

DART High-Density Power Hub, Generic Interface

KT-MB-FB-D-4R.GEN

- 4 segments, load-sharing redundancy
- Output: 22 ... 24 V/360 mA, Ex ib IIC
- DART for intrinsically safe, high-power segments
- Redundant connection to PROFIBUS DP
- For FOUNDATION Fieldbus H1 and PROFIBUS PA
- Customizable for any host system
- Individual modules per segment
- Optimized for size and quality, low heat dissipation
- Passive impedance for high reliability
- Installation in Zone 2



Function

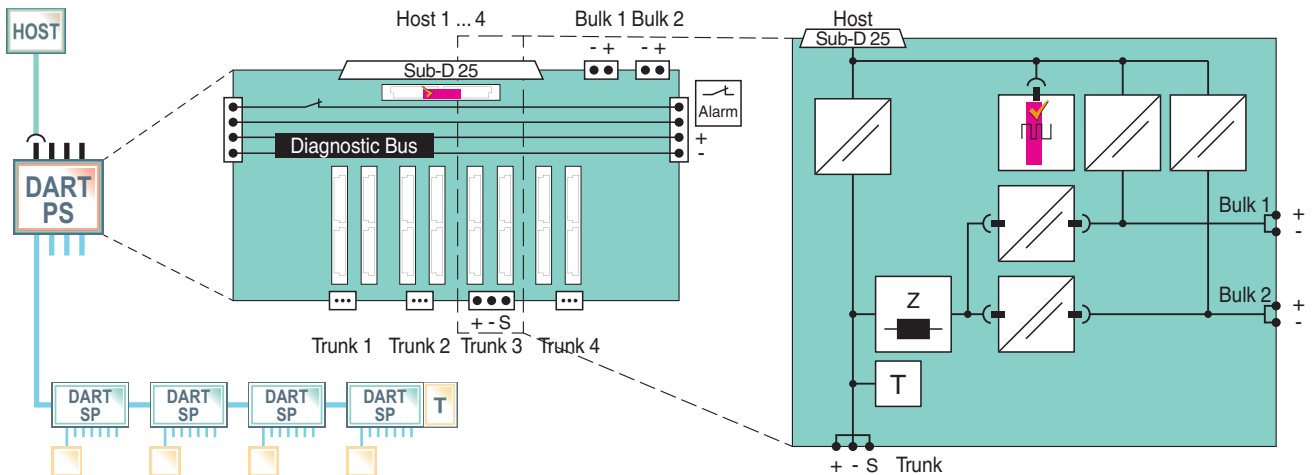
The FieldConnex® DART High-density Power Hub is a modular fieldbus power supply for four segments. It supports optional Advanced Diagnostics for fast fieldbus commissioning and online monitoring. The kit comprises one motherboard and eight power supply modules (2 modules per segment).

DART (Dynamic Arc Recognition and Termination) enables the intrinsically safe High-Power Trunk Concept for a completely intrinsically safe segment certified acc. to IEC 60079-11.

A Sub-D 25-pin connector with fieldbus power hooks up to the Segment Coupler for direct PROFIBUS DP connection. Through designed custom cables this power hub is easily adaptable to any FF-control system. Sockets for all modules enable simple installation and replacement without tools. Power redundancy is load-sharing with either module supplying half of load current. Three-port isolation between segment, bulk power and host enhances system reliability.

Availability and a long service life is achieved through: only one passive impedance filter per segment, optimized design for low power dissipation, high-availability fieldbus termination and plug-in connectors with retaining screws.

