

# 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 (- 15...10 %)                                                                                                                                                                                                             |
| Supply frequency                   | 50...60 Hz (- 5...5 %)                                                                                                                                                                                                                |
| Network number of phases           | 3 phases                                                                                                                                                                                                                              |
| Line current                       | 16.5 A for 500 V<br>21.9 A for 380 V, 22 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<br>Sensorless flux vector control with PWM type motor control signal                                                                                                                                    |
| Electrical connection              | L1, L2, L3, U, V, W, PA, PB, PA/+, PC/- terminal 16 mm² AWG 6<br>AI1, AI2, AI3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, LI1...LI6 terminal 2.5 mm² AWG 14                                                                                  |
| Supply                             | Internal supply for reference potentiometer (2.2 to 10 kOhm) at 10...10.8 V, <= 10 mA for overload and short-circuit protection<br>Internal supply for logic inputs at 19...30 V, <= 100 mA for overload and short-circuit protection |
| Communication port protocol        | CANopen<br>Modbus                                                                                                                                                                                                                     |
| IP degree of protection            | IP31 on upper part<br>IP41 on upper part<br>IP20 on upper part without cover plate                                                                                                                                                    |

|             |                                                                                                                                                                       |
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| Option card | Modbus TCP communication card<br>CANopen daisy chain communication card<br>DeviceNet communication card<br>Fipio communication card<br>Profibus DP communication card |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Complementary

|                                     |                                                                                                                                                                                                                                                                                                            |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Supply voltage limits               | 323...550 V                                                                                                                                                                                                                                                                                                |
| Network frequency                   | 47.5...63 Hz                                                                                                                                                                                                                                                                                               |
| Prospective line Isc                | 22 kA                                                                                                                                                                                                                                                                                                      |
| Continuous output current           | 14.3 A at 4 kHz                                                                                                                                                                                                                                                                                            |
| Output frequency                    | 0...500 kHz                                                                                                                                                                                                                                                                                                |
| Nominal switching frequency         | 4 kHz                                                                                                                                                                                                                                                                                                      |
| Switching frequency                 | 2...16 kHz adjustable                                                                                                                                                                                                                                                                                      |
| Transient overtorque                | 170...200 % of nominal motor torque                                                                                                                                                                                                                                                                        |
| Braking torque                      | 150 % without braking resistor<br>100 % with braking resistor continuously<br>150 % with braking resistor for 60 s                                                                                                                                                                                         |
| Regulation loop                     | Frequency PI regulator                                                                                                                                                                                                                                                                                     |
| Motor slip compensation             | Adjustable<br>Suppressable<br>Automatic whatever the load                                                                                                                                                                                                                                                  |
| Output voltage                      | <= power supply voltage                                                                                                                                                                                                                                                                                    |
| Tightening torque                   | 0.6 N.m AI1, AI2, AI3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, LI1...LI6<br>2.5 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                 | AI3 configurable current 0...20 mA, impedance 250 Ohm<br>AI2 configurable voltage +/- 10 V, input voltage 30 V max, impedance 30000 Ohm<br>AI1 configurable voltage 0...10 V, input voltage 30 V max, impedance 30000 Ohm                                                                                  |
| Sampling duration                   | LI1...LI6 4 ms for discrete<br>AI1, AI2, AI3 8 ms for analog                                                                                                                                                                                                                                               |
| Response time                       | AOV, AOC 8 ms for analog<br>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<br>AOV configurable voltage 0...10 V, impedance 470 Ohm, resolution 8 bits                                                                                                                                                        |
| Discrete input logic                | (LI1...LI6) positive logic (source), < 5 V (state 0), > 11 V (state 1)<br>(LI1...LI4) logic input not wired, < 13 V (state 1)<br>(LI1...LI6) negative logic (source), > 19 V (state 0)                                                                                                                     |
| Discrete output number              | 2                                                                                                                                                                                                                                                                                                          |
| Discrete output type                | (R1A, R1B, R1C) configurable relay logic 1 NO + 1 NC, electrical durability 100000 cycles<br>(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 resistive load, 5 A at 30 V DC, (cos phi = 1, and L/R = 0 ms)<br>R1-R2 on inductive load, 2 A at 30 V DC, (cos phi = 0.4, and L/R = 7 ms)<br>R1-R2 on inductive load, 2 A at 250 V AC, (cos phi = 0.4, and L/R = 7 ms)<br>R1-R2 on resistive load, 5 A at 250 V AC, (cos phi = 1, and 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 | S, U or customized<br>Linear adjustable separately from 0.1 to 999.9 s                                                                                                                                                                                                                                     |
| Braking to standstill               | By DC injection                                                                                                                                                                                                                                                                                            |
| Protection type                     | Short-circuit between motor phases drive<br>Line supply overvoltage and undervoltage safety circuits drive<br>Motor phase breaks drive<br>Input phase breaks drive<br>Line supply phase loss safety function, for three phases supply drive<br>Overheating protection drive                                |

