

# Product datasheet

Specifications



variable speed drive ATV312 -  
7.5kW - 18kVA - 269W - 380..500 V-  
3-phase supply

ATV312HU75N4412

⚠ Discontinued on: 12 Mar 2024

⚠ To be end-of-service on: 22 Sept 2024

⚠ Discontinued

Price: 34,057.33 ZAR

## Main

|                              |                                          |
|------------------------------|------------------------------------------|
| Range Of Product             | Altivar 312 Solar                        |
| Product Or Component Type    | Variable speed drive                     |
| Product Destination          | Asynchronous motors                      |
| Product Specific Application | Pumping station with photovoltaic arrays |
| Assembly Style               | With heat sink                           |
| Device Short Name            | ATV312                                   |

## Complementary

|                                    |                                                           |
|------------------------------------|-----------------------------------------------------------|
| Motor Power Kw                     | 7.5 kW                                                    |
| Motor Power Hp                     | 10 hp                                                     |
| [Us] Rated Supply Voltage          | 380...500 V - 5...5 %                                     |
| Supply Voltage Limits              | 323...550 V                                               |
| Supply Frequency                   | 50...60 Hz - 5...5 %                                      |
| Network Frequency                  | 47.5...63 Hz                                              |
| Network Number Of Phases           | 3 phases                                                  |
| Line Current                       | 27.7 A at 380 V, I <sub>sc</sub> = 22 kA<br>21 A at 500 V |
| Emc Filter                         | Integrated                                                |
| Apparent Power                     | 18 kVA                                                    |
| Prospective Line I <sub>sc</sub>   | 22 kA                                                     |
| Continuous Output Current          | 17 A at 4 kHz                                             |
| Maximum Transient Current          | 25.5 A for 60 s                                           |
| Power Dissipation In W             | 269 W at nominal load                                     |
| Speed Drive Output Frequency       | 0.5...500 Hz                                              |
| Nominal Switching Frequency        | 4 kHz                                                     |
| Switching Frequency                | 2...16 kHz adjustable                                     |
| Speed Range                        | 1...50                                                    |
| Transient Overtorque               | 150...170 % of nominal motor torque                       |
| Asynchronous Motor Control Profile | Factory set: energy saving mode                           |

Excluding VAT and subject to change. Please check with your local distributor through "Where to buy"

Disclaimer: This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications

|                                            |                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Regulation Loop</b>                     | Frequency PI regulator                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Motor Slip Compensation</b>             | Automatic whatever the load<br>Adjustable<br>Suppressable                                                                                                                                                                                                                                                                                                                               |
| <b>Output Voltage</b>                      | <= power supply voltage                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Electrical Connection</b>               | AI1, AI2, AI3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, LI1...LI6 terminal 2.5 mm² AWG 14<br>L1, L2, L3, U, V, W, PA, PB, PA/+, PC/- terminal 16 mm² AWG 6                                                                                                                                                                                                                                    |
| <b>Tightening Torque</b>                   | AI1, AI2, AI3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, LI1...LI6: 0.6 N.m<br>L1, L2, L3, U, V, W, PA, PB, PA/+, PC/-: 2.5 N.m                                                                                                                                                                                                                                                                |
| <b>Insulation</b>                          | Electrical between power and control                                                                                                                                                                                                                                                                                                                                                    |
| <b>Supply</b>                              | Internal supply for logic inputs at 19...30 V, <100 mA, protection type: overload and short-circuit protection<br>Internal supply for reference potentiometer (2.2 to 10 kOhm) at 10...10.8 V, <10 mA, protection type: overload and short-circuit protection                                                                                                                           |
| <b>Analogue Input Number</b>               | 3                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Analogue Input Type</b>                 | AI1 configurable voltage 0...10 V, input voltage 30 V max, impedance: 30000 Ohm<br>AI2 configurable voltage +/- 10 V, input voltage 30 V max, impedance: 30000 Ohm<br>AI3 configurable current 0...20 mA, impedance: 250 Ohm                                                                                                                                                            |
| <b>Sampling Duration</b>                   | AI1, AI2, AI3: 8 ms analog<br>LI1...LI6: 4 ms discrete                                                                                                                                                                                                                                                                                                                                  |
| <b>Response Time</b>                       | AOV, AOC 8 ms for analog<br>R1A, R1B, R1C, R2A, R2B 8 ms for discrete                                                                                                                                                                                                                                                                                                                   |
| <b>Linearity Error</b>                     | +/- 0.2 % for output                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Analogue Output Number</b>              | 2                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Analogue Output Type</b>                | 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                                                                                                                                                                                                                               |
| <b>Discrete Input Logic</b>                | Logic input not wired (LI1...LI4), < 13 V (state 1)<br>Negative logic (source) (LI1...LI6), > 19 V (state 0)<br>Positive logic (source) (LI1...LI6), < 5 V (state 0), > 11 V (state 1)                                                                                                                                                                                                  |
| <b>Discrete Output Number</b>              | 2                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Discrete Output Type</b>                | Configurable relay logic: (R1A, R1B, R1C) 1 NO + 1 NC - 100000 cycles<br>Configurable relay logic: (R2A, R2B) NC - 100000 cycles                                                                                                                                                                                                                                                        |
| <b>Minimum Switching Current</b>           | R1-R2 10 mA at 5 V DC                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Maximum Switching Current</b>           | 2 A at 250 V AC on inductive load - cos phi = 0.4 - L/R = 7 ms (R1-R2)<br>2 A at 30 V DC on inductive load - cos phi = 0.4 - L/R = 7 ms (R1-R2)<br>5 A at 250 V AC on resistive load - cos phi = 1 - L/R = 0 ms (R1-R2)<br>5 A at 30 V DC on resistive load - cos phi = 1 - L/R = 0 ms (R1-R2)                                                                                          |
| <b>Discrete Input Number</b>               | 6                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Discrete Input Type</b>                 | (LI1...LI6) programmable at 24 V, 0...100 mA for PLC, impedance: 3500 Ohm                                                                                                                                                                                                                                                                                                               |
| <b>Acceleration And Deceleration Ramps</b> | Linear adjustable separately from 0.1 to 999.9 s<br>S, U or customized                                                                                                                                                                                                                                                                                                                  |
| <b>Braking To Standstill</b>               | By DC injection                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Protection Type</b>                     | Input phase breaks: drive<br>Line supply overvoltage and undervoltage safety circuits: drive<br>Line supply phase loss safety function, for three phases supply: drive<br>Motor phase breaks: drive<br>Overcurrent between output phases and earth (on power up only): drive<br>Overheating protection: drive<br>Short-circuit between motor phases: drive<br>Thermal protection: motor |
| <b>Dielectric Strength</b>                 | 2410 V DC between earth and power terminals<br>3400 V AC between control and power terminals                                                                                                                                                                                                                                                                                            |
| <b>Insulation Resistance</b>               | >= 500 mOhm 500 V DC for 1 minute                                                                                                                                                                                                                                                                                                                                                       |

