

Features

- For four intrinsically safe valves with position sensors
- Installation in Zone 1 and Zone 2
- Valves in Zone 0
- Connection to fieldbus acc. to FISCO or Entity
- For FOUNDATION Fieldbus H1
- PCS integration via device description and function blocks
- Monitors lead breakage and short circuits
- Valve monitoring and diagnostics integrated
- Conducts partial stroke testing

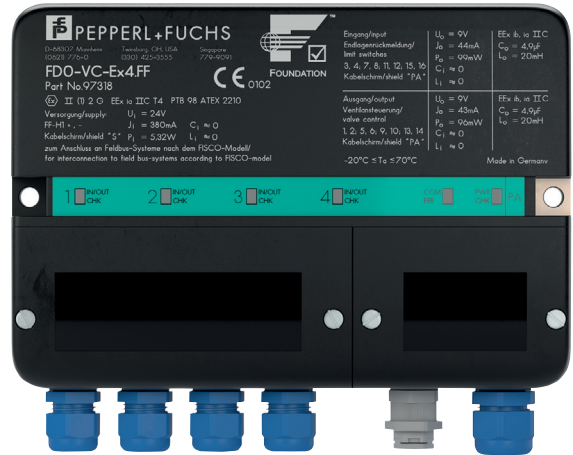
Function

The valve coupler for FOUNDATION Fieldbus H1 connects up to four intrinsically safe low-power valves to the DCS via fieldbus. It is installed pre-wired in a field enclosure or directly outside, close to the valves in the hazardous area. The valve coupler drives four low-power auxiliary valves and gathers positioning information via pairs of inductive proximity switches.

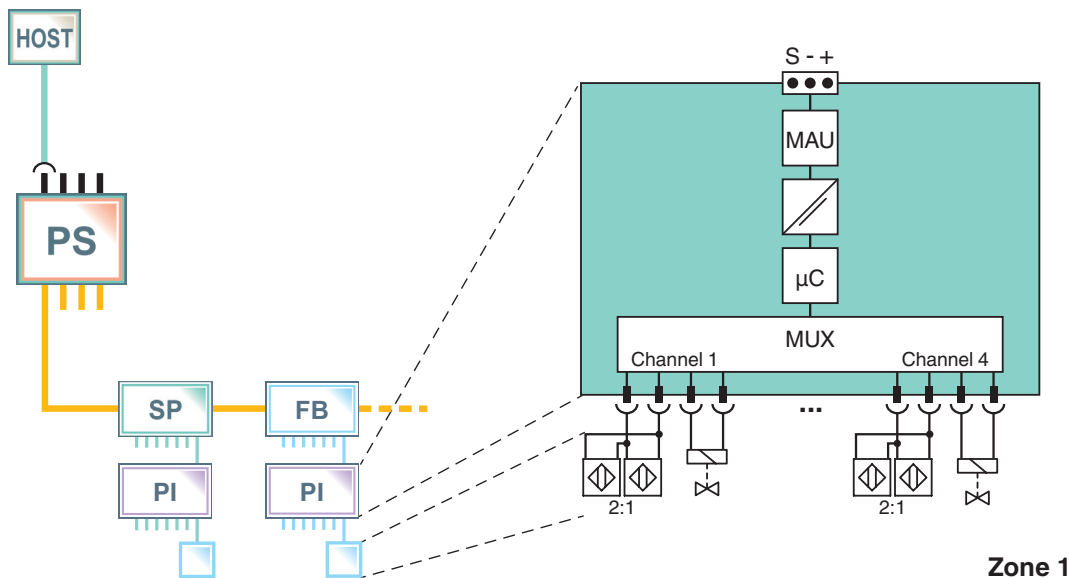
The valve coupler communicates all data, configuration, and alarms via one fieldbus address to the DCS. It supports function blocks via device description. Fieldbus powers the actors, sensors and the valve coupler itself. Additional power or wiring is not required.

The valve coupler supports summary diagnostics according to NAMUR recommendations, and detects lead breakage and short circuit conditions. It monitors and reports runtime and breakaway time during each operation and can conduct partial stroke tests.

