ATV12H075M2

variable speed drive ATV12 - 0.75kW - 1hp -200..240V - 1ph - 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	Integrated
Built-in fan	Without
Network number of phases	1 phase
[Us] rated supply voltage	200240 V - 1510 %
Motor power kW	0.75 kW
Motor power hp	1 hp
Communication port protocol	Modbus
Line current	10.2 A 200 V 8.5 A 240 V
Speed range	120
Transient overtorque	150170 % of nominal motor torque depending on drive rating and type of motor
Asynchronous motor control profile	Quadratic voltage/frequency ratio Sensorless flux vector control Voltage/frequency ratio (V/f)
IP degree of protection	IP20 without blanking plate on upper part
Noise level	0 dB

Complementary

Complementary	
Supply frequency	50/60 Hz +/- 5 %
Type of connector	1 RJ45 Modbus on front face
Physical interface	2-wire RS 485 Modbus
Transmission frame	RTU Modbus
Transmission rate	4800 bit/s 9600 bit/s 19200 bit/s 38400 bit/s
Number of addresses	1247 Modbus
Communication service	Read device identification (43) 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
Prospective line Isc	<= 1 kA
Continuous output current	4.2 A 4 kHz
Maximum transient current	6.3 A 60 s
Speed drive output frequency	0.5400 Hz
Nominal switching frequency	4 kHz
Switching frequency	216 kHz adjustable 416 kHz with derating factor
Braking torque	Up to 70 % of nominal motor torque without braking resistor
Motor slip compensation	Adjustable

