

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

ATV12H075M2

Product availability: Stock - Normally stocked in distribution facility

Price\*: 269.28 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	200240 V - 1510 %
Nominal Output Current	4.2 A
Maximum Horse Power Rating	1 hp
Motor Power Kw	0.75 kW
Maximum Horse Power Rating	1 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	4.2 A 4 kHz
Method Of Access	Server Modbus serial
Speed Drive Output Frequency	0.5400 Hz
Speed Range	120
Sampling Duration	20 ms +/- 1 ms logic input 10 ms analogue input
Linearity Error	+/- 0.3 % of maximum value analogue input
Frequency Resolution	Analog input converter A/D, 10 bits Display unit 0.1 Hz

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

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	1247
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	Quadratic voltage/frequency ratio
Frome	Voltage/frequency ratio (V/f) Sensorless flux vector control
Maximum Output Frequency	4 kHz
Transient Overtorque	150170 % of nominal motor torque depending on drive rating and type of motor
Acceleration And Deceleration	Linear from 0 to 999.9 s
Ramps	U
	\$
Motor Slip Compensation	Preset in factory Adjustable
Switching Frequency	216 kHz adjustable 416 kHz with derating factor
Nominal Switching Frequency	4 kHz
Nominal Switching Frequency  Braking To Standstill	4 kHz  By DC injection
Braking To Standstill	By DC injection
Braking To Standstill  Brake Chopper Integrated	By DC injection  False  10.2 A 100 V heavy duty)
Braking To Standstill  Brake Chopper Integrated  Line Current	By DC injection  False  10.2 A 100 V heavy duty) 8.5 A 120 V heavy duty)
Braking To Standstill  Brake Chopper Integrated  Line Current  Maximum Input Current Per Phase	By DC injection  False  10.2 A 100 V heavy duty) 8.5 A 120 V heavy duty)  8.5 A
Braking To Standstill Brake Chopper Integrated Line Current Maximum Input Current Per Phase Maximum Output Voltage	By DC injection  False  10.2 A 100 V heavy duty) 8.5 A 120 V heavy duty)  8.5 A  240 V
Braking To Standstill Brake Chopper Integrated Line Current Maximum Input Current Per Phase Maximum Output Voltage Apparent Power	By DC injection  False  10.2 A 100 V heavy duty) 8.5 A 120 V heavy duty)  8.5 A  240 V  2.0 kVA 240 V heavy duty)  6.3 A 60 s heavy duty)
Braking To Standstill  Brake Chopper Integrated  Line Current  Maximum Input Current Per Phase  Maximum Output Voltage  Apparent Power  Maximum Transient Current	By DC injection  False  10.2 A 100 V heavy duty) 8.5 A 120 V heavy duty)  8.5 A  240 V  2.0 kVA 240 V heavy duty)  6.3 A 60 s heavy duty) 6.9 A 2 s heavy duty)
Braking To Standstill Brake Chopper Integrated Line Current  Maximum Input Current Per Phase Maximum Output Voltage Apparent Power  Maximum Transient Current  Network Frequency  Relative Symmetric Network	By DC injection  False  10.2 A 100 V heavy duty) 8.5 A 120 V heavy duty)  8.5 A  240 V  2.0 kVA 240 V heavy duty)  6.3 A 60 s heavy duty) 6.9 A 2 s heavy duty)  50-60 Hz
Braking To Standstill  Brake Chopper Integrated  Line Current  Maximum Input Current Per Phase  Maximum Output Voltage  Apparent Power  Maximum Transient Current  Network Frequency  Relative Symmetric Network  Frequency Tolerance	By DC injection  False  10.2 A 100 V heavy duty) 8.5 A 120 V heavy duty)  8.5 A  240 V  2.0 kVA 240 V heavy duty)  6.3 A 60 s heavy duty) 6.9 A 2 s heavy duty)  50-60 Hz
Braking To Standstill  Brake Chopper Integrated  Line Current  Maximum Input Current Per Phase  Maximum Output Voltage  Apparent Power  Maximum Transient Current  Network Frequency  Relative Symmetric Network Frequency Tolerance  Prospective Line Isc  Base Load Current At High	By DC injection  False  10.2 A 100 V heavy duty) 8.5 A 120 V heavy duty)  8.5 A  240 V  2.0 kVA 240 V heavy duty)  6.3 A 60 s heavy duty) 6.9 A 2 s heavy duty)  50-60 Hz  1 kA
Braking To Standstill  Brake Chopper Integrated  Line Current  Maximum Input Current Per Phase  Maximum Output Voltage  Apparent Power  Maximum Transient Current  Network Frequency  Relative Symmetric Network Frequency Tolerance  Prospective Line Isc  Base Load Current At High Overload	By DC injection  False  10.2 A 100 V heavy duty) 8.5 A 120 V heavy duty)  8.5 A  240 V  2.0 kVA 240 V heavy duty)  6.3 A 60 s heavy duty) 6.9 A 2 s heavy duty)  50-60 Hz  5 %  1 kA  4.2 A
Braking To Standstill  Brake Chopper Integrated  Line Current  Maximum Input Current Per Phase  Maximum Output Voltage  Apparent Power  Maximum Transient Current  Network Frequency  Relative Symmetric Network Frequency Tolerance  Prospective Line Isc  Base Load Current At High Overload  Power Dissipation In W  With Safety Function Safely	By DC injection  False  10.2 A 100 V heavy duty) 8.5 A 120 V heavy duty)  8.5 A  240 V  2.0 kVA 240 V heavy duty)  6.3 A 60 s heavy duty) 6.9 A 2 s heavy duty)  50-60 Hz  5 %  1 kA  4.2 A  Natural 44.0 W
Braking To Standstill  Brake Chopper Integrated  Line Current  Maximum Input Current Per Phase  Maximum Output Voltage  Apparent Power  Maximum Transient Current  Network Frequency  Relative Symmetric Network Frequency Tolerance  Prospective Line Isc  Base Load Current At High Overload  Power Dissipation In W  With Safety Function Safely Limited Speed (SIs)  With Safety Function Safe Brake	By DC injection  False  10.2 A 100 V heavy duty) 8.5 A 120 V heavy duty)  8.5 A  240 V  2.0 kVA 240 V heavy duty) 6.3 A 60 s heavy duty) 6.9 A 2 s heavy duty) 50-60 Hz  5 %  1 kA  4.2 A  Natural 44.0 W  False
Braking To Standstill  Brake Chopper Integrated  Line Current  Maximum Input Current Per Phase  Maximum Output Voltage  Apparent Power  Maximum Transient Current  Network Frequency  Relative Symmetric Network Frequency Tolerance  Prospective Line Isc  Base Load Current At High Overload  Power Dissipation In W  With Safety Function Safely Limited Speed (SIs)  With Safety Function Safe Brake Management (Sbc/Sbt)  With Safety Function Safe	By DC injection  False  10.2 A 100 V heavy duty) 8.5 A 120 V heavy duty) 8.5 A  240 V  2.0 kVA 240 V heavy duty) 6.3 A 60 s heavy duty) 6.9 A 2 s heavy duty) 50-60 Hz  5 %  1 kA  4.2 A  Natural 44.0 W  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 (SIp)	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 I²t
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	> 2200 84 (SSC4 S8 ft /> 4000 (2000 m) with asserted despting 4 ft rest 400 m
	> 3280.846561.68 ft (> 10002000 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 IEC 61800-5-1 IEC 61800-3
Assembly Style	With heat sink
Electromagnetic Compatibility	Electrical fast transient/burst immunity test level 4 IEC 61000-4-4 Electrostatic discharge immunity test level 3 IEC 61000-4-2 Immunity to conducted disturbances level 3 IEC 61000-4-6 Radiated radio-frequency electromagnetic field immunity test level 3 IEC 61000-4-3 Surge immunity test level 3 IEC 61000-4-5 Voltage dips and interruptions immunity test 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/s² at 11 ms
Maximum Acceleration Under Vibrational Stress (During Operation)	10 m/s² at 13200 Hz
Maximum Deflection Under Vibratory Load (During Operation)	1.5 mm at 213 Hz

