



General Purpose Photoelectric Sensor

**MINI-EYE™**

## MINI-EYE™

The TRI-TRONICS **MINI-EYE™** photoelectric 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.

**Thru-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 very 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 2-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 or object. 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 invisible, 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. They are 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, simply connect the white wire to positive.

Hands down, the MINI-EYE™ is a tough little sensor that outperforms anything in its price range.



### Features

- 18mm mounting
- Laser thru-beam
- NPN or PNP output transistor
- Fixed Optics - Proximity, Retroreflective, Polarized Retroreflective, and Thru-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

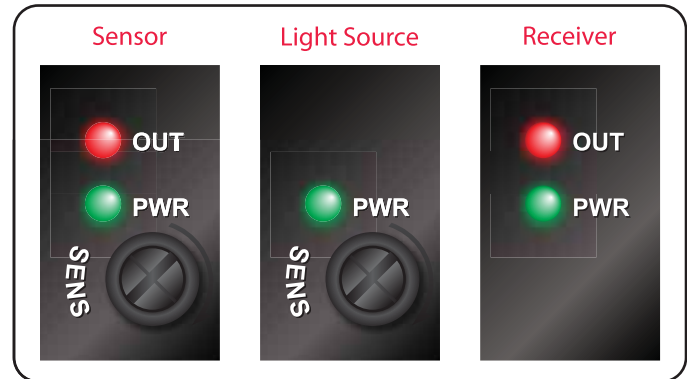
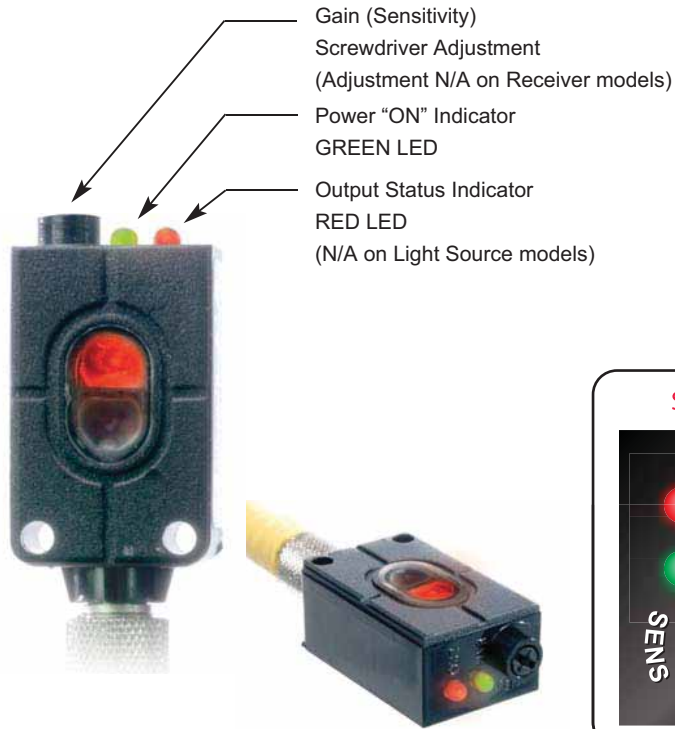
- Easy to use
- Lower inventory costs
- Lower maintenance costs
- Flexible

