## Product datasheet

### Characteristics

**ATV312H037M3412**

Variable speed drive ATV312 - 0.37kW - 1.3kVA - 38W - 200..240 V - 3-phase supply

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### 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**: 0.37 kW
- **Motor power hp**: 0.5 hp
- **[Us] rated supply voltage**: 200...240 V - 5...5 %
- **Supply voltage limits**: 170...264 V
- **Supply frequency**: 50...60 Hz - 5...5 %
- **Network frequency**: 47.5...63 Hz
- **Network number of phases**: 3 phases
- **Line current**: 3.3 A at 240 V, 3.8 A at 200 V, Isc = 1 kA
- **EMC filter**: Without EMC filter
- **Apparent power**: 1.3 kVA
- **Prospective line Isc**: 1 kA
- **Continuous output current**: 3.3 A at 4 kHz
- **Maximum transient current**: 5 A for 60 s
- **Power dissipation in W**: 38 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

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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.

26 Jan, 2020
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<th><strong>Transient overtorque</strong></th>
<th>150...170 % of nominal motor torque</th>
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| **Braking torque** | <= 150 % during 60 s with braking resistor  
100 % with braking resistor continuously  
150 % without braking resistor |
| **Asynchronous motor control profile** | Factory set: energy saving mode |
| **Regulation loop** | Frequency PI regulator |
| **Motor slip compensation** | Automatic whatever the load  
Adjustable  
Suppressable |
| **Output voltage** | <= power supply voltage |
| **Electrical connection** | A11, A12, A13, AOV, AOC, R1A, R1B, R1C, R2A, R2B, LI1...LI6 terminal 2.5 mm² AWG 14  
L1, L2, L3, U, V, W, PA, PB, PA+, PC- terminal 2.5 mm² AWG 14 |
| **Tightening torque** | A11, A12, A13, AOV, AOC, R1A, R1B, R1C, R2A, R2B, LI1...LI6: 0.6 N.m  
L1, L2, L3, U, V, W, PA, PB, PA+, PC-: 0.8 N.m |
| **Insulation** | Electrical between power and control |
| **Supply** | Internal supply for logic inputs at 19...30 V, <100 A, protection type: overload and short-circuit protection  
Internal supply for reference potentiometer (2.2 to 10 kOhm) at 10...10.8 V, <10 A, protection type: overload and short-circuit protection |
| **Analogue input number** | 3 |
| **Analogue input type** | A11 configurable voltage 0...10 V, input voltage 30 V max, impedance: 30000 Ohm  
A12 configurable voltage +/- 10 V, input voltage 30 V max, impedance: 30000 Ohm  
A13 configurable current 0...20 mA, impedance: 250 Ohm |
| **Sampling duration** | A11, A12, A13: 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** | 2 |
| **Analogue output type** | AOC configurable current: 0...20 mA, impedance: 800 Ohm, resolution: 8 bits  
AOV configurable voltage: 0...10 V, impedance: 470 Ohm, resolution: 8 bits |
| **Discrete input logic** | 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** | 2 A at 250 V AC on inductive load - cos phi = 0.4 - L/R = 7 ms (R1-R2)  
2 A at 30 V DC on inductive load - cos phi = 0.4 - L/R = 7 ms (R1-R2)  
5 A at 250 V AC on resistive load - cos phi = 1 - L/R = 0 ms (R1-R2)  
5 A at 30 V DC on resistive load - cos phi = 1 - L/R = 0 ms (R1-R2) |
| **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 |
| **Dielectric strength** | 2040 V DC between earth and power terminals  
2880 V AC between control and power terminals |
| **Insulation resistance** | >= 500 mOhm 500 V DC for 1 minute |
| **Local signalling** | 4 LED (red)drive voltage:  
Four 7-segment display unitsCANopen bus status: |
| **Time constant** | 5 ms for reference change |
| **Frequency resolution** | Analog input: 0.1...100 Hz |
### Communication port protocol
- Modbus
- 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
- 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

### Electromagnetic compatibility
- 1.2/50 µs - 8/20 µs 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

### Marking
- CE

### Dimensions
- Height: 145 mm
- Width: 72 mm
- Depth: 122 mm
- Product weight: 1.3 kg

### Option card
- Communication card for CANopen daisy chain
- Communication card for DeviceNet
- Communication card for Fipio
- Communication card for Modbus TCP
- Communication card for Proflbus 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
  - 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 (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
  - >= 1000 m with current derating 1 % per 100 m
- **Operating position**: Vertical +/- 10 degree

### Offer Sustainability
- **Sustainable offer status**: Green Premium product
- **REACH Regulation**: REACH Declaration
- **EU RoHS Directive**: Pro-active compliance (Product out of EU RoHS legal scope)
  - EU RoHS Declaration
- **Mercury free**: Yes
- **RoHS exemption information**: Yes
- **China RoHS Regulation**: China RoHS declaration
- **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
## Contractual warranty

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<th>18 months</th>
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