

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

PEPPERL+FUCHS

HCD2-FBPS-1.500

FIELDBUS POWER SUPPLY MODULE

Used with the applicable FieldConnex Fieldbus system configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official pages follow this cover with source pagination retained.

Pepperl+Fuchs product record 76158; PDS 275280; TDOCT-1905



Fieldbus Power Supply

FieldConnex® Fieldbus

HCD2-FBPS-1.500

- Output: 28 ... 30 V/500 mA
- High-power trunk for high device count and long cable lengths
- With galvanic isolation
- Installation in Zone 2/Class I, Div. 2
- For FOUNDATION Fieldbus H1 and PROFIBUS PA
- Highest efficiency, lowest heat dissipation for highest packing density
- Hot swappable in redundant configuration
- Module exchange without tools during operation

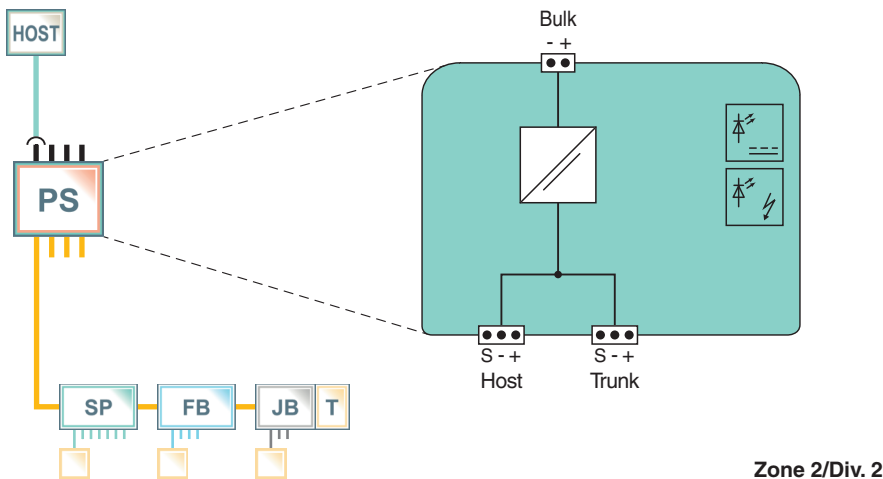
Fieldbus power supply, module for fieldbus power hub



Function

This Power Supply Module is a system component for the FieldConnex® Power Hub and can be plugged into the motherboard. It adapts current and voltage for the supply of fieldbus segments and field devices. This power supply features the highest output power and allows for maximum cable lengths and highest number of devices in hazardous areas with the High-Power Trunk concept. Reliability of communication is enhanced through galvanic isolation between segment and bulk power supply. Two LEDs indicate power and status. In redundant configuration two modules are connected in parallel via simple circuits ensuring seamless operation.

Connection



Technical Data

General specifications

Design / Mounting	Motherboard based
Installation in hazardous area	Zone 2 / Div. 2

Supply

Rated voltage	U_r	19.2 ... 35 V DC
Power dissipation		typ. 1.6 W

Fieldbus connection

Rated voltage	U_N	28 ... 29.5 V
Rated current	I_N	500 ... 10 mA
Short-circuit current		550 mA

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

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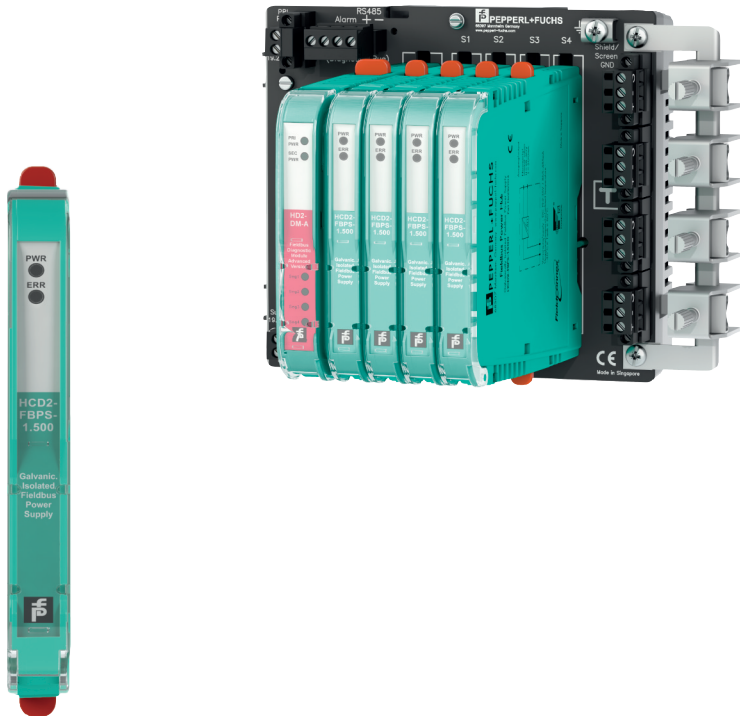
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Technical Data

