



Main

Range of product	Preventa Safety automation
Product or component type	Preventa safety PLC compact
Safety module name	XPSMF35
Safety module application	For numerous machine safety functions and for the protection of personnel
Safety use category	Category 4 conforming to EN 954-1/ISO 13849-1 SIL 3 conforming to IEC 61508
Structure type	10BASE-T/100BASE-TX Modbus TCP/IP 10BASE-T/100BASE-TX safe Ethernet

Complementary

Function of module	Closed circuit scanning of input channels for analogue input circuit Measuring 0 to 20 mA currents using shunt for analogue input circuit Monitoring safety actuators for discrete output Monitoring safety detection for discrete input Monitoring safety dialogue for discrete input Monitoring safety dialogue for discrete output Single-pole measuring of 0 to 10 V voltages for analogue input circuit
[Us] rated supply voltage	24 V DC (- 15...20 %)
No load current	0.75 A
Protection type	Internal fuse
Clock	With, supplied by backup capacitor for 1 week following loss of supply
Response time	Depending on size of application
Memory description	User logic 250 kB for application User logic 250 kB for data
Discrete input number	24, not isolated
Voltage state 0 guaranteed	≤ 5 V for discrete input
Voltage state1 guaranteed	24...30 V for discrete input
Current state 0 guaranteed	1...1.5 mA, discrete input
Current state 1 guaranteed	3.5...4.5 mA, discrete input
Discrete input voltage	20 V
Discrete input current	100 mA
Input protection type	Protected against short-circuit to earth Protected against short-circuit
Maximum overvoltage on input	-4...15 V for analogue input circuit 500 V for discrete input IEC 61000-4-5
Discrete output number	8
Discrete output voltage	24 V DC
Output voltage tolerance	+/- 2 %
Discrete output current	≤ 7 mA (all channels) 1 A at 60 °C (channels 4 and 8) 2 A at 50 °C (channels 4 and 8) 0.5 A at 60 °C (channels 1 to 3 and 5 to 7)
Minimum load	2 mA per discrete output
Leakage current	≤ 1 mA, at 2 V at state 0 for discrete output
Overload protection	Shutdown of outputs concerned with cyclic reconnection
Analogue input number	8
Analogue output type	Not isolated
External resistance	250 Ohm for analogue input circuit 500 Ohm for analogue input circuit

Analogue input range	0...10 V 0...20 mA with 500 Ohm shunt
Input voltage limits	0.1...11.5 V analogue input circuit
Input current limits	0.4...23 mA 500 Ohm analogue input circuit
Analogue input resolution	12 bits
Safety accuracy	+/- 2 % for analogue input circuit
Internal input resistance	<= 500 MOhm for signal source for analogue input circuit 1 kOhm for analogue input circuit 3.7 Ohm for counting inputs
Counting input number	2
Counting input type	Non isolated
Counting frequency	100 kHz
Operating threshold	0...0.05 V, 5 V low for counting inputs 13...33 V, 24 V high for counting inputs -3...5 V, 24 V low for counting inputs 4...6 V, 5 V high for counting inputs
Counter inputs resolution	24 bits
DV/Dt	1 V/ μ s counting inputs
Communication port protocol	Modbus RTU with 1 SUB-D 9-pin female port(s), RS485, medium: shielded dual twisted pair cable Modbus TCP/IP with 4 RJ45 port(s), transmission rate: 100 Mbps, 10 Mbps, medium: dual twisted pair cable, category 5D or better Profibus with 1 SUB-D 9-pin female port(s), RS485, medium: shielded dual twisted pair cable Safe Ethernet with 4 RJ45 port(s), transmission rate: 100 Mbps, 10 Mbps, medium: dual twisted pair cable, category 5D or better
Exchange mode	Half duplex, full duplex, autonegotiation, Modbus TCP/IP Half duplex, full duplex, autonegotiation, safe Ethernet
Method of access	Slave Modbus Slave Modbus TCP/IP Slave Profibus
Number of addresses	122 Modbus
Concept	Transparent Ready Modbus TCP/IP
Web server	Class A10 Modbus TCP/IP
Web services	Modbus identification request Modbus TCP/IP Modbus TCP/IP messaging (reading/writing of data words) Modbus TCP/IP Modbus TCP/IP server Modbus TCP/IP Standard 502 Modbus TCP/IP
Operating distance	<= 100 m (between station) discrete input <= 100 m (between station) discrete output <= 300 m (between station) analogue input circuit <= 500 m (between station) shielded dual twisted pair cable counting inputs
Number of terminal blocks	1 for counting inputs 1 for power supply 2 for discrete output 4 for analogue input circuit 5 for discrete input

