

# IS1+ CPU module for Zone 2 / Division 2

## Series 9442/35



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19621E00

- > Supports PROFIBUS DP, PROFINET, Modbus TCP and Ethernet/IP; incl. HART transmission
- > RS485 (max. 12 Mbps) and Ethernet (max. 100 Mbps) interfaces
- > Extensive diagnostics based on NE 107
- > Support of FDT/DTM and web server for integration into asset management systems
- > Extended ambient temperature range of -40 to +75 °C

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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 and FDT/DTM.

Together with the 9445/35 power module and 9496/35 socket as a function replacement for the 9444/15 IS1 Ethernet power module (with 9441/15 CPU and 9492/15 socket) and 9440/15 IS1 fieldbus CPM.

	ATEX / IECEx					
Zone	0	1	2	20	21	22
For use in			x			

**WebCode 9442A**

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### Selection Table

Versions	Installation in	Protocol	Order number
CPU module	Zone 2 / Division 2 and in safe area	PROFIBUS DP, Modbus TCP, PROFINET and Ethernet/IP	9442/35-10-00

### Explosion Protection

#### Global (IECEX)

Gas	IECEX PTB 17.0031X Ex ec ia [ia Ga] IIC T4 Gc
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#### Europe (ATEX)

Gas	PTB 17 ATEX 2019 X Ex II 3 (1) G Ex ec ia [ia Ga] IIC T4 Gc
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### Certifications and certificates

Certificates	IECEX, ATEX, cFMus (Canada, USA), EAC (the Eurasian Economic Union), KTL (South Korea)
Ship approval	In progress

### Further parameters

Installation in	Zone 2 / Division 2 and in safe area
Further information	see operating instructions and certificates

### Technical Data

#### Electrical data

Power supply	Over the 9496/35 socket and 9445/35 power modules
Max. power dissipation	5 W
Max. current consumption	0.3 A
Interfaces	
RS485 interface	
Connection	Sub-D plug, 9-pole
Line termination	Powered resistor (end-of-line resistor in the Sub-D plug, see accessories)
Protocols	PROFIBUS DP V1 HART, PROFIBUS DP V1 HART+PNO red., Modbus RTU (can be selected by the user using the rotary switch on the 9496/35 socket)
Address setting	Using the rotary switch on the 9496/35 socket
Address range	1 to 99
Redundancy	In progress
Transmission rate	
Profibus DP	9.6 kbit/s to 12 Mbit/s
Max. conductor length	
Copper conductor	1200 m at 9.6 to 93.75 kbit/s 1000 m at 187.5 kbps 400 m at 500 kbps 200 m at 1.5 Mbit/s 100 m at 12 Mbps
Fibre optic	2000 m at 1.5 Mbps (with 9186 FO fieldbus isolating repeater, see accessories)
Max. voltage $U_m$	≤ 30 V DC
Ethernet interface	
Connection	2 x RJ45 plug, 100Base-TX, unmanaged switch function
Protocols	Modbus TCP (PROFINET, Ethernet/IP in preparation) (can be selected by the user using the rotary switch on the 9496/35 socket)
IP address setting for service bus	Manual or DHCP assignment (can be selected by the user via a web server or IS1+ detect software. Default 192.168.1.101) Note: If the DHCP setting is selected and no DHCP server can be reached, the alternative IP address 169.254.0.1 is set automatically.
Transfer rate	max. 10/100 Mbit/s, auto negotiation
Max. conductor length	
Copper conductor	100 m
Fibre optic	2000 m multimode / 30 km single mode (with media converter / 9721 switch, see accessories)
Max. voltage $U_m$	≤ 30 V DC