Electrical connection Terminal 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 Internal supply for reference potentiometer 5 V DC 4.755.25 V 10 mA overload and short-circuit protection Internal supply for logic inputs 24 V DC 20.428.8 V 100 mA overload and short-circuit protection Internal supply for logic inputs 24 V DC 20.428.8 V 100 mA overload and short-circuit protection Analogue input number 1 Analogue input type Configurable current A1 020 mA 250 D/m Configurable voltage A1 05 V 30 kD/m Configurable voltage A1 05 V 30 kD/m Configurable voltage A1 05 V 30 kD/m Discrete input type Programmable L11L14 24 V 1830 V Discrete input type Programmable L11L14 24 V 1830 V Discrete input type Programmable L11L14 24 V 1830 V Discrete input type Programmable L11L14 24 V 1830 V Discrete input type Programmable L11L14 24 V 1830 V Discrete input type 1.0 ms analogue input 1.0 ms analogue		Preset in factory
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Insulation Electrical between power and control Internal supply for reference potentiameter 5 V DC 4.755.25 V 10 mA overload and short-circutar protection Internal supply for logic inputs 24 V DC 20.428.8 V 100 mA overload and short-circutar protection Internal supply for logic inputs 24 V DC 20.428.8 V 100 mA overload and short-circutar protection Internal supply for logic inputs 24 V DC 20.428.8 V 100 mA overload and short-circutar protection Analogue input number 1. Configurable voltage A11 0 V 20 mA 250 Ohm Configurable voltage A11 0 V 20 M Ohm Configurable voltage A11 0 V 20 M Ohm Discrete input number 4. Discrete input type Programmable L11L14 24 V 18 30 V Discrete input type Negative logic (sink) > 16 V < 10 V 3.5 KOhm Positive logic (sink) > 16 V < 10 V 3.5 KOhm Positive logic (sink) > 16 V < 10 V 3.5 KOhm Positive logic (sink) > 16 V < 10 V 3.5 KOhm Positive logic input Linearity error 4-0.3 % of maximum value analogue input Analogue output number 1. Software-configurable voltage A01 0 10 V 470 Ohm 8 bits Software-configurable voltage A01 0 10 V 470 Ohm 8 bits Software-configurable voltage A01 0 10 V 470 Ohm 8 bits Software-configurable voltage A01 0 10 V 470 Ohm 8 bits Software-configurable voltage A01 0 10 V 470 Ohm 8 bits Software-configurable voltage A01 0 10 V 470 Ohm 8 bits Software-configurable voltage A01 0 10 V 470 Ohm 8 bits Software-configurable voltage A01 0 10 V 470 Ohm 8 bits Software-configurable voltage A01 0 10 V 470 Ohm 8 bits Software-configurable voltage A01 0 10 V 470 Ohm 8 bits Software-configurable voltage A01 0 10 V 470 Ohm 8 bits Software-configurable voltage A01 0 10 V 470 Ohm 8 bits Software-configurable voltage A01 0 10 V 470 Ohm 8 bits Software-configurable voltage A01 0 10 V 470 Ohm 8 bits Software-configurable voltage A01 0 10 V 470 Ohm 8 bits Software-configurable voltage A01 0 10 V 470 Ohm 8 bits Software-configurable voltage A01 0 10 V 470 Ohm 8 bits Software-configurable voltage	Electrical connection	Terminal 3.5 mm ² AWG 12 L1, L2, L3, U, V, W, PA, PC
Internal supply for reference potentiometer 5 V DC 4.755.25 V 10 mA overload and short-circul protection and short-circul protection and short-circul protection and short-circul protection and short-circul protection.	Tightening torque	0.8 N.m
short-circuit protection internal supply for logic inputs 24 V DC 20.428.8 V 100 mA overload and short- circuit protection Analogue input number 1 Analogue input type Configurable voltage At 105 V 30 KOhm Discrete input number 4 Discrete input type Programmable Lt1Lt4 24 V 1830 V Discrete input logic Negative logic (sink) > 16 V < 10 V 3.5 KOhm Positive logic (source) 06 V > 11 V Sampling duration 2 20 ms +/· 1 ms logic input Linearity error 4-0.3 % of maximum value analogue input Linearity error 4-0.3 % of maximum value analogue input Analogue output number 1 Analogue output type Software-configurable voltage ACI 010 V 470 Ohm 8 bits Software-configurable current ACI 1020 mA 800 Ohm 8 bits Software-configurable current ACI 1020 mA 800 Ohm 8 bits Software-configurable current ACI 1020 mA 800 Ohm 8 bits Software-configurable current ACI 1020 mA 800 Ohm 8 bits Discrete output number 2 Discrete output type Logic output LO-, LO- Protected relay output R1A, R1B, R1C 1 C/O Minimum switching current 5 mA 24 V DC logic relay A 30 V DC inductive cos phi = 0.4 L/R = 7 ms logic relay A 30 V DC inductive cos phi = 0.4 L/R = 0 ms logic relay A 30 V DC resistive cos phi = 1 L/R = 0 ms logic relay A 30 V DC resistive cos phi = 1 L/R = 0 ms logic relay A 30 V DC resistive cos phi = 1 L/R = 0 ms logic relay A 20 V DC inductive cos phi = 0.4 L/R = 7 ms logic relay A 20 V DC inductive cos phi = 0.4 L/R = 7 ms logic relay A 20 V DC resistive cos phi = 1 L/R = 0 ms logic relay A 20 V DC resistive cos phi = 1 L/R = 0 ms logic relay A 20 V DC resistive cos phi = 1 L/R = 0 ms logic relay A 20 V DC resistive cos phi = 1 L/R = 0 ms logic relay A 20 V DC resistive cos phi = 1 L/R = 0 ms logic relay A 20 V DC resistive cos phi = 1 L/R = 0 ms logic relay A 20 V DC resistive cos phi = 1 L/R = 0 ms logic relay A 20 V DC resisti	Insulation	Electrical between power and control
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Configurable voltage A11 010 V 30 kOhm	Analogue input number	1
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Positive logic (source) 0 ≤ 5 ∨ > 11 V Sampling duration < 20 ms +/- 1 ms logic input < 10 ms analogue output number	Discrete input type	Programmable LI1LI4 24 V 1830 V
