![Tri-Tronics logo] TRI-TRONICS®

Smart Sensing Solutions Since 1954

MINI-EYE™

Miniature Sensor

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 high-impact 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

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.
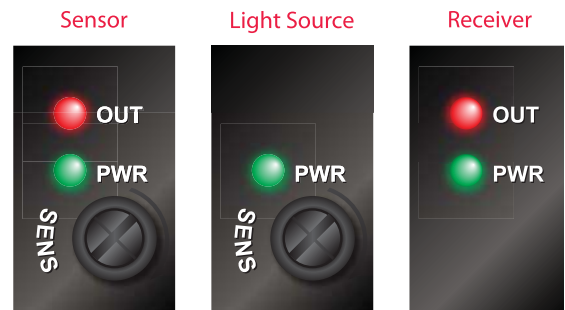(N/A on Light Source models)

LED LIGHT SOURCE
• LED, Red = 660nm
• LED, Infrared = 880nm
• Laser, Red = 650nm, Class 1

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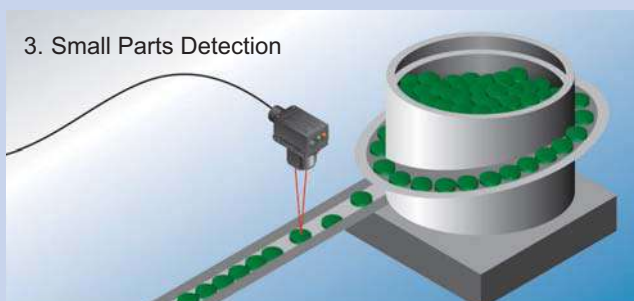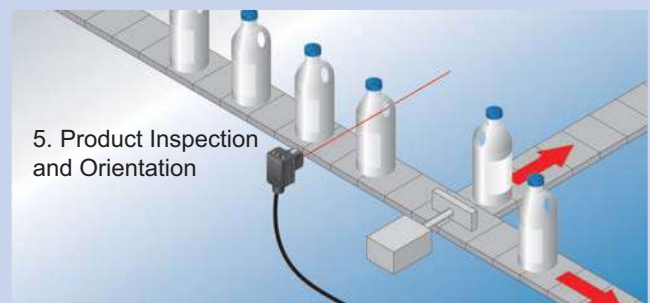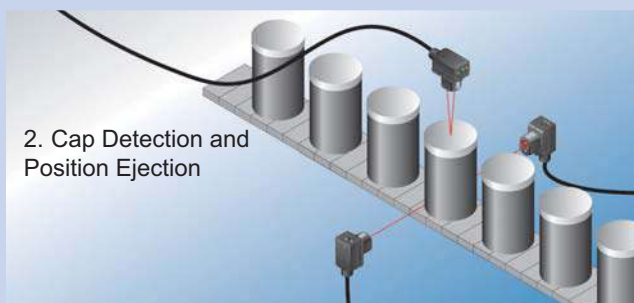Choice of: Built-in 6ft (1.8m) cable, M8 4-pin connector, or M12 4-pin connector.

18mm Mounting

18mm nNut included with 18mm models.

