

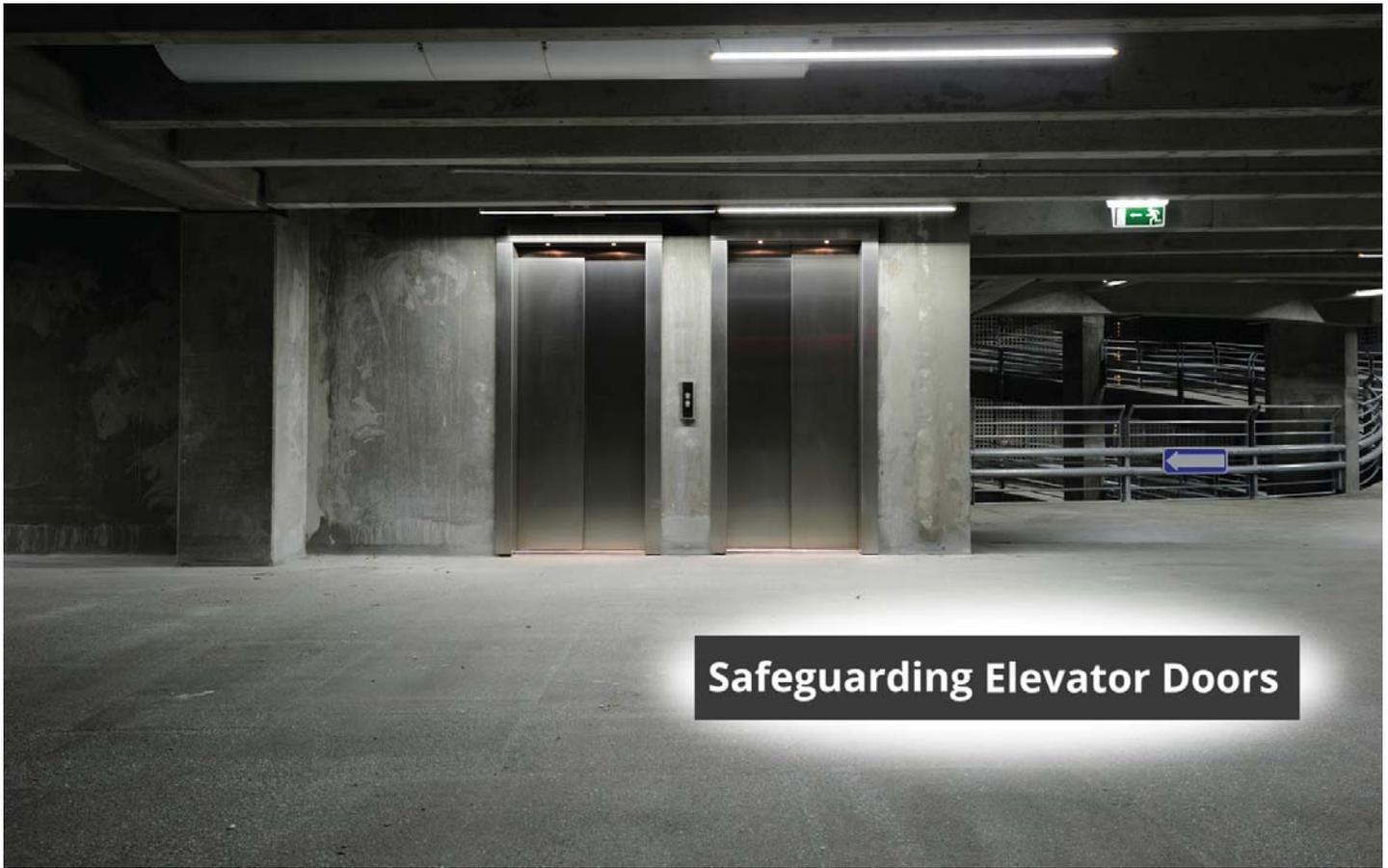


TRI-TRONICS[®]
Elevator Door Protection

Product Catalog



**Light Curtains and
Related Products**



TRI-TRONICS® Co. Inc. is a respected leader in elevator door protection. For more than 25 years we have designed and supplied trusted products for the elevator industry. Our sole focus on door protection ensures that we can provide the best product at a great price.

As the industry changes, so do we. Now on our fifth generation of light curtains, we strive to make certain you have the utmost in door protection, ease of installation and maintenance free operation you deserve.

Designed and manufactured in the US, TRI-TRONICS® is devoted to making the highest quality products the industry has to offer in elevator passenger door protection.

