U.S. EYE®

U.S. EYE® Photoelectric Sensors were designed and built by TRI-TRONICS to answer the demand for economical, high-performance sensors with U.S. quality—backed by U.S. service! They are available with a unique Contrast Indicator for difficult sensing tasks and without the Contrast Indicator for simple tasks at an even lower cost.

Function modes available:

- ON/OFF – output relay switches for duration of input.
- Type T1, delay timer – offers two options using light/dark switch:
  a) "ON" delay for product jam or backup detection.
  b) "OFF" delay for product void detection.
- Type T2, "one-shot" timer – may be used for short, momentary output pulse or in the "triggerable" mode for "stop motion" detection. (See Timing Sequence Data Charts.)

Contrast Indicator™ Models

The Contrast Indicator displays a scaled reading of the level of light received by the sensor's photo detector. The more light received, the higher the reading. The less light received, the lower the reading. Contrast is a comparison of the lightest state reading vs. the darkest state reading. The sensing task of any photoelectric sensor is to resolve the difference between these two light levels and switch the output accordingly. The U.S. EYE® switches its output when the light level passes the mid-scale reading of "5." Refer to section 1 for details.

Fiberoptic Models

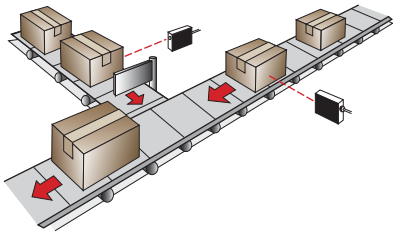
Flexible fiberoptic light guides are available in sizes small enough to fit into your toughest job sensing sites, with models designed for inaccessible places, detection of extremely small parts, high temperature applications, corrosive environments, or high vibration locations, as well as straight light guides for Beam Break and bifurcated light guides for proximity sensing.

Features

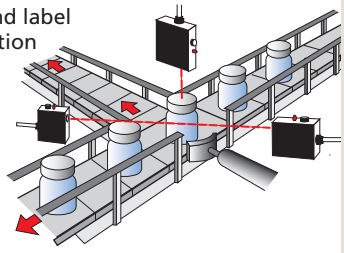
- Easy installation – includes all accessories, mounting bracket, reflector, and hardware
- Thru-beam models include both light source and receiver
- All models operate on AC or DC from 24 to 130 volts; relay or triac outputs
- Output relay contacts are rated at 5 amps
- High-speed response – limited by the output relay itself. 7 ms Beam Make or Beam Break
- Fiberoptic models available with infrared or red LED light sources
- All models equipped with sensitivity adjustments
- All models have red LED indicator showing status of output relay
- All models have green LED beam status indicator for easy alignment
- High-impact plastic case is dirt and moisture sealed
- Switching power supply eliminates failures often caused by power line transients

Typical Applications

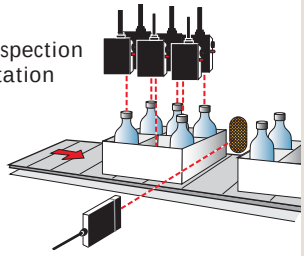
Gating, sorting, and seal inspection



Cap and label inspection



Product inspection and orientation



On or Off Delay Switch

With Contrast Indicator	Without Contrast Indicator	Light Source	Max Range	Speed of Response	Output Information
Beam Break Mode Retroreflective (Models Include 78P Reflector)					
UCR-A	UR-A	Infrared	15 ft.	7 ms	On/Off Relay
TUCR-A	TUR-A	Infrared	15 ft.	8 ms	On/Off Triac
UCR-AT1	UR-AT1	Infrared	15 ft.	7 ms	On or Off Delay
UCR-AT2	UR-AT2	Infrared	15 ft.	7 ms	One-Shot Motion
Beam Break Opposed Mode (Models Include Both Light Source and Receiver)					
UCT-A	UT-A	Infrared	75 ft.	7 ms	On/Off Relay
UCT-AT1	UT-AT1	Infrared	75 ft.	7 ms	On or Off Delay
UCT-AT2	UT-AT2	Infrared	75 ft.	7 ms	One-Shot Motion
Receiver Replacements W Contrast Indicator	Receiver Replacements W/O Contrast Indicator	Light Source Replacements			
UCT-A	UT-AR	UT	order replacements separately		
UCT-AT1	UT-AT1R	UT	order replacements separately		
UCT-AT2	UT-AT2R	UT	order replacements separately		
Beam Make Mode Proximity Diffused Beam					
UCD-A	UD-A	Infrared	3 ft.	7 ms	On/Off Relay
TUCD-A	TUD-A	Infrared	3 ft.	8 ms	On/Off Triac
UCD-AT1	UD-AT1	Infrared	3 ft.	7 ms	On or Off Delay
UCD-AT2	UD-AT2	Infrared	3 ft.	7 ms	One-Shot Motion

