

Product data sheet

Characteristics

ATV630C31N4

variable speed drive ATV630 - 315kW/500HP -
380...480V - IP00



Main

Range of product	Altivar Process ATV600
Product or component type	Variable speed drive
Product specific application	Process and utilities
Device short name	ATV630
Variant	Standard version
Product destination	Asynchronous motors Synchronous motors
Mounting mode	Wall mount
EMC filter	Integrated EN/IEC 61800-3 category C3 <= 50 m
IP degree of protection	IP00 conforming to IEC 61800-5-1 IP21 (with kit VW3A9113) conforming to IEC 61800-5-1 IP21 (with kit VW3A9113) conforming to IEC 60529 IP00 conforming to IEC 60529
Type of cooling	Forced convection
Supply frequency	50...60 Hz - 5...5 %
Network number of phases	3 phases
[Us] rated supply voltage	380...480 V - 15...10 %
Motor power kW	315 kW normal duty 250 kW heavy duty
Motor power hp	500 hp normal duty 400 hp heavy duty
Line current	569 A 380 V normal duty 461 A 480 V normal duty 457 A 380 V heavy duty 375 A 480 V heavy duty
Prospective line Isc	50 kA
Apparent power	351 kVA 480 V normal duty 286 kVA 480 V heavy duty
Continuous output current	616 A 2.5 kHz normal duty 481 A 2.5 kHz heavy duty
Maximum transient current	678 A 60 s normal duty

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

722 A 60 s heavy duty

Asynchronous motor control profile	Constant torque standard Variable torque standard Optimized torque mode
Synchronous motor control profile	Permanent magnet motor Synchronous reluctance motor
Speed drive output frequency	0.1...599 Hz
Output frequency	0.0001...0.5 kHz
Nominal switching frequency	2.5 kHz
Switching frequency	2...8 kHz adjustable 2.5...8 kHz with derating factor
Safety function	STO (safe torque off) SIL 3
Discrete input logic	16 preset speeds
Communication port protocol	Ethernet Modbus serial Modbus TCP
Option card	Communication module Profibus DP V1 slot A Communication module Profinet slot A Communication module DeviceNet slot A Communication module Modbus TCP/EtherNet/IP slot A Communication module CANopen daisy chain RJ45 slot A Communication module CANopen SUB-D 9 slot A Communication module CANopen screw terminals slot A Digital and analog I/O extension module slot A/slot B Output relay extension module slot A/slot B Communication module Ethernet IP/Modbus TCP/MD-Link slot A Communication module BACnet MS/TP Communication module Ethernet Powerlink

Complementary

Output voltage	<= power supply voltage
Permissible temporary current boost	1.1 x In 60 s normal duty 1.5 x In 60 s heavy duty
Motor slip compensation	Adjustable Automatic whatever the load Can be suppressed Not available in permanent magnet motor law
Acceleration and deceleration ramps	Linear adjustable separately from 0.01...9999 s
Braking to standstill	By DC injection
Protection type	Safe torque off motor Motor phase break motor Safe torque off drive Overheating drive Short-circuit protection drive Motor phase break drive Overspeed drive Break on the control circuit drive Overtvoltages on the DC bus drive Overload of output voltage drive Line supply overvoltage drive Line supply phase loss drive Line supply undervoltage drive Overcurrent between output phases and earth drive Thermal protection motor Thermal protection drive
Frequency resolution	Display unit Analog input
Electrical connection	Removable screw terminals 0.5...1.5 mm ² AWG 20...AWG 16 control Screw terminal 4 x 185 mm ² 3 x 350 kcmil line side Screw terminal 4 x 185 mm ² 3 x 350 kcmil motor
Connector type	RJ45 Ethernet/Modbus TCP on the remote graphic terminal RJ45 Modbus serial on the remote graphic terminal
Physical interface	2-wire RS 485 Modbus serial
Transmission frame	RTU Modbus serial
Transmission rate	10/100 Mbit/s Ethernet IP/Modbus TCP