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### Technical Data

USB interface (ServiceBus)	
Connection	Type A plug
Version	USB 2.0
Address setting	Identical to RS485 address
Transfer rate	max. 480 Mbps
Max. current $I_{max}$	250 mA
Max. voltage $U_m$	$\leq 30$ V DC
Operator interface	
Software	IS1+ DTM devices or IS Wizard or web server
Operation	"PWR" LED, green
Fault	"ERR" LED, red
Maintenance required	"M/S" LED, blue
Data traffic with automation system	"AS EXCH" LED, green
Configuration error	"CFG ERR" LED, red
RS485 data traffic	"RS485" LED, green
Ethernet port 1 connection	"LNK P1" LED, yellow
Ethernet port 1 data traffic	"ACT P1" LED, green
Ethernet port 2 connection	"LNK P2" LED, yellow
Ethernet port 2 data traffic	"ACT P2" LED, green
USB data traffic	"USB" LED, green
Diagnostic and 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 the 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>
Retrievable parameters	Manufacturer, type, hardware revision, software revision, serial number
Connectable software packages	<ul style="list-style-type: none"> <li>• IS Wizard (using the USB ServiceBus)</li> <li>• R. STAHL DTM devices with FDT frames (e.g. FDT container by M+M; PACTware)</li> <li>• AMS by Emerson Process Management</li> <li>• PDM by Siemens</li> <li>• PRM and Fieldmate by Yokogawa</li> <li>• FieldCare by Endress + Hauser</li> <li>• FDM by Honeywell</li> </ul>
Galvanic separation	
Test voltage	
acc. to standard	EN 60079-11
Between the auxiliary power and CPU	$\geq 1500$ V AC
Between 2 CPUs (redundancy)	$\geq 1500$ V AC
Electromagnetic compatibility	Tested to the following standards and regulations: EN 61326-1 (2013) IEC 61000-4-1 to 61000-4-6, NAMUR NE 21

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#### Technical Data

##### Ambient conditions

Ambient temperature	-40 to +65 °C: -40 to +70 °C:  -40 to +75 °C:	Mounting on a BusRail (DIN mounting rail) without mounting plate Mounting on a BusRail (DIN mounting rail) and on a galvanised, sheet steel mounting plate of at least 3 mm using four additional safety screws Mounting on a BusRail (DIN mounting rail) and on a coated, aluminium mounting plate of at least 6 mm using four additional safety screws (EN-AW6082 or comparable heat conductivity)
Storage temperature	-40 to +80 °C	
Maximum relative humidity	95 % (without condensation)	
Maximum operating height	< 2000 m	
Semi-sinusoidal shock (IEC/EN 60068-2-27)	15 g (3 shocks per axis and direction)	
Sinusoidal vibration (IEC/EN 60068-2-6)	1 g in the frequency range 10 to 500 Hz 2 g in the frequency range 45 to 100 Hz	

##### Mechanical data

Degree of protection (IEC 60529)	IP20
Material	
Enclosure	6GF polyamide / seawater-resistant aluminium
Fire resistance (UL 94)	V2
Pollutant class	corresponds to G3
Dimensions	CPU module 9442/35: L = 158 mm, W = 32 mm, H = 123 mm CPU module with socket : L = 167 mm, W = 96 mm, H = 152 mm

##### Mounting / Installation

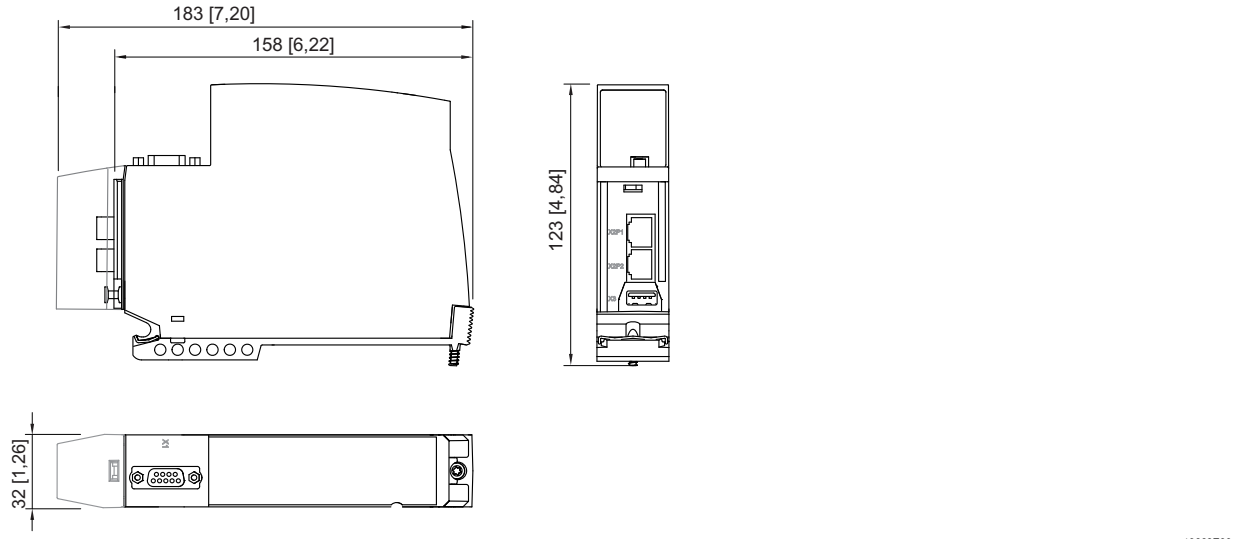
Installation conditions	
Mounting type	On 9496/35 socket
Mounting position	horizontal or vertical

