

# Product datasheet

Specifications



## Soft starter, Altivar Soft Starter ATS490, 17A, 208 to 690V AC, control supply 110 to 230V AC

ATS490D17Y

### Main

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Range of product                           | Altivar Soft Starter ATS490                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Product or component type                  | Soft starter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Product destination                        | Asynchronous motors                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Product specific application               | Process and infrastructures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Device short name                          | ATS490                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Network number of phases                   | 3 phases                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Utilisation category                       | AC-3A<br>AC-53A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Ue power supply voltage                    | 208...690 V AC (- 15...10 %)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| power supply frequency                     | 50...60 Hz - 20...20 %                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| [Ie] rated operational current             | Normal duty: 17 A in line (at <40 °C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Service factor at Ie                       | 100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| rated current in heavy duty                | 12 A at 40 °C for heavy duty                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| IP degree of protection                    | IP20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Motor power kW                             | 4 kW at 230 V in the motor supply line normal duty<br>7.5 kW at 400 V in the motor supply line normal duty<br>7.5 kW at 440 V in the motor supply line normal duty<br>9 kW at 500 V in the motor supply line normal duty<br>9 kW at 525 V in the motor supply line normal duty<br>11 kW at 660 V in the motor supply line normal duty<br>15 kW at 690 V in the motor supply line normal duty<br>3 kW at 230 V in the motor supply line heavy duty<br>5.5 kW at 400 V in the motor supply line heavy duty<br>5.5 kW at 440 V in the motor supply line heavy duty<br>7.5 kW at 500 V in the motor supply line heavy duty<br>7.5 kW at 525 V in the motor supply line heavy duty<br>9 kW at 660 V in the motor supply line heavy duty<br>11 kW at 690 V in the motor supply line heavy duty<br>7.5 kW at 230 V to the motor delta terminals normal duty<br>15 kW at 400 V to the motor delta terminals normal duty<br>5.5 kW at 230 V to the motor delta terminals heavy duty<br>11 kW at 400 V to the motor delta terminals heavy duty |
| Motor power hp                             | 3 hp at 208 V normal duty<br>5 hp at 230 V normal duty<br>10 hp at 460 V normal duty<br>15 hp at 575 V normal duty<br>2 hp at 208 V heavy duty<br>3 hp at 230 V heavy duty<br>7.5 hp at 460 V heavy duty<br>10 hp at 575 V heavy duty                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| With safety function Safe torque off (STO) | True                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Safe Torque Off (STO)                      | STO (safe torque off): SIL 1 conforming to IEC 61508<br>STO (safe torque off): PL c/category 2 conforming to ISO 13849                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Cybersecurity functions                    | True                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

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

|                                  |                                                                                                                                                                                                                       |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cybersecurity level and standard | Security level (SL) 1 conforming to IEC 62443-4-2                                                                                                                                                                     |
| Communication port protocol      | Modbus serial<br>Modbus TCP/EtherNet/IP                                                                                                                                                                               |
| Option card                      | Communication module for CANopen daisy chain<br>Communication module for CANopen Sub-D<br>Communication module for CANopen open style<br>Communication module for Profibus DP V1<br>Communication module for PROFINET |

## Complementary

|                                                               |                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Device connection                                             | In the motor supply line<br>Inside delta                                                                                                                                                                                                                                                                                                                                                                  |
| Overload current profile                                      | 400 % I <sub>e</sub> for 13 s                                                                                                                                                                                                                                                                                                                                                                             |
| On-load factor                                                | 50 %                                                                                                                                                                                                                                                                                                                                                                                                      |
| Operating cycles/hour                                         | 10 cyc/h                                                                                                                                                                                                                                                                                                                                                                                                  |
| [U <sub>s</sub> ] control circuit voltage                     | 110...230 V AC 50...60 Hz - 15...10 %                                                                                                                                                                                                                                                                                                                                                                     |
| Apparent power                                                | 70 VA                                                                                                                                                                                                                                                                                                                                                                                                     |
| Integrated motor overload protection                          | True                                                                                                                                                                                                                                                                                                                                                                                                      |
| motor thermal protection class                                | Class 10E                                                                                                                                                                                                                                                                                                                                                                                                 |
| Protection type                                               | Phase failure: mains<br>Thermal protection: starter<br>Thermal protection: motor<br>Current overload: motor<br>Motor underload: motor<br>Excessive acceleration time: motor<br>Motor phase loss detection: motor<br>Protection against line phase inversion: mains<br>External thermal protection: motor<br>Protection delta inside wiring: starter<br>Short-circuit between motor phase and earth: motor |
| current limiting %I <sub>n</sub> (5 x I <sub>e</sub> maximum) | 150...700 %                                                                                                                                                                                                                                                                                                                                                                                               |
| Rated current pwr loss specification                          | 17 A                                                                                                                                                                                                                                                                                                                                                                                                      |
| Power loss static current independent                         | 19 W                                                                                                                                                                                                                                                                                                                                                                                                      |
| Power loss per device current dependent                       | 2 W                                                                                                                                                                                                                                                                                                                                                                                                       |
| Power loss during starting                                    | 202 W during starting at 40 °C at 400% I <sub>e</sub>                                                                                                                                                                                                                                                                                                                                                     |
| Standards                                                     | EN/IEC 60947-4-2<br>UL 60947-4-2<br>IEC 60664-1                                                                                                                                                                                                                                                                                                                                                           |
| Product certifications                                        | CE<br>cULus<br>UKCA<br>RCM<br>CCC<br>DNV<br>ATEX<br>EAC<br>KC                                                                                                                                                                                                                                                                                                                                             |
| Marking                                                       | CE<br>CULus<br>UKCA<br>RCM<br>CCC<br>ATEX<br>EAC<br>KC                                                                                                                                                                                                                                                                                                                                                    |
| [U <sub>c</sub> ] control circuit voltage                     | 24 V DC                                                                                                                                                                                                                                                                                                                                                                                                   |