Fiberoptic Mode

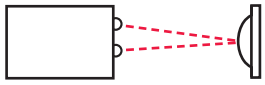
With Contrast Indicator	Without Contrast Indicator	Light Source	Opposed Range*		Proximity Range*		Speed of Response	Output Information
			With Lens	W/O Lens	With Lens	W/O Lens		
UCF-A	UF-A	Infrared	12 ft.	2 ft.	4 in.	2.5 in.	7 ms	On/Off Relay
TUCF-A	TUF-A	Infrared	12 ft.	2 ft.	4 in.	2.5 in.	8 ms	On/Off Triac
UCF-AT1	UF-AT1	Infrared	12 ft.	2 ft.	4 in.	2.5 in.	7 ms	On or Off Delay
UCF-AT2	UF-AT2	Infrared	12 ft.	2 ft.	4 in.	2.5 in.	7 ms	One-Shot Motion
UCFR-A	UFR-A	Red	6 ft.	8 in.	4 in.	1 in.	7 ms	On/Off Relay
UCFR-AT1	UFR-AT1	Red	6 ft.	8 in.	4 in.	1 in.	7 ms	On or Off Delay
UCFR-AT2	UFR-AT2	Red	6 ft.	8 in.	4 in.	1 in.	7 ms	One-Shot Motion

NOTES:
- FIBER OPTIC range tests utilized .125 in. diameter fiber bundles and UAC-15 lenses as indicated.
- PROXIMITY tests utilized a 90% Reflective target. RETROREFLECTIVE tests utilized a 78P reflector.

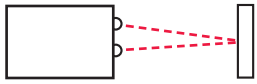
Specifications

U.S. EYE®

RETROREFLECTIVE



PROXIMITY



THRU-BEAM
dual beam for long range

FIBER OPTIC
(Refer to Fiberoptic
Light Guide Section)

Operating Range: 24 to 130 VAC or VDC
Power Consumption: 2 VA
Temperature Range: -10°C to + 50°C (14°F to 122°F)
Output:
- SPDT Relay Models: 5 amps @ 120 VAC
  Normally de-energized before input occurs.
- Isolated Solid State TRIAC Models: 1 amp at 50°C

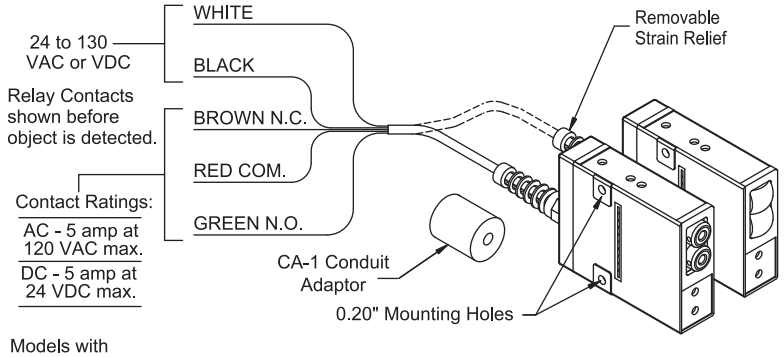
Response Time: Relax: 7 ms light or dark TRIAC: 8 ms
Timer Range: 0.1 to 15 seconds
Contrast Indicator Models: Displays a 10 bar LED scaled reading of contrasting light level
LED Light Source Wavelength: Infrared (880 nm), Red (660 nm)
Sensitivity Adjustment: Provided on all models
Beam Status Indicator: (Green LED) "ON" when beam is established
Output Indicator: (Red LED) Follows status of output relay
Cabling: 6' standard, 5-conductor

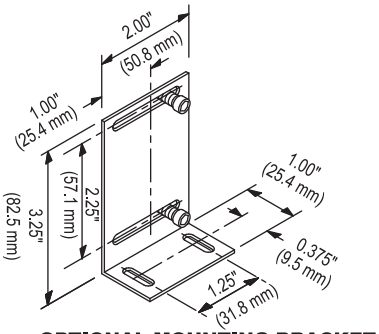
Accessories

Model #	Miscellaneous
CA-1	1/2 in. Conduit Adaptor
FSR-1	Flexible Strain Relief
UMB-1	U.S. Eye Bracket
USB-1	U.S. Eye Sub-Bracket

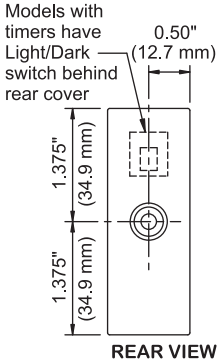
Product subject to change without notice.
Consult Factory for RoHS Compliance.

Connections and Dimensions U.S. EYE

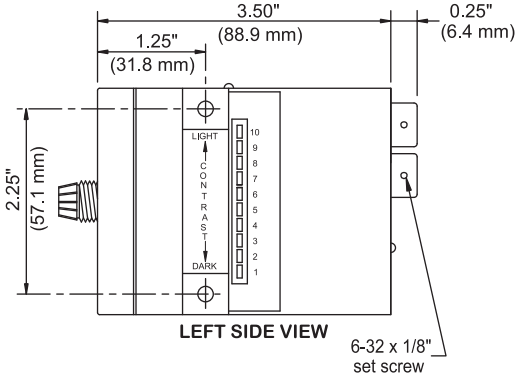




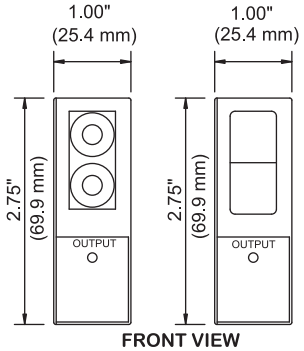
OPTIONAL MOUNTING BRACKET
MODEL UMB-1 WITH HARDWARE



REAR VIEW



LEFT SIDE VIEW



FRONT VIEW

U. S. EYE™ PHOTOELECTRIC SENSOR
(WITH MECHANICAL RELAY or TRIAC OUTPUT)
ALL DIMENSIONS IN BRACKETS ARE METRIC