# IS1+ CPU module for Zone 2 / Division 2

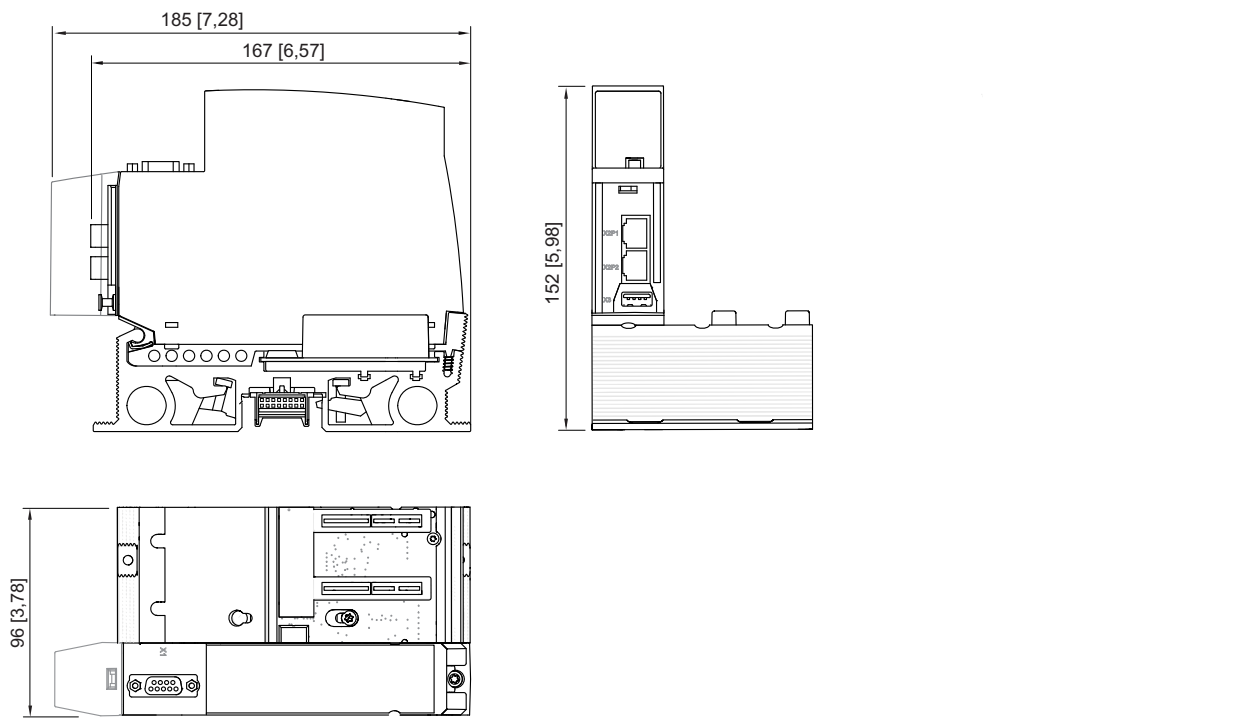
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Dimensional drawings (all dimensions in mm [inches]) – Subject to modification



9442/35 CPU module



9442/35 CPU module with 9496/35 socket

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#### Accessories and Spare Parts






