

# Product data sheet

Specifications



## Variable speed drive, ATV312, 2.2kW, 3hp, 170..264V, 1 phase supply, 11A, CANopen, Modbus

ATV312HU22M2

! Discontinued on: 17 February 2021

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

! Discontinued

### 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
Maximum Horse Power Rating	3 hp
[Us] rated supply voltage	200...240 V - 15...10 %
Supply frequency	50...60 Hz - 5...5 %
Phase	Single phase
Line current	21.9 A 200 V, I <sub>sc</sub> = 1 kA 18.4 A 240 V
EMC filter	Integrated
Apparent power	4.4 kVA
Maximum transient current	16.5 A 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 0.00 in <sup>2</sup> (2.5 mm <sup>2</sup> ) AWG 14 L1, L2, L3, U, V, W, PA, PB, PA/+, PC/- terminal 0.01 in <sup>2</sup> (5 mm <sup>2</sup> ) AWG 10
Supply	Internal supply for logic inputs 19...30 V 100 mA overload and short-circuit protection Internal supply for reference potentiometer (2.2 to 10 kOhm) 10...10.8 V 10 mA 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 CANopen daisy chain Communication card DeviceNet Communication card Fipio

## Complementary

<b>Supply voltage limits</b>	170...264 V
<b>Prospective line Isc</b>	1 kA
<b>Continuous output current</b>	11 A 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 % 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 5.31 lbf.in (0.6 N.m) L1, L2, L3, U, V, W, PA, PB, PA+, PC/- 10.62 lbf.in (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 30 V max 30000 Ohm AI2 configurable voltage +/- 10 V 30 V max 30000 Ohm AI3 configurable current 0...20 mA 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 analog R1A, R1B, R1C, R2A, R2B 8 ms discrete
<b>Linearity error</b>	+/- 0.2 % output
<b>Analogue output number</b>	1
<b>Analogue output type</b>	AOC configurable current 0...20 mA 800 Ohm 8 bits AOV configurable voltage 0...10 V 470 Ohm 8 bits
<b>Discrete input logic</b>	Logic input not wired LI1...LI4), < 13 V Negative logic (source) LI1...LI6), > 19 V Positive logic (source) LI1...LI6), < 5 V, > 11 V
<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 5 V DC
<b>Maximum switching current</b>	R1-R2 2 A 250 V AC inductive, cos phi = 0.4 7 ms R1-R2 2 A 30 V DC inductive, cos phi = 0.4 7 ms R1-R2 5 A 250 V AC resistive, cos phi = 1 0 ms R1-R2 5 A 30 V DC resistive, cos phi = 1 0 ms
<b>Discrete input number</b>	6
<b>Discrete input type</b>	LI1...LI6) programmable 24 V, 0...100 mA PLC 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>	for drive voltage 1 LED (red) for CANopen bus status four 7-segment display units
<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 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 CANopen 4800, 9600 or 19200 bps Modbus
<b>Number of addresses</b>	1...127 CANopen 1...247 Modbus
<b>Number of drive</b>	127 CANopen 31 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>	7.24 in (184 mm)
<b>Width</b>	5.59 in (142 mm)
<b>Depth</b>	5.98 in (152 mm)
<b>Product Weight</b>	6.83 lb(US) (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 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
<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 13...150 Hz)EN/IEC 60068-2-6 1.5 mm 3...13 Hz)EN/IEC 60068-2-6
<b>Shock resistance</b>	15 gn 11 ms EN/IEC 60068-2-27
<b>Relative humidity</b>	5...95 % without condensation IEC 60068-2-3 5...95 % without dripping water IEC 60068-2-3
<b>Ambient Air Temperature for Storage</b>	-13...158 °F (-25...70 °C)
<b>Ambient air temperature for operation</b>	14...122 °F (-10...50 °C) without derating with protective cover on top of the drive) 14...140 °F (-10...60 °C) with derating factor without protective cover on top of the drive)
<b>Operating altitude</b>	<= 3280.84 ft (1000 m) without derating 3280.84...6561.68 ft (1000...2000 m) with current derating 1 % per 100 m

## Ordering and shipping details

Category	22152-ATV320/ATV312/ATV32 (.25 THRU 7.5HP)
Discount Schedule	CP4B
GTIN	3606480077593
Returnability	No
Country of origin	ID

## Packing Units

Unit Type of Package 1	PCE
Number of Units in Package 1	1
Package 1 Height	8.27 in (21.012 cm)
Package 1 Width	8.46 in (21.476 cm)
Package 1 Length	8.55 in (21.724 cm)
Package 1 Weight	6.33 lb(US) (2.87 kg)
Unit Type of Package 2	S06
Number of Units in Package 2	12
Package 2 Height	28.94 in (73.5 cm)
Package 2 Width	23.62 in (60.0 cm)
Package 2 Length	31.50 in (80.0 cm)
Package 2 Weight	97.00 lb(US) (44.0 kg)

## Offer Sustainability

Sustainable offer status	Green Premium product
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>
EU RoHS Directive	Pro-active compliance (Product out of EU RoHS legal scope) <a href="#">EU RoHS Declaration</a>
Mercury free	Yes
China RoHS Regulation	<a href="#">China RoHS declaration</a>
RoHS exemption information	<a href="#">Yes</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.

## 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