|                               |                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Local Signalling              | 1 LED (red) for drive voltage<br>Four 7-segment display units for CANopen bus status                                                                                                                                                                                                                                                              |
| Time Constant                 | 5 ms for reference change                                                                                                                                                                                                                                                                                                                         |
| Frequency Resolution          | Analog input: 0.1...100 Hz<br>Display unit: 0.1 Hz                                                                                                                                                                                                                                                                                                |
| Communication Port Protocol   | Modbus<br>CANopen                                                                                                                                                                                                                                                                                                                                 |
| 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<br>4800, 9600 or 19200 bps for Modbus                                                                                                                                                                                                                                                        |
| Number Of Addresses           | 1...127 for CANopen<br>1...247 for Modbus                                                                                                                                                                                                                                                                                                         |
| Number Of Drive               | 127 for CANopen<br>31 for Modbus                                                                                                                                                                                                                                                                                                                  |
| Electromagnetic Compatibility | 1.2/50 µs - 8/20 µs surge immunity test level 3 conforming to IEC 61000-4-5<br>Electrical fast transient/burst immunity test level 4 conforming to IEC 61000-4-4<br>Electrostatic discharge immunity test level 3 conforming to IEC 61000-4-2<br>Radiated radio-frequency electromagnetic field immunity test level 3 conforming to IEC 61000-4-3 |
| Standards                     | IEC 61800-5-1<br>IEC 61800-3                                                                                                                                                                                                                                                                                                                      |
| Marking                       | CE                                                                                                                                                                                                                                                                                                                                                |
| Height                        | 232 mm                                                                                                                                                                                                                                                                                                                                            |
| Width                         | 180 mm                                                                                                                                                                                                                                                                                                                                            |
| Depth                         | 172 mm                                                                                                                                                                                                                                                                                                                                            |
| Net Weight                    | 6.5 kg                                                                                                                                                                                                                                                                                                                                            |
| Option Card                   | Communication card for CANopen daisy chain<br>Communication card for DeviceNet<br>Communication card for Fipio<br>Communication card for Modbus TCP<br>Communication card for Profibus DP                                                                                                                                                         |

## Environment

|                                       |                                                                                                                                                             |
|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ip Degree Of Protection               | IP20 without cover plate                                                                                                                                    |
| 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 m without derating<br>1000...3000 m with current derating 1 % per 100 m                                                                             |
| Operating Position                    | Vertical +/- 10 degree                                                                                                                                      |

# Packing Units

|                              |         |
|------------------------------|---------|
| Unit Type Of Package 1       | PCE     |
| Number Of Units In Package 1 | 1       |
| Package 1 Height             | 27.0 cm |
| Package 1 Width              | 23.5 cm |
| Package 1 Length             | 31.0 cm |
| Package 1 Weight             | 6.05 kg |

# Sustainability

**Green Premium™ label** is Schneider Electric’s commitment to delivering products with best-in-class environmental performance. Green Premium promises compliance with the latest regulations, transparency on environmental impacts, as well as circular and low-CO<sub>2</sub> products.

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## Well-being performance

|                                                                                                              |                                                                                                                             |
|--------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
|  Mercury Free               |                                                                                                                             |
|  Rohs Exemption Information | <a href="#">Yes</a>                                                                                                         |
| Reach Regulation                                                                                             | <a href="#">REACH Declaration</a>                                                                                           |
| Eu Rohs Directive                                                                                            | Pro-active compliance (Product out of EU RoHS legal scope)                                                                  |
| China Rohs Regulation                                                                                        | <a href="#">China RoHS declaration</a>                                                                                      |
| Weee                                                                                                         | The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins |