



Smart Sensing Solutions Since 1954



Miniature Push-Button Sensor



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

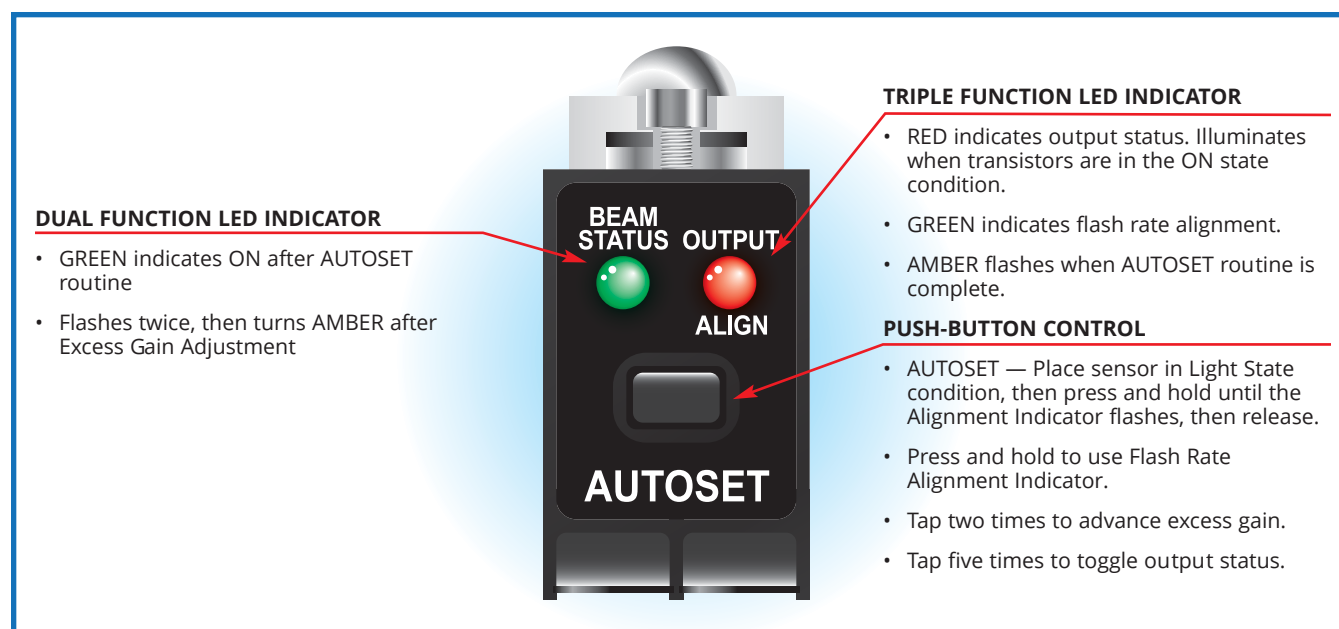
Applications

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

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.



Light Source Guidelines

INVISIBLE INFRARED LIGHT SOURCE (880nm)

- Best choice in most opaque object sensing tasks.
- Provides longest possible sensing range.
- Best choice in penetrating lens contamination.
- Preferred for use with small glass fiber optic light guides
Note: Not recommended for plastic fiber optic light guides.
- Best for sensing dark colored (black, blue, green, etc.) objects in the proximity mode.
- Useful in penetrating containers for verification of contents, or detecting overlapped splices in dense materials.

RED LIGHT SOURCE (660nm)

- Best choice for use with plastic fiber optic light guides.
- Useful when sensing translucent objects in proximity mode.
- Useful when sensing transparent objects in fiber optic retroreflective mode.
- Can be polarized for retroreflective sensing to reduce proxing on shiny objects.
- Opposed fiber optic light guides can be polarized for sensing some translucent plastic containers.
- Used as red filter for color perception advantages.

Optical Block Selection

Convergent V-Axis Blocks

Narrow beam optics useful for proximity sensing to minimize response to reflected light from background objects.



V4
Convergent 1in V-Axis
Useable range of 1in to 5in.



V4A
Convergent 1in V-Axis, Apertured
Useable range of 1in to 5in.



V6
Convergent 1.5in V-Axis
Useable range of 1.5in to 8in.



V8
Convergent .5in V-Axis
Useable range of .25in to 5in

Proximity Blocks



O4
Proximity
Wide beam optics useful for short-range sensing of a variety of objects.



O5
Proximity
Narrow beam optics useful in long-range sensing of medium to large size objects.

Retroreflective Blocks



R4
Retroreflective
Narrow beam optics designed to sense reflectors or reflective materials at long range.