### Applications

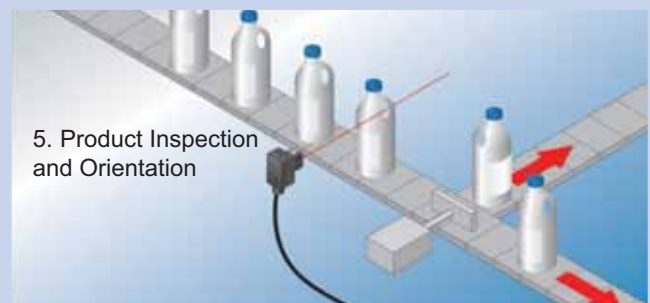
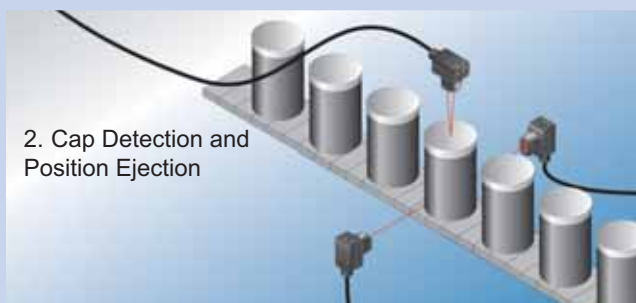
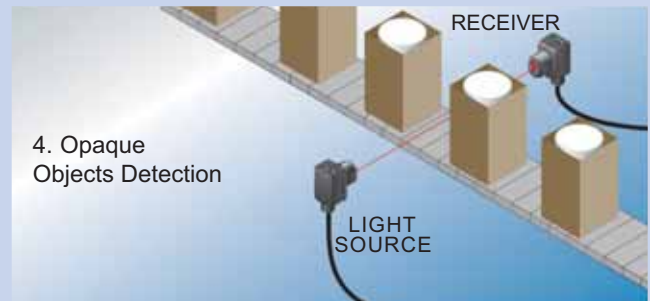
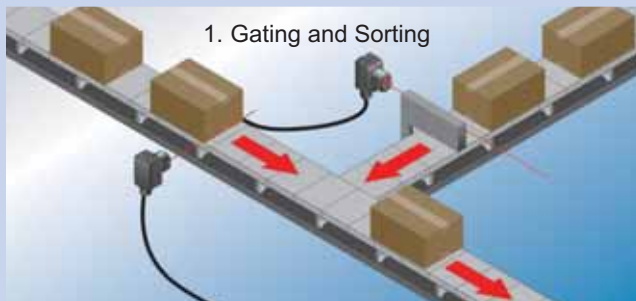
- Presence/Absence Detection
- Material Handling
- Counting
- Sorting
- Orientation
- Web Break Detection

# Fine Tuning Adjustment

**MINI-EYE™**



## Typical Applications



MINI-EYE™

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General Application Photoelectric Sensors

