

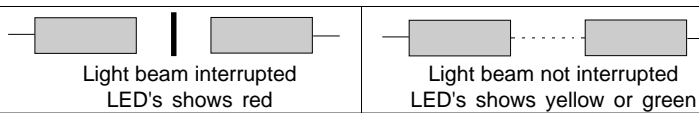
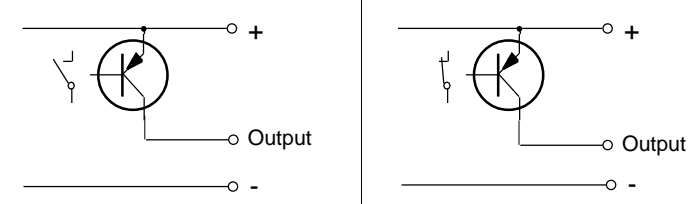


Original operating manual:
High density light barriers IRL-240.-S/E / ILN-240.-S/E-GD / ILD-240.-S/E-GD
ILD-240.-S/E-GD

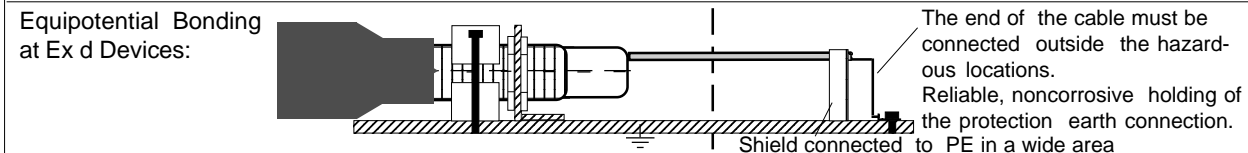
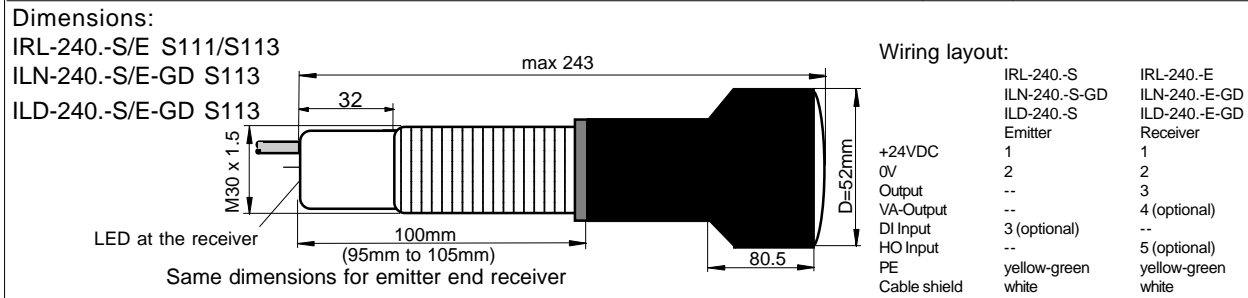
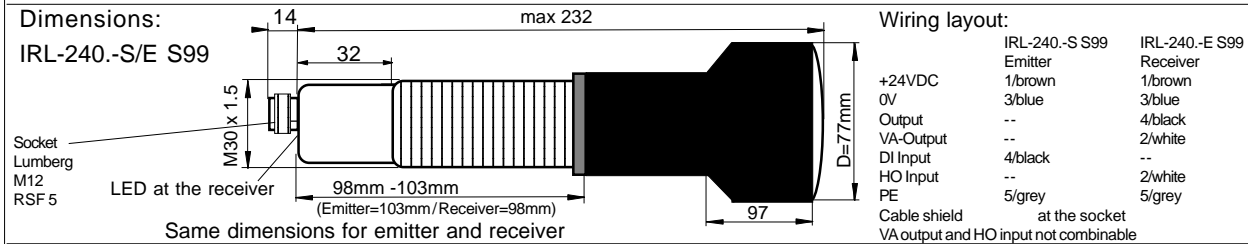
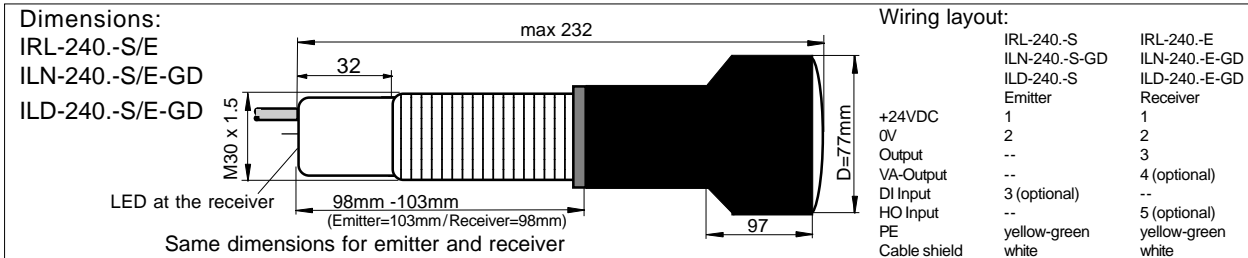
 II 2G Ex d IIC T6 Gb
 II 2D Ex tb IIIB T90°C Db IP67

