





## Main

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|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Range of product               | Altivar Soft Starter ATS480                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Product or component type      | Soft starter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Product destination            | Asynchronous motors                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Product specific application   | Process and infrastructures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Device short name              | ATS480                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Network number of phases       | 3 phases                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Utilisation category           | AC-3A<br>AC-53A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Ue power supply voltage        | 208...690 V - 15...10 %                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Power supply frequency         | 50...60 Hz - 20...20 %                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| [Ie] rated operational current | Normal duty: 75.0 A (at <40 °C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Rated current in heavy duty    | 62.0 A at 40 °C for heavy duty                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Torque control                 | True                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| IP degree of protection        | IP20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Motor power kW                 | 18.5 KW at 230 V in the motor supply line normal duty<br>15.0 KW at 230 V in the motor supply line heavy duty<br>37.0 KW at 400 V in the motor supply line normal duty<br>30.0 KW at 400 V in the motor supply line heavy duty<br>37.0 KW at 440 V in the motor supply line normal duty<br>30.0 KW at 440 V in the motor supply line heavy duty<br>45.0 KW at 500 V in the motor supply line normal duty<br>37.0 KW at 500 V in the motor supply line heavy duty<br>45.0 KW at 525 V in the motor supply line normal duty<br>37.0 KW at 525 V in the motor supply line heavy duty<br>55.0 KW at 660 V in the motor supply line normal duty<br>45.0 KW at 660 V in the motor supply line heavy duty<br>55.0 KW at 690 V in the motor supply line normal duty<br>45.0 KW at 690 V in the motor supply line heavy duty<br>37.0 KW at 230 V to the motor delta terminals normal duty<br>30.0 KW at 230 V to the motor delta terminals heavy duty<br>55.0 KW at 400 V to the motor delta terminals normal duty<br>55.0 kW at 400 V to the motor delta terminals heavy duty |

|                |                                                                                                                                                                                                                                                                          |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Motor power hp | 20.0 Hp at 208 V normal duty<br>15.0 Hp at 208 V heavy duty<br>25.0 Hp at 230 V normal duty<br>20.0 Hp at 230 V heavy duty<br>50.0 Hp at 460 V normal duty<br>40.0 Hp at 460 V heavy duty<br>60.0 Hp at 575 V normal duty<br>50.0 hp at 575 V heavy duty                 |
| Option card    | Communication module for Profibus DP V1<br>Communication module for PROFINET<br>Communication module for Modbus TCP/EtherNet/IP<br>Communication module for CANopen daisy chain<br>Communication module for CANopen Sub-D<br>Communication module for CANopen open style |

## Complementary

|                                         |                                                                                                                                                                                                                                                                                                                    |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Device connection                       | In the motor supply line<br>To the motor delta terminals                                                                                                                                                                                                                                                           |
| [Us] control circuit voltage            | 110...250 V AC 50/60 Hz - 15...10 %                                                                                                                                                                                                                                                                                |
| Apparent power                          | 0.09 kVA                                                                                                                                                                                                                                                                                                           |
| Integrated motor overload protection    | True                                                                                                                                                                                                                                                                                                               |
| Motor thermal protection class          | Class 10E                                                                                                                                                                                                                                                                                                          |
| Protection type                         | Phase failure: line<br>Integrated thermal protection: motor<br>Thermal protection: starter<br>Current overload: motor<br>Underload: motor<br>Excessive starting time, locked rotor: motor<br>Motor phase loss: motor<br>Line supply phase loss: line<br>Line supply phase loss: motor<br>Thermal protection: motor |
| Current limiting %In (5 x Ie maximum)   | 150...700 %                                                                                                                                                                                                                                                                                                        |
| Rated current pwr loss specification    | 75.0 A                                                                                                                                                                                                                                                                                                             |
| Power loss static current independent   | 25.0 W                                                                                                                                                                                                                                                                                                             |
| Power loss per device current dependent | 225.0 W                                                                                                                                                                                                                                                                                                            |
| Standards                               | IEC 60947-4-2<br>UL 60947-4-2<br>IEC 60664-1                                                                                                                                                                                                                                                                       |
| Product certifications                  | CE[RETURN]cULus[RETURN]CCC[RETURN]UKCA[RETURN]RCM[RETURN]EAC[RETURN]                                                                                                                                                                                                                                               |
| Marking                                 | CE<br>CCC<br>UKCA<br>EAC<br>RCM<br>cULus                                                                                                                                                                                                                                                                           |
| [Uc] control circuit voltage            | 24 V DC                                                                                                                                                                                                                                                                                                            |
| Discrete input number                   | 4                                                                                                                                                                                                                                                                                                                  |
| Discrete input type                     | (STOP) logic inputs, 3500 Ohm<br>(RUN) logic inputs, 3500 Ohm<br>(DI3) programmable as logic input, 3500 Ohm<br>(DI4) programmable as logic input, 3500 Ohm                                                                                                                                                        |
| Input compatibility                     | STOP: discrete input level 1 PLC conforming to IEC 61131-2<br>RUN: discrete input level 1 PLC conforming to IEC 61131-2<br>DI3: discrete input level 1 PLC conforming to IEC 61131-2<br>DI4: discrete input level 1 PLC conforming to IEC 61131-2                                                                  |
| Discrete input logic                    | Programmable digital input at State 0: < 5 V                                                                                                                                                                                                                                                                       |
| Relay output number                     | 3                                                                                                                                                                                                                                                                                                                  |
| Relay output type                       | Relay outputs R1A 1 NO<br>Relay outputs R1B 1 NO<br>Relay outputs RIC NO/NC programmable                                                                                                                                                                                                                           |
| Minimum switching current               | 100 mA at 12 V DC for relay outputs                                                                                                                                                                                                                                                                                |
| Maximum switching current               | Relay outputs 2 A at 250 V AC<br>Relay outputs 2 A at 30 V DC                                                                                                                                                                                                                                                      |
| Discrete output number                  | 2                                                                                                                                                                                                                                                                                                                  |
| Discrete output type                    | (DQ1) programmable digital output <= 30 V<br>(DQ2) programmable digital output <= 30 V                                                                                                                                                                                                                             |

|                             |                                                                                                                                                                                                                                       |
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| Output compatibility        | Open collector level 1 PLC conforming to IEC 65A-68                                                                                                                                                                                   |
| Analogue input number       | 1                                                                                                                                                                                                                                     |
| Analogue input type         | AI1/PTC PTC/Pt 100 temperature probe<br>PTC2 PTC/Pt 100 temperature probe<br>PTC3 PTC/Pt 100 temperature probe                                                                                                                        |
| Analogue output number      | 1                                                                                                                                                                                                                                     |
| Analogue output type        | Current output AQ1: 0...20 mA or 0...10 V, impedance <500 Ohm                                                                                                                                                                         |
| Communication port protocol | Modbus serial                                                                                                                                                                                                                         |
| Connector type              | 1 RJ45                                                                                                                                                                                                                                |
| Communication data link     | Serial                                                                                                                                                                                                                                |
| Physical interface          | 2-wire RS 485                                                                                                                                                                                                                         |
| Transmission rate           | 1200...256000 bit/s                                                                                                                                                                                                                   |
| Transmission frame          | RTU                                                                                                                                                                                                                                   |
| Data format                 | 8 bits, configurable odd, even or no parity                                                                                                                                                                                           |
| Type of polarization        | No impedance for Modbus serial                                                                                                                                                                                                        |
| Number of addresses         | 0...227 for Modbus serial                                                                                                                                                                                                             |
| Method of access            | Slave Modbus serial                                                                                                                                                                                                                   |
| Function available          | External bypass control<br>Pre-heating<br>Smoke extraction<br>Multi-motor cascade<br>Second motor set<br>User management<br>Ports and services hardening<br>Security event logging<br>Cybersecure firmware update<br>Single direction |
| Display screen available    | True                                                                                                                                                                                                                                  |
| Operating position          | Vertical +/- 10 degree                                                                                                                                                                                                                |
| Height                      | 290.0 mm                                                                                                                                                                                                                              |
| Width                       | 190.0 mm                                                                                                                                                                                                                              |
| Depth                       | 247.0 mm                                                                                                                                                                                                                              |
| Net weight                  | 8.3 kg                                                                                                                                                                                                                                |

## Environment

|                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Electromagnetic compatibility                                    | Conducted and radiated emissions level A conforming to IEC 60947-4-2<br>Conducted and radiated emissions with bypass level B conforming to IEC 60947-4-2<br>Damped oscillating waves level 3 conforming to IEC 61000-4-12<br>Electrostatic discharge level 3 conforming to IEC 61000-4-11<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 |
| 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 3S2 according to IEC 60721-3-3                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Relative humidity                                                | 0...95 % without condensation or dripping water conforming to IEC 60068-2-3                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Ambient air temperature for operation                            | 40...60 °C (with current derating of 2 % per °C)<br>-15...40 °C (without derating)                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Ambient air temperature for storage                              | -25...70 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Operating altitude                                               | <= 1000 m without derating<br>> 1000...4000 m with current derating 1 % per 100 m                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 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) | 10 m/s² at 13...200 Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

|                                                              |                                                                          |
|--------------------------------------------------------------|--------------------------------------------------------------------------|
| Maximum acceleration under vibratory load (during storage)   | 15 m/s <sup>2</sup> at 200...500 Hz<br>10 m/s <sup>2</sup> at 9...200 Hz |
| Maximum acceleration under vibratory load (during transport) | 15 m/s <sup>2</sup> at 200...500 Hz<br>10 m/s <sup>2</sup> at 9...200 Hz |
| Maximum acceleration under shock impact (during operation)   | 150 m/s <sup>2</sup> at 11 ms                                            |
| Maximum acceleration under shock load (during storage)       | 100 m/s <sup>2</sup> at 11 ms                                            |
| Maximum acceleration under shock load (during transport)     | 100 m/s <sup>2</sup> at 11 ms                                            |

## Packing Units

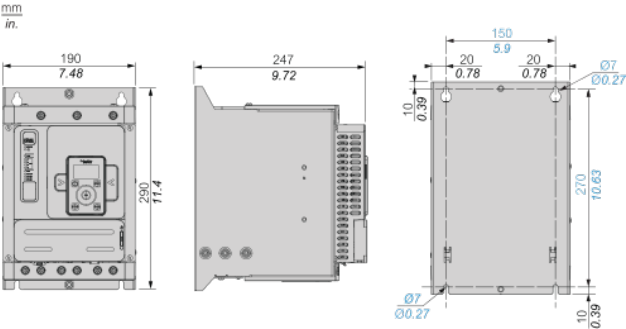
|                              |           |
|------------------------------|-----------|
| Unit Type of Package 1       | PCE       |
| Number of Units in Package 1 | 1         |
| Package 1 Height             | 37.000 cm |
| Package 1 Width              | 31.000 cm |
| Package 1 Length             | 39.000 cm |
| Package 1 Weight             | 10.231 kg |
| Unit Type of Package 2       | P06       |
| Number of Units in Package 2 | 10        |
| Package 2 Height             | 86.000 cm |
| Package 2 Width              | 60.000 cm |
| Package 2 Length             | 80.000 cm |
| Package 2 Weight             | 89.900 kg |

## Offer Sustainability

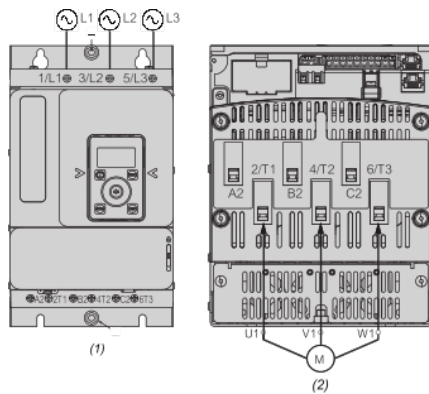
|                            |                                                                                                                                   |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Sustainable offer status   | Green Premium product                                                                                                             |
| REACH Regulation           |  <a href="#">REACH Declaration</a>             |
| EU RoHS Directive          | Pro-active compliance (Product out of EU RoHS legal scope)                                                                        |
| Mercury free               | Yes                                                                                                                               |
| China RoHS Regulation      |  <a href="#">China RoHS Declaration</a>        |
| RoHS exemption information |  <a href="#">Yes</a>                           |
| Environmental Disclosure   |  <a href="#">Product Environmental Profile</a> |
| Circularity Profile        |  <a href="#">End Of Life Information</a>       |
| WEEE                       | The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins       |
| Upgradeability             | Upgraded components available                                                                                                     |

Dimensions

Front, Side and Rear View



## Power Connections



(1) : Mains side

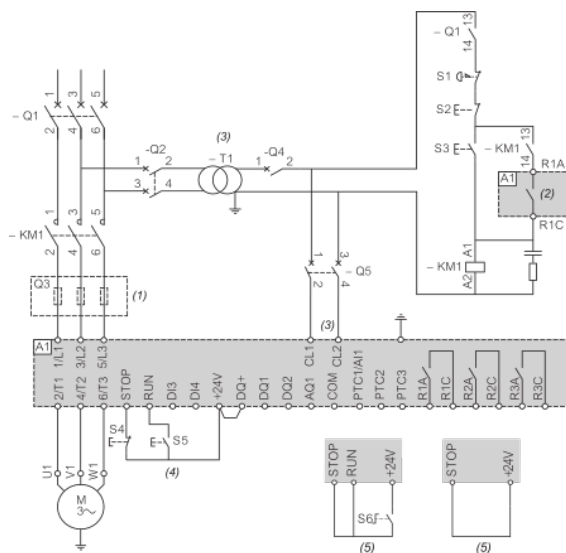
(2) : Motor side

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

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

A2, B2, C2 : Soft starter bypass

Connection in line, with line contactor, no bypass, type 1 or 2 coordination, non - reversing, 2-wire or 3-wire control



(1) : Installation of additional fast-acting fuses to upgrade to type 2 coordination according to IEC 60947-4-2.

