# Product data sheet
## Characteristics

# ATV12P075M3
## variable speed drive ATV12 - 0.75kW - 1hp - 200..240V - 3ph - on base plate

Green Premium

Product availability: Stock - Normally stocked in distribution facility

## Main

| | |
|---|---|
| Range of product | Altivar 12 |
| Product or component type | Variable speed drive |
| Product destination | Asynchronous motors |
| Product specific application | Simple machine |
| Assembly style | On base plate |
| Component name | ATV12 |
| Quantity per set | Set of 1 |
| EMC filter | Without EMC filter |
| Built-in fan | Without |
| Phase | 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 200 V<br>5.3 A 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 | Voltage/Frequency ratio (V/f)<br>Sensorless flux vector control<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 Modbus on front face |
| Physical interface | 2-wire RS 485 Modbus |
| Transmission frame | RTU Modbus |
| Transmission rate | 4800 bit/s<br>9600 bit/s<br>19200 bit/s<br>38400 bit/s |
| Number of addresses | 1...247 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 4 kHz |
| Maximum transient current | 6.3 A 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 3.5 mm² AWG 12 L1, L2, L3, U, V, W, PA, PC |
| Tightening torque | 7.08 lbf.in (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 overload and short-circuit protection<br>Internal supply for logic inputs 24 V DC 20.4...28.8 V 100 mA overload and short-circuit protection |
| Analogue input number | 1 |
| Analogue input type | Configurable voltage AI1 0...10 V 30 kOhm<br>Configurable voltage AI1 0...5 V 30 kOhm<br>Configurable current AI1 0...20 mA 250 Ohm |
| Discrete input number | 4 |
| Discrete input type | Programmable LI1...LI4 24 V 18...30 V |
| Discrete input logic | Negative logic (sink) > 16 V < 10 V 3.5 kOhm<br>Positive logic (source) 0...< 5 V > 11 V |
| Sampling duration | 20 ms +/- 1 ms logic input<br>10 ms analogue input |
| Linearity error | +/- 0.3 % of maximum value analogue input |
| Analogue output number | 1 |
| Analogue output type | Software-configurable voltage AO1 0...10 V 470 Ohm 8 bits<br>Software-configurable current AO1 0...20 mA 800 Ohm 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 24 V DC 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 | S<br>Linear from 0 to 999.9 s<br>U |
| Braking to standstill | By DC injection <= 30 s |
| Protection type | Against input phase loss in three-phase<br>Thermal motor protection via the drive by continuous calculation of I²t<br>Line supply overvoltage<br>Line supply undervoltage<br>Overcurrent between output phases and earth<br>Overheating protection<br>Short-circuit between motor phases |
| Frequency resolution | 0.1 Hz display unit<br>Converter A/D, 10 bits analog input |
| Time constant | 20 ms +/- 1 ms for reference change |
| Marking | CE |
| Operating position | Vertical +/- 10 degree |
| Height | 5.63 in (143 mm) |
| Width | 2.83 in (72 mm) |
| Depth | 4.02 in (102.2 mm) |
| Product weight | 1.54 lb(US) (0.7 kg) |
| Variable speed drive application selection | Commercial equipment : mixer<br>Commercial equipment : other application<br>Textile : ironing |
| Motor starter type | Variable speed drive |