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INVISIGUARDTM

RAZOR

*Our fifth generation of light curtains.
Simply the best in door protection,
ease of installation and maintenance
free operation.*

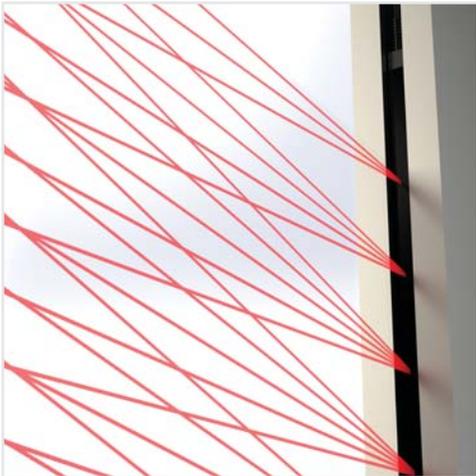
Features:

- Simple fast install. Excellent for modernizations
- Robust, attractive 12mm wide slim-line design covers a wide array of install configurations
- Long lasting Light Source (redundant LEDs) with Health Monitoring System (HMS)
- 5-way cross scanning detects small obstructions
- Flexible and durable 5 meter connectorized cable
- Universal voltage power supply 20 - 265 Vac/Vdc
- Complies with EN-81-70: 5.2.4 and is IP65 weatherproof rated
- Made in the USA



Maximum

door protection installed in minutes. Razor thin, the InvisiGuard™ Razor elevator edge installs on modern as well as older cab doors and comes complete with all mounting brackets and hardware. Our unique dovetail bracket design makes it easy to configure the edge for mounting to side and center parting doors. Custom brackets can be tailored to OEM needs. The universal power supply makes connection to any door controller and cab power a snap.



Maximum protection means piece of mind. An exclusive scanning pattern of 32 individual beam pairs and 154 cross scanning beams provide a net of infrared light to catch obstructions. Door protection runs 25mm up to 1800mm above the door sill and is compliant with EN 81-70 standards. Optical synchronization simplifies edge to power supply connection.

Light source and receiver array cables are interchangeable. The 5 meter cables are constructed of high-flex material and are fitted

with water-tight industrial strength M8 connectors. Cable replacement is easy. There is no need to remove the edge or open the power supply.

Our efficient universal voltage power supply adapts to AC or DC supply voltages from 20 to 265 volts and is perfect for any modernization. The supply enclosure is tough, compact and mounts in tight spaces or top of cab. It features a watertight see-through lid to inspect status indicators, switch settings and wiring. An obstruction buzzer comes standard with the supply or you can order a full featured supply with nudging circuit.



If you prefer direct powering from the door controller, the low power consumption light source and receiver arrays operate from 11 to 40 Vdc. Output is push-pull, short-circuit and surge protected. Output polarity is switchable to match door controller input needs.

Our Health Monitoring System gives a fast visual indication of proper operation after install and gives maintenance personnel an indication that the system is fully functional during inspection.

Cost effective with a three year warranty, the InvisiGuard Razor is unmatched in elevator door protection!



Specifications

Optical

Operating range: 0 to 3.5m (0 to 11.5 ft)
 Protection height: . . . 1817mm (71.547 in)
 Lowest beam: 22mm (0.867 in)
 Beam spacing: 58mm (2.283 in)
 Vertical displacement at 0mm: 12mm
 Horizontal displacement at 0mm: 6mm
 Horizontal displacement at 25mm: . . 15mm
 Horizontal displacement at 50mm: . . 25mm
 Horizontal displacement at 75mm: . . 37mm
 Longitudinal angular displacement at 0mm: 25°
 Transversal angular displacement at 0mm: 60°
 No. of optical elements: 32
 No. of beams
 at 32 elements: . . . 154 criss-cross beams
 Max. ambient light: 100,000 Lux

Mechanical

Dimensions
 (w x h x l): . 12mm x 15.85mm x 1903mm
 Housing material: Aluminum
 Surface protection: . Anodized, natural color
 Enclosure rating: IP65
 Mounting holes required: . . . No less than 4
 Operating temperature range: -20°C to +60°C

Electrical

Supply voltage: 11 to 40Vdc
 Typ. current consumption
 at 24 Vdc: 65mA
 Output: . . Push-Pull, short circuit protected
 Output logic polarity: . . High/Low selectable
 Max. output load: 100ma
 Typ. response time at 32 elements: . . 70ms

