PEPPERL FUCHS LB7004A-254846 Universal Input/Output Instructions

PEPPERL FUCHS LB7004A-254846 Universal InputOutput

Contents

Introduction

- 4-channel
- Analog input, digital input, analog output, digital output
- Installation in Zone 2 or safe area
- Supply circuit 21.5 V (4 mA)
- HART communication via field bus or service bus
- Simulation mode for service operations (forcing)

- Line fault detection (LFD): one LED per channel
- Permanently self-monitoring
- Module can be exchanged under voltage

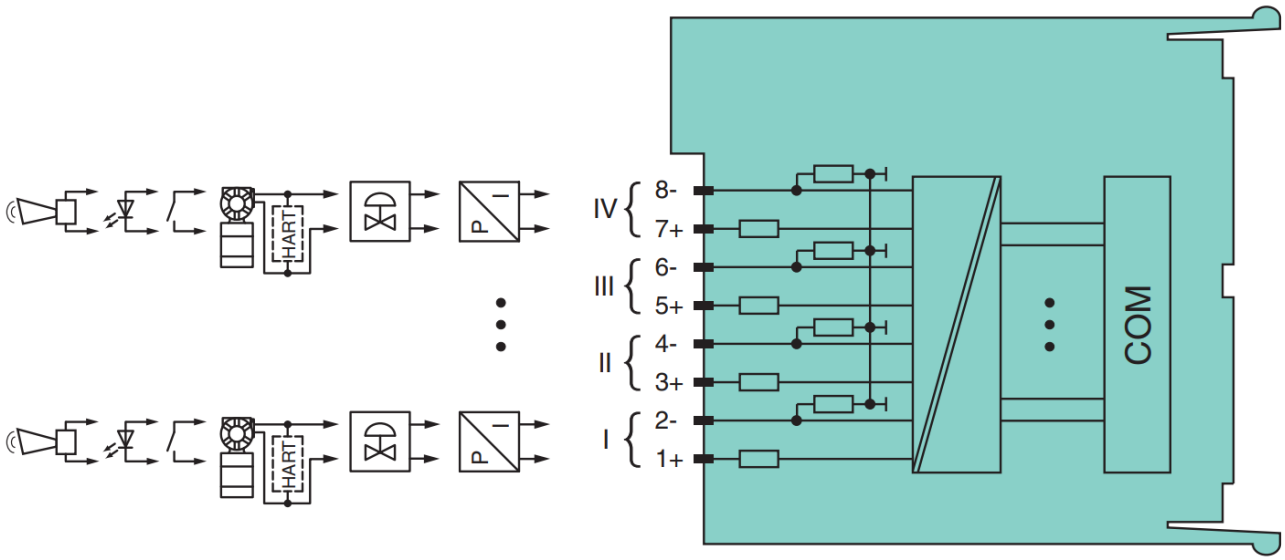
Function

The device is a configurable universal module. Each channel can operate in the following modes:

- As an analog input (AI) it feeds 2-wire transmitters.
- As an analog output (AO) it can drive proportional valves, I/P converters, or local indicators.
- As a digital input (DI) it reads dry contacts.
- As a digital output (DO) it can drive solenoids, sounders, or LED.

A combination of analog and digital I/O is possible.
Channel LEDs indicate the status of each channel. White LEDs indicate whether AI, AO, DI, DO are selected.
The signals are galvanically isolated from the bus and the power supply.

Connection



Zone 2

Technical Data

Slots		
Occupied slots		1
Supply		
Connection		backplane bus
Rated voltage	U_r	12 V DC , only in connection with the power supplies LB9***
Power dissipation		2.15 W
Power consumption		3.3 W
Internal bus		
Connection		backplane bus

Technical Data

Interface	manufacturer-specific bus to standard com unit
Analog input	
Number of channels	4
Suitable field devices	
Field device	pressure converter
Field device [2]	flow converter
Field device [3]	level converter
Field device [4]	Temperature Converter
Field device interface	
Connection	2-wire transmitter
Connection	terminals 1+, 2-; 3+, 4-; 5+, 6-; 7+, 8-
Transmitter supply voltage	min. 15 V at 20 mA ; 21.5 V at 4 mA
Input resistance	15 Ω
Line fault detection	can be switched on/off for each channel via configuration tool , configurable vi a configuration tool

