

- ## Power hub motherboard with common host interface



The FieldConnex® Compact Power Hub is a modular fieldbus power supply for four segments with lowest power dissipation and smallest foot print. It supports explosion protection e.g. the High-Power Trunk for longest cable run and highest device count. The Power Hub supports optional Advanced Diagnostics for fast fieldbus commissioning and online monitoring. The motherboard for redundant power supply modules is the wiring interface with connectors for all DCS and PLC host systems. Sockets for all modules enable simple installation and replacement without tools. For power redundancy with seamless transfer, pairs of modules feed each segment. Wire connections can be selected as spring terminals or screw terminals. This design allows the most compact cabinet layout. Excellent availability and a very long service life are achieved through: passive impedance filter per segment, high-availability fieldbus termination and plug-in connectors with retaining screws. Electronics are optimized for lowest power dissipation and compactness.

The diagram illustrates a power distribution system. On the left, a **HOST** is connected to a **PS** (Power Supply) unit. Below the PS, a series of components are shown: **SP** (Switchgear), **FB** (Fuses), **JB** (Junction Box), and **T** (Terminal). The main system is a large teal-colored switchgear. It features a central section labeled **Host 4 ... 1** and two side sections labeled **Bulk 1** and **Bulk 2**. The **Bulk 1** section has a **- +** terminal and a **+** terminal. The **Bulk 2** section has a **- +** terminal and a **+** terminal. The central section has a **S - +** terminal and a **+** terminal. A **Diagnostic Bus** is connected to the **Bulk 2** section. An **Alarm** icon is shown near the **Diagnostic Bus**. The **Trunk 4 ... 1** section is at the bottom, with a **+ - S** terminal. Two detailed insets are provided: the top inset shows the internal components of the **PS** unit, including a transformer and a **PS** block. The bottom inset shows the internal components of the **JB** and **T** units, including a **Z** (Zener) diode, a **T** (Thermistor) sensor, and a **W** (Warning) indicator.

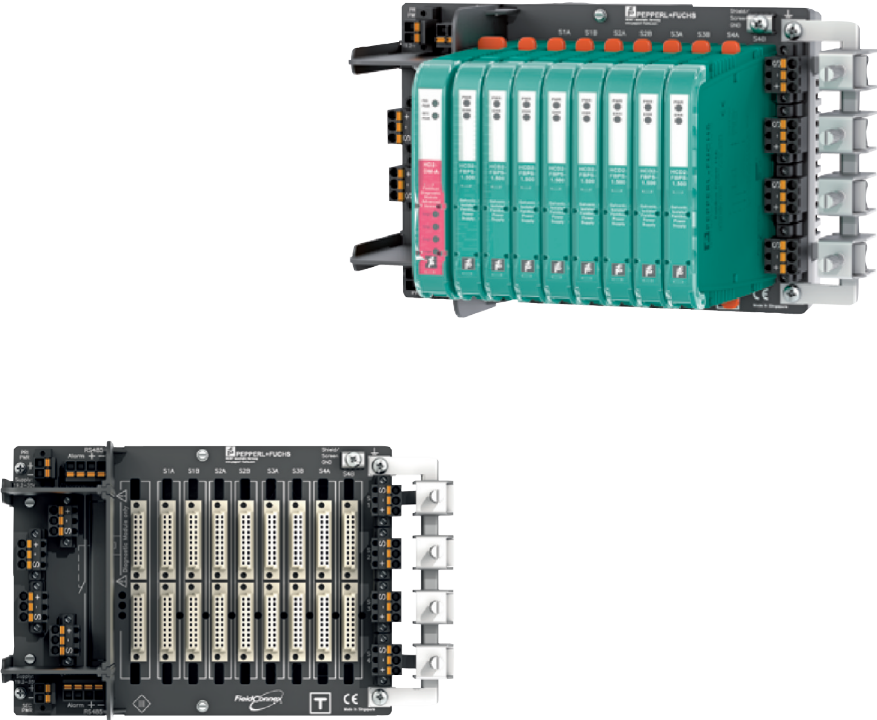
General specifications		
Design / Mounting		Motherboard based
Installation in hazardous area		Zone 2 / Div. 2
Supply		
Connection		redundant
Rated voltage	U _r	19.2 ... 35 V SELV/PELV
Rated current	I _r	12 A



Technical Data

Power dissipation	typ. 0.4 W per segment
Fieldbus connection	
Number of segments	4 Redundant Power Supply
Host-side	general purpose host
Terminating resistor	100 Ω integrated
Indicators/operating means	
Fault signal	VFC alarm 1 A, 50 V DC, normally closed
Galvanic isolation	
Fieldbus segment/Fieldbus segment	functional insulation acc. to IEC 62103, rated insulation voltage 50 V _{eff}
Fieldbus segment/Supply	functional insulation acc. to IEC 62103, rated insulation voltage 250 V _{eff}
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	10 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	
Connection type	screw terminal , pluggable spring terminal , pluggable
Core cross section	2.5 mm ²
Housing material	Polycarbonate
Degree of protection	IP20
Mass	approx. 580 g
Mounting	DIN rail mounting
Data for application in connection with hazardous areas	
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 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 .