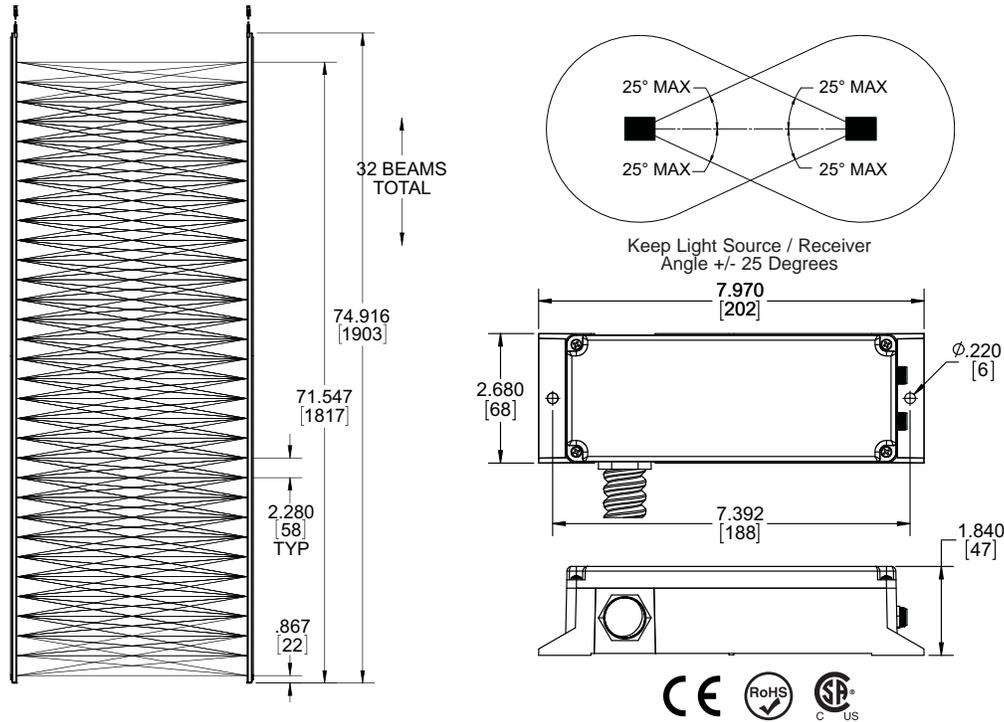
General

Synchronization: Optical
 Cable length: 5m
 Material: PUR, AWG26
 Edge connection M8 (3-Pin)
 Highest and lowest beam standard: EN-81-70: 5.2.4
 EMC emission: EN 12015:2014
 EMC immunity: EN 12016:2013
 Vibration: IEC 60068-2-6:2007
 Shock: IEC 60068-2-27:2008
 Cable durability: IEC 60227-2:2003
 Composite temperature/humidity cyclic test: IEC 60068-2-28: 1974
 IP rating: IEC 60529: 2001
 RoHS: 2011/65/EU
 Certificates: . . CE, CSA B44.7 ASME A17.5

Power supply

Enclosure rating: IP65
 Rated voltage: . . . 20 to 265 Vac/Vdc, single phase, 50/60Hz
 Fuse rating: 500ma
 Output voltage: . . 24 Vdc @100ma +- 10%
 Contact Rating: . . 10A/250Vac / 8A@28Vdc
 Certificates: . . CE, CSA B44.7 ASME A17.5
 EMC emission/
 EMC immunity: EN 12015:2014, EN 12016:2013
 Vibration and shock: . . IEC 60068-2-6:2007
 IEC 60068-2-27:2008 IEC 60227-2:2003
 Fire protection: UL 94 5VA
 Housing material: ABS case, PC clear cover
 Operation Temp range: . . . -20°C to +60°C
 Obstruction Buzzer: Standard
 Relay test button: Standard
 Nudge relay: Optional

Dimensions



How to Order

Model	Description
IG-R	InvisiGuard System with PSC-UR universal power supply
IG-RN	InvisiGuard System with PSC-URN nudging universal power supply
IG-RDC	InvisiGuard System without universal power supply





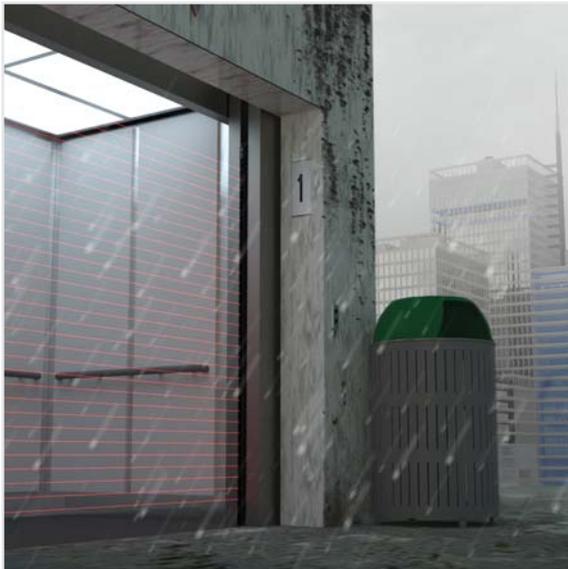
Features:

