

HART Transmitter Power Supply Isolator



**Model Number
KFD2-STC4-1.20**

- Single channel input /dual output
- HART compatible
- 4-20mA current source output
- 3-way isolation

SMART transmitter powers a 2-wire SMART transmitter and isolates the analog 4-20 mA signal from the field to the control room as two current sources.

Digital signals which can be modulated onto the analog signal, can also be transmitted bidirectionally.

The SMART transmitters are delivered with the KF-STP-GN terminals. Connector jacks are integrated in these terminals for the connection of the handheld terminals.

This unit is not intrinsically safe.

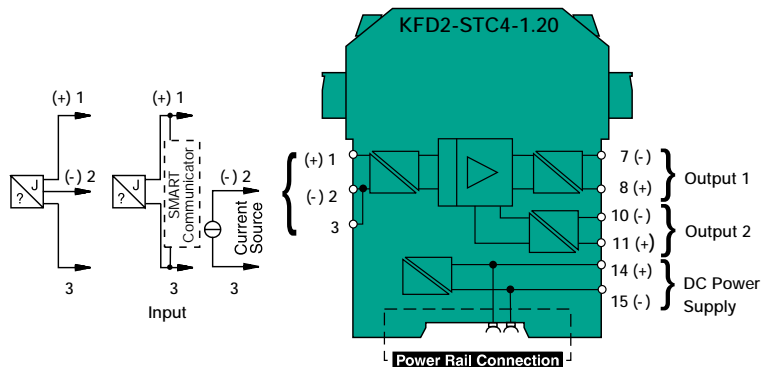
Technical Data

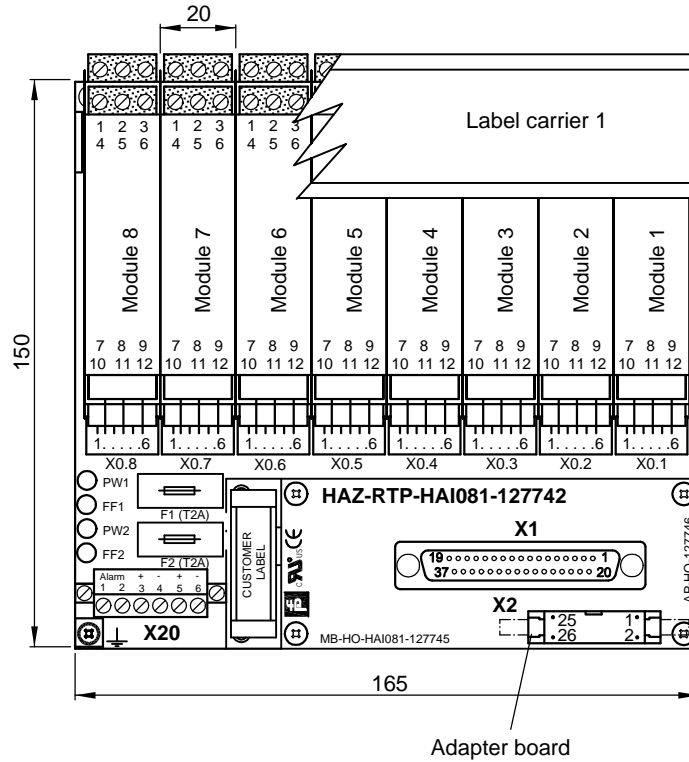
Power Supply	Power Rail or terminals 14+, 15-
Nominal voltage	20-32 VDC
Power consumption	≈2.5 W
Input	Terminals 1, 2, 3
Input signal	0/4-20 mA
Available voltage at 20 mA	≥16 V
Output	Terminals 9+, 10-, 11+
Output signal	4-20 mA / load 550 Ω
Ripple	≤ 50 μA _{rms}
Transfer Characteristics	
Calibrated accuracy	≤ 20 μA
Temperature drift	≤ 20 ppm / °C
Frequency range:	
Input/Output:	
Band width at 0.5 V _{pp} Signal	0 Hz to 7.5 kHz (-3 dB)
Output/Input:	
Band width at 0.5 V _{pp} Signal	300 Hz to 7.5 kHz (-3 dB)
Galvanic isolation	Isolation per EN 50178 Isolation voltage 253 V _{eff}
Mechanical	
Housing	
Material	Makrolon
Style	KF housing (see page 387)
Dimensions (mm)	107 x 20 x 115 mm
Weight	100 g (3.5 oz.)
Protection (IEC)	IP20
Operating Temperature	-20°C to +60°C (-4°F to +140°F)



Note: For information about programming, refer to page 209 or to our website at www.am.pepperl-fuchs.com

Connection Diagram






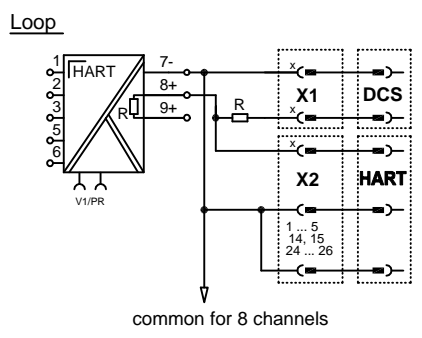
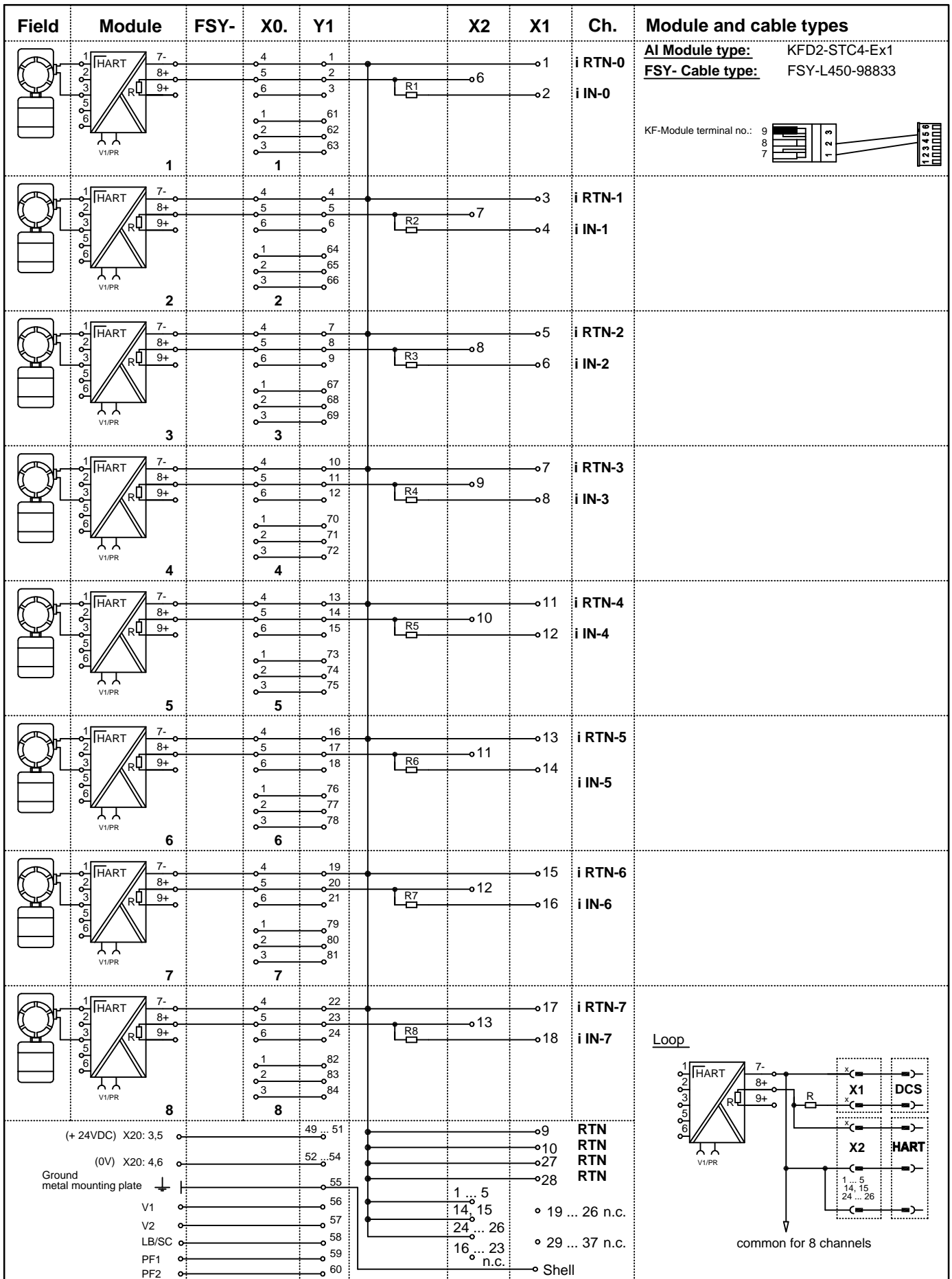
Name	Note
X1	37 pin female system connector DSUB
X2	26 pin HART connector male
X0.1 8	6 pin male terminals for cable tree FSY....
X20.3 6	Power supply screw terminals
X20.1, X20.2	Alarm screw terminal
F1, F2	Fuse
PW1, PW2, FF1, FF2	LEDs for power and power failure
Power consumption	24VDC/0,84A/20W