Linearity error +/- 0.3 % of maximum value analogue input Analogue output number 1 Analogue output type Software-configurable voltage AC1 010 V 470 Ohm 8 bits Software-configurable current AC1 020 mA 800 Ohm 8 bits Discrete output number 2 Discrete output type Logic output LC+, LC- Protected relay output R1A, R1B, R1C 1 C/O Minimum switching current 5 mA 24 V DC logic relay 2 A 250 V AC inductive cos phi = 0.4 L/R = 7 ms logic relay 3 A 250 V AC inductive cos phi = 0.4 L/R = 7 ms logic relay 4 A 30 V DC resistive cos phi = 1 L/R = 0 ms logic relay 4 A 30 V DC resistive cos phi = 1 L/R = 0 ms logic relay 4 A 30 V DC resistive cos phi = 1 L/R = 0 ms logic relay 4 A 30 V DC resistive cos phi = 1 L/R = 0 ms logic relay 4 DC resistive cos phi = 1 L/R = 0 ms logic relay 4 DC resistive cos phi = 1 L/R = 0 ms logic relay 4 DC resistive cos phi = 1 L/R = 0 ms logic relay 4 DC resistive cos phi = 1 L/R = 0 ms logic relay 4 DC resistive cos phi = 1 L/R = 0 ms logic relay 4 DC resistive cos phi = 1 L/R = 0 ms logic relay 4 DC resistive cos phi = 1 L/R = 0 ms logic relay 4 DC resistive cos phi = 1 L/R = 0 ms logic relay 4 DC resistive cos phi = 1 L/R = 0 ms logic relay 4 DC resistive cos phi = 1 L/R = 0 ms logic relay 4 DC resistive cos phi = 1 L/R = 0 ms logic relay 4 DC resistive cos phi = 1 L/R = 0 ms logic relay 4 DC resistive cos phi = 1 L/R = 0 ms logic relay 4 DC resistive cos phi = 1 L/R = 0 ms logic relay 4 DC resistive cos phi = 1 L/R = 0 ms logic relay 5 DC resistive cos phi = 1 L/R = 0 ms logic relay 4 DC resistive cos phi = 1 L/R = 0 ms logic relay 5 DC resistive cos phi = 1 L/R = 0 ms logic relay 5 DC resistive cos phi = 1 L/R = 0 ms logic relay 5 DC resistive cos phi = 1 L/R = 0 ms logic relay 5 DC resistive cos phi = 1 L/R = 0 ms logic relay 5 DC resistive cos phi = 1 L/R = 0 ms logic relay 5 DC resistive cos phi = 1 L/R = 0 ms logic relay 5 DC resistive cos phi = 1 L/R = 0 ms logic relay 5 DC resistive cos phi = 1 L/R = 0 ms logic relay 5 DC resistive cos phi = 1 L/R = 0 ms logic relay 5 DC	Discrete input logic	
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Braking to standstill By DC injection 0.130 s 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 Pt Frequency resolution 0.1 Hz display unit Converter A/D, 10 bits analog input 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 Product weight 0.8 kg Functionality Basic Specific application Commercial equipment Variable speed drive application selection Commercial equipment: mixer Commercial equipment: other application Textile: ironing Motor power range AC-3 0.551 kW at 200240 V 1 phase	Maximum switching current	2 A 30 V DC inductive cos phi = 0.4 L/R = 7 ms logic relay 3 A 250 V AC resistive cos phi = 1 L/R = 0 ms logic relay
Braking to standstill By DC injection 0.130 s 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 IPt Frequency resolution 0.1 Hz display unit Converter A/D, 10 bits analog input 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 Product weight 0.8 kg Functionality Basic Specific application Commercial equipment Variable speed drive application selection Textile: ironing Motor power range AC-3 0.551 kW at 200240 V 1 phase	Acceleration and deceleration ramps	
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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 ²⁴ Frequency resolution 0.1 Hz display unit Converter A/D, 10 bits analog input 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 Product weight 5 specific application Commercial equipment Variable speed drive application selection Commercial equipment: mixer Commercial equipment: mixer Commercial equipment: other application Motor power range AC-3 0.551 kW at 200240 V 1 phase	Braking to standstill	By DC injection 0.130 s
Converter A/D, 10 bits analog input 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 Product weight 0.8 kg Functionality Basic Specific application Variable speed drive application selection Motor power range AC-3 October A/D, 10 bits analog input 20 ms +/- 1 ms for reference change CE Cemmander Commander Co	Protection type	Line supply undervoltage Overcurrent between output phases and earth Overheating protection Short-circuit between motor phases Against input phase loss in three-phase
Marking CE Operating position Vertical +/- 10 degree Height 143 mm Width 72 mm Depth 131.2 mm Product weight 5 unctionality Basic Specific application Commercial equipment Variable speed drive application selection Motor power range AC-3 CE CE CE CE CE CE CE CE CE C	Frequency resolution	• •
Operating position Vertical +/- 10 degree Height 143 mm Width 72 mm Depth 131.2 mm Product weight Functionality Basic Specific application Commercial equipment Variable speed drive application selection Commercial equipment: mixer Commercial equipment: other application Textile: ironing Motor power range AC-3 O.551 kW at 200240 V 1 phase	Time constant	20 ms +/- 1 ms for reference change
Height 143 mm Width 72 mm Depth 131.2 mm Product weight 0.8 kg Functionality Basic Specific application Commercial equipment Variable speed drive application selection Commercial equipment : mixer Commercial equipment : other application Textile : ironing Motor power range AC-3 0.551 kW at 200240 V 1 phase	Marking	CE
Width 72 mm Depth 131.2 mm Product weight 0.8 kg Functionality Basic Specific application Commercial equipment Variable speed drive application selection Commercial equipment : mixer Commercial equipment : other application Textile : ironing Motor power range AC-3 0.551 kW at 200240 V 1 phase	Operating position	Vertical +/- 10 degree
Depth 131.2 mm Product weight 0.8 kg Functionality Basic Specific application Commercial equipment Variable speed drive application selection Commercial equipment : mixer Commercial equipment : other application Textile : ironing Motor power range AC-3 0.551 kW at 200240 V 1 phase	Height	143 mm
Product weight 0.8 kg Functionality Basic Specific application Commercial equipment Variable speed drive application selection Commercial equipment : mixer Commercial equipment : other application Textile : ironing Motor power range AC-3 0.551 kW at 200240 V 1 phase	Width	72 mm
Functionality Basic Specific application Commercial equipment Variable speed drive application selection Commercial equipment : mixer Commercial equipment : other application Textile : ironing Motor power range AC-3 0.551 kW at 200240 V 1 phase	Depth	131.2 mm
Specific application Commercial equipment Variable speed drive application selection Commercial equipment : mixer Commercial equipment : other application Textile : ironing Motor power range AC-3 0.551 kW at 200240 V 1 phase	Product weight	0.8 kg
Variable speed drive application selection Commercial equipment : mixer Commercial equipment : other application Textile : ironing Motor power range AC-3 0.551 kW at 200240 V 1 phase	Functionality	Basic
Commercial equipment : other application Textile : ironing Motor power range AC-3 0.551 kW at 200240 V 1 phase	Specific application	Commercial equipment
	Variable speed drive application selection	Commercial equipment : other application
Motor starter type Variable speed drive	Motor power range AC-3	0.551 kW at 200240 V 1 phase
	Motor starter type	Variable speed drive