Short-circuit	factory setting: > 21 mA Can be parameterized in the range 0 … 22 mA
Open-circuit	factory setting: < 3.6 mA Can be parameterized in the range 0 … 22 mA
HART communication	yes
HART secondary variable	yes
Analog output	
Number of channels	4
Suitable field devices	
Field device	Proportional Valve
Field device [2]	I/P converters
Field device [3]	on-site display
Connection	terminals 1+, 2-; 3+, 4-; 5+, 6-; 7+, 8-
Current	0 … 20 mA short-circuit protected
Line fault detection	can be switched on/off for each channel via configuration tool , configurable vi a configuration tool
Short-circuit	factory setting: < 50 Ω configurable between 0 … 26 mA
Open-circuit	deviation of preset output value > 0.5 mA
Load	max. 750 Ω at 20 mA
HART communication	yes
HART secondary variable	yes
Watchdog	output off 0.5 s after serious fault
Digital input	
Number of channels	4
Sensor interface	

Connection [2]	volt-free contact
Connection	terminals 1+, 2-; 3+, 4-; 5+, 6-; 7+, 8-
Line fault detection	can be switched on/off for each channel via configuration tool
Connection	mechanical switch with additional resistors (see connection diagram)
Short-circuit	> 7 mA
Open-circuit	< 0.1 mA
Digital signals (active)	
Switching point: ON	> 2.1 mA
Switching point: OFF	< 1.2 mA
Digital output	
Number of channels	4
Suitable field devices	
Field device	Solenoid Valve
Field device [2]	audible alarm
Field device [3]	visual alarm
Connection	terminals 1+, 2-, 3+, 4-, 5+, 6-, 7+, 8-

Drive capability		12 V / 22 mA
Internal resistor	R_i	385 Ω
Current limit	Imax	22 mA
Open loop voltage	U_s	min. 22.7 V
Line fault detection		can be switched on/off for each channel via configuration tool

Test current		0.4 mA
Short-circuit		< 50 Ω
Open-circuit		< 0.2 mA
Transfer characteristics		
Deviation		
After calibration		0.1 % of the signal range at 20 °C (68 °F)
Influence of ambient temperatu re		0.01 %/K of the signal range
Refresh time		approx. 100 ms (4 channels)
Indicators/settings		
LED indication		Power LED (P) green: supply Diagnostic LED (I) red: module fault , red flashing: communication error , white: fixed parameter set (para meters from com unit are ignored) , white flashing: requests parameters from com unit Status LED (1-4) red: line fault (lead brea kage or short circuit) , yellow: state of digital I/O (0/1) Configuration LED (AI, AO, DI, DO) white: selected channel mode
Coding		optional mechanical coding via front socket
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013
Conformity		
Electromagnetic compatibility		NE 21:2007

