



TeSys™ island

Components for connected
load management system
Catalog 2020



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Life Is On



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TeSys™ island

Island Concept

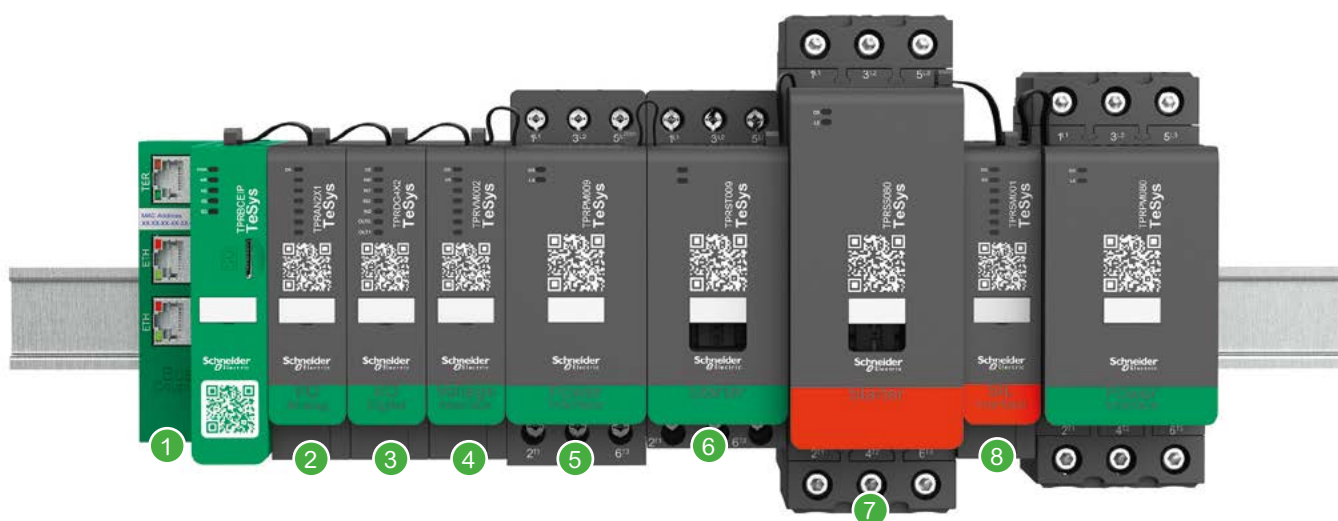
TeSys island is an innovative digital load management solution—providing data for higher machine efficiency and ease of servicing, and allowing faster time to market.

TeSys island is a modular, multifunctional system providing integrated functions inside an automation architecture, primarily for the direct control and management of low-voltage loads. After commissioning, TeSys island can switch, help protect, and manage motors and other electrical loads up to 37 kW installed in an electrical control panel.

This system is designed around the concept of TeSys avatars. These avatars:

- are the functional object representing a logical function of the physical module with pre-defined logic
- determine the configuration of the island.

The logical aspects of the island are managed with software tools, covering all phases of product and application lifecycle: design, engineering, commissioning, operation, and maintenance.



- | | |
|----------------------------|--------------------------|
| ① Bus Coupler | ⑤ Power interface module |
| ② Analog I/O module | ⑥ Standard Starter |
| ③ Digital I/O module | ⑦ SIL Starter |
| ④ Voltage interface module | ⑧ SIL interface module |

The physical island consists of a set of devices installed on a single DIN rail controlling loads, monitoring data, diagnostics information and connected together with a ribbon cable providing the internal communication between modules.

The external communication with the automation environment is made via a single coupler module, and the island is seen as a single node on the network. The other modules include starters, power interface modules, analog and digital I/O modules, voltage interface modules, and SIL interface modules, covering a wide range of operational functions.

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Protection Components / Starters – SCCR Ratings – UL

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TeSys avatar

Library

Avatar descriptions and applications

| Avatars | | | Functions | |
|---------|---|---|--|----------------------------------|
| ID | Name | Description | Electrical & load protection & control | SIL Stop function ⁽¹⁾ |
| A001 | Pump | To manage a pump | ● | |
| A002 | Conveyor One Direction | To manage a conveyor in one direction | ● | |
| A003 | Conveyor One Direction - SIL Stop, W. Cat 1/2 ⁽¹⁾ | To manage a conveyor in one direction, with SIL Stop function compliance for wiring category 1 and category 2 | ● | ● |
| A004 | Conveyor Two Directions | To manage a conveyor in two directions | ● | |
| A005 | Conveyor Two Directions - SIL Stop, W. Cat 1/2 ⁽¹⁾ | To manage a conveyor in two directions, with SIL Stop function compliance for wiring category 1 and category 2 | ● | ● |
| D001 | Switch | To make or break a power line in an electrical circuit | | |
| D002 | Switch - SIL Stop, W. Cat 1/2 ⁽¹⁾ | To make or break a power line in an electrical circuit with SIL Stop function compliance for wiring category 1 and category 2 | | ● |
| D004 | Digital I/O | To provide control of 2 digital outputs and status of 4 digital inputs | | |
| D005 | Analog I/O | To provide control of 1 analog output and status of 2 analog inputs | | |
| D006 | Switch - SIL Stop, W. Cat 3/4 ⁽¹⁾ | To make or break a power line in an electrical circuit with SIL Stop function compliance for wiring category 3 and category 4 | | ● |
| L001 | Power Interface w/o I/O (measure) | To monitor current supplied to an external device, such as a solid-state relay, soft starter, or variable speed drive | | |
| L002 | Power Interface with I/O (control) | To monitor current supplied to and to control an external device, such as a solid-state relay, soft starter, or variable speed drive | ● | |
| L003 | Motor One Direction | To manage ⁽²⁾ a motor in one direction | ● | |
| L004 | Motor One Direction - SIL Stop, W. Cat 1/2 ⁽¹⁾ | To manage a motor in one direction, with SIL Stop function compliance for wiring category 1 and category 2 | ● | ● |
| L006 | Motor Two Directions | To manage a motor in two directions (forward and reverse) | ● | |
| L007 | Motor Two Directions - SIL Stop, W. Cat 1/2 ⁽¹⁾ | To manage a motor in two directions (forward and reverse), with SIL Stop function compliance for wiring category 1 and category 2 | ● | ● |
| L009 | Motor Y/D One Direction | To manage a wye/delta (star/delta) motor in one direction | ● | |
| L010 | Motor Y/D Two Directions | To manage a wye/delta (star/delta) motor in two directions (forward and reverse) | ● | |
| L011 | Motor Two Speeds | To manage a two-speed motor | ● | |
| L012 | Motor Two Speeds - SIL Stop, W. Cat 1/2 ⁽¹⁾ | To manage a two-speed motor, with SIL Stop function compliance for wiring category 1 and category 2 | ● | ● |
| L014 | Motor Two Speeds Two Directions | To manage a two-speed motor in two directions (forward and reverse) | ● | |
| L015 | Motor Two Speeds Two Directions - SIL Stop, W. Cat 1/2 ⁽¹⁾ | To manage a two-speed motor in two directions (forward and reverse), with SIL Stop function compliance for wiring category 1 and category 2 | ● | ● |
| L017 | Resistor | To manage a resistive load | ● | |
| L018 | Power Supply | To manage a power supply | ● | |
| L019 | Transformer | To manage a transformer | ● | |
| L020 | Motor One Direction - SIL Stop, W. Cat 3/4 ⁽¹⁾ | To manage a motor in one direction, with SIL Stop function compliance for wiring category 3 and category 4 | ● | ● |
| L021 | Motor Two Directions SIL Stop, W. Cat 3/4 ⁽¹⁾ | To manage a motor in two directions, with SIL Stop function compliance for wiring category 3 and category 4 | ● | ● |
| L022 | Motor Two Speed - SIL Stop, W. Cat 3/4 ⁽¹⁾ | To manage a two-speed motor, with SIL Stop function compliance for wiring category 3 and category 4 | ● | ● |
| L023 | Motor Two Speeds Two Directions - SIL Stop, W. Cat 3/4 ⁽¹⁾ | To manage a two-speed motor in two directions, with SIL Stop function compliance for wiring category 3 and category 4 | ● | ● |
| S001 | System avatar | A required avatar that enables a single point of communication to the island | | |

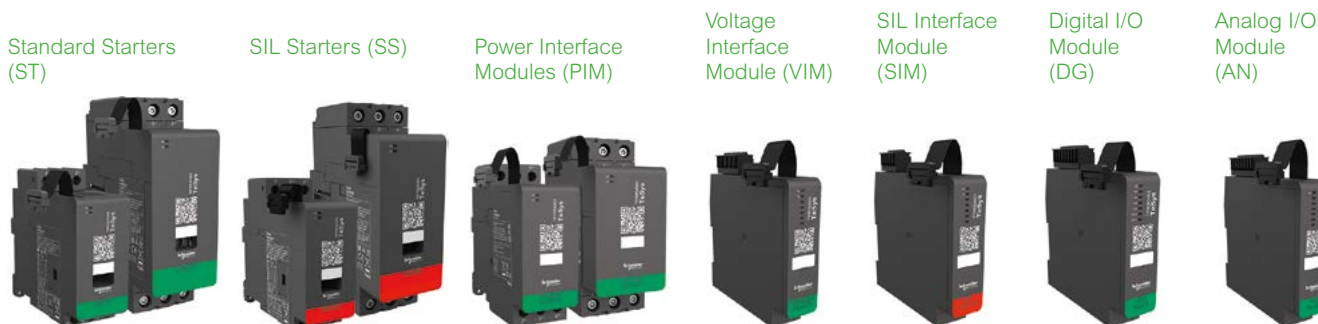
(1) Wiring Category 1, Category 2, Category 3 and Category 4 according to ISO 13849.

(2) "Manage" in this context encompasses energizing, controlling, monitoring, diagnosing, and protecting the load.

TeSys avatar

Composition in modules

TeSys island modules



Note: a TeSys island Bus Coupler (BC) must be added to all TeSys island module assemblies.

Avatars composition (TeSys island modules)

| Avatar ID / description | Module 1 | Module 2 | Module 3 | Module 4 | Optional modules | Assembling kit |
|---|-------------------|----------|-------------------|----------|------------------|----------------|
| A001 Pump | ST | DG | | | DG, AN | |
| A002 Conveyor One Direction | ST | DG | | | DG, AN | |
| A003 Conveyor One Direction - SIL Stop, W. Cat. 1/2 ⁽¹⁾ | SS | DG | | | DG, AN | K |
| A004 Conveyor Two Directions | ST | ST | DG | DG | DG, AN | |
| A005 Conveyor Two Directions - SIL Stop, W. Cat. 1/2 ⁽¹⁾ | SS | SS | DG | | DG, AN | K |
| D001 Switch | ST | | | | | |
| D002 Switch - SIL Stop, W. Cat 1/2 ⁽¹⁾ | SS ⁽²⁾ | | | | | |
| D004 Digital I/O | DG | | | | | |
| D005 Analog I/O | AN | | | | | |
| D006 Switch - SIL Stop, W. Cat 3/4 ⁽¹⁾ | SS ⁽²⁾ | | | | | |
| L001 Power Interface w/o I/O (measure) | PIM | | | | AN | |
| L002 Power Interface with I/O (control) | DG | PIM | | | AN | |
| L003 Motor One direction | ST | | | | AN | |
| L004 Motor One Direction - SIL Stop, W. Cat 1/2 ⁽¹⁾ | SS ⁽²⁾ | | | | AN | |
| L006 Motor Two Directions | ST | ST | | | AN | K |
| L007 Motor Two Directions - SIL Stop, W. Cat 1/2 ⁽¹⁾ | SS ⁽²⁾ | SS | | | AN | K |
| L009 Motor Y/D One Direction | ST | ST | ST | | AN | K |
| L010 Motor Y/D Two Directions | ST | ST | ST | ST | AN | K |
| L011 Motor Two Speeds | ST | ST | | | AN | K |
| L012 Motor Two Speeds - SIL Stop, W. Cat 1/2 ⁽¹⁾ | SS ⁽²⁾ | SS | | | AN | K |
| L014 Motor Two Speeds Two Directions | ST | ST | ST | ST | AN | K |
| L015 Motor Two Speeds Two Directions - SIL Stop, W. Cat 1/2 ⁽¹⁾ | ST ⁽²⁾ | ST | SS ⁽²⁾ | SS | AN | K |
| L017 Resistor | ST | | | | | |
| L018 Power Supply | ST | | | | | |
| L019 Transformer | ST | | | | | |
| L020 Motor One Direction - SIL Stop, W. Cat 3/4 ⁽¹⁾ | SS ⁽²⁾ | | | | | |
| L021 Motor Two Directions - SIL Stop, W. Cat 3/4 ⁽¹⁾ | SS ⁽²⁾ | SS | | | | |
| L022 Motor Two Speed - SIL Stop, W. Cat 3/4 ⁽¹⁾ | SS ⁽²⁾ | SS | | | AN | K |
| L023 Motor Two Speed Two Directions - SIL Stop, W. Cat 3/4 ⁽¹⁾ | SS ⁽²⁾ | ST | SS ⁽²⁾ | SS | AN | K |
| S001 System avatar | BC | | | | | |

(1) Wiring Category 1, Category 2, Category 3 and Category 4 according to ISO 13849.

(2) One SIM is needed with every SIL group in an island, even if the group is composed of several SS modules.

TeSys island

Product references

| Designation | | Product commercial reference | Page |
|--|---|------------------------------|------------|
| TeSys island components | | | |
| Standard Starter | 9 A (AC-3) | TPRST009 | 16, 17, 18 |
| | 25 A (AC-3) | TPRST025 | 16, 17, 18 |
| | 38 A (AC-3) | TPRST038 | 16, 17, 18 |
| | 65 A (AC-3) | TPRST065 | 16, 17, 18 |
| | 66 A (AC-3) - 80 A (AC-1) | TPRST080 | 16, 17, 18 |
| SIL Starter | 9 A (AC-3) | TPRSS009 | 20, 21, 22 |
| | 25 A (AC-3) | TPRSS025 | 20, 21, 22 |
| | 38 A (AC-3) | TPRSS038 | 20, 21, 22 |
| | 65 A (AC-3) | TPRSS065 | 20, 21, 22 |
| | 66 A (AC-3) - 80 A (AC-1) | TPRSS080 | 20, 21, 22 |
| Power interface module | 9 A (AC-3) | TPRPM009 | 13, 14 |
| | 38 A (AC-3) | TPRPM038 | 13, 14 |
| | 80 A (AC-3) | TPRPM080 | 13, 14 |
| Voltage interface module | | TPRVM001 | 35, 36 |
| SIL interface module | | TPRSM001 | 24, 25 |
| Digital I/O module | (4 input - 2 output) | TPRDG4X2 | 28, 29 |
| Analog I/O module | (2 input - 1 output) | TPRAN2X1 | 31, 32, 33 |
| Bus Coupler | EtherNet/IP - Modbus TCP | TPRBCEIP | 8, 9 |
| | PROFINET | TPRBCPFN | 8, 10 |
| | PROFIBUS | TPRBCPF B | 8, 11 |
| Assembly and Wiring Kits | | | |
| Kit for reversing starter application | for 9, 25, 38 A (size 1 and 2) starters | LAD9R1 | 39 |
| | for 65, 80 A (size 3) starters | LAD9R3 | 39 |
| Jumper bar 3-pole for Star Delta application | for 9, 25, 38 A (size 1 and 2) starters | LAD9P3 | 39 |
| | for 65, 80 A (size 3) starters, a hazard sticker is provided | LAD9SD3S | 39 |

Module

Descriptions and Specifications

TeSys island Bus Couplers

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TeSys island Power Interface Modules

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TeSys island Standard Starters

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TeSys island SIL Starters

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TeSys island SIL Interface Module

| | |
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TeSys island Digital I/O module

| | |
|----------------------|-------|
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TeSys island Analog I/O module

| | |
|----------------------|-------|
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TeSys island Voltage Interface Module

| | |
|----------------------|-------|
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TeSys island assembly kits

| | |
|--------------------|-------|
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TeSys island Bus Couplers Introduction

Bus Couplers (BC), for communication between the modules and the PLC



TPRBCEIP

TPRBCPFN



TPRBCPFB

A Bus Coupler is always present in the island as the fieldbus communication interface. It controls all other modules of the island.

Main functions

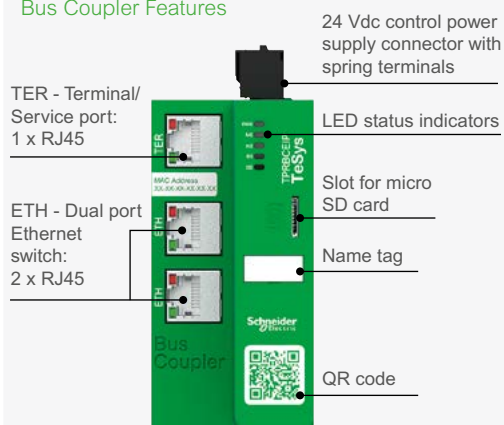
- Communicating with the PLC
- Managing the avatars and their associated modules
- Collecting operational status and diagnostic data from the island's modules
- Communicating with configuration, operation and maintenance digital tools
- Supplying the modules with control power.

The bus coupler is connected

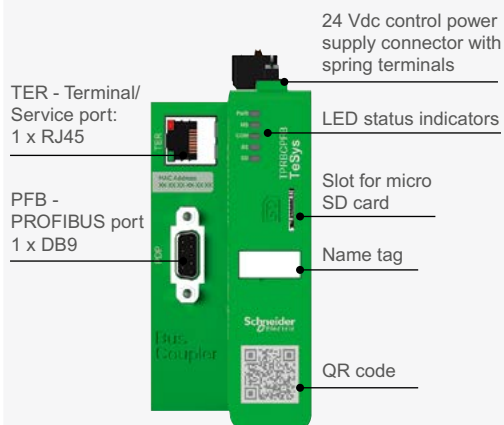
- Upstream to the fieldbus
- Downstream to the island devices with the ribbon cable
- Upstream to the control power supply
- Optionally, through its service port, to a programming tool working with EcoStruxure™ Machine Expert, a single software environment.

For TPRBCEIP and TPRBCPFN, the bus coupler service port and dual port Ethernet switch are located on the same network with the same IP address. All bus couplers are equipped with a micro SD card slot, to allow several upload and backup functions on a micro SD card.