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 3230 ... 1820 mA

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

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Technical Data

Fieldbus connection		
Number of segments		
Redundant		4
Rated voltage	U_N	20.8 ... 22.3 V
Rated current	I_N	360 ... 10 mA
Short-circuit current		
Host-side		25-pin Sub-D socket
Host-rated voltage		10.1 ... 11 V
Host-rated current		... 40 mA
Host short-circuit current		... 50 mA
Terminating resistor		100 Ω , integrated
Indicators/operating means		
LED ERR		red flashing: short-circuit or undervoltage at output
LED PWR		green if $U_{out} > 21$ V
Fault signal		
Rated voltage		50 V
Rated current		1 A
Galvanic isolation		
Host-side/Supply		50 V functional insulation acc. to IEC 62103
Fieldbus segment/Host-side		250 V safe galvanic isolation acc. to EN 60079-11:2007
Fieldbus segment/Fieldbus segment		60 V safe galvanic isolation acc. to EN 60079-11:2007
Fieldbus segment/Supply		250 V safe galvanic isolation acc. to EN 60079-11:2007
Directive conformity		
Electromagnetic compatibility		
Directive 2004/108/EC		EN 61326-1:2006
Standard conformity		
Electromagnetic compatibility		
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		
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		
Core cross section		2.5 mm ²
Housing material		Polycarbonate
Degree of protection		IP20
Mass		approx. 2.4 kg
Dimensions		see dimensions
Mounting		DIN mounting rail , according to DIN EN 60715
Data for application in connection with hazardous areas		
EU-type examination certificate		
Marking		PTB 10 ATEX 2034 , PTB 10 ATEX 2020 X , PTB 11 ATEX 2010 X
Supply		⊕ II 2 G Ex ib IIC T4 , ⊕ II (2) D [Ex ib] IIIC , ⊕ II 3(2) G Ex nAc [ib] IIC T4
Maximum safe voltage	U_m	35 V
Host interface		

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Technical Data

Maximum safe voltage	U _m	35 V
Alarm output		
Maximum safe voltage	U _m	35 V
Directive conformity		
Directive 94/9/EC		EN 60079-0:2009 , EN 60079-11:2007 , EN 60079-15:2006 , EN 60079-25:2010 , EN 61241-11:2006
International approvals		
IECEX approval		IECEX PTB 12.0022X IECEX PTB 12.0023X IECEX PTB 12.0024X
Approved for		[Ex ib] IIC [Ex ib] IIIC Ex nAc II T4
Certificates and approvals		
FOUNDATION Fieldbus		FF-831
Marine approval		DNV A-14038
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 .

Assembly



Matching System Components

	HD2-DM-A	Fieldbus Power Hub, Advanced Diagnostic Module
	HD2-DM-A.RO	Fieldbus Power Hub, Advanced Diagnostic Module with Relay Output
	HD2-DM-B	Fieldbus Power Hub, Basic Diagnostic Module

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Matching System Components

**MB-FB-GTR1***

Fieldbus Power Hub, Gateway Motherboard

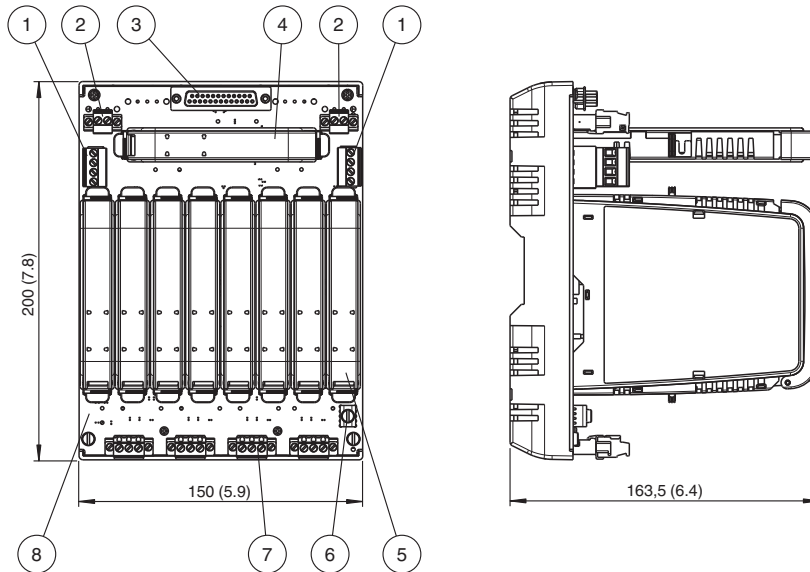
Accessories

ACC-MB-HDC

Diagnostic cordset for linking the diagnostic bus of 2 motherboards, length 6 cm

Additional Information

Dimensions



All dimensions in millimeters and

Description:

