

Power Hub Motherboard

FieldConnex® Fieldbus

MBHC-FB-4R.YO.1

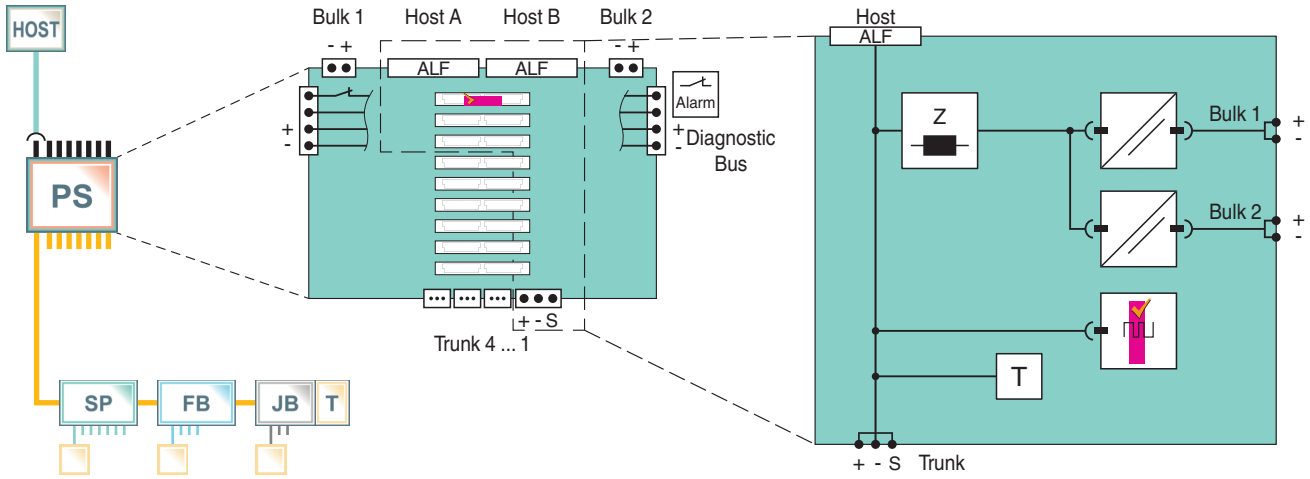
- 4 segments, redundant, individual modules per segment
- Customized for Yokogawa, ALF 111
- High-power trunk: Live work on devices in any hazardous area
- Best quality, smallest size and lowest heat dissipation
- For FOUNDATION Fieldbus H1
- Optional advanced diagnostics
- Passive impedance for high reliability
- Supports Ex ic voltage limitation
- Installation in Zone 2/Div. 2
- Spring terminals or screw terminals selectable
- Left/right version for optimized cabinet layout

Power hub motherboard for Yokogawa ALF111

Function

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 is the wiring interface with redundant connectors for direct DCS hook-up via the AKB system cable. The version with type code extension ".R" has host connections on the right side for symmetrical cabinet layout. 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
Installation in hazardous area		Zone 2 / Div. 2
Supply		
Connection		redundant

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Technical Data

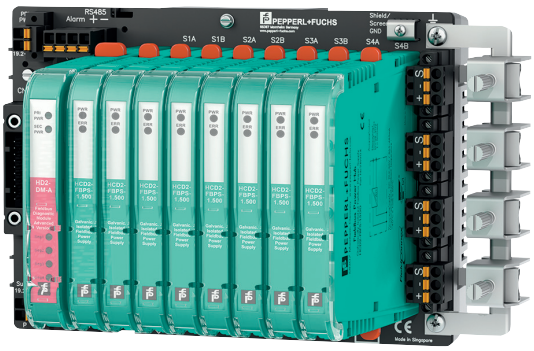
Rated voltage	U_r	19.2 ... 35 V SELV/PELV
Rated current	I_r	12 A
Power dissipation		typ. 0.4 W per segment
Fieldbus connection		
Number of segments		4 Redundant Power Supply
Host-side		Yokogawa ALF111 for AKB336 interface cable
Terminating resistor		100 Ω integrated
Indicators/operating means		
Fault 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 (industrial locations)
Standard conformity		
Electromagnetic compatibility		NE 21:2012
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		spring terminal , pluggable
Core cross section		screw terminals: 0.25 ... 2.5 mm^2 spring terminals: 0.25 ... 1.5 mm^2
Housing material		Polycarbonate
Degree of protection		IP20
Mass		approx. 610 g
Mounting		DIN rail mounting
Data for application in connection with hazardous areas		
Certificate		TÜV 10 ATEX 555761X
Marking		Ⓔx II 3G Ex ec IIC T4 Gc
Directive conformity		
Directive 2014/34/EU		EN 60079-0:2012+A11:2013 , EN 60079-11:2012 , EN 60079-15:2010
International approvals		
FM approval		CoC 3024816, CoC 3024816C
FM certificate		FM 19 US 0015 X and FM 19 CA 0011 X
FM marking		AEx/Ex ec IIC T4
Approved for		Class I, Division 2, Groups A, B, C, D, T4 / Class I, Zone 2, AEx/Ex nA IIC T4 , AEx/Ex ec IIC T4
IECEx approval		IECEx TUN 13.0037X
Approved for		Ex ec IIC T4 Gc
Certificates and approvals		
Marine approval		DNV A-14038, pending for MBHC-FB-4R.YO.R
General information		

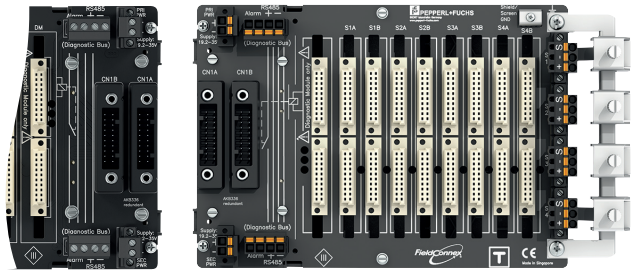
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Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see www.pepperl-fuchs.com.

