

Light Barriers series IRL/ILN/ILD-108-S/E

ILN-108-S/E-GD



II 3G Ex nA IIB T4 Gc
II 3D Ex tc IIIA T135°C Dc IP67

Housing M30

- Series ILD: Applicable in Ex-Zones 1, 2, 21, 22
- Series ILN: Applicable in Ex-Zones 2, 22
- Good alignment by 3-color LED at the rear side
- Short response time
- Robust light barrier for industrial applications
- PNP output

ILD-108-S/E-GD



0158

II 2G Ex d IIC T6 Gb
II 2D Ex tb IIIB T90°C Db IP67

Technical Data	Type	IRL-108-S/E	ILN-108-S/E-GD	ILD-108-S/E-GD
Designation			I..-108-S: Emitter / I..-108-E: Receiver	
Type of Ex protection, Gas, at 94/9/EC	--	II 3G Ex nA IIB T4 Gc	II 2G Ex d IIC T6 Gb	
Type of Ex protection, Dust, at 94/9/EC	--	II 3D Ex tc IIIA T135°C Dc IP67	II 2D Ex tb IIIB T90°C Db IP67	
Applicable in Ex Zones	--		2, 22	1, 2, 21, 22
Range			80m	
Minimum detectable object size			22mm (avoid mirror effects)	
Light source			Infrared 880nm	
Directional angle (measured at a distance of 10m)			Emitter: appr.10° / Receiver: appr.12°	
Response time, frequency			5ms, 100Hz	
Supply voltage			24 VDC +/-15%	
Current consumption, emitter			45mA	
Current consumption, receiver			40mA	
Maximum power dissipation			Emitter: 1.26W / Receiver: 0.7W	
Output			PNP, 100mA, short circuit protected	
Housing			M30, brass, nickel plated	
Enclosure rating at EN 60529		IP65	IP67	IP67
Maximum ambient working temperature Tamb			-20°C < Tamb < +50°C	
Storage temperature range			-20°C ... +70°C	
Vibration and shock resistance			Vibration: 30g over 20Hz to 2kHz. Shock: 100g for 3ms	
Connection cable, receiver		3/4+PE x 0.5mm², shielded, TPU, leads numbering marked, length: 10m		
Connection cable, emitter		2/3+PE x 0.5mm², shielded, TPU, leads numbering marked, length: 10m		
Socket, type IRL/ILN-108-S/E-(GD)-S39		Binder, type 423, 5 terminals, not for new applications		--
Socket, type IRL/ILN-108-S/E-(GD)-S99		Lumberg M12, type RSFM 5, 5 terminals		--
Accessories, included, all types		- 4 nuts M30 (or 2 clamps M30 optional)		
Accessories, included, only ILN-.. S39 and S99		- 2x Safety lock device, mount at the cable connection, for locking the connection. (black synthetic device). - 2x Warning plate "WARNING - Explosion Hazard - Do Not Disconnect While Circuit Is Live Unless Area Is Known To Be Non-Hazardous", self-sealing, for gluing on the cable connector. - 2x Protection cap for the sensor socket.		
Accessories, not included, for IRL/ILN-.. S39		- Connector housing, Binder series 423, 5 terminals		
Accessories, not included, for IRL/ILN-.. S99		- Cordset Lumberg, RKTS 5-298/xx or RKWTH 5-298/xx		
Options		- ILD-108-S/E-OP: With limited optical radiant power at EN 60079-28. II 2(1)G Ex d [op is Ga] IIC T6 Gb, II 2(1)D Ex tb [op is Da] IIIB T100°C Db IP67 Optical radiant power can be effective into Zones 0, 20 - I...-108-S-DI: Emitter with disable input DI, for polling emitters - I...-108-E-VA: With integrated pollution indication output "VA", PNP type - IRL-108-S/E S39: Not for new applications! Socket Binder type 423 - ILN-108-S/E S39: Not for new applications! Socket Binder type 423 - I...-108-S/E S94: Lenses special luted - IRL-108-S/E S99: Socket M12, 5 terminals - ILN-108-S/E S99: Socket M12, 5 terminals, Ex Zones 2, 22 - Cable length up to 100m, on request		
LED indication				
Output function		Light beam interrupted Receiver LED shows red	Light beam free Receiver LED shows yellow or green	
Wiring diagram for cable devices:				
Receiver:	Emitter:			
1: +24VDC	1: +24VDC			
2: 0V	2: 0V			
3: Output	3: DI (optional)			
4: VA-Output	--			
yellow-green: PE	yellow-green: PE			
white: Cable shield	white: Cable shield			
Alignment and controlling by LED indication (LED at the rear side of the receiver)		LED red: Light beam interrupted LED yellow: polluted lenses LED green: Light beam free	- not aligned - badly aligned - well aligned	
ATEX related designations:				
CE 0158	Manufacturer with address		Electrical data according to the chart	
Type ILD-108-S/E-GD: II 2G Ex d IIC T6 Gb, II 2D Ex tb IIIB T90°C Db IP67			EC certification number: BVS 10 ATEX E 130 X	
Type ILN-108-S/E-GD: II 3G Ex nA IIB T4 Gc, II 3D Ex tc IIIA T135°C Dc IP67			Declaration by manufacturer at 94/9/EC	
TA: -20°C < Tamb < +50°C	Date of construction: Numeral 5 to 8 of the serial number (Year/Week)			
(X designation of the certification number: Fibre optics must only be applied with sensors with certificated limited optical power)				

