

# Product data sheet

Specifications



## variable speed drive ATV312 - 2.2kW - 4.4kVA - 123W - 200..240 V- 1-phase supply

ATV312HU22M2

! Discontinued on: 26 January 2021

! To be end-of-service on: 01 January 2026

! Discontinued - Service only

### 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	2.2 kW
Motor power hp	3 hp
[Us] rated supply voltage	200...240 V - 15...10 %
Supply frequency	50...60 Hz - 5...5 %
Network number of phases	Single phase
Line current	21.9 A at 200 V, I <sub>sc</sub> = 1 kA 18.4 A at 240 V
EMC filter	Integrated
Apparent power	4.4 kVA
Maximum transient current	16.5 A for 60 s
Power dissipation in W	123 W at nominal load
Speed range	1...50
Asynchronous motor control profile	Sensorless flux vector control with PWM type motor control signal Factory set : constant torque
Electrical connection	AI1, AI2, AI3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, LI1...LI6 terminal 2.5 mm <sup>2</sup> AWG 14 L1, L2, L3, U, V, W, PA, PB, PA/+, PC/- terminal 5 mm <sup>2</sup> AWG 10
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	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

## Complementary

<b>Supply voltage limits</b>	170...264 V
<b>Prospective line I<sub>sc</sub></b>	1 kA
<b>Continuous output current</b>	11 A at 4 kHz
<b>Output frequency</b>	0...500 Hz
<b>Nominal switching frequency</b>	4 kHz
<b>Switching frequency</b>	2...16 kHz adjustable
<b>Transient overtorque</b>	170...200 % of nominal motor torque
<b>Braking torque</b>	150 % during 60 s with braking resistor 100 % with braking resistor continuously 150 % without braking resistor
<b>Regulation loop</b>	Frequency PI regulator
<b>Motor slip compensation</b>	Suppressable Automatic whatever the load Adjustable
<b>Output voltage</b>	<= power supply voltage
<b>Tightening torque</b>	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/-: 1.2 N.m
<b>Insulation</b>	Electrical between power and control
<b>Analogue input number</b>	3
<b>Analogue input type</b>	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
<b>Sampling duration</b>	AI1, AI2, AI3: 8 ms analog LI1...LI6: 4 ms discrete
<b>Response time</b>	AOV, AOC 8 ms for analog R1A, R1B, R1C, R2A, R2B 8 ms for discrete
<b>Linearity error</b>	+/- 0.2 % for output
<b>Analogue output number</b>	1
<b>Analogue output type</b>	AOC configurable current: 0...20 mA, impedance: 800 Ohm, resolution: 8 bits AOV configurable voltage: 0...10 V, impedance: 470 Ohm, resolution: 8 bits
<b>Discrete input logic</b>	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)
<b>Discrete output number</b>	2
<b>Discrete output type</b>	Configurable relay logic: (R1A, R1B, R1C) 1 NO + 1 NC - 100000 cycles Configurable relay logic: (R2A, R2B) NC - 100000 cycles
<b>Minimum switching current</b>	R1-R2 10 mA at 5 V DC
<b>Maximum switching current</b>	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
<b>Discrete input number</b>	6
<b>Discrete input type</b>	(LI1...LI6) programmable at 24 V, 0...100 mA for PLC, impedance: 3500 Ohm
<b>Acceleration and deceleration ramps</b>	Linear adjustable separately from 0.1 to 999.9 s S, U or customized
<b>Braking to standstill</b>	By DC injection
<b>Protection type</b>	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

<b>Insulation resistance</b>	>= 500 mOhm 500 V DC for 1 minute
<b>Local signalling</b>	1 LED (red) for drive voltage Four 7-segment display units for CANopen bus status
<b>Time constant</b>	5 ms for reference change
<b>Frequency resolution</b>	Analog input: 0.1...100 Hz Display unit: 0.1 Hz
<b>Connector type</b>	1 RJ45 for Modbus/CANopen
<b>Physical interface</b>	RS485 multidrop serial link
<b>Transmission frame</b>	RTU
<b>Transmission rate</b>	10, 20, 50, 125, 250, 500 kbps or 1 Mbps for CANopen 4800, 9600 or 19200 bps for Modbus
<b>Number of addresses</b>	1...127 for CANopen 1...247 for Modbus
<b>Number of drive</b>	127 for CANopen 31 for Modbus
<b>Marking</b>	CE
<b>Operating position</b>	Vertical +/- 10 degree
<b>Outer dimension</b>	184 x 140 x 150 mm 230 x 200 x 152 mm 215 x 185 x 158 mm
<b>Height</b>	184 mm
<b>Width</b>	142 mm
<b>Depth</b>	152 mm
<b>Net weight</b>	3.1 kg

## Environment

<b>Dielectric strength</b>	2040 V DC between earth and power terminals 2880 V AC between control and power terminals
<b>Electromagnetic compatibility</b>	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
<b>Standards</b>	IEC 61800-3 IEC 61800-5-1
<b>Product certifications</b>	NOM CSA DNV UL GOST C-Tick
<b>Pollution degree</b>	2
<b>Protective treatment</b>	TC
<b>Vibration resistance</b>	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
<b>Shock resistance</b>	15 gn for 11 ms conforming to EN/IEC 60068-2-27
<b>Relative humidity</b>	5...95 % without condensation conforming to IEC 60068-2-3 5...95 % without dripping water conforming to IEC 60068-2-3
<b>Ambient air temperature for storage</b>	-25...70 °C
<b>Ambient air temperature for operation</b>	-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)
<b>Operating altitude</b>	<= 1000 m without derating 1000...2000 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 Weight	2.87 kg
Package 1 Height	21.012 cm
Package 1 width	21.476 cm
Package 1 Length	21.724 cm
Unit Type of Package 2	S06
Number of Units in Package 2	12
Package 2 Weight	44.0 kg
Package 2 Height	73.5 cm
Package 2 width	60 cm
Package 2 Length	80 cm

## Offer Sustainability

Sustainable offer status	Green Premium product
EU RoHS Directive	Pro-active compliance (Product out of EU RoHS legal scope) <a href="#">EU RoHS Declaration</a>
Mercury free	Yes
RoHS exemption information	<a href="#">Yes</a>
China RoHS Regulation	<a href="#">China RoHS declaration</a>
Environmental Disclosure	<a href="#">Product Environmental Profile</a>
Circularity Profile	<a href="#">End of Life Information</a>
WEEE	The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins
California proposition 65	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>

## Contractual warranty

Warranty	18 months
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## Recommended replacement(s)

ATV312HU22M2 is replaced by:

1x



Variable speed drive, Altivar Machine ATV320, 2.2 kW, 200...240 V, 1 phase, compact  
ATV320U22M2C