# Product data sheet
## Characteristics

# ATV312HD11M3
## variable speed drive ATV312 - 11kW - 22kVA - 477 W - 200..240 V - 3-phase supply



## 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 | 11 kW |
| Maximum Horse Power Rating | 15 hp |
| [Us] rated supply voltage | 200...240 V - 15...10 % |
| Supply frequency | 50...60 Hz - 5...5 % |
| Phase | 3 phase |
| Line current | 63.5 A 200 V, Isc = 22 kA<br>55.6 A 240 V |
| EMC filter | Without EMC filter |
| Apparent power | 22 kVA |
| Maximum transient current | 81 A 60 s |
| Power dissipation in W | 477 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 0.00 in² (2.5 mm²) AWG 14<br>L1, L2, L3, U, V, W, PA, PB, PA/+, PC/- terminal 0.04 in² (25 mm²) AWG 3 |
| 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 | Modbus<br>CANopen |
| 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 |
| Option card | Communication card CANopen daisy chain<br>Communication card DeviceNet<br>Communication card Fipio<br>Communication card Modbus TCP<br>Communication card Profibus DP |

## Complementary

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|---|---|
| Supply voltage limits | 170…264 V |
| Prospective line Isc | 22 kA |
| Continuous output current | 54 A 4 kHz |
| Output frequency | 0…500 kHz |
| Nominal switching frequency | 4 kHz |

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| Switching frequency | 2...16 kHz adjustable |
| Transient overtorque | 170…200 % of nominal motor torque |
| Braking torque | 150 % 60 s with braking resistor<br>100 % with braking resistor continuously<br>150 % without braking resistor |
| Regulation loop | Frequency PI regulator |
| Motor slip compensation | Automatic whatever the load<br>Suppressable<br>Adjustable |
| Output voltage | <= power supply voltage |
| Tightening torque | 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/- 39.83 lbf.in (4.5 N.m) |
| Insulation | Electrical between power and control |
| Analogue input number | 3 |
| Analogue input type | 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 |
| Sampling duration | AI1, AI2, AI3 8 ms analog<br>LI1...LI6 4 ms discrete |
| Response time | AOV, AOC 8 ms analog<br>R1A, R1B, R1C, R2A, R2B 8 ms discrete |
| Linearity error | +/- 0.2 % output |
| Analogue output number | 1 |
| Analogue output type | AOC configurable current 0...20 mA 800 Ohm 8 bits<br>AOV configurable voltage 0...10 V 470 Ohm 8 bits |
| Discrete input logic | 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 |
| 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 5 V DC |
| Maximum switching current | 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 |
| Discrete input number | 6 |
| Discrete input type | LI1...LI6) programmable 24 V, 0…100 mA PLC 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 | 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 |

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| Marking | CE |
| Operating position | Vertical +/- 10 degree |
| Outer dimension | 330 x 245 x 190 mm |
| Maximum Height | 12.97 in (329.5 mm) |
| Maximum Width | 9.65 in (245 mm) |
| Maximum Depth | 7.56 in (192 mm) |
| Net Weight | 23.15 lb(US) (10.5 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 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 | GOST<br>C-tick<br>UL<br>CSA<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 | <= 3280.84 ft (1000 m) without derating<br>3280.84...9842.52 ft (1000...3000 m) with current derating 1 % per 100 m |

## Ordering and shipping details

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|---|---|
| Category | 22153 - ATV320/ATV312/ATV32 (10 THRU 30HP) |
| Discount Schedule | CP4B |
| GTIN | 00785901689379 |
| Nbr. of units in pkg. | 1 |
| Package weight(Lbs) | 25.44 lb(US) (11.54 kg) |
| Returnability | No |
| Country of origin | ID |

## Packing Units

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|---|---|
| Unit Type of Package 1 | PCE |
| Package 1 Height | 11.02 in (28 cm) |
| Package 1 width | 11.42 in (29 cm) |
| Package 1 Length | 15.35 in (39 cm) |
| Unit Type of Package 2 | P06 |
| Number of Units in Package 2 | 4 |
| Package 2 Weight | 129.59 lb(US) (58.78 kg) |
| Package 2 Height | 31.50 in (80 cm) |
| Package 2 width | 31.50 in (80 cm) |
| Package 2 Length | 23.62 in (60 cm) |

## Offer Sustainability

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| 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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| Warranty | 18 months |