Sensor	Light Source	Receiver
OUT		OUT
PWR	PWR	PWR
SENS	SENS	

Typical Applications

1. Gating and Sorting

2. Cap Detection and Position Ejection

3. Small Parts Detection

4. Opaque Objects Detection

RECEIVER

LIGHT SOURCE

5. Product Inspection and Orientation

6. Beam Break Detection

Selection Guidelines
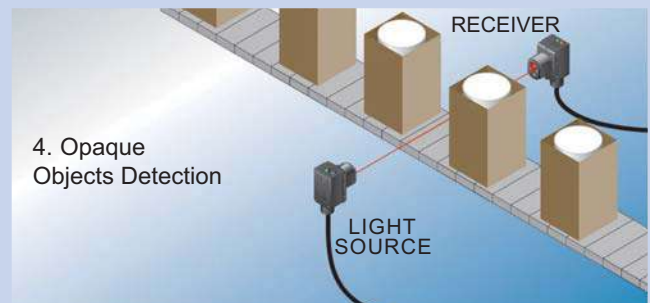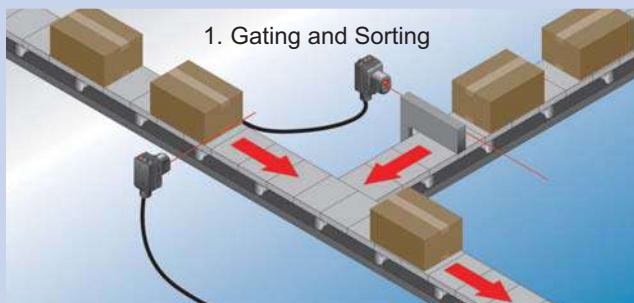
HOW TO SPECIFY				
MODELS		**DESCRIPTION**	**RANGE**	
STANDARD	**18mm**	**SHORT RANGE PROXIMITY**	**STANDARD**	**18mm**
MIVC	MIVC-18	IR, NPN, connector	5in (127.0mm)	6in (152.4mm)
MIV	MIV-18	IR, NPN, cabled	5in (127.0mm)	6in (152.4mm)
MRVC	MRVC-18	Red, NPN, connector	4in (101.6mm)	5in (127.0mm)
MRV	MRV-18	Red, NPN, cabled	4in (101.6mm)	5in (127.0mm)
PMIVC	PMIVC-18	IR, PNP, connector	5in (127.0mm)	6in (152.4mm)
PMIV	PMIV-18	IR, PNP, cabled	5in (127.0mm)	6in (152.4mm)
PMRVC	PMRVC-18	Red, PNP, connector	4in (101.6mm)	5in (127.0mm)
PMRV	PMRV-18	Red, PNP, cabled	4in (101.6mm)	5in (127.0mm)
LONG RANGE PROXIMITY				
MIPC	MIPC-18	IR, NPN, connector	20in (508.0mm)	20in (508.0mm)
MIP	MIP-18	IR, NPN, cabled	20in (508.0mm)	20in (508.0mm)
MRPC	MRPC-18	Red, NPN, connector	14in (355.6mm)	8in (203.2mm)
MRP	MRP-18	Red, NPN, cabled	14in (355.6mm)	8in (203.2mm)
PMIPC	PMIPC-18	IR, PNP, connector	20in (508.0mm)	20in (508.0mm)
PMIP	PMIP-18	IR, PNP, cabled	20in (508.0mm)	20in (508.0mm)
PMRPC	PMRPC-18	Red, PNP, connector	14in (355.6mm)	8in (203.2mm)
PMRP	PMRP-18	Red, PNP, cabled	14in (355.6mm)	8in (203.2mm)
RETROREFLECTIVE				
MIRC	MIRC-18	IR, NPN, connector	12ft (3.7m)	15ft (3.8m), 35ft (8.8m)*
MIR	MIR-18	IR, NPN, cabled	12ft (3.7m)	15ft (3.8m), 35ft (8.8m)*
MRRC	MRRC-18	Red, Polarized, NPN, connector	3.5ft (0.9m), 8.5ft (2.2m)	6ft (1.8m), 15ft (4.6m)
MRR	MRR-18	Red, Polarized, NPN, cabled	3.5ft (0.9m), 8.5ft (2.2m)	6ft (1.8m), 15ft (4.6m)
PMIRC	PMIRC-18	IR, PNP, connector	12ft (3.7m)	15ft (3.8m), 35ft (8.8m)*
PMIR	PMIR-18	IR, PNP, cabled	12ft (3.7m)	15ft (3.8m), 35ft (8.8m)*
PMRRC	PMRRC-18	Red, Polarized, PNP, connector	3.5ft (0.9m), 8.5ft (2.2m)	6ft (1.8m), 15ft (4.6m)
PMRR	PMRR-18	Red, Polarized, PNP, cabled	3.5ft (0.9m), 8.5ft (2.2m)	6ft (1.8m), 15ft (4.6m)
THROUGH-BEAM				
LIGHT SOURCE (Range to receivers below)				
MLSIC	MLSIC-18	Infrared, connector	65ft (19.8m)	65ft (19.8m)
MLSI	MLSI-18	Infrared, cabled	65ft (19.8m)	65ft (19.8m)
MLSRC	MLSRC-18	Red, connector	45ft (13.7m)	15ft (4.6m)
MLSR	MLSR-18	Red, cabled	45ft (13.7m)	15ft (4.6m)
RECEIVERS (Range w/ recievers below)				
MRC	MRC-18	NPN, connector		
MR	MR-18	NPN, cabled		
PMRC	PMRC-18	PNP, connector		
PMR	PMR-18	PNP, cabled		
LASER THROUGH-BEAM				
LIGHT SOURCE				
MLZRC	MLZRC-18	Red, connector	60ft (18.2m)	60ft (18.2m)
MLZR	MLZR-18	Red, cabled	60ft (18.2m)	60ft (18.2m)
RECEIVERS				
MLRC	MLRC-18	NPN, connector		
MLR	MLR-18	NPN, cabled		
PMLRC	PMLRC-18	PNP, connector		
PMLR	PMLR-18	PNP, cabled		