Class III

Overvoltage Category

Regulation Loop	Adjustable PID regulator
Electromagnetic Emission	Radiated emissions environment 1 category C2 IEC 61800-3 216 kHz shielded motor cable  Conducted emissions with integrated EMC filter environment 1 category C1 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 IEC 61800-3 212 kHz shielded motor cable <16.40 ft (5 m)  Conducted emissions with integrated EMC filter environment 1 category C2 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 IEC 61800-3 412 kHz shielded motor cable <65.62 ft (20 m)  Conducted emissions with additional EMC filter environment 1 category C2 IEC 61800-3 412 kHz shielded motor cable <164.04 ft (50 m)  Conducted emissions with additional EMC filter environment 2 category C3 IEC 61800-3 412 kHz shielded motor cable <164.04 ft (50 m)
Vibration Resistance	1 gn 13200 Hz)IEC 60068-2-6 1.5 mm peak to peak 313 Hz) - drive unmounted on symmetrical DIN rail - IEC 60068-2-6
Shock Resistance	15 gn 11 ms IEC 60068-2-27
Relative Humidity	595 % without condensation IEC 60068-2-3 595 % without dripping water IEC 60068-2-3
Noise Level	0 dB
Pollution Degree	2
Ambient Air Transport Temperature	-13158 °F (-2570 °C)
Ambient Air Temperature For Operation	14104 °F (-1040 °C) without derating 104140 °F (4060 °C) with current derating 2.2 % per °C
Ambient Air Temperature For Storage	-13158 °F (-2570 °C)