|                             |                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Discrete input number       | 5                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Discrete input type         | (DI1) digital input, 4.4 kOhm<br>(DI2) digital input, 4.4 kOhm<br>(DI3) digital input, 4.4 kOhm<br>(DI4) digital input, 4.4 kOhm<br>(STO) digital input, > 1 kOhm                                                                                                                                                                                                                                                           |
| Input compatibility         | DI1: discrete input level 1 PLC conforming to EN/IEC 61131-2<br>DI2: discrete input level 1 PLC conforming to EN/IEC 61131-2<br>DI3: discrete input level 1 PLC conforming to EN/IEC 61131-2<br>DI4: discrete input level 1 PLC conforming to EN/IEC 61131-2<br>STO: discrete input level 1 PLC conforming to EN/IEC 61131-2                                                                                                |
| Discrete input logic        | Digital input DI1 at State 0: 0...< 5 V and <= 2 mA at State 1: > 11 V, >= 5 mA<br>Digital input DI2 at State 0: 0...< 5 V and <= 2 mA at State 1: > 11 V, >= 5 mA<br>Digital input DI3 at State 0: 0...< 5 V and <= 2 mA at State 1: > 11 V, >= 5 mA<br>Digital input DI4 at State 0: 0...< 5 V and <= 2 mA at State 1: > 11 V, >= 5 mA<br>Digital input STO at State 0: 0...< 5 V and <= 2 mA at State 1: > 11 V, >= 5 mA |
| Relay output number         | 3                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Relay output type           | Relay outputs R1A, R1C NO<br>Relay outputs R2A, R2C NO<br>Relay outputs R3A, R3C NO                                                                                                                                                                                                                                                                                                                                         |
| Minimum switching current   | 100 mA at 12 V DC for relay outputs                                                                                                                                                                                                                                                                                                                                                                                         |
| Maximum switching current   | Relay outputs 2 A / 250 V AC for AC-15 100000 cycles following IEC 60947-5-1<br>Relay outputs 2 A / 30 V DC for DC-13 150000 cycles following IEC 60947-5-1                                                                                                                                                                                                                                                                 |
| Discrete output number      | 2                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Discrete output type        | Programmable digital output DQ1 <= 30 V 100 mA<br>Programmable digital output DQ2 <= 30 V 100 mA                                                                                                                                                                                                                                                                                                                            |
| Output compatibility        | Open collector level 1 PLC conforming to IEC 65A-68                                                                                                                                                                                                                                                                                                                                                                         |
| Analogue input number       | 1                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Analogue input type         | AI1/PTC1 : PTC/PT 100/PT 1000/KTY84 temperature probe<br>PTC2 : PTC/PT 100/PT 1000/KTY84 temperature probe<br>PTC3 : PTC/PT 100/PT 1000/KTY84 temperature probe                                                                                                                                                                                                                                                             |
| Analogue output number      | 1                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Analogue output type        | Current output AQ1 : 0...20 mA/4...20 mA , impedance< 500 Ohm<br>Voltage output AQ1 : 0...10 V , impedance> 470 Ohm                                                                                                                                                                                                                                                                                                         |
| Communication port protocol | Modbus serial<br>Modbus TCP/EtherNet/IP                                                                                                                                                                                                                                                                                                                                                                                     |
| Connector type              | 1 RJ45 for connecting Modbus serial<br>1 RJ45 for connecting Modbus TCP/EtherNet/IP                                                                                                                                                                                                                                                                                                                                         |
| Physical interface          | 2-wire RS 485<br>100-BASE-TX category 5 or industrial Ethernet                                                                                                                                                                                                                                                                                                                                                              |
| Transmission frame          | RTU<br>TCP/UDP                                                                                                                                                                                                                                                                                                                                                                                                              |
| Transmission rate           | 4.8...38.4 kbps<br>100 BASE TX                                                                                                                                                                                                                                                                                                                                                                                              |
| Data format                 | 8 bits, configurable odd, even or no parity 1or 2 stop                                                                                                                                                                                                                                                                                                                                                                      |
| Number of addresses         | 0...247 for Modbus serial                                                                                                                                                                                                                                                                                                                                                                                                   |
| Method of access            | Slave Modbus serial                                                                                                                                                                                                                                                                                                                                                                                                         |
| Type of polarization        | No impedance for Modbus serial                                                                                                                                                                                                                                                                                                                                                                                              |
| Display screen available    | True                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Operating position          | Vertical +/- 10 degree                                                                                                                                                                                                                                                                                                                                                                                                      |
| Height                      | 283 mm                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Width                       | 160 mm                                                                                                                                                                                                                                                                                                                                                                                                                      |

|                      |                                                                                                                                                                                                                                                                                            |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Depth                | 185 mm                                                                                                                                                                                                                                                                                     |
| Net weight           | 4 kg                                                                                                                                                                                                                                                                                       |
| internal bypass      | True                                                                                                                                                                                                                                                                                       |
| Function available   | Pre-heating<br>Smoke extraction<br>Second motor set<br>Deceleration with torque control<br>Braking<br>Boost<br>Line contactor control<br>Reverse contactor control<br>Anti-jam<br>Jog<br>Borehole pump starting<br>Condition monitoring<br>Power monitoring<br>Cybersecure firmware update |
| material declaration | True                                                                                                                                                                                                                                                                                       |

## Environment

|                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Electromagnetic compatibility                                    | Conducted and radiated emissions level A conforming to IEC 60947-4-2<br>Damped oscillating waves level 3 conforming to IEC 61000-4-18<br>Electrostatic discharge level 3 conforming to IEC 61000-4-2<br>Immunity to electrical transients level 4 conforming to IEC 61000-4-4<br>Immunity to radiated radio-electrical interference level 3 conforming to IEC 61000-4-3<br>Voltage/current impulse level 3 conforming to IEC 61000-4-5<br>Immunity to conducted interference caused by radio-electrical fields level 3 conforming to EN/IEC 61000-4-6 |
| Pollution degree                                                 | Level 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| [Uimp] rated impulse withstand voltage                           | 6 kV                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| [Ui] rated insulation voltage                                    | 690 V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Environmental class (during operation)                           | Class 3C3 according to IEC 60721-3-3<br>Class 3S3 according to IEC 60721-3-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Ambient air temperature for operation                            | -25...40 °C (without derating)<br>40...60 °C (with current derating of 1 % per °C above 40 °C)                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Ambient air temperature for storage                              | -40...70 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Ambient air transport temperature                                | -40...70 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Operating altitude                                               | <= 2000 m without derating<br>> 2000...4800 m with current derating 1 % per 100 m above 2000 m                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Relative humidity                                                | 5...95 % without condensation or dripping water conforming to EN/IEC 60068-2-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Maximum deflection under vibratory load (during operation)       | 1.5 mm at 2...13 Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Maximum deflection under vibratory load (during storage)         | 1.75 mm at 2...9 Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Maximum deflection under vibratory load (during transport)       | 1.75 mm at 2...9 Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Maximum acceleration under vibrational stress (during operation) | 1 gn at 13...200 Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Maximum acceleration under vibratory load (during storage)       | 1 gn at 9...200 Hz<br>1.5 gn at 200...500 Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Maximum acceleration under vibratory load (during transport)     | 1 gn at 9...200 Hz<br>1.5 gn at 200...500 Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Maximum acceleration under shock impact (during operation)       | 15 gn at 11 ms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Maximum acceleration under shock load (during storage)           | 10 gn at 11 ms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Maximum acceleration under shock load (during transport)         | 10 gn at 11 ms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

## Packing Units

|                              |           |
|------------------------------|-----------|
| Unit Type of Package 1       | PCE       |
| Number of Units in Package 1 | 1         |
| Package 1 Height             | 23.000 cm |
| Package 1 Width              | 23.000 cm |
| Package 1 Length             | 36.000 cm |
| Package 1 Weight             | 5.080 kg  |
| Unit Type of Package 2       | S06       |
| Number of Units in Package 2 | 8         |
| Package 2 Height             | 75.000 cm |
| Package 2 Width              | 60.000 cm |
| Package 2 Length             | 80.000 cm |
| Package 2 Weight             | 50.500 kg |

## Contractual warranty

|                      |    |
|----------------------|----|
| Warranty (in months) | 18 |
|----------------------|----|



## Environmental Data

Schneider Electric aims to achieve Net Zero status by 2050 through supply chain partnerships, lower impact materials, and circularity via our ongoing “Use Better, Use Longer, Use Again” campaign to extend product lifetimes and recyclability.

[Environmental Data explained >](#)

[How we assess product sustainability >](#)



### Environmental footprint

|                                                        |                                               |
|--------------------------------------------------------|-----------------------------------------------|
| Total lifecycle Carbon footprint                       | 754 kg CO2 eq.                                |
| Environmental Disclosure                               | <a href="#">Product Environmental Profile</a> |
| Carbon footprint of the manufacturing phase [A1 to A3] | 118 kg CO2 eq.                                |
| Carbon footprint of the distribution phase [A4]        | 1 kg CO2 eq.                                  |
| Carbon footprint of the installation phase [A5]        | 0.9 kg CO2 eq.                                |
| Carbon footprint of the use phase [B2, B3, B4, B6]     | 626 kg CO2 eq.                                |
| Carbon footprint of the end-of-life phase [C1 to C4]   | 8 kg CO2 eq.                                  |

## Use Better



### Materials and Substances

|                                        |                                                                                        |
|----------------------------------------|----------------------------------------------------------------------------------------|
| Packaging made with recycled cardboard | Yes                                                                                    |
| Packaging without single use plastic   | No                                                                                     |
| SCIP Number                            | 369f894b-8b87-49d3-acc4-78eb4a55e364                                                   |
| EU RoHS Directive                      | <a href="#">Compliant By Exemption</a>                                                 |
| REACH Regulation                       | <a href="#">Reference contains Substances of Very High Concern above the threshold</a> |
| PVC free                               | Yes                                                                                    |

## Use Longer



### Lifetime extension

|        |    |
|--------|----|
| Repair | No |
|--------|----|

## Use Again

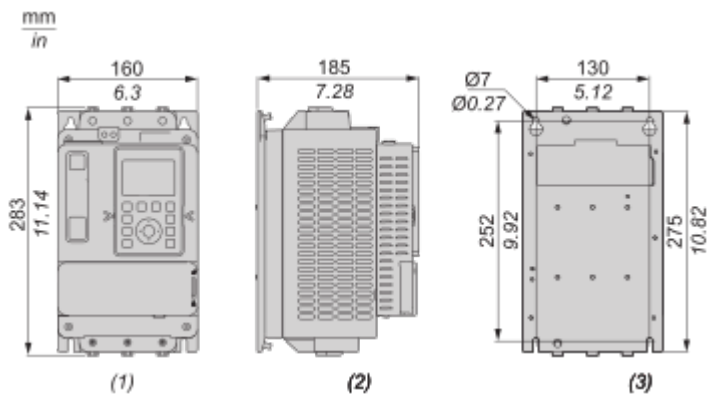


### Repack and remanufacture

|                               |                                                                                                                                                                                                                 |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Recyclability potential, in % | 70                                                                                                                                                                                                              |
| Removable battery             | Yes                                                                                                                                                                                                             |
| Take-back                     | Yes                                                                                                                                                                                                             |
| WEEE Label                    |  The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins |

Dimensions Drawings

Dimensions

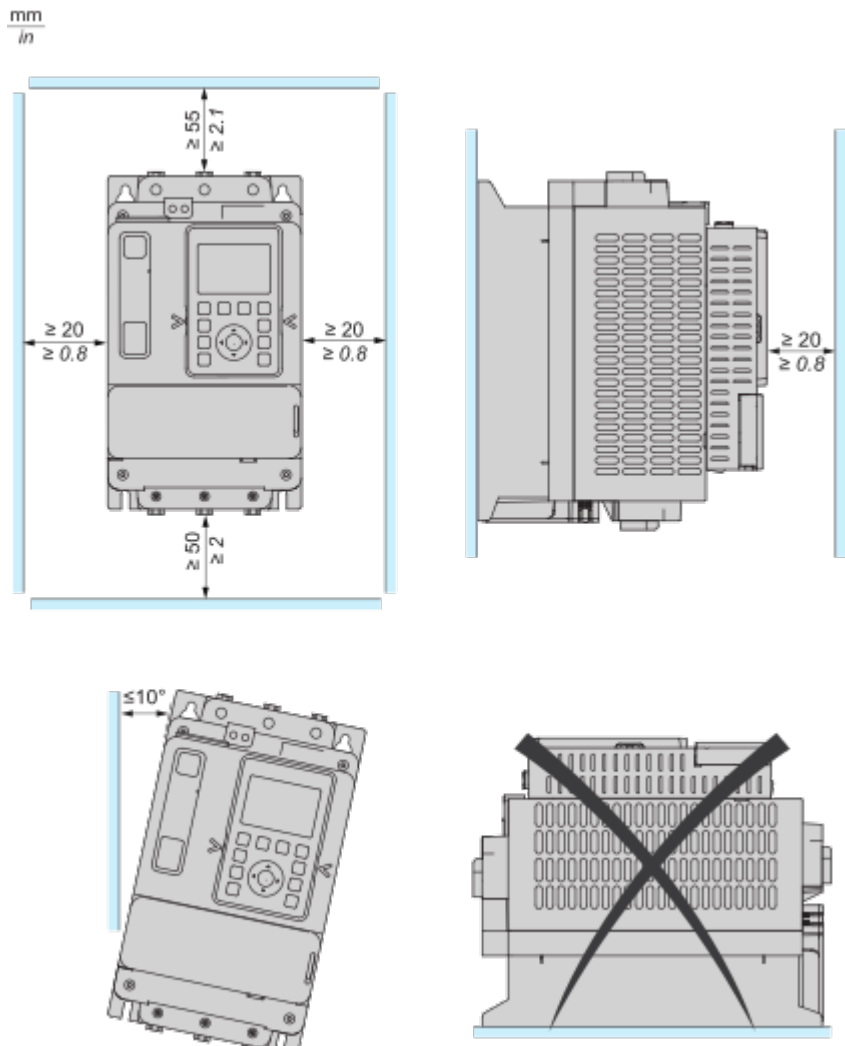


- (1) : Front
- (2) : Side
- (3) : Rear

Mounting and Clearance

Mounting Position

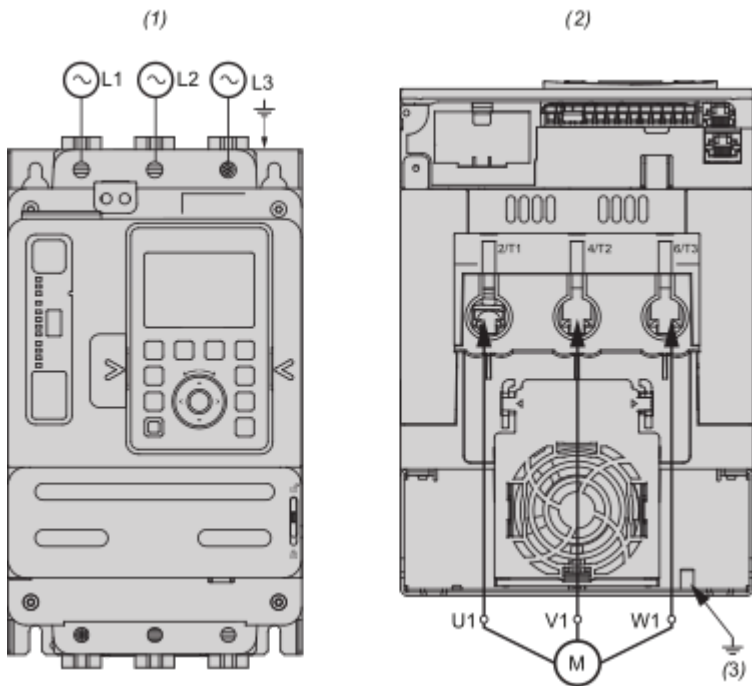
The soft starter is designed to be mounted inside cabinets vertically at  $\pm 10^\circ$  for cooling purposes. Respect the minimum clearances so that the cooling air can circulate from the bottom to the top of the soft starter. The minimum clearances apply to any device close to the soft starter such as circuit breakers, fuses and contactors. Do not install the soft starter above heating elements.



Connections and Schema

Wiring

Wiring the Power Part



Use class C cables for the power connections.

