

Operating manual: LPG-655-FGZ-ZA-S329 Laser pointer inside M18 housing



IECEx SEV 23.0006


 II 2(1)G
II 2(1)D

 Ex db [op is Ga] IIC T4 Gb
Ex tb [op is Da] IIIC T135°C Db

Technical Data	Type	LPG-655-FGZ-ZA-S329										
Beam shape		circle / cross-line										
Gas Ex protection designation		II 2(1)G Ex db [op is Ga] IIC T4 Gb										
Dust Ex protection designation		II 2(1)D Ex tb [op is Da] IIIC T135°C Db										
For use in Ex Zones		Zones (0), 1, 2, (20), 21, 22										
Light Source		Laser, red, 655nm, class 2										
Maximum optical radiant power		< 1mW										
Pattern angle		Circle = 10.6°, Cross-line = 21°										
Supply voltage, Ue		24 VDC ± 10%										
Absolute maximum supply voltage, Um		30 VDC										
Maximum power dissipation		1.5W										
Maximum current consumption		50mA										
Housing		M18, Material: Ms 58 nickel plated										
Enclosure rating		IP67										
Ambient working temperature range, Tamb		-10°C up to +50°C										
Storage temperature range		-20°C up to +70°C										
EMC, shock and vibration resistance		Vibration: 30g over 20Hz to 2Khz. Shock: 100g for 3ms										
Connection cable		TPU insulation, AWM 20236, 2+PE x 0.5mm ² , halogen free, shielded, leads numbering marked, oil resistant cable for trailing, length: 5m										
Accessories	Included	Optional										
	<ul style="list-style-type: none"> 1x Warning plate "LASER RADIATION. DO NOT STARE INTO BEAM. CLASS 2 LASER PRODUCT", self-adhesive for gluing near to the sensor. 2x Nuts M18 											
Wiring and Connection		<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 50%;">Lead-No</th> <th style="width: 50%;">Function</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>24 VDC ± 10%</td> </tr> <tr> <td>2</td> <td>0V</td> </tr> <tr> <td>yellow-green</td> <td>PE/PA</td> </tr> <tr> <td>white</td> <td>Cable shield</td> </tr> </tbody> </table>	Lead-No	Function	1	24 VDC ± 10%	2	0V	yellow-green	PE/PA	white	Cable shield
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EX related markings		<table style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> CE 1258 Typ: LPG-655-FGZ-ZA-S329 Gas: Ⓜ II 2(1)G Ex db [op is Ga] IIC T4 Gb ATEX: IECEx: Tamb: Manufacturing date: </td> <td style="width: 50%; vertical-align: top;"> Manufacturer with Address Electrical data according to table Dust: Ⓜ II 2(1)D Ex tb [op is Da] IIIC T135°C Db SEV 23 ATEX 0671 IECEx SEV 23.0006 -10°C up to +50°C Number 5 to 8 of the Serial Number (Year / CW) </td> </tr> </table>	CE 1258 Typ: LPG-655-FGZ-ZA-S329 Gas: Ⓜ II 2(1)G Ex db [op is Ga] IIC T4 Gb ATEX: IECEx: Tamb: Manufacturing date:	Manufacturer with Address Electrical data according to table Dust: Ⓜ II 2(1)D Ex tb [op is Da] IIIC T135°C Db SEV 23 ATEX 0671 IECEx SEV 23.0006 -10°C up to +50°C Number 5 to 8 of the Serial Number (Year / CW)								
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Safe equipotential bonding for Ex devices		<p>Ensure local equipotential bonding by means of a corrosion-resistant PE connection.</p> <p>The end of the cable must be connected outside the hazardous locations. The cable shield is to connect to PE in a wide area.</p>										

LPG-655-FGZ-ZA-S329_e1/2025-07-21/MP

Installation prescriptions for Ex hazardous locations

It is necessary to take into consideration the valid international and national rules and regulations (EN 60079-14). The local potential equalization must be connected with the PA-connector using a reliable and noncorrosive connection. The PE/PA connector is permanently attached to the enclosure. The absolute maximum supply voltage $U_m = 30$ VDC must not be exceeded. No external parts are allowed for focusing or reshaping of the emitted laser beam, except for original parts. The cable must be protected against damaging. The end of the cable must either be installed within a certificated Ex housing or must be installed outside of any Ex area. Type LPG-655-FGZ-ZA-S329: Allowed to be installed and operated within Ex zones 1, 2, 21 and 22. The limited optical radiation can operate into hazardous locations zones 0 and 20.

Safety regulations for Laser devices class 2

The relevant standard is IEC/EN 60825-1 "Safety of laser products", see paragraphs 12.5.1 and 12.6.1. It is only necessary to take precautions to avoid a direct and prolonged staring into the beam. A direct look into the beam is not considered hazardous if the normal eye reflex limits it to a short duration (max. 0.25s). The laser beam path should be blocked at the end of its useful path when this is reasonably practicable. Additionally, the laser should not be directed at people.

General mounting prescriptions

Mount the laser stable and vibration-free. The electrical connections must be exactly as shown in the connection diagram. The cable shield must be connected as short as possible. The cable shield should be connected to the protection earth, large-surfaced. Do not exceed the maximum ratings or install the connection cables parallel to high voltage cables.

Function

Once the laser pointer is energized, it takes about 2 seconds to start. To prolong laser lifetime, the laserpointer should be switched off when not in use.

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 all relevant international and other national regulations.

General notes, disposal

We reserve the right to make changes. The laser pointer is built as environmentally friendly as possible. It contains no environmentally harmful substances. A minimum of energy and resources are used during production and operation. Irreparable or no longer used devices must be disposed of according to the valid regulations.

Maintenance

No special maintenance is required. For a high reliability hold the Laserpointer window free from sediments. It should be cleaned only with a non-aggressive cleaning liquid. Equipment should only be repaired by the manufacturer.

EU-Declaration of Conformity

The product meets the requirements of the following standards and directives: IEC 60079-0 (Ed. 7.0), IEC 60079-1 (Ed. 7.0), IEC 60079-28 (Ed. 2.0), IEC 60079-31 (Ed. 2.0), IEC/EN 60825-1, IEC/EN 60825-2, IEC/EN 60529, IEC 61000-4-2 to IEC 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

ATEX/IECEx-Designation:

Gas: II 2(1)G Ex db [op is Ga] IIC T4 Gb
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 ATEX EU-type examination certificate No.: SEV 23 ATEX 0671
 IECEx CoC No.: IECEx SEV 23.0006
 Ex CB IECEx: Eurofins Electric & Electronic Product Testing AG, Luppenstrasse 3, CH-8320 Fehraltorf

ATEX certification of quality management system, type production of Ex devices, in accordance to the directive 2014/34/EU:

Certification No.: SEV 21 ATEX 4580, QAR No.: CH/SEV/QAR21.0009, CB: Eurofins Electric & Electronic Product Testing AG, Luppenstrasse 3, CH-8320 Fehraltorf CE 1258.

Pablo Ledergerber, Matrix Elektronik AG, is authorized to generation of documentation. The conformity of the devices with all used standards and directives and the EC-type examination certificate and the observation of the Quality Management System ISO 9001:2015, declares:

Ehrendingen, 21.7.2025



Pablo Ledergerber, Matrix Elektronik AG

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