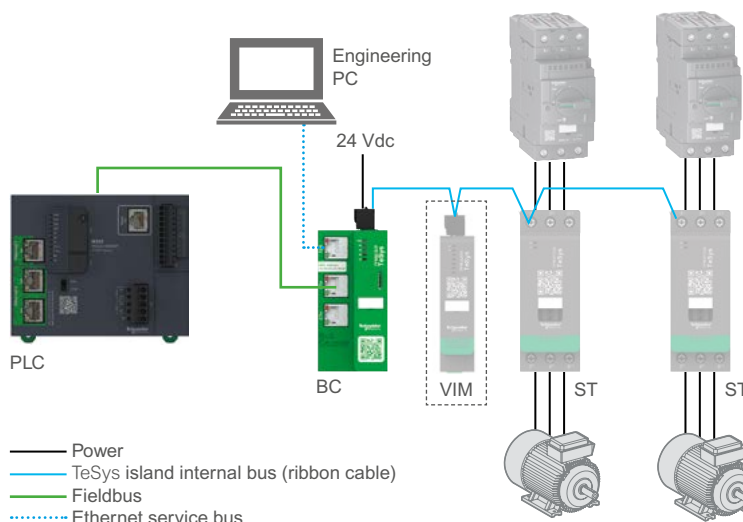
Bus Coupler Features



TPRBCEIP



TPRBCPFB



Product commercial information

| Designation | Fieldbus protocol | Service bus protocol | Product Reference | Weight (kg) |
|--------------------------|--------------------------|----------------------|-------------------|-------------|
| TeSys island Bus Coupler | EtherNet/IP - Modbus TCP | Ethernet TCP/IP | TPRBCEIP | 0.204 |
| | PROFINET | Ethernet TCP/IP | TPRBCPFN | 0.204 |
| | PROFIBUS | Ethernet TCP/IP | TPRBCPFB | 0.204 |

TeSys island Bus Couplers

Specifications

Bus Coupler Product Reference

TPRBCEIP

Standards - Certification

| | | |
|-----------------------|--|---|
| Standards | | EN/IEC 61010-02-201, EN/IEC 60947-4-1, UL 61010-02-201, CSA C22.2 No 61010-02-201 |
| Product certification | | UL, CSA, EAC |
| Cybersecurity | | Achilles certified - level 2 |

Functional specifications

| | | |
|---|--|---|
| Functionalities | | Provides communication between a TeSys island and a PLC. Communication management with up to 20 Starters/modules |
| Software compatibility | | Compatible with SoMove, a setup software for PC designed to configure Schneider Electric motor control devices and EcoStruxure™ Machine Expert, a solution software for developing, configuring, and commissioning the entire machine in a single software |
| 1 TER port: for engineering | | RJ45 connector for engineering PC - Ethernet TCP/IP |
| 2 ETH ports: for fieldbus | | RJ45 connector - EtherNet/IP; Modbus TCP |
| Exchange mode | | Half duplex, full duplex, autonegotiation Ethernet |
| Communication services | | EtherNet/IP adapter, Modbus TCP server, DHCP client, SNMP client, SNTIP client, auto MDI/MDX function |
| External storage / configuration; parameters; Log files | | Micro SD memory card (not provided), Micro SD port is provided on TPRBCEIP |
| Local signaling | | <ul style="list-style-type: none"> • Island Power on, 1 green/yellow LED • Module status, 1 green/red LED • Network / fieldbus status, 1 green/red LED • TeSys island internal bus status, 1 green/red LED • Micro SD card status, 1 green/red LED |

Environment

| | | |
|---------------------------------------|---------|--|
| Ambient air temperature for storage | °C (°F) | -25...70 (-13...158) |
| Ambient air temperature for operation | °C (°F) | -10...60 (14...140) |
| Ambient air humidity for operation | % | 5...95 |
| Operating altitude | m (ft) | 0...2000 (0...6562) without derating |
| IP degree of protection | | IP20 |
| Pollution degree | | 2 |
| Protective treatment | | TC |
| Fire resistance | °C (°F) | 960 (1760) conforming to UL 94 850 (1562) conforming to IEC 60695-2-1 650 (1202) conforming to IEC 60695-2-12 |
| Vibration resistance | mm | 1.5 peak to peak (3...13 Hz) conforming to IEC 60068-2-6 1 gn (13... 200 Hz) conforming to IEC 60068-2-6 |
| Authorised mounting modes | | Horizontal and vertical, on 35 mm symmetrical DIN rail |
| Shock resistance | | 15 gn (duration = 11 ms) conforming to IEC 60068-2-27 |
| Electromagnetic compatibility | | <ul style="list-style-type: none"> • Electrostatic discharge at 8 kV air, 6 kV contact conforming to EN/IEC 61000-4-2 level 3 • Radiated RF fields at 10 V/m conforming to EN/IEC 61000-4-3 level 3 • Fast transient immunity test at 4 kV conforming to EN/IEC 61000-4-4 level 4 • Surges, differential mode at 2 kV conforming to EN/IEC 61000-4-5 level 3 • Surges, common mode at 4 kV conforming to EN/IEC 61000-4-5 level 4 |

Electrical specifications

| | | |
|---------------------------|-----|-----------------------------|
| Rated supply voltage [Us] | Vdc | 24 |
| Supply voltage limits | Vdc | 20.4...28.8 |
| Rated current (maximum) | A | 3 |
| External fuse rating | A | 3 - Fast - Reverse polarity |
| Power dissipation | W | 7 |

Power connection

| | | | |
|---------------------------------|---------------------------------|----------------------|----------|
| Removable spring terminal block | 1 rigid cable | mm ² /AWG | 2.5 / 14 |
| | 1 flexible cable | mm ² /AWG | 2.5 / 14 |
| | 1 flexible cable with cable end | mm ² /AWG | 2.5 / 14 |

TeSys island Bus Couplers

Specifications (cont.)

| Bus Coupler Product Reference | | TPRBCPFN |
|---|---------|--|
| Standards - Certification | | |
| Standards | | EN/IEC 61010-02-201, EN/IEC 60947-4-1, UL 61010-02-201, CSA C22.2 No 61010-02-201 |
| Product certification | | UL, CSA, EAC, PNO |
| Cybersecurity | | Achilles certified - level 2 |
| Functional specifications | | |
| Functionalities | | Provides communication between a TeSys island and a PLC. Communication management with up to 20 Starters/modules |
| Software compatibility | | Compatible with SoMove, a setup software for PC designed to configure Schneider Electric motor control devices |
| 1 TER port: for engineering | | RJ45 connector for engineering PC - Ethernet TCP/IP |
| 2 ETH ports: for fieldbus | | RJ45 connector - PROFINET |
| Exchange mode | | Half duplex, full duplex, autonegotiation Ethernet |
| Communication services | | PROFINET IO Conformance Class A (CC-A), PROFINET IO Net Load Class 1, DHCP client, SNTP client, auto MDI/MDX function |
| External storage / configuration; parameters; Log files | | Micro SD memory card (not provided), Micro SD port is provided on TPRBCPFN |
| Local signaling | | <ul style="list-style-type: none"> • Island Power on, 1 green/yellow LED • Module status (SF), 1 green/red LED • Network / fieldbus status (BF), 1 green/red LED • TeSys island internal bus status, 1 green/red LED • Micro SD card status, 1 green/red LED |
| Environment | | |
| Ambient air temperature for storage | °C (°F) | -25...70 (-13...158) |
| Ambient air temperature for operation | °C (°F) | -10...60 (14...140) |
| Ambient air humidity for operation | % | 5...95 |
| Operating altitude | m (ft) | 0...2000 (0...6562) without derating |
| IP degree of protection | | IP20 |
| Pollution degree | | 2 |
| Protective treatment | | TC |
| Fire resistance | °C (°F) | 960 (1760) conforming to UL 94 850 (1562) conforming to IEC 60695-2-1 650 (1202) conforming to IEC 60695-2-12 |
| Vibration resistance | mm | 1.5 peak to peak (3...13 Hz) conforming to IEC 60068-2-6 1 gn (13... 200 Hz) conforming to IEC 60068-2-6 |
| Authorised mounting modes | | Horizontal and vertical, on 35 mm symmetrical DIN rail |
| Shock resistance | | 15 gn (duration = 11 ms) conforming to IEC 60068-2-27 |
| Electromagnetic compatibility | | <ul style="list-style-type: none"> • Electrostatic discharge at 8 kV air, 6 kV contact conforming to EN/IEC 61000-4-2 level 3 • Radiated RF fields at 10 V/m conforming to EN/IEC 61000-4-3 level 3 • Fast transient immunity test at 4 kV conforming to EN/IEC 61000-4-4 level 4 • Surges, differential mode at 2 kV conforming to EN/IEC 61000-4-5 level 3 • Surges, common mode at 4 kV conforming to EN/IEC 61000-4-5 level 4 |
| Electrical specifications | | |
| Rated supply voltage [Us] | Vdc | 24 |
| Supply voltage limits | Vdc | 20.4...28.8 |
| Rated current (maximum) | A | 3 |
| External fuse rating | A | 3 - Fast - Reverse polarity |
| Power dissipation | W | 7 |

TeSys island Bus Couplers Specifications (cont.)

| Bus Coupler Product Reference | | TPRBCPFB |
|---|---------|--|
| Standards - Certification | | |
| Standards | | EN/IEC 61010-02-201, EN/IEC 60947-4-1, UL 61010-02-201, CSA C22.2 No 61010-02-201 |
| Product certification | | UL, CSA, EAC, PNO |
| Cybersecurity | | Achilles certified - level 2 |
| Functional specifications | | |
| Functionalities | | Provides communication between a TeSys island and a PLC. Communication management with up to 20 Starters/modules |
| Software compatibility | | Compatible with SoMove, a setup software for PC designed to configure Schneider Electric motor control devices |
| 1 TER port: for engineering | | RJ45 connector for engineering PC - Ethernet TCP/IP |
| 1 DB9 port: for fieldbus | | DB9 connector - PROFIBUS |
| Exchange mode | | PROFIBUS |
| Communication services | | <ul style="list-style-type: none"> • On TER port: DHCP client, SNTP client • On DB9 port: Type 3 DP PROFIBUS slave, supporting DP-V0 and DP-V1 |
| External storage / configuration; parameters; Log files | | Micro SD memory card (not provided), Micro SD port is provided on TPRBCPFB |
| Local signaling | | <ul style="list-style-type: none"> • Island Power on, 1 green/yellow LED • Module status, 1 green/red LED • Network / fieldbus status, 1 green/red LED • TeSys island internal bus status, 1 green/red LED • Micro SD card status, 1 green/red LED |
| Environment | | |
| Ambient air temperature for storage | °C (°F) | -25...70 (-13...158) |
| Ambient air temperature for operation | °C (°F) | -10...60 (14...140) |
| Ambient air humidity for operation | % | 5...95 |
| Operating altitude | m (ft) | 0...2000 (0...6562) without derating |
| IP degree of protection | | IP20 |
| Pollution degree | | 2 |
| Protective treatment | | TC |
| Fire resistance | °C (°F) | 960 (1760) conforming to UL 94 850 (1562) conforming to IEC 60695-2-1 650 (1202) conforming to IEC 60695-2-12 |
| Vibration resistance | mm | 1.5 peak to peak (3...13 Hz) conforming to IEC 60068-2-6 1 gn (13... 200 Hz) conforming to IEC 60068-2-6 |
| Authorised mounting modes | | Horizontal and vertical, on 35 mm symmetrical DIN rail |
| Shock resistance | | 15 gn (duration = 11 ms) conforming to IEC 60068-2-27 |
| Electromagnetic compatibility | | <ul style="list-style-type: none"> • Electrostatic discharge at 8 kV air, 6 kV contact conforming to EN/IEC 61000-4-2 level 3 • Radiated RF fields at 10 V/m conforming to EN/IEC 61000-4-3 level 3 • Fast transient immunity test at 4 kV conforming to EN/IEC 61000-4-4 level 4 • Surges, differential mode at 2 kV conforming to EN/IEC 61000-4-5 level 3 • Surges, common mode at 4 kV conforming to EN/IEC 61000-4-5 level 4 |
| Electrical specifications | | |
| Rated supply voltage [Us] | Vdc | 24 |
| Supply voltage limits | Vdc | 20.4...28.8 |
| Rated current (maximum) | A | 3 |
| External fuse rating | A | 3 - Fast - Reverse polarity |
| Power dissipation | W | 7 |

A

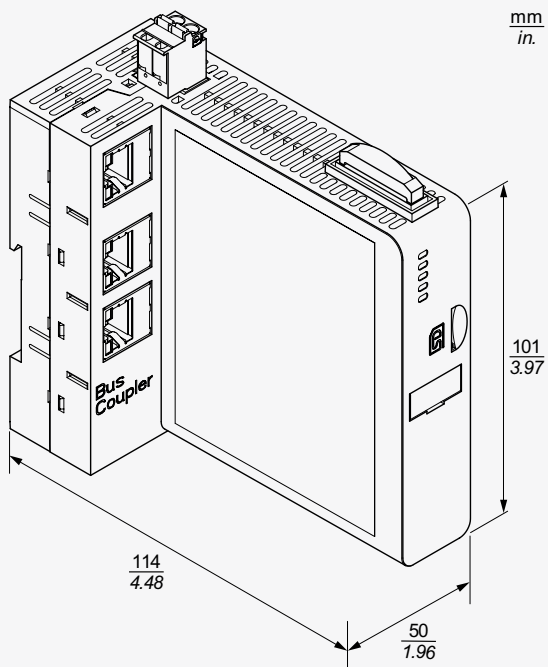
B

C

TeSys island Bus Couplers

Dimensions

Bus Coupler: TPRBCEIP, TPRBCPFN, TPRBCPFB*



(*) TPRBCPFB not shown, but overall dimensions are similar.

Bus Coupler Spring Terminal Connector



TeSys island Power Interface Modules Introduction

Power Interface Modules (PIMs) for electrical and thermal protection, digital asset management capabilities

A

B

C



TPRPM009 TPRPM038 TPRPM080

A PIM can be associated with an analog I/O device to measure temperature through an external sensor. A PIM can also monitor the current supplied to an external device.

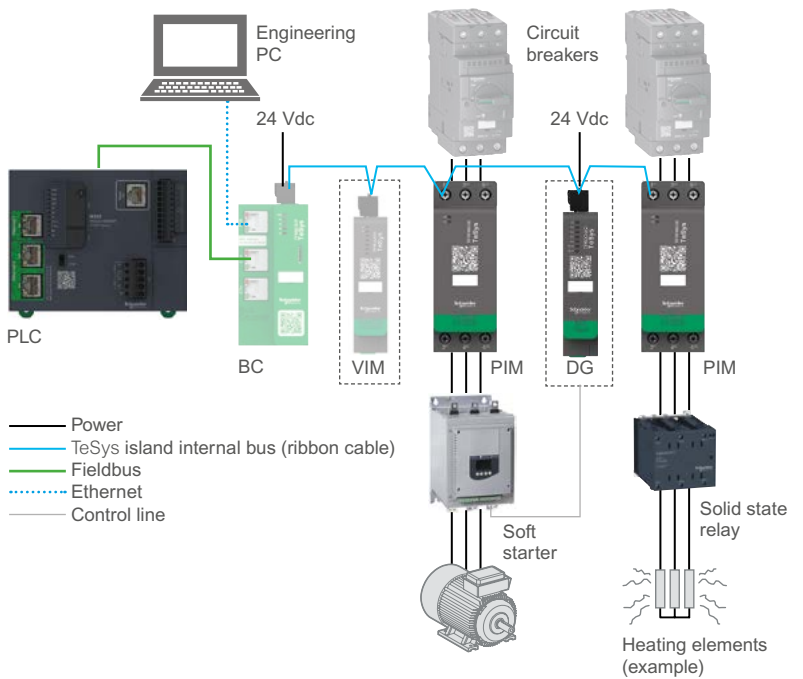
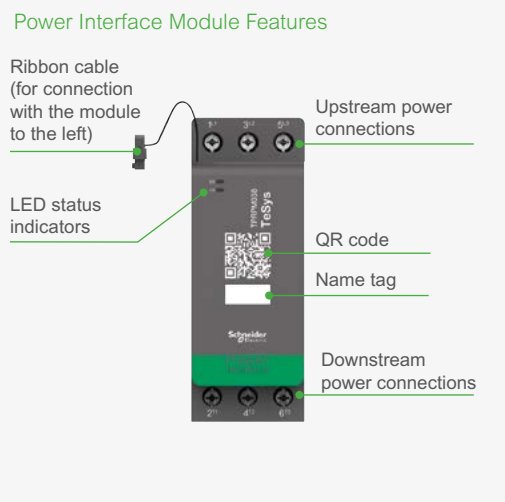
Main functions

- Measure downstream electrical data related to the load
- Provide energy monitoring data when a voltage interface module (VIM) is installed on the island.

The PIMs are connected

- Upstream to a circuit breaker
- Downstream to an external power device like a contactor, soft starter, or solid-state relay.

The PIM communicates with the bus coupler, sending operational data and receiving commands. In this example, a Digital I/O module (DG) is used to control the soft starter.



3-Pole PIM Power interface modules

| Standard power ratings of 3-phase motors 50-60 Hz in category AC-3 ($\theta \leq 60^\circ\text{C}$) | | | | | | | | Rated operational current in AC-3 440 V up to | UL General Purpose (Continuous Current) Amp Rating | Product Reference | Weight kg |
|---|----------------|-------|-------|-------|----------------|--------|----------------|---|--|----------------------|------------------|
| 220 V 230 V | 380 V 400 V | 415 V | 440 V | 500 V | 660 V 690 V | 1000 V | 460 V 480 V | | | | |
| kW | kW | kW | kW | kW | kW | kW | hp | A | A | | |
| 2.2 | 4 | 4 | 4 | 5.5 | 5.5 | - | 5 | 9 | 15 | TPRPM009 | 0.255 |
| 9 | 18.5 | 18.5 | 18.5 | 18.5 | 18.5 | - | 20 | 38 | 45 | TPRPM038 | 0.255 |
| 22 | 37 | 37 | 37 | 37 | 37 | - | 40 | 80 | 50 | TPRPM080 | 0.425 |

