

# Product data sheet

Specifications



## Soft starter, Altistart 480, 590A, 208 to 690V AC, control supply 110 to 230V AC

ATS480C59Y

### Main

<b>Range of product</b>	Altivar Soft Starter ATS480
<b>Product or component type</b>	Soft starter
<b>Product destination</b>	Asynchronous motors
<b>Product specific application</b>	Process and infrastructures
<b>Device short name</b>	ATS480
<b>Network number of phases</b>	3 phases
<b>Utilisation category</b>	AC-3A AC-53A
<b>Ue power supply voltage</b>	208...690 V - 15...10 %
<b>Power supply frequency</b>	50...60 Hz - 20...20 %
<b>[Ie] rated operational current</b>	Normal duty: 590.0 A (at <40 °C)
<b>Rated current in heavy duty</b>	480.0 A at 40 °C for heavy duty
<b>Torque control</b>	True
<b>IP degree of protection</b>	IP00
<b>Motor power kW</b>	160.0 kW at 230 V in the motor supply line normal duty 132.0 kW at 230 V in the motor supply line heavy duty 315.0 kW at 400 V in the motor supply line normal duty 250.0 kW at 400 V in the motor supply line heavy duty 355.0 kW at 440 V in the motor supply line normal duty 250.0 kW at 440 V in the motor supply line heavy duty 400.0 kW at 500 V in the motor supply line normal duty 315.0 kW at 500 V in the motor supply line heavy duty 400.0 kW at 525 V in the motor supply line normal duty 315.0 kW at 525 V in the motor supply line heavy duty 560.0 kW at 660 V in the motor supply line normal duty 400.0 kW at 660 V in the motor supply line heavy duty 560.0 kW at 690 V in the motor supply line normal duty 500.0 kW at 690 V in the motor supply line heavy duty 250.0 kW at 230 V to the motor delta terminals heavy duty 400.0 kW at 400 V to the motor delta terminals normal duty 355.0 kW at 400 V to the motor delta terminals heavy duty
<b>Motor power hp</b>	150.0 hp at 208 V heavy duty 200.0 hp at 230 V normal duty 400.0 hp at 460 V normal duty 350.0 hp at 460 V heavy duty 500.0 hp at 575 V normal duty 400.0 hp at 575 V heavy duty
<b>Option card</b>	Communication module for Profibus DP V1 Communication module for PROFINET Communication module for Modbus TCP/EtherNet/IP Communication module for CANopen daisy chain Communication module for CANopen Sub-D Communication module for CANopen open style

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

## Complementary

<b>Device connection</b>	In the motor supply line To the motor delta terminals
<b>[Us] control circuit voltage</b>	110...230 V AC 50/60 Hz - 15...10 %
<b>Apparent power</b>	0.125 kVA
<b>Integrated motor overload protection</b>	True
<b>Motor thermal protection class</b>	Class 10E
<b>Protection type</b>	Phase failure: line Integrated thermal protection: motor Thermal protection: starter Current overload: motor Underload: motor Excessive starting time, locked rotor: motor Motor phase loss: motor Line supply phase loss: line Line supply phase loss: motor Thermal protection: motor
<b>Current limiting %In (5 x Ie maximum)</b>	150...700 %
<b>Rated current pwr loss specification</b>	590.0 A
<b>Power loss static current independent</b>	25.0 W
<b>Power loss per device current dependent</b>	1711.0 W
<b>Standards</b>	EN/IEC 60947-4-2 UL 60947-4-2 IEC 60664-1
<b>Product certifications</b>	CE cULus CCC UKCA RCM EAC DNV ABS BV CCS
<b>Marking</b>	CE CCC UKCA EAC RCM CULus
<b>[Uc] control circuit voltage</b>	24 V DC
<b>Discrete input number</b>	4
<b>Discrete input type</b>	(STOP) logic inputs, 3500 Ohm (RUN) logic inputs, 3500 Ohm (DI3) programmable as logic input, 3500 Ohm (DI4) programmable as logic input, 3500 Ohm
<b>Input compatibility</b>	STOP: discrete input level 1 PLC conforming to EN/IEC 61131-2 RUN: discrete input level 1 PLC conforming to EN/IEC 61131-2 DI3: discrete input level 1 PLC conforming to EN/IEC 61131-2 DI4: discrete input level 1 PLC conforming to EN/IEC 61131-2
<b>Discrete input logic</b>	Programmable digital input at State 0: < 5 V
<b>Relay output number</b>	3
<b>Relay output type</b>	Relay outputs R1A 1 NO Relay outputs R1B 1 NO Relay outputs RIC NO/NC programmable
<b>Minimum switching current</b>	10 mA at 24 V DC for relay outputs
<b>Maximum switching current</b>	Relay outputs 2 A at 250 V AC Relay outputs 2 A at 30 V DC Relay outputs