1/L1, 3/L2, 5/L3 : Mains supply inputs

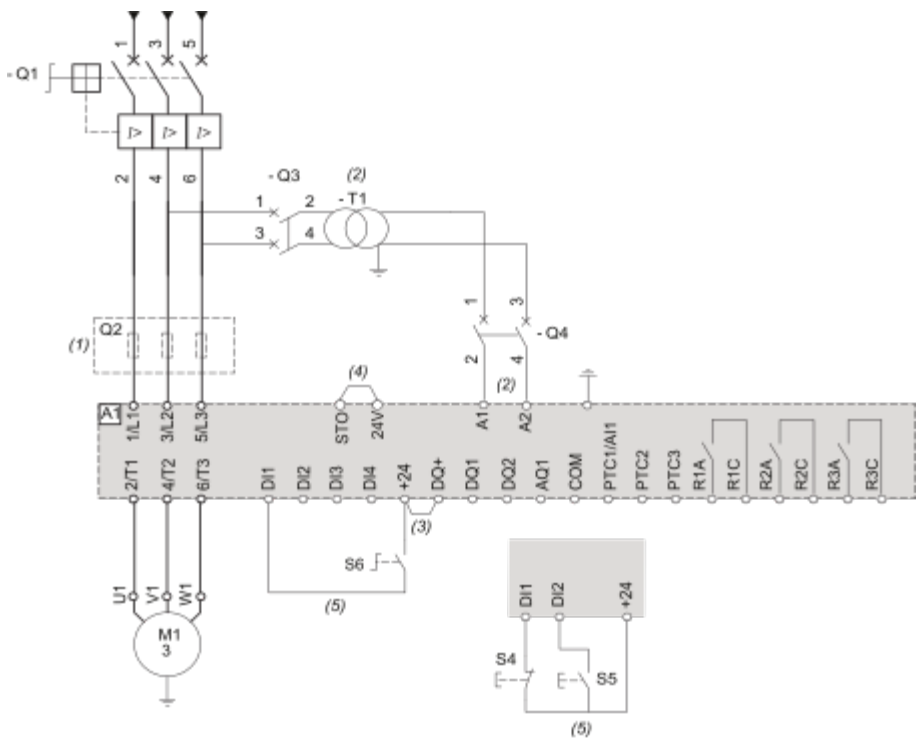
2/T1, 4/T2, 6/T3 : Outputs to motor

(1) : Mains side

(2) : Motor side (bottom)

(3) : Ground connection

Connection In Line, No Line Contactor, Type 1 or 2 Coordination, 2-wire or 3-wire control

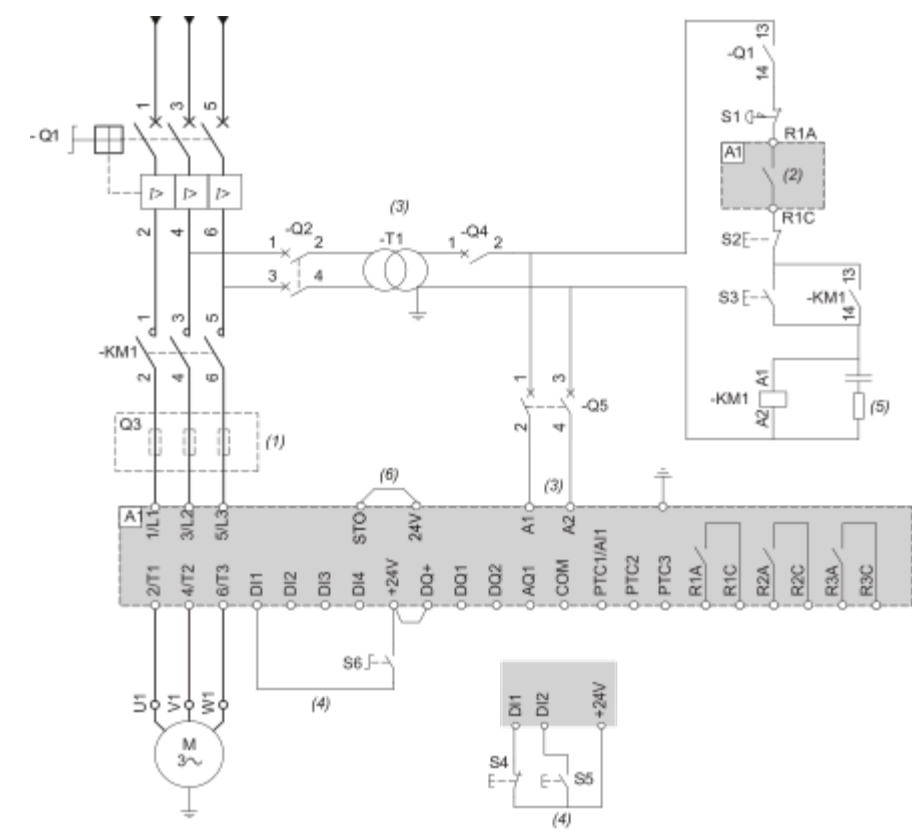


- (1) : Installation of additional fast-acting fuses is mandatory to upgrade to type 2 coordination according to IEC 60947–4–2.
- (2) : The transformer must supply 110...230 Vac +10% - 15%, 50/60Hz.
- (3) : 24Vdc supply on DQ+ if usage of DQ outputs.
- (4) : STO Safe Torque Off
- (5) : 3–wire control and 2–wire control.

| Designation | Component                                                     | Description                                                                                  |
|-------------|---------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| Q1          | Circuit breaker                                               | Short circuit protection device for the motor                                                |
| Q2          | Fast acting fuses                                             | Short circuit protection device of the soft starter to be used only when type 2 coordination |
| Q3          | Circuit breaker                                               | Short circuit protection device for the primary of the transformer                           |
| Q4          | Circuit breaker                                               | Short circuit protection device for the secondary of the transformer                         |
| S4          | Normally close contact push- button                           | STOP command for 3-wire control                                                              |
| S5          | Normally open contact push- button                            | RUN command for 3-wire control                                                               |
| S6          | Selector switch, 2 positions, stay–put, normally open contact | RUN/STOP command for 2-wire control                                                          |

Connection In Line, With Line Contactor, Type 1 or 2 Coordination, 2-wire or 3-wire control

Line contactor controlled by Power ON and Power OFF push-buttons or on detected error  
Use relay output R1 set to [Operating State Fault] (factory setting)



