

Product data sheet

Specifications



Preventa safety PLC compact - Safe Ethernet, Modbus RTU

XPSMF4020

⚠ Discontinued on: Dec 31, 2019

⚠ To be end-of-service on: Dec 31, 2027

⚠ Discontinued - Service only

Main

| | |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Range Of Product | Preventa Safety automation |
| Product Or Component Type | Preventa safety PLC compact |
| Safety Module Name | XPSMF40 |
| Safety Module Application | F use with numerous machine safety functions and for the protection of personnel |
| Safety Use Category | Category 4 maximum conforming to EN 954-1 Performance level e conforming to EN/ISO 13849-1 SIL 3 conforming to EN/IEC 61508 |
| Structure Type | 10BASE-T/100BASE-TX, safe Ethernet |

Complementary

| | |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Function Of Module | Monitoring safety actuators for discrete output Monitoring safety detection for discrete input Monitoring safety dialogue for discrete input Monitoring safety dialogue for discrete output Monitoring short-circuit and line break for line control outputs |
| [Us] Rated Supply Voltage | 24 V DC - 15...20 % |
| Supply | SELV or PELV conforming to EN/IEC 60950 |
| No Load Current | 0.5 A |
| Protection Type | 10 A 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 application User logic 250 kB data |
| Group Of Channels | 2 groups of 4 line control outputs |
| Discrete I/O Number | 24 configurable |
| Maximum Discrete Input Number | 24 not isolated discrete input(s) |
| Voltage State 0 Guaranteed | <= 24 V for discrete input |
| Voltage State 1 Guaranteed | 24...30 V for discrete input |
| Current State 0 Guaranteed | <= 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 |
| Maximum Input Resistance | 7 kOhm |
| Input Overvoltage Protection | -10...35 V for discrete input |

Disclaimer: This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications

| | |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Maximum Discrete Output Number | 24 for not isolated |
| Discrete Output Voltage | 24 V DC |
| Output Voltage Tolerance | +/- 2 % |
| Discrete Output Current | 1 A at 60 °C (channels 4, 8, 12, 16, 20 and 24) 2 A at 50 °C (channels 4, 8, 12, 16, 20 and 24) 0.5 A at 60 °C (channels 1 to 3, 5 to 7, 9 to 11,13 to 15, 17 to 19, 21 to 23) <= 7 A (all channels) |
| Minimum Load | 2 mA per discrete output |
| Maximum Leakage Current | 1 mA 2 V at state 0 discrete output |
| Overload Protection | Shutdown of outputs concerned with cyclic reconnection |
| Output Voltage | 20 V line control outputs |
| Nominal Output Current | 60 mA for line control outputs |
| Communication Port Protocol | Safe Ethernet with 2 RJ45 port(s), transmission rate: 100 Mbps, 10 Mbps, medium: dual twisted pair cable, category 5D or better Modbus RTU with 1 RJ45 port(s), RS485, medium: shielded dual twisted pair cable |
| Exchange Mode | Half duplex, full duplex, autonegotiation safe Ethernet |
| Method Of Access | Slave V0 Modbus serial |
| Number Of Addresses | 122 for Modbus RTU |
| Operating Distance | <= 300 m between station for discrete input <= 300 m between station for discrete output |
| Number Of Terminal Blocks | 1 for power supply 2 for line control outputs 6 for discrete input/output circuit 8 for line control outputs |

