

Industrial Light Barriers LB.-201-S/E-VA ISO 9001:2000 / ATEX

LBD-201-S/E-VA-GD

Housing M18

LBN-201-S/E-VA-GD



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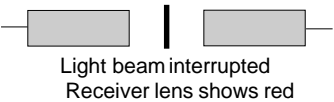
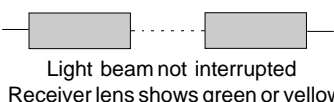
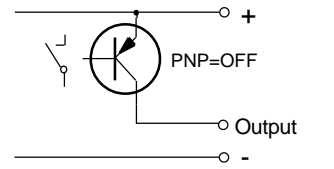
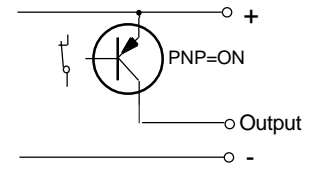



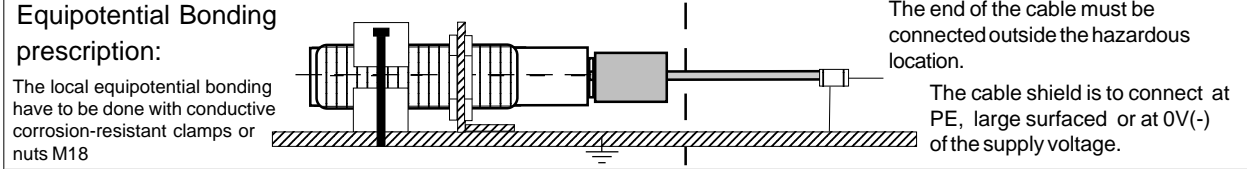
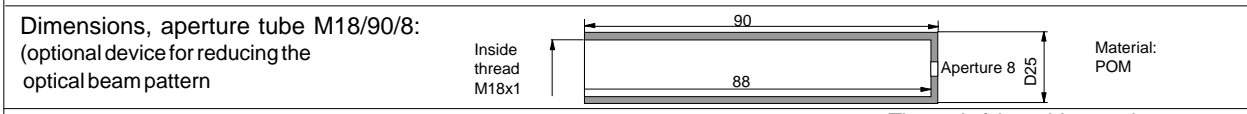
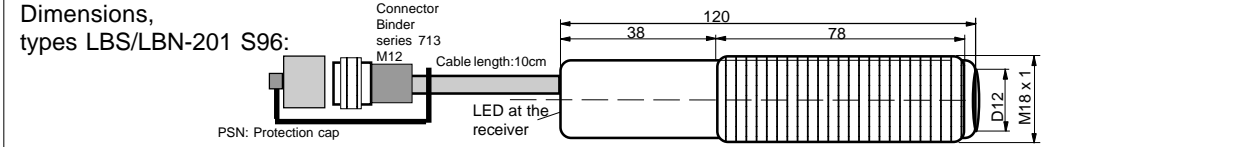
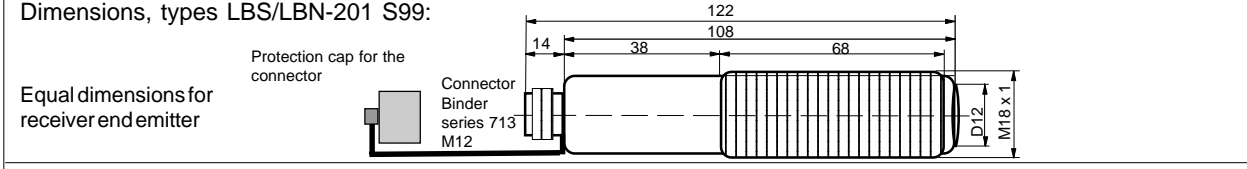
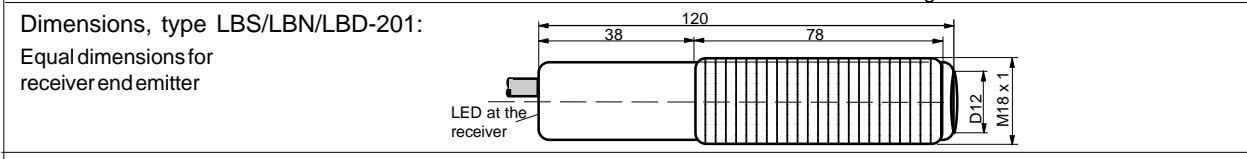
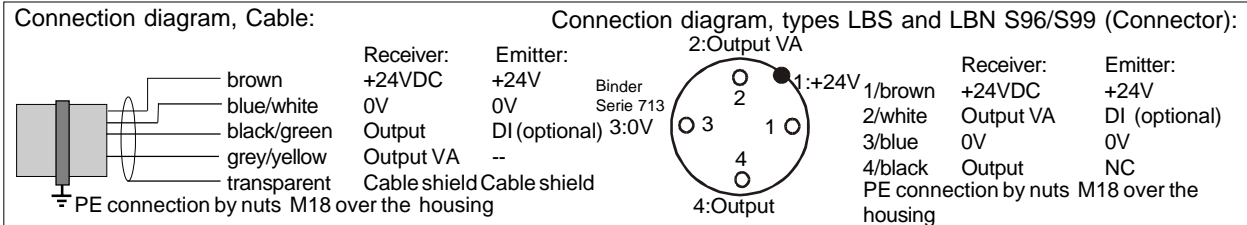
EEx d IIC T6
II 2 G
II 1/2 D IP67 T90°C