	4.8, 9.6, 19.2, 38.4 kbit/s Modbus serial
Exchange mode	Half duplex, full duplex, autonegotiation Ethernet/Modbus TCP
Data format	8 bits, configurable odd, even or no parity Modbus serial
Type of polarization	No impedance Modbus serial
Number of addresses	1...247 Modbus serial
Method of access	Slave Modbus TCP
Supply	<p>Internal supply for reference potentiometer (1 to 10 kOhm) 10.5 V DC +/- 5 % <= 10 mA overload and short-circuit protection</p> <p>External supply for digital inputs 24 V DC 19...30 V <= 1.25 mA overload and short-circuit protection</p> <p>Internal supply for digital inputs and STO 24 V DC 21...27 V <= 200 mA overload and short-circuit protection</p>
Local signalling	<p>3 LEDs local diagnostic</p> <p>3 LEDs dual colour embedded communication status</p> <p>4 LEDs dual colour communication module status</p> <p>1 LED red presence of voltage</p>
Width	598 mm
Height	1195 mm
Depth	380 mm
Product weight	203 kg
Analogue input number	3
Analogue input type	<p>Software-configurable voltage AI1, AI2, AI3 0...10 V DC 30 kOhm 12 bits</p> <p>Software-configurable current AI1, AI2, AI3 0...20 mA/4...20 mA 250 Ohm 12 bits</p>
Discrete input number	8
Discrete input type	<p>Programmable DI1...DI6 24 V DC 3.5 kOhm</p> <p>Programmable as pulse input DI5, DI6 0...30 kHz 24 V DC</p> <p>Safe torque off STOA, STOB 24 V DC > 2.2 kOhm</p>
Input compatibility	<p>Level 1 PLC EN/IEC 61131-2 DI1...DI6 discrete input</p> <p>Level 1 PLC IEC 65A-68 DI5, DI6 discrete input</p> <p>Level 1 PLC EN/IEC 61131-2 STOA, STOB discrete input</p>
Discrete input logic	<p>Positive logic (source) DI1...DI6 < 5 V > 11 V</p> <p>Negative logic (sink) DI1...DI6 > 16 V < 10 V</p> <p>Positive logic (source) DI5, DI6 < 0.6 V > 2.5 V</p> <p>Positive logic (source) STOA, STOB < 5 V > 11 V</p>
Analogue output number	2
Analogue output type	<p>Software-configurable voltage AO1, AO2 0...10 V DC 470 Ohm 10 bits</p> <p>Software-configurable current AO1, AO2 0...20 mA 10 bits</p>
Sampling duration	<p>2 ms +/- 0.5 ms DI1...DI4 discrete input</p> <p>5 ms +/- 1 ms DI5, DI6 discrete input</p> <p>5 ms +/- 0.1 ms AI1, AI2, AI3 analog input</p> <p>10 ms +/- 1 ms AO1 analog output</p>
Accuracy	<p>+/- 0.6 % AI1, AI2, AI3 for a temperature variation 60 °C analog input</p> <p>+/- 1 % AO1, AO2 for a temperature variation 60 °C analog output</p>
Linearity error	<p>+/- 0.15 % of maximum value analog input AI1, AI2, AI3</p> <p>+/- 0.2 % analog output AO1, AO2</p>
Relay output number	3
Relay output type	<p>Configurable relay logic R1 fault relay NO/NC 100000 cycles</p> <p>Configurable relay logic R2 sequence relay NO 100000 cycles</p> <p>Configurable relay logic R3 sequence relay NO 100000 cycles</p>
Refresh time	5 ms +/- 0.5 ms R1, R2, R3 relay output
Minimum switching current	5 mA 24 V DC R1, R2, R3 relay output
Maximum switching current	<p>3 A 250 V AC resistive 1 R1, R2, R3 relay output</p> <p>3 A 30 V DC resistive 1 R1, R2, R3 relay output</p> <p>2 A 250 V AC inductive 0.4 7 ms R1, R2, R3 relay output</p> <p>2 A 30 V DC inductive 0.4 7 ms R1, R2, R3 relay output</p>
Isolation	Between power and control terminals
Specific application	Utility
IP degree of protection	IP21
Variable speed drive application selection	<p>Building - HVAC compressor centrifugal</p> <p>Food and beverage processing other application</p> <p>Mining mineral and metal fan</p> <p>Mining mineral and metal pump</p> <p>Oil and gas fan</p>

Water and waste water other application	
Building - HVAC screw compressor	
Food and beverage processing pump	
Food and beverage processing fan	
Food and beverage processing atomization	
Oil and gas electro submersible pump (ESP)	
Oil and gas water injection pump	
Oil and gas jet fuel pump	
Oil and gas compressor for refinery	
Water and waste water centrifuge pump	
Water and waste water positive displacement pump	
Water and waste water electro submersible pump (ESP)	
Water and waste water screw pump	
Water and waste water lobe compressor	
Water and waste water screw compressor	
Water and waste water compressor centrifugal	
Water and waste water fan	
Water and waste water conveyor	
Water and waste water mixer	
Motor power range AC-3	250...500 kW 380...440 V 3 phases 250...500 kW 480...500 V 3 phases
Motor starter type	Variable speed drive

Environment

Insulation resistance	> 1 mOhm 500 V DC for 1 minute to earth
Noise level	68 dB 86/188/EEC
Power dissipation in W	7099 W forced convection 769 W natural convection 380 V 2.5 kHz
Volume of cooling air	1260 m3/h
Operating position	Vertical +/- 10 degree
THDI	<= 48 % full load IEC 61000-3-12
Electromagnetic compatibility	Conducted radio-frequency immunity test level 3 IEC 61000-4-6 1.2/50 µs - 8/20 µs surge immunity test level 3 IEC 61000-4-5 Electrical fast transient/burst immunity test level 4 IEC 61000-4-4 Electrostatic discharge immunity test level 3 IEC 61000-4-2 Radiated radio-frequency electromagnetic field immunity test level 3 IEC 61000-4-3
Pollution degree	2 EN/IEC 61800-5-1
Vibration resistance	1.5 mm peak to peak 2...13 Hz IEC 60068-2-6 1 gn 13...200 Hz IEC 60068-2-6
Shock resistance	15 gn 11 ms IEC 60068-2-27
Relative humidity	5...95 % without condensation IEC 60068-2-3
Ambient air temperature for operation	40...60 °C with derating factor -10...40 °C without derating
Ambient air temperature for storage	-25...70 °C
Operating altitude	<= 1000 m without derating 1000...3000 m with current derating 1 % per 100 m
Environmental characteristic	Chemical pollution resistance class 3C2 EN/IEC 60721-3-3 Dust pollution resistance class 3S2 EN/IEC 60721-3-3
Standards	EN/IEC 61800-3 EN/IEC 61800-3 environment 1 category C2 EN/IEC 61800-3 environment 2 category C3 UL 508C EN/IEC 61800-5-1 IEC 61000-3-12 IEC 60721-3 IEC 61508 IEC 13849-1
Product certifications	CSA TÜV UL REACH
Marking	CE

Offer Sustainability

Sustainable offer status	Green Premium product
RoHS (date code: YYWW)	Compliant - since 1714 - Schneider Electric declaration of conformity Schneider Electric declaration of conformity
REACH	Reference not containing SVHC above the threshold Reference not containing SVHC above the threshold
Product environmental profile	Available Product Environmental Profile
Product end of life instructions	Available End of Life Information