

ATV312HU15N4

variable speed drive ATV312 - 1.5kW - 4.2kVA
- 61W - 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 | 1.5 kW |
| Motor power hp | 2 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 | 4.8 A for 500 V 6.4 A for 380 V, 1 kA |
| EMC filter | Integrated |
| Apparent power | 4.2 kVA |
| Maximum transient current | 6.2 A for 60 s |
| Power dissipation in W | 61 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 mm ² AWG 14 L1, L2, L3, U, V, W, PA, PB, PA/+, PC/- terminal 2.5 mm ² 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 I _{sc} | 1 kA |
| Continuous output current | 4.1 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 | 143 x 105 x 150 mm 184 x 149 x 157 mm 382 x 239 x 170 mm |
| Product weight | 1.8 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 μ s - 8/20 μ s 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 |