- Robust weatherproof design with metal housing to withstand harsh environments such as vibrations, collision, and abuse
- Redundant emitters and high-flex robotic cable extends system life
- Wide angle of view makes alignment easy
- Totally immune to ANY ambient light, including strobes, fluorescent, and direct sunlight
- Waterproof version with waterproof power supply



The **LEADINGEDGE® SERIES** of elevator door protection systems are carefully designed to outperform, in every aspect, all door protection systems on the market. Our wide-angle lenses allow for the sharp turning radius of closing doors on round elevators. Power supply enclosure is designed for **easy installation** and rated up to NEMA4. Jamb mounting is simplified using our unique nylon snap-in fasteners. The array cables are Hi-Flex robotic grade for extended life and are “connectorized” for ease of installation. Save time and money with our built-in system test procedures. The power supply features a test button simulator for beam break (hold for obstruction/release to clear) and a push-to-test button that energizes the master control relay.

For installations without our power supply, the light source and receiver arrays can also operate on virtually any controller power and input. The NPN output from the receiver array is continuously short-circuit protected, and the array cable connectors are interchangeable. The supply voltage requirements are 12 to 30 Vdc @ 125mA.



The **LEADINGEDGE® WATERPROOF “W” SERIES** with technology originally developed for the NASA shuttle launch site is now available for you. Great for wash-down environments, outdoor elevators, parking garages, mono rail & light rail, beach high-rise apartments & condominiums, or any extreme wet conditions. Fully encapsulated, rugged, and durable enough to withstand a wide variety of extreme conditions.



The **LEADINGEDGE® VANDAL RESISTANT “V” SERIES** great for environments where tamper-proofing or quick change out is desired. Mounting brackets are installed easily and quickly, and are very secure. Edges are released from the top of the edge and can be replaced in minutes. They can also be fully encapsulate as a waterproof option.

Reliability, superior light immunity, and weatherproof...the LEADINGEDGE® means less down time for your elevator's door operation.



Specifications

LIGHT BEAM AND RECEIVER ARRAYS

Size: 1.57inW x 81.125inL x .75inD
(39.7mmW x 2061mmL x 19mmD)

Cable Length: 18ft (5486mm),
connectorized at both ends

**Distance between bottom of receiver
housing and lowest detector:** 2in
(50.8mm)

**Distance between bottom of receiver
housing and highest detector:**
64in (1625mm)

Range: Up to 12ft (3658mm)

Number of light beams: 64 (2 per
detector operating in a redundant
mode) Rated at 100,000 lux

Operating Voltage Range of Arrays:
12-30 Vdc

**Maximum allowable installed
misalignment:** ± 20 degrees @ 3ft

Response Time: 50 milliseconds
nominal, 75 milliseconds max.

Maximum Current Draw: 130mA total
of both arrays

Ratings: NEMA 1 for Standard Leading
Edge; NEMA 4, IP67 for
Waterproof Arrays

Diagnostic Indicators:

Receiver Array Indicators:

TOP RED LED: DSA Indicator
(Dynamic Sensitivity Adjustment)
LOWER RED LED: Output Status
Indicator

Light Beam Array:

RED LED: Flash Rate Indicator.
Flash Rate denotes Operational
Status.

**Exceeds ADA
American Disability
Requirements**

POWER SUPPLIES

Size: Non-Metallic, 3.25inH x 9.2inW x
6inD (82.5mmH x 233.1mmW x
152mmD)
Non-Metallic Waterproof, NEMA 4,
3inH x 9.375inW x 5inD

Voltage Requirements: 120 or 240Vac
Power Supply

Power Consumption: 5 VA maximum

Plug-In Output Relay:

MASTER CONTROL RELAY...
SPDT action with contacts rated
up to 10 A @ 250Vac or 30Vdc.
Relay de-energizes when
obstruction is detected.

Models Equipped with Nudge-1 PC Assembly:

Accessory Relay Switch

Selectable Options:

Option 1: Functions as a Nudging
Relay that energizes after
Adjustable Delay.

Option 2: Functions as a
Redundant Relay...i.e., Master
Control Relay and Accessory
Relay operate simultaneously.

Buzzer Options: ON-OFF Switch
Selectable... energizes after
Adjustable Delay.