Ordering information: HAZ-RTP-HAI081-127742			
Basic components:		Description	Part.No.:
8 pieces:	KFD2-STC4-Ex1 (AI)	KF-Module type (function)	122580
1 piece:	MB-HO-HAI081-127745	Motherboard without modules	102519
composed by:			
1 piece:	MB-8U2-Y97680	Motherboard without modules, adapter board, FSY cable tree and Label carrier	97680
1 piece:	AP-HO-127746	Adapter board	127746
1 piece:	KFD0-LC1-8M	Label carrier 1	99143
8 pieces:	FSY-L450-98833	Cabel tree connection KF-Module-Motherboard	98833

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	PEPPERL+FUCHS Mannheim-Schönau	Motherboard unit Analog Input + HART 8 channels HAZ-RTP-HAI-127742	03.11.03		BK	Sb	Sb			
			Date	S	TZ	Off. in ch.	contr. techn.	contr. Norm		
			Dept.: PA-VP		Nr. 36-7590			Replaces: xxxxxx / 36-xxxx		Sheet 1
			Up date: xx.xx.xx		Scale: 1 : 2		of X			

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PEPPERL+FUCHS
 Mannheim-Schönau

Motherboard unit
 Analog Input - HART
 8 channels
HAZ-RTP-HAI081-127742

03.11.03	BK	Sb	Sb/vB	
Date	S TZ	Off. in ch.	contr. techn.	contr. Norm
Dept.: PA-VP	Nr. 36-7590			
Up date: xx.xx.xx	Replaces: xxxxxx/36-xxxx	Sheet 2		
Scale: -	of 3			

Technical Data

Power Supply	Power Rail or terminals 11+, 12-
Nominal voltage	20-35 VDC
Power consumption	≤ 1.3 W

Input (not intrinsically safe)	Terminals 7-, 8+
Current	4-20 mA limited to ≈ 25 mA
Voltage drop	≈ 4 V at 20 mA or 200 Ω at 20 mA
Resistance during wire fault	> 100 kΩ

