

Product data sheet

Specifications



Variable speed drive, ATV312, 5.5kW, 15kVA, 232W, 380 to 500V, 3 phase supply, Modbus, CANopen

ATV312HU55N4

! Discontinued on: 26 January 2021

! To be end-of-service on: 01 January 2026

! Discontinued - Service only

Main

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|------------------------------------|---|
| 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 - 15...10 % |
| Supply frequency | 50...60 Hz - 5...5 % |
| Network number of phases | 3 phases |
| Line current | 21.9 A at 380 V, I _{sc} = 22 kA 16.5 A at 500 V |
| 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 mm ² AWG 14 L1, L2, L3, U, V, W, PA, PB, PA/+, PC/- terminal 16 mm ² AWG 6 |
| Supply | Internal supply for logic inputs: 19...30 V 100 mA, protection type: overload and short-circuit protection Internal supply for reference potentiometer (2.2 to 10 kOhm): 10...10.8 V 10 mA, protection type: overload and short-circuit protection |
| Communication port protocol | Modbus CANopen |
| 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 | Communication card for CANopen daisy chain Communication card for DeviceNet Communication card for Fipio |

Complementary

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| Supply voltage limits | 323...550 V |
| Prospective line Isc | 22 kA |
| Continuous output current | 14.3 A at 4 kHz |
| Output frequency | 0...500 Hz |
| Nominal switching frequency | 4 kHz |
| Switching frequency | 2...16 kHz adjustable |
| Transient overtorque | 170...200 % of nominal motor torque |
| Braking torque | 150 % during 60 s with braking resistor 100 % with braking resistor continuously 150 % without braking resistor |
| Regulation loop | Frequency PI regulator |
| Motor slip compensation | Automatic whatever the load Adjustable Suppressable |
| Output voltage | <= power supply voltage |
| 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/-: 2.5 N.m |
| 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 analog LI1...LI6: 4 ms 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 | 1 |
| 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 | Logic input not wired (LI1...LI4), < 13 V (state 1) Negative logic (source) (LI1...LI6), > 19 V (state 0) Positive logic (source) (LI1...LI6), < 5 V (state 0), > 11 V (state 1) |
| Discrete output number | 2 |
| Discrete output type | Configurable relay logic: (R1A, R1B, R1C) 1 NO + 1 NC - 100000 cycles Configurable relay logic: (R2A, R2B) NC - 100000 cycles |
| Minimum switching current | R1-R2 10 mA at 5 V DC |
| Maximum switching current | R1-R2: 2 A at 250 V AC inductive load, cos phi = 0.4 and L/R = 7 ms R1-R2: 2 A at 30 V DC inductive load, cos phi = 0.4 and L/R = 7 ms R1-R2: 5 A at 250 V AC resistive load, cos phi = 1 and L/R = 0 ms R1-R2: 5 A at 30 V DC resistive load, cos phi = 1 and L/R = 0 ms |
| Discrete input number | 6 |
| Discrete input type | (LI1...LI6) programmable at 24 V, 0...100 mA for 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

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| Insulation resistance | >= 500 mOhm 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 |
| Connector type | 1 RJ45 for Modbus/CANopen |
| Physical interface | RS485 multidrop serial link |
| Transmission frame | RTU |
| Transmission rate | 10, 20, 50, 125, 250, 500 kbps or 1 Mbps for CANopen 4800, 9600 or 19200 bps for Modbus |
| Number of addresses | 1...127 for CANopen 1...247 for Modbus |
| Number of drive | 127 for CANopen 31 for Modbus |
| Marking | CE |
| Operating position | Vertical +/- 10 degree |
| Outer dimension | 442 x 239 x 192 mm 300 x 210 x 170 mm 232 x 180 x 170 mm 402 x 239 x 192 mm |
| Height | 232 mm |
| Width | 180 mm |
| Depth | 172 mm |
| Net weight | 6.5 kg |

Environment

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| 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 level 3 conforming to IEC 61000-4-5 Electrical fast transient/burst immunity test level 4 conforming to IEC 61000-4-4 Electrostatic discharge immunity test level 3 conforming to IEC 61000-4-2 Radiated radio-frequency electromagnetic field immunity test level 3 conforming to IEC 61000-4-3 |
| Standards | IEC 61800-5-1 IEC 61800-3 |
| Product certifications | GOST DNV NOM UL CSA C-Tick |
| 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...3000 m with current derating 1 % per 100 m |

Packing Units

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| Unit Type of Package 1 | PCE |
| Number of Units in Package 1 | 1 |
| Package 1 Height | 22.476 cm |
| Package 1 Width | 26.31 cm |
| Package 1 Length | 29.892 cm |
| Package 1 Weight | 6.02 kg |
| Unit Type of Package 2 | S04 |
| Number of Units in Package 2 | 2 |
| Package 2 Height | 30 cm |
| Package 2 Width | 40 cm |
| Package 2 Length | 60 cm |
| Package 2 Weight | 13.171 kg |
| Unit Type of Package 3 | PAL |
| Number of Units in Package 3 | 18 |
| Package 3 Height | 77 cm |
| Package 3 Width | 60 cm |
| Package 3 Length | 80 cm |
| Package 3 Weight | 115.2 kg |

Offer Sustainability

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| Sustainable offer status | Green Premium product |
| EU RoHS Directive | Pro-active compliance (Product out of EU RoHS legal scope) EU RoHS Declaration |
| Mercury free | Yes |
| China RoHS Regulation | China RoHS declaration |
| RoHS exemption information | Yes |
| Environmental Disclosure | Product Environmental Profile |
| Circularity Profile | End of Life Information |
| WEEE | The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins |
| California proposition 65 | WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov |

Contractual warranty

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| Warranty | 18 months |
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Recommended replacement(s)

ATV312HU55N4 is replaced by:

1x



Variable speed drive, Altivar Machine ATV320, 5.5 kW, 380...500 V, 3 phases, book
ATV320U55N4B