



General Purpose Photoelectric Sensor

EZTM
EYE



EZ-EYE™ miniature photoelectric 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. Simply place the sensor in the Light State condition and push the button once for a perfect setting.

EZ to select higher excess gain... just 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, fiberoptic or convergent sensing modes. A simple change of the optical block can be very 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

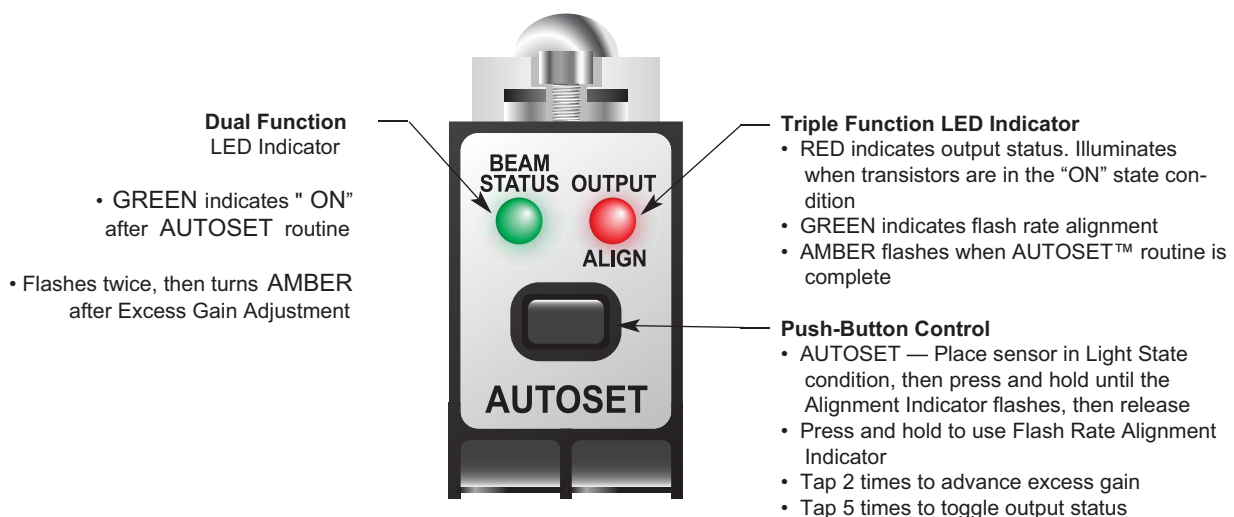
Applications

- 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 (IR) or red LED light sources.
- EZ EYE™ sensors are equipped with both NPN and PNP output transistors.
- Power supply requirements: 10 to 24 VDC.
- 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)

- A. Best choice in most opaque object sensing tasks.
- B. Provides longest possible sensing range in either Beam Make or Beam Break sensing modes.
- C. Best choice in hostile environments. Useful in penetrating lens contamination.
- D. Preferred for use with glass fiberoptic light guides.
Note: Do not use IR light with plastic fiberoptic light guides.
- E. Preferred when sensing dark colored objects in the proximity (Beam Make) mode, i.e., black, blue, green, etc.
- F. Also useful in detecting overlapped splices in dense materials.

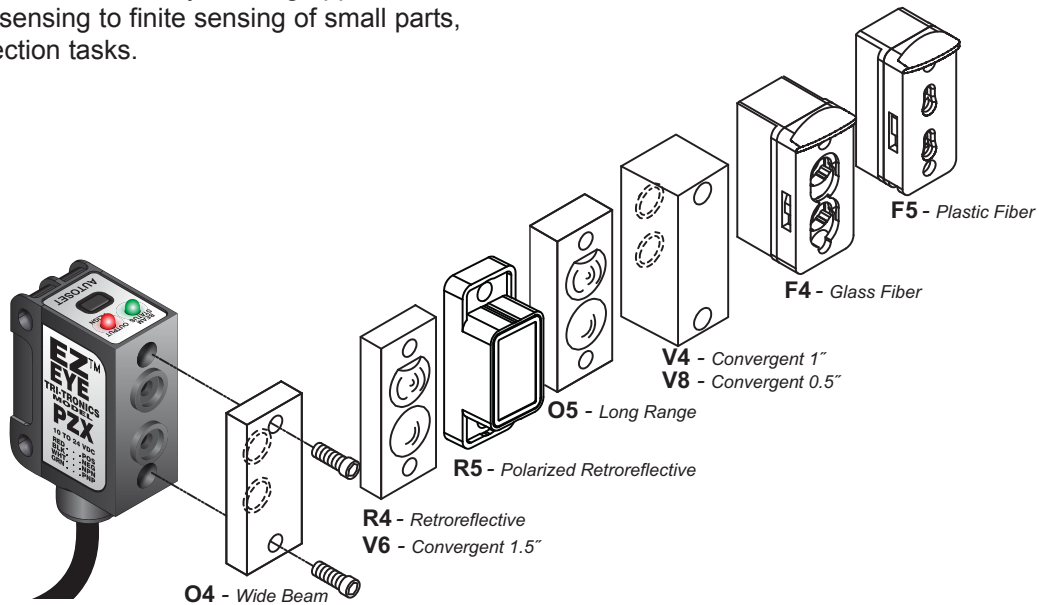
RED LIGHT SOURCE (660nm)