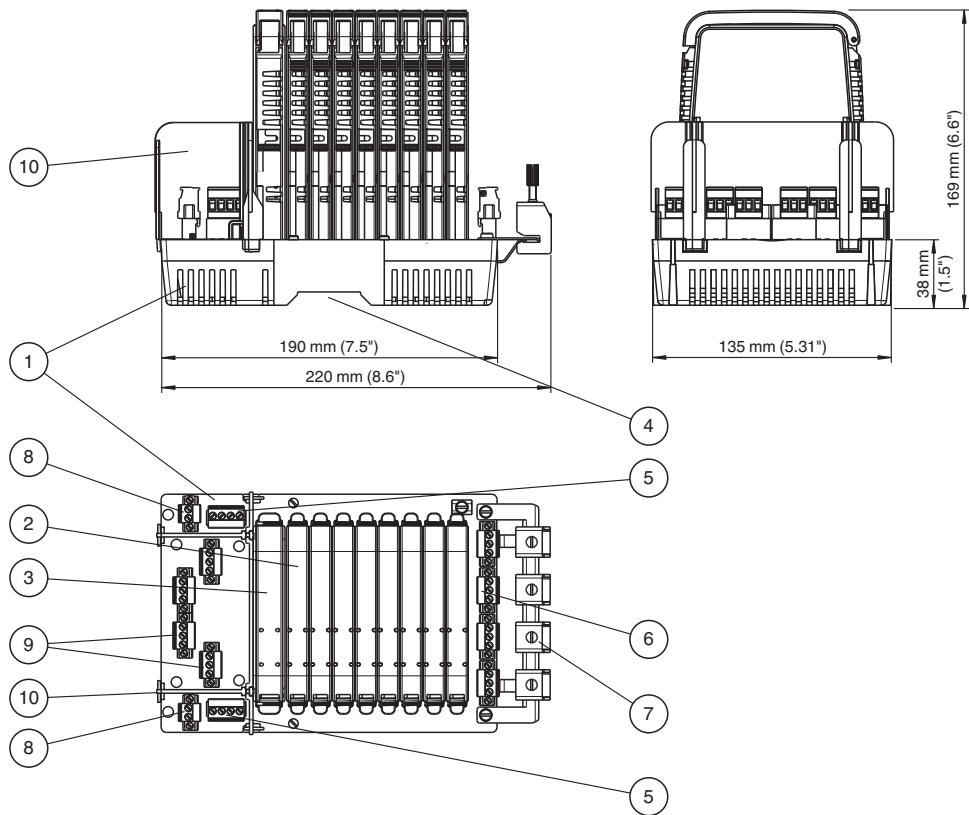
Assembly



Release date: 2025-02-07 Date of issue: 2025-02-07 Filename: t169681_eng.pdf

Additional Information

Dimensions and Assembly



- Description:
- 1 Motherboard MBHC-FB-4R*
 - 2 Power supply modules
 - 3 Diagnostic module
 - 4 Mounting slot for DIN mounting rail
 - 5 Connections for alarm voltage-free contact and diagnostic bus
 - 6 Connections for fieldbus trunk
 - 7 Screening/earthing kit for trunk shields, optional accessory
 - 8 Connections for bulk power supply
 - 9 Connections for host
 - 10 Separation wall

Components

Compatible Power Supply Modules

		HCD2-FBPS-1.23.500	HCD2-FBPS-1.500	
Power Output				
Voltage (V)		21 ... 23	28 ... 29.5	
Current (mA)		500	500	
Limit U ₀ (V)		24	30	
Device in ...	Type of Protection			Required Installation Components
Zone 0/Div. 1	Intrinsically safe Ex ia		■	FieldBarrier
Zone 1/Div. 1	Intrinsically safe Ex ia		■	FieldBarrier
Zone 1/Div. 1	Flameproof Ex d		■	Segment Protector R-SP-E12 or any Segment Protector installed in Zone 2
Zone 2	Intrinsically safe Ex ic (Entity)	■	■	Selected Segment Protectors
Div. 2	Non-incendive	■	■	Any Segment Protector; power module selection depends on voltage of field device

Safe Area	No specific type of protection		■	Segment Protector recommended
-----------	--------------------------------	--	---	-------------------------------

For more details on the power supply modules see respective data sheets.

Diagnostic Module Selection

The following diagnostic modules are compatible with this motherboard.

Type code	Description
HD2-DM-B	Diagnostic Module, basic version
HD2-DM-A	Diagnostic Module, advanced version
HD2-DM-A.RO	Diagnostic Module, advanced version, relay output

The stationary and mobile Advanced Diagnostic Module (ADM) and related components provide measurement tools for the fieldbus physical layer. The ADM monitors many quality indicating values of the fieldbus physical layer. An expert system, which is included, analyzes the values and issues easy to understand messages indicating cause and remedy. The ADM is recommended for:

- **Faster commissioning and plant start-up:** Installation issues are known and corrected before loop check commences
- **Reliable operation through online monitoring:** The quality of the physical layer and installation is monitored making fieldbus a manageable asset
- **Efficient troubleshooting:** An expert system guides the user through issues and faults in the fieldbus installation

Many other tools are included that enhance fieldbus installation and upkeep. Please see datasheet on HD2-DM-A.

Product Versions

Type code	Description
MBHC-FB-4R	Motherboard for redundant power supplies with pluggable screw terminals applicable for all systems
MBHC-FB-4R.1	Motherboard for redundant power supplies with pluggable spring terminals applicable for all systems