

Remote I/O

Remote I/O IS1 CPU and power module for Zone 2

9440/15-01-11-C1198 Art. No. 162188



- Suitable for Modbus RTU HART
- Supports system redundancy and optical rings
- Integration in plant asset management systems via Service-Bus and FDT/DTM

MY R. STAHL 9440B



Modbus RTU HART
COMMUNICATION PROTOCOL

Series 9440/15 CPU & power modules (CPM) for Zone 2 are used to supply up to 16 IS1+ I/O modules and field circuits with intrinsically safe power. RS485 with Modbus RTU HART is used for communicating with the automation system. The CPMs support system redundancy and optical rings. A DTM and process bus or ServiceBus are used for asset management integration.

Technical Data

Explosion Protection	
Application range (zones)	2, 21, 22
Ex interface zone	2, 21, 22
IECEX gas certificate	IECEX PTB 14.0039X
IECEX gas explosion protection	Ex ec [ia, ib Gb] IIC T4 Gc
ATEX gas certificate	PTB 99 ATEX 2222 X
ATEX gas explosion protection	II 3 (2) G Ex ec [ia, ib Gb] IIC T4 Gc
FMus certificate	FM17US0332X
cFM certificate	FM16CA0134X
Marking cFMus	NI, Class I, Div. 2, Groups A,B,C,D; Class I, Zone 2, Group IIC ANI Class I,II,III, Div. 2, Groups A,B,C,D,E,F,G; Class I, Zone 2, Group IIC T4 at Ta = 65 °C See Doc. 9440 6 031 002 1
Certificates	ATEX (PTB), Canada (FM), China (NEPSI), IECEX (PTB), Korea (KTL), USA (FM)
Ship approval	ABS, BVIS, EU RO MR (DNV), KR, LR
Installation	Zone 2/Division 2
Further information	See relevant certificates and operating instructions
Electrical Data	
Protocols	Modbus RTU
Redundancy	Full redundancy
Fieldbus RS485 connection	Sub-D socket, 9-pole
ServiceBus RS485 connection	Sub-D socket, 9-pole
Transmission speed RS-485	9.6 to 38.4 kbit/s
RS485 address setting	0 – 127

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Electrical Data

Copper RS485 transmission length/rate	1200 m at 9.6 to 93.75 kbit/s 1000 m at 187.5 kbit/s 400 m at 500 kbit/s 200 m at 1.5 Mbit/s
Transfer length/rate FO RS485	Approx. 2000 m at 1.5 Mbit/s
Transmission length/rate service bus RS485	1200 m at 9.6 kbit/s
Transmission distance/rate note	Available for longer lengths of FO technology
RS485 data transmission	Approx. 1000 16-bit register/s (At 38.4 kbit/s)
Internal signal delay max. (8 I/O modules)	7 ms for digital modules, 10 ms for analogue modules

Auxiliary Power

Nominal voltage	24 V DC
Auxiliary power voltage range	20 ... 35 V DC
Polarity reversal protection	Yes
Undervoltage monitoring	Yes
Current consumption (without I/O modules)	0.3 A at 24 V DC
Current consumption (8 I/O modules)	Approx. 2.5 A at 24 V DC
Current consumption (16 I/O modules)	Approx. 4.9 A at 24 V DC
Power dissipation (without I/O modules)	7.2 W
Power dissipation (per I/O module)	1 W

Galvanic Isolation

Auxiliary power/system components	1500 V AC
FB/SB interface/system component	1500 V AC
Bus interface/bus interface	500 V AC

Device Specific Data

Software	IS1 device DTM IS Wizard
LED operating conditions	"RUN" LED, green
LCD display	2 x 16 characters
LCD Display	2 x 16 characters
Settings on the LCD	Bus address
Indications	Bus address, alarms/errors, information (type, version, etc.) for the levels of field station, modules and signals, and values for inputs and outputs
Diagnostic/parameterisation functions	- Load or read back configuration data and parameters in IS1 field stations - Read inputs - Read and write outputs - Transmit diagnostics data (e.g. configuration error, hardware error, signal error) - Transmit HART commands from/to HART field devices
Diagnostic/parameterisation connectable software packages	- IS Wizard (via R. STAHL ServiceBus) - R. STAHL DTM - AMS from Emerson Process Management - PDM from Siemens - PRM and Fieldmate from Yokogawa - FieldCare from Endress+Hauser - FDM from Honeywell - etc.