*AR82 High performance reflector.

Note: Standard connector models utilize an M8 4-pin connector. M12 4-pin 6in pigtails are built to order.
Ex. MIVC-18M12

NOTE: Retroreflective sensors equipped with a red light source are polarized to prevent proxing off shiny objects. Proximity test utilized a 90% reflective white target. Retroreflective tests utilized a 3in diam, round reflector, Model AR3.

NOTE: Receivers can be used with either IR or Red Light Sources.

MINI-EYE™

General Application Photoelectric Sensors

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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

Screw Mount Reflectors

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

AR3
Screw Mount
3in (76.2mm) diam.

Prismatic High Performance Reflectors

AR4060
Screw Mount
(40.5 x 60mm)

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

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

MINI-EYE™

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General Application Photoelectric Sensors

Specifications

SUPPLY VOLTAGE
- 10 to 30VDC
- Polarity Protected
  Note: 5VDC +/- 10%

CURRENT REQUIREMENTS
- 30mA (exclusive of load)

OUTPUT TRANSISTORS
- NPN: Sink up to 100mA
- PNP: Source up to 100mA
- All outputs are continuously short circuit protected

RESPONSE TIME
- Light State response = 600µs (1,100µs, Through-Beam)
- Dark State response = 600µs (1,100µs, Through-Beam)

LED LIGHT SOURCE
- LED, Red = 660nm
- LED, Infrared = 880nm
- Pulse modulated
- Laser, Red = 650nm, Class 1

LIGHT/DARK ON OPERATION
- Light ON achieved by connecting white wire to negative lead
- Dark ON achieved by connecting white wire to positive lead

RANGE
- Dependent on model, see Selection Guidelines
  Note: 5VDC models, range reduced by 10%

HYSTERESIS
- Approximately 20% 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
- Red LED = Output Status
- Green LED = Power ON

