ISO 9001:2000 ATEX

Light Barrier IRL-239.-S/E / ILD-239.-S/E

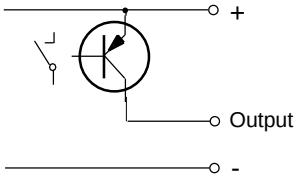
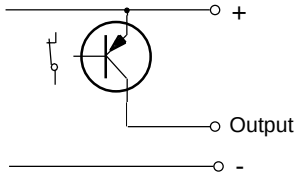
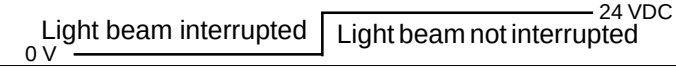
CE 0158

EEx d IIC T6

II 2 G

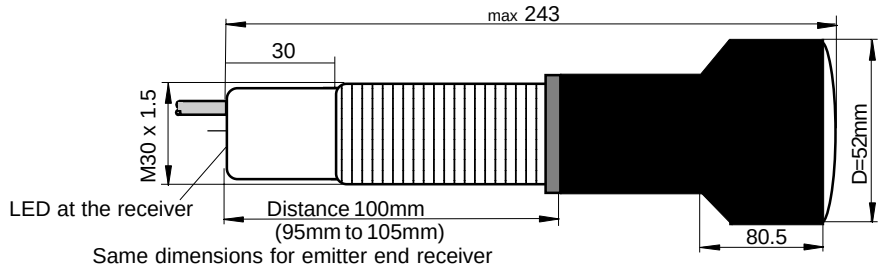
II 1/2 D IP67 T90°C

- Emitter with 2 different light sources
- Highest 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
- also available for Ex-Zones 1+20/21(Type of protection: EEX d IIC T6)

Types Standard / Types Ex d IIC T6 / Technical Data	IRL-239.-S/E(-VA) / ILD-239.-S/E(-VA)				
	...-239HS-..	...-239A-..	...-239B-..	...-239C-..	...-239D-..
Designation	S: Emitter / E: Receiver				
Range	500m				
minimum detectable object size	50mm (avoid mirror effects)				
Light source	Infrared 880nm and Redlight 630nm				
Beam pattern (on a distance of 10m)	Emitter: appr. 3° / Receiver: appr. 4°				
Turn off delay TOFF	1ms	30ms[Note 1]			
Turn on delay TON	5ms	400ms			
Supply voltage range	24 VDC (20 to 28VDC)				
Current consumption emitter	60mA	20mA			
Current consumption emitter	50mA				
maximum power dissipation	Emitter: 1.68W / Receiver: 1.4W				
Output	PNP, 100mA, short circuit protected				
Input, only Type I..-239-S-**DI** (Disable input)	PNP compatible	--			
Housing	M30, yellow brass, Optic D50, Aluminum				
Protection rating, Sensor	IP 67 at EN 60529				
Protection rating, attached optic	IP 54 at EN 60529				
Operating temperature T_A	IRL: -20°C < T_A < +60°C / ILD: -20°C < T_A < +50°C				
Connection cable, IRL-239.-S/E	S:2 / E:3(4) x AWG24 (0.2mm²)+ Shield / L=5m				
Connection cable, ILD-239.-S/E	S:2 / E:3(4)+PE x 0.5mm² + Shield / L=10m				
Accessories	4 Nuts M30				
Options	-Pollution indication output **VA** /- max. cable length up to 100m				
LED Indication Function	 Light beam interrupted LED's shows red		 Light beam not interrupted LED's shows yellow or green		
Output Configuration and Connection Diagram Receiver: 1 / brown = +; 2 / blue = -; 3 / black = Output; 4 / grey = VA-Output Emitter: 1 / brown = +; 2 / blue = -; 3 / black = DI (N2) Cable shield connect to PE or Minus (-) N2: Only Type IR.-239HS-S-DI					
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				
Ex related designations	CE 0158 Manufacturer with address Device type: EEx II 2 G, II 1/2 D IP67 T90° Certification number: DMT 99 ATEX E 056/N1 TA: -20° < TA < 50° Electrical data according to the chart Date of construction: Numeral 4 and 5 of the serial number				

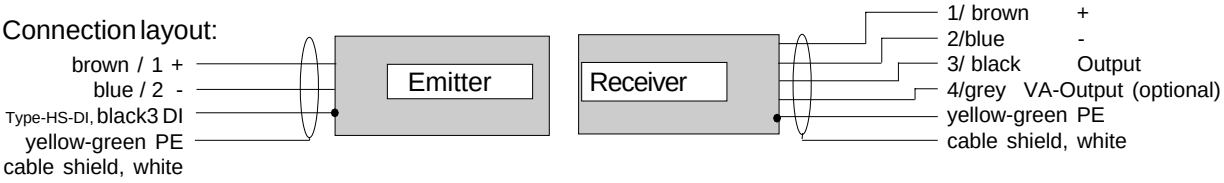
Note 1: If a receiver is influenced by other emitters, TOFF may increase up to 400ms

Dimensions:

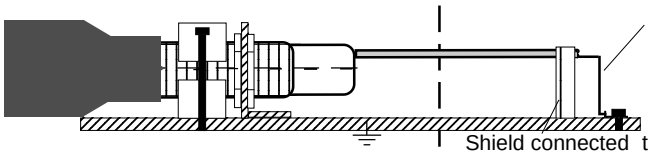


Same dimensions for emitter end receiver

Connection layout:



Equipotential Bonding at Ex d Devices:



Operating Manual / EC - Declaration of Conformity:

Mounting prescriptions

Ex Protection:

It is necessary to take into consideration the valid international and national rules and regulations. 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. Additional optical lenses are not allowed in hazardous locations.

Connection Prescriptions

The maximum ratings must be observed. 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 protection earth large-surfaced. Connection cables must not be installed parallel to high voltage cables.

Arrangement of light barriers , types IR.-239A 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 up to 400ms.

The high speed light barrier type -HS and the high temperature light barrier type E, can not be combined with light barriers types A to D.

Arrangement of light barriers , type IR.239HS-S-DI:

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.

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

The Disable Input DI must be activated for >= 10ms.
The DI input is PNP compatible.

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 barrier IRL/ILD-239 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 ambiance. The load (Relay or other loads) must be connected at " - " (minus).

Because the emitters has a very high optical power, it's to avoid mirroring effects at the background, when not all receivers are located at the same side.

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 medium. Equipment must only be repaired by the manufacturer.

Safety Informations

The Light Barrier IRL/ILD-239-.. must not be used for Accident-Prevention! When installing and operating with the light barrier, it is necessary to take into consideration the relevant international and other national regulations. ATEX 118a, ElexV, TRbF, TRD, UVV, EX-RL,

Standards met:

- EN 50014, EN 50018, EN 50281-1-1; EN 50081-1/-2, EN 50082-1/-2,
- Ex-Protection: 94/9/EG (ATEX 100a)
- Machine Directive: 98/37/EG
- Low Voltage Directive: 73/23/EWG, 93/68/EWG
- EMC: 89/336/EWG, 91/263/EWG, 92/31/EWG, 93/68/EWG

General Notes

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.

Approvals: DMT 99 ATEX E 056 /N1

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 with the ATEX module "Production", declares:

Hans Bracher, Matrix Elektronik AG

Irl239_e3/NOV.23.04/HB

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