Assembly



Connection



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

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| | | |
|--|--|--------|
| General specifications | | |
| Design / Mounting | Outside installation | |
| Fieldbus interface | | |
| FOUNDATION Fieldbus | | |
| Connection | Connection +, - | |
| Rated voltage | 9 ... 32 V | |
| Rated current | max. 23 mA | |
| Baud rate | 31.25 kBit/s | |
| Protocol | IEC 61158-2 | |
| Terminal "S" | only for the connection of the cable screen (BUS) and/or the potential compensation | |
| Terminal "PA" | only for the connection of the cable screen (sensor interface) and/or grounding | |
| Grounding plate | only for the connection of the potential compensation | |
| Field circuit | | |
| Inputs | | |
| Connection | 8, for binary sensors: terminals 3, 4, 7, 8, 11, 12, 15, 16 | |
| Sensor supply voltage | 5 V | |
| Sensor supply current | 5 mA | |
| Time delay before availability | 2 ms | |
| Max. cycle time | ≤ 160 ms | |
| Outputs | | |
| Connection | terminals 1+, 2-; 5+, 6-; 9+, 10-; 13+, 14- | |
| Output voltage | 6.4 ... 7.9 V | |
| Output rated operating current | 1.5 mA | |
| Holding current | 1 mA | |
| Galvanic isolation | | |
| Foundation Fieldbus/Field circuit | safe galvanic isolation acc. to EN 50020, voltage peak value 60 V | |
| Directive conformity | | |
| Electromagnetic compatibility | | |
| Directive 2014/30/EU | EN 61326-1:2013 | |
| Standard conformity | | |
| Galvanic isolation | EN 60079-11 | |
| Electromagnetic compatibility | NE 21:2006 | |
| Degree of protection | IEC/EN 60529 | |
| Fieldbus standard | EN 50170/2 | |
| Ambient conditions | | |
| Ambient temperature | -20 ... 70 °C (-4 ... 158 °F) | |
| Storage temperature | -40 ... 85 °C (-40 ... 185 °F) | |
| Corrosion resistance | acc. to ISA-S71.04-1985, severity level G3 | |
| Mechanical specifications | | |
| Core cross-section | Bus cable: Ø 5 mm ... 10 mm cable sensors/valve: Ø 4 mm ... 8 mm | |
| Housing | 187 mm x 129 mm x 46 mm | |
| Degree of protection | IP65 | |
| Installation position | Cable glands downwards | |
| Mass | approx. 290 g | |
| Mounting | panel mounting | |
| Data for application in connection with hazardous areas | | |
| EU-Type Examination Certificate | | |
| Marking | ⓧ II 2G (1) Ex ia [ia Ga] IIC T4 Gb , ⓧ II (1D) [Ex ia Da] IIIC , ⓧ II 3G Ex ic IIC T4 Gc , ⓧ II (3D) [Ex ic Dc] IIIC | |
| Field-side | | |
| Voltage | U _o | 9 V |
| Current | I _o | 44 mA |
| Power | P _o | 99 mW |
| FOUNDATION Fieldbus | | |
| Voltage | U _i | 24 V |
| Current | I _i | 380 mA |
| Power | P _i | 5.32 W |
| Rated voltage | 9 ... 32 V | |
| Rated current | 23 mA | |
| FDE (Fault Disconnect Equipment) | 6.7 mA | |
| Terminal "S" | only for the connection of the cable screen (BUS) and/or the potential compensation | |

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| | |
|--------------------------------|--|
| Terminal "PA" | only for the connection of the cable screen (sensor interface) and/or grounding |
| Grounding plate | only for the connection of the potential compensation |
| Directive conformity | |
| Directive 2014/34/EU | EN 60079-0:2012 , EN 60079-11:2012 |
| International approvals | |
| IECEX approval | IECEX TUN 04.0002 |
| Approved for | Ex ia [ia Ga] IIC T4 Gb , [Ex ia Da] IIIC , Ex ic IIC T4 Gc , [Ex ic Dc] IIIC |
| General information | |
| 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 . |

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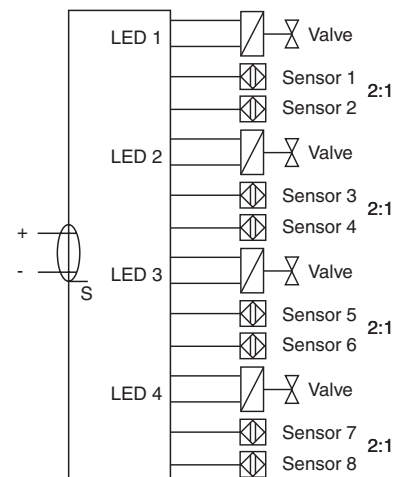
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Electrical connection

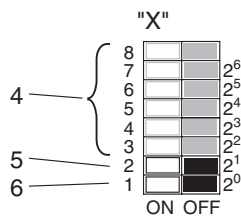
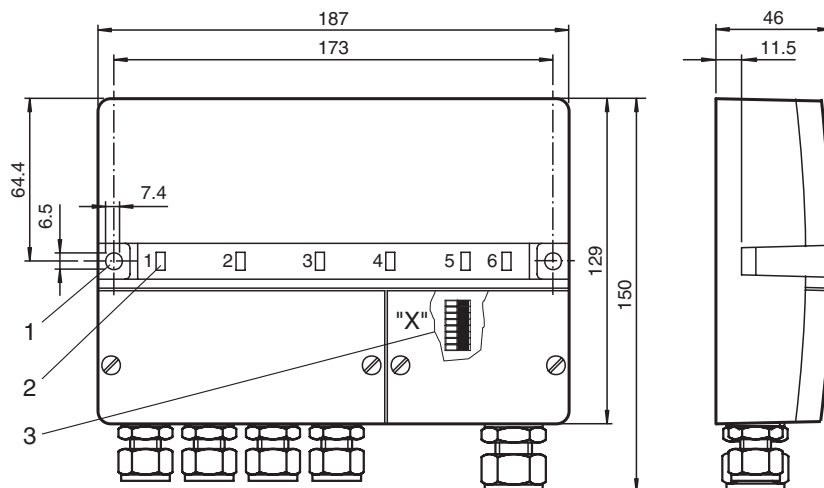
| | |
|-------------|-------------------------|
| terminal 1 | Valve 1+ |
| terminal 2 | Valve 1- |
| terminal 3 | Sensor 1+, Sensor 2- |
| terminal 4 | Sensor 1-, Sensor 2+ |
| terminal 5 | Valve 2+ |
| terminal 6 | Valve 2- |
| terminal 7 | Sensor 3+, Sensor 4- |
| terminal 8 | Sensor 3-, Sensor 4+ |
| terminal 9 | Valve 3+ |
| terminal 10 | Valve 3- |
| terminal 11 | Sensor 5+, Sensor 6- |
| terminal 12 | Sensor 5-, Sensor 6+ |
| terminal 13 | Valve 4+ |
| terminal 14 | Valve 4- |
| terminal 15 | Sensor 7+, Sensor 8- |
| terminal 16 | Sensor 7-, Sensor 8+ |
| terminal + | FOUNDATION Fieldbus H1+ |
| terminal S | Screen |
| terminal - | FOUNDATION Fieldbus H1- |



Note

To use this device, you require the device-specific Device Description (EDD). The file can be downloaded via the website on the Internet (<http://www.pepperl-fuchs.com>).

Dimensions



Description:

- 1 Earthing plate
- 2 LEDs
- 3 Address setting
- Address setting:
- 4 Unused addresses

5 Hardware write protection

- 6 Simulation
- LED assignment:
- 1 IN/OUT CHK
- 2 IN/OUT CHK
- 3 IN/OUT CHK
- 4 IN/OUT CHK

5 COM/ERR

6 PWR/CHK

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Installation notes

Connectable sensors (2:1 procedure)

The 2:1 procedure allows to transfer two independent binary signals on a single wire pair without a bus system. To do this, the two sensors (or mechanical switches) are controlled and evaluated antiparallel in time multiplex mode. Due to the condition of time multiplex mode, not all NAMUR proximity switches can be operated using the 2:1 procedure.

For information regarding connectable sensor types, contact Pepperl+Fuchs.

Some sensor types can be connected by means of additional external Polarity Reversal Protection.

Connectable low-power Ex-i valves

| | |
|-----------------|--|
| Herion | Low-power valve, 6 V version, type 2085 |
| ASCO/Joucomatic | Piezo valve, 6 V version, No. 63000059, No. 63000060, No. 63000061, No. 63000062 |
| Samson | Type 3776, 3701, 3775, 3962, 3963, 3766 all based on the 6 V version |
| Seitz | Solenoid valve PV12 F73 Xio H |



Attention

Do not connect any additional current consumers to the valve circuit (e.g., LEDs).

If additional consumers are connected to the valve circuit, successful operation of the valve coupler cannot be ensured.