AMBIENT TEMPERATURE
- -40°C to 70°C (-40°F to 158°F)
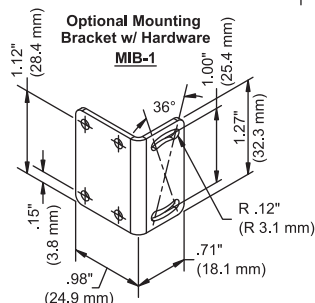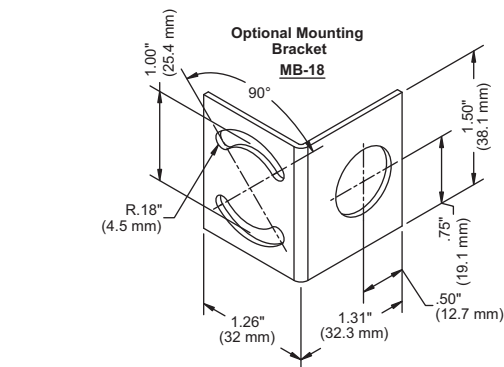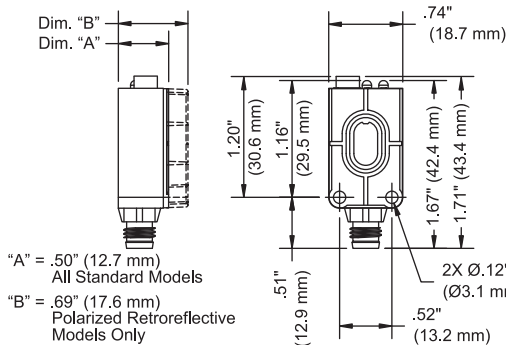
RUGGED CONSTRUCTION
- Chemical resistant, high-impact polycarbonate housing
- Waterproof ratings: NEMA 4X, IP66
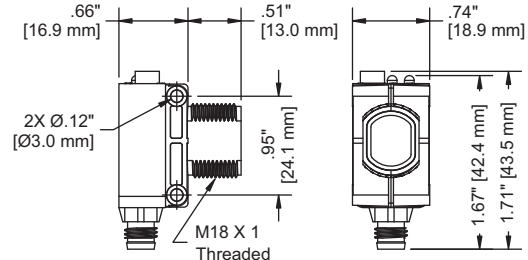
RoHS Compliant
Product subject to change without notice
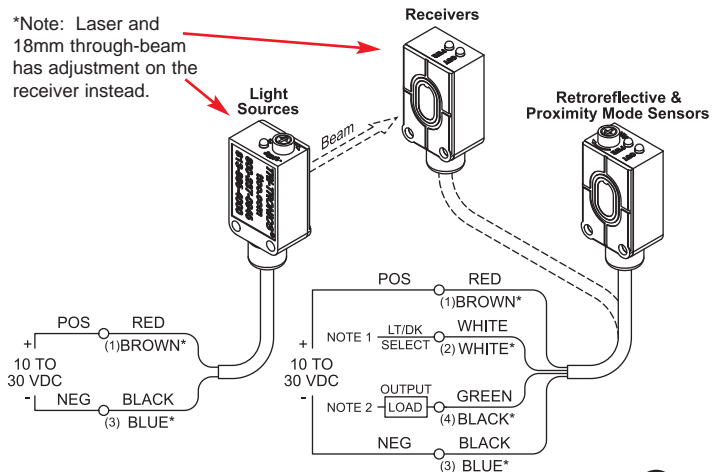
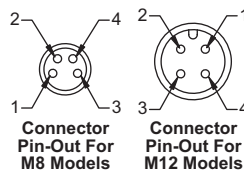## *Connections and Dimensions* MINI-EYE™

STANDARD MODELS

18MM MODELS

Note: Wiring Diagram Applies To Standard & 18mm Mini-Eye Models Only. Visit Us At ttco.com For Laser Wiring And 18mm Dimensions.

Connector Pin-Out For M8 Models
Connector Pin-Out For M12 Models

Note 1: Dark "ON" Operation: Terminate To Positive
        Light "ON" Operation: Terminate To Negative

Note 2: NPN (Sink) Output Models: Terminate Load To Positive
        PNP (Source) Output Models: Terminate Load To Negative

Note 3: No Contact On This Line For CJx Models
        [Wired Internally For Either Light On (L) or Dark On (D)].

Choice of: Built-In 6 ft (1.8 m) Cable, or
M8 (or M12) 4-Pin Connector For Use With Optional Cables

RoHS Compliant