



Variable speed drive, ATV312, 2.2kW, 3hp, 323..550V, 3 phase supply, 5.5A, CANopen, Modbus

ATV312HU22N4

! Discontinued on: 26 Jan 2021



① To be end-of-service on: 1 Jan 2026

Main

Mann		
Range of product	Altivar 312	
Product or component type	Variable speed drive	
Product destination	Asynchronous motors	
Product specific application	Simple machine	
Assembly style	With heat sink	
Component name	ATV312	
Motor power kW	2.2 kW	
Motor power hp	3 hp	
[Us] rated supply voltage	380500 V - 1510 %	
Supply frequency	5060 Hz - 55 %	
Network number of phases	3 phases	
Line current	8.9 A at 380 V, Isc = 5 kA 6.7 A at 500 V	
EMC filter	Integrated	
Apparent power	5.9 kVA	
Maximum transient current	8.3 A for 60 s	
Power dissipation in W	79 W at nominal load	
Speed range	150	
Asynchronous motor control profile	Sensorless flux vector control with PWM type motor control signal Factory set: constant torque	
Electrical connection	Al1, Al2, Al3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, Ll1Ll6 terminal 2.5 mm² AWG 14 L1, L2, L3, U, V, W, PA, PB, PA/+, PC/- terminal 5 mm² AWG 10	
Supply	Internal supply for logic inputs: 1930 V 100 mA, protection type: overload and short-circuit protection Internal supply for reference potentiometer (2.2 to 10 kOhm): 1010.8 V 10 mA, protection type: overload and short-circuit protection	
Communication port protocol	CANopen Modbus	
IP degree of protection	IP20 on upper part without cover plate IP21 on connection terminals IP31 on upper part IP41 on upper part	

Option card	Communication card for CANopen daisy chain
	Communication card for DeviceNet
	Communication card for Fipio
	Communication card for Modbus TCP
	Communication card for Profibus DP

Complementary

Complementary	
Supply voltage limits	323550 V
Prospective line Isc	5 kA
Continuous output current	5.5 A at 4 kHz
Output frequency	0500 Hz
Nominal switching frequency	4 kHz
Switching frequency	216 kHz adjustable
Transient overtorque	170200 % of nominal motor torque
Braking torque	150 % during 60 s with braking resistor 100 % with braking resistor continuously 150 % without braking resistor
Regulation loop	Frequency PI regulator
Motor slip compensation	Automatic whatever the load Adjustable Suppressable
Output voltage	<= power supply voltage
Tightening torque	Al1, Al2, Al3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, Ll1Ll6: 0.6 N.m L1, L2, L3, U, V, W, PA, PB, PA/+, PC/-: 1.2 N.m
Insulation	Electrical between power and control
Analogue input number	3
Analogue input type	Al1 configurable voltage 010 V, input voltage 30 V max, impedance: 30000 Ohm Al2 configurable voltage +/- 10 V, input voltage 30 V max, impedance: 30000 Ohm Al3 configurable current 020 mA, impedance: 250 Ohm
Sampling duration	Al1, Al2, Al3: 8 ms analog Ll1Ll6: 4 ms discrete
Response time	AOV, AOC 8 ms for analog R1A, R1B, R1C, R2A, R2B 8 ms for discrete
Linearity error	+/- 0.2 % for output
Analogue output number	1
Analogue output type	AOC configurable current: 020 mA, impedance: 800 Ohm, resolution: 8 bits AOV configurable voltage: 010 V, impedance: 470 Ohm, resolution: 8 bits
Discrete input logic	Logic input not wired (LI1LI4), < 13 V (state 1) Negative logic (source) (LI1LI6), > 19 V (state 0) Positive logic (source) (LI1LI6), < 5 V (state 0), > 11 V (state 1)
Discrete output number	2
Discrete output type	Configurable relay logic: (R1A, R1B, R1C) 1 NO + 1 NC - 100000 cycles Configurable relay logic: (R2A, R2B) NC - 100000 cycles
Minimum switching current	R1-R2 10 mA at 5 V DC
Maximum switching current	R1-R2: 2 A at 250 V AC inductive load, cos phi = 0.4 and L/R = 7 ms R1-R2: 2 A at 30 V DC inductive load, cos phi = 0.4 and L/R = 7 ms R1-R2: 5 A at 250 V AC resistive load, cos phi = 1 and L/R = 0 ms R1-R2: 5 A at 30 V DC resistive load, cos phi = 1 and L/R = 0 ms
Discrete input number	6
Discrete input type	(LI1LI6) programmable at 24 V, 0100 mA for PLC, impedance: 3500 Ohm

