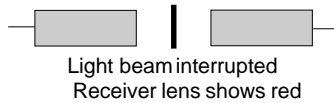
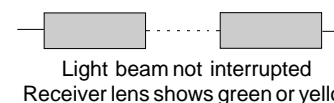
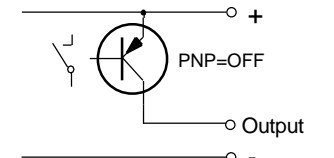
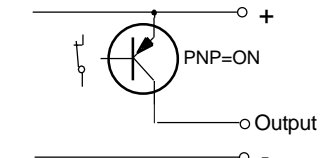


Light Barriers LB.-10-S/E Housing M18

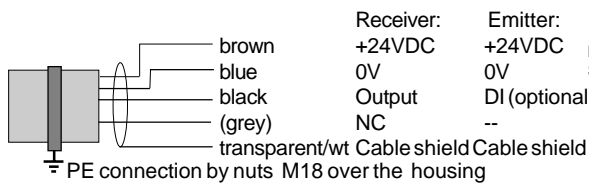
LBD-10-S/E-GD


- Short response time
- Robust light barrier with high reliability.

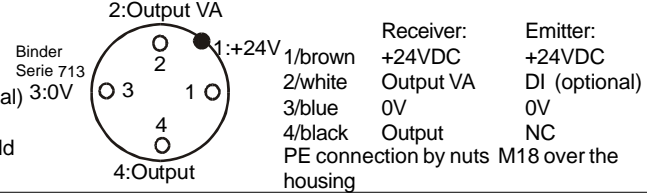
LBN-10-S/E-GD


Technical Data	Type	LBS-10-S/E	LBN-10-S/E-GD	LBD-10-S/E-GD
Type of Ex protection		none	EEx nA II T6	EEx d IIC T6
Applicable Ex zones		none	Zones 2 and 22	Zones 1 and 20/21
Category/grouping		--	II 3G, II 3D IP67 T90°C	II 2G, II 1/2D IP67 T90°C
Designation		S: Emitter / E: Receiver		
Range		>10m		
Minimum detectable object size		12mm (avoid mirror effects)		
Light source		Infrared, 880nm		
Beam pattern (at a distance of 10m)		Emitter: appr. 17° / Receiver: appr. 15°		
Maximum radiant intensity		< 5mW/mm ²		
Response time		5ms		
Supply voltage		24 VDC (20 to 28VDC)		
Current consumption		Emitter: 40mA / Receiver: 40mA		
Maximum power dissipation		Emitter: 1.12W / Receiver: 1.12W		
Output		PNP, 100mA, short circuit protected		
Input, only types LB...-S-DI		Emitter disable input, PNP compatible, Ri 10kΩ		
Housing		M18, yellow brass type Ms 58, nickel plated		
Protection rating, at EN 60529		IP 65	IP 67	IP67
Operating temperature range TA		-20°C < TA < +50°C		
Connection cable		2/3 x AWG24 (0.2mm ²) + Shield / L=5m		
Connection cable, type LB.-S/E-DI-VA S116		with high flexible cable for trailing, oil resistant, 2/3 x 0.25mm ² + shield / L=3m		
Cable with mounted connector, LBN-..S96		--	Binder Series 763/4P (79-3529-33-04)	--
Direct mounted connector, LB.-..S99		Lumberg RSF 4	Lumberg RSF 4	--
Accessories included, all types		- 4x Nuts M18		
Accessories included, only types LB. S96/99		- 2x Safety lock devices, mount at the cable connection, for locking the connections. (black synthetic devices) - 2x Warning plates "Do not open/close when supply voltage connected", self-sealing, for gluing on the cable connectors. - 2x Protection cap for the sensor connectors.		
Accessories not included		- Cord set/cable with connector, series 763 for LBN-10-GD S96/S99 - Cord set, Lumberg RKTS/RKTW 4 M12, 4 terminals for LB.-10 S96/S99		
Options		- LB.-10-S-DI: Emitter with disable input - LBS/LBN-(-GD) S96: Cable length: 10cm with connector M12/4 terminals Connector: Binder series 763, 79-3529-33-04 - LBS/LBN-(-GD) S99: Connector M12: Binder 713, 4 terminals, 09-0431-81-04 - LB.-(-GD) S116: Cable: UNITRONIC-FD CP, PUR coated, oil resistant, high flexible cable for trailing, length=3m - Aperture tube, open by 8mm, type "Tubus M18/90/8" - Response time down to 1ms, on request - Cable length up to 100m		
LED indication Output function				
Function and connection layout (S99: see next page) Wire color: Receiver: brown = +24VDC, blue = 0V, black = Output; Emitter: brown = +24VDC, blue = 0V, black = DI				
Cable shield to connect at PE or Minus (-) The housing must be connected at PE				
Alignment and LED indication		LED red: Light beam interrupted	/not aligned	
		LED yellow: polluted lenses	/badly aligned	
		LED green: Light beam free	/well aligned	
ATEX related designations		CE 0158 Device type (Ex) LBD: II 2G, II 1/2D IP67 T90° / LBN: II 3G, II 3D IP67 T90° Certification number: TA: -20° < TA < 50° Date of construction: Numeral 4 to 7 of the serial number	Manufacturer with address LBD: DMT 99 ATEX E 056 Electrical data according to the chart	

