

# Remote I/O

## Remote I/O IS1+ CPU module

for Zone 2

9442/35-10-00 Art. No. 246854



- Support for PROFIBUS DP, PROFINET, Modbus TCP+RTU and EtherNet/IP™; incl. HART transmission and redundancy
- RS485 interfaces (max. 12 Mbit/s) and Ethernet 100BASE-TX (max. 100 Mbit/s)
- Comprehensive diagnostics based on NE 107
- Support of FDT/DTM, OPC UA and web server for integration in asset management systems
- Enhanced ambient temperature range from -40 °C to +75 °C (-40 °F to +167 °F)

MY R. STAHL 9442A



EtherNet/IP



Modbus  
TCP + RTU



The 9442/35 CPU module functions as a gateway between the IS1+ Remote I/O system and the automation system. All supported communication protocols are in the CPU module and can be configured by the user. In addition to the process values, other information such as diagnostics, parameterisation and configuration is transmitted over the CPU module. Communication with the I/O modules is implemented via the 9496 socket and the 9494 BusRail. Integration in control systems and plant asset management tools is implemented using standards such as GSD, EDS, web servers, OPC UA and FDT/DTM.

## Technical Data

### Explosion Protection

Application range (zones)	2
Application range (Zone) note	Zone 22 is only permissible if a suitable enclosure is used!
Ex interface zone	2
IECEX gas certificate	IECEX PTB 17.0031X
IECEX gas explosion protection	Ex ec ia [ia Ga] IIC T4 Gc
ATEX gas certificate	PTB 17 ATEX 2019 X
ATEX gas explosion protection	Ex II 3 (1) G Ex ec ia [ia Ga] IIC T4 Gc
Marking cFMus	NI, Class I, Div. 2, Groups A,B,C,D; Class I, Zone 2, AEx/Ex ec ia [ia Ga] IIC T4 Gc Ta = -40°C ... +75°C See Doc. 9442 6 031 002 1
Certificates	ATEX (PTB), Brazil (ULB), Canada (FM), China (NEPSI), IECEx (PTB), Korea (KTL), USA (FM)
Ship approval	ABS, BVIS, EU RO MR (DNV), KR, LR
Declaration of conformity	ATEX (EUK), China (CCC)
Installation	Zone 2 / Cl. I, II, Div. 2

### Electrical Data

Protocol setting	Via rotary switch S1 On the 9496/35 socket
Redundancy	Full redundancy Line redundancy Supply redundancy
RS485 interface connection	Sub-D plug, 9-pole
Type RS-485 connector	Sub-D connector
No. of pins RS-485 conn.	9
RS485 interface	As per PROFIBUS specification

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RS-485 interface protocol	Modbus RTU Profibus DP V0 Profibus DP V1 HART
Line termination RS485	Powered resistor (end-of-line resistor in the Sub-D plug, see accessories)
Address setting RS485	Using the S2 and S3 rotary switches on the 9496/35 socket
Min. address range RS485	1
Max. address range RS485	99
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 100 m at 12 Mbps
Transfer length/rate FO RS485	Approx. 2000 m at 1.5 Mbit/s
Max. DC voltage $U_m$ RS485	30 V
Max. voltage $U_m$ RS485 note	With 9186 FO fieldbus isolating repeater, see accessories
Ethernet interface connection	2 x RJ45 (EIA/TIA 568B) socket
USB version	USB 2.0
Interface RJ45	100BASE-TX Unmanaged switch function
RJ45 protocols	MODBUS TCP EtherNet/IP™ PROFINET
IP address setting	Using a web server or IS1+ detect software (default: 192.168.1.101)
Transfer rate RJ45	Max. 10/100 Mbps Auto-negotiation
Transfer length copper RJ45	100 m
Transfer length FO RJ45	2000 m multi mode 30 km single mode
Transmission distance FO RJ45 note	With media converter/9721 switch, see accessories
Max. DC voltage $U_m$ RJ45	30 V
USB interface	Type A socket
USB address setting	Identical to RS485 address
Max. USB transfer rate	480000 kbit/s
Max. USB current	250 mA
Max. DC voltage $U_m$ USB	30 V
USB protocols	Service bus

#### Auxiliary Power

Power supply	Via socket 9496 and PM 9445/35
Max. current consumption	0.3 A
Max. power dissipation	5 W

#### Galvanic Isolation

Auxiliary power/CPU AC	1500 V
CPU/CPU (redundancy) AC	1500 V

#### Device Specific Data

Software	IS1 device DTM IS Wizard Web server
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#### Device Specific Data