Acceleration and deceleration ramps	S, U or customized
Tamps	Linear adjustable separately from 0.1 to 999.9 s
Braking to standstill	By DC injection
Protection type	Input phase breaks: drive
	Line supply overvoltage and undervoltage safety circuits: drive
	Line supply phase loss safety function, for three phases supply: drive
	Motor phase breaks: drive
	Overcurrent between output phases and earth (on power up only): drive
	Overheating protection: drive
	Short-circuit between motor phases: drive
	Thermal protection: motor
Insulation resistance	>= 500 mOhm 500 V DC for 1 minute
Local signalling	1 LED (red) for drive voltage
	Four 7-segment display units for CANopen bus status
Time constant	5 ms for reference change
Frequency resolution	Analog input: 0.1100 Hz
	Display unit: 0.1 Hz
Connector type	1 RJ45 for Modbus/CANopen
Physical interface	RS485 multidrop serial link
Transmission frame	RTU
Transmission rate	10, 20, 50, 125, 250, 500 kbps or 1 Mbps for CANopen
	4800, 9600 or 19200 bps for Modbus
Number of addresses	1127 for CANopen
	1247 for Modbus
Number of drive	127 for CANopen
	31 for Modbus
Marking	CE
Operating position	Vertical +/- 10 degree
Outer dimension	402 x 239 x 192 mm
	184 x 140 x 150 mm
	215 x 185 x 158 mm
Height	184 mm
Width	142 mm
Depth	152 mm
Product weight	3.1 kg

Environment

Dielectric strength	2410 V DC between earth and power terminals 3400 V AC between control and power terminals
Electromagnetic compatibility	1.2/50 µs - 8/20 µs surge immunity test level 3 conforming to IEC 61000-4-5 Electrical fast transient/burst immunity test level 4 conforming to IEC 61000-4-4 Electrostatic discharge immunity test level 3 conforming to IEC 61000-4-2 Radiated radio-frequency electromagnetic field immunity test level 3 conforming to IEC 61000-4-3
Standards	IEC 61800-3 IEC 61800-5-1
Product certifications	GOST C-Tick DNV UL CSA NOM
Pollution degree	2
Protective treatment	TC

Vibration resistance	1 gn (f= 13150 Hz) conforming to EN/IEC 60068-2-6
	1.5 mm (f= 313 Hz) conforming to EN/IEC 60068-2-6
	110 mm (1 0 m 10 1 12) 00 mo mm g to 21 1/120 00000 2 0
Shock resistance	15 gn for 11 ms conforming to EN/IEC 60068-2-27
Relative humidity	595 % without condensation conforming to IEC 60068-2-3
	595 % without dripping water conforming to IEC 60068-2-3
Ambient air temperature for	-2570 °C
storage	
Ambient air temperature for	-1050 °C without derating (with protective cover on top of the drive)
operation	-1060 °C with derating factor (without protective cover on top of the drive)
Operating altitude	<= 1000 m without derating
	10003000 m with current derating 1 % per 100 m

Packing Units

Unit Type of Package 1	PCE
Number of Units in Package 1	1
Package 1 Height	21.073 cm
Package 1 Width	21.669 cm
Package 1 Length	21.747 cm
Package 1 Weight	2.93 kg
Unit Type of Package 2	S06
Number of Units in Package 2	12
Package 2 Height	73.5 cm
Package 2 Width	60.0 cm
Package 2 Length	80.0 cm
Package 2 Weight	44.0 kg

Contractual warranty

Warranty 18 months



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RoHS/REACh

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Rohs Exemption Information

Yes

Certifications & Standards

Eu Rohs Directive	Pro-active compliance (Product out of EU RoHS legal scope)
	EU RoHS Declaration
China Rohs Regulation	China RoHS declaration
Weee	The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins
Circularity Profile	End of Life Information