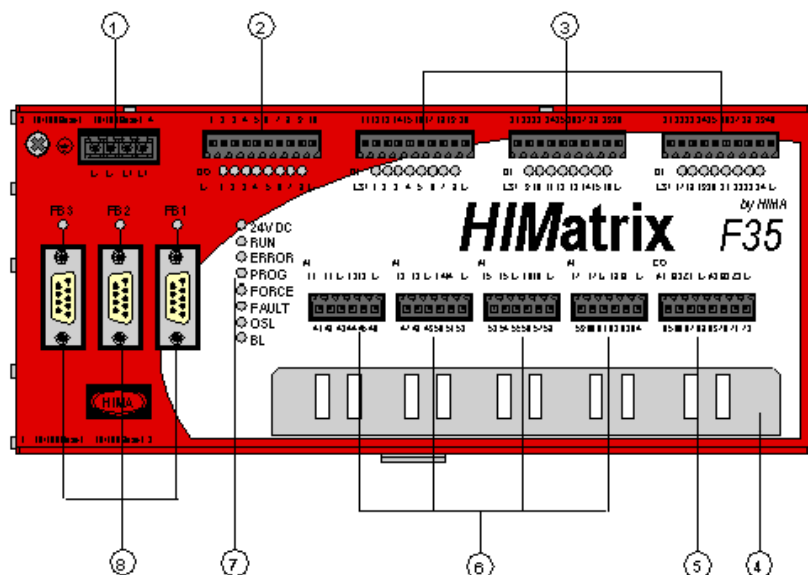
Connections - terminals	Captive screw clamp terminals, clamping capacity: 1 x 0.14...1 x 1.5 mm², AWG 28...16 flexible without cable end for analogue input circuit Captive screw clamp terminals, clamping capacity: 1 x 0.14...1 x 1.5 mm², AWG 28...16 flexible without cable end for counting inputs Captive screw clamp terminals, clamping capacity: 1 x 0.14...1 x 1.5 mm², AWG 28...16 flexible without cable end for discrete input/output circuit Captive screw clamp terminals, clamping capacity: 1 x 0.14...1 x 1.5 mm², AWG 28...16 solid without cable end for analogue input circuit Captive screw clamp terminals, clamping capacity: 1 x 0.14...1 x 1.5 mm², AWG 28...16 solid without cable end for counting inputs Captive screw clamp terminals, clamping capacity: 1 x 0.14...1 x 1.5 mm², AWG 28...16 solid without cable end for discrete input/output circuit Captive screw clamp terminals, clamping capacity: 1 x 0.2...1 x 2.5 mm², AWG 24...12 flexible without cable end for power supply Captive screw clamp terminals, clamping capacity: 1 x 0.2...1 x 2.5 mm², AWG 24...12 solid without cable end for power supply Captive screw clamp terminals, clamping capacity: 1 x 0.25...1 x 0.5 mm², AWG 22...20 flexible with cable end for analogue input circuit Captive screw clamp terminals, clamping capacity: 1 x 0.25...1 x 0.5 mm², AWG 22...20 flexible with cable end for counting inputs Captive screw clamp terminals, clamping capacity: 1 x 0.25...1 x 0.5 mm², AWG 22...20 flexible with cable end for discrete input/output circuit Captive screw clamp terminals, clamping capacity: 1 x 0.25...1 x 1.5 mm², AWG 22...16 flexible without cable end for analogue input circuit Captive screw clamp terminals, clamping capacity: 1 x 0.25...1 x 1.5 mm², AWG 22...16 flexible without cable end for counting inputs Captive screw clamp terminals, clamping capacity: 1 x 0.25...1 x 1.5 mm², AWG 22...16 flexible without cable end for discrete input/output circuit Captive screw clamp terminals, clamping capacity: 1 x 0.25...1 x 2.5 mm², AWG 22...16 flexible with cable end for power supply Captive screw clamp terminals, clamping capacity: 1 x 0.25...1 x 2.5 mm², AWG 22...16 flexible without cable end for power supply Captive screw clamp terminals, clamping capacity: 2 x 