Output (intrinsically safe)	Terminals 1+, 2-
Current	4-20 mA
Available load voltage	16 V minimum at 20 mA
Load resistance	100-700 Ω

Transfer Characteristics	
Calibrated accuracy at 20°C	≤ 0.06% incl. nonlinearity, hysteresis
Temperature drift per °C	≤ 0.002% / °C
Bandwidth	0-10 kHz (-3 dB)
Rise time	< 100 μs (bounce from 10-90%)

Entity Parameters	Terminals 1+, 2-
FM Control Drawing No.	116-0129
Voltage V _{OC}	25.9 V
Current I _{SC}	94.5 mA
Explosion group	A&B C&E D, F&G
Max. external capacitance (C _e)	0.17 μF 0.52 μF 1.38 μF
Max. external inductance (L _e)	4.04 mH 16.3 mH 33.1 mH

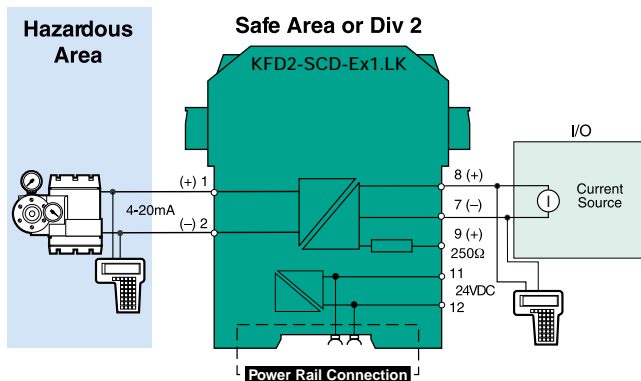
Mechanical	
Housing	Type A4 (see page 387)
Dimensions (mm)	115 x 20 x 107
Weight	100 g (3.5 oz.)

Ambient Temperature	-20°C to +60°C (-4°F to +140°F)
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Connection Diagram

Class I, Div 1, Group A-G,
Zone 0, IIC



Current/Voltage Driver



Model Number
KFD2-SCD-Ex1.LK

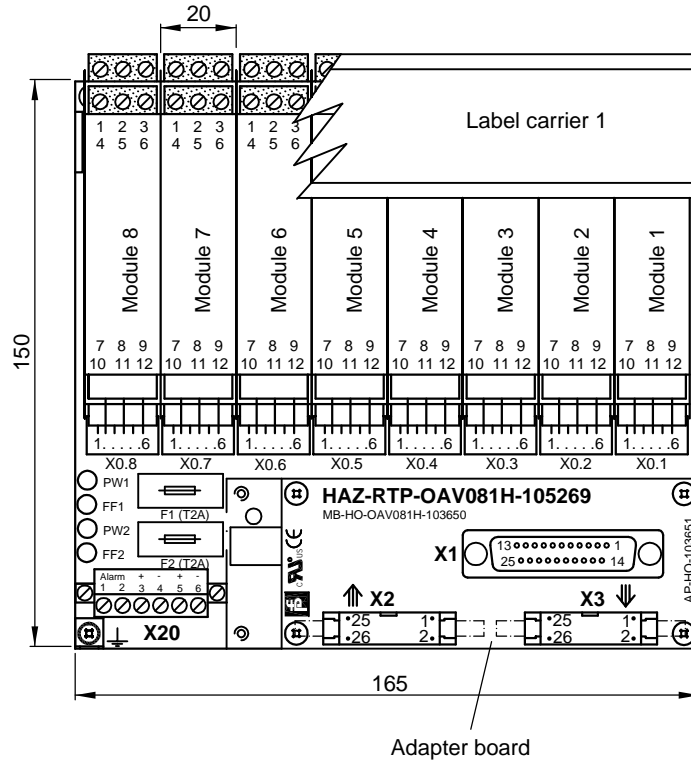
- Single-channel
- 24 VDC power supply
- Lead breakage (LB) and short circuit (SC) monitoring
- Galvanic isolation for HART communication
- 3-way isolation
- Suitable for Division 2 mounting

The KFD2-SCD-Ex1.LK drives SMART I/P converters, electrical valves and positioners in hazardous areas.