Connection layout, devices with cable:	Connection layout, types IRL/ILN-108-S/E S39	IRL/ILN-108-S/E S99
<p>Receiver: +24VDC 0V Output VA-Output yellow-green PE white</p> <p>Emitter: +24V 0V DI (optional) PE Cable shield</p>	<p>NOT FOR NEW APPLICATIONS</p> <p>Receiver: +24VDC 2 0V 3 Output 4 VA-Output 5 PE</p> <p>Emitter: +24V 0V DI (Disable) NC PE</p> <p>Binder Series 423</p>	<p>Receiver: +24VDC 2 0V 3 Output 4 VA-Output 5 PE</p> <p>Emitter: +24V 2 VA-Output 3 0V 4 Output 5 PE</p> <p>DI (Disable) NC Lumberg RSFM5</p>
Dimensions IRL/ILN/ILD-108-S/E-(GD):		
Dimensions IRL/ILN-108-S/E-(GD) S39 & S99:		
Equipotential Bonding prescription:		
Operating Manual, EC - Declaration of Conformity:		
<p>Installation prescriptions for Ex hazardous locations</p> <p>General regulations for all types of Ex devices</p> <p>It is necessary to take into consideration the valid international and national rules and regulations (EN 60079-14). The local equipotential bonding have to be done. The protective earth (PE) is solid connected with the housing. The cable have to be installed and protected against damages. The cable with termination fittings, or in cable tray systems and installed in a manner to avoid tensile stress at the termination fittings. To connect cables inside hazardous locations only use certificated Ex housings. All cable terminals must be connected outside hazardous locations. Other then original manufacturer, additional optical lenses are not allowed in hazardous locations.</p> <p>Types ILD-108-S/E-GD: ONLY applicable in Ex zones 1, 2, 21, 22.</p> <p>Types ILN-108-S/E-GD: ONLY applicable in Ex zones 2, 22. The maximum rated supply voltage $U_m = 30VDC$ must not be exceeded.</p> <p>Types ILN-108-S/E-GD S39/S99: ONLY applicable in Ex zones 2 and 22 hazardous locations. Do not separate the connector when the supply voltage is connected to the cable. When installing the sensor, the safety lock device must be fitted at the cable connector. The additional adhesive warning label must be fixed to the connector housing at the connection cable. S39: Binder connectors series 423, 5 terminals, are allowed ONLY. S99: Lumberg cordsets RKTS 5-298/xx (Straight type), RKWTH 5-298/xx (Right angle type) are allowed ONLY. It is necessary to take into consideration the mounting prescription of the connector manufacturer. In dusty locations, the protection cap for the socket must be fitted, when the connection cable is NOT connected. The maximum rated supply voltage $U_m = 30VDC$ must not be exceeded.</p> <p>General mounting prescriptions</p> <p>Do not exceed the maximum ratings. The electrical connections must be exactly as shown in the connection diagram. The cable shield must be connected short. The cable shield should be connected to the protection earth, large-surfaced. Connection cables must not be installed parallel to high voltage cables.</p> <p>Function at standard connection of the supply voltage</p> <p>If the light beam is not interrupted the output switches to ON (+24V). If the light beam is interrupted the output switches OFF. The load must be connected between the output and 0V.</p> <p>Function at inverse connection of the supply voltage</p> <p>If the light beam is not interrupted the output switches to OFF. If the light beam is interrupted the output switches to ON (+24VDC). The load must be connected between the output and 0V.</p> <p>Optional pollution indication output VA</p> <p>Only when the receiver LED's shows yellow, the pollution indication output VA switches to +24VDC. (Light barrier bad aligned, or lenses polluted or other impairments). If the receiver LED's shows green or red, the output VA is switched to 0V. This function gives the possibility to a fast reaction at polluted lenses.</p> <p>Arrangement of light barriers, only types I..-108-S-DI (optional)</p> <p>If several light barriers are installed close to another, it is necessary to use light barriers with emitters with disable input. By using the disable input DI, each emitter can be controlled in a short reaction time. If only one emitter is activated in the same time, a mutual influence is precluded.</p> <p>DI= 0V or not connected DI= High (24VDC)</p> <p>= emitter enabled = emitter disabled</p>		
