



## Digital Output LB6010AR

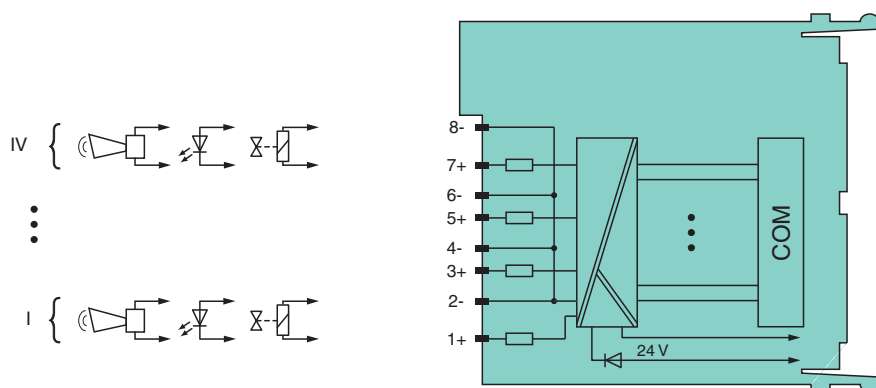
- 4-channel
- Outputs Ex ic
- Installation in Zone 2 and safe area
- Line fault detection (LFD)
- Positive or negative logic selectable
- Simulation mode for service operations (forcing)
- Permanently self-monitoring
- Output with watchdog



### Function

The digital output features 4 independent channels.  
It can drive solenoids, sounders, or LEDs.  
Line faults are detected.  
The outputs are galvanically isolated from the bus and the power supply (EN 60079-11).

### Connection



Zone 2

### Technical Data

#### Slots

|                |   |
|----------------|---|
| Occupied slots | 2 |
|----------------|---|

#### Supply

|                     |                                   |                                                             |
|---------------------|-----------------------------------|-------------------------------------------------------------|
| Connection          | backplane bus / booster terminals |                                                             |
| Rated voltage       | $U_r$                             | 12 V DC , only in connection with the power supplies LB9*** |
| Input voltage range | $U$                               | 18.5 ... 32 V DC (SELV/PELV) booster voltage                |
| Power dissipation   | 3 W                               |                                                             |
| Power consumption   | 0.15 W                            |                                                             |

#### Internal bus

|            |                                                |  |
|------------|------------------------------------------------|--|
| Connection | backplane bus                                  |  |
| Interface  | manufacturer-specific bus to standard com unit |  |

