

Digital Output

LB6111AR



- 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

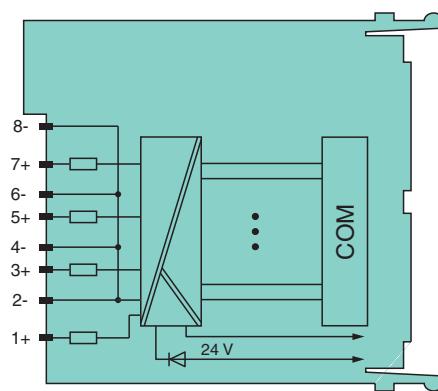
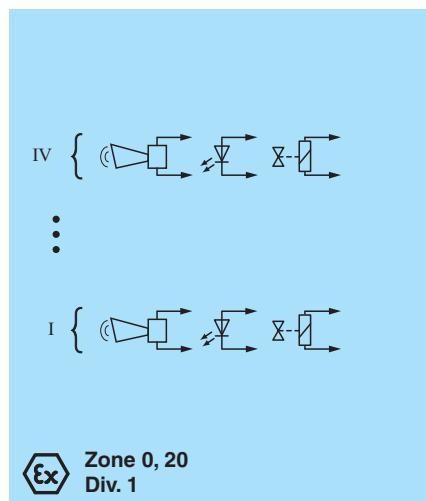
The digital output features 4 independent channels.

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



Zone 2
Div. 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		

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

Technical Data

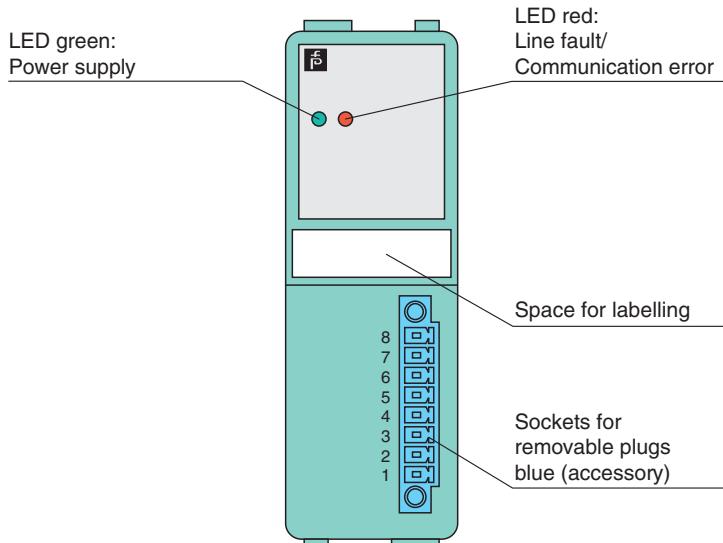
Number of channels	4	
Suitable field devices		
Field device		Solenoid Valve
Field device [2]		audible alarm
Field device [3]		visual alarm
Connection		channel I: 1+, 2-; channel II: 3+, 4-; channel III: 5+, 6-; channel IV: 7+, 8-
Internal resistor	R_i	max. 320 Ω
Current limit	I_{max}	40 mA
Open loop 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 Ω
Open-circuit		> 15 k Ω
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
Indicators/settings		
LED indication	Power LED (P) green: supply Status LED (I) red: line fault, red flashing: communication error	
Coding	optional mechanical coding via front socket	
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU	EN 61326-1:2013	
Conformity		
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	
Ambient conditions		
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 ± 0.075 mm/1 g; 10 cycles frequency range 5 ... 100 Hz; transition frequency: 13.2 Hz amplitude/acceleration ± 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	
Mechanical specifications		
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 ²) or screw terminals (0.08 ... 1.5 mm ²)	
Mass	approx. 150 g	
Dimensions	32.5 x 100 x 102 mm (1.28 x 3.9 x 4 inch)	
Data for application in connection with hazardous areas		
EU-type examination certificate	PTB 03 ATEX 2042 X	
Marking	Ex II (1)G [Ex ia Ga] IIC Ex II (1)D [Ex ia Da] IIIC Ex I (M1) [Ex ia Ma] I	
Output		
Voltage	U_o	27.8 V

Technical Data

Current	I_o	107 mA
Power	P_o	744 mW
Internal capacitance	C_i	1.65 nF
Internal inductance	L_i	0 mH
Certificate		PF 08 CERT 1234 X
Marking		Ex 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
International approvals		
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] IIIC [Ex ia Ma] I
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, 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 www.pepperl-fuchs.com .

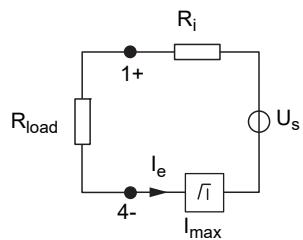
Assembly

Front view



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