Diagnostic Indicators:

Main output relay status indicator
Nudge relay status indicator on
Nudge Board
DC power ON indicator

Nudge Time Out: Adjustable from 5 to
45 seconds

Power Supply Enclosures: NEMA 1 for
Non-Metallic
NEMA 4, IP67 Non-Metallic for "W"
Series

Operating Temperature Range: -40°F
to +158°F (-40°C to 70°C)

Operating Humidity Range: Up to 95%
relative humidity at
104°F (40°C)



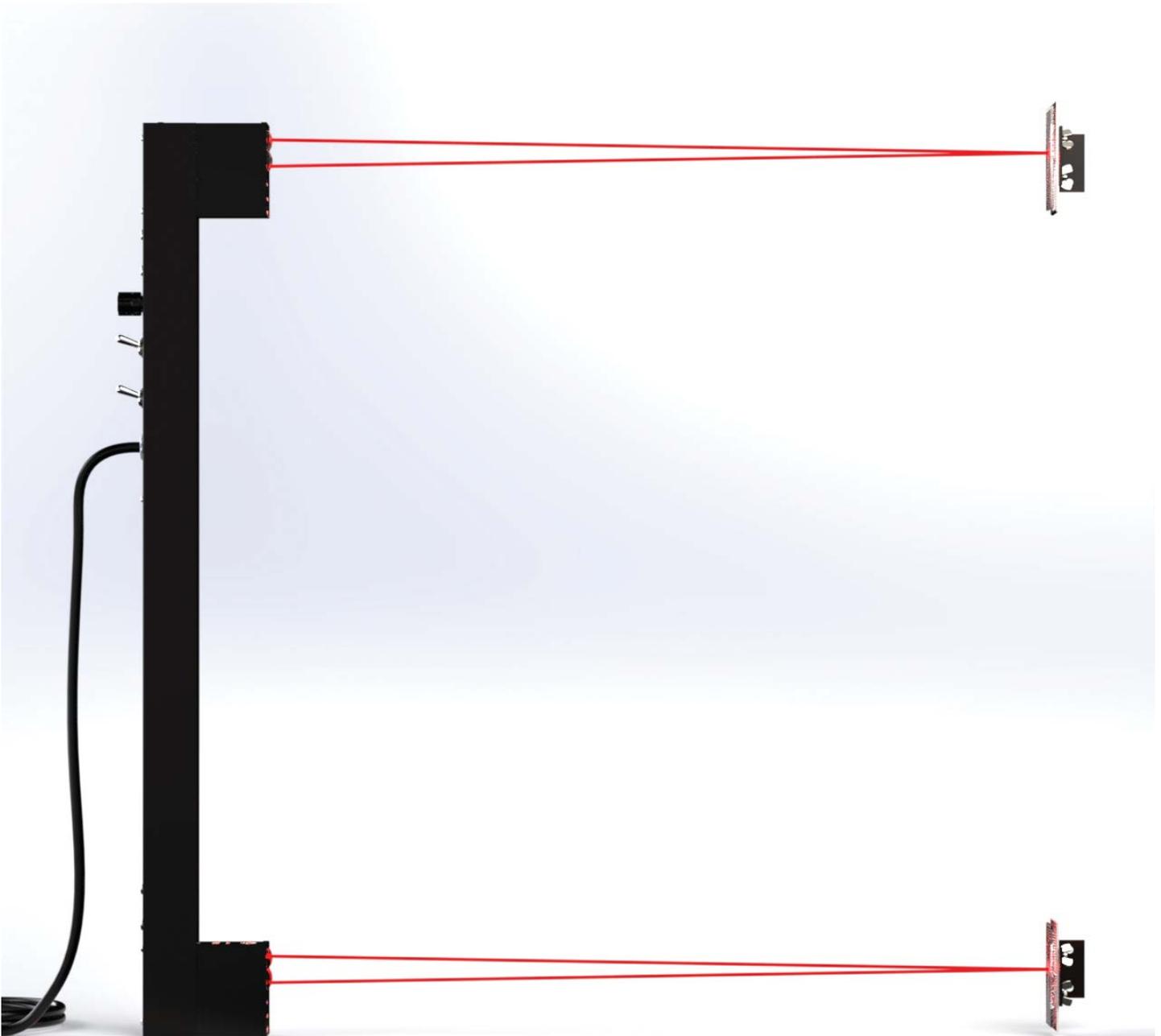


Complete Standard Systems Description Part Numbers	Power Supply Case		Nudging		Side Parting	Center Parting
	PSC-4 / PSC-4N	PSC-5W / PSC-5NW	Yes Nudge*	No		
EDGE-4	X			X	X	X
EDGE-4VS (Vandal Resistant/Fast Mount)	X			X	X	
EDGE-4VC (Vandal Resistant/Fast Mount)	X			X		X
EDGE-4N	X		X		X	X
EDGE-4NVS (Vandal Resistant/Fast Mount)	X		X		X	
EDGE-4NVC (Vandal Resistant/Fast Mount)	X		X			X
Complete Waterproof Systems						
EDGE-5W		X		X	X	X
EDGE-5WVS (Vandal Resistant/Fast Mount)		X		X	X	
EDGE-5WVC (Vandal Resistant/Fast Mount)		X		X		X
EDGE-5NW		X	X		X	X
EDGE-5NWVS (Vandal Resistant/Fast Mount)		X	X		X	
EDGE-5NWVC (Vandal Resistant/Fast Mount)		X	X			X
Leading Edge Arrays Less-Power Supply <i>Note: Accessory Connector Not Included</i>						
EDGE-6					X	X
EDGE-6VS (Vandal Resistant)					X	
EDGE-6VC (Vandal Resistant)						X
EDGE-6W (Waterproof)					X	X
EDGE-6WVS (Waterproof/Vandal Resistant/Fast Mount)					X	
EDGE-6WVC (Waterproof/Vandal Resistant/Fast Mount)						X
Accessory Connectors Wire direct to Door Operator or existing power supply for EDGE-6						
ECl-1	Leading Edge Array Interface Cable NPN					
ECl-3	Leading Edge Array Interface Cable NPN, use with GAL MOVFR					
ECl-4	Leading Edge Array Interface Cable NPN Sinking/PNP Sourcing, N.C. Opto Isolated					
ECl-5	Leading Edge Array Interface Cable NPN Sinking/PNP Sourcing, N.O. Opto Isolated					
All standard models include the EGAC-4 kit, which consists of mounting brackets and hardware. All VS/VC models include the EGAC-6 kit. * The NUDGE-1 PC Assembly can be field installed on any model power supply.						



Features:

- Dependable, self-contained, retroreflective eye
- Optically superior in dusty environments
- Automatic Disable Timer model available