TeSys island Power Interface Modules

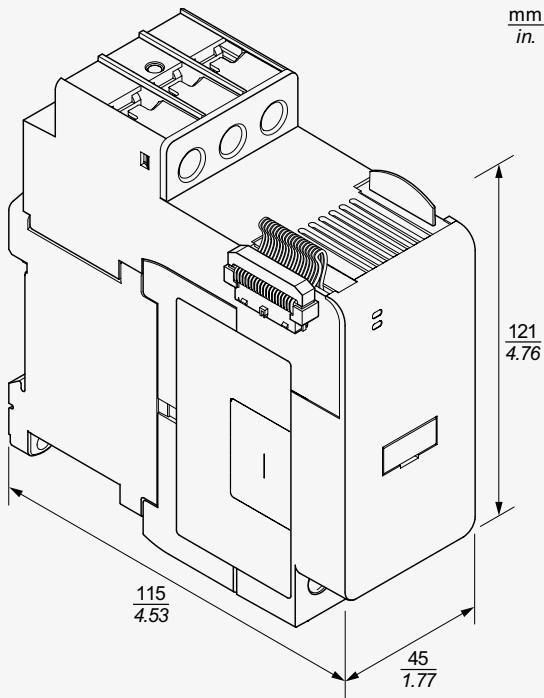
Specifications

| Power Interface Module Product References | | TPRPM009 | TPRPM038 | TPRPM080 | |
|--|----------------------------------|--|---------------------------|---------------------------|---|
| Standards - Certification | | | | | |
| Standards | | IEC 60947-1, EN 60947-1, UL 60947-4-1, CSA C22.2 No 60947-4-1 | | | |
| Product certification | | UL, CSA, CCC, EAC | | | |
| Function specifications | | | | | |
| Functionalities | | Upstream voltage presence detection, electronic thermal overload protection, current monitoring, control of third party power devices when associated with a TPRDG I/O | | | |
| Thermal motor protection adjustment range | A | 0.18...9 | 0.76...38 | 4...80 | |
| Protection reset modes | | Remote or automatic | | | |
| Metering | | <ul style="list-style-type: none"> • Time device is on • Number of events detected • Number of switching cycles • Number of device power cycles • Average current Iavg • Max current Imax • Active and reactive power with voltage module • Active and reactive energy with voltage module • True power factor with voltage module | | | |
| Local signaling | | <ul style="list-style-type: none"> • Device status, 1 green/red LED • Load status, 1 green/red LED | | | |
| Motor protection | | | | | |
| Thermal protection adjustment range | A | 0.18...9 | 0.76...38 | 4...80 | |
| Thermal overload trip class | | 5...30 | | | |
| Reset modes | | Remote or automatic | | | |
| Environment | | | | | |
| Ambient air temperature for storage | °C (°F) | -25...70 (-13...158) | | | |
| Ambient air temperature for operation | °C (°F) | -10...50 (14-122). Up to 60 (140) with derating | | | |
| Ambient air humidity for operation | % | 5...95 | | | |
| Operating altitude | m (ft) | 0...2000 (0...6562) without derating | | | |
| IP degree of protection | | IP20 | | | |
| Pollution degree | | 2 | | | |
| Protective treatment | | TC | | | |
| Fire resistance | °C (°F) | 960 (1760) conforming to UL 94 850 (1562) conforming to IEC 60695-2-1 650 (1202) conforming to IEC 60695-2-12 | | | |
| Vibration resistance | mm | 1.5 peak to peak (3...13 Hz) conforming to IEC 60068-2-6 1 gn (13...200 Hz) conforming to IEC 60068-2-6 | | | |
| Authorised mounting modes | | Horizontal and vertical, on 35 mm symmetrical DIN rail | | | |
| Shock resistance | | 15 gn (duration = 11 ms) conforming to IEC 60068-2-27 | | | |
| Electromagnetic compatibility | | <ul style="list-style-type: none"> • Electrostatic discharge at 8 kV air, 6 kV contact conforming to EN/IEC 61000-4-2 level 3 • Radiated RF fields at 10 V/m conforming to EN/IEC 61000-4-3 level 3 • Fast transient immunity test at 4 kV conforming to EN/IEC 61000-4-4 level 4 • Surges, differential mode at 2 kV conforming to EN/IEC 61000-4-5 level 3 • Surges, common mode at 4 kV conforming to EN/IEC 61000-4-5 level 4 • Conducted RF disturbances at 20 V conforming to EN/IEC 61000-4-6 | | | |
| Power pole specifications | | | | | |
| Rated operational voltage [Ue] 47...63 Hz | V | ≤ 690 | | | |
| Rated insulation voltage [Ui] | V | 600 - CSA certification 600 - UL certification 690 - conforming to IEC 60947-4-1 | | | |
| Rated impulse withstand voltage [Uimp] | kV | 6 conforming to IEC 60947 | | | |
| Overvoltage category | | III | | | |
| Rated operational current [Ie] (≤ 50 °C) at ≤ 440 V AC-3 | A | 9 | 38 | 80 | |
| (≤ 50 °C) at ≤ 440 V AC-1 | A | 15 | 40 | 80 | |
| Free air thermal current [Ith] ≤ 50 °C | A | 15 | 40 | 80 | |
| Control circuit | | | | | |
| Operating voltage supplied by bus coupler [Uc] DC | V | 24 | | | |
| Current consumption on control circuit | mA | 60 | | | |
| Power connection | | | | | |
| Screw-clamp terminal capacity | 1 rigid cable | mm ² /AWG | 1- 4 / AWG 16... AWG 12 | 1.5- 4 / AWG 16... AWG 12 | 1-35 / AWG 16... AWG 2 (Everlink terminal) |
| | 2 rigid cables | mm ² /AWG | 1- 4 / AWG 16... AWG 12 | 1.5- 4 / AWG 16... AWG 12 | 1-25 / AWG 16... AWG 4 (Everlink terminal) |
| | 1 flexible cable | mm ² /AWG | 1.5- 4 / AWG 16... AWG 12 | 2.5- 10 / AWG 14... AWG 8 | 1-35 / AWG 16... AWG 2 (Everlink terminal) |
| | 2 flexible cables | mm ² /AWG | 1.5- 4 / AWG 16... AWG 12 | 2.5- 10 / AWG 14... AWG 8 | 1-25 / AWG 16... AWG 4 (Everlink terminal) |
| | 1 flexible cable with cable end | mm ² /AWG | 1- 4 / AWG 16... AWG 12 | 1.5- 10 / AWG 16... AWG 8 | 1-35 / AWG 16... AWG 2 (Everlink terminal) |
| | 2 flexible cables with cable end | mm ² /AWG | 1- 2.5 / AWG 16... AWG 14 | 1.5- 6 / AWG 16... AWG 10 | 1-25 / AWG 16... AWG 4 (Everlink terminal) |
| Tightening torque | With flat Ø 6 mm screwdriver | N.m/lb-in | 1.7 / 15 | 2.5 / 22 | 5 / 44 (1-25 mm ² / AWG 16-4 cable- hexa 4 mm) |
| | With Philips screwdriver | N.m/lb-in | 1.7 / 15 (Philips n°2) | 2.5 / 22 (Philips n°3) | 8 / 70 (25-35 mm ² / AWG 2 cable- hexa 4 mm) |

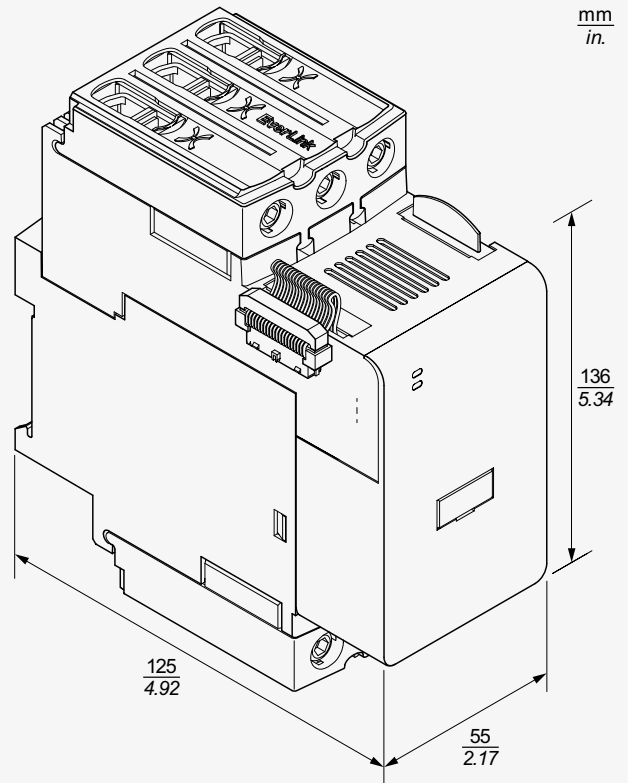
TeSys island Power Interface Modules

Dimensions

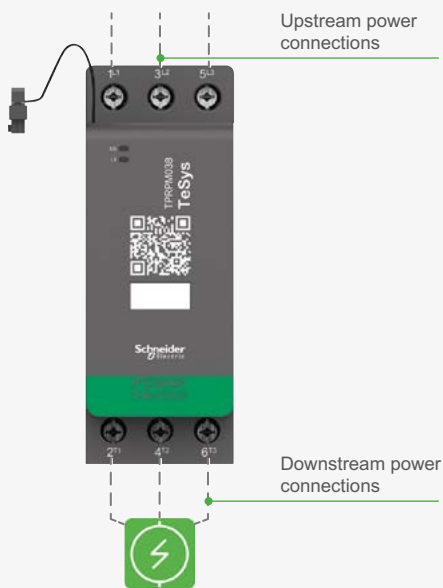
Size 1 (TPRPM009) and Size 2 (TPRPM038)
Power Interface Modules



Size 3 (TPRPM080)
Power Interface Module



Wiring diagrams



A

B

C

TeSys island Standard Starters

Introduction

Standard Starters (ST), for load control



Standard starters provide load control, electrical and thermal protection functions, and digital asset management capabilities.

Main functions

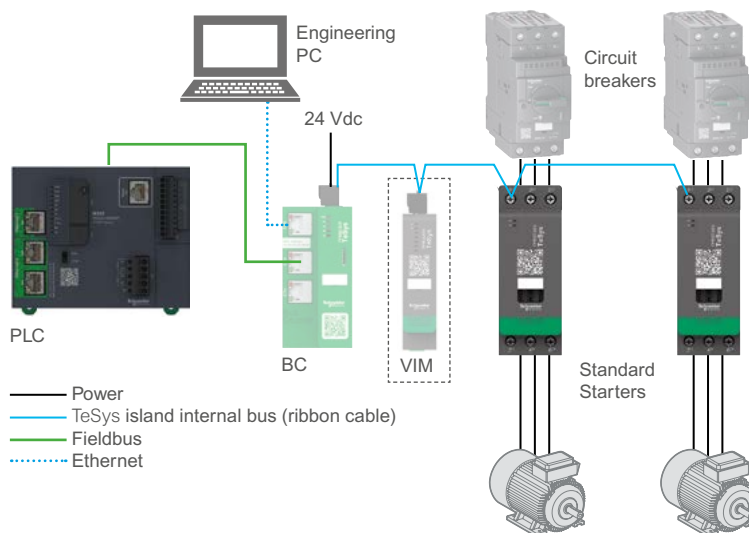
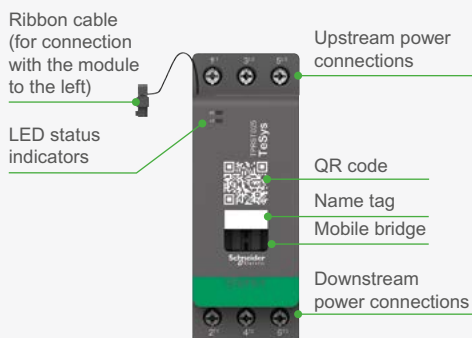
- Provide three/single phase On/Off power control for loads
- Advanced protection & alarming
- Electrical data measurement related to the load
- Energy monitoring when a voltage interface module (VIM) is installed on the island
- Functional testing and simulation
- Event logging and counters.

The standard starters are connected

- Upstream to a circuit breaker
- Downstream to the load to control.

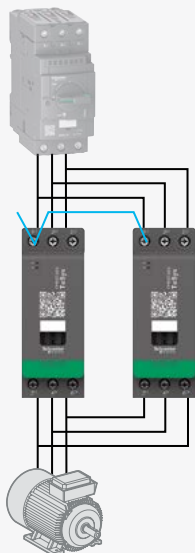
The starter communicates with the bus coupler, sending operational data and receiving commands.

Standard Starter Features



Reversing motor starter

Obtained by combining 2 standard starters and a cabling kit (See page 36)



3-Pole Standard Starters

Standard power ratings of 3-phase motors
50-60 Hz in category AC-3
($\theta \leq 60^\circ\text{C}$)

| IEC | | UL | | | | | | UL General Purpose (Continuous Current Amp Rating) | Rated operational current in AC-3 440 V up to | Product Ref. | Weight |
|------|------|------|------|------|------|------|------|--|---|--------------|--------|
| 220V | 380V | 120V | 240V | 208V | 240V | 460V | 600V | | | | |
| 230V | 400V | 1ph | 1ph | 3ph | 3ph | 480V | 3ph | A | A | kg | |
| kW | kW | hp | hp | hp | hp | hp | hp | | | | |
| 2.2 | 4 | .33 | 1 | 2 | 2 | 5 | 7.5 | 15 | 9 | TPRST009 | 0.656 |
| 5.5 | 11 | 2 | 3 | 7.5 | 7.5 | 15 | 20 | 30 | 25 | TPRST025 | 0.718 |
| 9 | 18.5 | 2 | 5 | 10 | 10 | 20 | 25 | 40 | 38 | TPRST038 | 0.718 |
| 18.5 | 30 | 5 | 10 | 20 | 20 | 40 | 50 | 80 | 65 | TPRST065 | 1.248 |
| 18.5 | 37 | 5 | 10 | 20 | 20 | 40 | 50 | 80 | 66 | TPRST080 | 1.248 |

TeSys island Standard Starters

Specifications

| Standard Starter Product References | TPRST009 | TPRST025 | TPRST038 | TPRST065 | TPRST080 |
|-------------------------------------|----------|----------|----------|----------|----------|
|-------------------------------------|----------|----------|----------|----------|----------|

Standards - Certification

| | |
|-----------------------|--|
| Standards | EN/IEC 60947-1, EN/IEC 60947-4-1, UL 60947-4-1, CSA C22.2 No 60947-4-1 |
| Product certification | UL, CSA, CCC, EAC |

Function specifications

| | |
|------------------------|---|
| Functionalities | <ul style="list-style-type: none"> Upstream voltage presence detection Current monitoring Electronic thermal overload protection |
| Protection reset modes | Remote or automatic |
| Metering | <ul style="list-style-type: none"> Time device is on Number of events detected Number of switching cycles Number of device power cycles Average current Iavg Max current Imax Active and reactive power with voltage module Active and reactive energy with voltage module True power factor with voltage module |
| Local signaling | <ul style="list-style-type: none"> Device status, 1 green/red LED Load status, 1 green/red LED |

Motor protection

| | | | | | | |
|-------------------------------------|--|---------------------|----------|-----------|-----------|--------|
| Protection type | <ul style="list-style-type: none"> Thermal overload protection Motor overheat Overcurrent Undercurrent Jam Long start Stall Rapid cycle lockout Rapid restart lockout Phase configuration Phase loss Phase reversal Phase unbalance Ground current | | | | | |
| Thermal protection adjustment range | A | 0.18...9 | 0.5...25 | 0.76...38 | 3.35...65 | 4...80 |
| Thermal overload trip class | | 5...30 | | | | |
| Reset modes | | Remote or automatic | | | | |

Environment

| | | |
|---------------------------------------|---------|--|
| Ambient air temperature for storage | °C (°F) | -25...70 (-13...158) |
| Ambient air temperature for operation | °C (°F) | -10...50 (14-122). Up to 60 (140) with derating |
| Ambient air humidity for operation | % | 5...95 |
| Operating altitude | m (ft) | 0...2000 (0...6562) without derating |
| IP degree of protection | | IP20 |
| Pollution degree | | 2 |
| Protective treatment | | TC |
| Fire resistance | °C (°F) | 960 (1760) conforming to UL 94 850 (1562) conforming to IEC 60695-2-1 650 (1202) conforming to IEC 60695-2-12 |
| Vibration resistance | mm | 1.5 peak to peak (3...13 Hz) conforming to IEC 60068-2-6 1 gn (13...200 Hz) conforming to IEC 60068-2-6 |
| Authorised mounting modes | | Horizontal and vertical, on 35 mm symmetrical DIN rail |
| Shock resistance | | 15 gn (duration = 11 ms) conforming to IEC 60068-2-27 |
| Electromagnetic compatibility | | <ul style="list-style-type: none"> Electrostatic discharge at 8 kV air, 6 kV contact conforming to EN/IEC 61000-4-2 level 3 Radiated RF fields at 10 V/m conforming to EN/IEC 61000-4-3 level 3 Fast transient immunity test at 4 kV conforming to EN/IEC 61000-4-4 level 4 Surges, differential mode at 2 kV conforming to EN/IEC 61000-4-5 level 3 Surges, common mode at 4 kV conforming to EN/IEC 61000-4-5 level 4 Conducted RF disturbances at 20 V conforming to EN/IEC 61000-4-6 |

TeSys island Standard Starters

Specifications

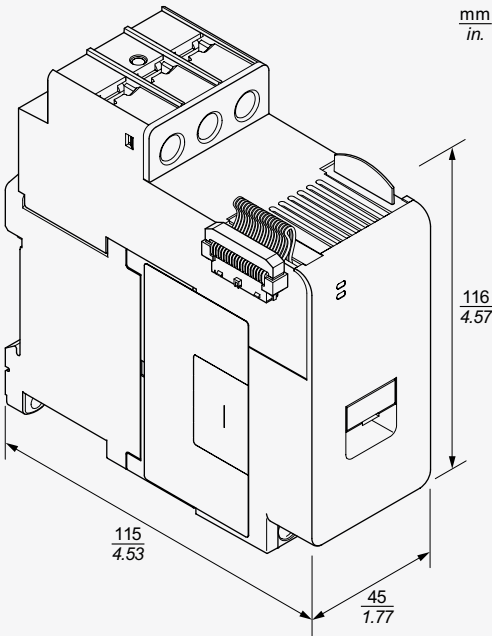
| Standard Starters Product References (cont.) | | TPRST009 | TPRST025 | TPRST038 | TPRST065 | TPRST080 | |
|--|----------------------------------|----------------------|-----------------------------------|---|---|----------|------|
| Power pole specifications | | | | | | | |
| Rated Operational Voltage | 47...63 Hz | V | ≤ 690 | ≤ 480 for OVC III, ≤ 690 for OVC II | ≤ 690 | ≤ 690 | |
| Rated insulation voltage [Ui] | | V | 600 - CSA certification | | | | |
| | | V | 600 - UL certification | | | | |
| | | V | 690 - conforming to IEC 60947-4-1 | | | | |
| Nominal voltage of the supply system per Table H.1 of IEC 60947-1 | | V | 600, 400/690 or lower | 277, 277/480, 240/415 or lower ⁽¹⁾ | 600, 400/690 or lower | | |
| Rated impulse withstand voltage [Uimp] | | kV | 6 conforming to IEC 60947 | | | | |
| Overvoltage category | | | III | III for Ue ≤ 480V, II for Ue ≤ 690 V | III | III | |
| Rated operational current [Ie] | (≤ 50 °C) at ≤ 440 V AC-3 | A | 9 | 25 | 38 | 65 | 66 |
| | (≤ 50 °C) at ≤ 440 V AC-1 | A | 15 | 30 | 40 | 80 | 80 |
| Free air thermal current [Ith] | ≤ 50 °C | A | 15 | 30 | 40 | 80 | 80 |
| Rated making/breaking capacity at 440 V conforming to IEC 60947 [Irms] | | A | 250 | 450 | 550 | 1000 | 1000 |
| Rated short-time withstand current (≤ 40 °C) [Icw] | 1 s | A | 210 | 380 | 430 | 900 | 900 |
| | 10 s | A | 105 | 240 | 310 | 520 | 520 |
| | 1 min | A | 61 | 120 | 150 | 260 | 260 |
| | 10 min | A | 30 | 50 | 60 | 220 | 110 |
| Power dissipation per pole | AC-3 - at Ith | W | 0.2 | 1.25 | 2.9 | 6.3 | 6.5 |
| | AC-1 - at Ith | W | 0.56 | 1.8 | 3.2 | 9.6 | 9.6 |
| Average impedance at 50 Hz - at Ith | | mΩ | 2.5 | 2 | 2 | 1.5 | 1.5 |
| Mechanical durability | | Mcycles | 30 | | | 6 | 6 |
| Electrical durability | AC-3 - at Ith, Ue 440 V | Mcycles | 2 | 1.65 | 1.4 | 1.4 | 0.75 |
| | AC-1 - at Ith, Ue 440 V | Mcycles | 1.2 | 2 | 2 | 0.5 | 0.5 |
| Operating time | Closing | ms | < 100 | | | < 80 | |
| | Opening | ms | < 30 | | | < 80 | |
| Maximum operating rate | AC-3 | | 3600 cycles/hour | | | | |
| Control circuit | | | | | | | |
| Operating voltage supplied by bus coupler [Uc] | DC | V | 24 | | | | |
| Current consumption | Sealed | mA | 160 | | | 80 | 80 |
| | Closing | mA | 160 | | | 500 | 500 |
| Power max dissipation at Ie AC-3 | | W | 3.5 | 6.6 | 11.8 | 20.8 | 21.4 |
| Power connection | | | | | | | |
| Screw-clamp terminal capacity | 1 rigid cable | mm ² /AWG | 1- 4 / AWG 16...AWG 12 | 1.5- 10 / AWG 16...AWG 8 | 1-35 / AWG 16... AWG 2 (Everlink terminal) | | |
| | 2 rigid cables | mm ² /AWG | 1- 4 / AWG 16...AWG 12 | 2.5- 10 / AWG 14... AWG 8 | 1-25 / AWG 16... AWG 4 (Everlink terminal) | | |
| | 1 flexible cable | mm ² /AWG | 1.5- 4 / AWG 16... AWG 12 | 2.5- 10 / AWG 14... AWG 8 | 1-35 / AWG 16... AWG 2 (Everlink terminal) | | |
| | 2 flexible cables | mm ² /AWG | 1.5- 4 / AWG 16... AWG 12 | 2.5- 10 / AWG 14... AWG 8 | 1-25 / AWG 16... AWG 4 (Everlink terminal) | | |
| | 1 flexible cable with cable end | mm ² /AWG | 1- 4 / AWG 16... AWG 12 | 1- 6 / AWG 16... AWG 10 | 1-35 / AWG 16... AWG 2 (Everlink terminal) | | |
| | 2 flexible cables with cable end | mm ² /AWG | 1- 2.5 / AWG 16... AWG 14 | 1.5- 6 / AWG 16... AWG 10 | 1-25 / AWG 16... AWG 4 (Everlink terminal) | | |
| Tightening torque | With flat Ø 6 mm screwdriver | N.m/lb-in | 1.7 / 15 | 2.5 / 22 | 5 / 44 (1-25 mm ² / AWG 16-4 cable- hexa 4 mm) | | |
| | With Philips screwdriver | N.m/lb-in | 1.7 / 15 (Philips n°2) | 2.5 / 22 (Philips n°3) | 8 / 70 (35 mm ² / AWG 2 cable -hexa 4 mm) | | |

(1) Maximum 300 V rated operational voltage to earth (ground) per table H.1 of IEC 60947-1 (including 400/230 and 480/277 power systems) for TPRST025, TPRST038 unless used with appropriate Surge Protective Device limiting the system to OVC II.

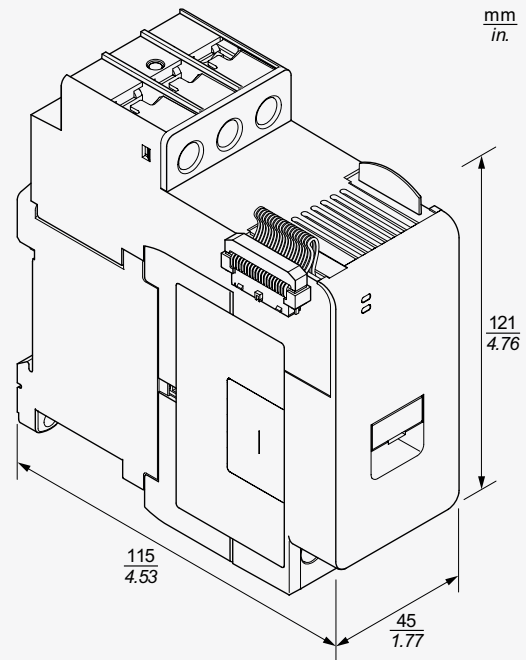
For 500V/600V/690V applications and rated motor current above 3.35 A, TPRST065 device can be used.

TeSys island Standard Starters Dimensions

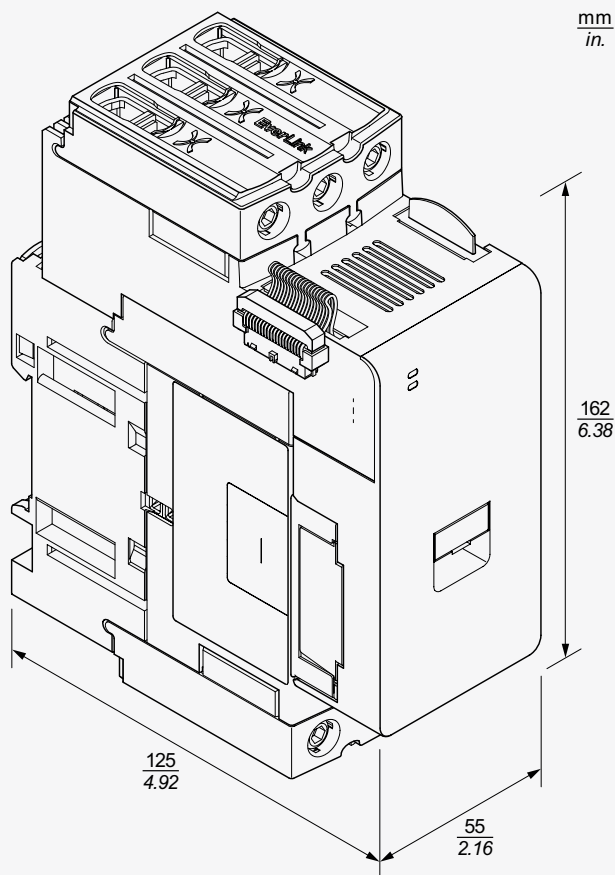
Size 1 Starters: TPRST009 and TPRSS009



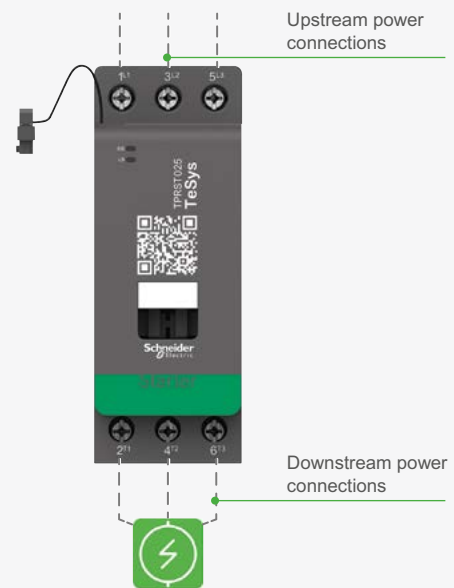
Size 2 Starters: TPRST025, TPRST038, TPRSS025 and TPRSS038



Size 3 Starters: TPRST065, TPRST080, TPRSS065 and TPRSS080



Wiring diagrams



A

B

C

TeSys island SIL Starters Introduction

SIL Starter (SS)



SIL starters provide similar functions as standard starters but are associated with a SIL interface module (SIM).

Main functions

- Provide Stop Category 0 and Stop Category 1 according to EN/IEC 60204-1
- Provide three-phase/single-phase On/Off power control for loads
- Advanced protection & alarming
- Electrical data measurement related to the load
- Energy monitoring when a voltage interface module (VIM) is installed on the island
- Functional testing and simulation
- Event logging and counters.

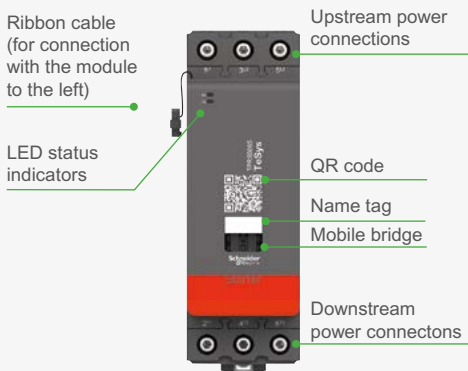
Multiple SIL starters might be needed for a single TeSys™ avatar function. Avatars using SIL starters always include a SIL interface module.

The SIL starters are connected

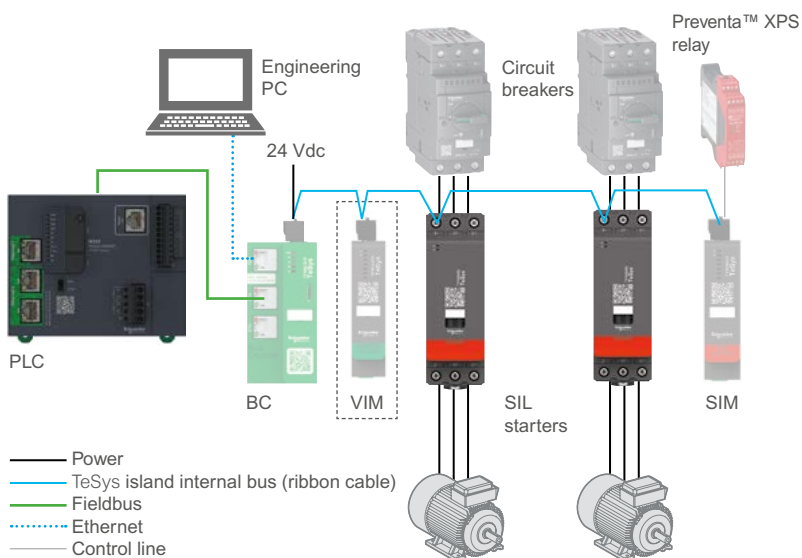
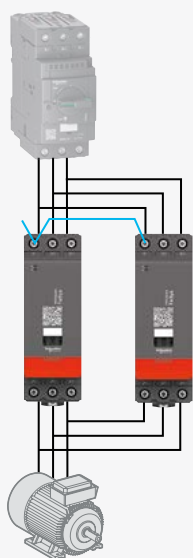
- Upstream to a circuit breaker
- Downstream to the load to control
- To SIM module of the same group via the TeSys island internal bus (ribbon cable).

The SIL starter communicates with the bus coupler, sending operational data and receiving commands.

SIL Starter Features



Reversing SIL motor starter is obtained by combining 2 SIL starters and a cabling kit (See page 36)



3-Pole SIL Starters

Standard power ratings of 3-phase motors
50-60 Hz in category AC-3
(θ ≤ 60°C)

| IEC | | UL | | | | | | UL General Purpose (Continuous Current Amp Rating) | Rated operational current in AC-3 440 V up to | Product Ref. | Weight |
|------|------|------|------|------|------|------|------|--|---|--------------|--------|
| 220V | 380V | 120V | 240V | 208V | 240V | 460V | 600V | | | | |
| kW | kW | 1 ph | 1 ph | 3 ph | 3 ph | 480V | 3 ph | A | A | | kg |
| 2.2 | 4 | .33 | 1 | 2 | 2 | 5 | 7.5 | 15 | 9 | TPRST009 | 0.656 |
| 5.5 | 11 | 2 | 3 | 7.5 | 7.5 | 15 | 20 | 30 | 25 | TPRST025 | 0.718 |
| 9 | 18.5 | 2 | 5 | 10 | 10 | 20 | 25 | 40 | 38 | TPRST038 | 0.718 |
| 18.5 | 30 | 5 | 10 | 20 | 20 | 40 | 50 | 80 | 65 | TPRST065 | 1.248 |
| 18.5 | 37 | 5 | 10 | 20 | 20 | 40 | 50 | 80 | 66 | TPRST080 | 1.248 |

TeSys island SIL Starters Specifications

| SIL Starter Product References | | TPRSS009 | TPRSS025 | TPRSS038 | TPRSS065 | TPRSS080 |
|---------------------------------------|---------|--|----------|-----------|-----------|----------|
| Standards - Certification | | | | | | |
| Standards | | EN/IEC 60947-1, EN/IEC 60947-4, UL 60947-4-1, CSA C22.2 No 60947-4-1 | | | | |
| Product certification | | UL, CSA, CCC, EAC | | | | |
| Function specifications | | | | | | |
| Functionalities | | <ul style="list-style-type: none"> Upstream voltage presence detection Current monitoring Electronic thermal overload protection | | | | |
| Functional safety ⁽¹⁾ | | Stop Category 0 and Stop Category 1 conforming to EN/IEC 60204-1 when associated with a TPRSM module | | | | |
| Safety integrity level ⁽²⁾ | | <ul style="list-style-type: none"> SIL 2 conforming to IEC 61508 in single channel system architecture SILCL 2 conforming to IEC 62061 in single channel system architecture PL = d category 2 conforming to ISO 13849-1 in single channel system architecture | | | | |
| Metering | | <ul style="list-style-type: none"> Time device is on Number of events detected Number of switching cycles Number of device power cycles Average current Iavg Max current Imax Active and reactive power with voltage module Active and reactive energy with voltage module True power factor with voltage module | | | | |
| Local signaling | | <ul style="list-style-type: none"> Device status, 1 green/red LED Load status, 1 green/red LED | | | | |
| Motor protection | | | | | | |
| Protection type | | <ul style="list-style-type: none"> Thermal overload protection Motor overheat Overcurrent Undercurrent Jam Long start Stall Rapid cycle lockout Rapid restart lockout Phase configuration Phase loss Phase reversal Phase unbalance Ground current | | | | |
| Thermal protection adjustment range | A | 0.18...9 | 0.5...25 | 0.76...38 | 3.35...65 | 4...80 |
| Thermal overload class | | 5...30 | | | | |
| Reset modes | | Remote or automatic | | | | |
| Environment | | | | | | |
| Ambient air temperature for storage | °C (°F) | -25...70 (-13...158) | | | | |
| Ambient air temperature for operation | °C (°F) | -10...60 (14...140) | | | | |
| Ambient air humidity for operation | % | 5...95 | | | | |
| Operating altitude | m (ft) | 0...2000 (0...6562) without derating | | | | |
| IP degree of protection | | IP20 | | | | |
| Pollution degree | | 2 | | | | |
| Protective treatment | | TC | | | | |
| Fire resistance | °C (°F) | 960 (1760) conforming to UL 94 850 (1562) conforming to IEC 60695-2-1 650 (1202) conforming to IEC 60695-2-12 | | | | |
| Vibration resistance | mm | 1.5 peak to peak (3...13 Hz) conforming to IEC 60068-2-6 1 gn (13...200 Hz) conforming to IEC 60068-2-6 | | | | |
| Authorised mounting modes | | Horizontal and vertical, on 35 mm symmetrical DIN rail | | | | |
| Shock resistance | | 15 gn (duration = 11 ms) conforming to IEC 60068-2-27 | | | | |
| Electromagnetic compatibility | | <ul style="list-style-type: none"> Electrostatic discharge at 8 kV air, 6 kV contact conforming to EN/IEC 61000-4-2 level 3 Radiated RF fields at 10 V/m conforming to EN/IEC 61000-4-3 level 3 Fast transient immunity test at 4 kV conforming to EN/IEC 61000-4-4 level 4 Surges, differential mode at 2 kV conforming to EN/IEC 61000-4-5 level 3 Surges, common mode at 4 kV conforming to EN/IEC 61000-4-5 level 4 Conducted RF disturbances at 20 V conforming to EN/IEC 61000-4-6 | | | | |

(1) Functional safety as defined in IEC 61508

(2) Safety Integrity Level according to standard IEC 61508

TeSys island SIL Starters

Specifications

| SIL Starter Product References (cont.) | | | TPRSS009 | TPRSS025 | TPRSS038 | TPRSS065 | TPRSS080 |
|---|---------------------------|---------|--|---|----------|-----------------------|-----------|
| Power pole specifications | | | | | | | |
| Rated Operational Voltage [Ue] | 47...63 Hz | V | ≤ 690 | ≤ 480 for OVC III, ≤ 690 for OVC II | | ≤ 690 | ≤ 690 |
| Rated insulation voltage [Ui] | | V | 600 - CSA certification 600 - UL certification 690 - conforming to IEC 60947-4-1 | | | | |
| Nominal voltage of the supply system per Table H.1 of IEC 60947-1 | | V | 600, 400/690 or lower | 277, 277/480, 240/415 or lower ⁽¹⁾ | | 600, 400/690 or lower | |
| Rated impulse withstand voltage [Uimp] | | kV | 6 conforming to IEC 60947 | | | | |
| Overvoltage category | | | III | III for Ue ≤ 480V, II for Ue ≤ 690 V | | III | III |
| Rated operational current [Ie] | (≤ 50 °C) at ≤ 440 V AC-3 | A | 9 | 25 | 38 | 65 | 66 |
| | (≤ 50 °C) at ≤ 440 V AC-1 | A | 15 | 30 | 40 | 80 | 80 |
| Free air thermal current [Ith] | ≤ 50 °C | A | 15 | 30 | 40 | 80 | 80 |
| Rated making capacity at 440 V conforming to IEC 60947 [Irms] | | A | 250 | 450 | 550 | 1000 | 1000 |
| Rated breaking capacity at 440 V conforming to IEC 60947 | | A | 250 | 450 | 550 | 1000 | 1000 |
| Rated short-time withstand current (≤ 40 °C) [Icw] | 1 s | A | 210 | 380 | 430 | 900 | 900 |
| | 10 s | A | 105 | 240 | 310 | 520 | 520 |
| | 1 min | A | 61 | 120 | 150 | 260 | 260 |
| | 10 min | A | 30 | 50 | 60 | 220 | 110 |
| Power dissipation per pole | AC-3 - at Ith | W | 0.2 | 1.25 | 2.9 | 6.3 | 6.5 |
| | AC-1 - at Ith | W | 0.56 | 1.8 | 3.2 | 9.6 | 9.6 |
| Average impedance | at 50 Hz - at Ith | mΩ | 2.5 | 2 | 2 | 1.5 | 1.5 |
| Mechanical durability | | Mcycles | 30 | | | 6 | 6 |
| Electrical durability | AC-3 - at Ith, Ue 440 V | Mcycles | 2 | 1.65 | 1.4 | 1.4 | 0.75 |
| | AC-1 - at Ith, Ue 440 V | Mcycles | 1.2 | 2 | 2 | 0.5 | 0.5 |
| Operating time | Closing | ms | 65...88 | | | 55 ... 65 | 55 ... 65 |
| | Opening | ms | 20...30 | | | 20 ... 80 | 20 ... 80 |
| Maximum operating rate | AC-3 | | 3600 cycles/hour | | | | |

Control circuit

| | | | | | | | |
|--|---------|----|-----|-----|------|------|------|
| [Uc] operating voltage supplied by bus coupler | DC | V | 24 | | | | |
| Current consumption | Sealed | mA | 160 | | | 80 | 80 |
| | Closing | mA | 160 | | | 500 | 500 |
| Power max dissipation at Ie AC-3 | | W | 3.5 | 6.6 | 11.8 | 20.8 | 21.4 |

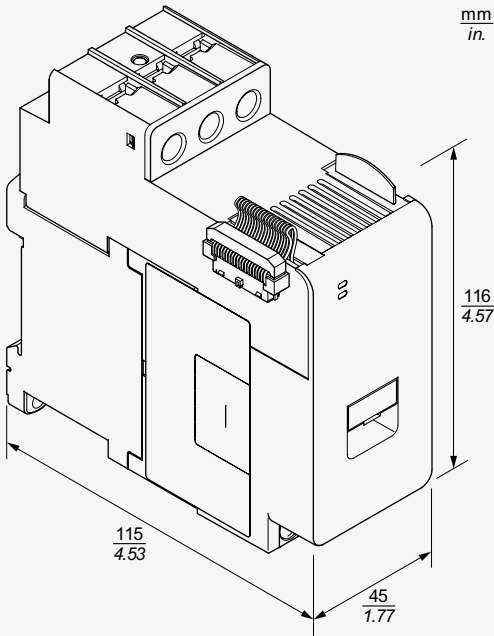
Power connection

| | | | | | | |
|-------------------------------|----------------------------------|----------------------|--------------------------|--------------------------|---|--|
| Screw-clamp terminal capacity | 1 rigid cable | mm ² /AWG | 1- 4 / AWG 16...AWG 12 | 1.5- 10 / AWG 16...AWG 8 | 1-35 / AWG 16... AWG 2 (Everlink terminal) | |
| | 2 rigid cables | mm ² /AWG | 1- 4 / AWG 16...AWG 12 | 2.5- 10 / AWG 14...AWG 8 | 1-25 / AWG 16... AWG 4 (Everlink terminal) | |
| | 1 flexible cable | mm ² /AWG | 1.5- 4 / AWG 16...AWG 12 | 2.5- 10 / AWG 14...AWG 8 | 1-35 / AWG 16... AWG 2 (Everlink terminal) | |
| | 2 flexible cables | mm ² /AWG | 1.5- 4 / AWG 16...AWG 12 | 2.5- 10 / AWG 14...AWG 8 | 1-25 / AWG 16... AWG 4 (Everlink terminal) | |
| | 1 flexible cable with cable end | mm ² /AWG | 1- 4 / AWG 16...AWG 12 | 1- 6 / AWG 16...AWG 10 | 1-35 / AWG 16... AWG 2 (Everlink terminal) | |
| | 2 flexible cables with cable end | mm ² /AWG | 1- 2.5 / AWG 16...AWG 14 | 1.5- 6 / AWG 16...AWG 10 | 1-25 / AWG 16... AWG 4 (Everlink terminal) | |
| Tightening torque | With flat Ø 6 mm screwdriver | N.m/lb-in | 1.7 / 15 | 2.5 / 22 | 5 / 44 (1-25 mm ² / AWG 16-4 cable- hexa 4 mm) | |
| | With Philips screwdriver | N.m/lb-in | 1.7 / 15 (Philips n°2) | 2.5 / 22 (Philips n°3) | 8 / 70 (35 mm ² / AWG 2 cable -hexa 4 mm) | |

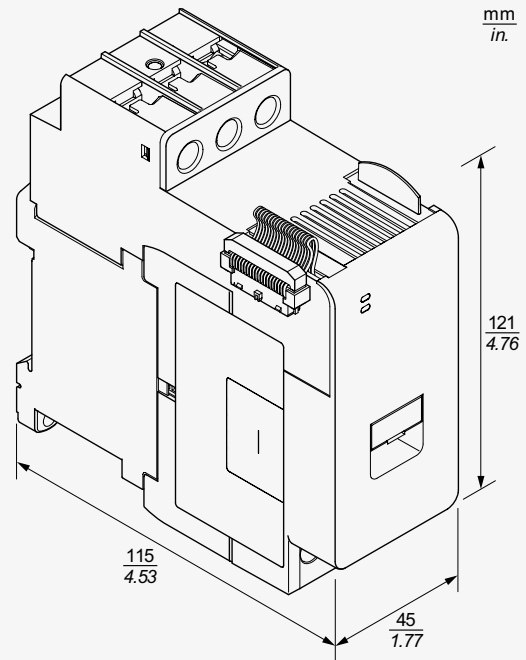
(1) Maximum 300 V rated operational voltage to earth (ground) per table H.1 of IEC 60947-1 (including 400/230 and 480/277 power systems) for TPRSS025, TPRSS038 unless used with appropriate Surge Protective Device limiting the system to OVC II.
For 500V/600V/690V applications and rated motor current above 3.35 A, TPRSS065 device can be used.

