Product data sheet
Characteristics

ATV31HU15M3X
variable speed drive ATV31 - 1.5kW - 240V 3-phase supply - IP20

Main

Commercial Status	End of commercialisation
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	Without EMC filter
[Us] rated supply voltage	200...240 V - 5...5 %
Supply frequency	50...60 Hz - 5...5 %
Network number of phases	3 phases
Motor power kW	1.5 kW 4 kHz
Motor power hp	2 hp 4 kHz
Line current	9.6 A 240 V 11.1 A 200 V 1 kA
Apparent power	3.8 kVA
Prospective line Isc	1 kA
Nominal output current	8 A 4 kHz
Maximum transient current	12 A 60 s
Power dissipation in W	86 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 limits	47.5...63 Hz
Speed drive output frequency	0.5...500 Hz
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 % without braking resistor 100 % with braking resistor continuously <= 150 % with braking resistor 60 s
Regulation loop	Frequency PI regulator
Motor slip compensation	Adjustable Automatic whatever the load Suppressable
Output voltage	<= power supply voltage

Electrical connection	Terminal 0 in² (2.5 mm²) AWG 14 L1, L2, L3, U, V, W, PA, PB, PA/+, PC/- Terminal 0 in² (2.5 mm²) AWG 14 AI1, AI2, AI3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, LI1...LI6
Tightening torque	7.08 lbf.in (0.8 N.m) L1, L2, L3, U, V, W, PA, PB, PA/+, PC/- 5.31 lbf.in (0.6 N.m) AI1, AI2, AI3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, LI1...LI6
Insulation	Electrical between power and control
Supply	Internal supply for reference potentiometer (2.2 to 10 kOhm) 10...10.8 V <= 10 mA overload and short-circuit protection Internal supply for logic inputs 19...30 V <= 100 mA overload and short-circuit protection
Analogue input type	Configurable voltage AI2 +/- 10 V 30 V max 30000 Ohm Configurable voltage AI1 0...10 V 30 V max 30000 Ohm Configurable current AI3 0...20 mA 250 Ohm
Sampling duration	8 ms AI1, AI2, AI3 analog 4 ms LI1...LI6 discrete
Response time	8 ms discrete R1A, R1B, R1C, R2A, R2B 8 ms analog AOV, AOC
Linearity error	+/- 0.2 % output
Analogue output number	2
Analogue output type	Configurable voltage AOV 0...10 V 470 Ohm 8 bits Configurable current AOC 0...20 mA 800 Ohm 8 bits
Discrete input logic	Positive logic (source) LI1...LI6 < 5 V > 11 V Negative logic (source) LI1...LI6 > 19 V Logic input not wired LI1...LI4 < 13 V
Discrete output number	2
Discrete output type	Configurable relay logic R2A, R2B NC 100000 cycles Configurable relay logic R1A, R1B, R1C 1 NO + 1 NC 100000 cycles
Minimum switching current	10 mA 5 V DC R1-R2
Maximum switching current	5 A 30 V DC resistive cos phi = 1 0 ms R1-R2 5 A 250 V AC resistive cos phi = 1 0 ms R1-R2 2 A 30 V DC inductive cos phi = 0.4 7 ms R1-R2 2 A 250 V AC inductive cos phi = 0.4 7 ms R1-R2
Discrete input number	6
Discrete input type	Programmable LI1...LI6 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	Thermal protection motor Short-circuit between motor phases drive Overheating protection drive Overcurrent between output phases and earth (on power up only) drive Motor phase breaks drive Line supply phase loss safety function, for three phases supply drive Line supply overvoltage and undervoltage safety circuits drive Input phase breaks drive
Insulation resistance	>= 500 mOhm 500 V DC for 1 minute
Display type	Four 7-segment display units CANopen bus status 1 LED red drive voltage
Time constant	5 ms for reference change
Frequency resolution	0.1...100 Hz analog input 0.1 Hz display unit
Type of connector	1 RJ45 Modbus 1 RJ45 CANopen via VW3 CANTAP2 adaptor
Physical interface	RS485 multidrop serial link Modbus RS485 multidrop serial link CANopen via VW3 CANTAP2 adaptor
Transmission frame	RTU Modbus RTU CANopen via VW3 CANTAP2 adaptor
Transmission rate	4800, 9600 or 19200 bps Modbus 10, 20, 50, 125, 250, 500 kbps or 1 Mbps CANopen via VW3 CANTAP2 adaptor
Number of addresses	1...247 Modbus 1...127 CANopen via VW3 CANTAP2 adaptor

Number of drive	31 Modbus 127 CANopen via VW3 CANTAP2 adaptor
Marking	CE
Operating position	Vertical +/- 10 degree
Outer dimension	143 x 105 x 130 mm
Product weight	3.75 lb(US) (1.7 kg)

Environment

Dielectric strength	2880 V AC between control and power terminals 2040 V DC between earth and power terminals
Electromagnetic compatibility	Radiated radio-frequency electromagnetic field immunity test level 3 IEC 61000-4-3 Electrostatic discharge immunity test level 3 IEC 61000-4-2 Electrical fast transient/burst immunity test level 4 IEC 61000-4-4 1.2/50 µs - 8/20 µs surge immunity test level 3 IEC 61000-4-5
Standards	EN 50178
Product certifications	CSA C-Tick N998 UL
IP degree of protection	IP41 on upper part IP31 on upper part IP21 on connection terminals IP20 on upper part without cover plate
Pollution degree	2
Protective treatment	TC
Vibration resistance	1.5 mm 3...13 Hz EN/IEC 60068-2-6 1 gn 13...150 Hz EN/IEC 60068-2-6
Shock resistance	15 gn 11 ms EN/IEC 60068-2-27
Relative humidity	5...95 % without dripping water IEC 60068-2-3 5...95 % without condensation IEC 60068-2-3
Ambient air temperature for storage	-13...158 °F (-25...70 °C)
Ambient air temperature for operation	14...140 °F (-10...60 °C) with derating factor without protective cover on top of the drive 14...122 °F (-10...50 °C) without derating with protective cover on top of the drive
Operating altitude	>= 3280.84 ft (1000 m) with current derating 1 % per 100 m <= 3280.84 ft (1000 m) without derating

Ordering and shipping details

Category	22152 - ATV312 / ATV32 (.25 THRU 7.5 HP)
Discount Schedule	CP4B
GTIN	00785901458500
Nbr. of units in pkg.	1
Package weight(Lbs)	4.17
Returnability	N
Country of origin	ID

Contractual warranty

Period	18 months