Product data sheet
Characteristics

ATV31CU40N4
enclosed variable speed drive ATV31 - 4kW - 500V - IP55



Main

Range of product	Altivar 31
Product or component type	Variable speed drive
Product destination	Asynchronous motors
Product specific application	Simple machine
Assembly style	Enclosed
Component name	ATV31
EMC filter	Integrated
Power supply voltage	380...500 V - 15...10 %
Power supply frequency	50...60 Hz - 5...5 %
Phase	3 phase
[Us] rated supply voltage	10.6 A 500 V 1 kA 13.9 A 380 V 1 kA
Switching frequency	9.5 A 4 kHz
Duration	14.3 A 60 s
Condition of use	150 W at nominal load
Asynchronous motor control profile	Factory set : constant torque Sensorless flux vector control with PWM type motor control signal
IP degree of protection	IP55

Complementary

Nominal switching frequency	4 kHz
Switching frequency	2...16 kHz adjustable
Braking torque	<= 150 % 60 s with braking resistor 100 % with braking resistor continuously 30 % without braking resistor
Regulation loop	Frequency PI regulator
Motor slip compensation	Suppressable Adjustable Automatic whatever the load
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
Terminal identifier	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 protection Internal supply for logic inputs 19…30 V, <100 mA short-circuit protection Internal supply for reference potentiometer 10…10.8 V, <10 mA overload protection Internal supply for reference potentiometer 10…10.8 V, <10 mA 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
Input sampling time	LI1...LI6 4 ms discrete AI1, AI2, AI3 8 ms analog
Output response time	AOV, AOC 8 ms analog R1A, R1B, R1C, R2A, R2B 8 ms discrete
Linearity error	+/- 0.2 % output

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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 type	Configurable relay logic R1A, R1B, R1C) 1 NO + 1 NC - 100000 cycles Configurable relay logic R2A, R2B) NC - 100000 cycles
[Us] rated supply voltage	10 mA 5 V DC R1-R2
Discrete input type	LI1...LI6) programmable 24 V, 0…100 mA PLC 3500 Ohm
Acceleration and deceleration ramps	S, U or customized Linear adjustable separately from 0.1 to 999.9 s
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	Drive voltage 1 LED red) CANopen bus status four 7-segment display units
Condition of use	5 ms for reference change
Frequency resolution	Display unit 0.1 Hz Analog input 0.1...100 Hz
Communication port protocol	Modbus CANopen
Connector type	1 RJ45 CANopen via VW3 CANTAP2 adaptor 1 RJ45 Modbus
Physical interface	RS485 multidrop serial link Modbus
Transmission frame	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
Marking	CE
Operating position	Vertical +/- 10 degree

Environment

Condition of tests	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	N998 UL C-tick CSA
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
Condition of use	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	00785901592211
Nbr. of units in pkg.	1
Package weight(Lbs)	20.9 lb(US) (9.48 kg)
Returnability	No
Country of origin	ID

Packing Units

Unit Type of Package 1	PCE
Package 1 Height	10.24 in (26 cm)
Package 1 width	12.20 in (31 cm)
Package 1 Length	16.54 in (42 cm)
Unit Type of Package 2	P06
Number of Units in Package 2	4
Package 2 Weight	110.21 lb(US) (49.992 kg)
Package 2 Height	28.94 in (73.5 cm)
Package 2 width	31.50 in (80 cm)
Package 2 Length	23.62 in (60 cm)

Offer Sustainability

REACh Regulation	REACh Declaration
REACh free of SVHC	Yes
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
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