TeSys island SIL Starters Dimensions

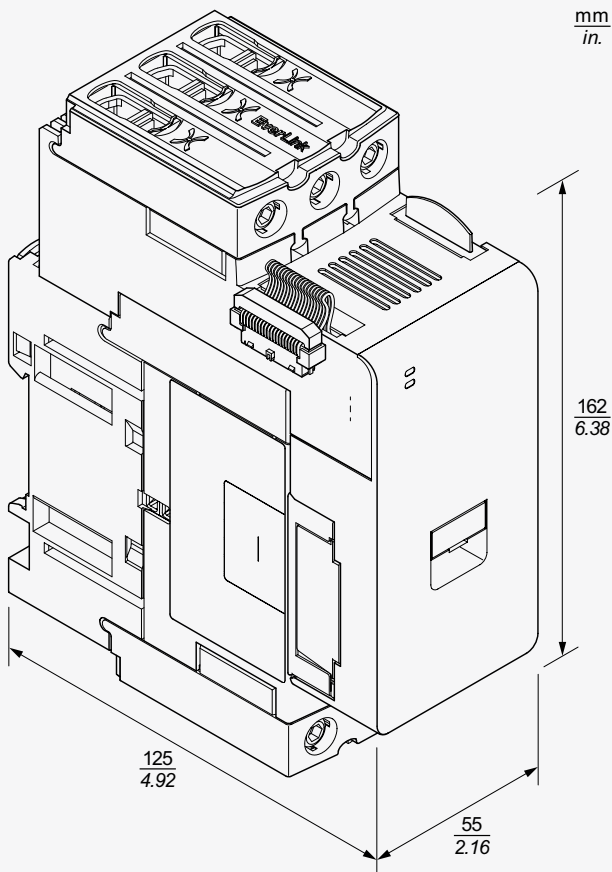
Size 1 Starters: TPRST009 and TPRSS009



Size 2 Starters: TPRST025, TPRST038, TPRSS025 and TPRSS038



Size 3 Starters: TPRST065, TPRST080, TPRSS065 and TPRSS080



Wiring diagrams



A

B

C

TeSys island SIL Interface Module

Introduction

SIL Interface Module, to provide interface with SIL Starters



TPRSM001

A SIL interface module (SIM), associated with one or several SIL starters, allows the design of Stop functions in compliance with EN/IEC 60204-1:

- Stop Category 0: immediate machine power disconnection
- Stop Category 1: electrical power maintained on the machine actuators until the stop process fully ends (absence of motion).

Main functions

- Interface with a Preventa™ XPS relay
- Command the stop function of its SIL group of SIL starters.

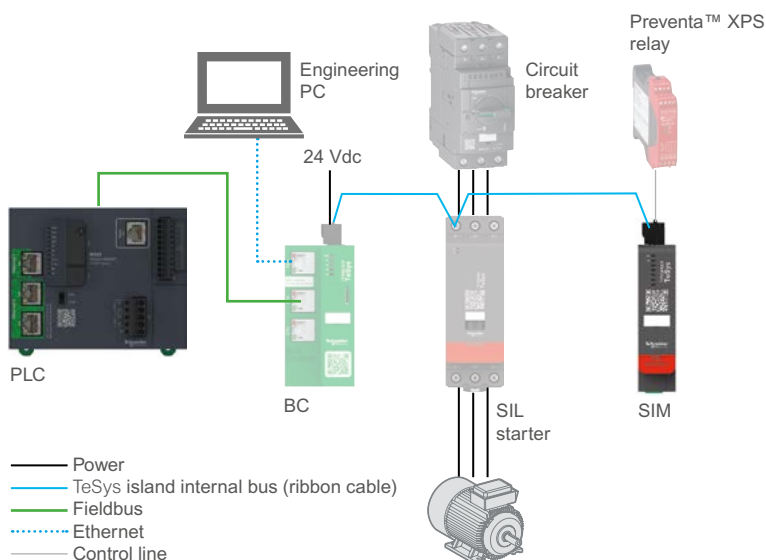
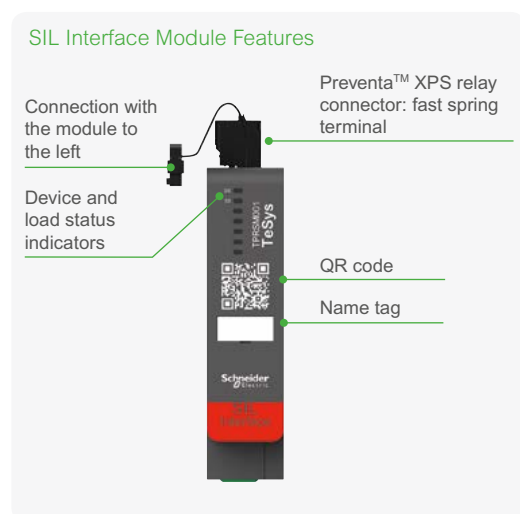
Several SIL groups of SIL starters can be set up on the island. Each is delimited by one SIM on the far side of the SIL starters.

The SIM is connected

- Upstream to a Preventa™ XPS relay
- To a SIL starter of the same SIL group via the TeSys island internal bus (ribbon cable).

The SIM communicates with the bus coupler, sending operational data.

The Stop function is achieved by pure electromechanical means without any digital communication or bus coupler involvement.



SIL interface module - commercial information

| Designation | Voltage (Vdc) | Product Reference | Weight (kg) |
|---|---------------|-------------------|-------------|
| TeSys island SIL interface module (SIM) | 24 | TPRSM001 | 0.159 |

TeSys island SIL Interface Module Specifications

| | |
|---|-----------------|
| SIL Interface Module Product Reference | TPRSM001 |
|---|-----------------|

Standards - Certification

| | |
|-----------------------|---|
| Standards | IEC 60947-5-1, UL 60947-5-1, CSA C22.2 No 60947-5-1 |
| Product certification | UL, CSA, EAC |

Function specifications

| | |
|-----------------------|--|
| Functionalities | Stop Category 0 and Stop Category 1 conforming to EN/IEC 60204-1 when associated with a TPRSS module |
| Product compatibility | <ul style="list-style-type: none"> • TPRBC bus coupler • TPRSSxx SIL motor starter |
| Local signaling | <ul style="list-style-type: none"> • Device status, 1 green/red LED • SIL Stop status, 1 green/red LED |

Environment

| | | |
|---------------------------------------|---------|--|
| Ambient air temperature for storage | °C (°F) | -25...70 (-13...158) |
| Ambient air temperature for operation | °C (°F) | -10...60 (14...140) |
| Ambient air humidity for operation | % | 5...95 |
| Operating altitude | m (ft) | 0...2000 (0...6562) without derating |
| IP degree of protection | | IP20 |
| Pollution degree | | 2 |
| Protective treatment | | TC |
| Fire resistance | °C (°F) | 960 (1760) conforming to UL 94 |
| Vibration resistance | mm | 1.5 peak to peak (3...13 Hz) conforming to IEC 60068-2-6 1 gn (13...200 Hz) conforming to IEC 60068-2-6 |
| Authorised mounting modes | | Horizontal and vertical, on 35 mm symmetrical DIN rail |
| Shock resistance | | 15 gn (duration = 11 ms) conforming to IEC 60068-2-27 |
| Electromagnetic compatibility | | <ul style="list-style-type: none"> • Electrostatic discharge at 8 kV air, 6 kV contact conforming to EN/IEC 61000-4-2 • Radiated RF fields level 3 at 10 V/m conforming to EN/IEC 61000-4-3 • Fast transient immunity test level 3 at 2 kV conforming to EN/IEC 61000-4-4 • Surge immunity test, level 3 (2 kV) conforming to EN/IEC 61000-4-5 level |

Electrical specifications

| | | |
|--|-----------|---|
| Rated supply voltage [Us] | Vdc | 24 |
| Supply current | mA | 10 |
| Max power dissipation | W | 0.7 |
| Rated impulse withstand voltage [Uimp] | kV | 0.5 conforming to IEC 61010-1 |
| Input type | | Isolated switching input for emergency stop |
| Input protection | | Internal, electronic |
| Input voltage range | '0' state | Vdc |
| | '1' state | Vdc |
| | | 0...5 |
| | | 15...28.8 |
| Output type | | Relay, instantaneous opening, 1 NO circuit(s), potential free |
| Output protection | | External fuse, 8 A gG for relay output |
| Relay output thermal current | A | 8 |

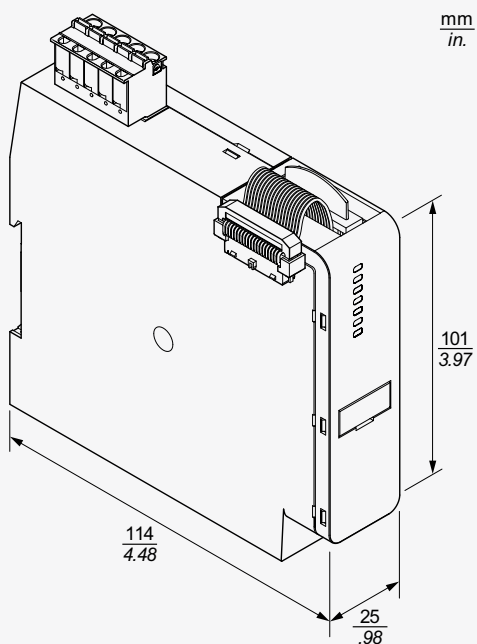
Connector

| | | | |
|---------------------------------|---------------------------------|----------------------|-------------------------------|
| Removable spring terminal block | 1 rigid cable | mm ² /AWG | 0.2... 2.5 / AWG 24... AWG 14 |
| | 1 flexible cable | mm ² /AWG | 0.2... 2.5 / AWG 24... AWG 14 |
| | 1 flexible cable with cable end | mm ² /AWG | 0.2... 2.5 / AWG 22... AWG 14 |

TeSys island SIL Interface Module

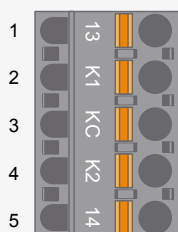
Dimensions

SIL Interface Module: TPRSM001



Wiring diagrams

SIM Terminal Block



SIM Terminal Block Pinout

| Pin Number | Terminal Identification | Signal |
|------------|-------------------------|------------|
| 1 | 13 | MIRROR IN |
| 2 | K1 | SIL IN 1 |
| 3 | KC | SIL COMMON |
| 4 | K2 | SIL IN 2 |
| 5 | 14 | MIRROR OUT |



A

B

C

TeSys island Digital I/O module

Introduction

Digital I/O module (DG), monitors and delivers binary status



TPRDG4X2

Digital I/O modules are typically used to get data from sensors and to control devices.

Main functions

- Monitor binary sensors and switches via four 24 Vdc sink/source inputs. No isolation between inputs (share a common ground)
- Control devices like relays, signaling lights, or controller binary inputs via two 0.5 A, 24 Vdc transistor-type outputs. No isolation between outputs (share a common ground)
- Capture statistical operational data of the module:
 - Number of device power cycles
 - Number of device events detected
 - Time module is on
 - Perform I/O channel testing and simulation.

The digital I/O module is connected:

- Upstream to the 24 Vdc source needed to power the downstream actuators
- Input channel: downstream to a binary sensor or switch
- Output channel: downstream to the 24 Vdc input of the actuator

Actuators connected to the digital I/O module must be protected against short-circuits by external means like fuses. The output fuse should be a 0.5 A Type T fuse (215, 218, FLQ or FLSR series from Littelfuse supplier or equivalent), one per output.

The digital I/O module communicates with the bus coupler, sending operational data and receiving commands.

Digital I/O module Features

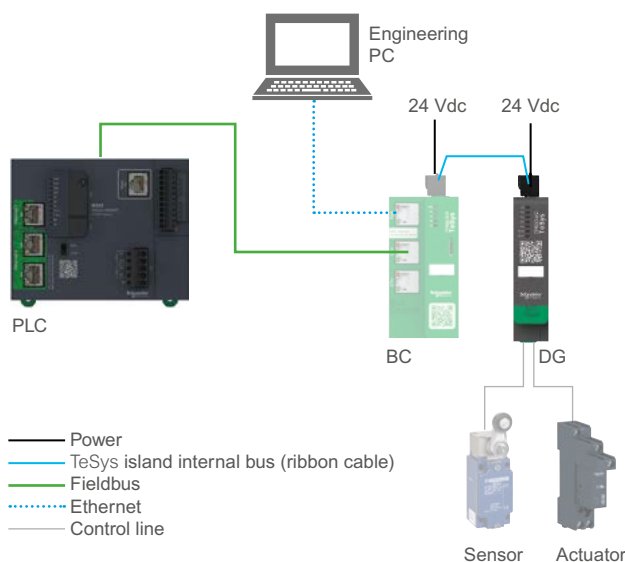
Ribbon cable (for connection with the module to the left)

LED status indicators

I/O connector: with spring terminals

QR code

Name tag



Digital I/O module commercial information

| Designation | Input | Output | Product Reference | Weight (kg) |
|--|-------|---------|-------------------|-------------|
| TeSys island DG - Digital 4I/2O Module | Vdc | A / Vdc | TPRDG4X2 | 0.136 |

TeSys island Digital I/O module

Specifications

| | |
|---|-----------------|
| Digital I/O Module Product Reference | TPRDG4X2 |
|---|-----------------|

Standards - Certification

| | |
|-----------------------|--|
| Standards | IEC 61010-02-201, UL 61010-02-201, CSA C22.2 No 61010-02-201 |
| Product certification | UL, CSA, EAC |

Function specifications

| | |
|-----------------------|---|
| Functionalities | <ul style="list-style-type: none"> • Monitoring of 4 digital inputs, configurable positive or negative logic • Control of 2 digital outputs, configurable positive or negative logic |
| Product compatibility | TPRBC bus coupler, TPRPM power module, TPRST standard starters |
| Local signaling | <ul style="list-style-type: none"> • DS (device status): 1 LED (green/red) • I0 (input 1 status): 1 LED (green) • I1 (input 2 status): 1 LED (green) • I2 (input 3 status): 1 LED (green) • I3 (input 4 status): 1 LED (green) • Q0 (output 1 status): 1 LED (green) • Q1 (output 2 status): 1 LED (green) |

Environment

| | | |
|---------------------------------------|---------|--|
| Ambient air temperature for storage | °C (°F) | -25...70 (-13...158) |
| Ambient air temperature for operation | °C (°F) | -10...60 (14...140) |
| Ambient air humidity for operation | % | 5...95 |
| Operating altitude | m (ft) | 0...2000 (0...6562) without derating |
| IP degree of protection | | IP20 |
| Pollution degree | | 2 |
| Protective treatment | | TC |
| Fire resistance | °C (°F) | 960 (1760) conforming to UL 94 |
| Vibration resistance | mm | 1.5 peak to peak (3...13 Hz) conforming to IEC 60068-2-6 1 gn (13...200 Hz) conforming to IEC 60068-2-6 |
| Authorised mounting modes | | Horizontal and vertical, on 35 mm symmetrical DIN rail |
| Shock resistance | | 15 gn (duration = 11 ms) conforming to IEC 60068-2-27 |
| Electromagnetic compatibility | | <ul style="list-style-type: none"> • Electrostatic discharge at 8 kV air, 6 kV contact conforming to EN/IEC 61000-4-2 • Radiated RF fields level 3 at 10 V/m conforming to EN/IEC 61000-4-3 • Fast transient immunity test level 3 at 2 kV conforming to EN/IEC 61000-4-4 • Surge immunity test, level 3 (2 kV) conforming to EN/IEC 61000-4-5 level |

Electrical specifications

| | | |
|--|------|---|
| Rated supply voltage [Us] | Vdc | 24 |
| Current consumption on power supply | mA | 160 |
| Rated impulse withstand voltage [Uimp] | kV | 0.5 conforming to IEC 61010-1 |
| Max power dissipation | W | 0.5 |
| Number of digital inputs / compliance | | 4 conforming to IEC 61131-2 Type 1 |
| Digital input voltage, typical (min, max) | Vdc | 24 (19.2...28.8) |
| Digital input current, under 24 Vdc | mA | 7 |
| Input impedance | Ω | ≤ 50 Ohm for current ≥ 1 MOhm for voltage ≥ 1 MOhm for thermocouple ≥ 1 MOhm for temperature probe |
| Digital input logic levels | '0' | Vdc |
| | '1' | Vdc |
| Number of digital output | | 2 - static outputs |
| Output logic | | Configurable: positive or negative |
| Digital output voltage, typical (min, max) | Vdc | 24 (19.2...28.8) |
| Digital output current | A | 0.5 with resistive load |
| Digital output protection | | External fast fuse required - 1 per output: F 0.5 A |
| Electrical insulation - Digital input to digital output | Vrms | 500 |
| Electrical insulation - Digital input, digital output to rest of circuit (internal Bus...) | Vrms | 2500 |
| Reponse time | ms | 5 ms at 24 V for digital input 5 ms at 24 V for digital output |

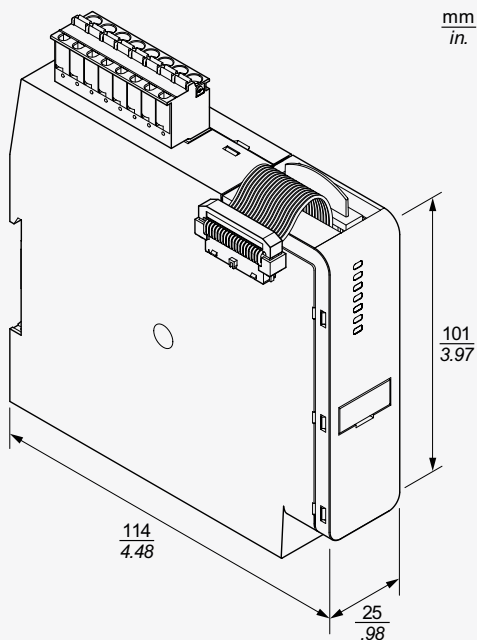
Connector

| | | | |
|---------------------------------|---------------------------------|----------------------|-----------------------------|
| Removable spring terminal block | 1 rigid cable | mm ² /AWG | 0.2...2.5 / AWG 24...AWG 14 |
| | 1 flexible cable | mm ² /AWG | 0.2...2.5 / AWG 24...AWG 14 |
| | 1 flexible cable with cable end | mm ² /AWG | 0.2...2.5 / AWG 22...AWG 14 |

TeSys island Digital I/O module

Dimensions

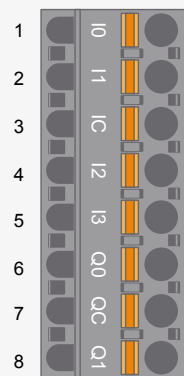
Digital I/O module: TPRDG4X2



Wiring diagrams

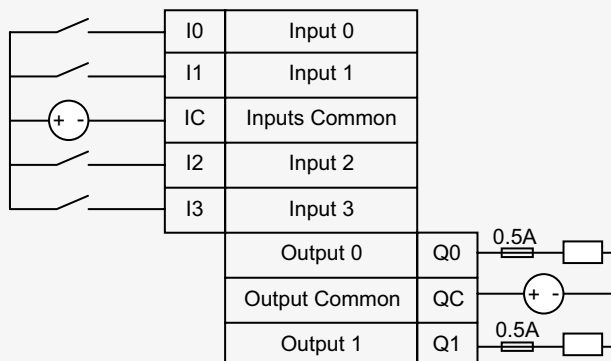
Digital I/O module

Terminals



| Pin | Terminal Identification | Digital I/O module |
|---------------------------|-------------------------|--------------------|
| 1 (Closest to DIN rail) | I0 | Input 0 |
| 2 | I1 | Input 1 |
| 3 | IC | Input Common |
| 4 | I2 | Input 2 |
| 5 | I3 | Input 3 |
| 6 | Q0 | Output 0 |
| 7 | QC | Output Common |
| 8 (Closest to front face) | Q1 | Output 1 |

Digital I/O Wiring



TeSys island Analog I/O module Introduction

Analog I/O module (AN), monitors and delivers analog values

A

B

C



TPRAN2X1

Analog I/O modules are typically used to get data from sensors and to control devices.

