

# Product data sheet

Specifications



## variable speed drive ATV31 - 2.2kW - 240V 1-phase supply - EMC filter - IP20

ATV31HU22M2

! Discontinued on: 31 December 2011

! End-of-service on: 31 December 2015

! Discontinued

### Main

Range of Product	Altivar
Product or Component Type	Variable speed drive
Product Specific Application	Simple machine
Component name	ATV31
Assembly style	With heat sink
EMC filter	Integrated
[Us] rated supply voltage	200...240 V - 5...5 %
Supply frequency	50...60 Hz - 5...5 %
Phase	Single phase
Motor power kW	2.2 kW 4 kHz
Maximum Horse Power Rating	3 hp 4 kHz
Line current	18.4 A 240 V 21.9 A 200 V, I <sub>sc</sub> = 1 kA
Apparent power	4.4 kVA
Prospective line I <sub>sc</sub>	1 kA
Nominal output current	11 A 4 kHz
Maximum transient current	16.5 A 60 s
Power dissipation in W	123 W at nominal load
Asynchronous motor control profile	Factory set : constant torque Sensorless flux vector control with PWM type motor control signal
Analogue input number	3

### Complementary

Product destination	Asynchronous motors
Supply voltage limits	170...264 V
Network Frequency	47.5...63 Hz
Output frequency	0.0005...0.5 kHz
Nominal switching frequency	4 kHz
Switching frequency	2...16 kHz adjustable

<b>Speed range</b>	1...50
<b>Transient overtorque</b>	150...170 % 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>Electrical connection</b>	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 0.00 in <sup>2</sup> (2.5 mm <sup>2</sup> ) AWG 14
<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/- 7.08 lbf.in (0.8 N.m)
<b>Insulation</b>	Electrical between power and control
<b>Supply</b>	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
<b>Analogue input type</b>	AI3 configurable current 0...20 mA 250 Ohm AI1 configurable voltage 0...10 V 30 V max 30000 Ohm AI2 configurable voltage +/- 10 V 30 V max 30000 Ohm
<b>Sampling duration</b>	LI1...LI6 4 ms discrete AI1, AI2, AI3 8 ms analog
<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>	2
<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>	Positive logic (source) LI1...LI6), < 5 V, > 11 V Logic input not wired LI1...LI4), < 13 V Negative logic (source) LI1...LI6), > 19 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>Display type</b>	1 LED Red)drive voltage Four 7-segment display unitsCANopen bus status
<b>Time constant</b>	5 ms for reference change
<b>Frequency resolution</b>	Display unit 0.1 Hz Analog input 0.1...100 Hz

<b>Connector type</b>	1 RJ45 CANopen via VW3 CANTAP2 adaptor 1 RJ45 Modbus
<b>Physical interface</b>	RS485 multidrop serial link CANopen via VW3 CANTAP2 adaptor RS485 multidrop serial link Modbus
<b>Transmission frame</b>	RTU CANopen via VW3 CANTAP2 adaptor RTU Modbus
<b>Transmission Rate</b>	10, 20, 50, 125, 250, 500 kbps or 1 Mbps CANopen via VW3 CANTAP2 adaptor 4800, 9600 or 19200 bps Modbus
<b>Number of addresses</b>	1...127 CANopen via VW3 CANTAP2 adaptor 1...247 Modbus
<b>Number of drive</b>	127 CANopen via VW3 CANTAP2 adaptor 31 Modbus
<b>Marking</b>	CE
<b>Operating position</b>	Vertical +/- 10 degree
<b>Outer dimension</b>	184 x 140 x 150 mm 215 x 185 x 158 mm 230 x 200 x 152 mm
<b>Net 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>	EN 50178
<b>Product Certifications</b>	UL C-tick N998 CSA
<b>IP degree of protection</b>	On upper part IP20 without cover plate) On connection terminals IP21 On upper part IP31 On upper part IP41
<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) with current derating 1 % per 100 m

## Ordering and shipping details

<b>Category</b>	22152-ATV320/ATV312/ATV32 (.25 THRU 7.5HP)
<b>Discount Schedule</b>	CP4B
<b>GTIN</b>	00785901561897
<b>Returnability</b>	No
<b>Country of origin</b>	ID

# Contractual warranty

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Warranty

18 months

## Recommended replacement(s)

ATV31HU22M2 is replaced by:

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1x



variable speed drive, Altivar Machine ATV320, 2.2kW, 200 to 240V, 1 phase, compact  
ATV320U22M2C

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