Terminating resistor		motherboard specific
Indicators/operating means		
LED ERR		red flashing: short-circuit or undervoltage at output
LED PWR		green if $U_{out} > 28 \text{ V}$
Galvanic isolation		
Fieldbus segment/Supply		functional insulation acc. to IEC 62103, rated insulation voltage 250 V AC
Directive conformity		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013
Standard conformity		
Electromagnetic compatibility		
		NE 21:2011
Degree of protection		IEC 60529
Fieldbus standard		IEC 61158-2
Shock resistance		EN 60068-2-27
Vibration resistance		EN 60068-2-6
Ambient conditions		
Ambient temperature		-40 ... 70 °C (-40 ... 158 °F)
Storage temperature		-40 ... 85 °C (-40 ... 185 °F)
Relative humidity		< 95 % non-condensing
Shock resistance		15 g 11 ms
Vibration resistance		1 g , 10 ... 150 Hz
Pollution degree		max. 2, according to IEC 60664
Corrosion resistance		acc. to ISA-S71.04-1985, severity level G3
Mechanical specifications		
Core cross section		motherboard specific
Housing material		Polycarbonate
Degree of protection		IP20
Mass		approx. 150 g
Dimensions		
Height		106 mm
Width		12.5 mm
Depth		128 mm
Mounting		motherboard mounting
Data for application in connection with hazardous areas		
Outputs		
Voltage	U_o	30 V
Certificate		TÜV 10 ATEX 555761X
Marking		Ⓔ II 3G Ex ec IIC T4 Gc
Directive conformity		
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 , EN IEC 60079-7:2015+A1:2018 , EN 60079-11:2012
International approvals		
FM approval		
FM certificate		FM 19 US 0015 X and FM 19 CA 0011 X
Approved for		Class I, Division 2, Groups A, B, C, D, T4 / Class I, Zone 2, AEx/Ex ec IIC T4
IECEx approval		
IECEx certificate		IECEx TUN 13.0037X
IECEx marking		Ex ec IIC T4 Gc
General information		
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com .

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Assembly



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Engineering Guideline
01-2020



Fieldbus Equipment in Zone 2 Hazardous Areas



This engineering guideline explains concepts for fieldbus installations and explosion protection in Zone 2. For existing installations, it defines scenarios and provides actions of device replacement and small system expansions while retaining protection method Ex nL.