<b>Discrete output number</b>	2
<b>Discrete output type</b>	(DQ1) programmable digital output <= 30 V (DQ2) programmable digital output <= 30 V
<b>Output compatibility</b>	Open collector level 1 PLC conforming to IEC 65A-68
<b>Analogue input number</b>	1
<b>Analogue input type</b>	AI1/PTC PTC/Pt 100 temperature probe PTC2 PTC/Pt 100 temperature probe PTC3 PTC/Pt 100 temperature probe
<b>Analogue output number</b>	1
<b>Analogue output type</b>	Current output AQ1: 0...20 mA or 0...10 V, impedance <500 Ohm
<b>Communication port protocol</b>	Modbus serial
<b>Connector type</b>	1 RJ45
<b>Communication data link</b>	Serial
<b>Physical interface</b>	2-wire RS 485
<b>Transmission rate</b>	1200...256000 bit/s
<b>Transmission frame</b>	RTU
<b>Data format</b>	8 bits, configurable odd, even or no parity
<b>Type of polarization</b>	No impedance for Modbus serial
<b>Number of addresses</b>	0...227 for Modbus serial
<b>Method of access</b>	Slave Modbus serial
<b>Function available</b>	External bypass control Pre-heating Smoke extraction Multi-motor cascade Second motor set User management Ports and services hardening Security event logging Cybersecure firmware update Single direction
<b>Display screen available</b>	True
<b>Operating position</b>	Vertical +/- 10 degree
<b>Height</b>	670.0 mm
<b>Width</b>	400.0 mm
<b>Depth</b>	314.0 mm
<b>Net weight</b>	51.4 kg

## Environment

<b>Electromagnetic compatibility</b>	Conducted and radiated emissions level A conforming to IEC 60947-4-2 Conducted and radiated emissions with bypass level B conforming to IEC 60947-4-2 Damped oscillating waves level 3 conforming to IEC 61000-4-12 Electrostatic discharge level 3 conforming to IEC 61000-4-11 Immunity to electrical transients level 4 conforming to IEC 61000-4-4 Immunity to radiated radio-electrical interference level 3 conforming to IEC 61000-4-3 Voltage/current impulse level 3 conforming to IEC 61000-4-5
<b>Pollution degree</b>	Level 3
<b>[Uimp] rated impulse withstand voltage</b>	6 kV
<b>[Ui] rated insulation voltage</b>	690 V
<b>Environmental class (during operation)</b>	Class 3C3 according to IEC 60721-3-3 Class 3S2 according to IEC 60721-3-3
<b>Relative humidity</b>	0...95 % without condensation or dripping water conforming to EN/IEC 60068-2-3
<b>Ambient air temperature for operation</b>	40...60 °C (with current derating of 2 % per °C) -15...40 °C (without derating)

<b>Ambient air temperature for storage</b>	-25...70 °C
<b>Operating altitude</b>	<= 1000 m without derating > 1000...4000 m with current derating 1 % per 100 m
<b>Maximum deflection under vibratory load (during operation)</b>	1.5 mm at 2...13 Hz
<b>Maximum deflection under vibratory load (during storage)</b>	1.75 mm at 2...9 Hz
<b>Maximum deflection under vibratory load (during transport)</b>	1.75 mm at 2...9 Hz
<b>Maximum acceleration under vibrational stress (during operation)</b>	10 m/s <sup>2</sup> at 13...200 Hz
<b>Maximum acceleration under vibratory load (during storage)</b>	15 m/s <sup>2</sup> at 200...500 Hz 10 m/s <sup>2</sup> at 9...200 Hz
<b>Maximum acceleration under vibratory load (during transport)</b>	15 m/s <sup>2</sup> at 200...500 Hz 10 m/s <sup>2</sup> at 9...200 Hz
<b>Maximum acceleration under shock impact (during operation)</b>	150 m/s <sup>2</sup> at 11 ms
<b>Maximum acceleration under shock load (during storage)</b>	100 m/s <sup>2</sup> at 11 ms
<b>Maximum acceleration under shock load (during transport)</b>	100 m/s <sup>2</sup> at 11 ms

