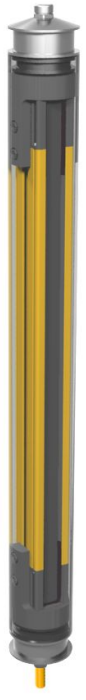
EZ-SCREEN LS Safety Light Curtain in an IP69K Hygienic Housing Datasheet

Datasheet

EZ-SCREEN LS Safety Light Curtain in an IP69K Hygienic Housing for use in washdown environments



- Hygienic design suited for food and beverage applications
- FDA-grade polycarbonate tubing and stainless steel end caps
- Stainless steel mounting components
- Brackets and fasteners sold separately
- Ideal for high-pressure washdown applications
- IP69K
- EZ-SCREEN LS emitters and receivers are factory-installed in the enclosures

The EZLSA-HTE EZ-SCREEN LS Safety Light Curtain in an IP69K hygienic housing is designed specifically for use in hygienic and washdown applications. The enclosures are constructed of FDA-approved rugged polycarbonate tubing with stainless steel end caps. The enclosures are mounted with stainless steel mounting brackets and fasteners.

Using the enclosure affects the sensing range. When used in pairs, the range is reduced by 30%.

Product Family	-	System Type	Resolution	-	Defined Area[1]		-	Termination
EZLSA-HTE		E = Emitter R = Receiver	23 = 23 mm		280 350 420 490 560 630	700 770 840 910 980 1050		Blank = 25 ft., 8-wire, high durometer PVC Cordset F = Remote Fixed Blanking Receiver model with additional 25 ft. cordset for blanking configuration

Example model number: **EZLSA-HTE-R23-770** for a standard receiver model, 23 mm optical resolution, 770 mm defined area, and a 25 ft cordset.

See the Remote TEACH Fixed Blanking (Wiring) section in the EZ-SCREEN LS Instruction Manual (p/n 179480) for Remote Fixed Blanking wiring instructions.

Important Information

For complete technical information about this product, including installation instructions, application requirements and guidelines, technical specifications, and accessories, go to www.bannerengineering.com and search for the instruction manual, p/n 179480

CAUTION: Reduced Sensing Range—Sensing range is reduced 30% because of tubular construction.

WARNING:

- **Maintain Required Safety Distance**
- **Failure to calculate this distance correctly and to maintain minimum safety distance could result in serious injury or death.**
- The light screen produced by the optical safety system sensors must be placed at a minimum safe distance from the dangerous motion of the machine being guarded. This necessary minimum distance is called the safety distance, and is discussed in the instruction manual.

Responsibilities of Qualified Personnel

To access the EZ-SCREEN LS Safety Light Curtain instruction manual (p/n 179480):

- Go to www.bannerengineering.com to download the manual in the language you require; or
- Call Banner at 1-888-373-6767 or call your local Banner Representative to request a manual

[1] Remote Fixed Blanking model lengths start at 350 mm

Original Instructions
July 10, 2023

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p/n: 202514 Rev. F

ПРОМЭЛЕКТРОНИКА/ sales@prom-elec.com

WARNING:
It is the responsibility of the Qualified Personnel to:
- Carefully read, understand, and follow the information in the EZ-SCREEN LS instruction manual
- Perform a risk assessment of the specific machine-guarding application
- Determine what risk reduction measures are appropriate per the results of the risk assessment
- Properly install, configure, and then verify that the risk reduction measures are working as intended
- Periodically re-verify, as needed, that the risk reduction measures are working as intended

Failure to follow any of these responsibilities may potentially create a dangerous condition that could lead to serious injury or death.

Pour accéder au manuel d'utilisation EZ-SCREEN LS Safety Light Curtain (réf. 179480):
- Rendez-vous sur le site www.bannerengineering.com pour télécharger le manuel dans la langue de votre choix, ou
- Contactez Banner au 1-888-373-6767 ou appelez votre représentant Banner local pour demander le manuel.

WARNING:
Il incombe au personnel qualifié de:
- Lire avec attention, bien comprendre et suivre les instructions du manuel du système EZ-SCREEN LS
- Effectuer une évaluation des risques de l'application de protection spécifique à la machine
- Identifier les mesures de limitation du risque appropriées en fonction des résultats de l'étude de risques
- Installer et configurer correctement le ou les dispositifs de protection destinés à limiter le risque puis vérifier qu'ils fonctionnent de la façon prévue
- Revérifier périodiquement, s'il y a lieu, que ces dispositifs de protection fonctionnent toujours comme il se doit

Le non-respect de l'une de ces responsabilités peut potentiellement créer une condition dangereuse pouvant entraîner des blessures graves, voire mortelles.

