Compact Fieldbus Power Hub Motherboard with Host System Connectors

MBHC-FB-8R.HSC*

- 8 segments, redundant, individual modules per segment
- Supports all PLC and PCS hosts
- High-power trunk: Live work on devices in any hazardous area
- Best quality, smallest size and lowest heat dissipation
- For FOUNDATION Fieldbus H1
- Optional advanced diagnostics
- Passive impedance for high reliability
- Supports Ex ic voltage limitation
- Installation in Zone 2/Div. 2
- Spring terminals or screw terminals selectable

Function

The FieldConnex® compact Power Hub is a modular fieldbus power supply for eight 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 is the wiring interface and is equipped with two DB 25 connectors on the left side. The version with type code extension ".R" has DB 25 connectors on the right side for symmetrical cabinet layout. Manufactured cables with DCS system plugs reduce the number of connection points and effort for checkout. 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 plugs with retaining screws. Electronics are optimized for lowest power dissipation and compactness.

Connection
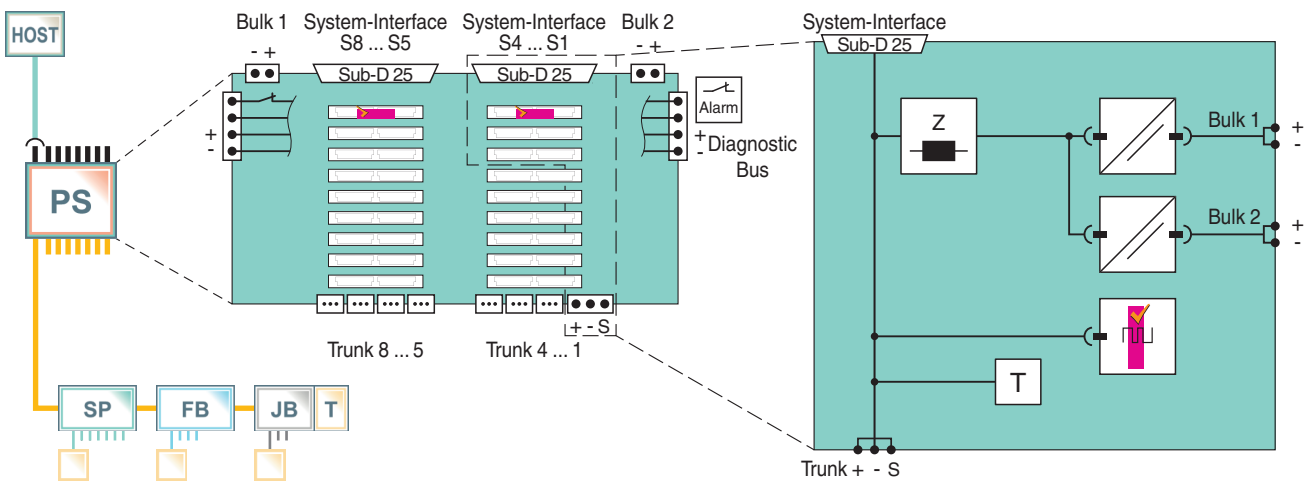
Technical Data

General specifications

Design / Mounting		Motherboard based

Supply

Connection		redundant
Rated voltage	U_r	19.2 ... 35 V SELV/PELV
Rated current	I_r	16 A

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

Technical Data

Power dissipation	typ. 0.4 W per segment
Fieldbus connection	
Number of segments	8 redundant
Host-side	system specific cable connection
Terminating resistor	100 Ω integrated
Indicators/operating means	
Fault signal	VFC alarm 1 A, 30 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	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	
Connection type	plug-in terminals , spring terminal and screw terminal
Core cross section	2.5 mm^2
Housing material	Polycarbonate
Housing width	268 mm
Housing height	150 mm
Housing depth	69 mm
Degree of protection	IP20
Mass	approx. 1350 g
Mounting	DIN mounting rail
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 60079-0:2012 , EN 60079-11:2012 , EN 60079-15:2010
International approvals	
FM approval	CoC 3024816, CoC 3024816C
Approved for	Class I, Division 2, Groups A, B, C, D, T4 / Class I, Zone 2, AEx/Ex nA IIC T4
IECEx approval	IECEx TUN 13.0037X
Approved for	Ex ec IIC T4 Gc
Certificates and approvals	
Marine approval	DNV A-14038
General information	
Supplementary information	Statement of Conformity, Declaration of Conformity, Attestation of Conformity and instructions have to be observed where applicable. For information see www.pepperl-fuchs.com.

