NEW!

"Small, Rugged and Powerful...
yet Low in Price"

MINI-EYE™

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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 Make" or "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 rec-

Our Lowest Cost Sensor that outperforms anything in its price range!

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

ommended 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 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!

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Features

- Standard and 18 mm mounting models
- Laser, thru-beam models
- Sensors are available with either infrared (IR) or red LED light source, and either 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
- High Speed — 600 μs; 1.1 ms (opposed mode)
- Potted 6' 4-wire cable or M8 4-PIN connector
- Operates between 10 to 30 VDC
  (5-volt models available – consult factory for details)
- Reverse polarity protection
- Short circuit protection
- Power-up output suppression
- EMC tested

Light Source Guidelines

INVISIBLE INFRARED LIGHT SOURCE (850 nm)

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 when sensing dark colored objects in the proximity (Beam Make) mode, i.e., black, blue, green, etc.

RED LED LIGHT SOURCE (633 nm)

A. Useful when sensing translucent objects in proximity (Beam Make) mode

B. Can be polarized for retroreflective (Beam Break) sensing to reduce proxing on shiny objects

C. Visible red LED allows for easy alignment

NOTE: Red, laser light source, 650 nm, Class 1

Fine Tuning Adjustment

18 mm Mounting

Gain (Sensitivity)
Screwdriver Adjustment
(Adjustment N/A on Receiver models)

Power "ON" Indicator
GREEN LED

Output Status Indicator
RED LED
(N/A on Light Source models)

Typical Applications

Opaque
Object Detection

Gating
and Sorting

Beam
Break
Detection

Product Inspection
and Orientation

Cap Detection and
Position Ejection

Small Parts Detection

Sensor	Light Source	Receiver
OUT PWR SENS	OUT PWR SENS	OUT PWR
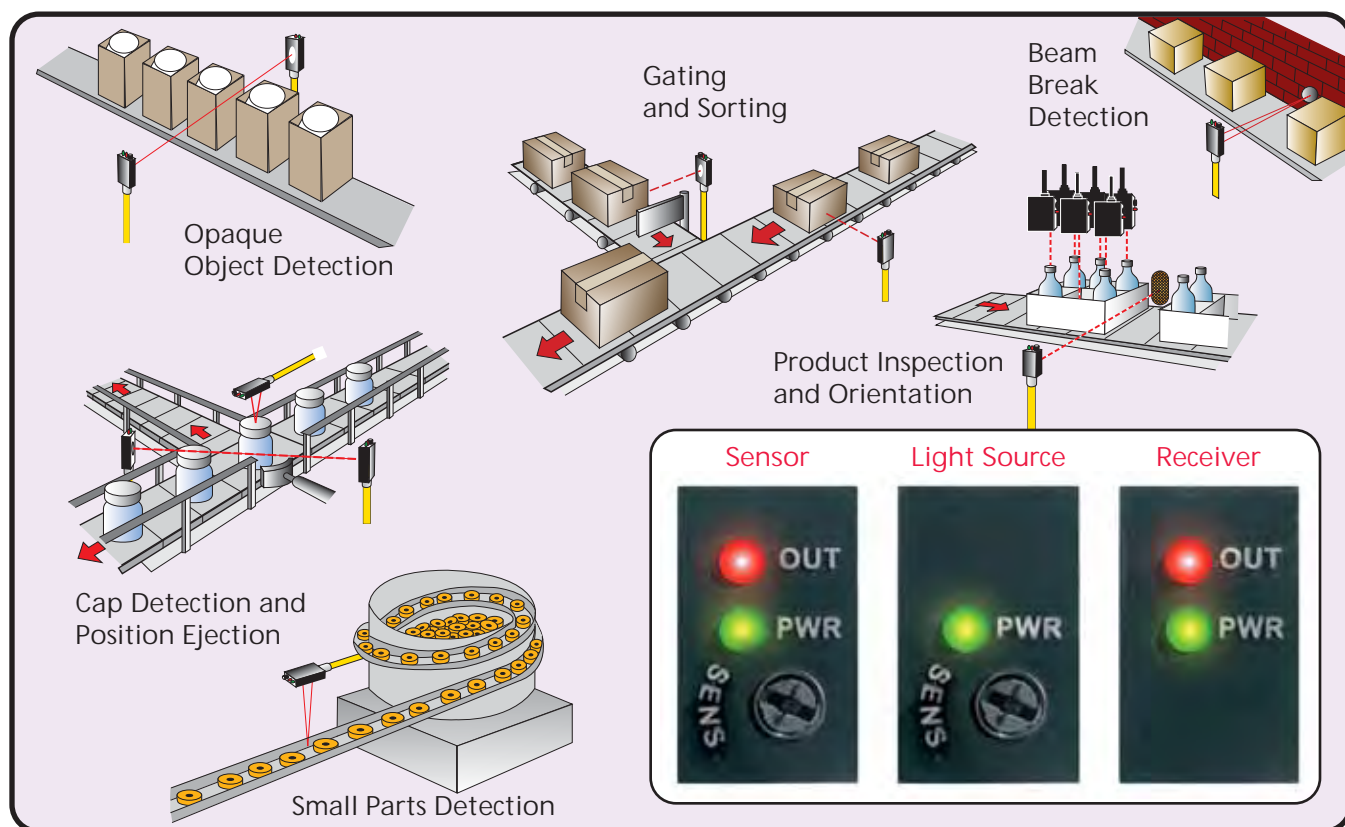
Selection Guidelines

