


Original Operating Manual:

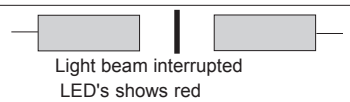
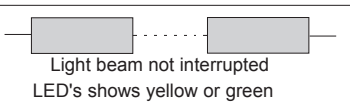
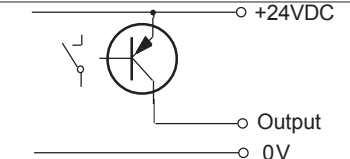
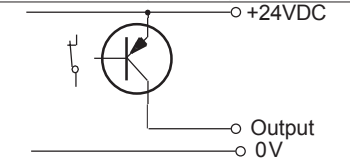
Laser Pointer LBD-L54-LSR/LDI(-OP)

Housing M18 LBD-L54-LSR/LDI-OP

 1258

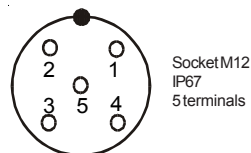
 II 2(1)G Ex d [op is Ga] IIA T3 Gb
 II 3D Ex tc op is IIIA T135°C Dc IP67

- Short response time
- Range 50m.
- Optimal alignment help by status indication through the illuminated receiver lens.
- With optional emitter disable input
- With pollution indication output
- Series LBD: For use in Ex-Zones (0)1, (0)2, 22

| Technical data | Emitters | LBD-L54-LSR/LDI-OP |
|---|--|---|
| Designation, emitter with disable input | | LBx-L54-S-DI |
| Type of Ex protection Gas, in accordance with 2014/34/EU | | II 2(1)G Ex d [op is Ga] IIA T3 Gb |
| Type of Ex protection Dust, in accordance with 2014/34/EU | | II 3D Ex tc op is IIIA T135°C Dc IP67 |
| For use in Ex Zones | | (0), 1, 2, 22 |
| Sensing range | | 50m |
| Minimum detectable object size | | 10mm (avoid mirror effects) |
| Light source | | Laser, visible red, 650nm, class 2 |
| Maximum radiant power | | <=1mW |
| Maximum radiant intensity | | <=5mW/mm ² |
| Directional angle of the receiver | | appr. 17°. (at a distance of 10m) |
| Response time | | 5ms |
| Supply voltage | | 24 VDC +/-10% |
| Current consumption, emitter | | 40mA |
| Current consumption, receiver | | 50mA |
| Maximum power dissipation | | Emitter = 1.1W / Receiver = 1.4W |
| Output & Pollution indication output "VA" | | PNP, 100mA, short circuit protected |
| Electrical input, only type LBD-L54-LDI(-OP) | | Disable input, PNP compatible |
| Maximum ambient working temperature ^{Note 1} | | 0°C < T _{amb} < +50°C |
| Storage temperature range | | -20°C ... +70°C |
| Relative humidity | | 15% ... 90%, noncondensing |
| Pollution degree, according to EN 60664-1 | | 4 |
| Utilization category, according to EN 60947-5-1/2 | | DC13 |
| Housing | | M18, brass, nickel plated |
| Enclosure rating, in accordance with EN 60529 | | IP67 |
| Vibration and shock resistance | | Vibration: 30g over 20Hz to 2kHz. Shock: 100g for 3ms |
| Connection cable, shielded | | Special PVC 2/3/4 x AWG24/0.25mm ² , L=10m |
| Accessories | | 4 nuts M18 or optional 2 clamps |
| Options | | |
| - Cable length: | | Up to 100m, on request |
| <p>- Response time 1ms: On request</p> <p>- LBD-L54-LDI(-OP): Emitter with disable input</p> <p>- LBD-L54-***(-OP)-S112: Special Cable: Sonderleitung TPU, shielded, oil and solvent resistant, cable for trailing, halogen free, length=10m</p> <p>- LBD-L54-***(-OP)-S116: Special Cable: Sonderleitung TPU, shielded, oil and solvent resistant, cable for trailing, halogen free, length=3m</p> <p>- LBD-L54-EVA(-OP)-S179: With inverted output function, Dark=ON</p> <p>- Additional "Tubus M18/90/8": Aperture tube, open by 8mm</p> | | |
| LED Indication Function |  <p style="text-align: center;">Light beam interrupted LED's shows red</p> |  <p style="text-align: center;">Light beam not interrupted LED's shows yellow or green</p> |
| Output Wiring and connection layout, see page 2 |  <p style="text-align: center;">PNP=OFF</p> |  <p style="text-align: center;">PNP=ON, if LED=yellow</p> |
| Pollution indication output VA | | |
| Alignment and Controlling by LED Display (Through the receiver lens and at the rearside of the receiver) | <p>LED red: Light beam interrupted / not aligned</p> <p>LED yellow: polluted lenses / badly aligned</p> <p>LED green: Light beam free / well aligned</p> | |
| EX related markings | CE 1258 Types LBD: II 2(1) Ex d [op is Ga] IIA T3 Gb, Types LBD: ATEX certification Tamb: 0°C < Tamb < +50°C Date of production: Numerals 5 to 8 of the serial number (year/calendar week) (X designation of the certification number: Fibre optics must only be used with sensors with certificated limited optical power) | Manufacturer with address II 3D Ex tc op is IIIA T135°C Dc IP67 No: BVS 10 ATEX E130 X DEKRA Electrical data according to the table "Technical data" |
| <p>Note 1: On temperatures less the +5°C, the cable must not be agitated</p> | | |