0.14...2 x 0.5 mm², AWG 28...20 solid without cable end for analogue input circuit Captive screw clamp terminals, clamping capacity: 2 x 0.14...2 x 0.5 mm², AWG 28...20 solid without cable end for counting inputs Captive screw clamp terminals, clamping capacity: 2 x 0.14...2 x 0.5 mm², AWG 28...20 solid without cable end for discrete input/output circuit Captive screw clamp terminals, clamping capacity: 2 x 0.14...2 x 0.75 mm², AWG 28...18 flexible without cable end for analogue input circuit Captive screw clamp terminals, clamping capacity: 2 x 0.14...2 x 0.75 mm², AWG 28...18 flexible without cable end for counting inputs Captive screw clamp terminals, clamping capacity: 2 x 0.14...2 x 0.75 mm², AWG 28...18 flexible without cable end for discrete input/output circuit Captive screw clamp terminals, clamping capacity: 2 x 0.2...2 x 1.5 mm², AWG 24...12 flexible without cable end for power supply Captive screw clamp terminals, clamping capacity: 2 x 0.2...2 x 1.5 mm², AWG 24...12 solid without cable end for power supply Captive screw clamp terminals, clamping capacity: 2 x 0.25...2 x 0.34 mm², AWG 22 flexible without cable end for analogue input circuit Captive screw clamp terminals, clamping capacity: 2 x 0.25...2 x 0.34 mm², AWG 22 flexible without cable end for counting inputs Captive screw clamp terminals, clamping capacity: 2 x 0.25...2 x 0.34 mm², AWG 22 flexible without cable end for discrete input/output circuit Captive screw clamp terminals, clamping capacity: 2 x 0.25...2 x 1 mm², AWG 22...18 flexible without cable end for power supply Captive screw clamp terminals, clamping capacity: 2 x 0.5 mm², AWG AWG 20 flexible with cable end for analogue input circuit Captive screw clamp terminals, clamping capacity: 2 x 0.5 mm², AWG AWG 20 flexible with cable end for counting inputs Captive screw clamp terminals, clamping capacity: 2 x 0.5 mm², AWG AWG 20 flexible with cable end for discrete input/output circuit Captive screw clamp terminals, clamping capacity: 2 x 0.5...2 x 1.5 mm², AWG 22...16 flexible with cable end for power supply
Tightening torque	0.22...0.25 N.m
Wire stripping length	9 mm
Current consumption	9 A at 24 V DC on power supply
Mounting support	35 mm symmetrical DIN rail
Depth	66.5 mm
Height	113 mm
Width	253 mm
Product weight	1.2 kg