Environment

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



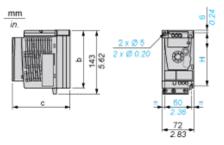
	Radiated radio-frequency electromagnetic field immunity test level 3 EN/IEC 61000-4-3 Immunity to conducted disturbances level 3 EN/IEC 61000-4-6 Surge immunity test level 3 EN/IEC 61000-4-5 Voltage dips and interruptions immunity test EN/IEC 61000-4-11
electromagnetic emission	Radiated emissions environment 1 category C2 EN/IEC 61800-3 216 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 <= 5 m Conducted emissions with integrated EMC filter environment 1 category C2 EN/IEC 61800-3 212 kHz shielded motor cable <= 5 m Conducted emissions with integrated EMC filter environment 1 category C2 EN/IEC 61800-3 2, 4 and 16 kHz shielded motor cable <= 10 m Conducted emissions with additional EMC filter environment 1 category C1 EN/IEC 61800-3 412 kHz shielded motor cable <= 20 m Conducted emissions with additional EMC filter environment 1 category C2 EN/IEC 61800-3 412 kHz shielded motor cable <= 50 m Conducted emissions with additional EMC filter environment 2 category C3 EN/IEC 61800-3 412 kHz shielded motor cable <= 50 m
product certifications	CSA C-Tick GOST NOM UL
vibration resistance	1 gn EN/IEC 60068-2-6 13200 Hz 1.5 mm peak to peak EN/IEC 60068-2-6 313 Hz drive unmounted on symmetrical DIN rail
shock resistance	15 gn EN/IEC 60068-2-27 11 ms
relative humidity	595 % without condensation IEC 60068-2-3 595 % without dripping water IEC 60068-2-3
ambient air temperature for storage	-2570 °C
ambient air temperature for operation	4060 °C with current derating 2.2 % per °C -1040 °C protective cover from the top of the drive removed
operating altitude	<= 1000 m without derating > 10002000 m with current derating 1 % per 100 m