HOW TO SPECIFY				
MODELS		DESCRIPTION	RANGE	
STANDARD	18mm	SHORT RANGE PROXIMITY	STANDARD	18mm
MIVC	MIVC-18	IR, NPN, Connector	6" (152.4mm)	6" (152.4mm)
MIV	MIV-18	IR, NPN, Cabled	6" (152.4mm)	6" (152.4mm)
MRVC	MRVC-18	Red, NPN, Connector	5" (127mm)	5" (127mm)
MRV	MRV-18	Red, NPN, Cabled	5" (127mm)	5" (127mm)
PMIVC	PMIVC-18	IR, PNP, Connector	6" (152.4mm)	6" (152.4mm)
PMIV	PMIV-18	IR, PNP, Cabled	6" (152.4mm)	6" (152.4mm)
PMRVC	PMRVC-18	Red, PNP, Connector	5" (127mm)	5" (127mm)
PMRV	PMRV-18	Red, PNP, Cabled	5" (127mm)	5" (127mm)
LONG RANGE PROXIMITY				
MIPC	MIPC-18	IR, NPN, Connector	45" (1143.6mm)	46" (1168.4mm)
MIP	MIP-18	IR, NPN, Cabled	45" (1143.6mm)	46" (1168.4mm)
MRPC	MRPC-18	Red, NPN, Connector	20" (508.0mm)	11" (279.4mm)
MRP	MRP-18	Red, NPN, Cabled	20" (508.0mm)	11" (279.4mm)
PMIPC	PMIPC-18	IR, PNP, Connector	45" (1143.6mm)	46" (1168.4mm)
PMIP	PMIP-18	IR, PNP, Cabled	45" (1143.6mm)	46" (1168.4mm)
PMRPC	PMRPC-18	Red, PNP, Connector	20" (508.0mm)	11" (279.4mm)
PMRP	PMRP-18	Red, PNP, Cabled	20" (508.0mm)	11" (279.4mm)
RETROREFLECTIVE				
MIRC	MIRC-18	IR, NPN, Connector	12' (3.7m)	25' (7.6m), 45' (13.6m)*
MIR	MIR-18	IR, NPN, Cabled	12' (3.7m)	25' (7.6m), 45' (13.6m)*
MRRC	MRRC-18	Red, Polarized, NPN, Connector	4' (1.2m), 9' (2.7m)	6' (1.8m), 15' (4.6m)
MRR	MRR-18	Red, Polarized, NPN, Cabled	4' (1.2m), 9' (2.7m)	6' (1.8m), 15' (4.6m)
PMIRC	PMIRC-18	IR, PNP, Connector	12' (3.7m)	25' (7.6m), 45' (13.6m)*
PMIR	PMIR-18	IR, PNP, Cabled	12' (3.7m)	25' (7.6m), 45' (13.6m)*
PMRRC	PMRRC-18	Red, Polarized, PNP, Connector	4' (1.2m), 9' (2.7m)	6' (1.8m), 15' (4.6m)
PMRR	PMRR-18	Red, Polarized, PNP, Cabled	4' (1.2m), 9' (2.7m)	6' (1.8m), 15' (4.6m)
THRU-BEAM				
LIGHT SOURCE				
MLSIC	MLSIC-18	Infrared, Connector	65' (19.8m)	65' (19.8m)
MLSI	MLSI-18	Infrared, Cabled	65' (19.8m)	65' (19.8m)
MLSRC	MLSRC-18	Red, Connector	45' (13.7m)	15' (4.6m)
MLSR	MLSR-18	Red, Cabled	45' (13.7m)	15' (4.6m)
RECEIVERS				
MRC	MRC-18	NPN, Connector		
MR	MR-18	NPN, Cabled		
PMRC	PMRC-18	PNP, Connector		
PMR	PMR-18	PNP, Cabled		
LASER THRU-BEAM				
LIGHT SOURCE				
MLZRC	MLZRC-18	Red, Connector	60' (18.2m)	60' (18.2m)
MLZR	MLZR-18	Red, Cabled	60' (18.2m)	60' (18.2m)
RECEIVERS				
MLRC	MLRC-18	NPN, Connector		
MLR	MLR-18	NPN, Cabled		
PMLRC	PMLRC-18	PNP, Connector		
PMLR	PMLR-18	PNP, Cabled		

Note: Standard connector models utilize an M8 4-pin connector. M12 4-pin 6 inch pigtails are built to order.  
Ex. MIV-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 3" diam., round reflector, Model AR3.

NOTE: Receivers can be used with either IR or Red Light Sources. \*AR82 High performance reflector.

## 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

Standard  
Mounting



18mm  
Mounting

## Screw Mount Reflectors



78P  
4.4 in. x 1.9 in.  
111.8 x 48.3mm



AR3  
3 in. Diameter  
76.2mm Diameter



AR4060  
1.6" x 2.36"  
40.5 x 60 mm



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



AR-46  
1.8" diameter  
46mm diameter  
Glue Mount

## Prismatic High-Performance Reflectors

## Optional Mounting Brackets



MB-18  
Mounting Bracket  
(for 18mm  
mounting models)



MIB-1  
Stainless Bracket  
Assembly



MIB-2  
Stainless Bracket  
Assembly



MIB-3 (Standard)  
MIB-4 (18mm)  
Stainless Laser Light  
Source Bracket



## SUPPLY VOLTAGE

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

## REMOTE AUTOSET INPUT

- Opto isolated sinking input (10mA)

## RESPONSE TIME

- Light State response = 600μs (1,100μs, Thru-Beam)
- Dark State response = 600μs (1,100μs, Thru-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: 5 VDC 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

