Product data sheet
Characteristics

ATS490C59Y
Soft starter, Altivar Soft Starter ATS490, 590A, 208 to 690V AC, control supply 110 to 230V AC



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 AC-53A
[Ue] rated operational voltage	208...690 V AC (- 15...10 %)
Supply frequency	50...60 Hz - 20...20 %
[Ie] rated operational current	Normal duty: 590 A in line (at <40 °C)
Service factor	100
Maximum permanent current	480 A at 40 °C for heavy duty
Torque control	True
IP degree of protection	IP00
Motor power kW	160 KW at 230 V in the motor supply line normal duty 315 KW at 400 V in the motor supply line normal duty 355 KW at 440 V in the motor supply line normal duty 400 KW at 500 V in the motor supply line normal duty 400 KW at 525 V in the motor supply line normal duty 560 KW at 660 V in the motor supply line normal duty 560 KW at 690 V in the motor supply line normal duty 132 KW at 230 V in the motor supply line heavy duty 250 KW at 400 V in the motor supply line heavy duty 250 KW at 440 V in the motor supply line heavy duty 315 KW at 500 V in the motor supply line heavy duty 315 KW at 525 V in the motor supply line heavy duty 400 KW at 660 V in the motor supply line heavy duty 500 KW at 690 V in the motor supply line heavy duty 400 KW at 400 V to the motor delta terminals normal duty 250 KW at 230 V to the motor delta terminals heavy duty 355 KW at 400 V to the motor delta terminals heavy duty
Motor power hp	200 Hp at 230 V normal duty 400 Hp at 460 V normal duty 500 Hp at 575 V normal duty 150 Hp at 208 V heavy duty 350 Hp at 460 V heavy duty 400 Hp at 575 V heavy duty
With safety function Safe torque off (STO)	True
Safety function	STO (safe torque off): SIL 1 conforming to IEC 61508 STO (safe torque off): PL c/category 2 conforming to ISO 13849
With safety function Cybersecurity	True
Safety level	Security level (SL) 1 conforming to IEC 62443-4-2

Communication port protocol	Modbus serial Modbus TCP/EtherNet/IP
Option card	Communication module for CANopen daisy chain Communication module for CANopen Sub-D Communication module for CANopen open style Communication module for Profibus DP V1 Communication module for PROFINET

Complementary

Device connection	In the motor supply line Inside delta
Overload current	400 % Ie for 13 s
On-load factor	50 %
Operating rate	10 cyc/h
[Uc] control circuit voltage	110...230 V AC 50...60 Hz - 15...10 %
Apparent power	280 VA
Integrated motor overload protection	True
Accuracy class	Class 10E
Protection type	Phase failure: mains Thermal protection: starter Thermal protection: motor Current overload: motor Motor underload: motor Excessive acceleration time: motor Motor phase loss detection: motor Protection against line phase inversion: mains External thermal protection: motor Protection delta inside wiring: starter Short-circuit between motor phase and earth: motor
Output current drift	150…700 %
Rated current pwr loss specification	590 A
Power loss static current independent	19 W
Power loss per device current dependent	164 W
Power losses	7847 W during starting at 40 °C at 400% Ie
Standards	EN/IEC 60947-4-2 UL 60947-4-2 IEC 60664-1
Product certifications	CE[RETURN]cULus[RETURN]UKCA[RETURN]RCM[RETURN]CCC[RETURN]DNV[RETURN]ATE
Marking	CE CULus UKCA RCM CCC ATEX EAC KC
[Uc] control circuit voltage	24 V DC
Discrete input number	5
Discrete input type	(DI1) digital input, 4.4 kOhm (DI2) digital input, 4.4 kOhm (DI3) digital input, 4.4 kOhm (DI4) digital input, 4.4 kOhm (STO) digital input, > 1 kOhm
Input compatibility	DI1: discrete input level 1 PLC conforming to EN/IEC 61131-2 DI2: 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 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 Digital input DI2 at State 0: 0...< 5 V and <= 2 mA at State 1: > 11 V, >= 5 mA Digital input DI3 at State 0: 0...< 5 V and <= 2 mA at State 1: > 11 V, >= 5 mA Digital input DI4 at State 0: 0...< 5 V and <= 2 mA at State 1: > 11 V, >= 5 mA 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 Relay outputs R2A, R2C NO 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 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 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 PTC2 : PTC/PT 100/PT 1000/KTY84 temperature probe 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 Voltage output AQ1 : 0...10 V , impedance> 470 Ohm
Communication port protocol	Modbus serial Modbus TCP/EtherNet/IP
Connector type	1 RJ45 for connecting Modbus serial 1 RJ45 for connecting Modbus TCP/EtherNet/IP
Physical interface	2-wire RS 485 100-BASE-TX category 5 or industrial Ethernet
Transmission frame	RTU TCP/UDP
Transmission rate	4.8…38.4 kbps 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	455 Mm
Width	304 Mm
Depth	300 Mm
Net weight	28 Kg
Internal bypass	True
Function available	Pre-heating Smoke extraction Second motor set Deceleration with torque control Braking Boost Line contactor control Reverse contactor control Anti-jam Jog Borehole pump starting Condition monitoring Power monitoring Cybersecure firmware update
Material declaration	True