## Packing Units

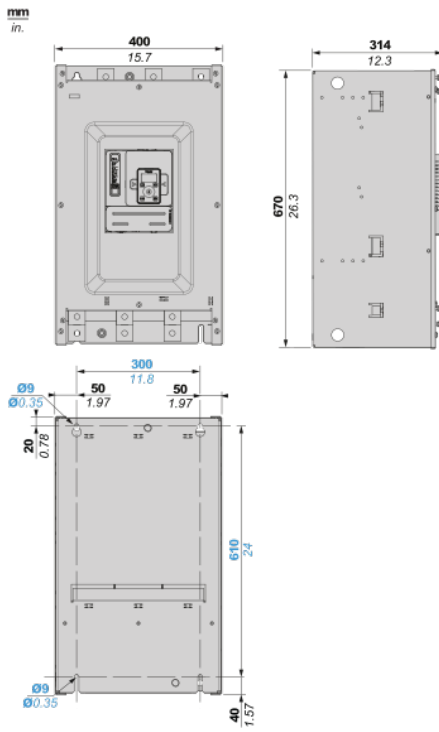
<b>Unit Type of Package 1</b>	PCE
<b>Number of Units in Package 1</b>	1
<b>Package 1 Height</b>	55.0 cm
<b>Package 1 Width</b>	53.0 cm
<b>Package 1 Length</b>	81.0 cm
<b>Package 1 Weight</b>	61.5 kg

## Offer Sustainability

<b>Sustainable offer status</b>	Green Premium product
<b>REACH Regulation</b>	<a href="#">REACH Declaration</a>
<b>EU RoHS Directive</b>	Pro-active compliance (Product out of EU RoHS legal scope) <a href="#">EU RoHS Declaration</a>
<b>Mercury free</b>	Yes
<b>China RoHS Regulation</b>	<a href="#">China RoHS declaration</a>
<b>RoHS exemption information</b>	Yes
<b>Environmental Disclosure</b>	<a href="#">Product Environmental Profile</a>
<b>Circularity Profile</b>	<a href="#">End of Life Information</a>
<b>WEEE</b>	The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins
<b>California proposition 65</b>	WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to <a href="http://www.P65Warnings.ca.gov">www.P65Warnings.ca.gov</a>
<b>Upgradeability</b>	Upgraded components available