The digital signals modulated on the analog values can be transmitted bidirectionally between a SMART (HART) field device and the SMART communicator. Voltage transferred across the DC/DC converter provides a proportional current at terminals 1 and 2. A minimum of 16 V is available at 20 mA for all supply voltages, allowing the unit to drive loads up to 700 Ω. A current source with low AC impedance may need to be connected to terminals 7 and 9 for error-free HART transmission. This barrier is equipped with KF-STP-GN or KF-STP-BU terminals containing access holes for test probes, for the connection of a hand held terminal to the circuit.

Lead Monitoring Input Characteristics:

During a lead breakage (> 800 Ω) or short circuit (< 50 Ω) condition, the input resistance is > 100 kΩ, the field current is < 1 mA and the red LED is flashing.




Name	Note
X1	25 pin female system connector DSUB
X2, X3	26 pin HART connector male (see Note)
X0.1 8	6 pin male terminals for cable tree FSY....
X20.3 6	Power supply screw terminals
X20.1, X20.2	Alarm screw terminal
F1, F2	Fuse
PW1, PW2, FF1, FF2	LEDs for power and power failure
Power consumption	24VDC/0,45A/10,5W

Note: The Pepperl + Fuchs HART multiplexer HMM (master) and HMS (slave) have 16 channels each. In case of connecting this type of board to a HART-multiplexer, two boards can be connected together (to a total of 16 HART channels). The primary board has to be connected to the HMUX using the X3 connector. If more than 8 HART channels are required, a second board can be connected to the primary one. This connection is made using X2 on the primary and X3 on the secondary board.

Ordering information: HAZ-RTP-OAV081H-105269	
Basic components:	Description
8 pieces: KFD2-SCD-Ex1.LK (AO)	KF-Module type (function)
1 piece: MB-HO-OAV081H-103650	Motherboard without modules
composed by:	
1 piece: MB-8U2-Y97680	Motherboard without modules, adapter board, FSY cable tree and Label carrier
1 piece: AP-HO-103651	Adapter board
1 piece: KFD0-LC1-8M-99143	Label carrier 1
8 pieces: FSY-L456-98837	Cabel tree connection KF-Module-Motherboard

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 PEPPERL+FUCHS Mannheim-Schönau	Motherboard unit Analog Output - HART 8 channels HAZ-RTP-OAV081H-105269	06.03.00	vB	vB	Sb/vB	
		Date	S	TZ	Off. in ch.	contr. techn.
		Dept.: PA-VP	Nr. 36-7223			
		Up date: 02.04.03	vB/KT	Replaces: xxxxxx / 36-xxxx	Sheet 1	
		MB-8U2	Scale: 1 : 2	of 2		

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Field	Module	FSY-	X0.	Y1	X3	X2	X1	Ch.	Module and cable types
	1	7- 8+ 9+	4 5 6	1 2 3			5 3	RTN IOUT-0	AO Module type: KFD2-SCD-Ex1.LK FSY- Cable type: FSY-L456-98837 KF-Module terminal no.: 9 8 7
	2		4 5 6	25 26 27			5 9	RTN IOUT-1	
	3		4 5 6	28 29 30			15 13	RTN IOUT-2	
	4		4 5 6	31 32 33			15 19	RTN IOUT-3	
	5		4 5 6	10 11 12			6 4	RTN IOUT-4	
	6		4 5 6	13 14 15			6 10	RTN IOUT-5	
	7		4 5 6	16 17 18			6 10	RTN IOUT-6	
	8		4 5 6	19 20 21			6 10	RTN IOUT-7	
		(+ 24VDC) X20: 3,5	49 ... 51	1 ... 5	1 ... 5				Loop <p>common for 8 channels</p>
		(0V) X20: 4,6	52 ... 54	14, 15	14, 15				
		Ground metal mounting plate	55	24 ... 26	24 ... 26				Channel distribution: 8 channels extern 8 channels on board
		V1	56	16 ... 23	6 ... 13				
		V2	57						
		LB/SC	58						
		PF1	59						
		PF2	60						