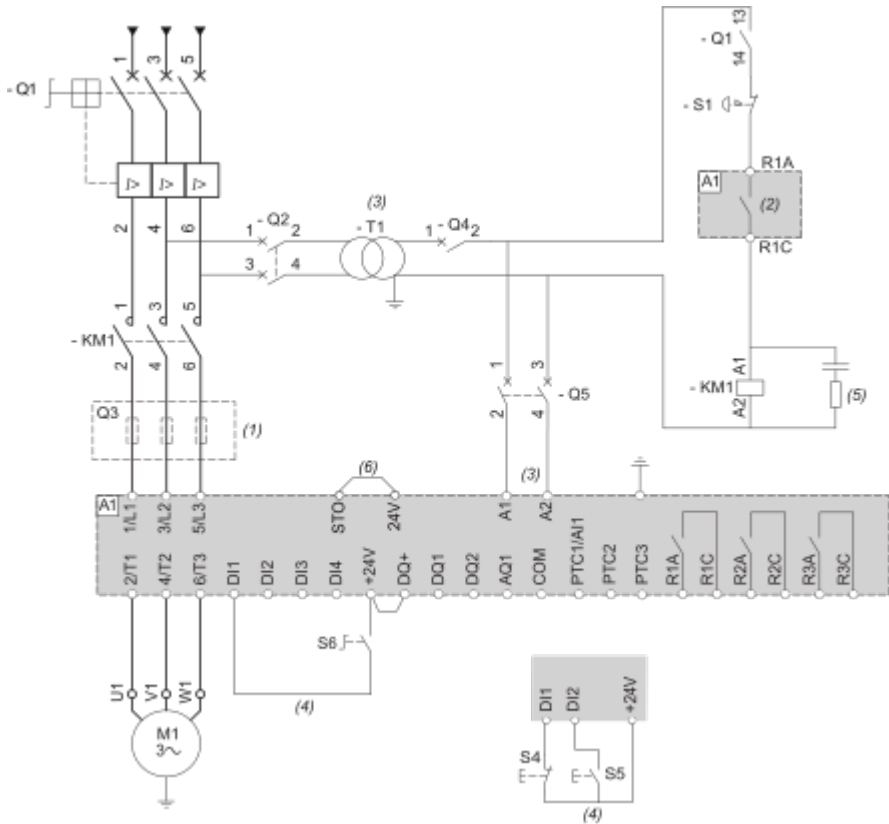
- (1) : Installation of additional fast-acting fuses is mandatory to upgrade to type 2 coordination according to IEC 60947–4–2.
- (2) : Take into account the electrical characteristics of the relays.
- (3) : The transformer must supply 110...230 Vac +10% - 15%, 50/60Hz.
- (4) : 3–wire control and 2–wire control.
- (5) : Select the appropriate voltage surge suppressor.
- (6) : STO Safe Torque Off

| Designation | Component                          | Description                                                                                  |
|-------------|------------------------------------|----------------------------------------------------------------------------------------------|
| Q1          | Circuit breaker                    | Short circuit protection device for the motor                                                |
| Q2          | Circuit breaker                    | Short circuit protection device for the primary of the transformer                           |
| Q3          | Fast acting fuses                  | Short circuit protection device of the soft starter to be used only when type 2 coordination |
| Q4          | Circuit breaker                    | Short circuit protection device for the secondary of the transformer                         |
| Q5          | Circuit breaker                    | Short circuit protection device for the control part of the soft starter                     |
| KM1         | Contacteur                         | Line contactor                                                                               |
| S1          | Emergency Stop push-button         | Emergency Stop to de-energized KM1 line contactor                                            |
| S2          | Normally close push-button         | Power OFF                                                                                    |
| S3          | Normally open push-button          | Power ON                                                                                     |
| S4          | Normally close contact push-button | STOP command for 3-wire control                                                              |

|    |                                                               |                                     |
|----|---------------------------------------------------------------|-------------------------------------|
| S5 | Normally open contact push-button                             | RUN command for 3-wire control      |
| S6 | Selector switch, 2 positions, stay-put, normally open contact | RUN/STOP command for 2-wire control |

Connection In Line, With Line Contactor, Type 1 or 2 Coordination, 2-wire control

Line contactor controlled based on RUN & STOP or on detected error.  
Use relay output R1 set to [Mains Contactor]



- (1) : Installation of additional fast-acting fuses is mandatory to upgrade to type 2 coordination according to IEC 60947–4–2.  
(2) : Take into account the electrical characteristics of the relays.  
(3) : The transformer must supply 110...230 Vac +10% - 15%, 50/60Hz.  
(4) : 2–wire control and 3–wire control.  
(5) : Select the appropriate voltage surge suppressor.  
(6) : STO Safe Torque Off.

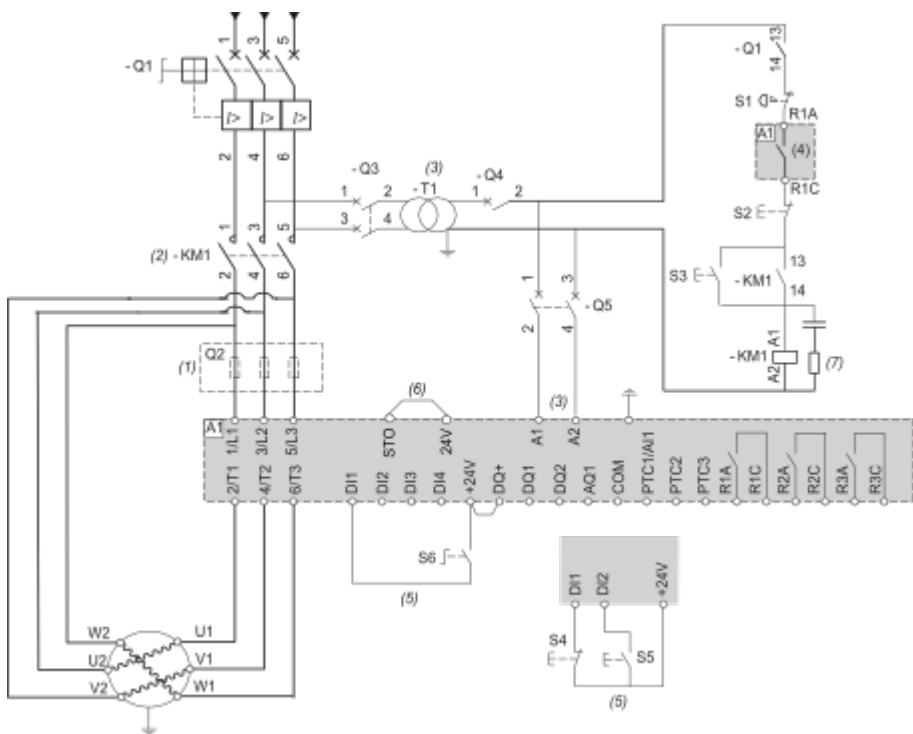
| Designation | Component         | Description                                                                                                                         |
|-------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Q1          | Circuit breaker   | Short circuit protection device for the motor                                                                                       |
| Q2          | Circuit breaker   | Short circuit protection device for the primary of the transformer                                                                  |
| Q3          | Fast acting fuses | Short circuit protection device of the soft starter to be used only when type 2 coordination according to IEC 60947-4-2 is required |
| Q4          | Circuit breaker   | Short circuit protection device for the secondary of the transformer                                                                |
| Q5          | Circuit breaker   | Short circuit protection device for the control part of the soft starter                                                            |

|     |                                                               |                                                   |
|-----|---------------------------------------------------------------|---------------------------------------------------|
| KM1 | Contactor                                                     | Line contactor                                    |
| S1  | Emergency Stop push-button                                    | Emergency Stop to de-energized KM1 line contactor |
| S4  | Normally close contact push-button                            | STOP command for 3-wire control                   |
| S5  | Normally open contact push-button                             | RUN command for 3-wire control                    |
| S6  | Selector switch, 2 positions, stay-put, normally open contact | RUN/STOP. command for 2-wire control              |

Connection Inside the Delta, Type 1 and 2 Coordination, 2-wire or 3-wire

Line contactor controlled based on RUN and STOP command or detected error

Use relay output R1 set to [Operating State Fault] (factory setting).



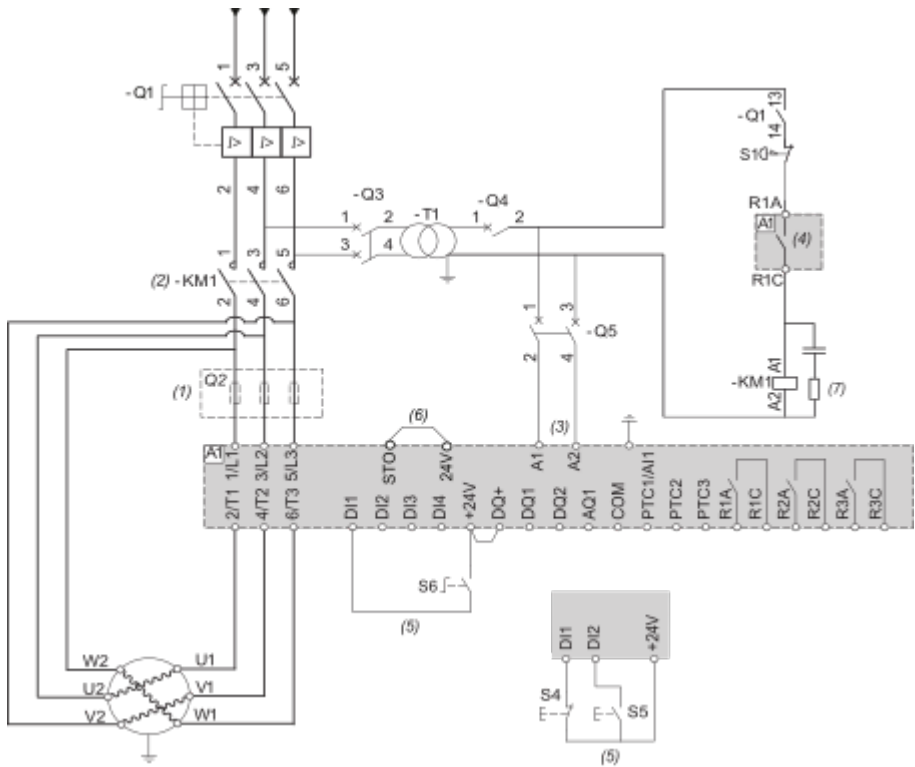
- (1) : Installation of additional fast-acting fuses is mandatory to upgrade to type 2 coordination according to IEC 60947-4-2.
- (2) : KM1 is mandatory to avoid uncontrolled voltage on the motor.
- (3) : The transformer must supply 110...230 Vac +10% — 15%, 50/60Hz.
- (4) : Take into account the electrical characteristics of the relays, especially when connecting to high rating contactor.
- (5) : 3-wire control, 2-wire control.
- (6) : STO Safe Torque Off.
- (7) : Select the appropriate voltage surge suppressor.

| Designation | Component         | Description                                                                                                                         |
|-------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Q1          | Circuit breaker   | Short circuit protection device for the motor                                                                                       |
| Q2          | Fast acting fuses | Short circuit protection device of the soft starter to be used only when type 2 coordination according to IEC 60947-4-2 is required |
| Q3          | Circuit breaker   | Short circuit protection device for the primary of the transformer                                                                  |

|     |                                                               |                                                                          |
|-----|---------------------------------------------------------------|--------------------------------------------------------------------------|
| Q4  | Circuit breaker                                               | Short circuit protection device for the secondary of the transformer     |
| Q5  | Circuit breaker                                               | Short circuit protection device for the control part of the soft starter |
| KM1 | Contactor                                                     | Line contactor                                                           |
| S1  | Emergency Stop push-button                                    | Emergency Stop to de-energized KM1 line contactor                        |
| S2  | Normally close push-button                                    | Power OFF                                                                |
| S3  | Normally open push-button                                     | Power ON                                                                 |
| S4  | Normally close contact push-button                            | STOP command for 3-wire control                                          |
| S5  | Normally open contact push-button                             | RUN command for 3-wire control                                           |
| S6  | Selector switch, 2 positions, stay-put, normally open contact | RUN/STOP. command for 2-wire control                                     |

Connection Inside the Delta, Type 1 or 2 Coordination, 2-wire or 3-wire

Line contactor controlled based on RUN and STOP command or detected error  
Use relay output R1 set to [Mains Contactor]

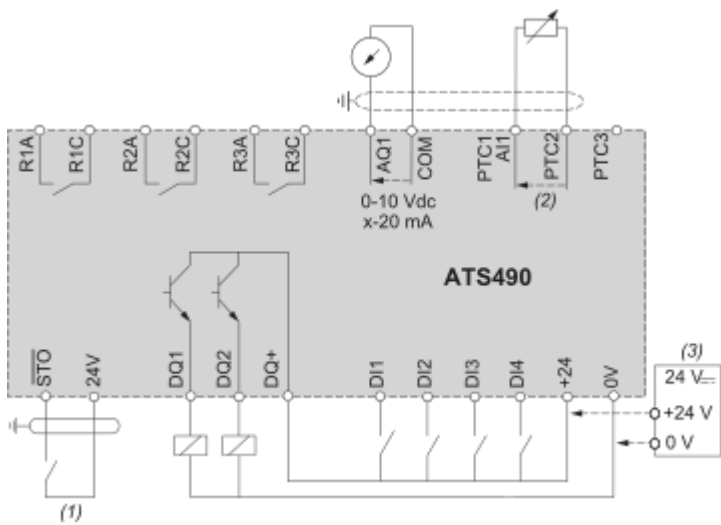


- (1) : Installation of additional fast-acting fuses is mandatory to upgrade to type 2 coordination according to IEC 60947-4-2.
- (2) : KM1 is mandatory to avoid uncontrolled voltage on the motor.
- (3) : The transformer must supply 110...230 Vac +10% — 15%, 50/60Hz.
- (4) : Take into account the electrical characteristics of the relays.
- (5) : 3-wire control and 2-wire control.
- (6) : STO Safe Torque Off.

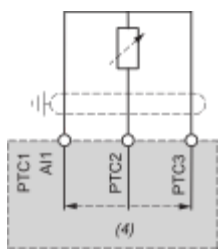
(7) : Select the appropriate voltage surge suppressor.

| Designation | Component                                                     | Description                                                                                  |
|-------------|---------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| Q1          | Circuit breaker                                               | Short circuit protection device for the motor                                                |
| Q2          | Circuit breaker                                               | Short circuit protection device for the primary of the transformer                           |
| Q3          | Fast acting fuses                                             | Short circuit protection device of the soft starter to be used only when type 2 coordination |
| Q4          | Circuit breaker                                               | Short circuit protection device for the secondary of the transformer                         |
| Q5          | Circuit breaker                                               | Short circuit protection device for the control part of the soft starter                     |
| KM1         | Contactor                                                     | Line contactor                                                                               |
| S1          | Emergency Stop push-button                                    | Emergency Stop to de-energized KM1 line contactor                                            |
| S4          | Normally close contact push-button                            | STOP command for 3-wire control and power Off                                                |
| S5          | Normally open contact push-button                             | RUN command for 3-wire control and power On                                                  |
| S6          | Selector switch, 2 positions, stay-put, normally open contact | RUN/STOP command for 2-wire control                                                          |

Control Block Wiring Diagram



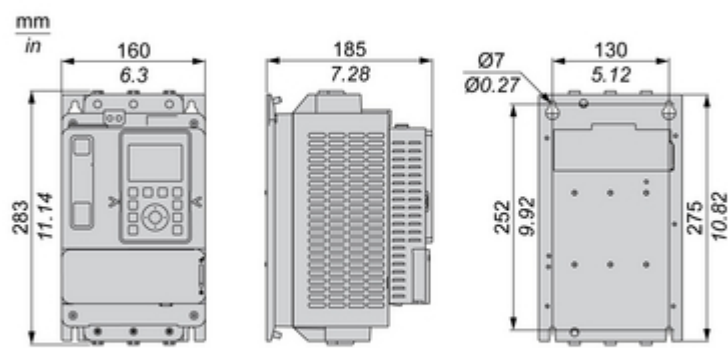
R1A, R1C, R2A, R2C, R3A, R3C : Programmable NO relays  
DI1, DI2, DI3, DI4 : Digital inputs  
AQ1 : Analogue output  
PTC1/AI1, PTC2, PTC3 : Motor thermal sensor connection  
DQ1, DQ2, DQ+ : Digital outputs  
STO : Safety function STO input  
(1) : STO Safe Torque Off  
(2) : 2 wire PTC/PT100/PT1000/KTY  
(3) : Optional, in case of +24 External Supply usage  
PT100, PT1000 Thermal Probe 3 Wires :



(4) : 3 wire PT100/PT1000

Technical Illustration

Dimensions



Technical Illustration

Wiring diagram

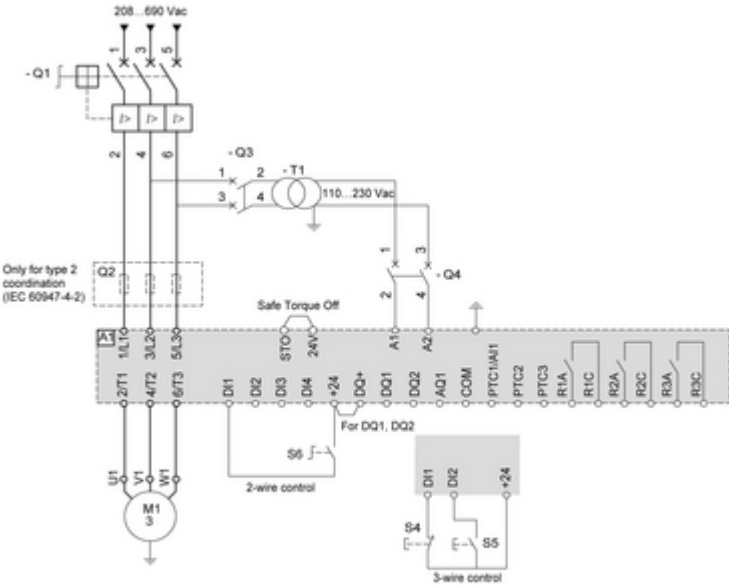


Image of product / Alternate images

Alternative

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