#### Digital output

## Technical Data

|                                                                |           |                                                                                                                                                                                                                                                          |
|----------------------------------------------------------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Number of channels                                             |           | 4                                                                                                                                                                                                                                                        |
| Suitable field devices                                         |           |                                                                                                                                                                                                                                                          |
| Field device                                                   |           | Solenoid Valve                                                                                                                                                                                                                                           |
| Field device [2]                                               |           | audible alarm                                                                                                                                                                                                                                            |
| Field device [3]                                               |           | visual alarm                                                                                                                                                                                                                                             |
| Connection                                                     |           | channel I: 1+, 2-; channel II: 3+, 4-; channel III: 5+, 6-; channel IV: 7+, 8-                                                                                                                                                                           |
| Internal resistor                                              | $R_i$     | max. 370 $\Omega$                                                                                                                                                                                                                                        |
| Current limit                                                  | $I_{max}$ | 37 mA                                                                                                                                                                                                                                                    |
| Open loop voltage                                              | $U_s$     | 24.5 V                                                                                                                                                                                                                                                   |
| Line fault detection                                           |           | can be switched on/off for each channel via configuration tool also when turned off (every 2.5 s the valve is turned on for 2 ms)                                                                                                                        |
| Short-circuit                                                  |           | < 100 $\Omega$                                                                                                                                                                                                                                           |
| Open-circuit                                                   |           | > 15 k $\Omega$                                                                                                                                                                                                                                          |
| Response time                                                  |           | 10 ms (depending on bus cycle time)                                                                                                                                                                                                                      |
| Watchdog                                                       |           | within 0.5 s the device goes in safe state, e.g. after loss of communication                                                                                                                                                                             |
| Reaction time                                                  |           | 10 s                                                                                                                                                                                                                                                     |
| <b>Indicators/settings</b>                                     |           |                                                                                                                                                                                                                                                          |
| LED indication                                                 |           | Power LED (P) green: supply<br>Status LED (I) red: line fault, red flashing: communication error                                                                                                                                                         |
| Coding                                                         |           | optional mechanical coding via front socket                                                                                                                                                                                                              |
| <b>Directive conformity</b>                                    |           |                                                                                                                                                                                                                                                          |
| Electromagnetic compatibility                                  |           |                                                                                                                                                                                                                                                          |
| Directive 2014/30/EU                                           |           | EN 61326-1:2013                                                                                                                                                                                                                                          |
| <b>Conformity</b>                                              |           |                                                                                                                                                                                                                                                          |
| Electromagnetic compatibility                                  |           | NE 21                                                                                                                                                                                                                                                    |
| Degree of protection                                           |           | IEC 60529                                                                                                                                                                                                                                                |
| Environmental test                                             |           | EN 60068-2-14                                                                                                                                                                                                                                            |
| Shock resistance                                               |           | EN 60068-2-27                                                                                                                                                                                                                                            |
| Vibration resistance                                           |           | EN 60068-2-6                                                                                                                                                                                                                                             |
| Damaging gas                                                   |           | EN 60068-2-42                                                                                                                                                                                                                                            |
| Relative humidity                                              |           | EN 60068-2-78                                                                                                                                                                                                                                            |
| <b>Ambient conditions</b>                                      |           |                                                                                                                                                                                                                                                          |
| Ambient temperature                                            |           | -20 ... 60 °C (-4 ... 140 °F)                                                                                                                                                                                                                            |
| Storage temperature                                            |           | -25 ... 85 °C (-13 ... 185 °F)                                                                                                                                                                                                                           |
| Relative humidity                                              |           | 95 % non-condensing                                                                                                                                                                                                                                      |
| Altitude                                                       |           | max. 2000 m                                                                                                                                                                                                                                              |
| Shock resistance                                               |           | shock type I, shock duration 11 ms, shock amplitude 15 g, number of shocks 18                                                                                                                                                                            |
| Vibration resistance                                           |           | frequency range 10 ... 150 Hz; transition frequency: 57.56 Hz, amplitude/acceleration $\pm 0.075$ mm/1 g; 10 cycles<br>frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration $\pm 1$ mm/0.7 g; 90 minutes at each resonance |
| Damaging gas                                                   |           | designed for operation in environmental conditions acc. to ISA-S71.04-1985, severity level G3                                                                                                                                                            |
| <b>Mechanical specifications</b>                               |           |                                                                                                                                                                                                                                                          |
| Degree of protection                                           |           | IP20 when mounted on backplane                                                                                                                                                                                                                           |
| Connection                                                     |           | removable front connector with screw flange (accessory)<br>wiring connection via spring terminals (0.14 ... 1.5 mm <sup>2</sup> ) or screw terminals (0.08 ... 1.5 mm <sup>2</sup> )                                                                     |
| Mass                                                           |           | approx. 150 g                                                                                                                                                                                                                                            |
| Dimensions                                                     |           | 32.5 x 100 x 102 mm (1.28 x 3.9 x 4 inch)                                                                                                                                                                                                                |
| <b>Data for application in connection with hazardous areas</b> |           |                                                                                                                                                                                                                                                          |
| Output                                                         |           |                                                                                                                                                                                                                                                          |
| Voltage                                                        | $U_o$     | 27.8 V                                                                                                                                                                                                                                                   |
| Current                                                        | $I_o$     | 90.4 mA                                                                                                                                                                                                                                                  |
| Power                                                          | $P_o$     | 629 mW                                                                                                                                                                                                                                                   |
| Internal capacitance                                           | $C_i$     | 1.65 nF                                                                                                                                                                                                                                                  |

