

Product data sheet

Specifications



variable speed drive, Altivar 12,
0.55kW, 0.75hp, 200 to 240V, 1
phase, with heat sink

ATV12H055M2

Product availability : Stock - Normally stocked in distribution facility

Price* : 246.02 USD

Main

| | |
|------------------------------|-------------------------|
| Range of Product | Altivar 12 |
| Product or Component Type | Variable speed drive |
| Product Specific Application | Simple machine |
| Mounting Mode | Cabinet mount |
| Communication Port Protocol | Modbus |
| Supply frequency | 50/60 Hz +/- 5 % |
| [Us] rated supply voltage | 200...240 V - 15...10 % |
| Nominal output current | 3.5 A |
| Maximum Horse Power Rating | 0.75 hp |
| Motor power kW | 0.55 kW |
| | 0.75 hp |
| EMC filter | Integrated |
| IP degree of protection | IP20 |

Complementary

| | |
|------------------------------|----------------------------------------------------|
| Discrete input number | 4 |
| Discrete output number | 2 |
| Analogue input number | 1 |
| Analogue output number | 1 |
| Relay output number | 1 |
| Physical interface | 2-wire RS 485 |
| Connector Type | 1 RJ45 |
| Continuous output current | 3.5 A 4 kHz |
| Method of access | Server Modbus serial |
| Speed drive output frequency | 0.5...400 Hz |
| Speed range | 1...20 |
| Sampling duration | 20 ms +/- 1 ms logic input 10 ms analogue input |
| Linearity error | +/- 0.3 % of maximum value analogue input |

* Price is "List Price" and may be subject to a trade discount – check with your local distributor or retailer for actual price.

| | |
|-------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Frequency resolution | Analog input converter A/D, 10 bits Display unit 0.1 Hz |
| Time constant | 20 ms +/- 1 ms for reference change |
| Transmission Rate | 9.6 kbit/s 19.2 kbit/s 38.4 kbit/s |
| Transmission frame | RTU |
| Number of addresses | 1...247 |
| Data format | 8 bits, configurable odd, even or no parity |
| Communication service | Read holding registers (03) 29 words Write single register (06) 29 words Write multiple registers (16) 27 words Read/write multiple registers (23) 4/4 words Read device identification (43) |
| Type of polarization | No impedance |
| 4 quadrant operation possible | False |
| Asynchronous motor control profile | Voltage/frequency ratio (V/f) Quadratic voltage/frequency ratio Sensorless flux vector control |
| Maximum output frequency | 4 kHz |
| Transient overtorque | 150...170 % of nominal motor torque depending on drive rating and type of motor |
| Acceleration and deceleration ramps | Linear from 0 to 999.9 s S U |
| Motor slip compensation | Preset in factory Adjustable |
| Switching frequency | 2...16 kHz adjustable 4...16 kHz with derating factor |
| Nominal switching frequency | 4 kHz |
| Braking to standstill | By DC injection |
| Brake chopper integrated | False |
| Line current | 8.0 A 100 V heavy duty) 6.7 A 120 V heavy duty) |
| Maximum Input Current per Phase | 6.7 A |
| Maximum output voltage | 240 V |
| Apparent power | 1.6 kVA 240 V heavy duty) |
| Maximum transient current | 5.3 A 60 s heavy duty) 5.8 A 2 s heavy duty) |
| Network Frequency | 50-60 Hz |
| Relative symmetric network frequency tolerance | 5 % |
| Prospective line I_{sc} | 1 kA |
| Base load current at high overload | 3.5 A |
| Power dissipation in W | Natural 34.0 W |
| With safety function Safely Limited Speed (SLS) | False |
| With safety function Safe brake management (SBC/SBT) | False |
| With safety function Safe Operating Stop (SOS) | False |
| With safety function Safe Position (SP) | False |