Offer Sustainability

Sustainable offer status	Green Premium product
RoHS (date code: YYWW)	Compliant - since 0901 - Schneider Electric declaration of conformity
REACh	Reference not containing SVHC above the threshold
Product environmental profile	Available
Product end of life instructions	Available

Dimensions

Drive without EMC Conformity Kit



Dimensions in mm

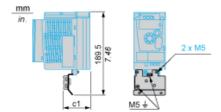
b	С	Н		
130	131.2	120		

Dimensions in in.

b	С	Н
5.12	5.16	4.72

Drive with EMC Conformity Kit





Dimensions in mm

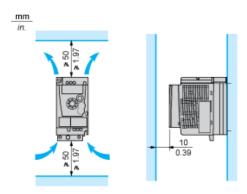


Dimensions in in.

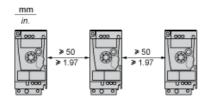


Mounting Recommendations

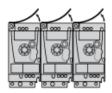
Clearance for Vertical Mounting



Mounting Type A

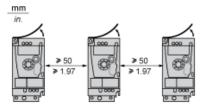


Mounting Type B



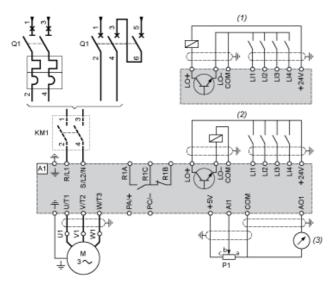
Remove the protective cover from the top of the drive.

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

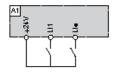
(1) Negative logic (Sink)

(2) Positive logic (Source) (factory set configuration)

(3) 0...10 V or 0...20 mA

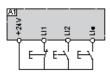
Recommended Schemes

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



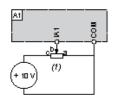
LI1 : Forward
LI• : Reverse
A1 : Drive

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



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

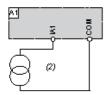
Analog Input Configured for Voltage with Internal Power Supply



(1) 2.2 k Ω ...10 k Ω reference potentiometer

A1 · Drive

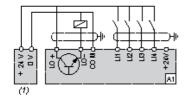
Analog Input Configured for Current with Internal Power Supply



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

A1: Drive

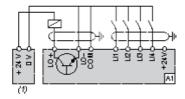
Connected as Positive Logic (Source) with External 24 vdc Supply



(1) 24 vdc supply

A1: Drive

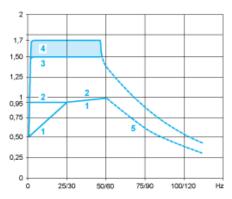
Connected as Negative Logic (Sink) with External 24 vdc supply



(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.

Our Proposal: Circuit Breaker + Contactor + Drive for Motor Power 0,75 kW and 200 VAC

Motor Power (kW)	lcu (kA)	Breaker	Contactor (*)	Motor Starter

0,75 15 GV2ME16 LC1K1210P7 ATV12H075M2

Non contractual pictures.

(*) You can select the contactor proposed or variants. Please consider examples hereafter or follow the link to the complete offer.

Motor Power kW	Coil voltage VAC - 50/60 Hz	24	48	110	115	220	230	400	Other
0,75	LC1K1210	B7	E7	F7	FE7	M7	P7	V7	Complete Offer

Motor Power kW	Coil voltage VDC - U 0.751.25 Uc	24	48	Other
0,75	LP1K1210	BD	ED	Complete Offer
Motor Power kW	Coil voltage Low Consumption VDC - U 0.81.25 Uc	24	110	Other
0,75	LP4K1210	BW3	FW3	Complete Offer