Tippkemper®

ISO 9001:2008 / ATEX MATRIX elektronik ag

GARDIX Accident Protection Light Barrier IUL/IUD-30-S/E to Safety Controllers USC and UDC

IUD-30-S/E

CE 0158

Ex

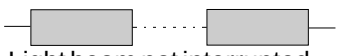
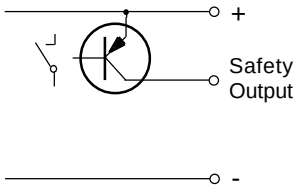
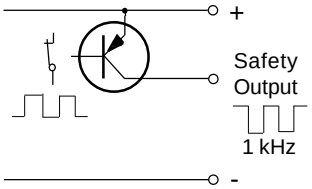
II 2G Ex d IIC T6 Gb
II 2D Ex tb IIIB T90°C Db IP67

Housing M30

- Connectable at safety controllers USC, UDC
- Safety category 4, at EN 954-1
- Type IUD for applications in Ex zones 1, 2, 21, 22
- High penetration capacity in polluted areas
- Optimal alignment help by state indication in the receiver optic
- Very high operational dependability (EMC)

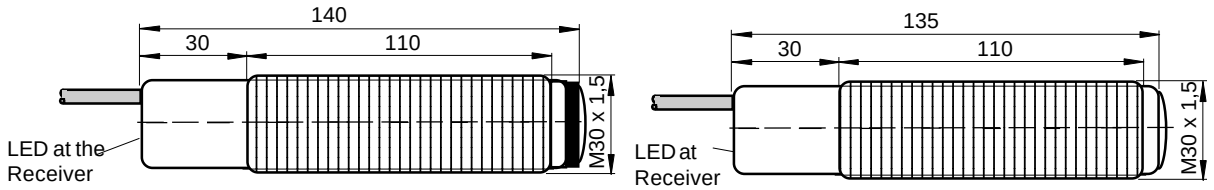
IUL-30-S/E

CE

Technical Data / Type	IUL-30-S1/E1	IUD-30-S1/E1
Type of Ex protection, Gas at 94/9/EC	--	II 2 G E x d IIC T6 Gb
Type of Ex protection, Dust at 94/9/EC	--	II 2D Ex tb IIIB T90°C Db IP67
Applicable in Ex zones	none	Zones 1 and 21
Safety category at EN 954	4, connected at safety controllers USC, UDC	
Designation	S: Emitter / E: Receiver	
Range	min.0,2m to max.30m	
Minimum detectable object size	20mm	
Light source	Infrared 880nm	
Optical beam angle	<= 4°	
Response time	dependent on the connected safety system	
Supply voltage	12 VDC from the safety system	
Current consumption	Receiver: 50 mA / Emitter: 80mA	
Maximum power dissipation	Receiver: 0.6W / Emitter: 0.96W	
Safety output	PNP / dynamic signal, connected to the safety system	
Pollution indication output "VA"	NPN, max. 100mA	
Housing	M30, Yellow Brass, nickel plated	
Enclosure rating, at EN 60529	IP 65	IP67
Operating temperature T_{Amb}		-20°C < T_{Amb} < +60°C
Cable, emitter, 3+PE x 0.5mm² ,shielded	TPE, L=10m	TPE or PVC, L=10m
Cable, receiver, 4+PE x 0.5mm², shielded	TPE, L=10m	TPE or PVC, L=10m
Accessories	4 nuts M30 or 2 clamps optional	
Options	- IUL/IUD-10-S1/E1: Reduced range 10m	
	- IUL-30-S/E-T: Connector type (not for ex devices) - IU.-30-S1/E1 S94: Special lense gluing (high solvent resistant) - IU.-30-S/E A1: Special connection layout - Cable length up to 100m	
LED indication Output function	 Light beam interrupted LED shows red	 Light beam not interrupted LED shows yellow or green
Output and connection diagram Receiver / Emitter 1 = + / =+ 2 = - / = - 3 = Safe output / = Test 4 = Pollution out white = Shield / = Shield yellow-green = PE / = PE		
Pollution indication output (VA)	The pollution indication output will be activated when the lenses of the emitter or receiver became dirty or the light barrier is badly adjusted and the LED shows yellow. The pollution indication output is an NPN-type and not a safety output.	
Alignment help by LED indication	LED red: Light beam interrupted / not aligned LED yellow: Dirt on lenses / badly aligned LED green: Light beam free / well aligned LED red flashing: Disturbance	

For mounting and operation is the operating manual necessary.

