

Product data sheet

Specifications



variable speed drive ATV31 - 4kW - 500V 3-phase supply - EMC filter - IP20

ATV31HU40N4

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Discontinued on: 31 December 2011
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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	380...500 V - 5...5 %
Supply frequency	50...60 Hz - 5...5 %
Phase	3 phase
Motor power kW	4 kW 4 kHz
Maximum Horse Power Rating	5 hp 4 kHz
Line current	10.6 A 500 V 13.9 A 380 V, I _{sc} = 1 kA
Apparent power	9.2 kVA
Prospective line I _{sc}	1 kA
Nominal output current	9.5 A 4 kHz
Maximum transient current	14.3 A 60 s
Power dissipation in W	150 W at nominal load
Asynchronous motor control profile	Sensorless flux vector control with PWM type motor control signal Factory set : constant torque
Analogue input number	3

Complementary

Product destination	Asynchronous motors
Supply voltage limits	323...550 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

Speed range	1...50
Transient overtorque	150...170 % of nominal motor torque
Braking torque	<= 150 % 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
Electrical connection	AI1, AI2, AI3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, LI1...LI6 terminal 0.00 in² (2.5 mm²) AWG 14 L1, L2, L3, U, V, W, PA, PB, PA/+, PC/- terminal 0.00 in² (2.5 mm²) AWG 14
Tightening torque	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)
Insulation	Electrical between power and control
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
Analogue input type	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
Sampling duration	LI1...LI6 4 ms discrete AI1, AI2, AI3 8 ms analog
Response time	AOV, AOC 8 ms analog R1A, R1B, R1C, R2A, R2B 8 ms discrete
Linearity error	+/- 0.2 % output
Analogue output number	2
Analogue output type	AOC configurable current 0...20 mA 800 Ohm 8 bits AOV configurable voltage 0...10 V 470 Ohm 8 bits
Discrete input logic	Positive logic (source) LI1...LI6), < 5 V, > 11 V Logic input not wired LI1...LI4), < 13 V Negative logic (source) LI1...LI6), > 19 V
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 5 V DC
Maximum switching current	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
Discrete input number	6
Discrete input type	LI1...LI6) programmable 24 V, 0...100 mA PLC 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
Display type	1 LED Red)drive voltage Four 7-segment display unitsCANopen bus status
Time constant	5 ms for reference change
Frequency resolution	Display unit 0.1 Hz Analog input 0.1...100 Hz

Connector type	1 RJ45 CANopen via VW3 CANTAP2 adaptor 1 RJ45 Modbus
Physical interface	RS485 multidrop serial link CANopen via VW3 CANTAP2 adaptor RS485 multidrop serial link Modbus
Transmission frame	RTU CANopen via VW3 CANTAP2 adaptor RTU Modbus
Transmission Rate	10, 20, 50, 125, 250, 500 kbps or 1 Mbps CANopen via VW3 CANTAP2 adaptor 4800, 9600 or 19200 bps Modbus
Number of addresses	1...127 CANopen via VW3 CANTAP2 adaptor 1...247 Modbus
Number of drive	127 CANopen via VW3 CANTAP2 adaptor 31 Modbus
Marking	CE
Operating position	Vertical +/- 10 degree
Outer dimension	184 x 140 x 150 mm 402 x 239 x 192 mm 215 x 185 x 158 mm
Net Weight	6.83 lb(US) (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 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
Standards	EN 50178
Product Certifications	C-tick CSA UL N998
IP degree of protection	On upper part IP20 without cover plate) On connection terminals IP21 On upper part IP31 On upper part IP41
Pollution degree	2
Protective treatment	TC
Vibration resistance	1 gn 13...150 Hz)EN/IEC 60068-2-6 1.5 mm 3...13 Hz)EN/IEC 60068-2-6
Shock resistance	15 gn 11 ms EN/IEC 60068-2-27
Relative humidity	5...95 % without condensation IEC 60068-2-3 5...95 % without dripping water IEC 60068-2-3
Ambient Air Temperature for Storage	-13...158 °F (-25...70 °C)
Ambient air temperature for operation	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)
Operating altitude	<= 3280.84 ft (1000 m) without derating >= 3280.84 ft (1000 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	00785901605348
Returnability	No
Country of origin	ID

Contractual warranty

Warranty18 months

Recommended replacement(s)

ATV31HU40N4 is replaced by:

1x



variable speed drive, Altivar Machine ATV320, 4kW, 380 to 500V, 3 phases, compact
ATV320U40N4C