So beziehen Sie die Bedienungsanleitung für den EZ-SCREEN LS Safety Light Curtain (Ident-Nr. 179480):
- Laden Sie die Anleitung in der gewünschten Sprache von unserer Website (www.bannerengineering.com) herunter oder
- fordern Sie die Anleitung telefonisch bei der Banner-Hotline unter der Rufnummer +1-888-373-6767 oder bei einer Banner-Vertretung in Ihrer Nähe an.

WARNING:
Es liegt in der Verantwortung des qualifizierten Personals,
- Die Informationen in der Anleitung für den EZ-SCREEN LS gründlich durchzulesen, zu verstehen und zu befolgen
- Eine Risikobeurteilung der spezifischen Maschinenschutzanwendung durchzuführen
- Ermitteln, welche Maßnahmen zur Risikominderung aufgrund der Ergebnisse der Risikobeurteilung angemessen sind
- Das gesamte Schutzsystem fachgerecht installieren, konfigurieren und anschließend auf die bestimmungsgemäße Funktion überprüfen
- Je nach Bedarf regelmäßig nachprüfen, ob die Maßnahmen zur Risikominderung wie beabsichtigt funktionieren

Die Nichtbeachtung einer dieser Verantwortlichkeiten kann zu gefährlichen Zuständen führen, die zu schweren oder tödlichen Verletzungen führen können.

Per accedere al manuale di istruzioni dello EZ-SCREEN LS Safety Light Curtain (codice 179480):
- Andare al sito www.bannerengineering.com per scaricare il manuale nella lingua desiderata; oppure
- Contattare Banner al numero telefonico 1-888-373-6767 oppure il rappresentante Banner locale per richiedere un manuale

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WARNING:
È responsabilità della Personale Qualificato:

- Leggere attentamente, assicurarsi di avere compreso e seguire le indicazioni riportate nel manuale di istruzioni del EZ-SCREEN LS
- Eseguire una valutazione dei rischi dell'applicazione di protezione della macchina specifica
- Determinare quali misure di riduzione del rischio sono appropriate in base ai risultati della valutazione del rischio
- Installare e configurare correttamente il sistema, quindi verificare che le misure di riduzione del rischio assicurino i risultati previsti
- Ricontrollare periodicamente, in base alla necessità, che tali misure di riduzione del rischi continuino ad assicurare i risultati previsti

La mancata osservanza di una qualsiasi di queste responsabilità può potenzialmente creare una condizione pericolosa che potrebbe causare lesioni gravi o mortali.

Para obtener el manual de instrucciones del EZ-SCREEN LS Safety Light Curtain (p/n 179480):

- Visite www.bannerengineering.com para descargar el manual en el idioma que necesite; o
- Llame a Banner al 1-888-373-6767 o llame a su representante local de Banner para solicitar un manual

WARNING:
Es responsabilidad del personal calificado:

- Leer con atención, entender y seguir la información en el manual de instrucciones de la EZ-SCREEN LS
- Realizar una evaluación de riesgos que incluya la aplicación de protección de la máquina específica
- Determinar qué medidas de reducción de riesgos son apropiadas según los resultados de la evaluación de riesgos
- Instale, configure y luego verifique correctamente que las medidas de reducción de riesgos funcionan según lo previsto
- Vuelva a verificar periódicamente, según sea necesario, que las medidas de reducción de riesgos funcionan según lo previsto

El incumplimiento de cualquiera de estas responsabilidades puede crear potencialmente una condición peligrosa que podría provocar lesiones graves o la muerte.

Adjacent Reflective Surfaces

WARNING:

- **Do not install the system near reflective surfaces**
- Reflective surfaces could reflect the sensing beam(s) around an object or person within the defined area, preventing detection by the system. Failure to prevent reflection problems results in incomplete guarding and an optical short circuit that could result in serious injury or death.
- Do not locate the defined area near a reflective surface. Perform the trip test, as described in the product documentation, to detect such reflection(s).

