Tippkemper®

ISO 9001:2015

MATRIX elektronik ag

LMO-4AA-AEZ-OP
Laser module

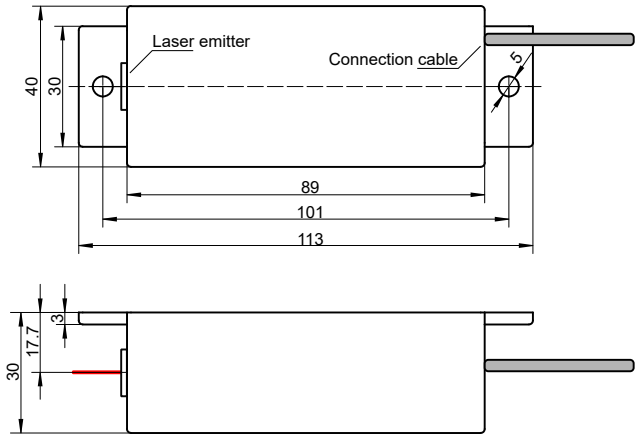
1258

- Green laser light for better visibility
- Laser class 3B
- The device must be mounted outside the Ex-zone. The Light can work in Ex (0) and (20).

Technical Data	LMO-4AA-AEZ-OP
Beam shape	Round
Gas Ex protection designation	II (1)G [Ex op is IIC T4 Ga]
Dust Ex protection designation	II (1)D [Ex op is IIIC T135°C Da]
For use in Ex Zones	(0) and (20)
Optical power	20mW
Light Source Color	green
Wavelength	532nm
Supply voltage, Ue	24VDC ±10%
Current consumption	300mA (max.)
Power consumption	2.85W
Input function	Disable Input, PNP compatible, LOW = 0V-3V, HIGH = 16V-24V
Disable Input Laser timing	min OFF-time = 600ms, min ON-time = 600ms
Housing	Rectangular box made of aluminium
Enclosure rating	IP20
Ambient working temperature range, T_{amb}	–10°C up to +50°C
Storage temperature range	–20°C up to +70°C
Lifetime warning	10000h
Connection cable	UL-Liycy, 6xAWG24, black, length: 1m

Wiring and Dimensions

Lead-No	Function
brown	24VDC ±10%
black	0V
yellow	DI (LOW = 0V-3V, HIGH = 16V-24V)
green	DO Error
red	LED Out
orange	PE/PA
white	Cable shield



EX related markings

CE 1258	Manufacturer with Address
Typ: LMO-4AA-AEZ-OP	Electrical data according to table
Gas: II (1)G [Ex op is IIC T4 Ga]	Dust: II (1)D [Ex op is IIIC T135°C Da]
ATEX:	SEV 23 ATEX 0671 X
IECEx:	IECEx SEV 23.0006X
Tamb:	–10°C up to +50°C
Manufacturing date:	Number 5 to 8 of the Serial Number (Year / CW)

Tippkemper-Matrix GmbH
Meegerner Str. 43, D-51491 Overath
Tel.: +49 2206 9566-0, Fax -19
info@tippkemper-matrix.de

Matrix Elektronik AG (Manufacturer)
Kirchweg 24, CH-5420 Ehrendingen
Tel.: +41 56 20400-20, Fax -29
info@matrix-elektronik.com

LMO-4AA-AEZ-OP_e1/2025–07–09/MP

Operating Manual / EU-declaration of conformity

General installation prescriptions
Mount the laser stable and vibration-free. The electrical connections must be exactly as shown in the connection diagr am. 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.

Ex installation prescriptions
It is necessary to take into consideration the valid international and national rules and regulations (IEC 60079-14). The maximum ratings must not be exceeded. The electrical connections must be done according to the wiring diagram. The local equipotential bonding must be connected corrosion resistant and permanentely. The protective earth (PE) is solidly connected with the housing.
The cable shield must be solidly connected to protection earth. The cable have to be installed and protected against damages. The cable with termination fittings, or in cable tray systems and installed in a manner to avoid tensile stress at the termination fittings. To connect cables inside hazardous locations only use certificated Ex housings. All cable terminals must be connected outside hazardous locations.
The product MUST NOT be installed or operated inside hazardous atmospheres. The limited optical radiation may operate inside Ex zones 0 and 20.

Function
The LMx laser module is ready after a few seconds as soon as it is connected to the 24V. To switch on the laser, the DI input must be connected to +24V. The laser then starts up slowly. To switch off the laser, simply disconnect the DI input from the 24V and connect it to GND/0V or leave it open. The LED output indicates whether the laser is switched on (LED Out = high) or off (LED Out = low). The service life of the laser depends on the ambient temperature and the quality of the laser. When the laser module has reached its service life, which can be recognized by the pulsed signal at 12 Hz at the DO output, the laser should be replaced. How long the laser will continue to function depends on many factors such as temperature, laser quality, etc. The DO output indicates the normal or error status, see table below. Note: The DO output may only be connected to inputs or left open. Never connect the DO output directly to 0 V, GND, ground or +24 V.

State	DO-Output
OK	LOW
Error	HIGH
Lifetime reached	Clocked signal with a frequency of 12Hz

General safety
The sensor must not be used for Accident-Prevention! In worst case the output can change to any state! When installing and operating the product, it is necessary to take into consideration all relevant international and other national regulations, especially those regarding explosion protection.

Safety instructions for class 3B lasers

Avoid contact with the laser beam or reflections. They may cause injury to the eyes or minor burns to the skin. Wear safety glasses when starting up or using the laser. Please note: The use of this laser requires that the facility has a laser safety officer. The laser safety officer must take the necessary precautions to prevent accidents from occurring.

Maintenance
No special maintenance is required.
The equipment must only be repaired or serviced by the manufacturer.

General notes and disposal
We reserve the right to modify our products. Our products are designed in such a way, that it has the least possible adverse effect on the environment. It neither emits or contains 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
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 (1)G [Ex op is IIC T4 Ga]
Dust: II (1)D [Ex op is IIIC T135°C Da]
ATEX EU-type examination certificate No.: SEV 23 ATEX 0671 X
IECEx CoC No.: IECEx SEV 23.0006X
Ex CB IECEx: Eurofins Electric & Electronic Product Testing AG, Luppmenstrasse 3, CH-8320 Fehraltorf CE 1258
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, Luppmenstrasse 3, CH-8320 Fehraltorf CE 1258 Ident. Number: 1258
Pablo Ledergerber, Matrix Elektronik AG, is authorized to generation of documentation.
The conformity of the devices with all used standards, directives and EC-type examination certificates and the observation of the Quality Management System ISO 9001:2015, declares:

Ehrendingen, 9.7.2025

Pablo Ledergerber, Matrix Elektronik AG

LMO-4AA-AEZ-OP_e1/2025–07–09/MP