Product data sheet
Characteristics

ATV312HU40M3
variable speed drive, ATV312, 5 HP, 8.4 kVA, 180 W, 200 to 240 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	4 kW
Maximum Horse Power Rating	5 hp
[Us] rated supply voltage	200...240 V - 15...10 %
Supply frequency	50...60 Hz - 5...5 %
Phase	3 phase
Line current	24.2 A 200 V, Isc = 5 kA 21.1 A 240 V
EMC filter	Without EMC filter
Apparent power	8.4 kVA
Maximum transient current	26.3 A 60 s
Power dissipation in W	180 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 in² (2.5 mm²) AWG 14 L1, L2, L3, U, V, W, PA, PB, PA/+, PC/- terminal 0.01 in² (5 mm²) 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	Modbus CANopen
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 Communication card Modbus TCP Communication card Profibus DP

Complementary

Supply voltage limits	170…264 V
Prospective line Isc	5 kA
Continuous output current	17.5 A 4 kHz
Output frequency	0…500 Hz
Nominal switching frequency	4 kHz

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Switching frequency	2...16 kHz adjustable
Transient overtorque	170…200 % 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
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/- 10.62 lbf.in (1.2 N.m)
Insulation	Electrical between power and control
Analogue input number	3
Analogue input type	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
Sampling duration	AI1, AI2, AI3 8 ms analog LI1...LI6 4 ms discrete
Response time	AOV, AOC 8 ms analog R1A, R1B, R1C, R2A, R2B 8 ms discrete
Linearity error	+/- 0.2 % output
Analogue output number	1
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	Logic input not wired LI1...LI4), < 13 V Negative logic (source) LI1...LI6), > 19 V Positive logic (source) LI1...LI6), < 5 V, > 11 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
Local signalling	For drive voltage 1 LED (red) For CANopen bus status four 7-segment display units
Time constant	5 ms for reference change
Frequency resolution	Analog input 0.1...100 Hz Display unit 0.1 Hz
Connector type	1 RJ45 Modbus/CANopen
Physical interface	RS485 multidrop serial link
Transmission frame	RTU
Transmission Rate	10, 20, 50, 125, 250, 500 kbps or 1 Mbps CANopen 4800, 9600 or 19200 bps Modbus
Number of addresses	1…127 CANopen 1…247 Modbus
Number of drive	127 CANopen 31 Modbus

Marking	CE
Operating position	Vertical +/- 10 degree
Outer dimension	184 x 140 x 150 mm
Height	7.24 in (184 mm)
Width	5.59 in (142 mm)
Depth	5.98 in (152 mm)
Net Weight	6.39 lb(US) (2.9 kg)

Environment

Dielectric strength	2040 V DC between earth and power terminals 2880 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	IEC 61800-3 IEC 61800-5-1
Product Certifications	UL DNV C-tick CSA GOST NOM
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...9842.52 ft (1000...3000 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	3606480077647
Nbr. of units in pkg.	1
Package weight(Lbs)	6.40 lb(US) (2.905 kg)
Returnability	No
Country of origin	ID

Packing Units

Unit Type of Package 1	PCE
Package 1 Height	9.45 in (24 cm)
Package 1 width	9.65 in (24.5 cm)
Package 1 Length	9.65 in (24.5 cm)
Unit Type of Package 2	S06
Number of Units in Package 2	12
Package 2 Weight	104.51 lb(US) (47.404 kg)
Package 2 Height	28.94 in (73.5 cm)
Package 2 width	23.62 in (60 cm)
Package 2 Length	31.50 in (80 cm)

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 www.P65Warnings.ca.gov
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