| | |
|----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| With safety function Safe programmable logic | False |
| With safety function Safe Speed Monitor (SSM) | False |
| With safety function Safe Stop 1 (SS1) | False |
| With sft fct Safe Stop 2 (SS2) | False |
| With safety function Safe torque off (STO) | False |
| With safety function Safely Limited Position (SLP) | False |
| With safety function Safe Direction (SDI) | False |
| Protection type | Line supply overvoltage Line supply undervoltage Overcurrent between output phases and earth Overheating protection Short-circuit between motor phases Against input phase loss in three-phase Thermal motor protection via the drive by continuous calculation of I ² t |
| Tightening torque | 7.08 lbf.in (0.8 N.m) |
| Insulation | Electrical between power and control |
| Quantity per Set | Set of 1 |
| Width | 2.83 in (72 mm) |
| Height | 5.63 in (143 mm) |
| Depth | 5.17 in (131.2 mm) |
| Net Weight | 1.76 lb(US) (0.8 kg) |

Environment

| | |
|------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating altitude | > 3280.84...6561.68 ft (> 1000...2000 m) with current derating 1 % per 100 m <= 3280.84 ft (1000 m) without derating |
| Operating position | Vertical +/- 10 degree |
| Product Certifications | NOM CSA C-tick UL GOST RCM KC |
| Marking | CE |
| Standards | UL 508C UL 618000-5-1 EN/IEC 61800-5-1 EN/IEC 61800-3 |
| Assembly style | With heat sink |
| Electromagnetic compatibility | Electrical fast transient/burst immunity test level 4 EN/IEC 61000-4-4 Electrostatic discharge immunity test level 3 EN/IEC 61000-4-2 Immunity to conducted disturbances level 3 EN/IEC 61000-4-6 Radiated radio-frequency electromagnetic field immunity test level 3 EN/IEC 61000-4-3 Surge immunity test level 3 EN/IEC 61000-4-5 Voltage dips and interruptions immunity test EN/IEC 61000-4-11 |
| Environmental class (during operation) | Class 3C3 according to IEC 60721-3-3 Class 3S2 according to IEC 60721-3-3 |
| Maximum acceleration under shock impact (during operation) | 150 m/s ² at 11 ms |
| Maximum acceleration under vibrational stress (during operation) | 10 m/s ² at 13...200 Hz |

| | |
|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Maximum deflection under vibratory load (during operation) | 1.5 mm at 2...13 Hz |
| Overvoltage category | Class III |
| Regulation loop | Adjustable PID regulator |
| Electromagnetic emission | Radiated emissions environment 1 category C2 EN/IEC 61800-3 2...16 kHz shielded motor cable Conducted emissions with integrated EMC filter environment 1 category C1 EN/IEC 61800-3 2, 4, 8, 12 and 16 kHz shielded motor cable <16.40 ft (5 m) Conducted emissions with integrated EMC filter environment 1 category C2 EN/IEC 61800-3 2...12 kHz shielded motor cable <16.40 ft (5 m) Conducted emissions with integrated EMC filter environment 1 category C2 EN/IEC 61800-3 2, 4 and 16 kHz shielded motor cable <32.81 ft (10 m) Conducted emissions with additional EMC filter environment 1 category C1 EN/IEC 61800-3 4...12 kHz shielded motor cable <65.62 ft (20 m) Conducted emissions with additional EMC filter environment 1 category C2 EN/IEC 61800-3 4...12 kHz shielded motor cable <164.04 ft (50 m) Conducted emissions with additional EMC filter environment 2 category C3 EN/IEC 61800-3 4...12 kHz shielded motor cable <164.04 ft (50 m) |
| Vibration resistance | 1 gn 13...200 Hz)EN/IEC 60068-2-6 1.5 mm peak to peak 3...13 Hz) - drive unmounted on symmetrical DIN rail - 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 5...95 % without dripping water IEC 60068-2-3 |
| Noise level | 0 dB |
| Pollution degree | 2 |
| Ambient air transport temperature | -13...158 °F (-25...70 °C) |
| Ambient air temperature for operation | 14...104 °F (-10...40 °C) without derating 104...140 °F (40...60 °C) with current derating 2.2 % per °C |
| Ambient Air Temperature for Storage | -13...158 °F (-25...70 °C) |