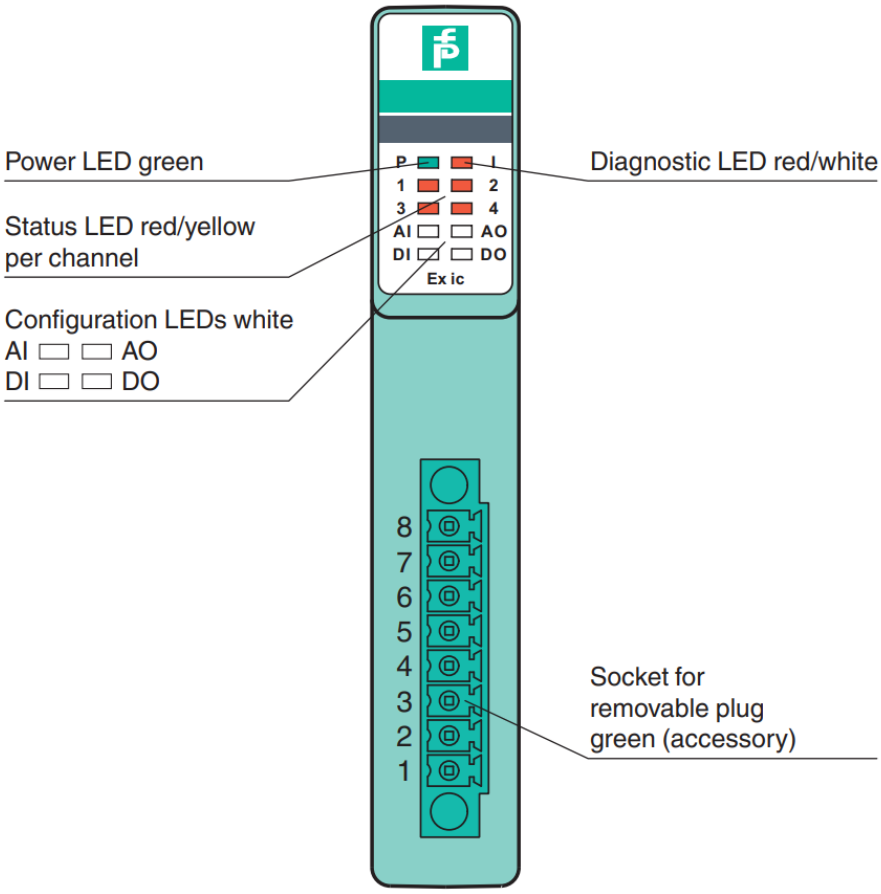
Degree of protection		IEC 60529:2000
Environmental test		EN 60068-2-14:2009
Shock resistance		EN 60068-2-27:2009
Vibration resistance		EN 60068-2-6:2008
Damaging gas		EN 60068-2-42:2003
Relative humidity		EN 60068-2-78:2001
Ambient conditions		
Ambient temperature		-40 … 60 °C (-40 … 140 °F) , 70 °C (non-Ex)
Storage temperature		-40 … 85 °C (-40 … 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 (module) , mounted on backplane
Connection		removable front connector with screw flange (accessory) wiring connection via spring terminals (0.14….. 1.5 mm2) or screw terminals (0.08… 1.5 mm2)
Mass		approx. 100 g

Dimensions		16 x 100 x 102 mm (0.63 x 3.9 x 4 inch)
Data for application in connection with hazardous areas		
Certificate		BVS 12 ATEX E 115 X
Marking		1 II 3 G Ex nA [ic] IIC T4 Gc
Galvanic isolation		
Rated voltage	U_m	250 V field circuits to control and supply circuits
Input/power supply, internal bus		safe electrical isolation acc. to EN 60079-11, voltage peak value 37 5 V

Output/power supply, internal bus		safe electrical isolation acc. to EN 60079-11, voltage peak value 37 5 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		BVS 12 ATEX E 115 X
IECEx approval		BVS 11.0068X
Approved for Ex nAc [ic] IIC T4		
General information		
System information		The module has to be mounted in appropriate backplanes (LB9***) in Zone 2 or outside hazardous areas. Here, observe the correspon ding declaration of conformity. For use in hazardous areas (e. g. Zo ne 2 or Zone 22) the module must be installed in an appropriate en closure.
Supplementary information		EC-Type Examination Certificate, Statement of Conformity, Declara tion of Conformity, Attestation of Conformity and instructions have t o be observed where applicable. For information see **www.pepperl -fuchs.com.**

Assembly

Front view



Customers Support

Refer to “General Notes Relating to Pepperl+Fuchs Product Information”.

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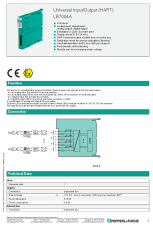
Documents / Resources

	**PEPPERL FUCHS LB7004A-254846 Universal Input/Output** [pdf] Instructions LB7004A-254846 Universal Input Output, LB7004A-254846 Universal Input Output, Universal Input Output, Input Output, Output

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