

# Product data sheet

Specifications



Variable speed drive, ATV312,  
0.37kW, 0.5 hp, 380..500V, 3  
phase supply, 1.5A, CANopen,  
Modbus

ATV312H037N4

! Discontinued

! Discontinued on: Jan 26, 2021

## 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                     | 0.37 kW                                                                                                                                                                                                         |
| Motor Power Hp                     | 0.5 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                       | 2.2 A 380 V, Isc = 5 kA<br>1.7 A 500 V                                                                                                                                                                          |
| Emc Filter                         | Integrated                                                                                                                                                                                                      |
| Apparent Power                     | 1.5 kVA                                                                                                                                                                                                         |
| Maximum Transient Current          | 2.3 A 60 s                                                                                                                                                                                                      |
| Power Dissipation In W             | 32 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              | AI1, AI2, AI3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, LI1...LI6 terminal 0.00 in² (2.5 mm²) AWG 14<br>L1, L2, L3, U, V, W, PA, PB, PA+/-, PC/- terminal 0.01 in² (5 mm²) AWG 10                                     |
| Supply                             | Internal supply for logic inputs 19...30 V 100 mA overload and short-circuit protection<br>Internal supply for reference potentiometer (2.2 to 10 kOhm) 10...10.8 V 10 mA overload and short-circuit protection |
| Communication Port Protocol        | CANopen<br>Modbus                                                                                                                                                                                               |
| Ip Degree Of Protection            | IP20 on upper part without cover plate<br>IP21 on connection terminals<br>IP31 on upper part<br>IP41 on upper part                                                                                              |

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>Option Card</b> | Communication card CANopen daisy chain<br>Communication card DeviceNet<br>Communication card Fipio<br>Communication card Modbus TCP<br>Communication card Profibus DP |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Complementary

|                                    |                                                                                                                                                                                                        |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Supply Voltage Limits</b>       | 323...550 V                                                                                                                                                                                            |
| <b>Prospective Line Isc</b>        | 5 kA                                                                                                                                                                                                   |
| <b>Continuous Output Current</b>   | 1.5 A 4 kHz                                                                                                                                                                                            |
| <b>Output Frequency</b>            | 0...500 Hz                                                                                                                                                                                             |
| <b>Nominal Switching Frequency</b> | 4 kHz                                                                                                                                                                                                  |
| <b>Switching Frequency</b>         | 2...16 kHz adjustable                                                                                                                                                                                  |
| <b>Transient Overtorque</b>        | 170...200 % of nominal motor torque                                                                                                                                                                    |
| <b>Braking Torque</b>              | 150 % 60 s with braking resistor<br>100 % with braking resistor continuously<br>150 % without braking resistor                                                                                         |
| <b>Regulation Loop</b>             | Frequency PI regulator                                                                                                                                                                                 |
| <b>Motor Slip Compensation</b>     | Suppressable<br>Adjustable<br>Automatic whatever the load                                                                                                                                              |
| <b>Output Voltage</b>              | <= power supply voltage                                                                                                                                                                                |
| <b>Tightening Torque</b>           | AI1, AI2, AI3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, LI1...LI6 5.31 lbf.in (0.6 N.m)<br>L1, L2, L3, U, V, W, PA, PB, PA+/, PC/- 10.62 lbf.in (1.2 N.m)                                                    |
| <b>Insulation</b>                  | Electrical between power and control                                                                                                                                                                   |
| <b>Analogue Input Number</b>       | 3                                                                                                                                                                                                      |
| <b>Analogue Input Type</b>         | AI1 configurable voltage 0...10 V 30 V max 30000 Ohm<br>AI2 configurable voltage +/- 10 V 30 V max 30000 Ohm<br>AI3 configurable current 0...20 mA 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 analog<br>R1A, R1B, R1C, R2A, R2B 8 ms discrete                                                                                                                                          |
| <b>Linearity Error</b>             | +/- 0.2 % output                                                                                                                                                                                       |
| <b>Analogue Output Number</b>      | 1                                                                                                                                                                                                      |
| <b>Analogue Output Type</b>        | AOC configurable current 0...20 mA 800 Ohm 8 bits<br>AOV configurable voltage 0...10 V 470 Ohm 8 bits                                                                                                  |
| <b>Discrete Input Logic</b>        | Logic input not wired LI1...LI4), < 13 V<br>Negative logic (source) LI1...LI6), > 19 V<br>Positive logic (source) LI1...LI6), < 5 V, > 11 V                                                            |
| <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 5 V DC                                                                                                                                                                                     |
| <b>Maximum Switching Current</b>   | R1-R2 2 A 250 V AC inductive, cos phi = 0.4 7 ms<br>R1-R2 2 A 30 V DC inductive, cos phi = 0.4 7 ms<br>R1-R2 5 A 250 V AC resistive, cos phi = 1 0 ms<br>R1-R2 5 A 30 V DC resistive, cos phi = 1 0 ms |
| <b>Discrete Input Number</b>       | 6                                                                                                                                                                                                      |
| <b>Discrete Input Type</b>         | LI1...LI6) programmable 24 V, 0...100 mA PLC 3500 Ohm                                                                                                                                                  |