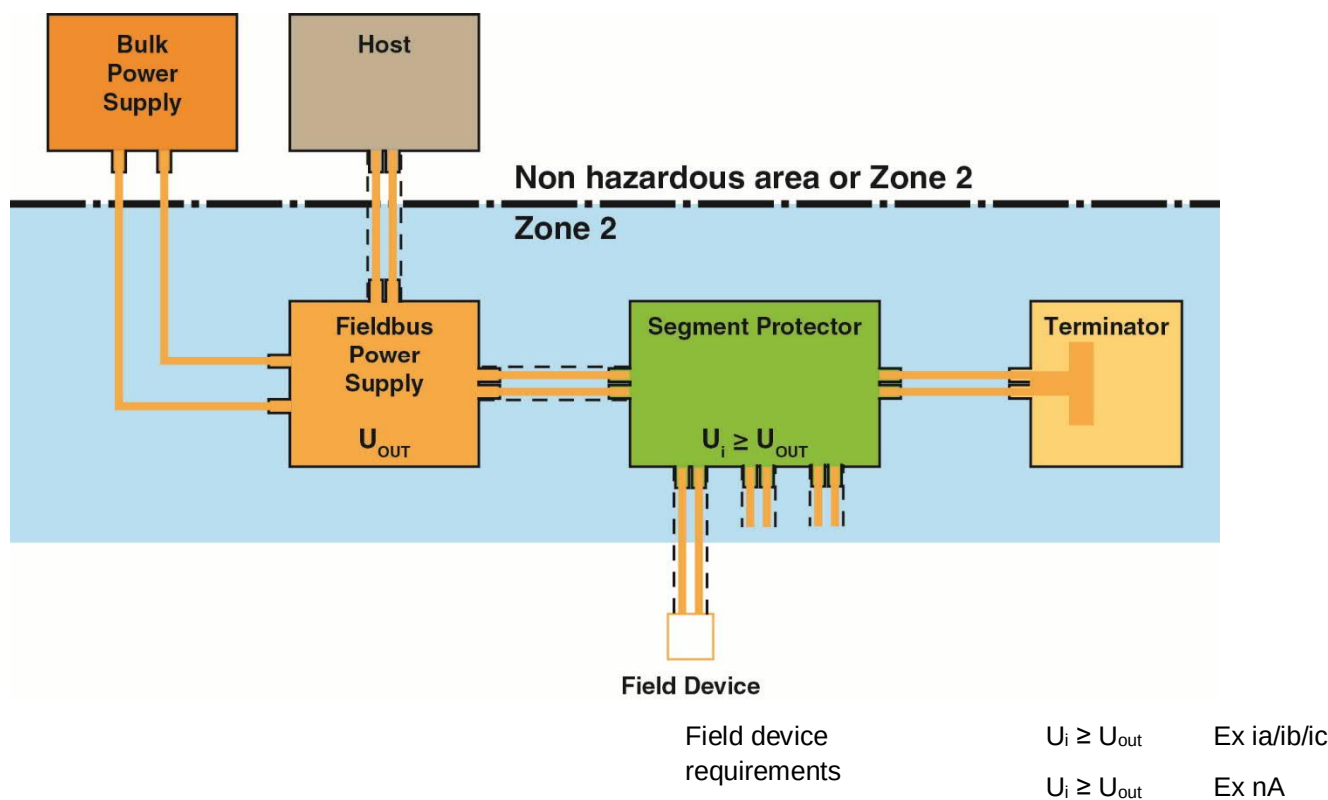
Purpose

This engineering guideline contains a detailed description on the subject matter how to select, engineer or operate a plant based on Pepperl+Fuchs technology and products. It enables users to conduct planning or detail engineering in a self-guided fashion. This includes procedures, tips and tricks for best practices.

While this document reflects state of the art technology and has been researched to the best of our abilities, the **information in this document is applied as is without any express or implied warranty**. It provides information based on international standards. Local rules and regulations apply placing more stringent demands that you must follow for installations in your area. Always exercise caution when operating plants with hazardous areas.

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Requirement and Value Overview

Live maintenance

Trunk	No
Spur/Device	No

Mounting

Host	Safe area or Zone 2
Power supply	Safe area or Zone 2
Segment protector	Zone 2
Field devices	Zone 2

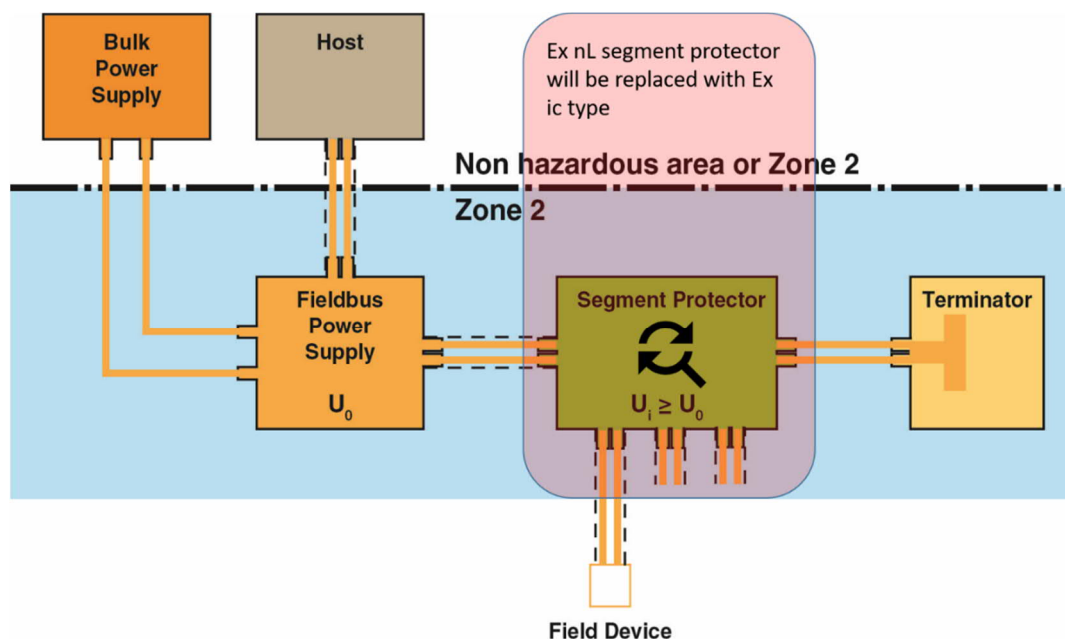
Requirements / Approval

Device group	Values	Certification / Declaration of Conformity required for
Host	n/a	No requirements in safe area, for Zone 2 installation a Declaration of Conformity
Power supply	$U_{out} \leq 32 \text{ V}$	No requirements in safe area, for Zone 2 installation a Declaration of Conformity Ex nA
Segment protector	$U_i \geq U_{out}$	Ex nA
Field devices	$U_i \geq U_{out}$	Ex ia/ib/ic
	$U_i \geq U_{out}$	Ex nA

Replacing of Ex nL- with Ex ic-rated Segment Protector in Existing Enclosure

Scenario

An existing Ex nL segment protector (e.g. R2-SP-N*) is to be replaced with a new Ex ic type (e.g. R2-SP-IC*). The existing nL voltage Source (e.g. HCD-FBPS-1.23.500) and field instruments shall remain in place, the certificate of R2-SP-IC* differs from the original R2-SP-N*.