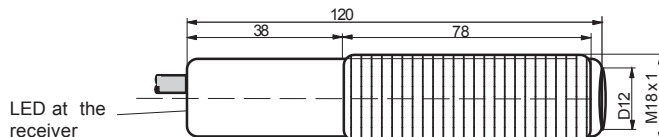
Connection diagram, cable:

| Standard cable: | Special cabel: | Receiver: | Emitter: |
|----------------------|----------------|----------------------|---------------|
| brown | 1 | +24VDC | +24VDC |
| black | 2 | 0V | 0V |
| red | 3 | Output | DI (optional) |
| orange | 4 | Output VA (optional) | - |
| at the housing white | green-yellow | PE/PA | PE/PA |
| | white | Cable shield | Cable shield |



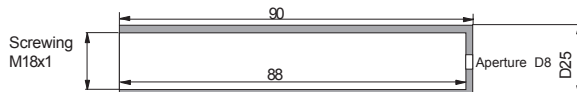
Dimensions: LBD-L54-***(-OP):

Same dimensions for emitter end receiver



Status indication trough the illuminated receiver lens at the receiver

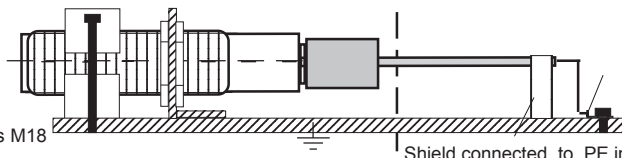
Dimensions: Tubus M18/90/8:
(Optional accessory for reduction the directional angle)



Material: POM

Equipotential Bonding for Ex Devices LBD:

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 locations.
Reliable, noncorrosive holding of the protection earth connection.

Shield connected to PE in a wide area

Operating Manual / EU - Declaration of Conformity:

Operating Manual:

Ex protection:

General prescriptions for all Ex devices:

It is necessary to take into consideration the valid international and national rules and regulations (EN 60079-14). The maximum input voltage $U_m=30VDC$ must not be exceeded. The local equipotential bonding have to be done. The protective earth (PE) terminal is solid connected with the housing. The cable have to be protected against damages. To connect cables inside hazardous locations only use certificated Ex housings. All cable terminals must be connected outside hazardous locations. Use only original manufactured fibre optics and additional optical lenses, other additional optical lenses are not allowed in hazardous locations.

Type LBD-L54-***-OP: Applicable in Ex zones 1, 2, 22. The limited optical radiation can operate into hazardous locations 0 or 22 through a certificated viewing glass.

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. Lumberg cordsets RKTS 5-298/xx (Straight type) or RKWTH 5-298/xx (Right angle type) are allowed ONLY. It is necessary to take into consideration the mounting prescription of the connector manufacturer. In dusty locations, the socket protection cap must be fitted, when the connection cable is not connected.

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:

As soon as the sensor is connected to +24V switches to ON.

Only types LBD-L54-LDI(-OP):

There is the possibility to disable the output by using the disable input DI.

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

The Disable Input DI must be activated for $\geq 7ms$.

The DI input is PNP compatible.

Mechanical Mounting Prescriptions

Because Lasers have a very small aperture angle, mount the laser pointer free from vibrations and shocks. If it is practicable, protect the lenses from contamination.

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 for Laser Installations of Class 2:

The instructions for planning and installation must be followed in accordance with EN 60825-1. Do not stare into Laser Beam

General safety instructions

"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 sensors must not be used for Accident-Prevention! In worst case the output can change to any state! When installing and operating with the sensor, it is necessary to take into consideration the relevant international and other national regulations: EN 60079-14, single directive 1999/92/EC. The sensors are conform to the following standards: IEC/EN 60079-0:2012 + A11:2013, IEC/EN 60079-1:2007, EN 60079-15:2010, IEC/EN 60079-28:2007, IEC/EN 60079-31:2010, EN 60529:2014, EN 60950-1:2006; EN 61000-4-2 to EN 61000-4-6, EN 61000-6-1/-2, EN 61000-6-4, ATEX directive: 2014/34/EU, Machine directive: 2006/42/EC, EMC directive: 2014/30/EU, RoHS directive: 2011/65/EU.

General Notes, disposal
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.

EU-Declaration of conformity:

ATEX certification, types LBD: II 2(1)G Ex d [op is Ga] IIA T3 Gb, II 3D Ex to op is IIIA T135°C Dc IP67. Certification No. BVS 10 ATEX E 130 X, DEKRA EXAM GmbH, Zertifizierungsstelle, Carl-Beyling-Haus, Dinendahlstrasse 9, D-44809 Bochum, Kennnummer: 0158. ATEX certification of quality type production of Ex devices in accordance to the ATEX directive 2014/34/EU, CE 1258, Eurofins. Certification No: SEV 21 ATEX 4580, QAR No. CH/SEV/QAR21.0009/00. 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: Pablo Ledergerber, Matrix Elektronik AG

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LBx-L54-OP_e2/2022-01-27/IMP

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