|                                     |                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Acceleration And Deceleration Ramps | Linear adjustable separately from 0.1 to 999.9 s<br>S, U or customized                                                                                                                                                                                                                                                                                                          |
| Braking To Standstill               | By DC injection                                                                                                                                                                                                                                                                                                                                                                 |
| Protection Type                     | 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 |
| Insulation Resistance               | >= 500 mOhm 500 V DC for 1 minute                                                                                                                                                                                                                                                                                                                                               |
| Local Signalling                    | Drive voltage 1 LED red)<br>CANopen bus status four 7-segment display units                                                                                                                                                                                                                                                                                                     |
| Time Constant                       | 5 ms for reference change                                                                                                                                                                                                                                                                                                                                                       |
| Frequency Resolution                | Analog input 0.1...100 Hz<br>Display unit 0.1 Hz                                                                                                                                                                                                                                                                                                                                |
| Connector Type                      | 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<br>4800, 9600 or 19200 bps Modbus                                                                                                                                                                                                                                                                                              |
| Number Of Addresses                 | 1...127 CANopen<br>1...247 Modbus                                                                                                                                                                                                                                                                                                                                               |
| Number Of Drive                     | 127 CANopen<br>31 Modbus                                                                                                                                                                                                                                                                                                                                                        |
| Marking                             | CE                                                                                                                                                                                                                                                                                                                                                                              |
| Operating Position                  | Vertical +/- 10 degree                                                                                                                                                                                                                                                                                                                                                          |
| Height                              | 5.63 in (143 mm)                                                                                                                                                                                                                                                                                                                                                                |
| Width                               | 4.21 in (107 mm)                                                                                                                                                                                                                                                                                                                                                                |
| Depth                               | 5.98 in (152 mm)                                                                                                                                                                                                                                                                                                                                                                |
| Net Weight                          | 3.97 lb(US) (1.8 kg)                                                                                                                                                                                                                                                                                                                                                            |

## Environment

|                               |                                                                                                                                                                                                                                                                                           |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dielectric Strength           | 2410 V DC between earth and power terminals<br>3400 V AC between control and power terminals                                                                                                                                                                                              |
| Electromagnetic Compatibility | 1.2/50 µs - 8/20 µs surge immunity test level 3 IEC 61000-4-5<br>Electrical fast transient/burst immunity test level 4 IEC 61000-4-4<br>Electrostatic discharge immunity test level 3 IEC 61000-4-2<br>Radiated radio-frequency electromagnetic field immunity test level 3 IEC 61000-4-3 |
| Standards                     | IEC 61800-5-1<br>IEC 61800-3                                                                                                                                                                                                                                                              |
| Product Certifications        | CSA<br>UL<br>C-Tick<br>GOST<br>DNV<br>NOM                                                                                                                                                                                                                                                 |
| Pollution Degree              | 2                                                                                                                                                                                                                                                                                         |
| Protective Treatment          | TC                                                                                                                                                                                                                                                                                        |
| Vibration Resistance          | 1 gn 13...150 Hz)EN/IEC 60068-2-6<br>1.5 mm 3...13 Hz)EN/IEC 60068-2-6                                                                                                                                                                                                                    |
| Shock Resistance              | 15 gn 11 ms EN/IEC 60068-2-27                                                                                                                                                                                                                                                             |

|                                       |                                                                                                                                                                                       |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Relative Humidity                     | 5...95 % without condensation IEC 60068-2-3<br>5...95 % without dripping water IEC 60068-2-3                                                                                          |
| Ambient Air Temperature For Storage   | -13...158 °F (-25...70 °C)                                                                                                                                                            |
| Ambient Air Temperature For Operation | 14...122 °F (-10...50 °C) without derating with protective cover on top of the drive)<br>14...140 °F (-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                                                                                                       |

## Packing Units

|                              |                         |
|------------------------------|-------------------------|
| Unit Type Of Package 1       | PCE                     |
| Number Of Units In Package 1 | 1                       |
| Package 1 Height             | 6.78 in (17.211 cm)     |
| Package 1 Width              | 6.78 in (17.223 cm)     |
| Package 1 Length             | 8.17 in (20.752 cm)     |
| Package 1 Weight             | 4.23 lb(US) (1.92 kg)   |
| Unit Type Of Package 2       | S06                     |
| Number Of Units In Package 2 | 27                      |
| Package 2 Height             | 28.94 in (73.5 cm)      |
| Package 2 Width              | 23.62 in (60.0 cm)      |
| Package 2 Length             | 31.50 in (80.0 cm)      |
| Package 2 Weight             | 143.30 lb(US) (65.0 kg) |

## Contractual warranty

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

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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RoHS/REACH

Well-being performance

✓

Mercury Free

✓

Rohs Exemption Information

Yes

Certifications & Standards

|                       |                                                                                                                             |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Eu Rohs Directive     | Pro-active compliance (Product out of EU RoHS legal scope)<br><a href="#">EU RoHS Declaration</a>                           |
| 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 |
| Circularity Profile   | <a href="#">End of Life Information</a>                                                                                     |