## Environment

| | |
|---|---|
| Electromagnetic compatibility | Immunity to conducted disturbances level 3 EN/IEC 61000-4-6<br>Surge immunity test level 3 EN/IEC 61000-4-5<br>Voltage dips and interruptions immunity test EN/IEC 61000-4-11<br>Electrical fast transient/burst immunity test level 4 EN/IEC 61000-4-4<br>Electrostatic discharge immunity test level 3 EN/IEC 61000-4-2<br>Radiated radio-frequency electromagnetic field immunity test level 3 EN/IEC 61000-4-3 |
| Electromagnetic emission | Radiated emissions environment 1 category C2 EN/IEC 61800-3 2...16 kHz shielded motor cable<br>Conducted emissions with additional EMC filter environment 1 category C2 EN/IEC 61800-3 4...12 kHz shielded motor cable 20 m<br>Conducted emissions with additional EMC filter environment 2 category C3 EN/IEC 61800-3 4...12 kHz shielded motor cable 20 m |
| Product certifications | C-Tick<br>GOST<br>CSA<br>NOM<br>UL |
| Vibration resistance | 1 gn EN/IEC 60068-2-6 13...200 Hz<br>1.5 mm peak to peak EN/IEC 60068-2-6 3...13 Hz drive unmounted on symmetrical DIN rail |
| Shock resistance | 15 gn EN/IEC 60068-2-27 11 ms |
| 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...104 °F (-10...40 °C) protective cover from the top of the drive removed<br>104...140 °F (40...60 °C) with current derating 2.2 % per °C |
| Operating altitude | > 3280.84...9842.52 ft (> 1000...3000 m) with current derating 1 % per 100 m<br><= 3280.84 ft (1000 m) without derating |

## Ordering and shipping details

| | |
|---|---|
| Category | 22042 - ATV12 DRIVE AND ACCESSORIES |
| Discount Schedule | CP4B |
| GTIN | 00785901406181 |
| Nbr. of units in pkg. | 1 |
| Package weight(Lbs) | 1.98 |
| Returnability | Y |
| Country of origin | ID |

## Offer Sustainability

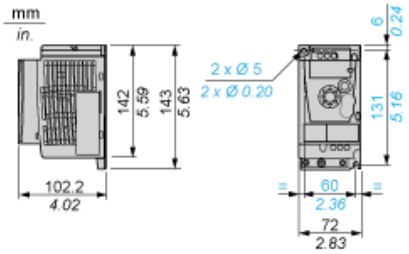
| | |
|---|---|
| Sustainable offer status | Green Premium product |
| RoHS (date code: YYWW) | Compliant - since 0901 - Schneider Electric declaration of conformity Schneider Electric declaration of conformity |
| REACh | Reference not containing SVHC above the threshold |
| Product environmental profile | Available |
| Product end of life instructions | Available |
| California proposition 65 | WARNING: This product can expose you to chemicals including: |
| - - - - - - - Substance 1 | Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. |
| - - - - - - - Substance 2 | Bisphenol A (BPA), which is known to the State of California to cause birth defects or other reproductive harm. |
| - - - - - - - More information | For more information go to www.p65warnings.ca.gov |

## Contractual warranty

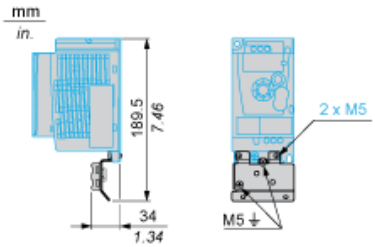
| | |
|---|---|
| Warranty period | 18 months |