- Only 1" overall width to allow mounting in tight spaces
- Easy-to-see LED output indicator
- High impact plastic case is dirt and moisture sealed





The Complete Prewired System from **ElevatorEye™** is a dependable, ready-to-install system. It has a unique redundant operation – if one eye fails, the other continues to operate the door. We have designed the Complete Prewired System for easy installation; the eyes are easily field-replaceable via quick-disconnect connectors with no need to remove the mounting brackets. There are convenient ON/OFF switches built in for each eye. The system is so lightweight that it weighs less than one pound. There is also a polarized filter model available which eliminates problems caused by reflected light from shiny objects.

How to Specify COMPLETE DUAL EYE SYSTEMS

Model	Description
UEES-1A	Standard prewired system includes two ESB-1 assembly mounting brackets, two 98-S reflectors, two RB-2 reflector mounting brackets, and 15 feet of cable
UEES-2A	Same as UEES-1A with addition of adjustable Automatic Disable Timer with ON/OFF switch for each eye.



Back Up any Mechanical Door Edge Control with Our Dependable Elevator Door Controls...That Cost Less!

With the **ElevatorEye™** you can select individual eye systems that fit any door application to back up the mechanical safety edge. The reflectors, mounting brackets, and all hardware are included. They are easy to install and even easier to maintain. They provide dependable operation up to 12' using infrared invisible light and are unaffected by light from other sources. They meet or exceed state and local codes, even the **ADA** (Americans with Disabilities Act) requirements, and have the highest quality and reliability. There is an **Automatic Disable Timer** model available. The **ElevatorEye™** is sealed in a high-impact plastic case, which is dirt and moisture resistant.

How to Specify INDIVIDUAL PHOTO-EYES

Model	Description
UEER1	Standard eye includes one UMB-1 eye mounting bracket, one CA-1 1/2in conduit adapter, one 98-S reflector, 6ft of cable, and hardware
UEER2	Same as UEER1 with addition of adjustable Automatic Disable Timer with ON/OFF switch.
UEER3	12-24VDC w/ NPN Output