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

Pepperl+Fuchs Group	USA: +1 330 486 0002	Germany: +49 621 776 2222	Singapore: +65 6779 9091
www.pepperl-fuchs.com	pa-info@us.pepperl-fuchs.com	pa-info@de.pepperl-fuchs.com	pa-info@sg.pepperl-fuchs.com

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Assembly
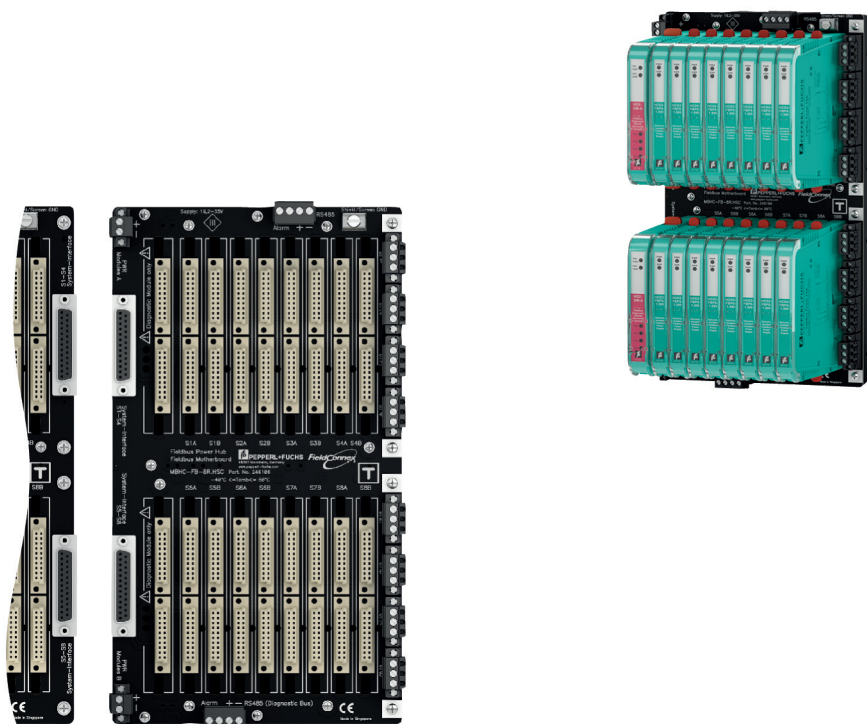
Matching System Components

	HD2-DM-A	Fieldbus Power Hub, Advanced Diagnostic Module
	HD2-DM-B	Fieldbus Power Hub, Basic Diagnostic Module
	HD2-DM-A.RO	Fieldbus Power Hub, Advanced Diagnostic Module with Relay Output
	HCD2-FBPS-1.23.500	Fieldbus Power Hub, Compact Power Supply Module

Accessories

ACC-MB-HSK	Grounding Rail including 4 Cable Clamps
ACC-MB-HDC	Diagnostic cordest for linking the diagnostic bus of 2 motherboards, length 6 cm
ACC-MB-CC	Cover for Power Supply Connector of Motherboards with Screw Terminals, Ex ic applications
ACC-MB-CC.1	Cover for Power Supply Connector of Motherboards with Spring Terminals, Ex ic applications
ACC-LBF-EB.8	8x Grounding Rail for Surge Protection, TPH-LBF* and MBHC-FB*
ACC-MB-SW	Separation Wall for MBHC, Ex ic Applications

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www.pepperl-fuchs.com   pa-info@us.pepperl-fuchs.com   pa-info@de.pepperl-fuchs.com   pa-info@sg.pepperl-fuchs.com