<p>The Disable Input DI must be activated for $\geq 10ms$. The DI input is PNP compatible. The Emitter-Disable-Input DI can also be used for testing the associated receiver. By a short-time shut-off of the emitter, the switching off of the receiver output and with it the correct function of the receiver will be checked.</p> <p>Mechanical Mounting Prescriptions</p> <p>Mount the light barriers free from vibrations and shocks. If it is practicable, protect the lenses from contamination.</p> <p>Alignment of the Light Barrier</p> <p>The three color indication at the receiver allows an optimal alignment.</p> <ol style="list-style-type: none"> 1. The emitter beam must hit the receiver lens in an angle near to 90°. 2. The receiver should be moved, until the LED (from the receiver) shows "green". Search the middle of the green range. If the receiver LED shows yellow, the light barrier is bad aligned, or the lenses are polluted. <p>Maintenance</p> <p>No special maintenance is required. If the lenses becomes dirty, they should be cleaned with a non-aggressive solvents. Equipment must only be repaired by the manufacturer.</p> <p>General safety instructions</p> <p>Series ILN-108-S/E S39/S99: "WARNING - EXPLOSION HAZARD - WHEN IN HAZARDOUS LOCATIONS, TURN OFF POWER BEFORE REPLACING OR WIRING MODULES. DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NONHAZARDOUS". The mounting of the sensor in dusty locations without fixed cordset or protection cap results in a high ignition risk. The sensors must not be used for Accident-Prevention! In worst case the output can change to any state! When installing and operating with the sensor, it is necessary to take into consideration the relevant international and other national regulations:</p> <p>EN 60079-14, ATEX 118a, single directive 1999/92/EC.</p> <p>The sensor and the fibre optic are conform to the following standards:</p> <p>EN 60079-0:2009, EN 60079-1:2007, EN 60079-15:2010, EN 60079-31:2010, EN 60825-1:2006, EN 60825-2:2004; EN 60529; EN 61000-4-2 to EN 61000-4-6, EN 61000-6-1/-2, EN 61000-6-4. Ex protection: 94/9/EC (ATEX 100a), Machine directive: 2006/42/EC, EMC: 2004/108/EC, RoHS: 2011/65/EU.</p> <p>General Notes, disposal</p> <p>We reserve the right to modify our equipment. Our equipment is designed such way, that it has the least possible adverse effect on the environment. It neither emit or contain any damaging or siliconized substances and use a minimum of energy and resources. No longer usable or irreparable units must be disposed of in accordance with local waste disposal regulations.</p> <p>EC-Declaration of conformity</p> <p>Model ILD: EC-Certification No. BVS 10 ATEX E 130 X. DEKRA.</p> <p>Model ILN: ATEX declaration by manufacturer at 94/9/EC. ATEX certification of quality type production of Ex devices at the directive 94/9/EC, CE 0158. Certification No: BVS 12 ATEX ZQS / E118. The conformity of the devices with the EC standards and directives and the EC-type examination certificate and the observation of the Quality Safety System ISO 9001:2008 with the ATEX module "Production", declares:</p> <p>Hans Bracher, Matrix Elektronik AG</p> <p></p>		