Environment

Electromagnetic compatibility	Conducted and radiated emissions level A conforming to IEC 60947-4-2 Damped oscillating waves level 3 conforming to IEC 61000-4-18 Electrostatic discharge level 3 conforming to IEC 61000-4-2 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 Immunity to conducted interference caused by radio-electrical fields level 3 conforming to EN/I
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 Class 3S3 according to IEC 60721-3-3
Ambient air temperature for operation	-25…40 °C (without derating) 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 > 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)	4 gn at 9…200 Hz 1.5 gn at 200…500 Hz
Maximum acceleration under vibratory load (during transport)	1 gn at 9…200 Hz 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	53.000 Cm
Package 1 Width	40.000 Cm
Package 1 Length	60.100 Cm
Package 1 Weight	38.000 Kg

Offer Sustainability

Recyclability potential, in %	85
Total lifecycle Carbon footprint	6 203 kg CO2 eq.
Carbon footprint of the manufacturing phase [A1 to A3]	515.6116659383605
Carbon footprint of the manufacturing phase [A1 to A3]	516 kg CO2 eq.
Carbon footprint of the distribution phase [A4]	7.397142502879543
Carbon footprint of the distribution phase [A4]	7 kg CO2 eq.
Carbon footprint of the installation phase [A5]	9.746973643254218
Carbon footprint of the installation phase [A5]	10 kg CO2 eq.
Carbon footprint of the use phase [B2, B3, B4, B6]	5604.025130975059
Carbon footprint of the use phase [B2, B3, B4, B6]	5 604 kg CO2 eq.
Mercury free	Yes
Sustainable packaging	No
Carbon footprint of the end-of-life phase [C1 to C4]	65.88132628918824
Carbon footprint of the end-of-life phase [C1 to C4]	66 kg CO2 eq.
Environmental Disclosure	Product Environmental Profile
Total lifecycle Carbon footprint	6203
Packaging made with recycled cardboard	Yes
Packaging without single use plastic	No
SCIP Number	Ee8571a3-ff67-4048-b02f-625b529e64e2
REACh Regulation	Reference contains Substances of Very High Concern above the threshold
EU RoHS Directive	Compliant By Exemption
California proposition 65	WARNING: This product can expose you to chemicals including: Lead and lead compounds, which
PVC free	Yes
End of life manual availability	End Of Life Information
Removable battery	Yes
Take-back	No
WEEE Label	The product must be disposed on European Union markets following specific waste collection and

Contractual warranty

Warranty (in months)	18

Product Life Status :	Commercialised