| | |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Connections - Terminals | <p>Discrete input/output circuit: captive spring terminals, 1 x 0.5 mm² (AWG 20) flexible with cable end</p> <p>Line control outputs: captive spring terminals, 1 x 0.5 mm² (AWG 20) flexible with cable end</p> <p>Discrete input/output circuit: captive screw clamp terminals, 1 x 0.14...1 x 1.5 mm² (AWG 25...AWG 15) solid without cable end</p> <p>Line control outputs: captive screw clamp terminals, 1 x 0.14...1 x 1.5 mm² (AWG 25...AWG 15) solid without cable end</p> <p>Discrete input/output circuit: captive screw clamp terminals, 1 x 0.14...1 x 1.5 mm² (AWG 28...AWG 16) flexible without cable end</p> <p>Line control outputs: captive screw clamp terminals, 1 x 0.14...1 x 1.5 mm² (AWG 28...AWG 16) flexible without cable end</p> <p>Power supply: captive screw clamp terminals, 1 x 0.2...1 x 2.5 mm² (AWG 24...AWG 12) flexible without cable end</p> <p>Power supply: captive screw clamp terminals, 1 x 0.2...1 x 2.5 mm² (AWG 24...AWG 12) solid without cable end</p> <p>Discrete input/output circuit: captive screw clamp terminals, 1 x 0.25...1 x 0.5 mm² (AWG 23...AWG 20) flexible with cable end</p> <p>Line control outputs: captive screw clamp terminals, 1 x 0.25...1 x 0.5 mm² (AWG 23...AWG 20) flexible with cable end</p> <p>Discrete input/output circuit: captive screw clamp terminals, 1 x 0.25...1 x 1.5 mm² (AWG 23...AWG 15) flexible without cable end</p> <p>Line control outputs: captive screw clamp terminals, 1 x 0.25...1 x 1.5 mm² (AWG 23...AWG 15) flexible without cable end</p> <p>Power supply: captive screw clamp terminals, 1 x 0.25...1 x 2.5 mm² (AWG 23...AWG 14) flexible with cable end</p> <p>Power supply: captive screw clamp terminals, 1 x 0.25...1 x 2.5 mm² (AWG 23...AWG 14) flexible without cable end</p> <p>Discrete input/output circuit: captive spring terminals, 1 x 0.14...1 x 1.5 mm² (AWG 26...AWG 16) solid without cable end</p> <p>Line control outputs: captive spring terminals, 1 x 0.14...1 x 1.5 mm² (AWG 26...AWG 16) solid without cable end</p> <p>Discrete input/output circuit: captive spring terminals, 1 x 0.14...1 x 1.5 mm² (AWG 26...AWG 17) flexible without cable end</p> <p>Line control outputs: captive spring terminals, 1 x 0.14...1 x 1.5 mm² (AWG 26...AWG 17) flexible without cable end</p> <p>Power supply: captive spring terminals, 1 x 0.2...1 x 2.5 mm² (AWG 24...AWG 12) flexible without cable end</p> <p>Power supply: captive spring terminals, 1 x 0.2...1 x 2.5 mm² (AWG 24...AWG 12) solid without cable end</p> <p>Discrete input/output circuit: captive spring terminals, 1 x 0.25...1 x 0.34 mm² (AWG 22) flexible without cable end</p> <p>Line control outputs: captive spring terminals, 1 x 0.25...1 x 0.34 mm² (AWG 22) flexible without cable end</p> <p>Power supply: captive spring terminals, 1 x 0.25...1 x 2.5 mm² (AWG 23...AWG 12) flexible with cable end</p> <p>Power supply: captive spring terminals, 1 x 0.25...1 x 2.5 mm² (AWG 23...AWG 12) flexible without cable end</p> |
| Tightening Torque | <p>Discrete input/output circuit: 0.22...0.25 N.m - on captive screw clamp terminals</p> <p>Line control outputs: 0.22...0.25 N.m - on captive screw clamp terminals</p> <p>Power supply: 0.5 N.m - on captive screw clamp terminals</p> |
| Wire Stripping Length | <p>10 mm for power supply captive screw clamp terminals</p> <p>9 mm for discrete input/output circuit captive screw clamp terminals</p> <p>9 mm for discrete input/output circuit captive spring terminals</p> <p>9 mm for line control outputs captive screw clamp terminals</p> <p>9 mm for line control outputs captive spring terminals</p> <p>9 mm for power supply captive spring terminals</p> |
| Current Consumption | 8 A at 24 V DC on power supply |
| Mounting Support | 35 mm symmetrical DIN rail |
| Depth | 153 mm |
| Height | 151.5 mm |
| Width | 74 mm |
| Net Weight | 1 kg |

Environment

| | |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Standards | EN 12067-2 : 2004 EN/IEC 61131-2 : 2003 EN 50156-1 : 2004 NFPA 72 : 2002 EN 54-2 : 1997 EN 61000-6-2 : 2001 NFPA 85 : 2001 IEC 61511 part 1-3 : 2004 EN 61000-6-4 : 2001 EN 298 : 2003 EN 230 : 1990 DIN VDE 0116 : 1989 |
| 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 |
| Electrical Shock Protection Class | Class II conforming to IEC 61131-2 |
| Electromagnetic Compatibility | EN/IEC 61131-2 |
| Vibration Resistance | 1 gn conforming to EN 61131-2 (f = 9...150 Hz) |
| 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 (80...2000 MHz), amplitude modulation 80 % conforming to EN/IEC 61000-4-3 |