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Diagnostics

LED group error	"ERR" LED, red
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Ambient Conditions

Ambient temperature	-20°C ... +65°C
Ambient temperature	-4°F ... +149°F
Storage temperature	-40°C ... +70°C
Storage temperature	-4°F ... +158°F
Max. operating altitude	< 2000 m
Max. relative humidity	95% (without condensation)
Shock (semi-sinusoidal)	(IEC EN 60068-2-27) 15 g (3 shocks per axis and direction)
Vibration (sinusoidal)	(IEC EN 60068-2-6) Frequency range 2 to 13.2 Hz Amplitude 1 mm (peak value) Frequency range 13.2 to 100 Hz Acceleration amplitude 0.7 g
Electromagnetic compatibility	Tested to the following standards and regulations: EN 61326-1 (2006) IEC 61000-4-1 to 61000-4-6, NAMUR NE 21

Mechanical Data

Connection auxiliary power	Pluggable screw terminal with lock 4 mm ²
Degree of protection (IP) (IEC 60529)	IP20 connections IP30 modules
Module enclosure	Polyamide 6GF
Fire resistance (UL 94)	V2
Pollutant class	Corresponds to G3
Width	96.5 mm
Width, inches	3.78 in
Depth	107 mm
Length	148 mm
Length in inches	5.83 in
Mounting depth in inches	4.21 in
Weight	610 g
Weight	1.34 lb

Mounting / Installation

Mounting type	on NS 35/15 DIN rail (DIN EN 60715)
Mounting orientation	Horizontal Vertical

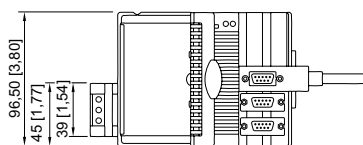
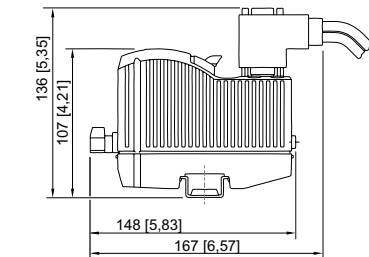
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Dimensional Drawings (All Dimensions in mm [inches]) – Subject to Alterations



Accessories

Cable for PROFIBUS DP, RS 485, RS485-IS

Art. No.



Cable type: BUS 4000-C-PE 2x0.64mm 02YS(St) CY2Y
Colour (sheath): Black
Application area: Outdoors
Installation outdoors and directly in the ground, UV-resistant

105444

Cable for PROFIBUS DP, RS485

Art. No.



Cable type: 02YS(St) CHSH
Colour (sheath): Violet
Application range: Offshore
Halogen-free, reinforcement made from steel wire braid

209430



Cable type: BUS 4000-C-PVC 2x0.64 mm 02YS(St) CY
Colour (sheath): Violet
Application area: Indoors
Standard type for indoor installation

105438

Sub-D plug, RS-485

Art. No.



9-pin for connecting fieldbus or ServiceBus to CPU & power module Type 9440/15, 9185 fieldbus isolating repeater and 9786/15-12 media converter.
The end-of-line resistor is installed and switchable. For non-intrinsically safe RS-485.
Ambient temperature: -40 °C to +75 °C

105715

Fieldbus isolating repeater Series 9185/12

Art. No.



Equipment for installation in safe areas or Zone 2/Div. 2
For fieldbuses with RS-485 interface
Suitable for PROFIBUS DP, Modbus, R. STAHL ServiceBus
RS-232, RS-422, RS-485 interface with the automation system
Transmission rate automatically set with PROFIBUS DP
Adjustable transmission rate (1.2 kbit/s to 1.5 Mbit/s)
24 V AC/DC auxiliary power
For further information, see the Series 9185/12 data sheet

227600

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FO fieldbus isolating repeater, Zone 2/Div. 2

Art. No.



Isolating repeater for installation in Zone 2/Div. 2
For fieldbuses using optical intrinsically safe "Ex op is" fibre optic in Zone 1/Div. 1
Compatible with Series 9186 devices
Optical ring possible
Comprehensive diagnostics function and fault message contact
Suitable for PROFIBUS DP to 1.5 Mbit/s
For further information, see the data sheet for Series 9186 FO fieldbus isolating repeaters

160624

Isolating repeater for installation in Zone 2/Div. 2
For fieldbuses using optical intrinsically safe "Ex op is" fibre optic in Zone 1/Div. 1
Point-to-point or linear structure
Comprehensive diagnostics function and fault message contact
Suitable for PROFIBUS DP up to 1.5 Mbit/s
For further information, see the data sheet for Series 9186 FO fieldbus isolating repeaters

160625

DTM IS1+ devices for PROFIBUS DP and Ethernet

Art. No.



Parameterisation and configuration of the IS1+ system
Communication with HART-capable field devices
Supports all common FDT frame applications (e.g. FieldCare, PactWare™)
Condition monitoring
Scan function for automatic topology generation
Download from r-stahl.com

IS1 PCS7 APL field device library

Art. No.



Simple integration of IS1+ systems in SIEMENS PCS7 (V9 SP2 to V9.1 SP2):
- PROFIBUS DP with CPM 9440 from GSD 3.12; CPU 9442 from GSD 5.14
- PROFINET with CPU 9441 from GSDML-V2.3-Stahl-RIO-20140206; CPU 9442 from GSDML-V2.34-Stahl-RIO9442-20200427
Further information and ordering only available from Siemens: www.siemens.com/mvdi

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