- Good penetration capacity in polluted areas.
- Optimal alignment help by status indication through the illuminated receiver lens.
- Short response time
- Robust light barrier for industrial applications with high reliability.



EEx nA IIC T6
II 3 G
II 3 D IP67 T90°C

Technical Data	Type	LBS-201-S/E-VA	LBN-201-S/E-VA-GD	LBD-201-S/E-VA-GD
Type of Ex protection		none	EEx nA IIC T6	EEx d IIC T6
Applicable Ex zones		none	Zones 2 and 22	Zones 1 and 20/21
Category/grouping		--	II 3 G, II 3 D IP67 T90°C	II 2 G, II 1/2 D IP67 T90°C
Designation		S: Emitter / E: Receiver		
Range		120m		
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		
Output, pollution indication "VA"		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 54	IP 67	IP67
Operating temperature range TA		-20°C < TA < +50°C		
Connection cable		3/4 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, 3/4 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		Binder Series 713/4P (09-0431-81-04)	Binder Series 713/4P (09-0431-81-04)	--
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		- Cable connector/cable with connector, series 763 for LBN-201-GD S96/S99 - Cable connector, series 713, M12, 4 terminals for LB.-201 S96/S99		
Options		- LB.-201-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" - Range >200m / Response time down to 1ms, on request - Cable length up to 100m		
LED indication Output function				
Function and connection layout (S99: see next page) Cable 1: brown Cable 2: white Receiver: green Emitter: grey Receiver: = + Emitter: = - Receiver: = Output Emitter: = DI Receiver: = VA-Output Emitter: = NC Cable shield to connect at PE or Minus (-) The housing must be connected at PE				
Pollution indication output "VA"		PNP = OFF		PNP=ON if LED=yellow
Alignment and LED indication		LED red: Light beam interrupted	/ not aligned	
		LED yellow: polluted lenses	/ badly aligned	
		LED green: Light beam free	/ well aligned	
		Red illuminated emitter lens		
ATEX related designations		CE 0158 Device type  LBD: II 2 G, II 1/2 D IP67 T90° / LBN: II 3 G, II 3 D IP67 T90° Certification number: LBD: DMT 99 ATEX E 056/N3 TA: -20° < TA < 50° Date of construction: Numeral 4 and 5 of the serial number		



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-201-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-201-GD: Only applicable in Ex zones 2 and 22.

Type LBN-201-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, 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.

Pollution indication output VA:

Only when the receiver LED's shows green, the pollution indication output VA switches to +24VDC. (Light barrier well aligned, no pollution or no other impairments). If the receiver LED's shows yellow or red, the output VA is switched to 0V. This function gives the possibility to a fast reaction at polluted lenses.

Arrangement of light barriers:

If several light barriers are installed close to another, each light barrier has

an influence on each other. For an arrangement with multiple light barriers please choose the type LB.-201-S-DI.

Arrangement of light barriers, type LB.-201-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.

Alignment of the Light Barrier

The three color indication in the receiver optic allows an optimal alignment.

- The emitter must be aligned this way, that the emitter lens is fully illuminated (By watching from the receiver at the emitter).
- 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 cleaning liquid. Equipment must only be repaired by the manufacturer.

Safety Informations

The light barrier LB.-201-S/E-VA 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/EWG, 93/68/EWG
- EMC 89/336/EWG, 91/263/EWG, 92/31/EWG, 93/68/EWG

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.

Approvals: DMT 99 ATEX E 056/N3

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: