



MISUMI LB6110ER Digital Output with Shutdown Input User Manual

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LB6110ER Digital Output with Shutdown Input User Manual



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LB6110ER Digital Output with Shutdown Input

- 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
- Output with bus-independent safety shutdown



Function

The digital output features 4 independent channels.

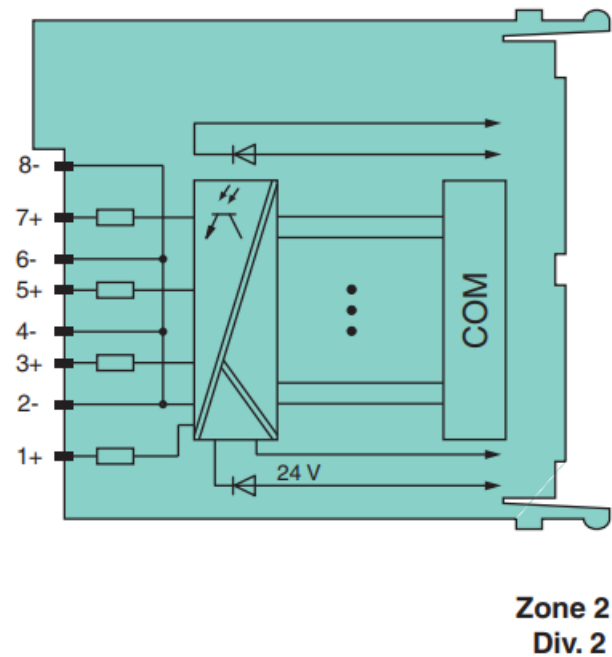
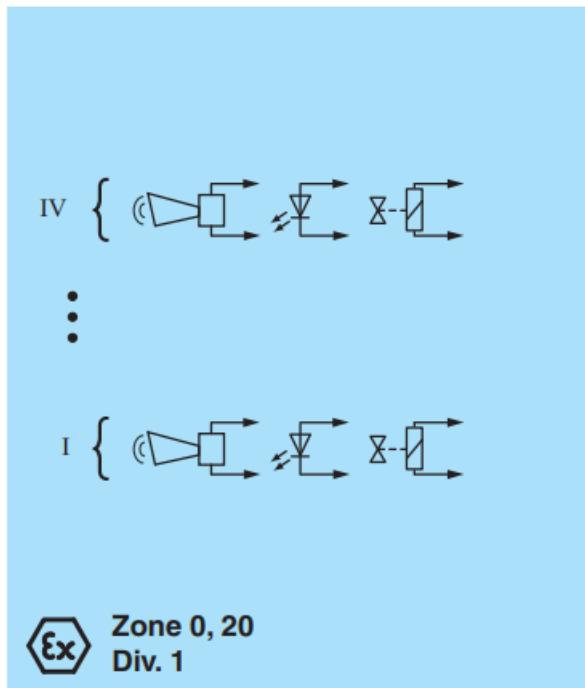
The device can be used to drive solenoids, sounders, or LEDs.

Open and short-circuit line faults are detected.

The outputs are galvanically isolated from the bus and the power supply.

The output can be switched off via a contact. This can be used for bus-independent safety applications.

Connection



Technical Data

Slots

Occupied slots	2
Functional safety related parameters	
Safety Integrity Level (SIL)	SIL 2
Performance level (PL)	PL d
Supply	
Connection	backplane bus / booster terminals
Rated voltage	U_r 12 V DC , only in connection with the power supplies LB9***
Input voltage range	U18.5 ... 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	
Number of channels	4
Suitable field devices	

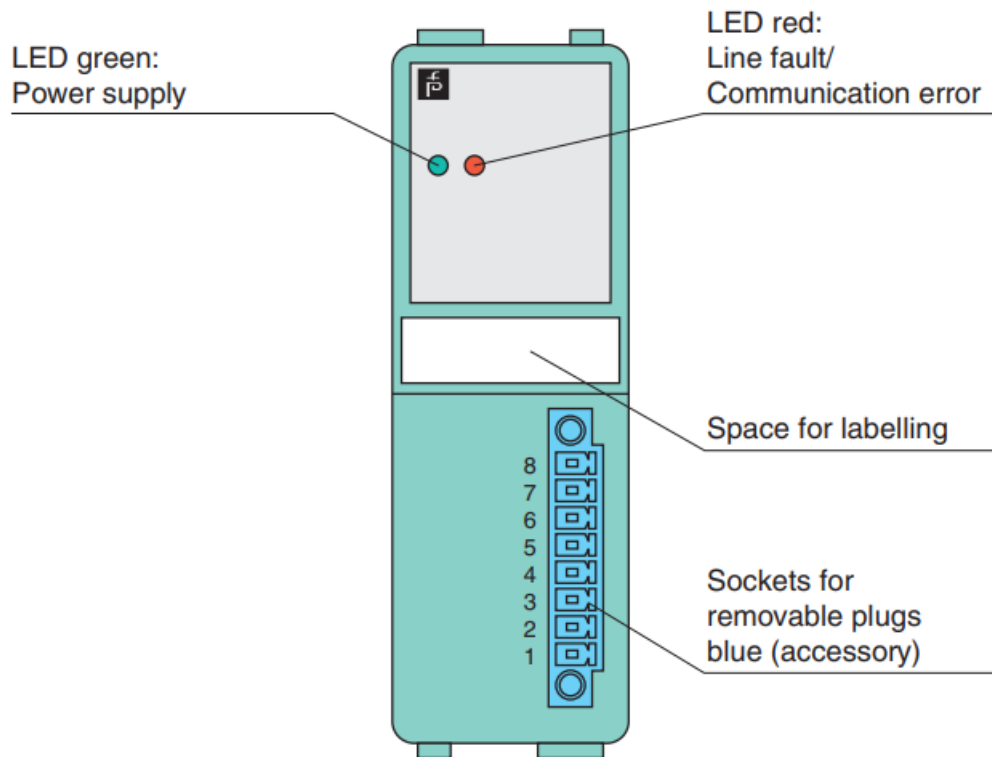
Field device		Solenoid Valve
Field device [2]		audible alarm
Field device [3]		visual alarm
Connection		channel I: 1+, 2-; channel II: 3+, 4-; channel III: 5+, 6-; channel IV: 7+, 8-
Internal resistor	R_i	max. 370 Ω
Current limit	I_{max}	37 mA
Open loop voltage	U_s	24.5 V
Line fault detection		can be 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 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
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		1 II (1)G [Ex ia Ga] IIC 1 II (1)D [Ex ia Da] IIIC 1 I (M1) [Ex ia Ma] I
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
Internal inductance	L_i	0 MH
Certificate		PF 08 CERT 1234 X
Marking		1 II 3 G Ex nab IIC T4 Go
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		BVS 09.0037X
Approved for		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



Digital Output with Shutdown Input

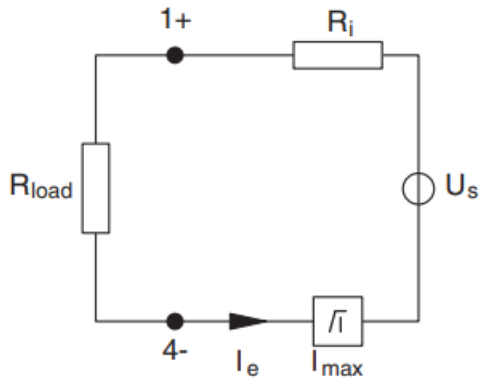
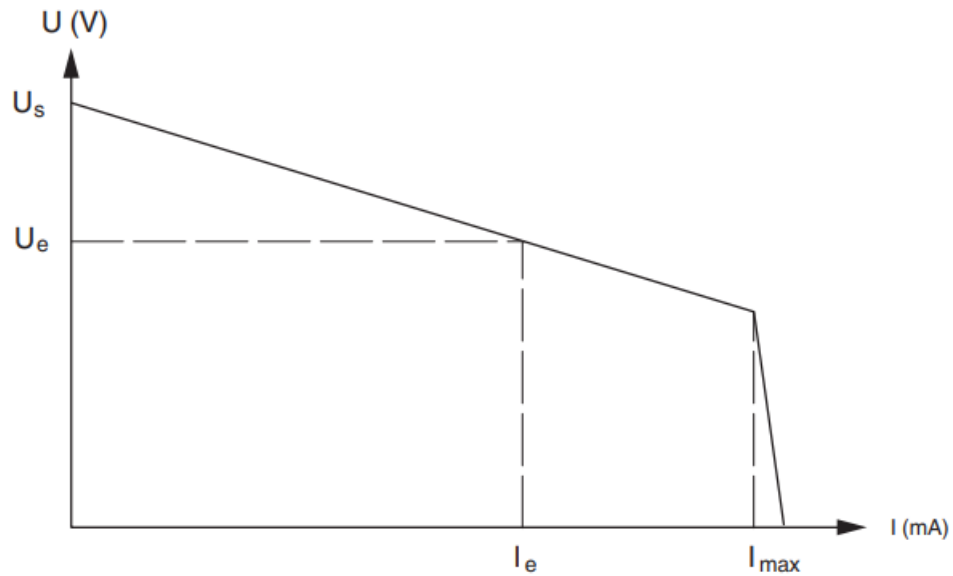
Load calculation

$R_{oad} = \text{Field loop resistance}$

$U_{se} = U_s - R_i \times I.e.$

$I.e. = U_s / (R_i + R_{oad})$

Characteristic Curve



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

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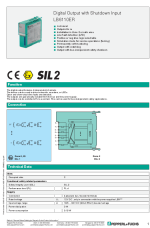
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Documents / Resources



[MISUMI LB6110ER Digital Output with Shutdown Input](#) [pdf] User Manual
LB6110ER Digital Output with Shutdown Input, LB6110ER, Digital Output with Shutdown Input, Output with Shutdown Input, Shutdown Input

References

- **[Pepperl+Fuchs International. Industrial Sensors, Factory Automation, Process Automation, Intrinsic Safety, Explosion Protection](#)**
- **[Pepperl+Fuchs International. Industrial Sensors, Factory Automation, Process Automation, Intrinsic Safety, Explosion Protection](#)**