Main functions

- Monitor RTD, Thermocouple (NI100, NI1000, PT100, PT1000, PTC binary, thermocouple type B, C, E, J, K, N, R, S, T), Voltage & Current analog readings (0–10V, -10...+10V, 0–20 mA, 4–20 mA) through 2 configurable inputs
- Control voltage & current output via 1 configurable analog output (0–10V, -10...+10V, 0–20 mA, 4–20 mA)
- Capture statistical operational data:
 - Number of device power cycles
 - Number of device events detected
 - Time module is on.

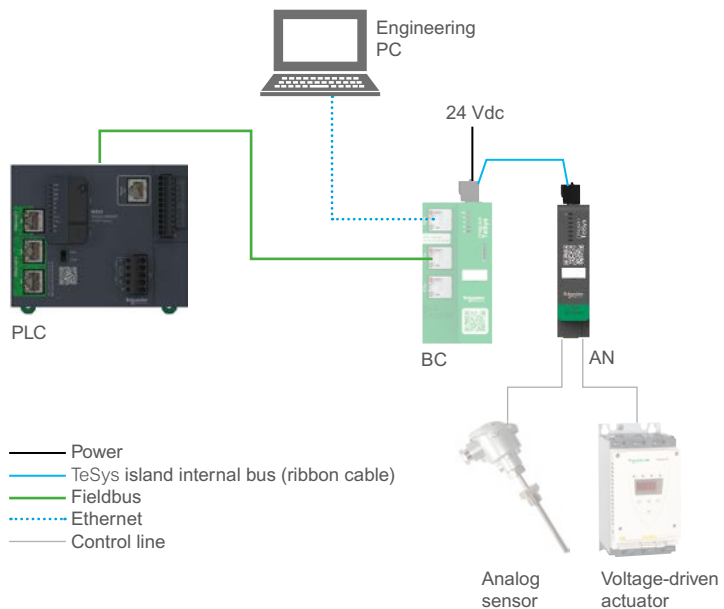
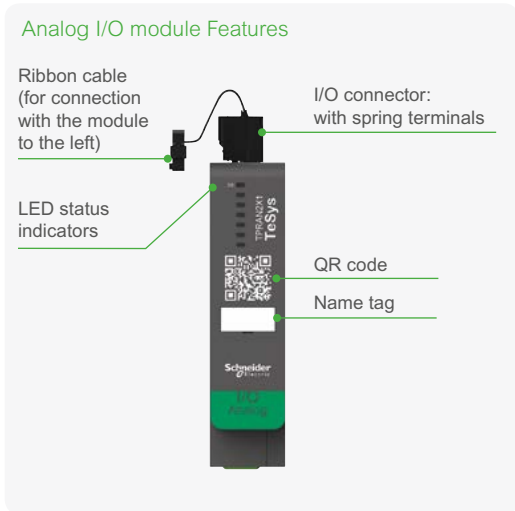
The analog I/O module is connected

- Input channel: downstream to an analog sensor or sensor transmitter
- Output channel: downstream to the control input of a voltage-driven actuator, such as a variable-speed drive

Devices connected to the outputs of the I/O module must be protected against short circuits by external means like fuses.

The analog I/O module communicates with the bus coupler, sending operational data and receiving commands.

Note: No per-channel LEDs are provided.



Analog I/O module commercial information

| Designation | Inputs | | Output | | Product Reference | Weight (kg) |
|------------------------------------|--------|--------------|--------|------------|-------------------|-------------|
| | mA dc | Vdc | mA dc | Vdc | | |
| TeSys island - Analog 2I/1O Module | 0-20 | -10 to +10 | 0-20 | -10 to +10 | TPRAN2X1 | 0.172 |
| | 4-20 | 0-10 | 4-20 | 0-10 | | |
| | | Thermocouple | | | | |

TeSys island Analog I/O module

Specifications

| Analog I/O Module Product Reference | | TPRAN2X1 | |
|---|-------------|--|-----------------------|
| Standards - Certification | | | |
| Standards | | IEC 61010-02-201, UL 61010-02-201, CSA C22.2 No 61010-02-201 | |
| Product certification | | UL, CSA, EAC | |
| Function specifications | | | |
| Functionalities | | <ul style="list-style-type: none"> • Voltage, current, or temperature measurement, by 2 configurable analog inputs • Voltage or current source control, by 1 configurable analog output | |
| Product compatibility | | TPRBC bus couples, TPRST standard starters, TPRSS SIL starters | |
| Local signaling | | Device status, 1 green/red LED | |
| Environment | | | |
| Ambient air temperature for storage | °C (°F) | -25...70 (-13...158) | |
| Ambient air temperature for operation | °C (°F) | -10...60 (14...140) | |
| Ambient air humidity for operation | % | 5...95 | |
| Operating altitude | m (ft) | 0...2000 without derating | |
| IP degree of protection | | IP20 | |
| Pollution degree | | 2 | |
| Protective treatment | | TC | |
| Fire resistance | °C (°F) | 960 (1760) conforming to UL 94 | |
| Vibration resistance | mm | 1.5 peak to peak (3...13 Hz) conforming to IEC 60068-2-6 1 gn (13...200 Hz) conforming to IEC 60068-2-6 | |
| Authorised mounting modes | | Horizontal and vertical, on 35 mm symmetrical DIN rail | |
| Shock resistance | | 15 gn (duration = 11 ms) conforming to IEC 60068-2-27 | |
| Electromagnetic compatibility | | <ul style="list-style-type: none"> • Electrostatic discharge, level 3 at 8 kV air, 6 kV contact conforming to EN/IEC 61000-4-2 • Radiated RF fields level 3 at 10 V/m conforming to EN/IEC 61000-4-3 • Fast transient immunity test level 3 at 2 kV conforming to EN/IEC 61000-4-4 • Surge immunity test, level 3 (2 kV) conforming to EN/IEC 61000-4-5 level | |
| Electrical specifications | | | |
| Current consumption on power supply | mA | 160 | |
| Max power dissipation | W | 0.5 | |
| Number of analog inputs | | 2 | |
| Analog Input - current measurement range | mA | 4...20 0...20 | |
| Analog Input - voltage measurement range | Vdc | 0...10 - 10... +10 | |
| Analog Input - temperature measurement range / sensor | °C (°F) | -60...180 °C with temperature probe Ni 100 -60...180 °C with temperature probe Ni 1000 -200...850 °C with temperature probe Pt 100 -200...600 °C with temperature probe Pt 1000 -200...1000 °C with thermocouple J -200...1300 °C with thermocouple K 0...1760 °C with thermocouple R 0...1760 °C with thermocouple S 0...1820 °C with thermocouple B -200...400 °C with thermocouple T -200...1300 °C with thermocouple N -200...800 °C with thermocouple E 0...2315 °C with thermocouple C | |
| Analog input measurement accuracy | % | ± 0.1 of full scale voltage ± 0.1 of full scale current ± 0.1 of full scale temperature probe ± 0.1 of full scale in positive temperature range thermocouple ± 0.4 of full scale in negative temperature range thermocouple | |
| Analog input measurement resolution | bits | 15 + sign full scale | |
| Analog input impedance / | Ω | ≤ 50 Ohm for current ≥ 1 MOhm for voltage ≥ 1 MOhm for thermocouple ≥ 1 MOhm for temperature probe | |
| Electrical insulation - Analog channels / rest of circuit (internal Bus...) | Vrms | 2500 - Isolated by the use of photocouplers | |
| Number of analog output | | 1 | |
| Analog output type /range | Current | mA | 4...20 0...20 |
| | Voltage | Vdc | 0...10 - 10...+10 |
| Analog output resolution / range | 4...20 mA | bits | 12, full scale |
| | 0...20 mA | bits | 12, full scale |
| | 0...10 V | bits | 12, full scale |
| | -10...+10 V | bits | 11 + sign, full scale |

TeSys island Analog I/O module Specifications

| | |
|--|-----------------|
| Analog I/O Module Product Reference (cont.) | TPRAN2X1 |
|--|-----------------|

I/O wiring

| | | |
|-------------------|---|------------------------|
| Recommended cable | | Twisted pair, shielded |
| Max length per IO | m | 30 |

Connector

| | | | |
|---------------------------------|---------------------------------|----------------------|-------------------------------|
| Removable spring terminal block | 1 rigid cable | mm ² /AWG | 0.2... 2.5 / AWG 24... AWG 14 |
| | 1 flexible cable | mm ² /AWG | 0.2... 2.5 / AWG 24... AWG 14 |
| | 1 flexible cable with cable end | mm ² /AWG | 0.2... 2.5 / AWG 22... AWG 14 |

A

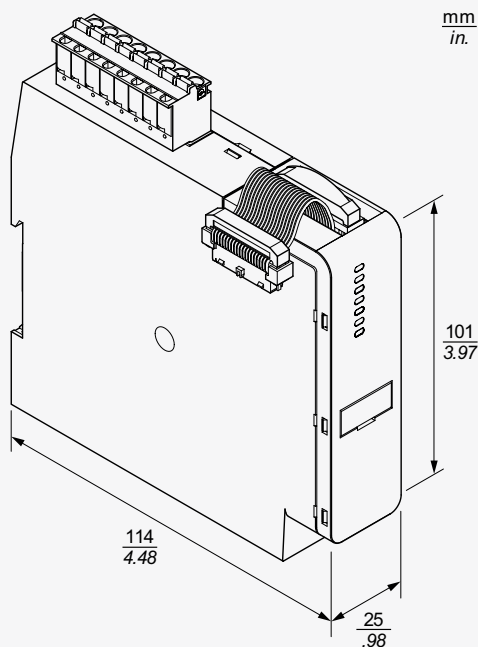
B

C

TeSys island Analog I/O module

Dimensions

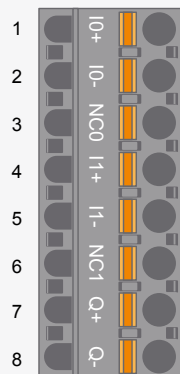
Analog I/O module: TPRAN2X1



Wiring diagrams

Analog I/O module

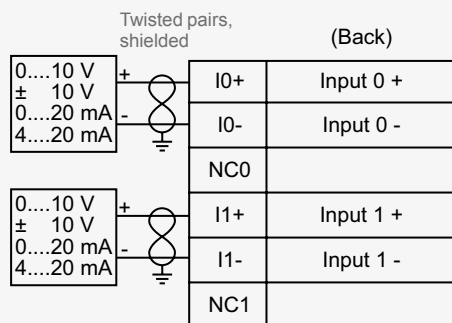
Terminals



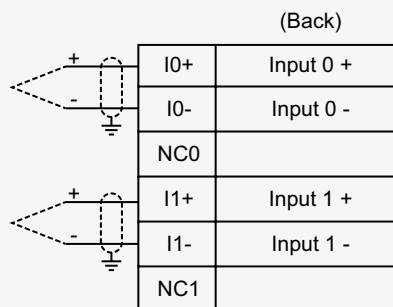
| Pin | Terminal Identification | Analog I/O module |
|---------------------------|-------------------------|-------------------|
| 1 (Closest to DIN rail) | I0 + | Input 0 + |
| 2 | I0 - | Input 0 - |
| 3 | NC 0 | NC 0 |
| 4 | I1 + | Input 1 + |
| 5 | I1 - | Input 1 - |
| 6 | NC 1 | NC 1 |
| 7 | Q + | Output + |
| 8 (Closest to front face) | Q - | Output - |

Analog I/O Wiring

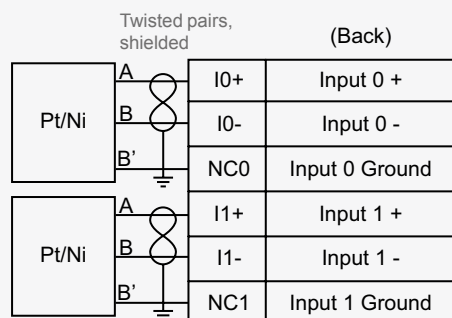
Current / Voltage Analog Device Input



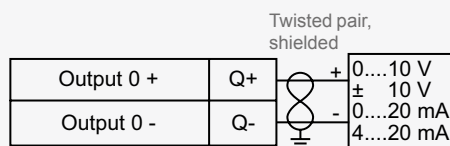
Thermocouples



Resistance Temperature Detector



Current / Voltage Analog Device Output



TeSys island Voltage Interface Module Introduction

Voltage Interface Module (VIM), for whole island monitoring

A

B

C



TPRVM001

The voltage interface module (VIM) enables voltage, power, and energy monitoring for the whole island.

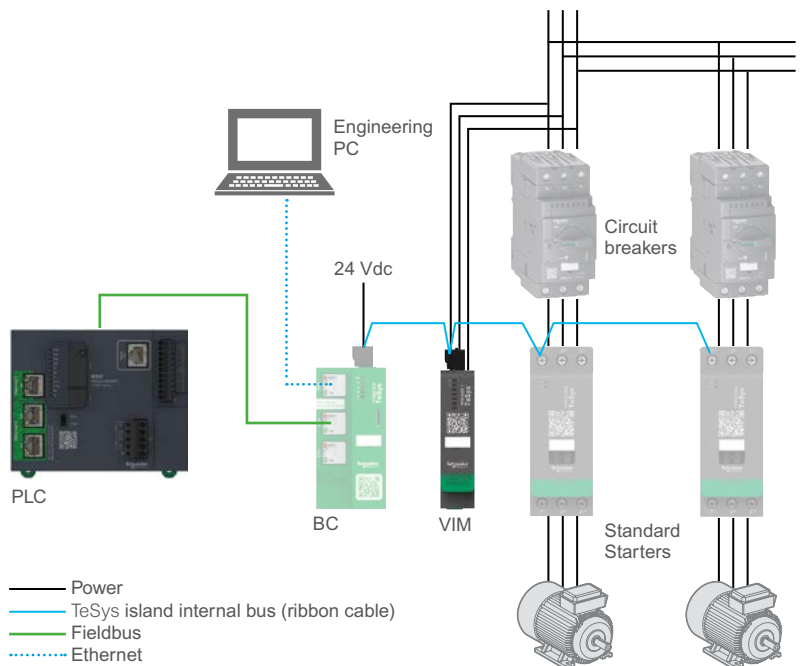
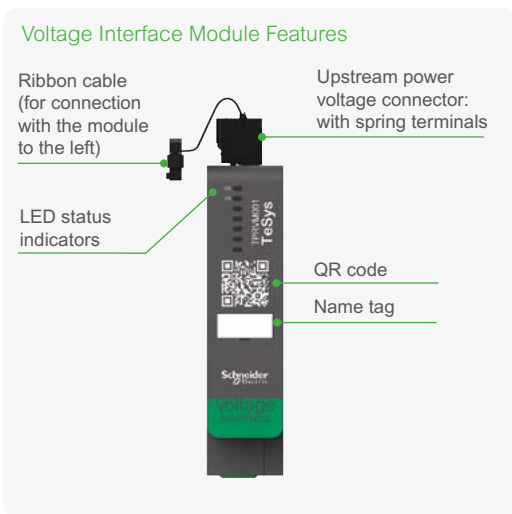
Main functions

- Measure single-phase and three-phase line voltages (47...63 Hz) at one connection point of the island
- Enable the monitoring of energy-related data at the island level
- Monitor voltage in single-phase systems L-N or L-L
- Monitor voltages in three-phase systems without neutral N connection
- Calculate RMS phase voltages, voltage phase sequence
- Monitor for fundamental frequency
- Identify the level and duration of dip and swell events.

The VIM is connected

- Upstream to the line voltages.

The VIM communicates with the bus coupler, sending operational data.



