Product data sheet
Characteristics

ATV31CU11M2
enclosed variable speed drive ATV31 - 1.1kW - 240V - 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	200...240 V (- 15...10 %)
Power supply frequency	50...60 Hz (- 5...5 %)
Network number of phases	Single phase
Motor power kW	1.1 kW
Motor power hp	1.5 hp
Line current	10.2 A for 240 V and 1 kA 12.1 A for 200 V and 1 kA
Apparent power	2.4 kVA
Maximum prospective line Isc	1 kA
Maximum transient current	10.4 A during 60 s
Power dissipation in W	74 W at nominal load
Speed range	1...50
Transient overtorque	150...170 % of nominal motor torque
Asynchronous motor control profile	Factory set : constant torque Sensorless flux vector control with PWM type motor control signal
IP degree of protection	IP55
Nominal output current	6.9 A at 4 kHz

Complementary

Power supply voltage limit	170...264 V
Power supply 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
Braking torque	50 % without braking resistor 100 % with braking resistor continuously ≤ 150 % with braking resistor for 60 s
Regulation loop	Frequency PI regulator
Motor slip compensation	Adjustable Automatic whatever the load Suppressable
Output voltage	<= power supply voltage
Electrical connection	Terminal 2.5 mm² / AWG 14 Terminal 2.5 mm² / AWG 14
Tightening torque	AI1, AI2, AI3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, LI1...LI6 0.6 N.m L1, L2, L3, U, V, W, PA, PB, PA/+, PC/- 0.8 N.m
Insulation	Electrical between power and control

Supply	Internal supply for logic inputs 19...30 V , > 0...0.1 A for short-circuit protection Internal supply for logic inputs 19...30 V , > 0...0.1 A for overload protection Internal supply for reference potentiometer 10...10.8 V , > 0...0.01 A for short-circuit protection Internal supply for reference potentiometer 10...10.8 V , > 0...0.01 A for overload protection
Analogue input number	3
Analogue input type	AI1 configurable voltage 0...10 V , input voltage 30 V max , impedance 30000 Ohm AI2 configurable voltage +/- 10 V , input voltage 30 V max , impedance 30000 Ohm AI3 configurable current 0...20 mA , impedance 250 Ohm
Input sampling time	Analog AI1, AI2, AI3 8 ms Discrete LI1...LI6 4 ms
Output response time	Analog AOV, AOC , 8 ms Discrete R1A, R1B, R1C, R2A, R2B , 8 ms
Linearity error	+/- 0.2 % for output
Analogue output number	2
Analogue output type	AOC configurable current 0...20 mA , impedance 800 Ohm , resolution 8 bits AOV configurable voltage 0...10 V , impedance 470 Ohm , resolution 8 bits
Discrete input logic	LI1...LI4 logic input not wired , state 1 < 13 V LI1...LI6 negative logic (source) , state 0 > 19 V LI1...LI6 positive logic (source) , state 0 < 5 V , state 1 > 11 V
Discrete output number	2
Discrete output type	R1A, R1B, R1C configurable relay logic 1 NO + 1 NC 100000 cycles R2A, R2B configurable relay logic NC 100000 cycles
Minimum switching current	R1-R2 10 mA at 5 V DC
Maximum switching current	R1-R2 on resistive load, 5 A at 250 V AC, cos phi = 1, L/R = 0 ms R1-R2 on resistive load, 5 A at 30 V DC, cos phi = 1, L/R = 0 ms R1-R2 on inductive load, 2 A at 250 V AC, cos phi = 0.4, L/R = 7 ms R1-R2 on inductive load, 2 A at 30 V DC, cos phi = 0.4, L/R = 7 ms
Discrete input number	6
Discrete input type	LI1...LI6 programmable 24 V , 0...100 mA compatible with PLC , impedance 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	Drive short-circuit between motor phases Drive input phase breaks Drive motor phase breaks Drive line supply phase loss safety function, for three phases supply Drive line supply overvoltage and undervoltage safety circuits Drive overcurrent between output phases and earth (on power up only) Drive overheating protection Motor thermal protection
Insulation resistance	≥ 500 MOhm at 500 V DC for 1 minute
Local signalling	1 LED (red) for drive voltage Four 7-segment display units for CANopen bus status
Time constant	5 ms for reference change
Frequency resolution	Analog input 0.1...100 Hz Display unit 0.1 Hz
Communication port protocol	CANopen Modbus
Type of connector	1 RJ45 for Modbus 1 RJ45 for CANopen via VW3 CANTAP2 adaptor
Physical interface	RS485 multidrop serial link for Modbus
Transmission frame	RTU for Modbus
Transmission rate	10, 20, 50, 125, 250, 500 kbps or 1 Mbps for CANopen via VW3 CANTAP2 adaptor 4800, 9600 or 19200 bps for Modbus
Number of addresses	1...127 for CANopen via VW3 CANTAP2 adaptor 1...247 for Modbus
Number of drive	31 for Modbus 127 for CANopen via VW3 CANTAP2 adaptor
Marking	CE
Operating position	Vertical +/- 10 degree

Product weight	8.8 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 conforming to IEC 61000-4-5 level 3 Electrical fast transient/burst immunity test conforming to IEC 61000-4-4 level 4 Electrostatic discharge immunity test conforming to IEC 61000-4-2 level 3 Radiated radio-frequency electromagnetic field immunity test conforming to IEC 61000-4-3 level 3
Standards	EN 50178
Product certifications	C-Tick CSA N998 UL
Pollution degree	2
Protective treatment	TC
Vibration resistance	1 gn (f = 13...150 Hz) conforming to EN/IEC 60068-2-6 1.5 mm (f = 3...13 Hz) conforming to EN/IEC 60068-2-6
Shock resistance	15 gn for 11 ms conforming to EN/IEC 60068-2-27
Relative humidity	5...95 % without condensation conforming to IEC 60068-2-3 5...95 % without dripping water conforming to IEC 60068-2-3
Ambient air temperature for storage	-25...70 °C
Ambient air temperature for operation	-10...50 °C without derating with protective cover on top of the drive -10...60 °C with derating factor without protective cover on top of the drive
Operating altitude	≤ 1000 m without derating ≥ 1000 m with current derating 1 % per 100 m
RoHS EUR conformity date	0915
RoHS EUR status	Compliant