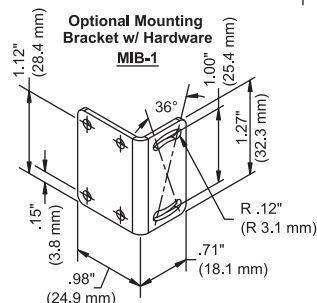
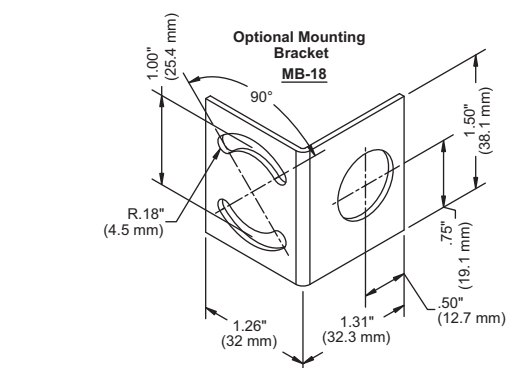
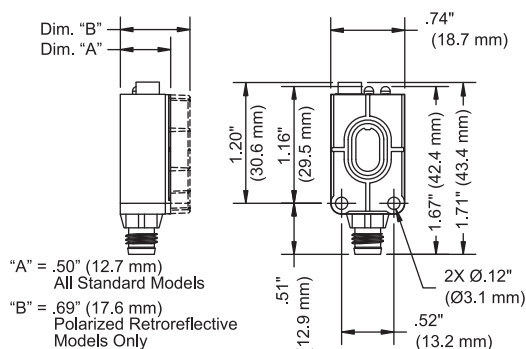
- Chemical resistant, high-impact polycarbonate housing
- Waterproof ratings: NEMA 4X, IP66

RoHS Compliant  
Product subject to change without notice

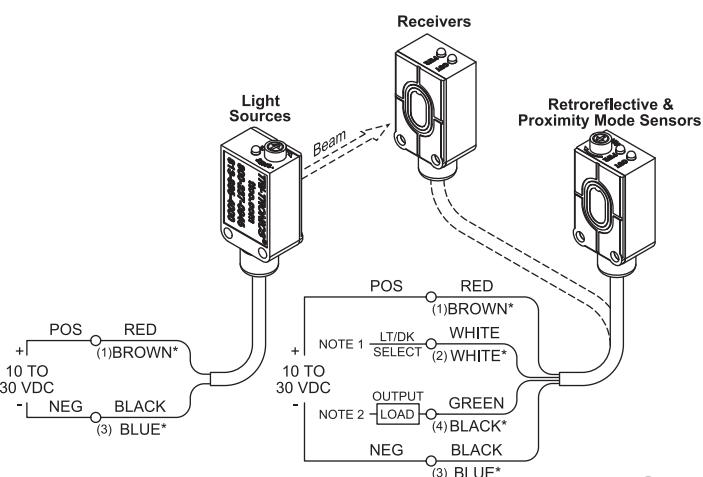
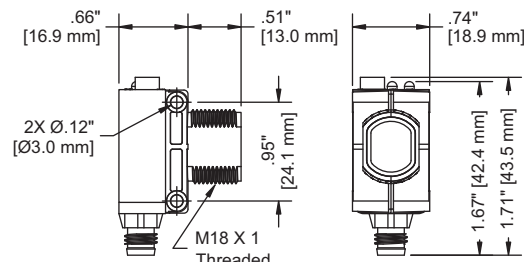
## Connections and Dimensions

# MINI-EYE™

## STANDARD MODELS

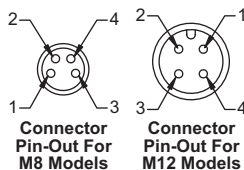


## 18MM MODELS



**Note: Wiring Diagram Applies To Standard & 18mm Mini-Eye Models Only. Visit Us At [ttco.com](http://ttco.com) For Laser Wiring And 18mm Dimensions.**

CE cULus  
RoHS Compliant



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