Environment

Standards	DIN V 0801 DIN V 19250 EN 50156 pending IEC 61131
Immunity to microbreaks	10 ms
IP degree of protection	IP20 (enclosure)
Ambient air temperature for operation	0...60 °C conforming to EN 61131-2
Ambient air temperature for storage	-40...85 °C conforming to EN 61131-2
Relative humidity	95 % (supply not connected)
Operating altitude	< 2000 m
Pollution degree	2
Class of protection against electric shock	Class II conforming to EN/IEC 61131-2
Electromagnetic compatibility	EN/IEC 61131-2
Vibration resistance	1 gn, 10...150 Hz conforming to EN 61131-2
Shock resistance	15 gn for 11 ms conforming to EN 61131-2
Resistance to electrostatic discharge	4 kV contact conforming to EN/IEC 61000-4-2 8 kV on air conforming to EN/IEC 61000-4-2
Resistance to electromagnetic fields	10 V/m (26 MHz...1 GHz), conforming to EN/IEC 61000-4-3

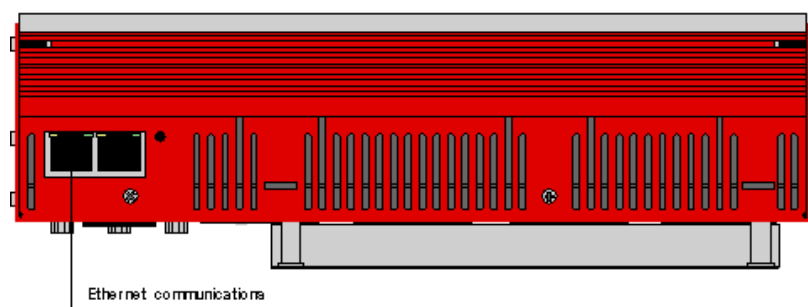
Housing Elements

Front View

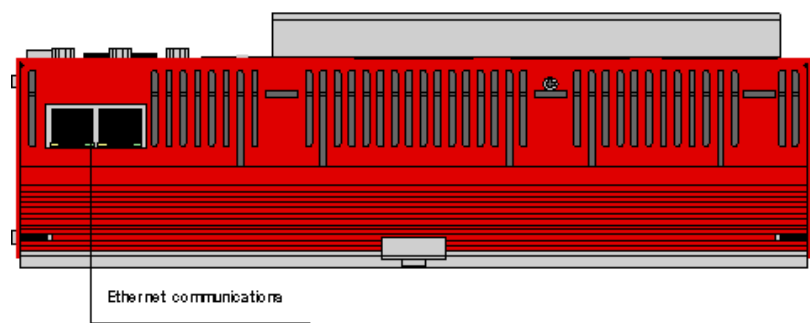


No.	Description
1	Power Supply Input
2	Digital Outputs
3	Digital Inputs
4	Earth Rail
5	Counter Inputs
6	Analog Inputs
7	Indicators
8	Field Bus Connections