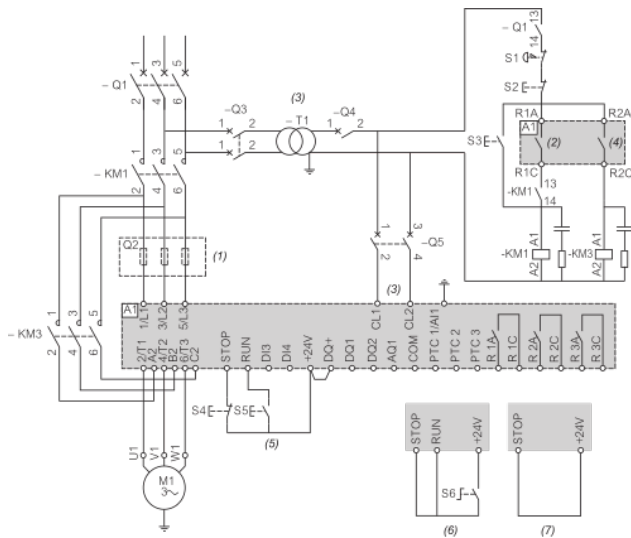
(2) : Take into account the electrical characteristics of the relays (Control Terminal Characteristics).

(3) : The transformer must supply 110...230 VAC +10% — 15%, 50/60Hz.

(4) : RUN and STOP Management (3-wire control).

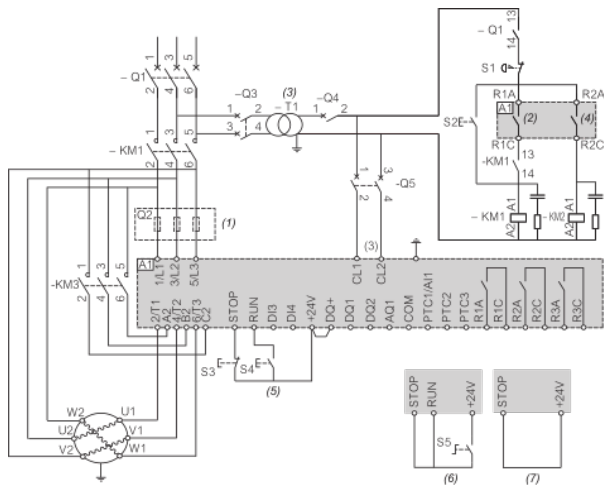
(5) : RUN and STOP Management (2-wire control).

Connection in line, with line and bypass contactor, freewheel or controlled stop, type 1 or 2 coordination, non reversing, 2-wire or 3-wire



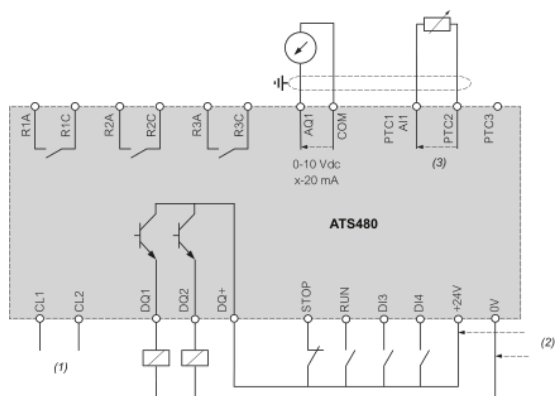
- (1) : Installation of additional fast-acting fuses to upgrade to type 2 coordination according to IEC 60947-4-2.
- (2) : Take into account the electrical characteristics of the relays (Control Terminal Characteristics).
- (3) : The transformer must supply 110...230 VAC +10% – 15%, 50/60Hz.
- (4) : Take into account the electrical characteristics of the relays, especially when connecting to high rating contactor (Control Terminal Characteristics).
- (5) : RUN and STOP Management (3-wire control).
- (6) : RUN and STOP Management (2-wire control).
- (7) : PC or PLC control

Connection inside the delta, with line and bypass contactor, type 1 and 2 coordination, non reversing, 2 wire or 3 wire



- (1) : Installation of additional fast-acting fuses to upgrade to type 2 coordination according to IEC 60947-4-2.
- (2) : Take into account the electrical characteristics of the relays (Control Terminal Characteristics).
- (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 (Control Terminal Characteristics).
- (5) : RUN and STOP Management (3-wire control).
- (6) : RUN and STOP Management (2-wire control).
- (7) : PC or PLC control

Control block wiring diagram



(1) : Control power supply 110-230 VAC

(2) : External supply 24 VDC

(3) : 2 Wires PTC/PT100

R1A, R1C, R3A, R3C : Sequence relay

R2A, R2C : End of start

STOP, RUN, DI3, DI4 : Digital inputs

AQ1 : Analogue output

PTC1/AI1, PTC2, PTC3 : PTC or PT100 connection

DQ1, DQ2, DQ+ : Digital outputs

## Mounting Position