Packing Units

| | |
|------------------------------|-----------|
| Unit Type Of Package 1 | PCE |
| Number Of Units In Package 1 | 1 |
| Package 1 Height | 9.500 cm |
| Package 1 Width | 18.000 cm |
| Package 1 Length | 26.000 cm |
| Package 1 Weight | 1.382 kg |
| Unit Type Of Package 2 | S03 |
| Number Of Units In Package 2 | 6 |
| Package 2 Height | 30.000 cm |
| Package 2 Width | 30.000 cm |
| Package 2 Length | 40.000 cm |
| Package 2 Weight | 8.929 kg |

Contractual warranty

| | |
|----------|-----------|
| Warranty | 18 months |
|----------|-----------|

Sustainability



Green Premium™ label is Schneider Electric’s commitment to delivering products with best-in-class environmental performance. Green Premium promises compliance with the latest regulations, transparency on environmental impacts, as well as circular and low-CO₂ products.

Guide to assessing product sustainability is a white paper that clarifies global eco-label standards and how to interpret environmental declarations.

[Learn more about Green Premium >](#)

[Guide to assess a product’s sustainability >](#)

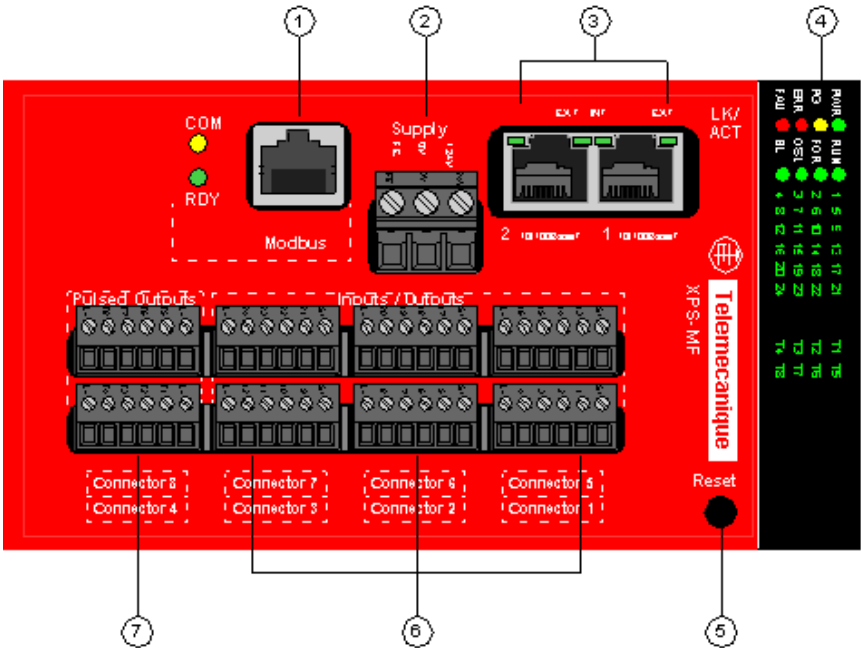
Well-being performance

| | |
|--------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  Mercury Free | |
|  Rohs Exemption Information | Yes |
| Eu Rohs Directive | Pro-active compliance (Product out of EU RoHS legal scope) EU RoHS Declaration |
| China Rohs Regulation | China RoHS declaration |
| Weee | The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins |
| California Proposition 65 | WARNING: This product can expose you to chemicals including: Lead and lead compounds which is known to the State of California to cause Carcinogen & Reproductive harm. For more information go to www.p65warnings.ca.gov |

