

CPU-&Power-Modul für Zone 2 / Div. 2 Series 9440/15



- > Integrated Ex i power supply for up to 16 I/O modules
- > Profibus DP V0 and V1 HART; Modbus RTU
- > System redundancy (Profibus standard) and media redundancy
- > DTM and ServiceBus interface for fault diagnostics and Asset Management System
- > LCD for local display of diagnostic data, input and output values

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05637E00

The CPU & Power Module (CPM) contains the power supply unit for intrinsically safe supply of power to the I/O modules and field circuits.

The CPM has the function of a gateway between the internal bus in an IS1 field station and the fieldbus that connects the field station to the automation system.

System redundancy is supported for Profibus conformable masters and also other masters (so called flying masters). As an alternative media redundancy can be used.

The interface of the CPU & Power Module with the internal data bus and the I/O modules is designed with redundancy.



	ATEX / IECEx						NEC 505						NEC 506						NEC 500					
	0	1	2	20	21	22	0	1	2	20	21	22	0	1	2	20	21	22	1	2	1	2	1	2
Ex interface			x		x	x			x		x	x			x		x	x			x		x	x
Installation in			x		x	x			x		x	x			x		x	x			x		x	x

WebCode 9440B

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Selection Table

Version	Fieldbus	Order number	Weight kg
CPU & Power Module	Profibus DP V1 HART	9440/15-01-11-C1243	0.610
	Profibus DP V1 HART + PNO-redundancy	9440/15-01-11-C1455	0.610
	Modbus RTU	9440/15-01-11-C1198	0.610

Explosion Protection

Global (IECEX)

Gas	IECEX PTB 14.0039 Ex nA [ia, ib Gb] IIC T4 Gc
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Europe (ATEX)

Gas	PTB 99 ATEX 2222 ⊕ II 3 (2) G Ex nA [ia, ib Gb] IIC T4 Gc
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Certifications and certificates

Certificates	IECEX, ATEX, Brazil (INMETRO), Canada (CSA), Kazakhstan (GOST K), Russia (GOST R), Serbia (SRPS), USA (FM), Belarus (operating licence)
Ship approval	ABS, BV, ClassNK, DNV, LR, RS

Further parameters

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

Technical Data

Electrical data

Auxiliary power	
Nominal voltage	24 V DC
Voltage range	20 ... 35 V DC
Current consumption	
without I/O modules	0.3 A at 24 V
with 8 I/O modules	approx. 2.5 A at 24 V
with 16 I/O modules	approx. 4.9 A at 24 V
Power dissipation	
without I/O modules	7.2 W
per I/O module	approx. 1 W
Polarity reversal protection	yes
Undervoltage monitoring	yes
Interfaces for fieldbus, redundant fieldbus and ServiceBus	
Interface	RS 485
Cable length / Transfer rate	
Copper cable	1200 m with 9.6 ... 93.75 kbit/s 1000 m with 187.5 kbit/s 400 m with 500 kbit/s 200 m with 1.5 Mbit/s
Fibre optic cable	approx. 2000 m with 1.5 Mbit/s
ServiceBus	1200 m with 9.6 kbit/s
Note	For greater lengths fibre optic technology is available.
Line termination	corresponding fieldbus standard
Address setting	0 ... 127
Redundancy	Full redundancy and line redundancy
Profibus DP	
Versions	DP V0, DP V1, DP V1 HART
Transfer rate	9.6 kbit/s ... 1.5 Mbit/s
Data transmission	approx. 40 16-bit words / ms (cyclic, net at 1.5 Mbit/s)

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Technical Data

Modbus RTU	
Transfer rate	9.6 ... 38.4 kbit/s
Data transmission	approx. 1000 16-bit-registers / s (at 38.4 kbit/s)
Functions	Read, Write; see Modbus RTU coupling instructions
Characteristic values	
Max. internal signal delay for 8 I/O modules (without I/O module delay)	
for Digital Modules	7 ms
for Analog Modules	10 ms
Operator interface	
Software	IS1 devices DTM or IS Wizard
Operation	LED green "RUN"
Fault	LED red "ERR"
LCD indication	2 x 16 characters
Settings	bus address
Indications	Bus addresses, alarms / faults, information (type, revision, etc.) for the levels: field station, modules and signals, values of the inputs and outputs
Diagnostic and parameterisation	
Functions	<ul style="list-style-type: none"> • Load or read back configuration data and parameters in the IS1 field stations • Read inputs • Read and write outputs • Transfer diagnostic (e.g. config. error, hardware error, signal error) • Transfer HART commands to/from HART field devices.
Connectable software packages	<ul style="list-style-type: none"> • IS Wizard (via R. STAHL ServiceBus) • R. STAHL DTM • AMS by Emerson Process Management • PDM by Siemens • PRM and Fieldmate by Yokogawa • FieldCare by Endress + Hauser • FDM by Honeywell • etc.
Power supply for the I/O modules via the BusRail	
Voltage range	22.5 ... 26.2 V DC
Max. current	4 A
Max. number I/O modules	16
Redundant supply of the I/O modules	yes
Undervoltage monitoring	yes
Galvanic separation	
between power supply and system components	1500 V AC
between Fieldbus/ServiceBus interface and system components	1500 V AC
between two bus interfaces	500 V AC
Ambient conditions	
Ambient temperature	-20 ... +65 °C
Storage temperature	-40 ... +70 °C
Relative humidity (no condensation)	(95 %
Sinusoidal vibration (IEC EN 60068-2-6)	1 g in frequency range between 10 ... 500 Hz 2 g in frequency range 45 ... 100 Hz
Semi-sinusoidal shock (IEC EN 60068-2-27)	15 g (3 shocks per axis and direction)
Electromagnetic compatibility	Tested according to the following standards and regulations: EN 61326-1 (1998) IEC 61000-4-1...6, NAMUR NE 21