# Ordering and shipping details

Category	US1CP4B22042
Discount Schedule	CP4B
Gtin	3606480071072
Returnability	Yes
Country Of Origin	ID

# **Packing Units**

Unit Type Of Package 1	PCE
Number Of Units In Package 1	1
Package 1 Height	4.61 in (11.700 cm)
Package 1 Width	7.48 in (19.000 cm)
Package 1 Length	7.68 in (19.500 cm)
Package 1 Weight	2.46 lb(US) (1.118 kg)
Unit Type Of Package 2	P06
Number Of Units In Package 2	45
Package 2 Height	29.53 in (75.000 cm)
Package 2 Width	23.62 in (60.000 cm)
Package 2 Length	31.50 in (80.000 cm)
Package 2 Weight	139.08 lb(US) (63.085 kg)

# **Contractual warranty**

Warranty

18 months

# Sustainability

**Green Premium<sup>TM</sup> label** is Schneider Electric's commitment to delivering products with best-inclass environmental performance. Green Premium promises compliance with the latest regulations, transparency on environmental impacts, as well as circular and low-CO<sub>2</sub> 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 >

# Well-being performance

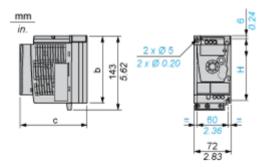
	Mercury Free	
<b>②</b>	Rohs Exemption Information	Yes

Reach Regulation	REACh Declaration	
Eu Rohs Directive	Pro-active compliance (Product out of EU RoHS legal scope)	
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.	
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	

# **Dimensions Drawings**

#### **Dimensions**

### **Drive without EMC Conformity Kit**



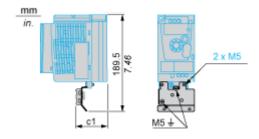
# Dimensions in mm

b	С	Н
130	131.2	120

### Dimensions in in.

b	С	Н
5.12	5.16	4.72

### **Drive with EMC Conformity Kit**



#### Dimensions in mm

с1	
63	

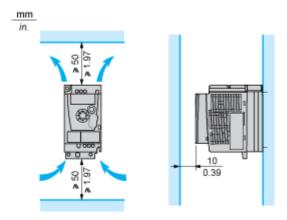
#### Dimensions in in.

c1	
2.48	

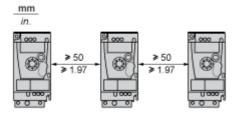
# Mounting and Clearance

### **Mounting Recommendations**

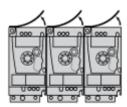
### **Clearance for Vertical Mounting**



### **Mounting Type A**

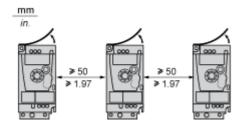


### **Mounting Type B**



Remove the protective cover from the top of the drive.

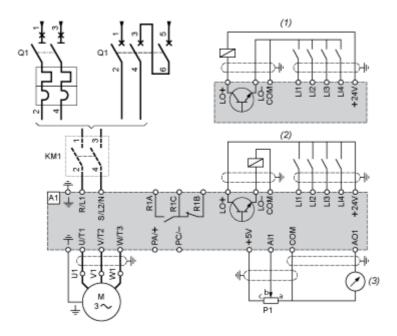
## **Mounting Type C**



Remove the protective cover from the top of the drive.

#### Connections and Schema

### **Single-Phase Power Supply Wiring Diagram**



A1 Drive

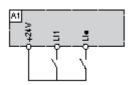
KM1 Contactor (only if a control circuit is needed)

P1 2.2 k $\Omega$  reference potentiometer. This can be replaced by a 10 k $\Omega$  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

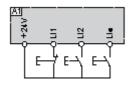


LI1: Forward

LI•: Reverse

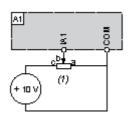
A1: Drive

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



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

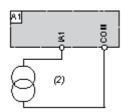
### Analog Input Configured for Voltage with Internal Power Supply



(1) 2.2 k $\Omega$ ...10 k $\Omega$  reference potentiometer

A1: Drive

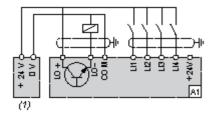
### **Analog Input Configured for Current with Internal Power Supply**



(2) 0-20 mA 4-20 mA supply

A1: Drive

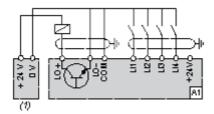
### Connected as Positive Logic (Source) with External 24 vdc Supply



(1) 24 vdc supply

A1: Drive

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

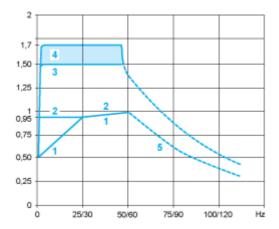


(1) 24 vdc supply

A1: Drive

#### Performance Curves

#### **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  $\leq$  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.