Designation	Figure	Description	Art. no.	Weight kg
IS1+ power module	 19586E00	Power module for IS1+ CPU 9442/35 and I/O modules Webcode: 9445A	<b>257290</b>	1.3
Socket for CPU and power modules	 19048E00	Backplane for storing IS1+ 9442/35 CPU and 9445/35 power module (3 slots) Webcode: 9496A	<b>246871</b>	0.4
Fieldbus isolating repeater, up to 1.5 Mbps, non-Ex / Zone 2 / Div. 2 uses	 09867E00	<ul style="list-style-type: none"> <li>• Equipment for installation in safe areas or Zone 2 / Div. 2</li> <li>• For fieldbuses with RS -485 interface</li> <li>• Suitable for PROFIBUS DP, Modbus RTU</li> <li>• Interface to RS232, RS422, RS485 automation system</li> <li>• Automatic setting of the transmission rate for PROFIBUS DP</li> <li>• Transmission rate adjustable (1.2 kbps to 1.5 Mbps)</li> <li>• 24 V AC/DC auxiliary power</li> <li>• For further information, see data sheet for Series 9185/12 (WebCode: 9185B)</li> </ul>	<b>227600</b>	0.350
FO fieldbus isolating repeater, Zone 2 / Div. 2	 11550E00	<ul style="list-style-type: none"> <li>• Isolating repeater for installation in Zone 2 / Div. 2</li> <li>• For fieldbuses over fibre optic intrinsically safe cables "ex op is" in Zone 1 / Div. 1</li> <li>• <b>Optical ring possible</b></li> <li>• Extensive diagnostic function and fault message contact</li> <li>• Suitable for Profibus DP up to 1.5 Mbps</li> <li>• For other variants and information, see data sheet for Series 9186 FO fieldbus isolating repeater (WebCode: 9186A)</li> </ul>	<b>160624</b>	0.244
	 11550E00	<ul style="list-style-type: none"> <li>• Isolating repeater for installation in Zone 2 / Div. 2</li> <li>• For fieldbuses over fibre optic intrinsically safe cables "ex op is" in Zone 1 / Div. 1</li> <li>• <b>Point-to-point or line structure</b></li> <li>• Extensive diagnostic function and fault message contact</li> <li>• Suitable for Profibus DP up to 1.5 Mbps</li> <li>• For other variants and information, see data sheet for Series 9186 FO fieldbus isolating repeater (WebCode: 9186A)</li> </ul>	<b>160625</b>	0.244
Sub-D plug	 09813E00	9-pole for connection of fieldbus or ServiceBus to CPU & type 9440/15 power module and 9185 fieldbus isolating repeater. An EOL resistor is installed and switchable. For non-intrinsically safe RS485.	<b>105715</b>	0,05

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### Accessories and Spare Parts

Designation	Figure	Description	Art. no.	Weight kg
Ethernet terminal	 15010E00	Terminal type 8187 for connecting Ethernet cables in hazardous areas in ignition type Ex e spring clamp terminals; Suitable for 1000BaseT (GigE) WebCode: 8187A	<b>214286</b>	0.175
Media converter	 16384E00	<ul style="list-style-type: none"> <li>Media converter of 10/100 Base-TX (1 x RJ45 port) to 100 Base-FX "Ex op is" (1 x FO port SC)</li> <li>Multimode (range of up to 5 km)</li> <li>Single mode (range of up to 30 km)</li> <li>Zone 2</li> <li>Webcode: 9721A</li> </ul>	<b>220381</b>	0.240
Switch	 17417E00	<ul style="list-style-type: none"> <li>Unmanaged switch 10/100 Base-TX (2 x RJ45 ports) to 100 Base-FX "Ex op is" (4 x FO ports SC)</li> <li>Multimode (range of up to 5 km)</li> <li>Single mode (range of up to 30 km)</li> <li>Zone 2</li> <li>Webcode: 9721B</li> </ul>	<b>243427</b>	0.500
USB converter USB RS485	 06975E00	USB converter to RS485 for installation in Zone 2, bidirectional 1 x USB port to 1 x RS485 port	<b>On demand</b>	0.170
Device Type Manager (DTM) for IS1+ Remote I/O	 12584E00	<ul style="list-style-type: none"> <li>Parameterisation, configuration and diagnostics of the IS1+ system and connected HART devices</li> <li>Communication via PROFIBUS DP, Modbus RTU, Modbus TCP, EtherNet/IP and PROFINET</li> <li>Supports all FDT applications (e.g. FieldCare, PactWare, PRM etc.)</li> <li>Condition monitoring for HART field devices (depending on FDT frame)</li> <li>Further functions: e.g. HART life list, device and network scan, I&amp;M</li> </ul>	<b>9499 / DTM-IS1</b>	

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