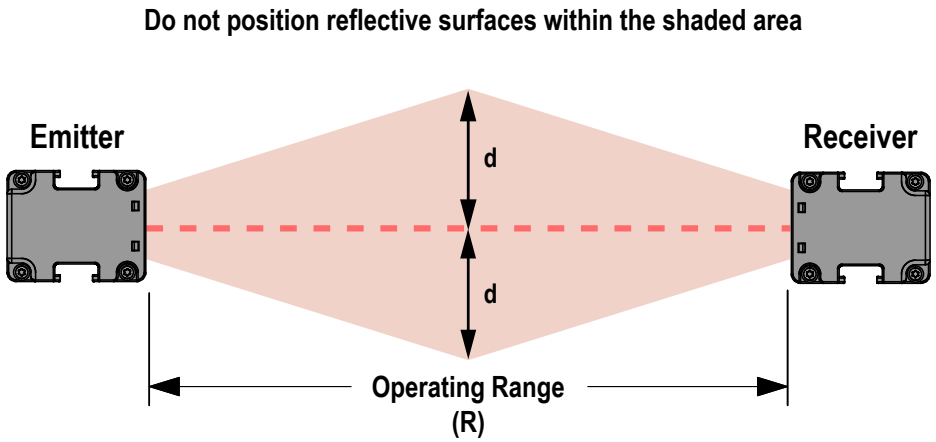
A reflective surface located adjacent to the defined area may deflect one or more beams around an object in the defined area. In the worst case, an optical short circuit may occur, allowing an object to pass undetected through the defined area.

This reflective surface may result from shiny surfaces or glossy paint on the machine, the workpiece, the work surface, the floor, or the walls. Beams deflected by reflective surfaces are discovered by performing the trip test and the periodic checkout procedures. To eliminate problem reflections:

- If possible, relocate the sensors to move the beams away from the reflective surface(s), being careful to maintain adequate separation distance
- Otherwise, if possible, paint, mask, or roughen the shiny surface to reduce its reflectivity
- Where these are not possible (as with a shiny workpiece or machine frame), determine the worst-case resolution resulting from the optical short circuit and use the corresponding depth penetration factor (Dpf or C) in the Safety Distance (Minimum Distance) formula; or mount the sensors in such a way that the receiver's field of view and/or the emitter's spread of light are restricted from the reflective surface
- Repeat the trip test to verify that these changes have eliminated the problem reflection(s). If the workpiece is especially reflective and comes close to the defined area, perform the trip test with the workpiece in place

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Adjacent Reflective Surfaces



For 0.1 to 3 m (4 in to 10 ft) Operating range: d = 0.13 m (5 in)

For Operating range > 3 m (> 10 ft): d = 0.0437 × R (m or ft)

Specifications

See the EZ-SCREEN LS instruction manual (p/n 179480) for the complete set of safety light curtain specifications, installation instructions, application requirements, and guidelines.

Operating Range
0.1 m to 8.4 m (4 in to 27 ft)

Resolution
23 mm

Operating Conditions
–20 °C to +55 °C (–4 °F to +131°F)
95% maximum relative humidity (non-condensing)

Safety Rating
Type 4 per IEC 61496-1, -2
Category 4 PL e per EN ISO 13849-1
SIL3 per IEC 61508; SIL CL3 per IEC 62061
PFHd: 3.92×10^{-10}

Effective Aperture Angle (EAA)
Meets Type 4 requirements per IEC 61496-2, Section 5.2.9

Output Signal Switching Devices (OSSDs)
Two redundant solid-state 24 V dc, 0.5 A max. sourcing OSSD (Output Signal Switching Device) safety outputs (Use optional interface solutions for ac or larger dc loads)
ON-State voltage: > Vin – 1.5 V dc
OFF-State voltage: 0 V dc typical, 1 V dc maximum (no load)
OFF-State, maximum allowed external voltage: 1.5 V dc(1)
Maximum load capacitance: 1.0 µF
Maximum cable resistance to load: 5 ohms per wire
Maximum leakage current: 50 µA (with open 0 V)
OSSD test pulse width: 200 µs typical
OSSD test pulse period: 200 ms typical
Switching current: 0 A minimum; 0.5 A maximum (per OSSD)

Shock and Vibration
Components have passed vibration and shock tests according to IEC 61496-1
This includes vibration (10 cycles) of 10-55 Hz at 0.35 mm (0.014 in) single amplitude (0.70 mm peak-to-peak) and shock of 10 g for 16 milliseconds (6,000 cycles).

(1) The maximum voltage allowed on the OSSDs in the OFF-state without a lockout occurring. This voltage may occur, for example, from the input structure of a safety relay module connected to the EZ-SCREEN LS OSSDs

Environmental Rating
IP69K per DIN 40050-9; light curtain also rated IP65/IP67 per 60529

Certifications

Banner Engineering BV
Park Lane, Culliganlaan 2F bus 3
1831 Diegem, BELGIUM

Turck Banner LTD Blenheim House
Blenheim Court
Wickford, Essex SS11 8YT
GREAT BRITAIN

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Required Overcurrent Protection

WARNING: Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

Overcurrent protection is required to be provided by end product application per the supplied table.