HOW TO SPECIFY			
MODELS		**DESCRIPTION**	**RANGE**
STANDARD	18 mm	**SHORT RANGE PROXIMITY**	
MIVC	MIVC-18	IR, NPN, Connector	6" (152.4 mm)
MIV	MIV-18	IR, NPN, Cabled	6" (152.4 mm)
MRVC	MRVC-18	Red, NPN, Connector	4" (101.6 mm)
MRV	MRV-18	Red, NPN, Cabled	4" (101.6 mm)
PMIVC	PMIVC-18	IR, PNP, Connector	6" (152.4 mm)
PMIV	PMIV-18	IR, PNP, Cabled	6" (152.4 mm)
PMRVC	PMRVC-18	Red, PNP, Connector	4" (101.6 mm)
PMRV	PMRV-18	Red, PNP, Cabled	4" (101.6 mm)
		LONG RANGE PROXIMITY	
MIPC	MIPC-18	IR, NPN, Connector	24" (609.6 mm)
MIP	MIP-18	IR, NPN, Cabled	24" (609.6 mm)
MRPC	MRPC-18	Red, NPN, Connector	16" (406.4 mm)
MRP	MRP-18	Red, NPN, Cabled	16" (406.4 mm)
PMIPC	PMIPC-18	IR, PNP, Connector	24" (609.6 mm)
PMIP	PMIP-18	IR, PNP, Cabled	24" (609.6 mm)
PMRPC	PMRPC-18	Red, PNP, Connector	16" (406.4 mm)
PMRP	PMRP-18	Red, PNP, Cabled	16" (406.4 mm)
		RETROREFLECTIVE	
MIRC	MIRC-18	IR, NPN, Connector	7' (2.1 m)
MIR	MIR-18	IR, NPN, Cabled	7' (2.1 m)
MRRC	MRRC-18	Red, Polarized, NPN, Connector	8' (2.4 m)
MRR	MRR-18	Red, Polarized, NPN, Cabled	8' (2.4 m)
PMIRC	PMIRC-18	IR, PNP, Connector	7' (2.1 m)
PMIR	PMIR-18	IR, PNP, Cabled	7' (2.1 m)
PMRRC	PMRRC-18	Red, Polarized, PNP, Connector	8' (2.4 m)
PMRR	PMRR-18	Red, Polarized, PNP, Cabled	8' (2.4 m)
		THRU-BEAM	
LIGHT SOURCE			
MLSIC	MLSIC-18	Infrared, Connector	65' (20 m)
MLSI	MLSI-18	Infrared, Cabled	65' (20 m)
MLSRC	MLSRC-18	Red, Connector	15' (4.6 m)
MLSR	MLSR-18	Red, Cabled	15' (4.6 m)
RECEIVERS			
MRC	MRC-18	NPN, Connector	DEPENDENT ON LIGHT SOURCE
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	200' (61 m)
MLZR	MLZR-18	Red, Cabled	200' (61 m)
RECEIVERS			
MLRC	MLRC-18	NPN, Connector	
MLR	MLR-18	NPN, Cabled	
PMLRC	PMLRC-18	PNP, Connector	
PMLR	PMLR-18	PNP, Cabled	

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.

Accessories

4-Wire Nano Cable, M8

GEC-6
6' (1.8 m) cable with connector

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

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

RGEC-6
6' (1.8 m) cable / right angle conn.
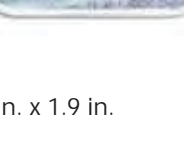
RGEC-15
15' (4.6 m) cable / right angle conn.

GEX-9
9' (2.7 m) extension cable

Standard Mounting

18 mm Mounting

Screw Mount Reflectors

78P
4.4 in. x 1.9 in.

AR3
3 in. Diameter

Optional Mounting Brackets

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

MIB-1
Stainless Bracket
Assembly

MIB-2
Stainless Bracket
Assembly

Prismatic High-Performance Reflectors

AR4060
1.6" x 2.36"
40.5 x 60 mm

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

AR-46
1.8" diameter
46 mm diameter
Glue Mount

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Specifications

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

CURRENT REQUIREMENTS
- 30mA (exclusive of load)
  OUTPUT TRANSISTORS (CURRENT LIMITED)
- 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, Thru-Beam)
- Dark State response = 600µs (1,100µs, Thru-Beam)

LIGHT SOURCE
- LED, Red = 660 nm
- LED, Infrared = 880 nm
- Pulse Modulated
- Laser, Red = 650 nm, 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)

MINI-EYE™

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

Product subject to change without notice.
Consult Factory for RoHS Compliance.

Connections and Dimensions   MINI-EYE™

Dim. "B"
Dim. "A"

.74" (18.7 mm)

1.20" (30.6 mm)
1.16" (29.5 mm)
1.67" (42.4 mm)
1.71" (43.4 mm)
.51" (12.9 mm)

"A" = .50" (12.7 mm) All Standard Models

"B" = .69" (17.6 mm) Polarized Retroreflective Models Only

2X Ø.12" (Ø3.1 mm)
.52" (13.2 mm)

Optional Mounting Bracket w/ Hardware MIB-1
1.12" (28.4 mm)
1.00" (25.4 mm)
1.27" (32.3 mm)
36°
.15" (3.8 mm)
R .12" (R 3.1 mm)
.71" (18.1 mm)
.98" (24.9 mm)

MINI-EYE™   Receivers

RoHS Compliant

Light Sources   **Retroreflective & Proximity Mode Sensors**

Beam

Light Sources wiring:
POS   RED
+   (1)BROWN*
10 TO
30 VDC
−   NEG   BLACK
(3) BLUE*

Receiver wiring:
POS   RED
(1)BROWN*
NOTE 1   LT/DK SELECT   WHITE
+   (2) WHITE*
10 TO
30 VDC
−   NOTE 2   OUTPUT LOAD   GREEN
(4)BLACK*
NEG   BLACK
(3) BLUE*

2   4

1   3

Connector Pin-Out For All Models

* Sensors With Connectors

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

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