# Product datasheet
## Characteristics

# ATV12H075M3
variable speed drive ATV12 - 0.75kW - 1hp - 200..240V - 3ph - with heat sink

## Main

| | |
|---|---|
| Range of product | Altivar 12 |
| Product or component type | Variable speed drive |
| Product destination | Asynchronous motors |
| Product specific application | Simple machine |
| Assembly style | With heat sink |
| Component name | ATV12 |
| Quantity per set | Set of 1 |
| EMC filter | Without EMC filter |
| Built-in fan | Without |
| Network number of phases | 3 phases |
| [Us] rated supply voltage | 200...240 V - 15...10 % |
| Motor power kW | 0.75 kW |
| Motor power hp | 1 hp |
| Communication port protocol | Modbus |
| Line current | 6.3 A at 200 V<br>5.3 A at 240 V |
| Speed range | 1…20 |
| Transient overtorque | 150…170 % of nominal motor torque depending on drive rating and type of motor |
| Asynchronous motor control profile | Sensorless flux vector control<br>Voltage/frequency ratio (V/f)<br>Quadratic voltage/frequency ratio |
| IP degree of protection | IP20 without blanking plate on upper part |
| Noise level | 0 dB |

## Complementary

| | |
|---|---|
| Supply frequency | 50/60 Hz +/- 5 % |
| Connector type | 1 RJ45 (on front face) for Modbus |
| Physical interface | 2-wire RS 485 for Modbus |

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

| | |
|---|---|
| Transmission frame | RTU for Modbus |
| Transmission rate | 4800 bit/s<br>9600 bit/s<br>19200 bit/s<br>38400 bit/s |
| Number of addresses | 1…247 for Modbus |
| Communication service | Read holding registers (03) 29 words<br>Write single register (06) 29 words<br>Write multiple registers (16) 27 words<br>Read/write multiple registers (23) 4/4 words<br>Read device identification (43) |
| Prospective line Isc | 5 kA |
| Continuous output current | 4.2 A at 4 kHz |
| Maximum transient current | 6.3 A for 60 s |
| Speed drive output frequency | 0.5…400 Hz |
| Nominal switching frequency | 4 kHz |
| Switching frequency | 2...16 kHz adjustable<br>4...16 kHz with derating factor |
| Braking torque | Up to 70 % of nominal motor torque without braking resistor |
| Motor slip compensation | Preset in factory<br>Adjustable |
| Output voltage | 200...240 V 3 phases |
| Electrical connection | Terminal, clamping capacity: 3.5 mm², AWG 12 (L1, L2, L3, U, V, W, PA, PC) |
| Tightening torque | 0.8 N.m |
| Insulation | Electrical between power and control |
| Supply | Internal supply for reference potentiometer: 5 V DC (4.75…5.25 V), <10 mA, protection type: overload and short-circuit protection<br>Internal supply for logic inputs: 24 V DC (20.4…28.8 V), <100 mA, protection type: overload and short-circuit protection |
| Analogue input number | 1 |
| Analogue input type | Configurable current AI1 0...20 mA 250 Ohm<br>Configurable voltage AI1 0...10 V 30 kOhm<br>Configurable voltage AI1 0...5 V 30 kOhm |
| Discrete input number | 4 |
| Discrete input type | Programmable LI1...LI4 24 V 18...30 V |
| Discrete input logic | Negative logic (sink), > 16 V (state 0), < 10 V (state 1), input impedance 3.5 kOhm<br>Positive logic (source), 0...< 5 V (state 0), > 11 V (state 1) |
| Sampling duration | 20 ms, tolerance +/- 1 ms for logic input<br>10 ms for analogue input |
| Linearity error | +/- 0.3 % of maximum value for analogue input |
| Analogue output number | 1 |
| Analogue output type | AO1 software-configurable voltage: 0...10 V, impedance: 470 Ohm, resolution 8 bits<br>AO1 software-configurable current: 0...20 mA, impedance: 800 Ohm, resolution 8 bits |
| Discrete output number | 2 |
| Discrete output type | Logic output LO+, LO-<br>Protected relay output R1A, R1B, R1C 1 C/O |
| Minimum switching current | 5 mA at 24 V DC for logic relay |
| Maximum switching current | 2 A 250 V AC inductive cos phi = 0.4 L/R = 7 ms logic relay<br>2 A 30 V DC inductive cos phi = 0.4 L/R = 7 ms logic relay<br>3 A 250 V AC resistive cos phi = 1 L/R = 0 ms logic relay<br>4 A 30 V DC resistive cos phi = 1 L/R = 0 ms logic relay |
| Acceleration and deceleration ramps | Linear from 0 to 999.9 s<br>S<br>U |
| Braking to standstill | By DC injection, <30 s |
| Protection type | Line supply overvoltage<br>Line supply undervoltage<br>Overcurrent between output phases and earth<br>Overheating protection<br>Short-circuit between motor phases<br>Against input phase loss in three-phase |

| | |
|---|---|
| | Thermal motor protection via the drive by continuous calculation of I²t |
| Frequency resolution | Analog input: converter A/D, 10 bits<br>Display unit: 0.1 Hz |
| Time constant | 20 ms +/- 1 ms for reference change |
| Marking | CE |
| Operating position | Vertical +/- 10 degree |
| Height | 143 mm |
| Width | 72 mm |
| Depth | 131.2 mm |
| Net weight | 0.8 kg |
| Specific application | Commercial equipment |
| Variable speed drive application selection | Mixer Commercial equipment<br>Other application Commercial equipment<br>Ironing Textile |
| Motor starter type | Variable speed drive |

## Environment

| | |
|---|---|
| Electromagnetic compatibility | Electrical fast transient/burst immunity test level 4 conforming to EN/IEC 61000-4-4<br>Electrostatic discharge immunity test level 3 conforming to EN/IEC 61000-4-2<br>Immunity to conducted disturbances level 3 conforming to EN/IEC 61000-4-6<br>Radiated radio-frequency electromagnetic field immunity test level 3 conforming to EN/IEC 61000-4-3<br>Surge immunity test level 3 conforming to EN/IEC 61000-4-5<br>Voltage dips and interruptions immunity test conforming to EN/IEC 61000-4-11 |
| Electromagnetic emission | Radiated emissions environment 1 category C2 conforming to EN/IEC 61800-3 2...16 kHz shielded motor cable<br>Conducted emissions with additional EMC filter environment 1 category C2 conforming to EN/IEC 61800-3 4...12 kHz shielded motor cable <20 m<br>Conducted emissions with additional EMC filter environment 2 category C3 conforming to EN/IEC 61800-3 4...12 kHz shielded motor cable <20 m |
| Product certifications | GOST<br>UL<br>NOM<br>CSA<br>C-Tick |
| Vibration resistance | 1 gn (f = 13…200 Hz) conforming to EN/IEC 60068-2-6<br>1.5 mm peak to peak (f = 3…13 Hz) - drive unmounted on symmetrical DIN rail - conforming to EN/IEC 60068-2-6 |
| Shock resistance | 15 gn conforming to EN/IEC 60068-2-27 for 11 ms |
| 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…40 °C protective cover from the top of the drive removed<br>40…60 °C with current derating 2.2 % per °C |
| Operating altitude | <= 1000 m without<br>> 1000...3000 m with current derating 1 % per 100 m |

## 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)<br>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

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