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Additional Information

Dimensions and Assembly
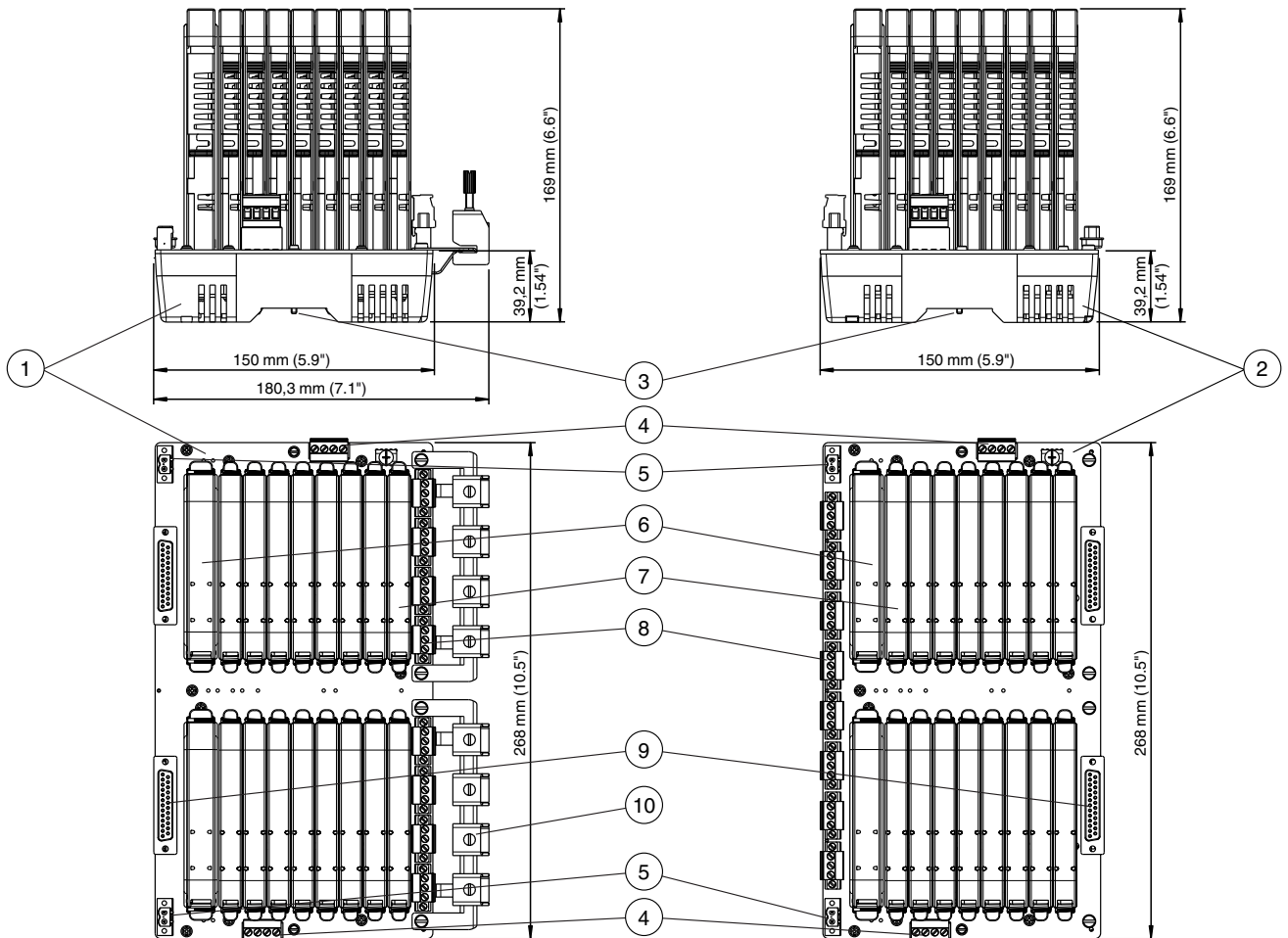
All dimensions in millimeters (mm) and inches (") and without tolerance indication.

