

ATV312HD11N4

variable speed drive ATV312 - 11kW - 25kVA -
397 W - 380..500 V - 3-phase supply



Main

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	11 kW
Motor power hp	15 hp
[Us] rated supply voltage	380...500 V - 15...10 %
Supply frequency	50...60 Hz - 5...5 %
Network number of phases	3 phases
Line current	37.2 A at 380 V, I _{sc} = 22 kA 28.4 A at 500 V
EMC filter	Integrated
Apparent power	25 kVA
Maximum transient current	41.6 A for 60 s
Power dissipation in W	397 W at nominal load
Speed range	1...50
Asynchronous motor control profile	Factory set : constant torque Sensorless flux vector control with PWM type motor control signal
Electrical connection	AI1, AI2, AI3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, LI1...LI6 terminal 2.5 mm ² AWG 14 L1, L2, L3, U, V, W, PA, PB, PA+, PC/- terminal 25 mm ² AWG 3
Supply	Internal supply for logic inputs: 19...30 V 100 mA, protection type: overload and short-circuit protection Internal supply for reference potentiometer (2.2 to 10 kOhm): 10...10.8 V 10 mA, protection type: overload and short-circuit protection
Communication port protocol	Modbus CANopen
IP degree of protection	IP20 on upper part without cover plate

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

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
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Complementary

Supply voltage limits	323...550 V
Prospective line I _{sc}	22 kA
Continuous output current	27.7 A at 4 kHz
Output frequency	0...500 Hz
Nominal switching frequency	4 kHz
Switching frequency	2...16 kHz adjustable
Transient overtorque	170...200 % 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	Suppressable Automatic whatever the load Adjustable
Output voltage	<= power supply voltage
Tightening torque	AI1, AI2, AI3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, LI1...LI6: 0.6 N.m L1, L2, L3, U, V, W, PA, PB, PA/+, PC/-: 4.5 N.m
Insulation	Electrical between power and control
Analogue input number	3
Analogue input type	AI1 configurable voltage 0...10 V, input voltage 30 V max, impedance: 30000 Ohm AI2 configurable voltage +/- 10 V, input voltage 30 V max, impedance: 30000 Ohm AI3 configurable current 0...20 mA, impedance: 250 Ohm
Sampling duration	AI1, AI2, AI3: 8 ms analog LI1...LI6: 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: 0...20 mA, impedance: 800 Ohm, resolution: 8 bits AOV configurable voltage: 0...10 V, impedance: 470 Ohm, resolution: 8 bits
Discrete input logic	Logic input not wired (LI1...LI4), < 13 V (state 1) Negative logic (source) (LI1...LI6), > 19 V (state 0) Positive logic (source) (LI1...LI6), < 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	(LI1...LI6) programmable at 24 V, 0...100 mA for PLC, impedance: 3500 Ohm
Acceleration and deceleration ramps	Linear adjustable separately from 0.1 to 999.9 s S, U or customized
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: 0.1...100 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	1...127 for CANopen 1...247 for Modbus
Number of drive	127 for CANopen 31 for Modbus
Marking	CE
Operating position	Vertical +/- 10 degree
Outer dimension	555 x 234 x 268 mm 390 x 245 x 190 mm 405 x 234 x 268 mm 330 x 245 x 190 mm
Height	329.5 mm
Width	245 mm
Depth	192 mm
Net weight	11 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 μ s - 8/20 μ s 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 61800-5-1 IEC 61800-3
Product certifications	UL CSA NOM C-Tick GOST DNV
Pollution degree	2
Protective treatment	TC
Vibration resistance	1 gn (f= 13...150 Hz) conforming to EN/IEC 60068-2-6 1.5 mm (f= 3...13 Hz) conforming to EN/IEC 60068-2-6
Shock resistance	15 gn for 11 ms conforming to EN/IEC 60068-2-27
Relative humidity	5...95 % without condensation conforming to IEC 60068-2-3 5...95 % without dripping water conforming to IEC 60068-2-3
Ambient air temperature for storage	-25...70 °C
Ambient air temperature for operation	-10...50 °C without derating (with protective cover on top of the drive) -10...60 °C with derating factor (without protective cover on top of the drive)
Operating altitude	<= 1000 m without derating 1000...3000 m with current derating 1 % per 100 m

Packing Units

Unit Type of Package 1	PCE
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Number of Units in Package 1	1
Package 1 Weight	11.755 kg
Package 1 Height	28 cm
Package 1 width	30 cm
Package 1 Length	38.5 cm
Unit Type of Package 2	P06
Number of Units in Package 2	4
Package 2 Weight	60.02 kg
Package 2 Height	80 cm
Package 2 width	80 cm
Package 2 Length	60 cm

Offer Sustainability

Sustainable offer status	Green Premium product
REACH Regulation	REACH Declaration
EU RoHS Directive	Pro-active compliance (Product out of EU RoHS legal scope) EU RoHS Declaration
Mercury free	Yes
RoHS exemption information	Yes
China RoHS Regulation	China RoHS declaration
Environmental Disclosure	Product Environmental Profile
Circularity Profile	End of Life Information
WEEE	The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins

Contractual warranty

Warranty	18 months
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