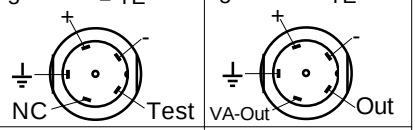
Dimensions: IUL-30-S1/E1 IUD-30-S1/E1 ⟨Ex⟩



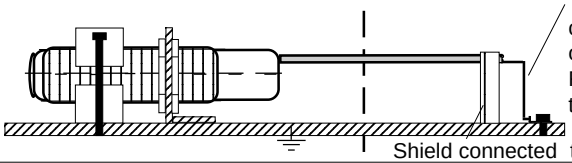
Same dimensions for emitter and receiver

Connection layout:

IUL/IUD-30-S1	IUL/IUD-30-E1	IUL/IUD-30-S-A1	IUL/IUD-30-E-A1	IUL/IUD-30-S-T	IUL/IUD-30-E-T
1 = +	1 = +	1 = +	1 = +	1 = +	1 = +
2 = Test	2 = Out	2 = -	2 = -	2 = -	2 = -
3 = -	3 = -	3 = Test	3 = Out	3 = Test	3 = Out
white = Shield	4 = VA-Out	white = Shield	4 = VA-Out	4 = NC	4 = VA-Out
yel-green = PE	white = Shield	yel-green = PE	white = Shield	5 = PE	5 = PE
	yel-green = PE		yel-green = PE		



Equipotential Bonding at Ex Devices:



The end of the cable must be connected outside the hazardous locations.
Reliable, noncorrosive holding of the protection earth connection.

Shield connected to PE in a wide area

ATEX related designations	CE 0158	Manufacturer with address
	Device type ⟨Ex⟩	II 2G Ex d IIC T6 Gb, II 2D Ex tb IIIB T90°C Db IP67
	Certification number:	DMT 99 ATEX E 056
	TA: -20°C < TAmb < +60°C	Electrical data according to the chart
	Date of production (Year/Week):	Numeral 5 and 8 of the serial number

Operating Manual / EC - Declaration of Conformity:

Mounting prescription
Accident protection
The detailed mounting prescription concerning safety margin, mounting height, downstream devices and general regulations about accident protection are to observe.
Ex Protection:
The type: IUD-... is applicable in Ex Zones 1 and 21. 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. To connect cables inside hazardous locations only use certificated Ex e housings. All cable terminals must be connected outside hazardous locations. Protect the cable against damages. Additional optical lenses are not allowed in hazardous locations.
Connection Prescriptions
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 (Inside of hazardous locations only in certificated Ex housings). The cable shield should be connected to the designated terminal at the basic safety system or to the protection earth, large-surfaced. Connection cables must not be installed parallel to high voltage cables.
Function
If the light beam between emitter and receiver is not interrupted, the safety output generates a 1kHz dynamic signal. If the light beam is interrupted, the safety output is switching off (secure state). The light barriers are built in redundant form. In case of failures the receiver switch the output off (secure state).
The Pollution Signal Output (VA) is activated by dirty optics. These inform timely about pollution.
Alignment of the Light Barrier
The three color indication in the receiver optic allows an optimal alignment.
1. The emitter must be aligned this way, that the emitter lens is fully illuminated (By watching from the receiver at the emitter).
2. The receiver should be moved, until the LED (from the receiver) shows "green". Search the middle of the green range.

Pollution Indication Output
The Pollution signal output is activated, if the Light Barrier is not aligned properly or the intensity of the light is reduced because the lenses become dirty. (Receiver LED shows "yellow"). The Pollution signal output is a not a safety output.
Maintenance
No special maintenance is required. If the lenses becomes dirty, they should be cleaned with a non-aggressive cleaning liquid. Equipment must only be repaired by the manufacturer.
Safety information
When installing and operating with the light barrier, it is necessary to take into consideration the relevant international and other national regulations. Under others are this: IEC 60079-14, Direction 1999/92/EC.
The light barriers corresponds to the following standards:
IUD:
EN 60079-0:2009, EN 60079-1:2007, EN 60079-15:2006-05, EN 60079-31:2010, ATEX Directive 94/9/EC
IUD and IUL:
EN 61496-1/-2, EN 954-1, 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, Machine directive: 98/37/EC, 2006/46/EC
EMC: 2004/108/EC, RoHS: 2002/95/EC
General Notes
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.

EC-Declaration of Conformity, Approvals:
IUD: EC-Type-Examination Certificate: DMT 99 ATEX E 056 DEKRA-EXAM
IUD and IUL: BG-PRÜFZERT No. 99117
ATEX certification of quality management type production of Ex devices at the directive 94/9/EC. Certification No: BVS 03 ATEX ZQS / E118. The conformity of the devices with the EC/UL standards and directives and the EC-type examination certificate and the observation of the Quality Safety Management system ISO 9001:2008 with the ATEX module "Production", declares:

Hans Bracher, Matrix Elektronik AG

Tippkemper - Matrix GmbH Meegener Str. 43 D-51491 Overath Tel.:+49 2206 9566-0 Fax -19 info@tippkemper-matrix.com

Matrix Elektronik AG (Manufacturer) Kirchweg 24 CH-5420 Ehrendingen Tel.:+41 56 20400-20 Fax -29 info@matrix-elektronik.com