- 1 Connections for alarm voltage free contact and diagnostics bus
Diagnostics link cable, optional accessory
- 2 Connections for redundant bulk power supply
- 3 SUB-D Host
- 4 Diagnostic Module, see separate data sheet
- 5 Power supply module HD2-FBPS-IBD-1.24.360
- 6 Ground connection clamp
- 7 Connections for fieldbus trunk
- 8 Motherboard

Scope of Delivery

Type code	Description
1 x MBHD-FB-D-4R.GEN	Motherboard 4 segments, for redundant power modules
8 x HD2-FBPS-IBD-1.24.360	Power Supply Module, isolated, output 360 mA, max. 24 V

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

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

Connection to DCS

PROFIBUS – motherboard / Sub-D cable connection

PROFIBUS Power Hub Gateway Modules are mounted on a separate motherboard that is connected to the motherboard with the power modules via a Sub-D cable. The Sub-D cable comes with the gateway motherboard.

Type code	Description
Motherboards:	
MB-FB-GT	Gateway Motherboard
MB-FB-GTR	Gateway Motherboard, redundant
Gateway Module:	
HD2-GTR-4.PA	PROFIBUS DP/PA Gateway Module

Invensys – cable connection

The motherboard can be connected to Foxboro I/A Series with FBM228 host modules using a dedicated system cable

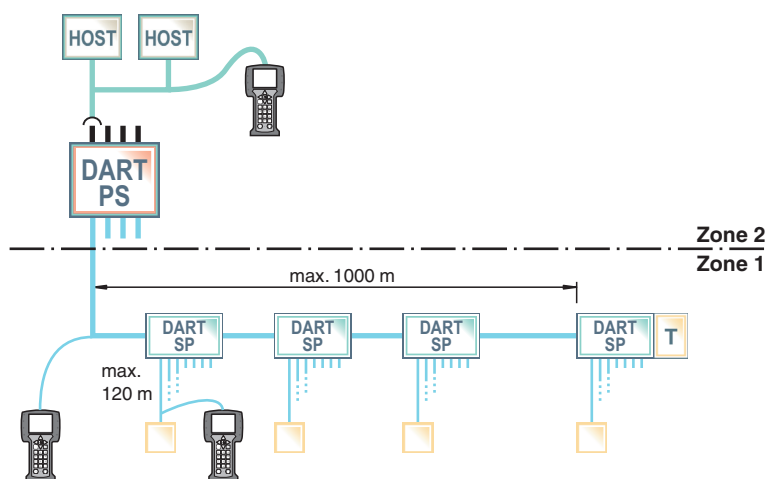
Type code	Description
ACC-MB-HGC.FOX.010	FieldConnex Power Hub system cable for Foxboro FBM228, length 1 m
ACC-MB-HGC.FOX.020	FieldConnex Power Hub system cable for Foxboro FBM228, length 2 m
ACC-MB-HGC.FOX.030	FieldConnex Power Hub system cable for Foxboro FBM228, length 3 m
ACC-MB-HGC.FOX.050	FieldConnex 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 – cable connection

The motherboard can be connected to Honeywell Series C with FIM4/FIM8 host modules using a dedicated system cable.

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

The Intrinsically Safe High-Power Trunk with DART



DART protects the fieldbus trunk. The DART power supply limits energy on the trunk to intrinsically safe levels Ex ib IIC. DART Fieldbus components i.e. DART Fieldbus power supply, DART Segment Protectors, and related accessories must be compatible with each other. They are covered under a single system certificate. The DART Segment Protector provides outputs certified Ex ib IIC for today's intrinsically safe fieldbus instruments.

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