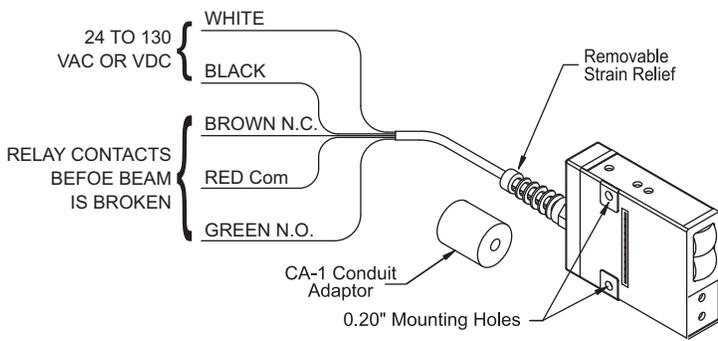


MODEL UEER1
Standard Eye

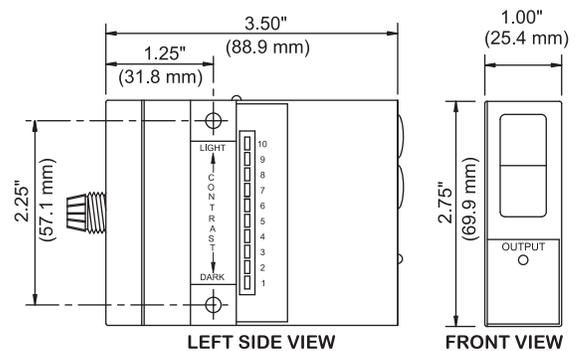
UEER2
With Auto Disable

- Power Input:** From 24 to 130Vac or Vdc
- Power Consumption:** 2 VA
- Temperature Range:** 14°F to 122°F (-10°C to 50°C)
- Output Relay:** (SPDT) 5 Amps at 120Vac or Vdc
- Relay Operation:** Normally de-energized before input occurs
- Response Time:** 10 milliseconds
- Disable Timer:** Adjustable from 10 to 45 seconds
- Light Source:** Infrared (invisible)
- LED Light Source Wavelength:** 940nm
- Output Indicator:** (Red LED) Follows status of output relay
- Cabling:** 6ft standard, 5-conductor, 22 AWG, 7/30 AWG

Connections



Dimensions

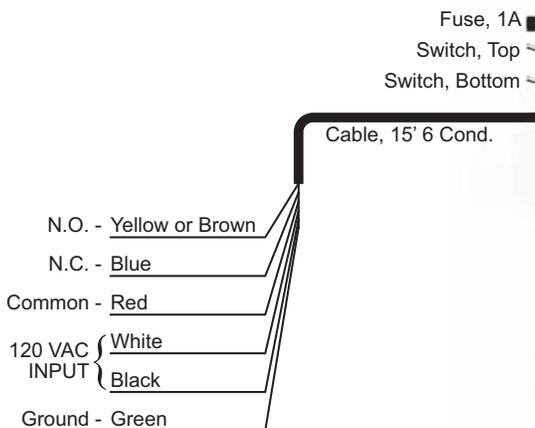


CONNECTIONS - COMPLETE SYSTEMS

- Black } 120 VAC
 - White } 50/60 Hz
 - Green - Ground
 - Red - Common
 - Blue - N.C. Eye
 - Brown (or Yellow) - N.O. Eye
- **Relay contacts before beam is broken.

Elevator Eye
UEER-1M
(with Molex connector)

2-Reflectors on
Mounting Brackets
(adjustable)



Complete Prewired Systems

Model UEES-1 Standard System
Model UEES-2 With Auto Disable

Note: When changing modules, turn off both switches and remove fuse.

Relay Contact Rating:
AC 250V = 2 AMP
DC 30V+ 3 AMP

"Easy-to-Replace"
Photo-Eyes

Model UEES-1A Dual Beam Elevator-Eye System
Model UEES-2A System with Auto Disable



IG-C5M
5m Cable



IG-C5MDC
DC 5m Cable



IG-RLA
InvisiGuard Light Source
Array (w/mounting kit)



IG-RRR
InvisiGuard Receiver Array
(w/mounting kit)



IG-LB
L-Bracket
Mounting Kit



IG-SB
Straight Bracket
Mounting Kit



PSC-UR
Power Supply
(w/mounting screws)



PSC-URN
Power Supply with Nudge
(w/mounting screws)



LA-2CABLE
Light Beam Array
Replacement Cable
25' (7.62m)



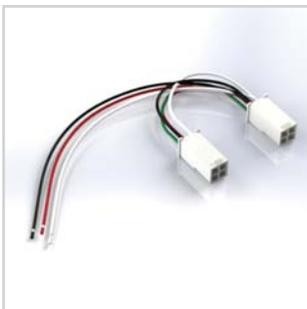
RA-2CABLE
Receiver Array
Replacement Cable
25' (7.62m)



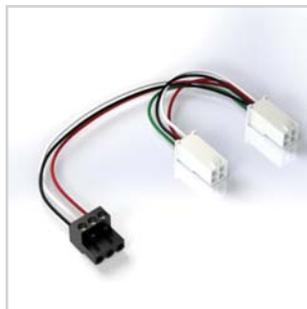
LEEC-25
Extension Cable
25' (7.62m)



LEEC-50
Extension Cable
50' (15.24m)



ECI-1
Elevator Cable Interface



ECI-3
Elevator Cable Interface
for GAL MOVFR



ECI-4
Elevator Cable Interface



ECI-5
Elevator Cable Interface



PSC-4
Power Supply
In non-metallic housing



PSC-4N
Power Supply with Nudging
In non-metallic housing



PSC-5W
Power Supply
In waterproof housing



PSC-5NW
Power Supply with Nudging
In waterproof housing



PSC-4PC
Power Supply Board



NUDGE-1
Nudging Control Board
with Buzzer Circuit



M12-4F
Field Replaceable
Female 4-Pin Connector



M12-4M
Field Replaceable
Male 4-Pin Connector



EGAC-4
Mounting Accessory Kit



UEER-1
Standard Eye



UEER-2
With Auto Disable



UEER-3
12-24Vdc with NPN Output



507-5643
UEES elevator system
replacement cable



UEES-1A
Standard prewired system



UEES-2A
Automatic Disable Timer
prewired system



CA-1
Conduit Adapter
.5" (12.7mm)