- A. Best choice for use with plastic fiberoptic light guides.
- B. Useful when sensing translucent or transparent objects in proximity (Beam Make) mode.
- C. Can be polarized for retroreflective (Beam Break) sensing to reduce proxing on shiny objects.

OPTICAL BLOCK SELECTION



Interchangeable optical blocks provide for universal application of the **EZ-EYE**® to any sensing applications from large object sensing to finite sensing of small parts, and product inspection tasks.



Type O4 Proximity

Wide beam optics useful for short-range sensing of transparent, translucent, opaque, or irregular shaped shiny objects.

Type O5 Proximity

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

Type R4 Retroreflective

Very narrow beam optics designed to sense reflectors or reflective materials at long range. Designed for Beam Break sensing.

Type R5 Polarized Anti-Glare Retroreflective

Polarized to reduce response to "hot spot" glare from shiny surface of detected object. Use with visible light source.

Type F4 Glass Fiberoptics

Adapter for use with a wide variety of glass fiberoptic light guides for both the proximity and opposed sensing modes.

Type F5 Plastic Fiberoptics

Adapter for use with a wide variety of plastic fiberoptic light guides for both the proximity and opposed sensing modes

Type V4 Convergent 1" "V" Axis

Useable range of 1" to 5".

Type V6 Convergent 1.5" "V" Axis

Useable range of 1.5" to 8".

Type V8 Convergent .5" "V" Axis

Useable range of .25" to 5"

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

Sensing Range Guidelines

1 in. = 25.4mm / 1 ft. = 0.3048 meters

Convergent / Proximity / Retroreflective

OPTICAL BLOCKS	IR	RED
V4	1 in.	1 in.
V6	1.5 in.	1.5 in.
V8	0.5 in.	0.5 in.
O4	5 in.	2 in.
O5	3 ft.	16 in.
R4	40 ft.	20 ft.
R5	N/A	12 ft.

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

Glass Fiberoptics

OPTICAL BLOCKS	IR	RED
Opposed Mode		
F4	7 in.	3.5 in.
F4 w/ UAC-15	10 ft.	5 ft.
Proximity Mode		
F4	2.5 in.	1.25 in.
F4 w/ UAC-15	5 in.	6 in.

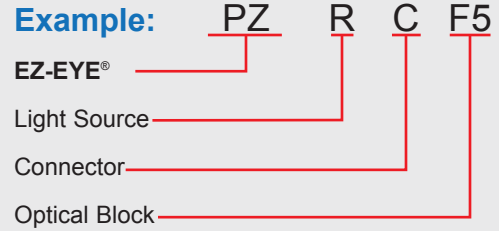
Note: Proximity tests utilized a .125" diameter fiber bundle.

Plastic Fiberoptics

OPTICAL BLOCKS	IR	RED
Opposed Mode		
F5	N/A	4.5 in.
F5 w/lens	N/A	10 ft.
Proximity Mode		
F5	N/A	1 in.
F5 w/lens	N/A	N/A

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

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
6' (1.8m) cable with connector



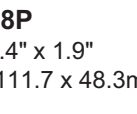
GEC-15
15' (4.6m) cable with connector



GEC-25
25' (7.6m) cable with connector



RGEC-6
6' (1.8m) cable / right angle conn.



RGEC-15
15' (4.6m) cable / right angle conn.



GEX-9
9' (2.7m) extension cable

Screw Mount Reflectors



78P
4.4" x 1.9"
(111.7 x 48.3mm)



AR3
3" diam.
(76.2mm diam.)

Optional Prismatic High-Performance Reflectors NEMA 4, IP67



AR6151
AR6151G
(Chemical Resistant
Glass Cover)
2.4" x 2.0"
(61 x 51mm)



AR4060
1.6" x 2.36"
(40.5 x 60mm)



AR46
1.8" diam.
(46mm diam.)
Glue Mount



EEB-1
Vertical Stainless
Bracket Assembly



EEB-2
Horizontal
Bracket Assembly



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



LK-4
Lens Kit
(See Optical Blocks
Accessories for contents)



FMB-2 (5.1mm diam.)
FMB-3 (3.1mm diam.)
Miniature Glass or
Plastic Fiberoptic
Mounting Brackets



Go to
ttco.com
for
fiberoptic
light guide
selections

SUPPLY VOLTAGE

- 10 to 24 VDC
- 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 5 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