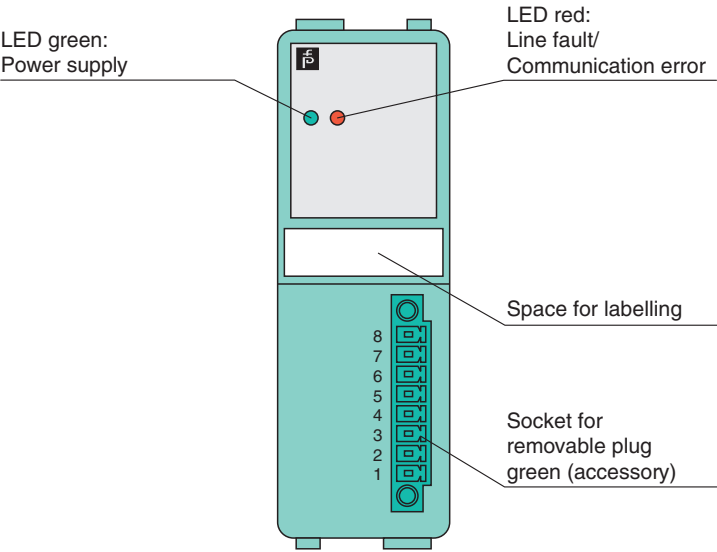
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Technical Data

|                                   |                |                                                                                                                                                                                                                                                                                 |
|-----------------------------------|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Internal inductance               | L <sub>i</sub> | 0 mH                                                                                                                                                                                                                                                                            |
| Certificate                       |                | PF 08 CERT 1234 X                                                                                                                                                                                                                                                               |
| Marking                           |                | Ⓜ II 3 G Ex nA [ic] IIC T4 Gc                                                                                                                                                                                                                                                   |
| Galvanic isolation                |                |                                                                                                                                                                                                                                                                                 |
| Output/power supply, internal bus |                | safe electrical isolation acc. to EN 60079-11, voltage peak value 375 V                                                                                                                                                                                                         |
| Directive conformity              |                |                                                                                                                                                                                                                                                                                 |
| Directive 2014/34/EU              |                | EN IEC 60079-0:2018+AC:2020<br>EN 60079-11:2012<br>EN 60079-15:2010                                                                                                                                                                                                             |
| International approvals           |                |                                                                                                                                                                                                                                                                                 |
| IECEx approval                    |                |                                                                                                                                                                                                                                                                                 |
| IECEx certificate                 |                | IECEx BVS 09.0037X                                                                                                                                                                                                                                                              |
| IECEx marking                     |                | Ex nA [ic] IIC T4 Gc                                                                                                                                                                                                                                                            |
| General information               |                |                                                                                                                                                                                                                                                                                 |
| System information                |                | The module has to be mounted in appropriate backplanes (LB9***) in Zone 2 or outside hazardous areas. Here, observe the corresponding declaration of conformity. For use in hazardous areas (e. g. Zone 2 or Zone 22) the module must be installed in an appropriate enclosure. |
| Supplementary information         |                | EC-Type Examination Certificate, Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable. For information see <a href="http://www.pepperl-fuchs.com">www.pepperl-fuchs.com</a> .                    |

Assembly

Front view



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## Product Versions

| U (V) | R <sub>a</sub> (Ω) | Lim. (mA) | R <sub>ext</sub> (Ω) | U <sub>o</sub> (V) | I <sub>o</sub> (mA) | P <sub>o</sub> (mW) | Type/Order No. |
|-------|--------------------|-----------|----------------------|--------------------|---------------------|---------------------|----------------|
| 24.5  | 370                | 55        | 175 ... 6000         | 27.8               | 90.4                | 629                 | LB6010A        |

### Remarks:

- R<sub>ext</sub> represents the operating range (coil resistance + cable resistance).
- U represents the open circuit voltage.
- R<sub>a</sub> represents the internal impedance.
- Output current =  $U / (R_a + R_{ext})$
- Lim. represents the functional electronic current limitation.