

# Digital Output

## LB6110AR



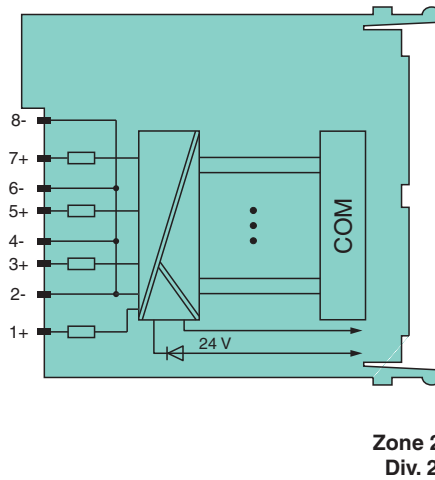
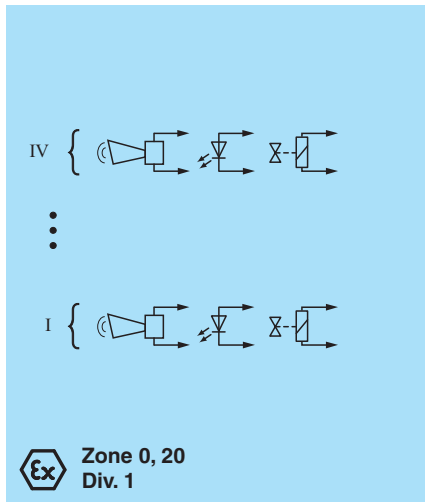
- 4-channel
- Outputs Ex ia
- Installation in Zone 2 or safe area
- Line fault detection (LFD)
- Positive or negative logic selectable
- Simulation mode for service operations (forcing)
- Permanently self-monitoring
- Output with watchdog



### Function

The digital output features 4 independent channels.  
 The device can be used to drive solenoids, sounders, or LEDs.  
 Open and short-circuit line faults are detected.  
 The outputs are galvanically isolated from the bus and the power supply.

### Connection



### Technical Data

<b>Slots</b>			
Occupied slots	2		
<b>Supply</b>			
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		
<b>Internal bus</b>			
Connection	backplane bus		
Interface	manufacturer-specific bus to standard com unit		
<b>Digital output</b>			

Release date: 2023-10-19 Date of issue: 2023-10-19 Filename: 254829\_eng.pdf

Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

Pepperl+Fuchs Group  
www.pepperl-fuchs.com

USA: +1 330 486 0002  
pa-info@us.pepperl-fuchs.com

Germany: +49 621 776 2222  
pa-info@de.pepperl-fuchs.com

Singapore: +65 6779 9091  
pa-info@sg.pepperl-fuchs.com

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## Technical Data

Number of channels		4
<b>Suitable field devices</b>		
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 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		
Degree of protection		NE 21
Environmental test		IEC 60529
Shock resistance		EN 60068-2-14
Vibration resistance		EN 60068-2-27
Damaging gas		EN 60068-2-6
Relative humidity		EN 60068-2-42
Ambient conditions		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 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) 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>		
EU-type examination certificate		PTB 03 ATEX 2042 X
Marking		Ⓜ II (1)G [Ex ia Ga] IIC Ⓜ II (1)D [Ex ia Da] IIIC Ⓜ I (M1) [Ex ia Ma] I
Output		
Voltage	$U_o$	27.8 V

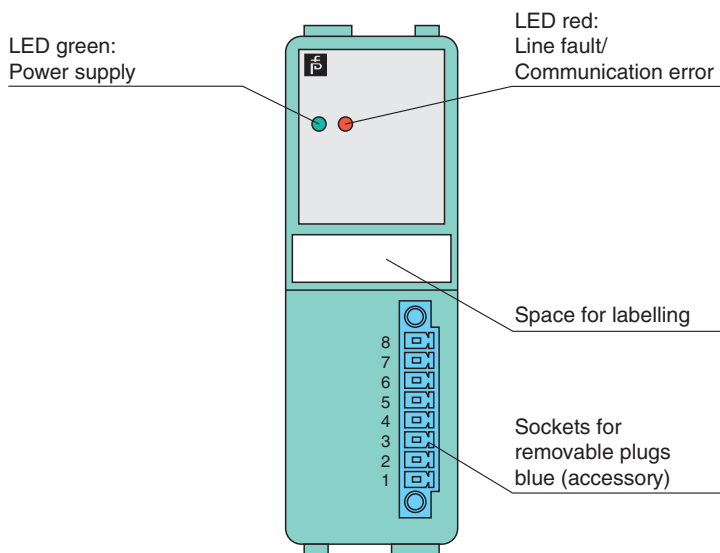
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**Technical Data**

Current	$I_o$	90.4 mA
Power	$P_o$	629 mW
Internal capacitance	$C_i$	1.65 nF
Internal inductance	$L_i$	0 mH
Certificate	PF 08 CERT 1234 X	
Marking	Ⓜ II 3 G Ex nA 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 EN 60079-11:2012 EN 60079-15:2010	
<b>International approvals</b>		
ATEX approval	PTB 03 ATEX 2042 X	
IECEX approval		
IECEX certificate	IECEX BVS 09.0037X	
IECEX marking	Ex nA [ia Ga] IIC T4 Gc [Ex ia Da] IIC [Ex ia Ma] I	
<b>General information</b>		
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, Zone 22 or Div. 2) 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**

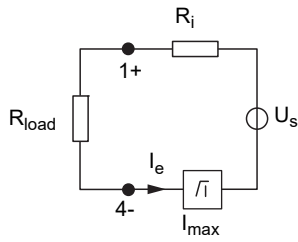
**Front view**



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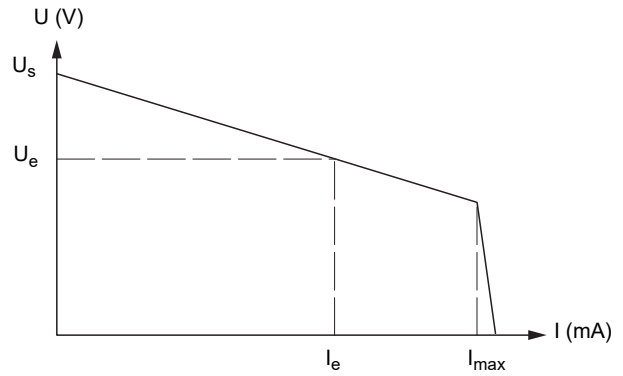
**Characteristic Curve**

**Load calculation**



$R_{load}$  = Field loop resistance  
 $U_e = U_s - R_i \times I_e$   
 $I_e = U_s / (R_i + R_{load})$

**Output characteristics**



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