Top View

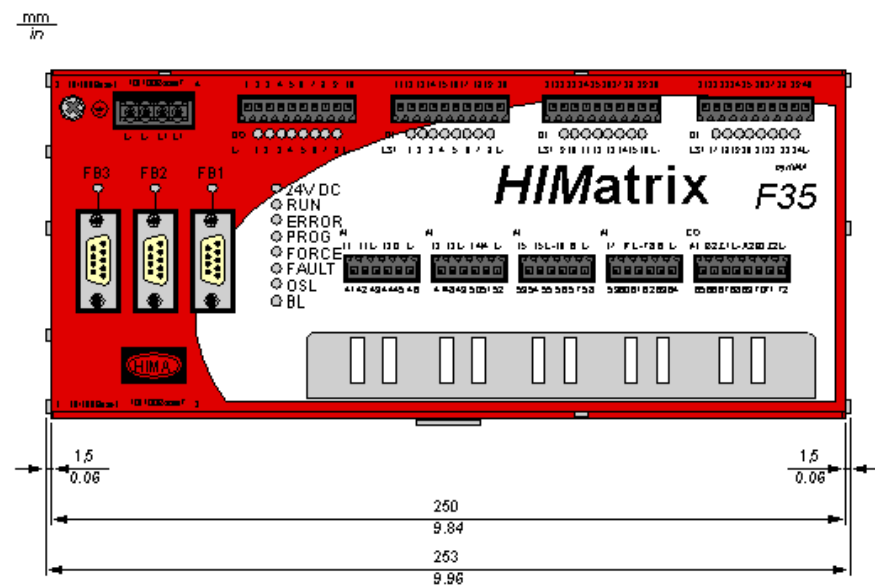


Bottom View

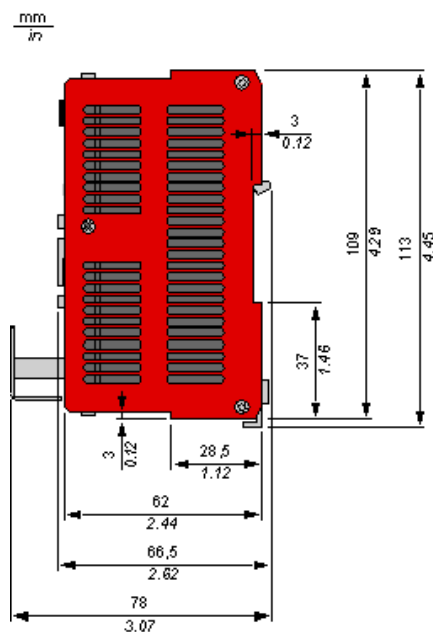


Dimensions

Front View

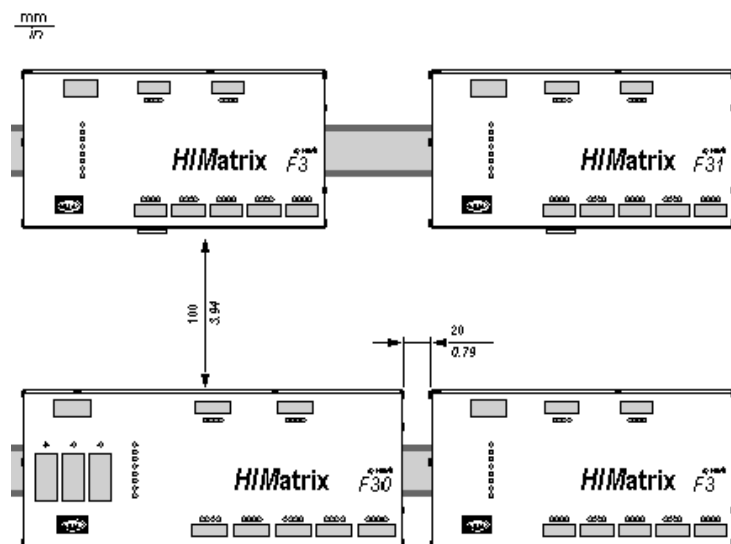


Side View

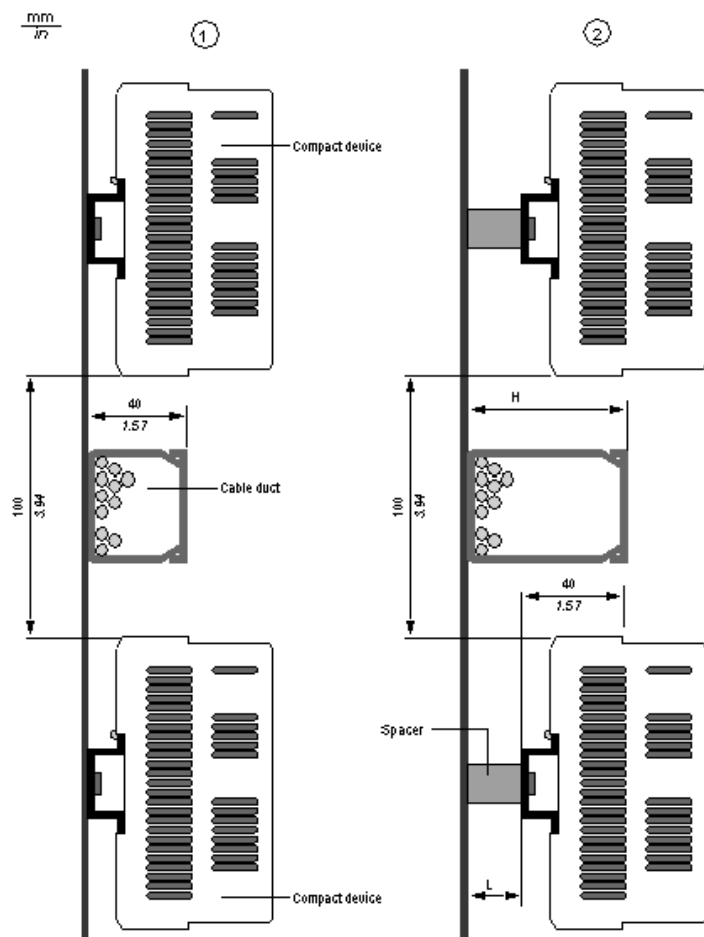


Mounting

Minimum Clearances



Air Circulation



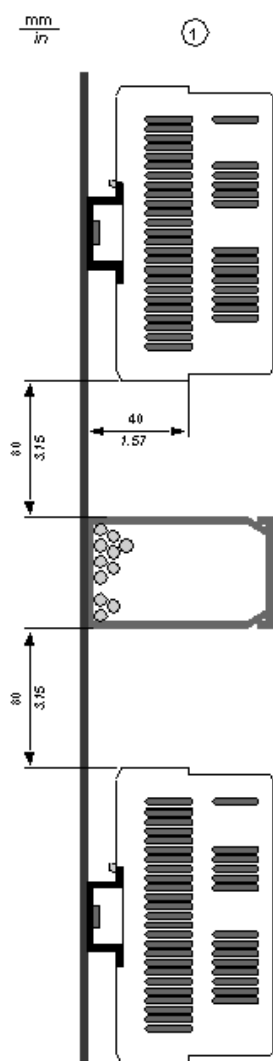
No.	Description
1	The height of the cable ducts is less than 40 mm / 1.57 in.
2	The height of the cable ducts is greater than 40 mm / 1.57 in.

$L = H - 40 \text{ mm} / 1.57 \text{ in.}$

L = length of the spacer

H = height of the cable duct

Minimum clearance when $H > 40 \text{ mm}/1.57 \text{ in.}$ and no spacer

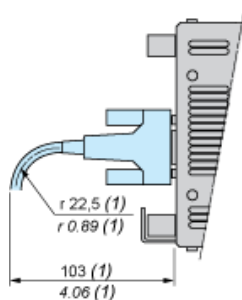