- Emitter with 2 different light sources
- Very High penetration capacity in polluted areas.
- Optimal alignment by visualization by LED into receiver optic and visible red light of the transmitter
- Types A to D with 4 different emitter frequencies
- Type HS with emitter disable input
- Series ILD: Applicable in Ex-Zones 1, 2, 21, 22
- Series ILN: Applicable in Ex-Zones 2, 22

ILN-240.-S/E-GD

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

Technical Data	Type	IRL-240.-S/E(-VA)(-DI)	ILN-240.-S/E(-VA)(-DI)-GD	ILD-240.-S/E(-VA)(-DI)-GD
Designation Emitter + Receiver		Ixx-240.-S = Emitter / Ixx-240.-E = Receiver		
Designation, combined applicable barriers		Ixx-240A to D-S/E = Light barriers with different emitter frequencies		
Designation, high speed light barriers		Ixx-240HS-S/E = Barrier with disable input and short response time		
Type of ex protection Gas, at 94/9/EC		none	II 3G Ex nA IIB T4 Gc	II 2G Ex d IIC T6 Gb
Type of ex protection Dust, at 94/9/EC		none	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
Sensing range		>200m		
Minimum detectable object size		77mm (avoid mirror effects)		
Light source		Infrared 870nm and red light 623nm		
Directional angle (at a distance of 10m)		Emitter: appr.15° / Receiver: appr.7°		
Turn OFF delay TOFF, types A to D		30ms ^{Note 1}		
Turn OFF delay TOFF, type HS		1ms		
Turn ON delay TON, types A to D		400ms		
Turn ON delay TON, type HS		5ms		
Supply voltage		24 VDC (20 to 28VDC)		
Current consumption, emitter		20mA (Typ HS = 60mA)		
Current consumption, receiver		50mA		
Maximum power dissipation		Emitter: 1.68W / Receiver: 1.4W		
Output		PNP, 100mA, short circuit protected		
Emitter disable input, only type I..-240HS-S-DI		PNP compatible		
Housing		M30, brass, nickel plated. Optic: Light alloy AC 110		
Enclosure rating, at EN 60529 ^{Note 3}		IP 65	IP67	IP67
Ambient working temperature range T _{Amb} ^{Note 2}		-20°C < T _{Amb} < +60°C	-20°C < T _{Amb} < +50°C	-20°C < T _{Amb} < +50°C
Connection cable, type		TPU sheathing, shielded, leads numbering marked, oil resistant		
Connection cable, type for IRL/ILN/ILD-240HS-E-HO		PVC sheathing, 6+PE x 0.5mm ² , shielded, leads numbering marked		
Connection cable, length		2/3(4)+PE x 0.5mm ² , L=5m	2/3(4)+PE x 0.5mm ² , L=10m	2/3(4)+PE x 0.5mm ² , L=10m
Socket M12, only types IRL-240.-S/E S99		M12 RSF 5, 5 pins	--	--
Accessories		4 nuts M30 or optional 2 clamps		
Options:		Cable length up to 100m, on request.		