Overcurrent protection may be provided with external fusing or via Current Limiting, Class 2 Power Supply.

Supply wiring leads < 24 AWG shall not be spliced.

For additional product support, go to www.bannerengineering.com.

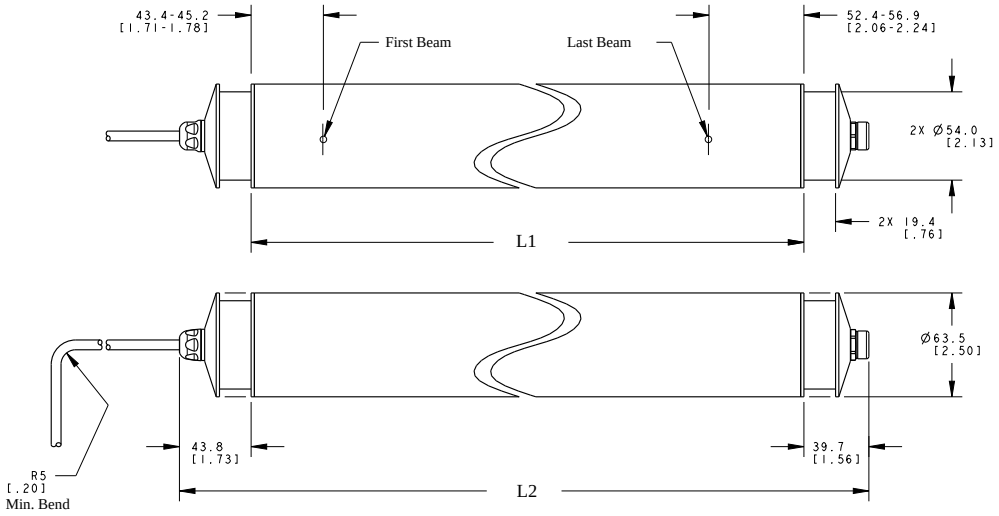
Supply Wiring (AWG)	Required Overcurrent Protection (A)	Supply Wiring (AWG)	Required Overcurrent Protection (A)
20	5.0	26	1.0
22	3.0	28	0.8
24	1.0	30	0.5

Response and Recovery Times

Emitter	Receiver	Defined Area	Response Time, Tr (ms)	Recovery Time (typical), OSSDs Off to On (ms)	
				Non-sync beam blocked	All beams blocked
EZLSA-HTE-E23-280	**EZLSA-HTE-R23-280**	280 mm	8.2	32	110
EZLSA-HTE-E23-350	**EZLSA-HTE-R23-350**	350 mm	9.1	36	124
EZLSA-HTE-E23-420	**EZLSA-HTE-R23-420**	420 mm	9.9	40	135
EZLSA-HTE-E23-490	**EZLSA-HTE-R23-490**	490 mm	10.8	44	148
EZLSA-HTE-E23-560	**EZLSA-HTE-R23-560**	560 mm	11.6	47	160
EZLSA-HTE-E23-630	**EZLSA-HTE-R23-630**	630 mm	12.5	51	175
EZLSA-HTE-E23-700	**EZLSA-HTE-R23-700**	700 mm	13.3	55	186
EZLSA-HTE-E23-770	**EZLSA-HTE-R23-770**	770 mm	14.2	59	199
EZLSA-HTE-E23-840	**EZLSA-HTE-R23-840**	840 mm	15.0	63	211
EZLSA-HTE-E23-910	**EZLSA-HTE-R23-910**	910 mm	15.9	67	225
EZLSA-HTE-E23-980	**EZLSA-HTE-R23-980**	980 mm	16.7	69	237
EZLSA-HTE-E23-1050	**EZLSA-HTE-R23-1050**	1050 mm	17.5	74	249

