Product data sheet
Characteristics

ATV312HU55N4
variable speed drive ATV312 - 5.5kW - 15kVA - 232W - 380..500 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	5.5 kW
Motor power hp	7.5 hp
[Us] rated supply voltage	380...500 V (- 5...5 %)
Supply frequency	50...60 Hz (- 5...5 %)
Network number of phases	3 phases
Line current	16.5 A for 500 V 21.9 A for 380 V, 1 kA
EMC filter	Integrated
Apparent power	15 kVA
Maximum transient current	21.5 A for 60 s
Power dissipation in W	232 W at nominal load
Speed range	1...50
Asynchronous motor control profile	Factory set : constant torque Sensorless flux vector control with PWM type motor control signal
Electrical connection	AI1, AI2, AI3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, LI1...LI6 terminal 2.5 mm² AWG 14 L1, L2, L3, U, V, W, PA, PB, PA/+, PC/- terminal 2.5 mm² AWG 14
Supply	Internal supply for logic inputs at 19...30 V <= 100 A for overload and short-circuit protection Internal supply for reference potentiometer (2.2 to 10 kOhm) at 10...10.8 V <= 10 A for overload and short-circuit protection
Communication port protocol	CANopen Modbus
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	CANopen daisy chain communication card DeviceNet communication card Fipio communication card Modbus TCP communication card Profibus DP communication card

Complementary

Supply voltage limits	323...550 V
Network frequency limits	47.5...63 Hz
Prospective line Isc	1 kA
Continuous output current	14.3 A at 4 kHz
Speed drive output frequency	0.5...500 Hz
Nominal switching frequency	4 kHz

Switching frequency	2...16 kHz adjustable
Transient overtorque	150...170 % of nominal motor torque
Braking torque	<= 150 % with braking resistor for 60 s 100 % with braking resistor continuously 150 % without braking resistor
Regulation loop	Frequency PI regulator
Motor slip compensation	Adjustable Automatic whatever the load Suppressable
Output voltage	<= power supply voltage
Tightening torque	0.6 N.m AI1, AI2, AI3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, LI1...LI6 0.8 N.m L1, L2, L3, U, V, W, PA, PB, PA/+, PC/-
Insulation	Electrical between power and control
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
Sampling duration	AI1, AI2, AI3 8 ms for analog LI1...LI6 4 ms for discrete
Response time	AOV, AOC 8 ms for analog R1A, R1B, R1C, R2A, R2B 8 ms for discrete
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 , < 13 V (state 1) LI1...LI6 negative logic (source), > 19 V (state 0) LI1...LI6 positive logic (source), < 5 V (state 0), > 11 V (state 1)
Discrete output number	2
Discrete output type	R1A, R1B, R1C configurable relay logic 1 NO + 1 NC, electrical durability 100000 cycles R2A, R2B configurable relay logic NC, electrical durability 100000 cycles
Minimum switching current	R1-R2 10 mA at 5 V DC
Maximum switching current	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 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
Discrete input number	6
Discrete input type	LI1...LI6 programmable 24 V 0...100 mA with PLC, impedance 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 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
Type of connector	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	232 x 180 x 170 mm 300 x 210 x 170 mm 402 x 239 x 192 mm 442 x 239 x 192 mm
Product weight	6.5 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 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	IEC 61800-3 IEC 61800-5-1
Product certifications	CSA C-Tick GOST NOM 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 status	Compliant
RoHS EUR conformity date	0913