Ordering and shipping details

| | |
|--------------------------|-----------------------------------|
| Category | 22042-ATV12 DRIVE AND ACCESSORIES |
| Discount Schedule | CP4B |
| GTIN | 3606480071065 |
| Returnability | Yes |
| Country of origin | ID |

Packing Units

| | |
|-------------------------------------|---------------------------|
| Unit Type of Package 1 | PCE |
| Number of Units in Package 1 | 1 |
| Package 1 Height | 4.17 in (10.600 cm) |
| Package 1 Width | 7.32 in (18.600 cm) |
| Package 1 Length | 7.32 in (18.600 cm) |
| Package 1 Weight | 2.46 lb(US) (1.117 kg) |
| Unit Type of Package 2 | P06 |
| Number of Units in Package 2 | 45 |
| Package 2 Height | 28.94 in (73.500 cm) |
| Package 2 Width | 23.62 in (60.000 cm) |
| Package 2 Length | 31.50 in (80.000 cm) |
| Package 2 Weight | 139.57 lb(US) (63.310 kg) |

Offer Sustainability

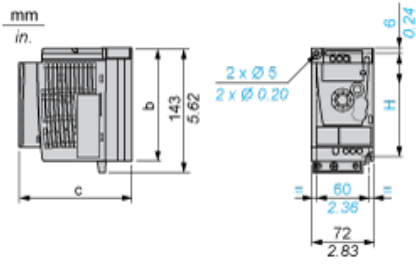
| | |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| California proposition 65 | WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov |
| REACH Regulation | REACH Declaration |
| EU RoHS Directive | Pro-active compliance (Product out of EU RoHS legal scope) EU RoHS Declaration |
| Mercury free | Yes |
| China RoHS Regulation | China RoHS declaration |
| RoHS exemption information | Yes |
| 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 |
|----------|-----------|

Dimensions

Drive without EMC Conformity Kit



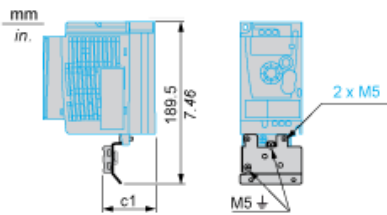
Dimensions in mm

| b | c | H |
|-----|-------|-----|
| 130 | 131.2 | 120 |

Dimensions in in.

| b | c | H |
|------|------|------|
| 5.12 | 5.16 | 4.72 |

Drive with EMC Conformity Kit



Dimensions in mm

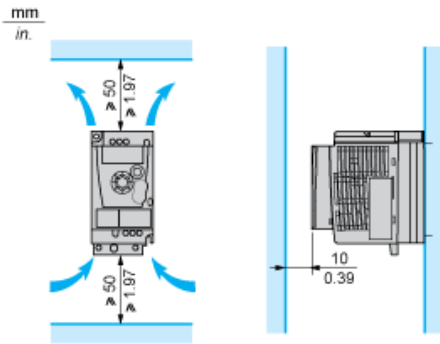
| c1 |
|----|
| 63 |

Dimensions in in.