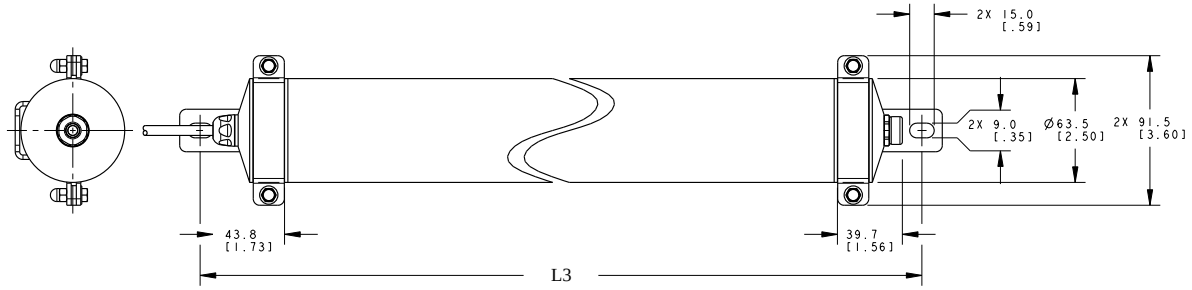
Dimensions

EZLSA-HTE without brackets

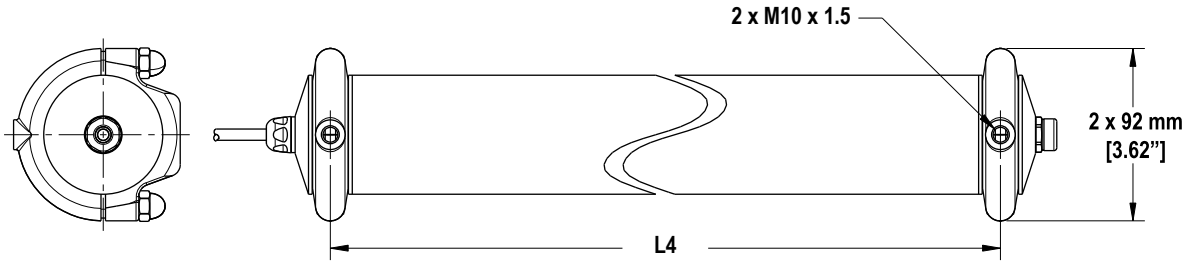


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EZLSA-HTE with EZLSA-MBK-HTE-1 bracket



EZLSA-HTE with EZLSA-MBK-HTE-2 bracket



All measurements are listed in millimeters [inches], unless noted otherwise.

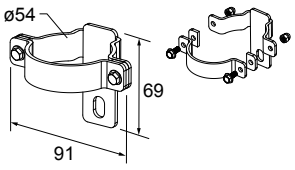
Enclosure Model	Defined Area (mm)	L1 (mm)	L2 (mm) (1 Cable)	L2 (mm) (2 Cables) (RFB Models)	L3 (mm)	L4 (mm)
EZLSA-HTE-280	280	360 (14.2")	443 (17.4")	441 (17.4")	463 (18.2")	379 (14.9")
EZLSA-HTE-350	350	429 (16.9")	513 (20.2")	511 (20.1")	533 (21")	449 (17.7")
EZLSA-HTE-420	420	499 (19.7")	583 (22.9")	581 (22.9")	603 (23.7")	519 (20.4")
EZLSA-HTE-490	490	569 (22.4")	653 (25.7")	651 (25.6")	673 (26.5")	589 (23.2")
EZLSA-HTE-560	560	639 (25.2")	723 (28.4")	721 (28.4")	742 (29.2")	658 (25.9")
EZLSA-HTE-630	630	709 (27.9")	792 (31.2")	791 (31.1")	812 (32")	728 (28.7")
EZLSA-HTE-700	700	779 (30.7")	862 (33.9")	861 (33.9")	882 (34.7")	798 (31.4")
EZLSA-HTE-770	770	849 (33.4")	932 (36.7")	930 (36.6")	952 (37.5")	868 (34.2")
EZLSA-HTE-840	840	918 (36.2")	1002 (39.4")	1000 (39.4")	1022 (40.2")	938 (36.9")
EZLSA-HTE-910	910	988 (38.9")	1072 (42.2")	1070 (42.1")	1092 (43")	1008 (39.7")
EZLSA-HTE-980	980	1058 (41.7")	1142 (44.9")	1140 (44.9")	1161 (45.7")	1077 (42.4")
EZLSA-HTE-1050	1050	1128 (44.4")	1211 (47.7")	1210 (47.6")	1231 (48.5")	1147 (45.2")

Brackets

All measurements are listed in millimeters, unless noted otherwise.

EZLSA-MBK-HTE-1

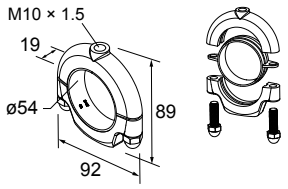
- Stamped, hygienic swivel bracket
- 304 stainless steel
- Non-metallic FDA-compliant gaskets
- Two brackets included per kit
- M5 screws (8 mm socket); 65 in·lbs



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EZLSA-MBK-HTE-2

- Cast, hygienic swivel bracket
- Polished 316 stainless steel with rounded edges for cleanliness in demanding environments
- Non-metallic FDA-compliant bushing
- M10 mount on opposite side of clamping nuts
- Two brackets included per kit
- 5/16 inch - 18 UNC screws (9/16-inch socket); 65 in·lbs



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