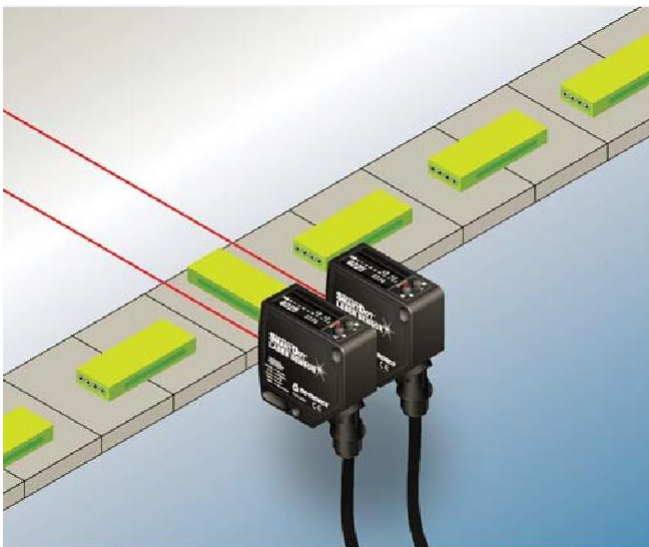- High-Speed
- Accurate
- Repeatable

Applications

- Edge Detection - Packaging, Wafers, etc.
- Shaft Key Orientation
- Small Parts Detection
- Container Cap Alignment
- Vision System Trigger
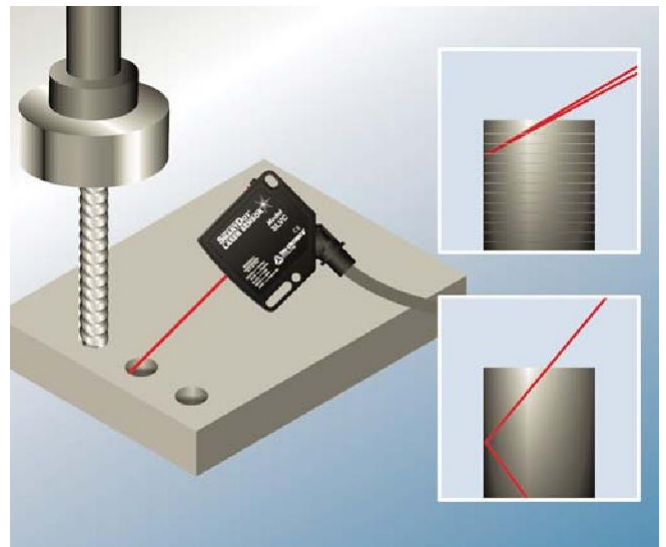- Metal Thread Detection on Machined Parts
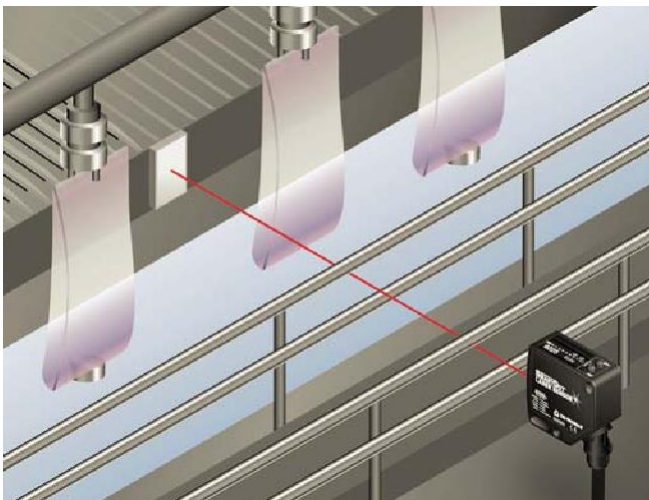- Small Hole Detection at up to 18 Inches
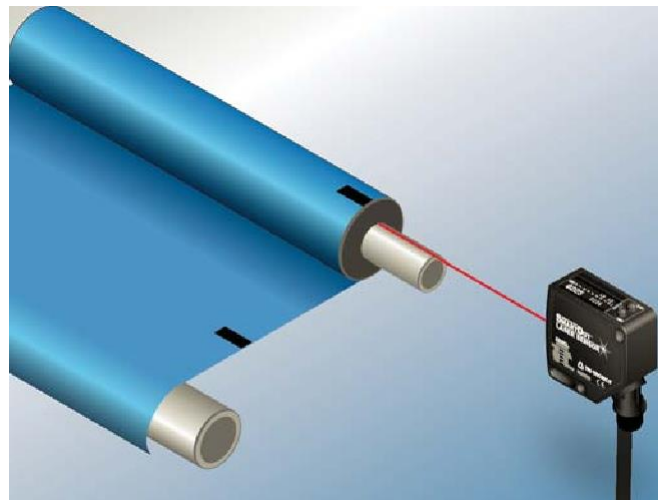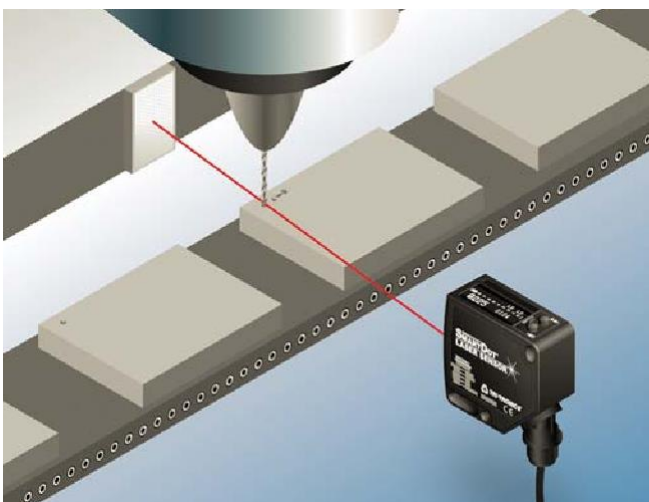
Applications

Product Orientation

Thread Verification/Inspection

Missing Cap Inspection

End of Roll Sensing

Broken Drill Bit

Small Part Orientation Verification/Inspection

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OLED Alpha/Numeric Display Visual Confirmation of Proper Sensor Performance

OLED NUMERICAL DISPLAY

1. 1 to 10 bar contrast indicator.

2. Numerical display provides visual feedback of threshold settings and signal strength feedback.

3. Displays button lockout, AUTOSET mode, timers on/off, and output mode.

OUTPUT INDICATOR Red LED

illuminates when outputs are ON; flashes when short circuit or overload detected.

MENU BUTTON

1. Push and hold for two seconds to enter menu options mode.

2. When in menu options mode, tap to scroll through available options.

3. When in normal operation, momentarily tap to adjust threshold down (-).

AUTOSET

1. Press and hold for two seconds to initiate AUTOSET.

2. When in menu, momentarily tap to make changes to menu options.

3. When in normal operation, momentarily tap to adjust threshold up (+).

Accessories

GSEC-6 6ft (1.83m) shielded cable

GSEC-15 15ft (4.57m) shielded cable

GSEC-25 25ft (7.62m) shielded cable

AR51 Laser reflector 51mm

PRD1 Round press-on reflector Ø1in (Ø 25mm)

PRD2 Ø2in (50mm)

SLB-1 Stainless steel mounting bracket