Voltage interface module (VIM) commercial information

| Designation | Phase | Voltage | Frequency | Product Reference | Weight |
|---------------------------------------|-------|------------|-----------|-------------------|--------|
| | | (V) | (Hz) | | |
| TeSys island Voltage interface module | 1P/3P | 100 to 690 | 50-60 | TPRVM001 | 0.159 |

TeSys island Voltage Interface Module

Specifications

| | |
|---|-----------------|
| Voltage interface module Product Reference | TPRVM001 |
|---|-----------------|

Standards - Certification

| | |
|-----------------------|--|
| Standards | IEC 61010-02-030, UL 61010-02-030, CSA C22.2 No 61010-02-030 |
| Product certification | UL, CSA, EAC |

Function specifications

| | | |
|--|------|---|
| Functionality | | <ul style="list-style-type: none"> • Provides Island line power supply voltage measurement • Values are sent to bus coupler, to enable load monitoring by upper system |
| Measurement Functions specifications | | <ul style="list-style-type: none"> • Voltage monitoring of single-phase (U L-N or U L-L) • 3-phase without neutral (U L1-L2, U L2-L3, U L3-L1) • RMS voltage calculation • Voltage phase sequence • Fundamental frequency • Dip and swell event levels and duration |
| Voltage measurement range | Vrms | 100...690 |
| Voltage measurement accuracy | % | ± 5 |
| Frequency measurement range | Hz | 47...63 |
| Frequency measurement accuracy | Hz | ± 1 |
| Rated insulation voltage according IEC 61010-1 [Ui] | V | 690 |
| Rated impulse withstand voltage according IEC 61010-1 [Uimp] | kV | 6 |
| Overvoltage category | | III |
| Local signaling | | <ul style="list-style-type: none"> • Device status, 1 green/red LED • Voltage status, 1 green/red LED |

Environment

| | | |
|---------------------------------------|---------|---|
| Ambient air temperature for storage | °C (°F) | -25...70 (-13...158) |
| Ambient air temperature for operation | °C (°F) | -10...60 (14...140) |
| Ambient air humidity for operation | % | 5...95 |
| Operating altitude | m (ft) | 0...2000 (0...6562) without derating |
| IP degree of protection | | IP20 |
| Pollution degree | | 2 |
| Protective treatment | | TC |
| Fire resistance | °C (°F) | 960 (1760) conforming to UL 94 850 (1562) conforming to IEC 60695-2-1 650 (1202) conforming to IEC 60695-2-12 |
| Vibration resistance | mm | 1.5 peak to peak (3...13 Hz) conforming to IEC 60068-2-6 1 gn (13...200 Hz) conforming to IEC 60068-2-6 |
| Authorised mounting modes | | Horizontal and vertical, on 35 mm symmetrical DIN rail |
| Shock resistance | | 15 gn (duration = 11 ms) conforming to IEC 60068-2-27 |
| Electromagnetic compatibility | | <ul style="list-style-type: none"> • Electrostatic discharge at 8 kV air, 6 kV contact conforming to EN/IEC 61000-4-2 level 3 • Radiated RF fields at 10 V/m conforming to EN/IEC 61000-4-3 level 3 • Fast transient immunity test at 4 kV conforming to EN/IEC 61000-4-4 level 4 • Surge immunity test immunity, level 3 (2 kV) conforming to EN/IEC 61000-4-5 |

Electrical specifications

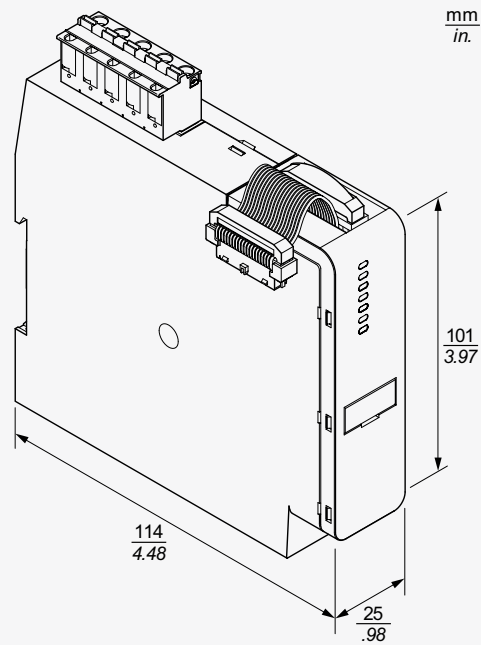
| | | |
|--|-----|-----|
| Rated supply voltage from bus coupler [Us] | Vdc | 24 |
| Current consumption on bus coupler | mA | 2 |
| Power dissipation | W | 0.5 |

Connector

| | | | |
|---------------------------------|---------------------------------|----------------------|------------------------------|
| Removable spring terminal block | 1 rigid cable | mm ² /AWG | 0.2... 2.5 / AWG 24...AWG 14 |
| | 1 flexible cable | mm ² /AWG | 0.2... 2.5 / AWG 24...AWG 14 |
| | 1 flexible cable with cable end | mm ² /AWG | 0.2... 2.5 / AWG 22...AWG 14 |

TeSys island Voltage Interface Module Dimensions

Voltage Interface Module: TPRVM001



Wiring diagrams

VIM Spring Terminal Connector



VIM Pinout

| Pin Number | Terminal Identification | Single Phase | Three Phase |
|------------|-------------------------|-----------------|-----------------|
| 1 | L1 | Phase A Voltage | Phase A voltage |
| 2 | - | Do Not Use | Do Not Use |
| 3 | L2 | Do Not Use | Phase B voltage |
| 4 | - | Do Not Use | Do Not Use |
| 5 | L3 | Phase B Voltage | Phase C voltage |

TeSys island assembly kits

Introduction

Assembly Kit for 2 speed or 2 direction avatars



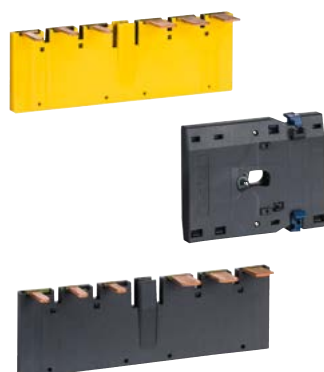
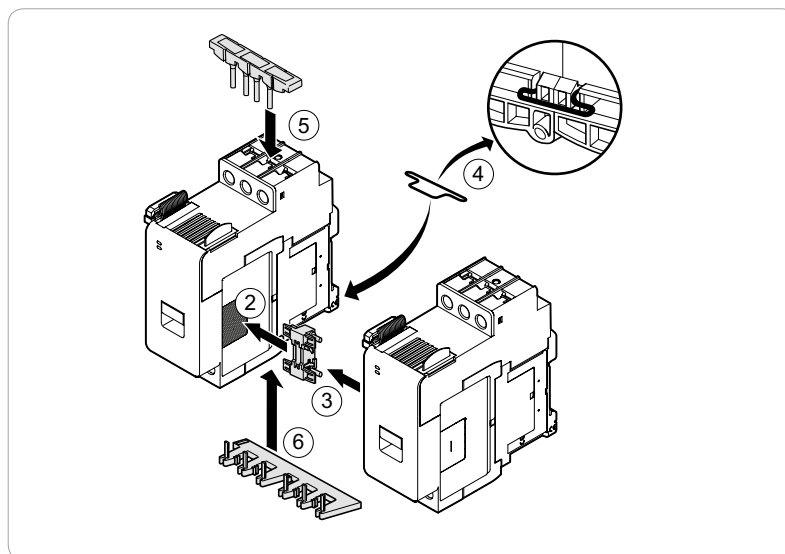
LAD9R1

LAD9R1

Kit is used to join adjacent 9-38 A (size 1 and 2) starters.

Composition:

- LAD9V2 - Mechanical interlock with assembly staple
- LAD9V5 - Parallel link between two starters
- LAD9V6 - Reversing link between two starters.



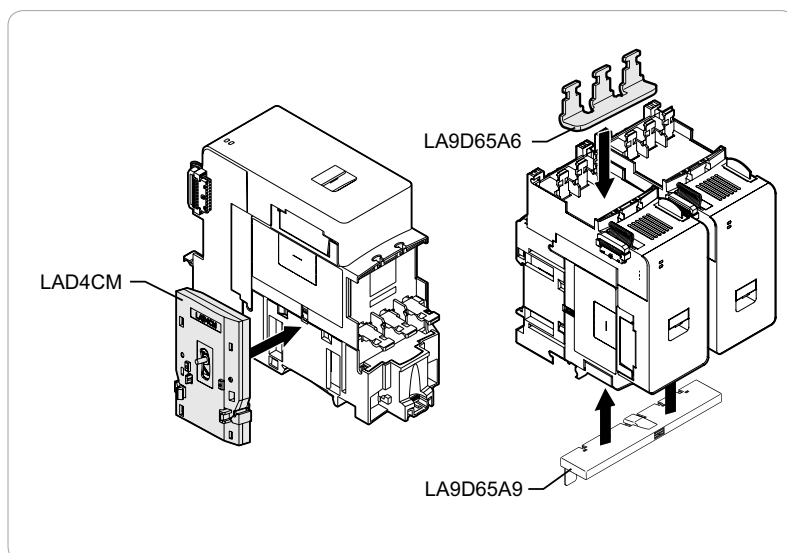
LAD9R3

LAD9R3

Kit is used to join adjacent 40-65 A (size 3) starters.

Composition:

- LAD4CM - Mechanical interlock
- LA9D65A6 - Parallel link between two starters
- LA9D65A9 - Reversing link between two starters.



Shorting blocks for Wye-Delta (Star-Delta) avatars



LAD9P3

LAD9P3

Is used for linking 3 poles of a 9-38 A (size 1 and 2) starter.



LAD9SD3S

LAD9SD3S

Is used for linking 3 poles of a 40-65 A (size 3) starter.

Assembly kits for starters

| Designation | | Product Reference |
|-----------------------------|--|-------------------|
| Assembly kit for 2 starters | 9-38 A (size 1 and 2) starters | LAD9R1 |
| | 40-65 A (size 3) starters | LAD9R3 |
| Jumper bar 3-pole | for 9-38 A (size 1 and 2) starter | LAD9P3 |
| | with hazard label - for 40-65 A (size 3) starter | LAD9SD3S |

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C



TeSys island

Coordination tables

Protection Components / Starters

Coordination – IEC

| | |
|---|-------|
| Type 1 or 2 coordination with fuses – 690 V..... | p. 42 |
| Type 1 coordination with circuit breakers – 230 V..... | p. 43 |
| Type 2 coordination with circuit breakers – 230 V..... | p. 44 |
| Type 1 coordination with circuit breakers 400/415-440-500 V..... | p. 45 |
| Type 2 coordination with circuit breakers 400/415-440-500 V..... | p. 46 |
| Type 1 coordination with circuit breakers – 690 V..... | p. 47 |
| Type 2 coordination with circuit breakers – 690 V..... | p. 48 |

Protection Components / Starters

SCCR Ratings – UL

| | |
|---|-------|
| Short Circuit Current Ratings (SCCR)..... | p. 49 |
| Group Motor Rating | p. 49 |



Protection Components / Starters - Coordination – IEC

Type 1 or 2 coordination with fuses

690 V

690 V - Type 1 or 2 coordination with fuses

| Applications with 3-phase motors 50-60 Hz in category AC-3 | aM fuses | Standard Starters SIL Starters Power Interface Modules | |
|---|----------|--|---------------|
| 690 V | Rating | References | Setting range |
| I _q | | | |
| kA | A | | A |
| 80 | ≤10 | TPRST009 TPRSS009 TPRPM009 | 0.18-9 |
| | ≤25 | TPRST025 TPRSS025 - | 0.5-25 |
| | ≤40 | TPRST038 TPRSS038 TPRPM038 | 0.76-38 |
| | ≤80 | TPRST065 TPRSS065 - | 3.25-65 |
| | ≤80 | TPRST080 TPRSS080 TPRPM080 | 4-80 |

Protection Components / Starters - Coordination – IEC

Type 1 coordination with circuit breakers

230 V

0.06 to 22 kW at 230 V: Type 1 coordination

| Applications power ratings of 3-phase motors 50-60 Hz in category AC-3 | | | Circuit breaker (Trip class 5 to 15) | Standard Starters SIL Starters Power Interface Modules | |
|--|----------------|----------------|---|--|------------------|
| 230 V | | | References | References | Setting range |
| P | I _e | I _q | | | |
| kW | A | kA | | | A |
| 0.06 | 0.35 | 100 | GV2L03 | TPRST009 TPRSS009 TPRPM009 | 0.18-9 |
| 0.09 | 0.52 | 100 | GV2L04 | TPRST009 TPRSS009 TPRPM009 | 0.18-9 |
| 0.12 | 0.7 | 100 | GV2L05 | TPRST009 TPRSS009 TPRPM009 | 0.18-9 |
| 0.18 | 1 | 100 | GV2L06 | TPRST009 TPRSS009 TPRPM009 | 0.18-9 |
| 0.25 | 1.5 | 100 | GV2L06 | TPRST009 TPRSS009 TPRPM009 | 0.18-9 |
| 0.37 | 1.9 | 100 | GV2L07 | TPRST009 TPRSS009 TPRPM009 | 0.18-9 |
| 0.55 | 2.6 | 100 | GV2L08 | TPRST009 TPRSS009 TPRPM009 | 0.18-9 |
| 0.75 | 3.3 | 100 | GV2L08 | TPRST009 TPRSS009 TPRPM009 | 0.18-9 |
| 1.1 | 4.7 | 100 | GV2L10 | TPRST009 TPRSS009 TPRPM009 | 0.18-9 |
| 1.5 | 6.3 | 100 | GV2L14 | TPRST009 TPRSS009 TPRPM009 | 0.18-9 |
| 2.2 | 8.5 | 100 | GV2L14 | TPRST009 TPRSS009 TPRPM009 | 0.18-9 |
| 3 | 11.3 | 100 | GV2L16 | TPRST025 TPRSS025 TPRPM038 | 0.5-25 / 0.76-38 |
| 4 | 15 | 100 | GV2L20 | TPRST025 TPRSS025 TPRPM038 | 0.5-25 / 0.76-38 |
| 5.5 | 20 | 50 | GV2L22 | TPRST025 TPRSS025 TPRPM038 | 0.5-25 / 0.76-38 |
| 7.5 | 27 | 50 | GV2L32 | TPRST038 TPRSS038 TPRPM038 | 0.76-38 |
| 9 | 32 | 100 | GV3L40 | TPRST038 TPRSS038 TPRPM038 | 0.76-38 |
| 11 | 38 | 100 | GV3L40 | TPRST065 TPRSS065 TPRPM080 | 3.25-65 / 4-80 |
| 15 | 51 | 100 | GV3L65 | TPRST065 TPRSS065 TPRPM080 | 3.25-65 / 4-80 |
| 18.5 | 61 | 100 | GV3L65 | TPRST065 TPRSS065 TPRPM080 | 3.25-65 / 4-80 |
| 22 | 72 | 100 | GV3L73 | TPRPM080 | 4-80 |

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Protection Components / Starters - Coordination – IEC

Type 2 coordination with circuit breakers

230 V

0.06 to 22 kW at 230 V: Type 2 coordination

| Applications power ratings of 3-phase motors 50-60 Hz in category AC-3 | | | Circuit breaker (Trip class 5 to 15) | Standard Starters SIL Starters | |
|--|----------------|----------------|---|-----------------------------------|---------------|
| 230 V | | | References | References | Setting range |
| P | I _e | I _q | | | |
| kW | A | kA | | | A |
| 0.06 | 0.35 | 100 | GV2L03 | TPRST009 TPRSS009 | 0.18-9 |
| 0.09 | 0.52 | 100 | GV2L04 | TPRST009 TPRSS009 | 0.18-9 |
| 0.12 | 0.7 | 100 | GV2L05 | TPRST009 TPRSS009 | 0.18-9 |
| 0.18 | 1 | 100 | GV2L06 | TPRST009 TPRSS009 | 0.18-9 |
| 0.25 | 1.5 | 100 | GV2L06 | TPRST009 TPRSS009 | 0.18-9 |
| 0.37 | 1.9 | 100 | GV2L07 | TPRST009 TPRSS009 | 0.18-9 |
| 0.55 | 2.6 | 100 | GV2L08 | TPRST009 TPRSS009 | 0.18-9 |
| 0.75 | 3.3 | 100 | GV2L08 | TPRST025 TPRSS025 | 0.5-25 |
| 1.1 | 4.7 | 100 | GV2L10 | TPRST025 TPRSS025 | 0.5-25 |
| 1.5 | 6.3 | 100 | GV2L14 | TPRST025 TPRSS025 | 0.5-25 |
| 2.2 | 8.5 | 100 | GV2L14 | TPRST025 TPRSS025 | 0.5-25 |
| 3 | 11.3 | 100 | GV2L16 | TPRST025 TPRSS025 | 0.5-25 |
| 4 | 15 | 100 | GV2L20 | TPRST025 TPRSS025 | 0.5-25 |
| 5.5 | 20 | 50 | GV2L22 | TPRST025 TPRSS025 | 0.5-25 |
| 7.5 | 27 | 50 | GV2L32 | TPRST038 TPRSS038 | 0.76-38 |
| 9 | 32 | 100 | GV3L40 | TPRST038 TPRSS038 | 0.76-38 |
| 11 | 38 | 100 | GV3L40 | TPRST065 TPRSS065 | 3.25-65 |
| 15 | 51 | 100 | GV3L65 | TPRST065 TPRSS065 | 3.25-65 |
| 18.5 | 61 | 100 | GV3L65 | TPRST065 TPRSS065 | 3.25-65 |

Protection Components / Starters - Coordination – IEC

Type 1 coordination with circuit breakers

400/415 - 440 - 500 V

0.06 to 37 kW at 400/415 - 440 - 500 V: Type 1 coordination

| Applications power ratings of 3-phase motors 50-60 Hz in category AC-3 | | | | | | | | | Circuit breaker (Trip class 5 to 15) | Standard Starters SIL Starters Power Interface Modules | |
|---|----------------|----------------|-------|----------------|----------------|-------|----------------|----------------|---|--|------------------|
| 400/415 V | | | 440 V | | | 500 V | | | References | References | Setting range |
| P | I _e | I _q | P | I _e | I _q | P | I _e | I _q | | | |
| kW | A | kA | kW | A | kA | kW | A | kA | | A | |
| 0.06 | 0.2 | 100 | 0.06 | 0.18 | 100 | - | - | - | GV2L03 | TPRST009 TPRSS009 TPRPM009 | 0.18-9 |
| 0.09 | 0.3 | 100 | 0.09 | 0.27 | 100 | - | - | - | | | |
| 0.12 | 0.44 | 100 | 0.12 | 0.4 | 100 | - | - | - | GV2L04 | TPRST009 TPRSS009 TPRPM009 | 0.18-9 |
| 0.18 | 0.6 | 100 | 0.18 | 0.55 | 100 | - | - | - | | | |
| 0.25 | 0.85 | 100 | 0.25 | 0.77 | 100 | - | - | - | GV2L05 | TPRST009 TPRSS009 TPRPM009 | 0.18-9 |
| 0.37 | 1.1 | 100 | - | - | - | 0.37 | 0.88 | 100 | | | |
| - | - | - | 0.37 | 1 | 100 | - | - | - | GV2L06 | TPRST009 TPRSS009 TPRPM009 | 0.18-9 |
| 0.55 | 1.5 | 100 | 0.55 | 1.4 | 100 | 0.55 | 1.2 | 100 | | | |
| - | - | - | - | - | - | 0.75 | 1.5 | 100 | GV2L07 | TPRST009 TPRSS009 TPRPM009 | 0.18-9 |
| 0.75 | 1.9 | 100 | 0.75 | 1.7 | 100 | - | - | - | | | |
| 1.1 | 2.7 | 100 | - | - | - | 1.1 | 2.2 | 100 | GV2L08 | TPRST009 TPRSS009 TPRPM009 | 0.18-9 |
| - | - | - | 1.1 | 2.4 | 100 | - | - | - | | | |
| 1.5 | 3.6 | 100 | 1.5 | 3.3 | 100 | 1.5 | 2.9 | 100 | GV2L10 | TPRST009 TPRSS009 TPRPM009 | 0.18-9 |
| 2.2 | 4.9 | 100 | 2.2 | 4.5 | 100 | 2.2 | 3.9 | 100 | | | |
| - | - | - | 3 | 5.9 | 100 | 3 | 5.2 | 100 | GV2L14 | TPRST009 TPRSS009 TPRPM009 | 0.18-9 |
| 3 | 6.5 | 100 | - | - | - | - | - | - | | | |
| 4 | 8.5 | 100 | 4 | 7.7 | 20 | 4 | 6.8 | 10 | GV2L16 | TPRST025 TPRSS025 TPRPM038 | 0.5-25 / 0.76-38 |
| - | - | - | - | - | - | 5.5 | 9.2 | 10 | | | |
| 5.5 | 11.5 | 50 | 5.5 | 10.5 | 20 | - | - | - | GV2L20 | TPRST025 TPRSS025 TPRPM038 | 0.5-25 / 0.76-38 |
| - | - | - | - | - | - | 7.5 | 12.4 | 10 | | | |
| 7.5 | 15.5 | 50 | 7.5 | 14.1 | 20 | - | - | - | GV2L22 | TPRST025 TPRSS025 TPRPM038 | 0.5-25 / 0.76-38 |
| - | - | - | 9 | 16.5 | 20 | 9 | 13.9 | 10 | | | |
| 9 | 18.1 | 50 | - | - | - | - | - | - | GV2L32 | TPRST038 TPRSS038 TPRPM038 | 0.76-38 |
| 11 | 22 | 50 | 11 | 20 | 20 | 11 | 17.6 | 10 | | | |
| - | - | - | - | - | - | 15 | 23 | 10 | GV3L40 | TPRST065 TPRSS065 TPRPM080 | 3.25-65 / 4-80 |
| 15 | 29 | 50 | 15 | 26.4 | 20 | - | - | - | | | |
| - | - | - | - | - | - | 18.5 | 28 | 10 | GV3L50 | TPRST065 TPRSS065 TPRPM080 | 3.25-65 / 4-80 |
| 18.5 | 35 | 50 | 18.5 | 31.8 | 50 | - | - | - | | | |
| - | - | - | - | - | - | 22 | 33 | 12 | GV3L65 | TPRST065 TPRSS065 TPRPM080 | 3.25-65 / 4-80 |
| 22 | 41 | 50 | 22 | 37.3 | 50 | - | - | - | | | |
| - | - | - | - | - | - | 30 | 44 | 12 | GV3L73 | TPRST065 TPRSS065 TPRPM080 | 3.25-65 / 4-80 |
| 30 | 55 | 50 | 30 | 50 | 50 | - | - | - | | | |
| - | - | - | 37 | 60 | 50 | 37 | 53 | 12 | | | |
| 37 | 66 | 50 | - | - | - | - | - | - | | | |