- Types I..-240-E-VA:		With integrated pollution indication output, PNP type.		
- Type IRL-240.-E GF :		For fibre optics connection, without optic D=75mm, can only be used with fibre optics.		
- Type IRL-240.-S/E S99 :		With Socket M12, 5 terminals.		
- Type IRL-240.-S/E S109 :		Working temperature range: -20°C to +100°C.		
- Type IRL-240.-S/E-.. S111 :		With optic D50 (50mm) and T_{Amb}=100°C		
- Type I..-240.-S/E-.. S113 :		With optic D50 (50mm)		
- Type: ILD-240..... S117 :		With special cable type Ölflex 810CP.		
- Type IRL-240.-S/E S147 :		Lenses special luted.		
- Type IRL-240.-S/E S148 :		Lenses special luted and special cable type Ölflex 810CP.		
- Type IRL-240LS-S/E S153 :		Working temperature range: -20°C to +100°C. Response time: 20ms . With DI-Function .		
- Type ILD-240.-S/E S156 :		Working temperature range: -30°C to +50°C. special cable type Ölflex 810CP. Length: 5m, on ambient temperatures less the +5°C, the cable must not be agitated.		
- Type IRL/ILN/ILD-240.-S/E S169 :		With potentiometer for adjustment at the receiver and optic 50mm at emitter and receiver.		
- Type IRL/ILN/ILD-240HS-S-DI :		Emitter with Disable-Input "DI".		
- Type IRL/ILN/ILD-240HS-E-HO :		Receiver with Hold-Input "HO" for the special HOLD function, cable PVC, 6+PE x 0.5mm ²		
LED indication				
Principle function				
Output function and wiring diagram (cable):		<p>Receiver: 1 = +24VDC, 2 = 0V, 3 = Output, 4 = VA-Output, 5 = HO (Hold Input (N5))</p> <p>White: Cable shield, connect to PE</p> <p>N4: Only type IR.-240HS(-GD)-S-DI</p> <p>N5: Only type IRL/ILN/ILD-240HS-E-HO</p>		
Output function				
Alignment and controlling by LED display:		LED red: Light beam interrupted / not aligned LED yellow: polluted lenses / badly aligned LED green: Light beam free / well aligned visible flushing red light source of the emitter lens		
ATEX RELATED MARKINGS:		CE 0158 Manufacturer with address, Matrix  Date of production (year / calendar week) Device type ILD-240.-GD: II 2G Ex d IIC T6 Gb, II 2D Ex tb IIIB T90°C Db IP67 Numbers 5 to 8 of the serial number Device type ILN-240.-GD: II 3G Ex nA IIB T4 Gc, II 3D Ex tc IIIA T135°C Dc IP67 EC-Type-Examination: BVS 10 E 130 X T _{Amb} : -20°C up to +50°C Electrical data according to the chart ATEX declaration by manufacturer at 94/9/EC		
Note 1: If a receiver is influenced by other emitters, TOFF may increase up to 400ms.				
Note 2: On temperatures less the +5°C, the cable must not be agitated.		Note 3: Optic standard IP 54, on request IP 67.		