## Dimensions

### Drive without EMC Conformity Kit

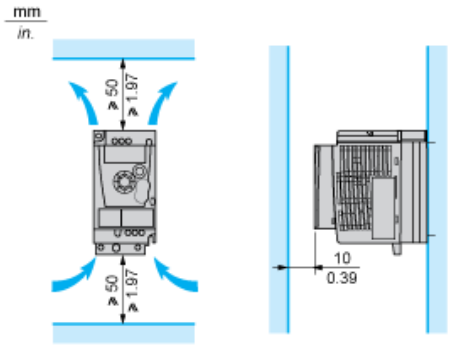



### Drive with EMC Conformity Kit

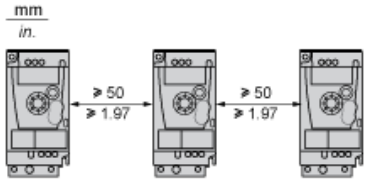


## Mounting Recommendations

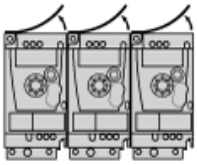
### Clearance for Vertical Mounting




### Mounting Type A

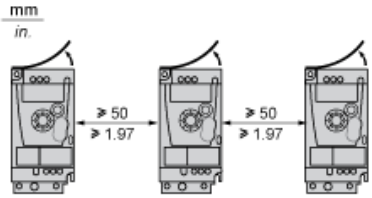



### Mounting Type B



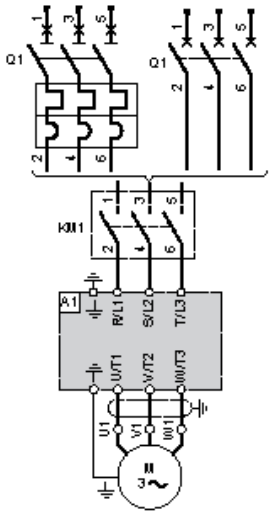
Remove the protective cover from the top of the drive.

### Mounting Type C




Remove the protective cover from the top of the drive.

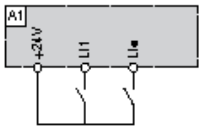
## Three-Phase Power Supply Wiring Diagram




A1 Drive
KM1 Contactor (only if a control circuit is needed)
Q1 Circuit breaker

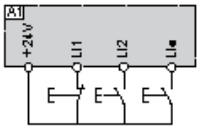
## Recommended Schemes

### 2-Wire Control for Logic I/O with Internal Power Supply



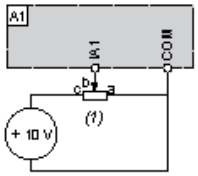

LI1 : Forward
LI• : Reverse
A1 : Drive

### 3-Wire Control for Logic I/O with Internal Power Supply



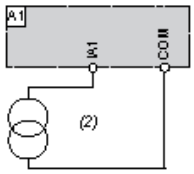

LI1 : Stop
LI2 : Forward
LI• : Reverse
A1 : Drive

### Analog Input Configured for Voltage with Internal Power Supply



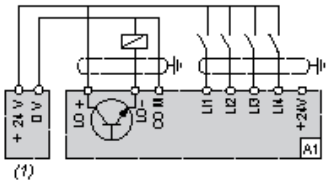

(1) 2.2 kΩ…10 kΩ reference potentiometer
A1 : Drive

## Analog Input Configured for Current with Internal Power Supply



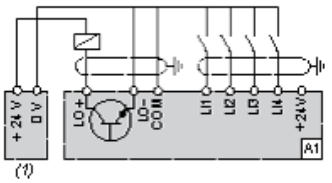

(2) 0-20 mA 4-20 mA supply
A1 : Drive

## Connected as Positive Logic (Source) with External 24 vdc Supply



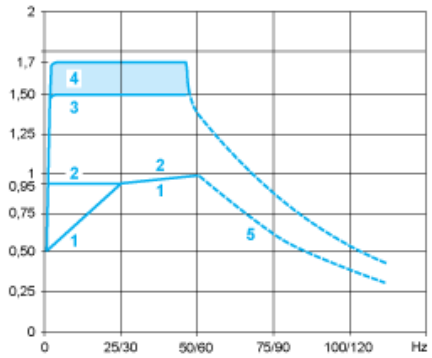

(1) 24 vdc supply
A1 : Drive

## Connected as Negative Logic (Sink) with External 24 vdc supply




(1) 24 vdc supply
A1 : Drive

## Torque Curves




1 : Self-cooled motor: continuous useful torque (1)
2 : Force-cooled motor: continuous useful torque
3 : Transient overtorque for 60 s
4 : Transient overtorque for 2 s
5 : Torque in overspeed at constant power (2)
(1) For power ratings ≤ 250 W, derating is 20% instead of 50% at very low frequencies.
(2) The nominal motor frequency and the maximum output frequency can be adjusted from 0.5 to 400 Hz. The mechanical overspeed capability of the selected motor must be checked with the manufacturer.

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