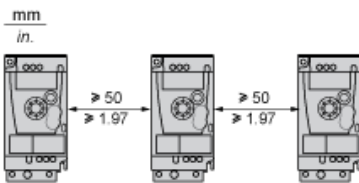
| c1 |
|------|
| 2.48 |

Mounting Recommendations

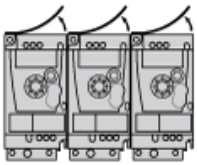
Clearance for Vertical Mounting



Mounting Type A

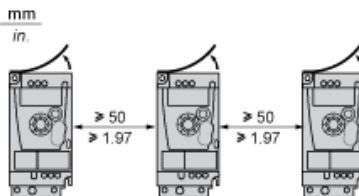


Mounting Type B



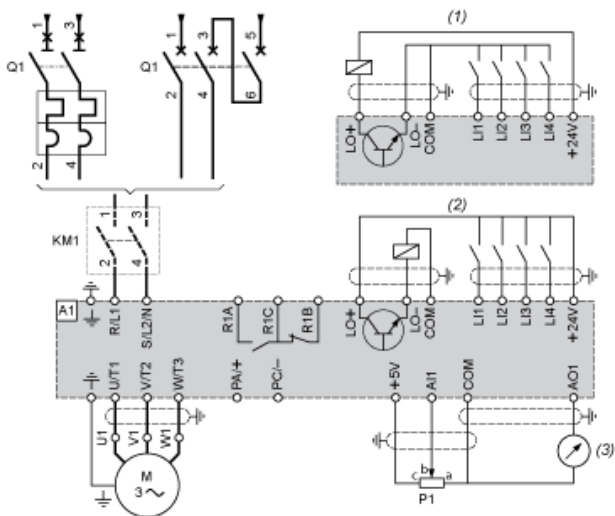
Remove the protective cover from the top of the drive.

Mounting Type C



Remove the protective cover from the top of the drive.

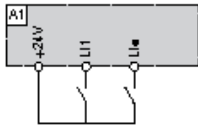
Single-Phase Power Supply Wiring Diagram



- A1** Drive
- KM1** Contactor (only if a control circuit is needed)
- P1** 2.2 kΩ reference potentiometer. This can be replaced by a 10 kΩ potentiometer (maximum).
- Q1** Circuit breaker
- (1)** Negative logic (Sink)
- (2)** Positive logic (Source) (factory set configuration)
- (3)** 0...10 V or 0...20 mA

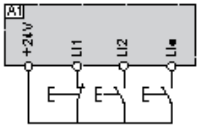
Recommended Schemes

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



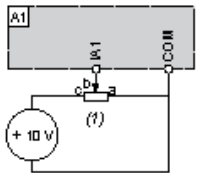
LI1 : Forward
LIe : Reverse
A1 : Drive

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



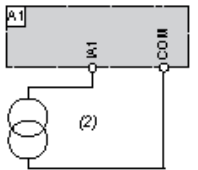
LI1 : Stop
LI2 : Forward
LIe : Reverse
A1 : Drive

Analog Input Configured for Voltage with Internal Power Supply



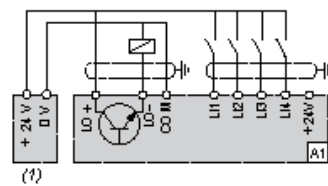
(1) 2.2 kΩ...10 kΩ reference potentiometer
A1 : Drive

Analog Input Configured for Current with Internal Power Supply



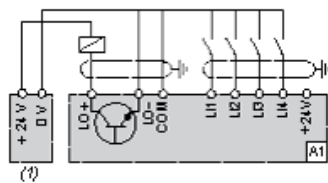
(2) 0-20 mA 4-20 mA supply
A1 : Drive

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



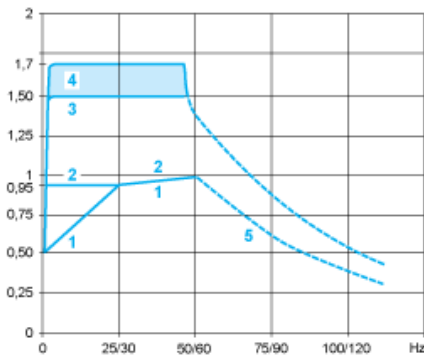
(1) 24 vdc supply
A1 : Drive

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 motor is 150%.

Recommended replacement(s)