Operating Manual, EC - Declaration of Conformity:

Installation prescriptions for Ex hazardous locations
 Types ILD-240.-S/E.: Only certificated for Ex zones 1, 2, 21, 22.
 Types ILN-240.-S/E.: Only applicable in Ex zones 2 and 22. The maximum rated supply voltage $U_m = 30VDC$ must not be exceeded.
WARNING: It is necessary to take into consideration the valid international and national rules and regulations (EN 60079-14). Do not exceed the maximum ratings. The local equipotential bonding have to be done reliable and noncorrosive. 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 e housings. All cable terminals must be connected outside hazardous locations. Other then original manufacturer, additional optical lenses are not allowed in hazardous locations.

General mounting 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. The cable shield should be connected to the protection earth, large-surfaced. Connection cables must not be installed parallel to high voltage cables.

Arrangement of light barriers, types I..-240A to D:
 If several light barriers are installed close to another, it is necessary to use light barriers with different emitter frequencies (Types A to D). Light barriers with different emitter frequencies have no influence on each other. Precaution: If a receiver is influenced by other emitters of an other type, TOFF may increase from 30ms up to 400ms. The high speed light barrier type -HS and the high temperature light barrier type IRL S153, can not be combined with light barriers types A to D. To avoid interference effects, all emitters should be installed at the same side and all receivers at the other side. For indoor applications the background should be protected against clutters, by using light absorbing materials.

Arrangement of light barriers, types IRL/ILD-240HS-S-DI and IRL/ILD-240HS-E-HO:
 If several light barriers are installed close to another, it is necessary to use light barriers with emitters with disable input.

Emitter disable input "DI":
 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.

DI= 0V or not connected = emitter enabled
 DI= High (24VDC) = emitter disabled
 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.

Receiver hold input "HO":
 By using the "HO" input the last output stage before activating the HO-input will be holding at the output. After activating the hold input the output will not be changed.

HO= 0V or not connected = Receiver works normally.
 HO= High (24VDC) = Receiver output is locked.

Function
 If the light beam is not interrupted the output switches to ON (+24V). If the light beam is interrupted the output switches to OFF. The light barriers IRL/ILN/ILD-240 works with two different light sources,

visible red light and infrared. The high density and the two different wavelengths gives a high penetration capacity at a heavy polluted ambience. The load (Relay or other loads) must be connected at "-" (minus).

Pollution indication output "VA" (optional):
 The VA output will be activated by polluted lenses or a bad alignment. If the lenses are polluted, the LED shows yellow and the VA output switches to ON (+24V). This function gives the possibility to recognize pollutions in a short time.

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.

Maintenance
 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.

Safety informations
 The sensors series IRL/ILN/ILD-240.-S/E must not be used for Accident-Prevention! In worst case of disturbance, the outputs can show any state. Series ILN: "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 mounting, wiring, application and maintenance must be realized in accordance with this operating manual and the other relevant rules and prescriptions. It is necessary to take into consideration the relevant international and other national regulations. Under others are this: EN 60079-14, Direction 1999/92/EC. The light barriers series IRL/ILN-240.-S/E... corresponds to the following standards:

EN 60079-0:2009, EN 60079-1:2007, EN 60079-15:2011-02, EN 60079-31:2010, EN 60825-1:2006, EN 60825-2:2004; EN 60529:2014; EN 61000-4-2 to EN 61000-4-6, EN 61000-6-1/-2, EN 61000-6-4. ATEX directive: 94/9/EC, Machine directive: 2006/42/EC, EMC directive: 2004/108/EC, RoHS directive: 2011/65/EU.

General Notes, disposal
 The visible flushing of the red light source for the types A to D is a normal function and not an integral error. 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

ILD. ATEX EC-Type-Examination Certificate: BVS 10 ATEX E130X.
 ILN: ATEX Declaration of conformity by manufacturer at 94/9/EC.
 ATEX certification of quality management type production of Ex devices at the directive 94/9/EC. 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 Management system ISO 9001:2008 with the ATEX module "Production", declares:

Hans Bracher, Matrix Elektronik AG

ILD-240-GD_e17/2015-03-13/HB

Tippkemper - Matrix GmbH
 Meegerer 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