Assembly

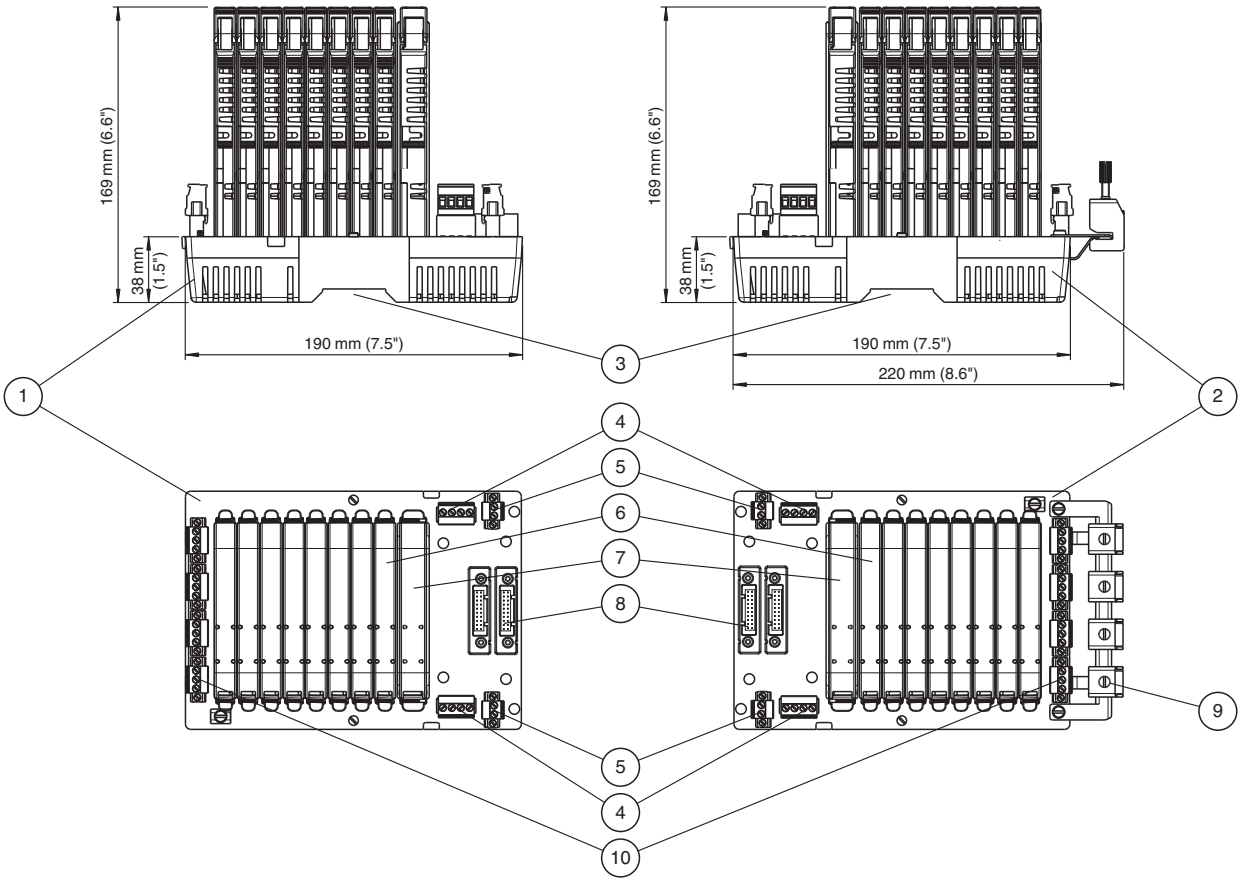




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Additional Information

Dimensions and Assembly



Description:
1 Motherboard MBHC-FB-4R.YO.R*
2 Motherboard MBHC-FB-4R.YO*
3 Mounting slot for DIN mounting rail
4 Connections for alarm voltage-free contact and diagnostic bus
5 Connections for bulk power supply
6 Power supply modules
7 Diagnostic module
8 Connectors for redundant AKB system cables to Yokogawa ALF111
9 Screening/earthing kit for trunk shields, optional accessory
10 Connections for fieldbus trunk

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

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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.YO	Motherboard for redundant power supplies with pluggable screw terminals applicable for Yokogawa and connector for AKB system cable positioned on the left hand side
MBHC-FB-4R.YO.1	Motherboard for redundant power supplies with pluggable spring terminals applicable for Yokogawa and connector for AKB system cable positioned on the left hand side
MBHC-FB-4R.YO.R	Motherboard for redundant power supplies with pluggable screw terminals applicable for Yokogawa and connector for AKB system cable positioned on the right hand side

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