Specifications





variable speed drive, Altivar 212, 22kW, 30hp, 240V, 3 phases, without EMC, IP21

ATV212HD22M3X

! Discontinued on: Mar 31, 2024

① To be discontinued

Product availability: Stock - Normally stocked in distribution facility

Price\*: 3,750.00 USD

## Main

Device Short Name	ATV212
Product Destination	Asynchronous motors
Phase	3 phase
Motor Power Kw	22 kW
Maximum Horse Power Rating	30 hp
Supply Voltage Limits	170264 V
Supply Frequency	5060 Hz - 55 %
Line Current	66.4 A 240 V 80.4 A 200 V
Range Of Product	Altivar 212
Product Or Component Type	Variable speed drive
Product Specific Application	Pumps and fans in HVAC
Communication Port Protocol	APOGEE FLN Modbus LonWorks BACnet METASYS N2
[Us] Rated Supply Voltage	200240 V - 1510 %
Emc Filter	Without EMC filter
Ip Degree Of Protection	IP21

# Complementary

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Apparent Power	33.5 kVA 240 V
Continuous Output Current	88 A 230 V
Maximum Transient Current	96.8 A 60 s
Speed Drive Output Frequency	0.5200 Hz
Speed Range	110
Speed Accuracy	+/- 10 % of nominal slip 0.2 Tn to Tn
Local Signalling	for DC bus energized 1 LED (red)
Output Voltage	<= power supply voltage
Isolation	Electrical between power and control

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

Type Of Cable	Without mounting kit 1 IEC cable 113 °F (45 °C), copper 90 °C / XLPE/EPR Without mounting kit 1 IEC cable 113 °F (45 °C), copper 70 °C / PVC With UL Type 1 kit 3 UL 508 cable 104 °F (40 °C), copper 75 °C / PVC					
Electrical Connection	VIA, VIB, FM, FLA, FLB, FLC, RY, RC, F, R, RES terminal 0.00 in <sup>2</sup> (2.5 mm <sup>2</sup> ) / AWG 14					
	L1/R, L2/S, L3/T terminal 0.08 in <sup>2</sup> (50 mm <sup>2</sup> ) / AWG 1/0					
Tightening Torque	5.31 lbf.in (0.6 N.m) VIA, VIB, FM, FLA, FLB, FLC, RY, RC, F, R, RES) 212.42 lbf.in (24 N.m), 212 lb.in L1/R, L2/S, L3/T)					
Supply	Internal supply for reference potentiometer (1 to 10 kOhm) 10.5 V DC +/- 5 %, <10 A overload and short-circuit protection Internal supply 24 V DC 2127 V), <200 A overload and short-circuit protection					
Sampling Duration	2 ms +/- 0.5 ms F discrete 2 ms +/- 0.5 ms R discrete 2 ms +/- 0.5 ms RES discrete 3.5 ms +/- 0.5 ms VIA analog 22 ms +/- 0.5 ms VIB analog					
Response Time	FM 2 ms +/- 0.5 ms analog FLA, FLC 7 ms +/- 0.5 ms discrete FLB, FLC 7 ms +/- 0.5 ms discrete RY, RC 7 ms +/- 0.5 ms discrete					
Accuracy	+/- 0.6 % VIA) for a temperature variation 60 °C +/- 0.6 % VIB) for a temperature variation 60 °C +/- 1 % FM) for a temperature variation 60 °C					
Linearity Error	VIA +/- 0.15 % of maximum value input VIB +/- 0.15 % of maximum value input FM +/- 0.2 % output					
Analogue Output Type	FM switch-configurable voltage 010 V DC 7620 Ohm 10 bits FM switch-configurable current 020 mA 970 Ohm 10 bits					
Discrete Output Type	Configurable relay logic FLA, FLC) NO - 100000 cycles Configurable relay logic FLB, FLC) NC - 100000 cycles Configurable relay logic RY, RC) NO - 100000 cycles					
Minimum Switching Current	3 mA 24 V DC configurable relay logic					
Maximum Switching Current	5 A 250 V AC resistive cos phi = 1 L/R = 0 ms FL, R) 5 A 30 V DC resistive cos phi = 1 L/R = 0 ms FL, R) 2 A 250 V AC inductive cos phi = 0.4 L/R = 7 ms FL, R) 2 A 30 V DC inductive cos phi = 0.4 L/R = 7 ms FL, R)					
Discrete Input Type	F programmable 24 V DC level 1 PLC 4700 Ohm R programmable 24 V DC level 1 PLC 4700 Ohm RES programmable 24 V DC level 1 PLC 4700 Ohm					
Discrete Input Logic	Positive logic (source) F, R, RES), <= 5 V, >= 11 V Negative logic (sink) F, R, RES), >= 16 V, <= 10 V					
Dielectric Strength	2830 V DC between earth and power terminals 4230 V DC between control and power terminals					
Insulation Resistance	>= 1 mOhm 500 V DC for 1 minute					
Frequency Resolution	Display unit 0.1 Hz Analog input 0.024/50 Hz					
Communication Service	Write multiple registers (16) 2 words maximum Time out setting from 0.1 to 100 s Write single register (06) Monitoring inhibitable Read device identification (43) Read holding registers (03) 2 words maximum					
Option Card	Communication card LonWorks					
Power Dissipation In W	763 W					
Air Flow	68950.14 Gal/hr(US) (261 m3/h)					
Specific Application	HVAC					