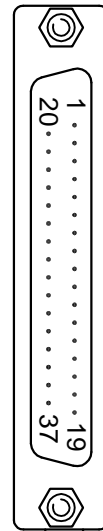
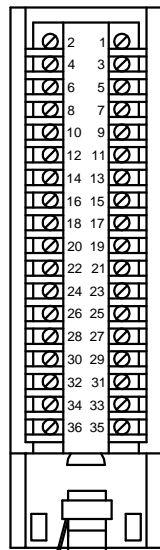
06.03.00	SB	SB	Sb/vB	
Date	S	TZ	Off. in ch.	contr. techn.
Dept.:	PA-VP	Nr. 36-7223		
Up date:	Sb	07.08.02	Replaces: xxxxxx / 36-xxxx	Sheet 2
Scale:			of 2	

PEPPERL+FUCHS
Mannheim-Schönau

Motherboard unit
Analog Output - HART
8 channels
HAZ-RTP-OAV081H-105269

Connector I/O card
ControlLogix Input

Connector HAZ-RTP...
(SUB-D 37 pin male)

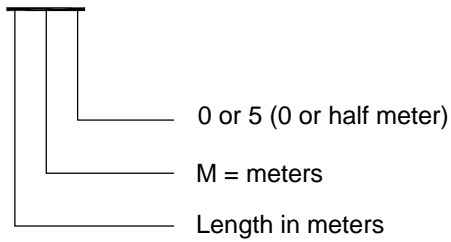


Cable type LIYCY
36 x 0,34 mm²


Cable Screen
lengths 300 mm

Order Information:

HAZ - 37 - x M x - 109875

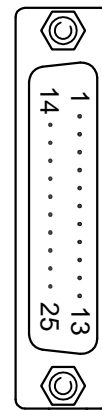
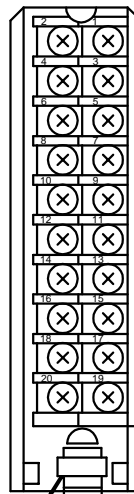


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	01.02.01		KT	Sb		
	Date	S	TD	Off. in ch.	contr. techn.	contr. Norm
 PEPPERL+FUCHS Mannheim-Schönau	System cable HAZ-37-xMx-109875			Dept.: PA-VP No. 36-6066A		
	Up date: xx.xx.xx		Replaces: XXXXXX / 36-XXXX		Sheet 3	
	Scale: -:-		of 3			

Connector I/O card
ControlLogix Output

Connector HAZ-RTP...
(SUB-D 25 pin male)

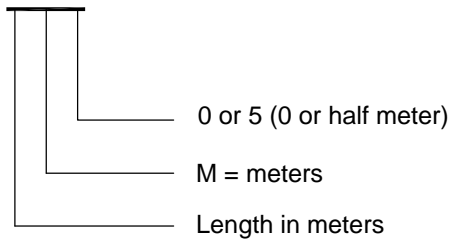


Cable Type LIYCY
20 x 0,34 mm²

Cable Screen
lengths 300 mm

Order Information:

HAZ - 25 - x M x - 109874



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01.02.01		KT	Sb		
Date	S	TD	Off. in ch.	contr. techn.	contr. Norm
Dept.: PA-VP			No. 36-6066A		
Up date: xx.xx.xx			Replaces: XXXXXX / 36-XXXX		Sheet 2
			Scale: -:-		of 3



PEPPERL+FUCHS
Mannheim-Schönau

System cable
HAZ-25-xMx-109874

