

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 14.0039 |
| IECEX gas explosion protection | Ex ec [ia, ib Gb] IIC T4 Gc |
| ATEX gas certificate | PTB 99 ATEX 2222 |
| ATEX gas explosion protection | Ex 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 kbps |

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Electrical Data

| | |
|--|---|
| RS485 address setting | 0 – 127 |
| Copper RS485 transmission length/rate | 1200 m at 9.6 to 93.75 kbps 1000 m at 187.5 kbps 400 m at 500 kbps 200 m at 1.5 Mbps |
| Transfer length/rate FO RS485 | Approx. 2000 m at 1.5 Mbit/s |
| Transmission length/rate service bus RS485 | 1200 m at 9.6 kbps |
| 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 to 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 |

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Device Specific Data

| | |
|---|---|
| Diagnostic/parameterisation connectable software packages | <ul style="list-style-type: none">- 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. |
|---|---|

Diagnostics

| | |
|-----------------|----------------|
| LED group error | "ERR" LED, red |
|-----------------|----------------|

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, inches | 5.83 in |
| Mounting depth, 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 |

Remote I/O

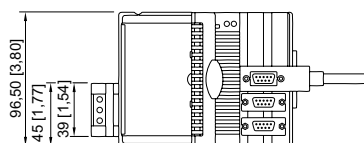
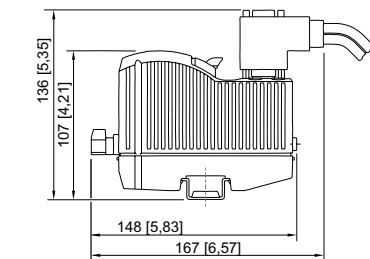
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Dimensional Drawings (All Dimensions in mm [inches]) – Subject to Alterations



Accessories

Cable for PROFIBUS DP, RS 485, RS485-IS



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

Art. No.

105444

Cable for PROFIBUS DP, RS485



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

Art. No.

209430



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

Art. No.

105438

Sub-D plug, RS-485



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

Art. No.

105715

Fieldbus isolating repeater Series 9185/12



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 kbps to 1.5 Mbps)
24 V AC/DC auxiliary power
For further information, see the Series 9185/12 data sheet

Art. No.

227600

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STAHL

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 Mbps
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 Mbps
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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