A

B

C

Protection Components / Starters - Coordination – IEC

Type 2 coordination with circuit breakers

400/415 - 440 - 500 V

0.06 to 37 kW at 400/415 - 440 - 500 V: Type 2 coordination

| Applications power ratings of 3-phase motors 50-60 Hz in category AC-3 | | | | | | | | | Circuit breaker (Trip class 5 to 15) | Standard Starters SIL Starters | |
|---|----------------|----------------|-------|----------------|----------------|-------|----------------|----------------|---|-----------------------------------|---------------|
| 400/415 V | | | 440 V | | | 500 V | | | References | References | Setting range |
| P | I _e | I _q | P | I _e | I _q | P | I _e | I _q | | | A |
| kW | A | kA | kW | A | kA | kW | A | kA | | | |
| 0.06 | 0.2 | 100 | 0.06 | 0.18 | 100 | - | - | - | GV2L03 | TPRST009 TPRSS009 | 0.18-9 |
| 0.09 | 0.3 | 100 | 0.09 | 0.27 | 100 | - | - | - | | | |
| 0.12 | 0.44 | 100 | 0.12 | 0.4 | 100 | - | - | - | GV2L04 | TPRST009 TPRSS009 | 0.18-9 |
| 0.18 | 0.6 | 100 | 0.18 | 0.55 | 100 | - | - | - | | | |
| 0.25 | 0.85 | 100 | 0.25 | 0.77 | 100 | - | - | - | GV2L05 | TPRST009 TPRSS009 | 0.18-9 |
| 0.37 | 1.1 | 100 | - | - | - | 0.37 | 0.88 | 100 | | | |
| - | - | - | 0.37 | 1 | 100 | - | - | - | GV2L06 | TPRST009 TPRSS009 | 0.18-9 |
| 0.55 | 1.5 | 100 | 0.55 | 1.4 | 100 | 0.55 | 1.2 | 100 | | | |
| - | - | - | - | - | - | 0.75 | 1.5 | 100 | GV2L07 | TPRST009 TPRSS009 | 0.18-9 |
| 0.75 | 1.9 | 100 | 0.75 | 1.7 | 100 | - | - | - | | | |
| - | - | - | - | - | - | 1.1 | 2.2 | 100 | GV2L07 | TPRST025 TPRSS025 | 0.5-25 |
| 1.1 | 2.7 | 100 | - | - | - | - | - | - | | | |
| - | - | - | 1.1 | 2.4 | 100 | - | - | - | GV2L08 | TPRST009 TPRSS009 | 0.18-9 |
| - | - | - | - | - | - | 1.5 | 2.9 | 100 | | | |
| 1.5 | 3.6 | 100 | 1.5 | 3.3 | 100 | - | - | - | GV2L08 | TPRST025 TPRSS025 | 0.5-25 |
| 2.2 | 4.9 | 100 | 2.2 | 4.5 | 100 | 2.2 | 3.9 | 100 | | | |
| - | - | - | 3 | 5.9 | 100 | 3 | 5.2 | 100 | GV2L10 | TPRST025 TPRSS025 | 0.5-25 |
| 3 | 6.5 | 100 | - | - | - | - | - | - | | | |
| 4 | 8.5 | 100 | 4 | 7.7 | 20 | 4 | 6.8 | 10 | GV2L14 | TPRST025 TPRSS025 | 0.5-25 |
| - | - | - | - | - | - | 5.5 | 9.2 | 10 | | | |
| 5.5 | 11.5 | 50 | 5.5 | 10.5 | 20 | - | - | - | GV2L16 | TPRST025 TPRSS025 | 0.5-25 |
| - | - | - | - | - | - | 7.5 | 12.4 | 10 | | | |
| 7.5 | 15.5 | 50 | 7.5 | 14.1 | 20 | - | - | - | GV2L20 | TPRST025 TPRSS025 | 0.5-25 |
| - | - | - | 9 | 16.5 | 20 | 9 | 13.9 | 10 | | | |
| 9 | 18.1 | 50 | - | - | - | - | - | - | GV2L22 | TPRST025 TPRSS025 | 0.5-25 |
| 11 | 22 | 50 | 11 | 20 | 20 | 11 | 17.6 | 10 | | | |
| - | - | - | - | - | - | 15 | 23 | 10 | GV2L32 | TPRST038 TPRSS038 | 0.76-38 |
| 15 | 29 | 50 | 15 | 26.4 | 20 | - | - | - | | | |
| - | - | - | - | - | - | 18.5 | 28 | 10 | GV3L40 | TPRST065 TPRSS065 | 3.25-65 |
| 18.5 | 35 | 50 | 18.5 | 31.8 | 50 | - | - | - | | | |
| - | - | - | - | - | - | 22 | 33 | 12 | GV3L50 | TPRST065 TPRSS065 | 3.25-65 |
| 22 | 41 | 50 | 22 | 37.3 | 50 | - | - | - | | | |
| - | - | - | - | - | - | 30 | 44 | 12 | GV3L65 | TPRST065 TPRSS065 | 3.25-65 |
| 30 | 55 | 50 | 30 | 50 | 50 | - | - | - | | | |
| - | - | - | 37 | 60 | 50 | 37 | 53 | 12 | GV3L73 | TPRST065 TPRSS065 | 3.25-65 |
| 37 | 66 | 50 | - | - | - | - | - | - | | | |

Protection Components / Starters - Coordination – IEC

Type 1 coordination with circuit breakers

690 V

0.06 to 37 kW at 690 V: Type 1 coordination

| Applications power ratings of 3-phase motors 50-60 Hz in category AC-3 | | | Circuit breaker (Trip class 5 to 15) | Standard Starters SIL Starters Power Interface Modules | |
|--|----------------|----------------|---|--|------------------|
| 690 V | | | References | References | Setting range |
| P | I _e | I _q | | | |
| kW | A | kA | | | A |
| 0.37 | 0.64 | 100 | GV2L05 | TPRST009 TPRSS009 TPRPM009 | 0.18-9 |
| 0.55 | 0.87 | 4 | GV2L05 | TPRST009 TPRSS009 TPRPM009 | 0.18-9 |
| 0.75 | 1.1 | 4 | GV2L06 | TPRST009 TPRSS009 TPRPM009 | 0.18-9 |
| 1.1 | 1.6 | 4 | GV2L07 | TPRST009 TPRSS009 TPRPM009 | 0.18-9 |
| 1.5 | 2.1 | 4 | GV2L07 | TPRST009 TPRSS009 TPRPM009 | 0.18-9 |
| 2.2 | 2.8 | 4 | GV2L08 | TPRST009 TPRSS009 TPRPM009 | 0.18-9 |
| 3 | 3.8 | 4 | GV2L08 | TPRST009 TPRSS009 TPRPM009 | 0.18-9 |
| 4 | 4.9 | 4 | GV2L10 | TPRST009 TPRSS009 TPRPM009 | 0.18-9 |
| 5.5 | 6.7 | 4 | GV2L14 | TPRST009 TPRSS009 TPRPM009 | 0.18-9 |
| 7.5 | 8.9 | 4 | GV2L14 | TPRST025 TPRSS025 TPRPM038 | 0.5-25 / 0.76-38 |
| 9 | 10.5 | 4 | GV2L16 | TPRST025 TPRSS025 TPRPM038 | 0.5-25 / 0.76-38 |
| 11 | 12.8 | 4 | GV2L16 | TPRST025 TPRSS025 TPRPM038 | 0.5-25 / 0.76-38 |
| 15 | 17 | 4 | GV2L20 | TPRST025 TPRSS025 TPRPM038 | 0.5-25 / 0.76-38 |
| 18.5 | 21 | 4 | GV2L22 | TPRST038 TPRSS038 TPRPM038 | 0.76-38 |
| 22 | 24 | 4 | GV2L22 | TPRST065 TPRSS065 TPRPM080 | 3.25-65 / 4-80 |
| 30 | 32 | 6 | GV3L40 | TPRST065 TPRSS065 TPRPM080 | 3.25-65 / 4-80 |
| 37 | 39 | 6 | GV3L50 | TPRST065 TPRSS065 TPRPM080 | 3.25-65 / 4-80 |

A

B

C

Protection Components / Starters - Coordination – IEC

Type 2 coordination with circuit breakers

690 V

0.06 to 37 kW at 690 V: Type 2 coordination

| Applications power ratings of 3-phase motors 50-60 Hz in category AC-3 | | | Circuit breaker (Trip class 5 to 15) | Standard Starters SIL Starters | |
|--|----------------|----------------|---|-----------------------------------|---------------|
| 690 V | | | References | References | Setting range |
| P | I _e | I _q | | | |
| kW | A | kA | | | A |
| 0.37 | 0.64 | 100 | GV2L05 | TPRST009 TPRSS009 | 0.18-9 |
| 0.55 | 0.87 | 4 | GV2L05 | TPRST009 TPRSS009 | 0.18-9 |
| 0.75 | 1.1 | 4 | GV2L06 | TPRST009 TPRSS009 | 0.18-9 |
| 1.1 | 1.6 | 4 | GV2L07 | TPRST009 TPRSS009 | 0.18-9 |
| 1.1 | 1.6 | 50 | GV2L07 + LA9LB920 | TPRST025 TPRSS025 | 0.5-25 |
| 1.5 | 2.1 | 4 | GV2L07 | TPRST009 TPRSS009 | 0.18-9 |
| 1.5 | 2.1 | 50 | GV2L07 + LA9LB920 | TPRST025 TPRSS025 | 0.5-25 |
| 2.2 | 2.8 | 4 | GV2L08 | TPRST025 TPRSS025 | 0.5-25 |
| 2.2 | 2.8 | 50 | GV2L08 + LA9LB920 | TPRST025 TPRSS025 | 0.5-25 |
| 3 | 3.8 | 4 | GV2L08 | TPRST025 TPRSS025 | 0.5-25 |
| 3 | 3.8 | 50 | GV2L08 + LA9LB920 | TPRST025 TPRSS025 | 0.5-25 |
| 4 | 4.9 | 4 | GV2L10 | TPRST025 TPRSS025 | 0.5-25 |
| 4 | 4.9 | 50 | GV2L10 + LA9LB920 | TPRST025 TPRSS025 | 0.5-25 |
| 5.5 | 6.7 | 4 | GV2L14 | TPRST025 TPRSS025 | 0.5-25 |
| 5.5 | 6.7 | 50 | GV2L14 + LA9LB920 | TPRST025 TPRSS025 | 0.5-25 |
| 7.5 | 8.9 | 4 | GV2L14 | TPRST025 TPRSS025 | 0.5-25 |
| 7.5 | 8.9 | 50 | GV2L14 + LA9LB920 | TPRST025 TPRSS025 | 0.5-25 |
| 9 | 10.5 | 4 | GV2L16 | TPRST025 TPRSS025 | 0.5-25 |
| 11 | 12.8 | 4 | GV2L16 | TPRST025 TPRSS025 | 0.5-25 |
| 15 | 17 | 4 | GV2L20 | TPRST025 TPRSS025 | 0.5-25 |
| 15 | 17 | 3 | GV2L22 + LA9LB920 | TPRST038 TPRSS038 | 0.76-38 |
| 18.5 | 21 | 4 | GV2L22 | TPRST038 TPRSS038 | 0.76-38 |
| 18.5 | 21 | 3 | GV2L25 + LA9LB920 | TPRST065 TPRSS065 | 3.25-65 |
| 22 | 24 | 4 | GV2L22 | TPRST065 TPRSS065 | 3.25-65 |
| 22 | 24 | 3 | GV2L32 + LA9LB920 | TPRST065 TPRSS065 | 3.25-65 |
| 30 | 32 | 6 | GV3L40 | TPRST065 TPRSS065 | 3.25-65 |
| 37 | 39 | 6 | GV3L50 | TPRST065 TPRSS065 | 3.25-65 |

Protection Components / Starters – SCCR Ratings – UL

Short Circuit Current Ratings (SCCR)

| UL File E39281 and File E48539 Suitable for use on a circuit delivering not more than: | | | | | | | | Standard Starters SIL Starters Power Interface Modules | |
|---|------------------|--------------------------------------|------------------|--------------------------------------|------------------|--|------------------|--|---------------|
| High SCCR | | | | | | Standard SCCR | | References | Setting range |
| Max Voltage 600 V Class J Fuse ⁽¹⁾ | | Max Voltage 480 V Circuit Breaker | | Max Voltage 600 V Circuit Breaker | | Max Voltage 600 V Circuit Breaker or Fuse | | | |
| SCCR | Maximum Amperage | SCCR | Maximum Amperage | SCCR | Maximum Amperage | SCCR | Maximum Amperage | | |
| kA | A | kA | A | kA | A | kA | A | | A |
| 100 | 25 | 85 | 35 | 50 | 35 | 5 | 35 | TPRST009 TPRSS009 TPRPM009 | 0.18-9 |
| 100 | 60 | 85 | 60 | 50 | 60 | 5 | 100 | TPRST025 TPRSS025 | 0.5-25 |
| 100 | 100 | 85 | 60 | 50 | 60 | 5 | 125 | TPRST038 TPRSS038 TPRPM038 | 0.76-38 |
| 100 | 125 | 85 | 110 | 50 | 110 | 5 | 250 | TPRST065 TPRSS065 | 3.25-65 |
| 100 | 125 | 85 | 110 | 50 | 110 | 5 | 250 | TPRST080 TPRSS080 TPRPM080 | 4-80 |

(1) When protected by any Class J or CC time-delay fuse (Class CC applicable up to 30 A only).

Group Motor Rating

| Suitable for group installation on a circuit delivering not more than: | | | | Standard Starters SIL Starters | |
|--|------------------|-------------------------------------|------------------|-----------------------------------|---------------|
| Max voltage 600 V - Class J Fuse ⁽¹⁾ | | Max voltage 480 V - Circuit Breaker | | References | Setting range |
| SCCR | Maximum Amperage | SCCR | Maximum Amperage | | |
| kA | A | kA | A | | A |
| 5 | 90 | 5 | 90 | TPRST009 TPRSS009 | 0.18-9 |
| 5 | 175 | 5 | 175 | TPRST025 TPRSS025 | 0.5-25 |
| 5 | 175 | 5 | 175 | TPRST038 TPRSS038 | 0.76-38 |
| 5 | 600 | 5 | 600 | TPRST065 TPRSS065 | 3.25-65 |
| 5 | 600 | 5 | 600 | TPRST080 TPRSS080 | 4-80 |

(1) When protected by any Class J or CC time-delay fuse.

Related documentation

| Document Title | Description | Document Number |
|---|---|-------------------|
| Guide | | |
| TeSys™ island System Guide | Introduces and describes the main functions of TeSys™ island | 8536IB1901 |
| TeSys™ island Installation Guide | Describes the mechanical installation, wiring, and commissioning of TeSys™ island | 8536IB1902 |
| TeSys™ island Operating Guide | Describes how to operate and maintain TeSys™ island | 8536IB1903 |
| TeSys™ island Functional Safety Guide | Describes the Functional Safety features ⁽¹⁾ of TeSys™ island | 8536IB1904 |
| TeSys™ island Third Party Function Block Guide | Contains the information needed to create function blocks for third party hardware | 8536IB1905 |
| TeSys™ Island EtherNet/IP™ Quick Start Guide | Describes how to quickly integrate TeSys™ island with a Rockwell EtherNet/IP PLC | 8536IB1906 |
| TeSys™ island Quick Start Guide for PROFINET™ and PROFIBUS™ | Describes how to quickly integrate TeSys™ island in a PROFINET and PROFIBUS communication architecture | 8536IB1916 |
| TeSys™ island EtherNet/IP™ Function Block Library Guide | Describes the TeSys™ island library used in the Studio 5000 environment with a Rockwell EtherNet/IP PLC | 8536IB1914 |
| TeSys™ island PROFINET™ and PROFIBUS™ Function Block Library Guide | Describes the TeSys™ island library used in the Studio 5000 environment with a PLC using PROFINET or PROFIBUS communication | 836IB1917 |
| TeSys™ island DTM Online Help Guide | Describes how to install and use various functions of TeSys™ island configuration software and how to configure the parameters of TeSys™ island | 8536IB1907 |
| Product Environmental Profile | | |
| TeSys™ island Product Environmental Profile: Bus Coupler | Describes constituent materials, recyclability potential, and environmental impact information for the TeSys™ island Bus Coupler | 8536IB1908 |
| TeSys™ island Product Environmental Profile: Starters and Power Interface Modules | Describes constituent materials, recyclability potential, and environmental impact information for the TeSys™ island starters and power interface modules | 8536IB1909 |
| TeSys™ island Product Environmental Profile: Accessories | Describes constituent materials, recyclability potential, and environmental impact information for the TeSys™ island accessories | 8536IB1910 |
| Product End of Life Instructions | | |
| TeSys™ island Product End of Life: Instructions, Bus Coupler | Contains end of life instructions for the TeSys™ island Bus Coupler | 8536IB1911 |
| TeSys™ island Product End of Life: Instructions, Starters and Power Interface Modules | This bulletin contains end of life instructions for TeSys™ island starters and power interface modules | 8536IB1912 |
| TeSys™ island Product End of Life: Instructions, Accessories | Contains end of life instructions for TeSys™ island accessories | 8536IB1913 |
| Instruction Sheet | | |
| TeSys™ island Instruction Sheet: Bus Coupler TPRBCPFN | Describes how to install the TeSys™ island PROFINET Bus Coupler | MFR44098 |
| TeSys™ island Instruction Sheet: Bus Coupler TPRBCPFB | Describes how to install the TeSys™ island PROFIBUS Bus Coupler | GDE55148 |
| TeSys™ island Instruction Sheet: Bus Coupler TPRBCEIP | Describes how to install the TeSys™ island Modbus TCP Bus Coupler | MFR44097 |
| TeSys™ island Instruction Sheet: Starters and Power Interface Modules Size 1 and 2 | Describes how to install size 1 and 2 TeSys™ island starters and power interface modules | MFR77070 |
| TeSys™ island Instruction Sheet: Starters and Power Interface Modules, Size 3 | Describes how to install size 3 TeSys™ island starters and power interface modules | MFR77085 |
| TeSys™ island Instruction Sheet: Input/Output Modules | Describes how to install the TeSys™ island analog and digital I/O modules | MFR44099 |
| TeSys™ island Instruction Sheet: SIL Interface and Voltage Interface Modules | Describes how to install the TeSys™ island voltage interface modules and SIL interface modules | MFR44100 |

(1) Functional Safety according to EN 61508



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*PEP: Product Environmental Profile (i.e. Environmental Product Declaration)

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