Description:
1   Motherboard MBHC-FB-8R.HSC*
2   Motherboard MBHC-FB-8R.HSC.R*
3   Mounting slot for DIN mounting rail
4   Connections for alarm volt-free contact and diagnostic bus
5   Connections for bulk power supply
6   Diagnostic modules
7   Power supply modules
8   Connections for fieldbus trunk (8 connections per motherboard)
9   Connections for host (2 connections per motherboard)
10 Screening/earthing kit for trunk cable shields, optional accessory for MBHC-FB-8R.HSC and MBHC-FB-8R.HSC.1

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:

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– **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.

Interface

Connection to FOUNDATION Fieldbus Hosts

Invensys

The motherboard can be connected to Foxboro I/A series with FBM228 host modules using a dedicated system cable.
The number of cables required is determined by the number of system connectors on the Power Hub motherboard.

Type code	Description
ACC-MB-HGC.FOX.010	FieldConnex Power Hub system cable for Foxboro FBM228, length 1 m
ACC-MB-HGC.FOX.020	FieldConnex Power Hub system cable for Foxboro FBM228, length 2 m
ACC-MB-HGC.FOX.030	FieldConnex Power Hub system cable for Foxboro FBM228, length 3 m
ACC-MB-HGC.FOX.050	FieldConnex Power Hub system cable for Foxboro FBM228, length 5 m
ACC-MB-HGC.FOX.100	FieldConnex Power Hub system cable for Foxboro FBM228, length 10 m
ACC-MB-HGC.FOX.150	FieldConnex Power Hub system cable for Foxboro FBM228, length 15 m
ACC-MB-HGC.FOX.200	FieldConnex Power Hub system cable for Foxboro FBM228, length 20 m

Honeywell

The motherboard can be connected to Honeywell series C with FIM4/FIM8 host modules using a dedicated system cable.
The number of cables required is determined by the number of system connectors on the Power Hub motherboard.

Type code	Description
ACC-MB-HGC.HON.010	FieldConnex Power Hub system cable for Honeywell C300, length 1 m
ACC-MB-HGC.HON.020	FieldConnex Power Hub system cable for Honeywell C300, length 2 m
ACC-MB-HGC.HON.030	FieldConnex Power Hub system cable for Honeywell C300, length 3 m
ACC-MB-HGC.HON.050	FieldConnex Power Hub system cable for Honeywell C300, length 5 m
ACC-MB-HGC.HON.100	FieldConnex Power Hub system cable for Honeywell C300, length 10 m
ACC-MB-HGC.HON.150	FieldConnex Power Hub system cable for Honeywell C300, length 15 m
ACC-MB-HGC.HON.200	FieldConnex Power Hub system cable for Honeywell C300, length 20 m

Additional Information

Accessories

Type code	Description
ACC-MB-HSK	Screening/earthing kit **Note**: the screening/earthing kit is not available for the version with type code extension ".R"
ACC-MB-HDC	Diagnostic link cable, length 6 cm
ACC-MB-SW	Separation wall for Ex ic hazardous area applications
ACC-MB-CC	2 protective covers for motherboards with screw terminals for Ex ic hazardous area applications **Note**: protective covers are only required for the version with type code extension ".R"
ACC-MB-CC.1	2 protective covers for motherboards with spring terminals for Ex ic hazardous area applications **Note**: protective covers are only required for the version with type code extension ".R"

Installation

See manual

Product Versions

Type code	Description
MBHC-FB-8R.HSC	Redundant motherboard with pluggable screw terminals and host system connector (D-sub connector to typical DCS system connection)
MBHC-FB-8R.HSC.1	Redundant motherboard with pluggable spring terminals and host system connector (D-sub connector to typical DCS system connection)

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MBHC-FB-8R.HSC.R	Redundant motherboard with pluggable screw terminals and host system connector positioned on the right side (D-sub connector to typical DCS system connection)
MBHC-FB-8R.HSC.R.1	Redundant motherboard with pluggable spring terminals and host system connector positioned on the right side (D-sub connector to typical DCS system connection)

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

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