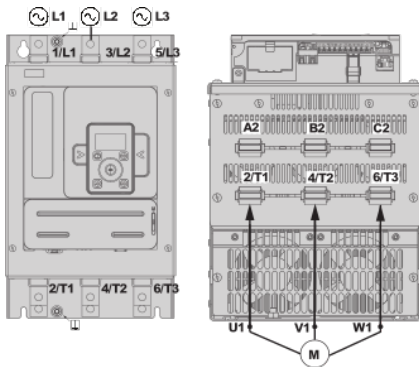
Dimensions

Front, Side and Rear View



**Power Connections**

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(1) : Mains side

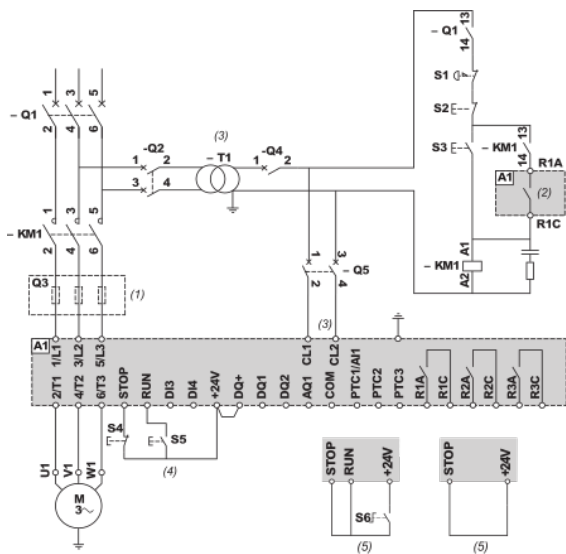
(2) : Motor side

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

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

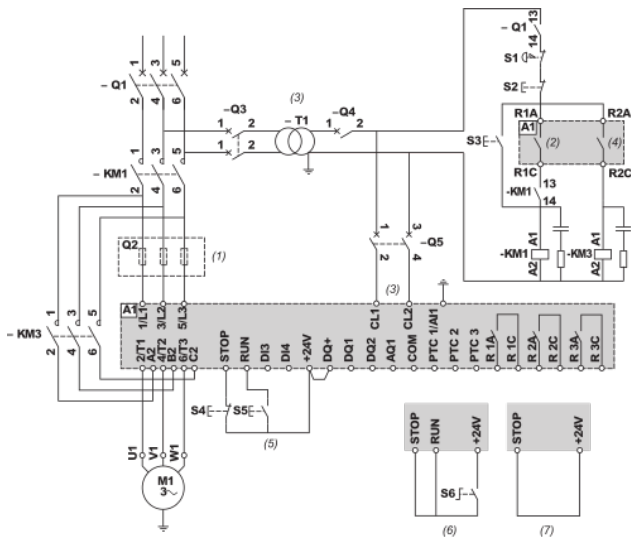
A2, B2, C2 : Soft starter bypass

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).

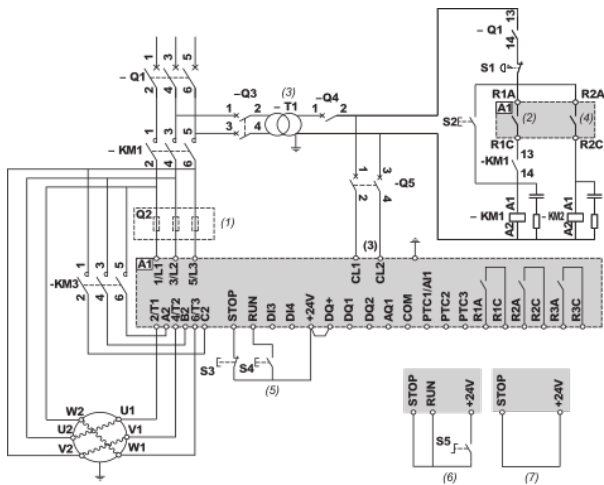
(5) : RUN and STOP Management (3-wire control).

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

(7) : PC or PLC control

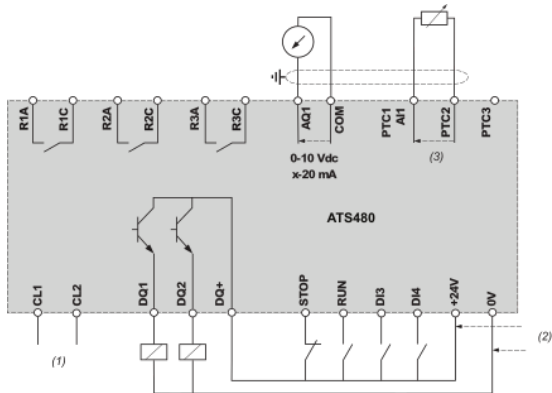


Connection inside the delta, with line and bypass contactor, type 1 and 2 coordination, non reversing, 2 wire or 3 wire



- (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

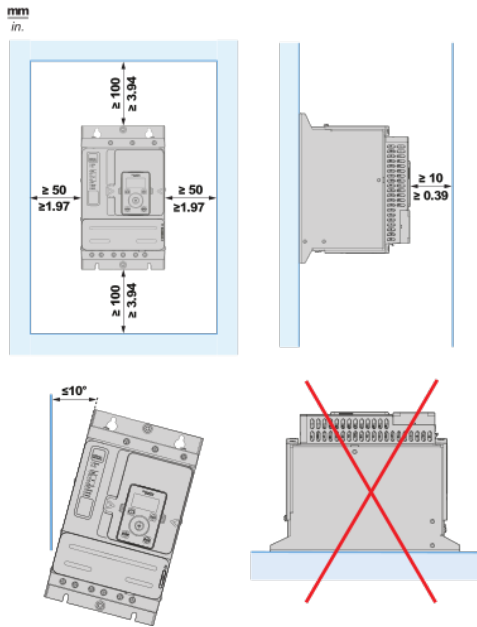
**STOP, RUN, DI3, DI4** : Digital inputs

**AQ1** : Analogue output

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

**DQ1, DQ2, DQ+** : Digital outputs

Mounting Position



Recommended replacement(s)