LED module requires maintenance	"M/S" LED, blue
LED module requires maintenance designation	M/S
LED module requires maintenance colour	blue
LED operating conditions	"PWR" LED, green
Operating status LED designation	PWR
Operating conditions LED colour	green
Diagnostic/parameterisation functions	<ul style="list-style-type: none"><li>- Use the web server or IS1+ detect software to set the IP address (for Ethernet)</li><li>- Web server</li><li>- Load or read back configuration data and parameters in IS1+ field stations</li><li>- Read inputs</li><li>- Read and write outputs</li><li>- Transmit diagnostics data (e.g. configuration error, hardware error, signal error)</li><li>- Transmit HART commands from/to HART field devices</li><li>- Firmware downloads using the web server</li></ul>
Diagnostic/parameterisation connectable software packages	<ul style="list-style-type: none"><li>- IS Wizard (via USB ServiceBus)</li><li>- R. STAHL DTM devices with fdt frames (e.g. fdtContainer from M+M; Pactware)</li><li>- AMS from Emerson Process Management</li><li>- PDM from Siemens</li><li>- PRM and Fieldmate from Yokogawa</li><li>- FieldCare from Endress+Hauser</li><li>- FDM from Honeywell</li></ul>
Retrievable parameters	Hardware revision Manufacturer Serial number Software revision Type
LED data traffic automatic system designation	AS EXCH
LED data traffic automatic system colour	green
LED configuration designation	CFG ERR
LED configuration colour	red
LED data traffic RS485 designation	RXTX X1 RS-485
LED data traffic RS485 colour	green
LED port connection RJ45 port 1 designation	LINK X2 LAN P1
LED port connection RJ45 port 1 colour	yellow
LED data traffic RJ45 port 1 designation	RXTX X2 LAN P1
LED data traffic RJ45 port 1 colour	green
LED port connection RJ45 port 2 designation	LINK X2 LAN P2
LED port connection RJ45 port 2 colour	yellow
LED data traffic RJ45 port 2 designation	RXTX X2 LAN P2
LED data traffic RJ45 port 2 colour	green
LED USB data traffic designation	RXTX X3 USB
LED USB data traffic colour	green
<b>Diagnostics</b>	
LED group error	"ERR" LED, red
Group error LED designation	ERR

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### Diagnostics

Group error LED colour	red
LED status designation	STATUS
LED status colour	yellow

### Ambient Conditions

Ambient temperature °C	-40°C ... +65°C -40°C ... +70°C -40°C ... +75°C
Ambient temperature °F	-40°F ... +149°F -40°F ... +158°F -40°F ... +167°F
Ambient temperature note	Mounting on a BusRail (DIN mounting rail) -40 – 158 °F on a galvanised, sheet steel mounting plate of at least 3 mm / 0.12 inches using four additional safety screws -40 – 167 °F on a coated, aluminium mounting plate of at least 6 mm / 0.24 inches using four additional safety screws (EN-AW6082 or comparable heat conductivity)
Storage temperature °C	-40°C ... +80°C
Storage temperature °F	-40°F ... +176°F
Max. operating altitude	< 2000 m
Max. operating altitude	2000 m
Max. relative humidity	95% (without condensation)
Max. relative humidity	95 %
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 ... 13.2 Hz    Amplitude 1 mm (peak value) Frequency range 13.2 ... 100 Hz    Acceleration amplitude 0.7 g

### Mechanical Data

Degree of protection (IP) (IEC 60529)	IP30
Module enclosure	Polyamide 6GF Seawater-resistant aluminium
Fire resistance (UL 94)	V2
Pollutant class	Corresponds to G3
Width	32 mm
Width, inches	1.26 in
Width, inches	1.26 in
Depth	123 mm
Depth in inches	4.843 in
Length	152 mm
Width	32 mm
Depth	123 mm
Length in inches	5.98 in
Mounting depth in inches	4.84 in
Weight	1 kg
Weight	2.2 lb

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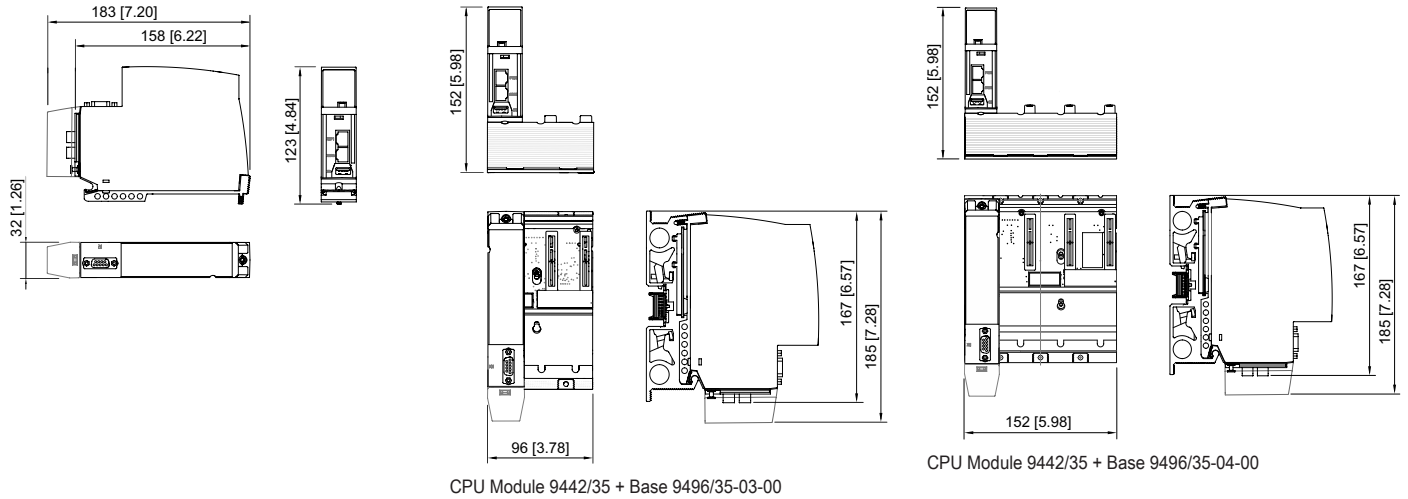
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### Mounting / Installation