Presentation

Housing Elements

Front View

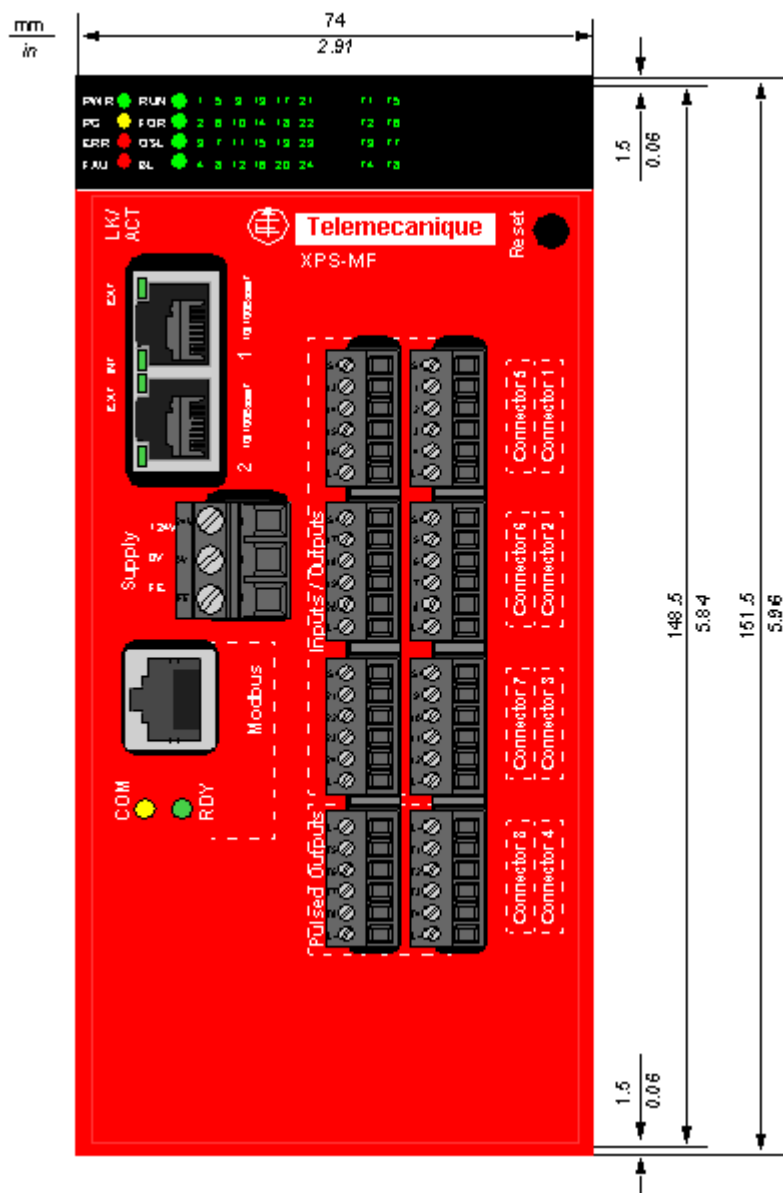


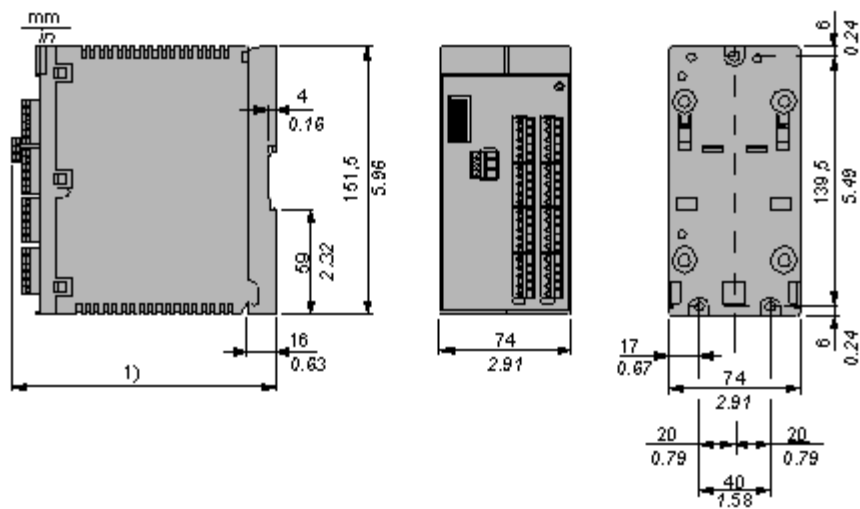
| No. | Description |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Modbus SL RJ-45 connector |
| 2 | 24 V DC power supply input <ul style="list-style-type: none">24 V is the + pole (24 VDC)0 V is the – pole (GND)PE is the functional earth |
| 3 | Ethernet 10/100BaseT RJ-45 connectors |
| 4 | status LEDs |
| 5 | reset button |
| 6 | digital inputs / outputs |
| 7 | pulsed outputs (only use with line control) |