Mounting Precautions Relating to Connectors

Access to Modbus Serial Link (RTU)

SUB-D 9-pin connector

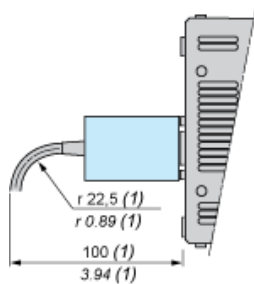
$\frac{\text{mm}}{\text{in.}}$



(1) minimum value

Adaptor XPS MFADAPT

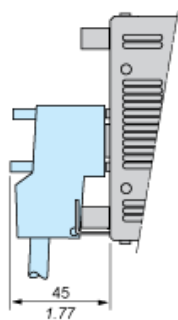
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(1) minimum value

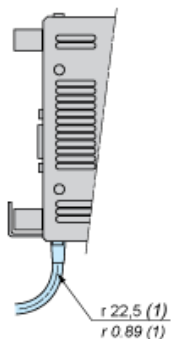
Access to PROFIBUS DP

$\frac{\text{mm}}{\text{in.}}$



Access to Ethernet Network

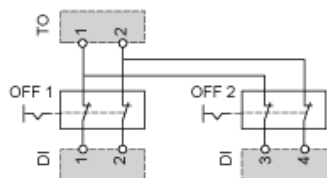
$\frac{\text{mm}}{\text{in.}}$



(1) minimum value

Wiring Diagrams

Emergency Stop Connections (Line Control)



Actuator Connections to the Outputs