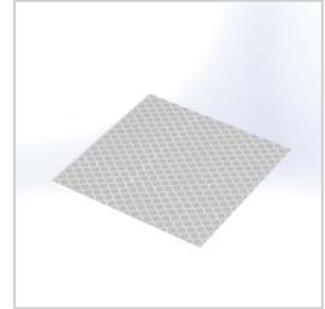
78P
Screw Mount
4.4" x 1.9"
(111.8mm x 48.3mm)



AR3
Screw Mount
3" (76.2mm) diam.



98S
Self-Adhesive Mount
3.2" x 1.45"
(81.3 x 36.8mm)



2000X
Cut Reflector Tape
3"x3"
(76mm x 76mm)



RB-1
Mounting kit includes
98S Reflector and
RB-2 Bracket



RB-2
98S Reflector
Mounting Bracket



ESB-1
Mounting Bracket
used with UEES



UMB-1
Mounting Bracket
used with UEER1, UEER2



USB-1
Mounting Bracket
sub-assembly used with
UMB-1 for vertical
mounting

**For additional parts, products, and information
please visit our website at:
www.elevatoredge.com**

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E-MAIL: info@elevatoredge.com



WARRANTY & LIMITATION OF LIABILITY

TRI-TRONICS COMPANY, INC. warrants that the products delivered by it will be of the kind and quality described in the order or contract and will be free of defects in workmanship or material. Should any failure to conform to the express warranty appear within three (3) years, TRI-TRONICS shall upon notification correct such non-conformity, including non-conformance with the specifications, at its option, either by repairing any defective part or parts or by making available, F.O.B. the seller's plant, a repaired or replacement part. This warranty shall be for a period of three (3) years after the date of delivery of any product not meeting such specifications.

This warranty is in lieu of all warranties of merchantability, fitness for purpose, or other warranties, expressed or implied, except of title and against patent infringement. Correction of non-conformities in the manner and for the period of time provided above shall constitute fulfillment of all liabilities of TRI-TRONICS to anyone, whether based on contract, negligence, or otherwise with respect to or arising out of such products.

TRI-TRONICS shall not be liable for special, indirect, or consequential damages. The remedies set forth herein are exclusive, and the liability of TRI-TRONICS with respect to any contract or sale or anything done in connection therewith, whether in contract, in tort, under any warranty, or otherwise, shall not, except as expressly provided herein, exceed the price of the product or products on which such liability is based.

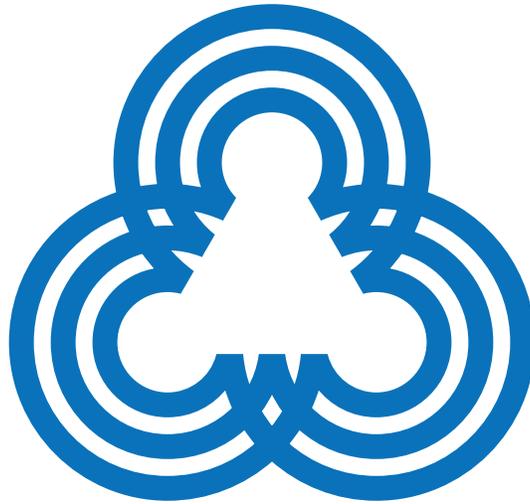
This warranty shall not apply to any product which has been subjected to misuse, negligence, accidental or misapplied or modified or repaired usage by unauthorized persons, or as the result of improper installation thereof. Furthermore, any improper use, operation beyond capacity, substitution of parts not approved by TRI-TRONICS, or any alteration or repair by others in such manner as in TRI-TRONICS' judgment affects the product materially and adversely shall void this warranty.

Please read important notice!

TRI-TRONICS® elevator door control products are not designed for machine safety and are not to be used in industrial robotic areas or around machines that could pinch, grab, or cut a person or persons in close proximity. They are not designed for residential elevators in conjunction with scissor gates. They are designed solely for elevator door protection.

That protection is not 100%. In extreme rare conditions, doors can still close on obstacles that are present. Our device, as well

as other door protection systems on the market, cannot provide absolute safety for elevator passengers passing through the doorway. Our system is not to be used as the final fail-safe device on the door mechanism. There must be, by code, other safety means to prevent passengers from being hurt by the elevator doors. Ultimate safety function has to be provided by a fail-safe force and kinetic energy limiter. These force situations can and should be detected by the elevator control and should take the elevator out of service.



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