Dimensions Drawings

Dimensions

Front View



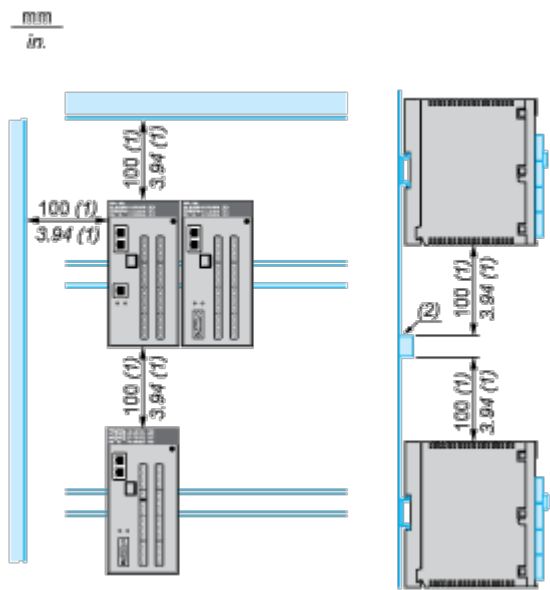


- (1) 153 mm (6.02 in) with XPSMCTS•
151.4 mm (5.96 in) with XPSMCTC•

Mounting and Clearance

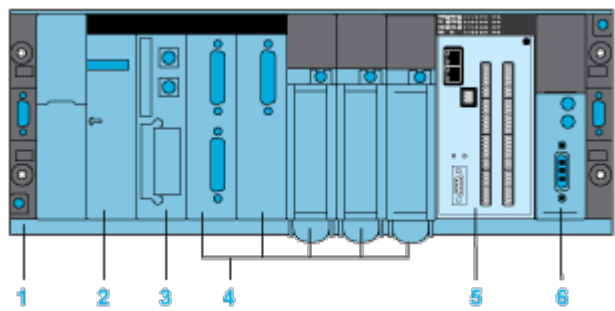
Mounting

Mounting in Panel or Enclosure



- (1) Minimum recommended value.
- (2) Prefabricated electrical ducting for passage of cables.

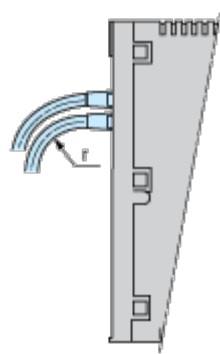
Mounting on Premium Rack



- | | |
|---|-----------------------------------------|
| 1 | Premium rack |
| 2 | Premium supply |
| 3 | Premium CPU |
| 4 | Premium I/O module |
| 5 | Safety PLC XPSMF40** (occupies 2 slots) |
| 6 | Premium As-interface master |

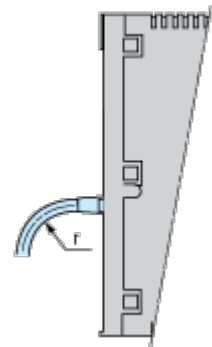
Mounting Precautions Relating to Connectors

Access to Ethernet network



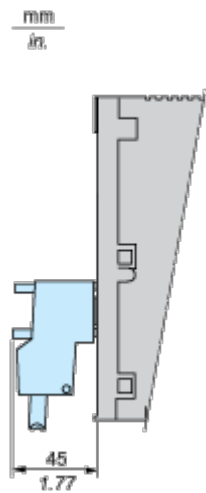
r 22.5 mm/0.89 in. min.

Access to Modbus serial link (RTU)



r 22.5 mm/0.89 in. min.

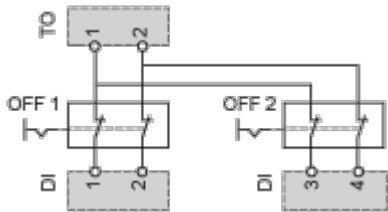
Access to Profibus DP bus



Connections and Schema

Wiring Diagrams

Emergency Stop Connections (Line Control)



Actuator Connections to the Outputs