Mounting orientation	Horizontal Vertical
Module fuse	Torx T20 screws
Note	Only connect the 9442/35 CPU to the 9496/35 socket

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




### Accessories

#### Series 9496/35 – socket for CPU & power modules

		Art. No.
	Zone 2 / Div. 2 3 slots for mounting / installing 1 x CPU and 2 x power module or 2 x CPU und 1 x power module Dimensions: approx. L = 167 mm, W = 96 mm, H = 50.6 mm	246871
	Zone 2 / Div. 2 4 slots for mounting / installing 2 x CPU and 2 x power module Dimensions: approx. L = 167 mm, W = 152 mm, H = 50.6 mm	262392

#### 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 kbps to 1.5 Mbps) 24 V AC/DC auxiliary power For further information, see the Series 9185/12 data sheet	227600

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### RS485 media converter

Art. No.



Media converter for installation in Zone 2.  
For fieldbuses (PROFIBUS DP, Modbus RTU) using optical intrinsically safe "Ex op is" fibre optic in Zone 1.  
Compatible with Series 9786 devices.  
Point-to-point, linear structure or optical ring.  
With diagnostics function including error signalling.  
Simple parameterisation using a rotary switch.  
Data rates from 9.6 kbps to 1.5 Mbps possible.  
For further information, see the data sheet for the Series 9786 media converter.

308563

### 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  
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

### FX op is/TX SC media converter for Zone 2

Art. No.



Media converter from 10/100 BASE-TX (1 x RJ45 port) to 100 BASE-FX "Ex op is" (1 x FO port SC);  
multi-mode (up to 4 km range); MY R. STAHL: 9721A

220381

### Media converter FX op is / TX SC for Cl. I, Div. 2 and Zone 2

Art. No.



Media converter from 10/100 BASE-TX (1 x RJ45 port) to 100 BASE-FX "Ex op is" (1 x FO port SC);  
single-mode (up to 30 km range); MY R. STAHL: 9721A

220382

### Unmanaged switch FX op is/TX SC for Zone 2

Art. No.



Unmanaged switch FX op is auf TX; SC plug connector  
FO cable 4 multi-mode (MM), 2 RJ45, installation in Zone 2

243427

### 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 DTM devices Series 9499/DTM

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

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### Device DTM IS1 Series 9499

Art. No.

	9499/DTM-IS1-02 Com/Device/HART 30 Free-of-charge software licence for up to 30 HART devices	251237
	9499/DTM-IS1-04 Com/Device/HART 300 Software licence for up to 300 HART devices	251239
	9499/DTM-IS1-06 Com/Device/HART unlted. Software licence for an unlimited number of HART devices	251240

### IS1 PCS7 APL field device library

Art. No.

	Easy integration of IS1+ systems into SIEMENS PCS7 (V9 SP2 ... V9.1 SP2): - PROFIBUS DP with CPM 9440 starting with GSD 3.12; CPU 9442 starting with GSD 5.14 - PROFINET with CPU 9441 starting with GSDML-V2.3-Stahl-RIO-20140206; CPU 9442 starting with GSDML-V2.34-Stahl-RIO9442-20200427 Further information and order processing exclusively through company Siemens: <a href="http://www.siemens.com/mvdi">www.siemens.com/mvdi</a>	
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### AOI tool

Art. No.

	Simple integration of IS1+ systems in Rockwell ControlLogix and CompactLogix via EtherNet/IP and AOI (add-on instructions). Note: The 9499/DTM-IS1 DTM is also required. This can be downloaded from <a href="http://r-stahl.com">r-stahl.com</a>	
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### USB RS485 converter

Art. No.

	USB RS485 converter for installation in Zone 2. Interference-resistant, bidirectional conversion of USB data to serial RS485 data with power supply via the USB port. Can be used for various different applications, e.g. if PCs do not have RS485 interfaces. For further information, see the Series 9787 data sheet – MY R. STAHL 9787A	266011
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### Sub-D plug, RS-485

Art. No.

	9-pin for connecting fieldbus or ServiceBus to CPU & power module Type 9440/15, 9185 fieldbusisolatingrepeater 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
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