R5
Polarized Anti-Glare Retroreflective
Polarized to reduce response to hot-spot glare from shiny surfaces. Use with visible light source.

Fiber Optic Blocks



F4
Glass Fiber Optics
Adapter for use glass fiber optic light guides.



F5
Plastic Fiber Optics
Adapter for use plastic fiber optic light guides.

Sensing Range Guidelines

1in = 25.4mm / 1ft = 0.3048 meters

Convergent / Proximity / Retroreflective

OPTICAL BLOCKS	IR	RED
V4, V4A	1in (25.4mm)	1in (25.4mm)
V6	1.5in (38.1mm)	1.5in (38.1mm)
V8	0.5in (12.7mm)	0.5in (12.7mm)
O4	5in (127mm)	2in (50.8mm)
O5	3ft (0.9m)	16in (0.5m)
R4	40+ft (12.2m)	20+ft (6.1m)
R5	N/A	12ft (3.6m)

Note: Proximity tests utilized a 90% reflective white target. Retroreflective tests utilized a 3in diameter round reflector, Model AR3.

Glass Fiber Optics

OPTICAL BLOCKS	IR	RED
Opposed Mode		
F4	7in (177.8mm)	3.5in (88.9mm)
F4 w/lens	10ft (3.0m)	5ft (1.5m)
Proximity Mode		
F4	2.5in (63.5mm)	1.25in (31.75mm)
F4 w/lens	5in (127mm)	6in (152.4mm)

Note: Proximity tests utilized a .125in diameter fiber bundle.

Plastic Fiber Optics

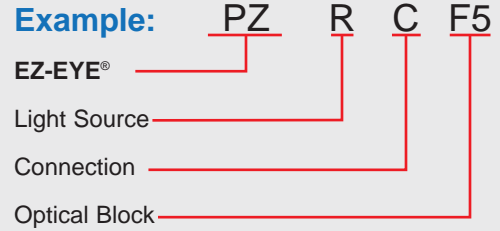
OPTICAL BLOCKS	IR	RED
Opposed Mode		
F5	N/A	4.5in (114.3mm)
F5 w/lens	N/A	10ft (3.0m)
Proximity Mode		
F5	N/A	1in (25.4mm)
F5 w/lens	N/A	N/A

Note: Proximity tests utilized a .040in diameter fiber bundle.

How To Specify



1. Select sensor model based on light source required:
PZI = Infrared
PZR = Red
2. Select connection required:
Blank = Cable
C = Connector
3. Select Optical Block based on mode of sensing required:
(see Range Guidelines)



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 allen 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.



AR4060
(40.5 x 60mm)



AR6151, AR6151G
2.4in x 2.0in
(61 x 51mm)



AR46
(46mm) diam.

Prismatic High Performance Reflectors

Specifications

SUPPLY VOLTAGE

- 10 to 24VDC
- Polarity Protected

CURRENT REQUIREMENTS

- 50mA (exclusive of load)

OUTPUT TRANSISTORS

- (1) NPN and (1) PNP sensor output transistor
- Sensor's output can sink or source up to 150mA (current limited)
- Outputs are continuously short-circuit protected

RESPONSE TIME

- Light State response = 500 microseconds
- Dark State response = 500 microseconds

LED LIGHT SOURCE

- Red = 660nm
- Infrared = 880nm
- Pulse Modulated

PUSH-BUTTON CONTROL

- AUTOSET Routine: Push and release with sensor in LIGHT state
- Excess Gain Adjustment: Tap twice to step to higher excess gain
- Push and hold to activate Flash Rate Alignment Indicator
- Light /Dark ON selection: Tap five times to toggle

RANGE

- Dependent on optical block
(see range guidelines)

HYSTERESIS

- Approximately 15% of signal

LIGHT IMMUNITY

- Responds to sensor's pulse-modulated light source, resulting in high immunity to most ambient light, including high intensity strobes.

DIAGNOSTIC INDICATORS

- Dual Red/Green LED Red = Output Status NOTE: If Output LED flashes, a short circuit condition exists. Green = Flash Rate Alignment Indicator
- Dual Green/Amber LED Green = ON After AUTOSET Routine
Amber = ON After Excess Gain Adjustment

AMBIENT TEMPERATURE

- -40°C to 70°C (-40°F to 158°F)

RUGGED CONSTRUCTION

- Chemical resistant, high impact polycarbonate housing
- Waterproof ratings: NEMA 4, IP67
- Conforms to heavy industry grade CE requirements

RoHS Compliant
Product subject to change without notice

Connections and Dimensions

EZ-EYE™ PHOTOELECTRIC SENSOR

