# Product datasheet

Specifications

## Variable speed drive, ATV312, 0.55kW, 0.75hp, 170..264V, 1 phase supply, 3.7A, CANopen, Modbus

ATV312H055M2

To be discontinued

Discontinued on: Jan 26, 2021

End-of-service on: Apr 17, 2024

## Main

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| **Range Of Product** | Altivar 312 |
| **Product Or Component Type** | Variable speed drive |
| **Product Destination** | Asynchronous motors |
| **Product Specific Application** | Simple machine |
| **Assembly Style** | With heat sink |
| **Component Name** | ATV312 |
| **Motor Power Kw** | 0.55 kW |
| **Motor Power Hp** | 0.75 hp |
| **[Us] Rated Supply Voltage** | 200...240 V - 15...10 % |
| **Supply Frequency** | 50...60 Hz - 5...5 % |
| **Network Number Of Phases** | Single phase |
| **Line Current** | 6.8 A at 200 V, Isc = 1 kA<br>5.8 A at 240 V |
| **Emc Filter** | Integrated |
| **Apparent Power** | 1.4 kVA |
| **Maximum Transient Current** | 5.6 A for 60 s |
| **Power Dissipation In W** | 46 W at nominal load |
| **Speed Range** | 1…50 |
| **Asynchronous Motor Control Profile** | Sensorless flux vector control with PWM type motor control signal<br>Factory set : constant torque |
| **Electrical Connection** | 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 2.5 mm² AWG 14 |
| **Supply** | Internal supply for logic inputs: 19...30 V 100 mA, protection type: overload and short-circuit protection<br>Internal supply for reference potentiometer (2.2 to 10 kOhm): 10...10.8 V 10 mA, protection type: overload and short-circuit protection |
| **Communication Port Protocol** | 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

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| **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 |

## Complementary

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| **Supply Voltage Limits** | 170…264 V |
| **Prospective Line Isc** | 1 kA |
| **Continuous Output Current** | 3.7 A at 4 kHz |
| **Output Frequency** | 0…500 Hz |
| **Nominal Switching Frequency** | 4 kHz |
| **Switching Frequency** | 2...16 kHz adjustable |
| **Transient Overtorque** | 170…200 % of nominal motor torque |
| **Braking Torque** | 150 % during 60 s with braking resistor<br>100 % with braking resistor continuously<br>150 % without braking resistor |
| **Regulation Loop** | Frequency PI regulator |
| **Motor Slip Compensation** | Adjustable<br>Automatic whatever the load<br>Suppressable |
| **Output Voltage** | <= power supply voltage |
| **Tightening Torque** | 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/-: 0.8 N.m |
| **Insulation** | Electrical between power and control |
| **Analogue Input Number** | 3 |
| **Analogue Input Type** | AI1 configurable voltage 0...10 V, input voltage 30 V max, impedance: 30000 Ohm<br>AI2 configurable voltage +/- 10 V, input voltage 30 V max, impedance: 30000 Ohm<br>AI3 configurable current 0...20 mA, impedance: 250 Ohm |
| **Sampling Duration** | AI1, AI2, AI3: 8 ms analog<br>LI1...LI6: 4 ms discrete |
| **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** | 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) |
| **Discrete Output Number** | 2 |
| **Discrete Output Type** | Configurable relay logic: (R1A, R1B, R1C) 1 NO + 1 NC - 100000 cycles<br>Configurable relay logic: (R2A, R2B) NC - 100000 cycles |
| **Minimum Switching Current** | R1-R2 10 mA at 5 V DC |
| **Maximum Switching Current** | R1-R2: 2 A at 250 V AC inductive load, cos phi = 0.4 and L/R = 7 ms<br>R1-R2: 2 A at 30 V DC inductive load, cos phi = 0.4 and L/R = 7 ms<br>R1-R2: 5 A at 250 V AC resistive load, cos phi = 1 and L/R = 0 ms<br>R1-R2: 5 A at 30 V DC resistive load, cos phi = 1 and L/R = 0 ms |
| **Discrete Input Number** | 6 |
| **Discrete Input Type** | (LI1...LI6) programmable at 24 V, 0…100 mA for PLC, impedance: 3500 Ohm |

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| **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** | 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** | 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 |
| **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 |
| **Marking** | CE |
| **Operating Position** | Vertical +/- 10 degree |
| **Height** | 145 mm |
| **Width** | 72 mm |
| **Depth** | 142 mm |
| **Net Weight** | 1.5 kg |

# Environment

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| **Dielectric Strength** | 2040 V DC between earth and power terminals<br>2880 V AC between control and power terminals |
| **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 |
| **Product Certifications** | CSA<br>UL<br>GOST<br>DNV<br>C-Tick<br>NOM |
| **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 |

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| **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...2000 m with current derating 1 % per 100 m |

## Packing Units

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| **Unit Type Of Package 1** | PCE |
| **Number Of Units In Package 1** | 1 |
| **Package 1 Height** | 13.5 cm |
| **Package 1 Width** | 18.0 cm |
| **Package 1 Length** | 17.5 cm |
| **Package 1 Weight** | 1.484 kg |
| **Unit Type Of Package 2** | S06 |
| **Number Of Units In Package 2** | 48 |
| **Package 2 Height** | 73.5 cm |
| **Package 2 Width** | 60 cm |
| **Package 2 Length** | 80 cm |
| **Package 2 Weight** | 84.232 kg |

## Contractual warranty

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| **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-$CO_2$ products.

**Guide to assessing product sustainability** is a white paper that clarifies global eco-label standards and how to interpret environmental declarations.

Learn more about Green Premium >

Guide to assess a product's sustainability >

RoHS/REACh

## Well-being performance

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| Mercury Free | |
| Rohs Exemption Information | Yes |

## Certifications & Standards

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| **Eu Rohs Directive** | Pro-active compliance (Product out of EU RoHS legal scope)<br>EU RoHS Declaration |
| **China Rohs Regulation** | China RoHS declaration |
| **Weee** | The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins |
| **Circularity Profile** | End of Life Information |