It is permitted to replace the segment protector. Type of protection for the loops remain Ex nL, if the user has conducted and documented the following actions:

User Action

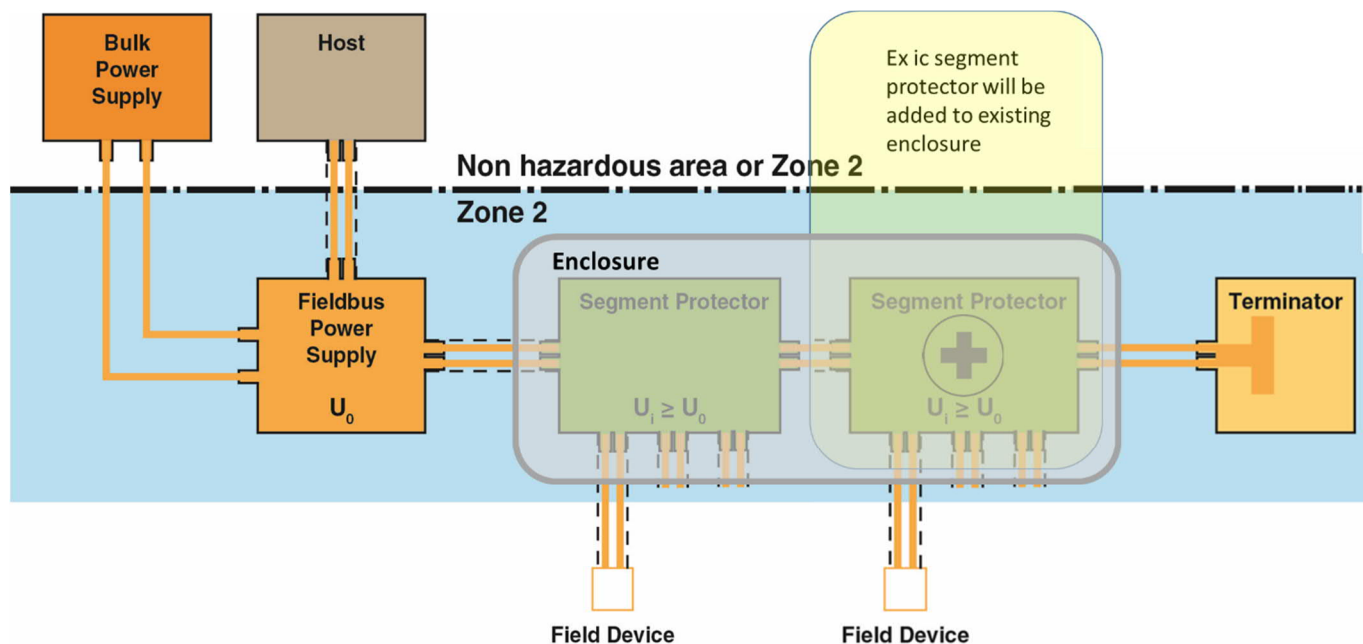
1. Set the DIP-switch on R2-SP-IC* to position 2.
2. Validate intrinsic safety using Ex ic parameters as Ex nL values.
3. Mark the loops as well as the field device as Ex nL.
4. For system solutions, e.g. completely assembled fieldbus junction boxes, contact the vendor to verify the certification of the solution.

Pepperl+Fuchs issues a manufacturer declaration for most enclosure solutions. This states the conformity with the newly installed R2-SP-IC* segment protector.

Adding Ex ic Segment Protector to Field Junction box rated Ex nA/nL

Scenario

Segments are frequently planned with reserve space available inside an enclosure. An Ex ic segment protector (e.g. R2-SP-IC*) shall be added to an existing Ex nL segment. The Ex nL voltage source, e.g. power module HCD2-FBPS-1.23.500 or HD2-FBPS-1.23.500 remains in place.



Ex ic rated segment protectors can be added to the topology and the type of protection remains Ex nL with the following user actions:

User Action:

1. Define and document the scope of small system expansions
2. Contact the vendor of the junction box to verify the certification of the solution: Segment Protector and junction box.
3. Mark the segment protector as Ex nL.
4. Set the DIP switch at the R2-SP-IC to position 2.

Pepperl+Fuchs provides a manufacturer declaration for its engineered and manufactured junction boxes, stating the conformity with the newly installed R2-SP-IC* segment protector.