Connection diagram, Cable:

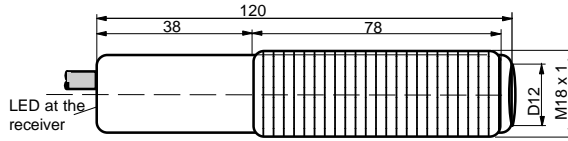


Connection diagram, types LBS and LBN S96/S99 (Connector):



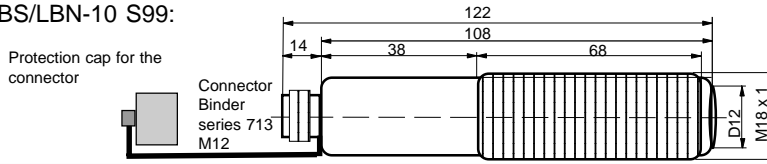
Dimensions, type LBS/LBN/LBD-10:

Equal dimensions for receiver end emitter

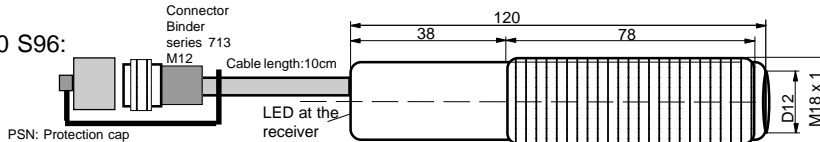


Dimensions, types LBS/LBN-10 S99:

Equal dimensions for receiver end emitter



Dimensions, types LBS/LBN-10 S96:

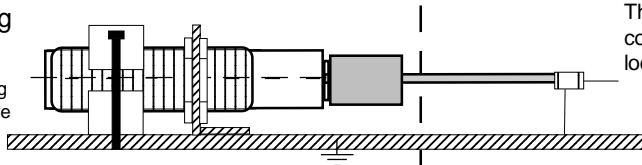


Dimensions, aperture tube M18/90/8:
(optional device for reducing the optical beam pattern)



Equipotential Bonding prescription:

The local equipotential bonding have to be done with conductive corrosion-resistant clamps or nuts M18



The end of the cable must be connected outside the hazardous location.

The cable shield is to connect at PE, large surfaced or at 0V(-) of the supply voltage.

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 with conductive corrosion-resistant clamps or nuts M18 over the housing. The internal 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. Other than original manufacturer, additional optical lenses are not allowed in hazardous locations.

Type LBD-10-GD: Applicable in Ex Zones 1 and 20/21. For the zones 20/21 only the front part (optical lens) can be mounted inside the zone 20. The rear part with the cable must be in the zone 21.

Type LBN-10-GD: Only applicable in Ex zones 2 and 22.

Type LBN-10-GD S96/S99: Only applicable in Ex zones 2 and 22. 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. Only connectors Lumberg RKTS/RKTW 4 or Binder series 713, are allowed. It is necessary to take into consideration the mounting prescription of the connector manufacturer. In dusty locations, without connected cable connectors, the protection caps must be fitted.

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.

Function at standard connection of the supply voltage:

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.

Function at inverse connection of the supply voltage:

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.

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.

Arrangement of light barriers , type LB.-10-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 >= 7ms.

The DI input is PNP compatible.

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 Informations

The dismantling of the connector safety lock device while the supply voltage is connected is hazardous! The mounting of the sensor in dusty locations without fixed cordset or protection cap results in a high ignition risk. The light barrier LB.-10-S/E must not be used for Accident-Prevention! In worst case of disturbance, the outputs can show any state. When installing and operating with the sensor, it is necessary to take into consideration the relevant international and other national regulations. ATEX 118a, ElexV, TRbF, TRD, UVV, EX-RL(BGR104), BetrSichV(ATEX137).

Standards met:

- EN 50014, Type LBD: EN 50018, Type LBN: EN 50021
- EN 50281-1-1; EN 61000-6-1/-2, EN 61000-6-3/4; EN 60529
- Ex protection: 94/9/EG (ATEX 100a)
- Machine directive: 98/37/EG
- Low voltage directive: 73/23/EEG, 93/68/EEG
- EMC 89/336/EEG, 91/263/EEG, 92/31/EEG, 93/68/EEG
- Tech File: AN-EX-LBX1A / EXD_NA5A - RoHS Richtlinie 2002/95/EG

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.

Declaration of Conformity

Certification, series LBD-...: DMT 99 ATEX E 056
Certification, series LBN-...: Declaration of conformity by manufacturer at 94/9/EC. Tech File No: AN-MAT-02-EX-E056.
ATEX certification of quality 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 standards and directives and the EC-type examination certificate and the observation of the Quality Safety System ISO 9001:2000 with the ATEX module "Production", declares:

Hans Bracher, Matrix Elektronik AG

Matrix Elektronik AG (Manufacturer)

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