|                       |                                                                                                  |
|-----------------------|--------------------------------------------------------------------------------------------------|
|                       | Overcurrent between output phases and earth (on power up only) drive<br>Thermal protection motor |
| Insulation resistance | >= 500 mOhm at 500 V DC for 1 minute                                                             |
| Local signalling      | Four 7-segment display units for CANopen bus status<br>1 LED red for drive voltage               |
| Time constant         | 5 ms for reference change                                                                        |
| Frequency resolution  | Display unit 0.1 Hz<br>Analog input 0.1...100 Hz                                                 |
| Type of connector     | 1 RJ45 Modbus/CANopen                                                                            |
| Physical interface    | RS485 multidrop serial link                                                                      |
| Transmission frame    | RTU                                                                                              |
| Transmission rate     | 4800, 9600 or 19200 bps Modbus<br>10, 20, 50, 125, 250, 500 kbps or 1 Mbps CANopen               |
| Number of addresses   | 1...247 Modbus<br>1...127 CANopen                                                                |
| Number of drive       | 31 Modbus<br>127 CANopen                                                                         |
| Marking               | CE                                                                                               |
| Operating position    | Vertical +/- 10 degree                                                                           |
| Outer dimension       | 300 x 210 x 170 mm<br>402 x 239 x 192 mm<br>442 x 239 x 192 mm<br>232 x 180 x 170 mm             |
| Height                | 232 mm                                                                                           |
| Width                 | 180 mm                                                                                           |
| Depth                 | 172 mm                                                                                           |
| Product weight        | 6.5 kg                                                                                           |

## Environment

|                                       |                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dielectric strength                   | 2410 V DC between earth and power terminals<br>3400 V AC between control and power terminals                                                                                                                                                                                                                                                      |
| Electromagnetic compatibility         | Electrical fast transient/burst immunity test conforming to IEC 61000-4-4 level 4<br>1.2/50 µs - 8/20 µs surge immunity test conforming to IEC 61000-4-5 level 3<br>Electrostatic discharge immunity test conforming to IEC 61000-4-2 level 3<br>Radiated radio-frequency electromagnetic field immunity test conforming to IEC 61000-4-3 level 3 |
| Standards                             | IEC 61800-5-1<br>IEC 61800-3                                                                                                                                                                                                                                                                                                                      |
| Product certifications                | NOM<br>CSA<br>UL<br>GOST<br>DNV<br>C-Tick                                                                                                                                                                                                                                                                                                         |
| Pollution degree                      | 2                                                                                                                                                                                                                                                                                                                                                 |
| Protective treatment                  | TC                                                                                                                                                                                                                                                                                                                                                |
| Vibration resistance                  | 1 gn (f = 13...150 Hz) conforming to EN/IEC 60068-2-6<br>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<br>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<br>-10...60 °C with derating factor without protective cover on top of the drive                                                                                                                                                                                           |
| Operating altitude                    | 1000...3000 m with current derating 1 % per 100 m<br><= 1000 m without derating                                                                                                                                                                                                                                                                   |

## Offer Sustainability

|                          |                                                                       |
|--------------------------|-----------------------------------------------------------------------|
| Sustainable offer status | Green Premium product                                                 |
| RoHS (date code: YYWW)   | Compliant - since 0913 - Schneider Electric declaration of conformity |

 [Schneider Electric declaration of conformity](#)

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|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| REACH                            | Reference contains SVHC above the threshold - Go to CaP for more details<br> <a href="#">Go to CaP for more details</a> |
| Product environmental profile    | Available<br> <a href="#">Product environmental</a>                                                                     |
| Product end of life instructions | Available<br> <a href="#">End of life manual</a>                                                                        |

### Contractual warranty

|                 |           |
|-----------------|-----------|
| Warranty period | 18 months |
|-----------------|-----------|