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Technical Data





Mechanical data

Connection	
Fieldbus RS 485	Sub-D socket 9-pin
ServiceBus RS 485	Sub-D socket 9-pin
Power supply	Plug-in screw terminals to 4.0 mm ² / 12 AWG
Module enclosure	Polyamide 6GF
Fire resistance (UL 94)	V2
Degree of protection (IEC 60529)	
Modules	IP30
Connections	IP20

Mounting / Installation

Installation conditions	
Mounting type	on 35 mm DIN rail NS 35/15
Mounting orientation	horizontal and vertical

Accessories and Spare Parts

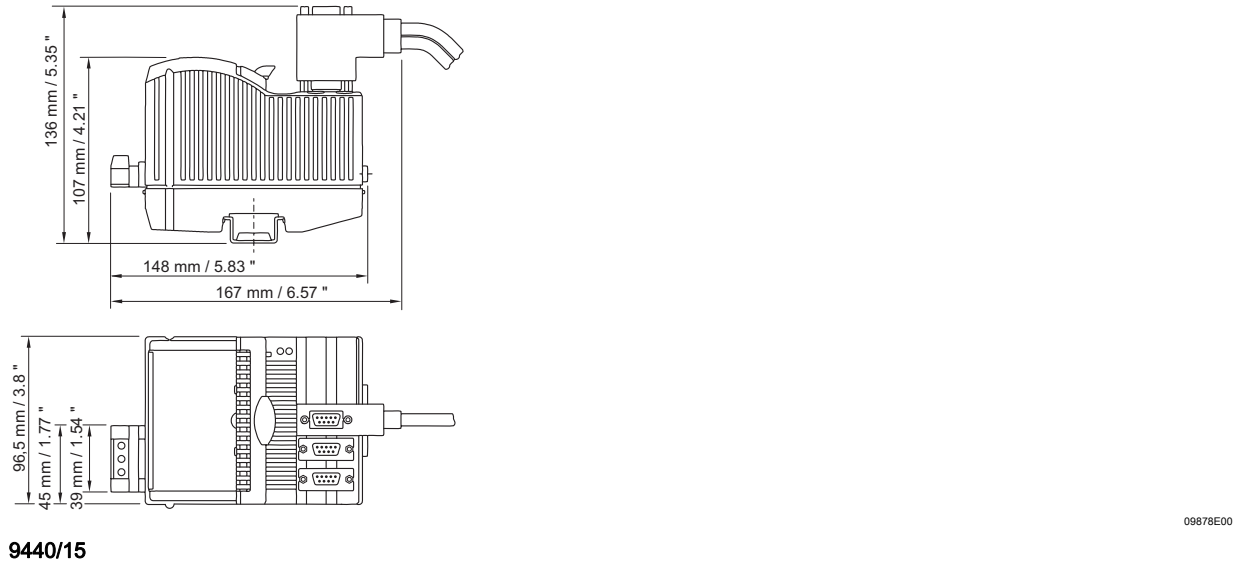
Designation	Figure	Description	Order number
Fieldbus-isolating repeater, up to 1.5 Mbit/s, for application in safe areas (non-Ex) or Zone 2 / Div. 2	 09867E00	<ul style="list-style-type: none"> • Equipment for installation in safe areas or Zone 2 / Div. 2 • For fieldbuses with RS-485 interface • Suitable for Profibus DP, Modbus, R. STAHL ServiceBus • Interface to automation system RS-232, RS-422, RS-485 • Automatic setting of transfer rate for Profibus DP • Adjustable transfer rate (1.2 kbit/s to 1.5 Mbit/s) • Power supply 24 V AC/DC • Further information see data sheet Series 9185/12 	9185/12-45-10s
Sub-D plug	 09813E00	9-pin for connection of the fieldbus or ServiceBus to the CPU & power module Series 9440/15 and fieldbus-isolating repeater 9185. Integrated terminator can be switched on or off. For non-intrinsically safe RS-485.	105715
Device DTM IS1+ for PROFIBUS DP	 12564E00	<ul style="list-style-type: none"> • Parameterization, configuration and diagnostics of the IS1+ system and connected HART devices • Communication via PROFIBUS DP, Modbus RTU, Modbus TCP, EtherNet/IP and PROFINET • Supports all FDT applications (e.g. FieldCare, PactWare, PRM etc.) • Condition monitoring for HART field devices (depending on FDT frame) • Further functions: e.g. HART-Life list, device and network scan, I&M 	on request
IS1 PCS7 APL field device library	 15667E00	<p>Easy connection of IS1+ modules to the SIEMENS control system PCS7 via PROFIBUS DP.</p> <p>The library contains CFC driver modules created in conformance with PCS7 modules, and documentation in English. HOTLINE support inclusive.</p> <p>Order, processing and support are carried out directly via SIEMENS: function.blocks.industry@siemens.com</p> <p>Hardware/software requirements: SIEMENS PCS7 V7.1 to 8.0 SP1 and IS1+ CPM 9440/...C1455 from V03.45 and GSD from V03.05</p>	9AE4110-1AA20 (SIEMENS)

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



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We reserve the right to make alterations to the technical data, dimensions, weights, designs and products available without notice. The illustrations cannot be considered binding.