Variable Speed Drive Application Selection	Building - HVAC compressor for scroll Building - HVAC fan Building - HVAC pump		
Motor Power Range Ac-3	1525 kW 200240 V 3 phase		
Motor Starter Type	Variable speed drive		
Discrete Output Number	2		
Analogue Input Number	2		
Analogue Input Type	VIA switch-configurable voltage 010 V DC 24 V max 30000 Ohm 10 bits VIB configurable voltage 010 V DC 24 V max 30000 Ohm 10 bits VIB configurable PTC probe 06 probes 1500 Ohm VIA switch-configurable current 020 mA 250 Ohm 10 bits		
Analogue Output Number	1		
Physical Interface	2-wire RS 485		
Connector Type	1 open style 1 RJ45		
Transmission Rate	9600 bps or 19200 bps		
Transmission Frame	RTU		
Number Of Addresses	1247		
Data Format	8 bits, 1 stop, odd even or no configurable parity		
Type Of Polarization	No impedance		
Asynchronous Motor Control Profile	Voltage/frequency ratio, automatic IR compensation (U/f + automatic Uo) Voltage/frequency ratio, 5 points Flux vector control without sensor, standard Voltage/frequency ratio, 2 points Voltage/frequency ratio - Energy Saving, quadratic U/f		
Torque Accuracy	+/- 15 %		
Transient Overtorque	120 % of nominal motor torque +/- 10 % 60 s		
Acceleration And Deceleration Ramps	Automatic based on the load Linear adjustable separately from 0.01 to 3200 s		
Motor Slip Compensation	Automatic whatever the load Adjustable Not available in voltage/frequency ratio motor control		
Switching Frequency	616 kHz adjustable 816 kHz with derating factor		
Nominal Switching Frequency	8 kHz		
Braking To Standstill	By DC injection		
Network Frequency	47.563 Hz		
Prospective Line Isc	22 kA		
Protection Type	Overheating protection drive Thermal power stage drive Short-circuit between motor phases drive Input phase breaks drive Overcurrent between output phases and earth drive Overvoltages on the DC bus drive Break on the control circuit drive Against exceeding limit speed drive Line supply overvoltage and undervoltage drive Line supply undervoltage drive Against input phase loss drive Thermal protection motor Motor phase break motor With PTC probes motor		
Width	9.45 in (240 mm)		
Height	16.54 in (420 mm)		

Depth	8.43 in (214 mm)			
Net Weight	60.41 lb(US) (27.4 kg)			
Environment				
Pollution Degree	3 IEC 61800-5-1			
Ip Degree Of Protection	IP20 on upper part without blanking plate on cover IEC 61800-5-1 IP20 on upper part without blanking plate on cover IEC 60529 IP21 IEC 61800-5-1 IP21 IEC 60529 IP41 on upper part IEC 61800-5-1 IP41 on upper part IEC 60529			
Vibration Resistance	1.5 mm 313 Hz)IEC 60068-2-6 1 gn 13200 Hz)EN/IEC 60068-2-8			
Shock Resistance	15 gn 11 ms IEC 60068-2-27			
Environmental Characteristic	Classes 3C1 IEC 60721-3-3 Classes 3S2 IEC 60721-3-3			
Noise Level	59.9 dB 86/188/EEC			
Operating Altitude	3280.849842.52 ft (10003000 m) limited to 2000 m for the Corner Grounded distribution network with current derating 1 % per 100 m <= 3280.84 ft (1000 m) without derating			
Relative Humidity	595 % without condensation IEC 60068-2-3 595 % without dripping water IEC 60068-2-3			
Ambient Air Temperature For Operation	14104 °F (-1040 °C) without derating) 104122 °F (4050 °C) with derating factor)			
Operating Position	Vertical +/- 10 degree			
Product Certifications	NOM 117 UL C-tick CSA			
	CE			
Standards	IEC 61800-3 environments 2 category C1 IEC 61800-3 environments 1 category C1 IEC 61800-3 environments 1 category C1 IEC 61800-3 environments 2 category C2 IEC 61800-3 environments 1 category C2 IEC 61800-3 environments 1 category C2 IEC 61800-3 environments 1 category C2 IEC 61800-3 environments 2 category C3 IEC 61800-3 environments 2 category C3 IEC 61800-3 environments 1 category C3 IEC 61800-3 environments 1 category C3 IEC 61800-3 environments 1 category C3 IEC 61800-3 environments 2 category C3 IEC 61800-3 environments 1 category C3 IEC 61800-3 environments 1 category C3 IEC 61800-3 environments 1 category C2 IEC 61800-3 environments 2 category C2 IEC 61800-3 environments 1 category C1			
Assembly Style	With heat sink			
Electromagnetic Compatibility	Electrostatic discharge immunity test level 3 IEC 61000-4-2 Radiated radio-frequency electromagnetic field immunity test level 3 IEC 61000-4-3 Electrical fast transient/burst immunity test level 4 IEC 61000-4-4 1.2/50 µs - 8/20 µs surge immunity test level 3 IEC 61000-4-5 Conducted radio-frequency immunity test level 3 IEC 61000-4-6 Voltage dips and interruptions immunity test IEC 61000-4-11			
Demolation Land				

# Ordering and shipping details

Adjustable PI regulator

-13...158 °F (-25...70 °C)

Regulation Loop

Ambient Air Temperature For Storage

Category	US1CP4D22156
Discount Schedule	CP4D
Gtin	3606480322426
Returnability	Yes
Country Of Origin	US

# **Packing Units**

Unit Type Of Package 1	PCE
Number Of Units In Package 1	1
Package 1 Height	14.37 in (36.5 cm)
Package 1 Width	15.55 in (39.5 cm)
Package 1 Length	23.62 in (60.0 cm)
Package 1 Weight	55.12 lb(US) (25.0 kg)

# **Contractual warranty**

Warranty 18 months

# Sustainability Green Premium

**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 >





Transparency RoHS/REACh

# Well-being performance



Mercury Free



Rohs Exemption Information

Yes

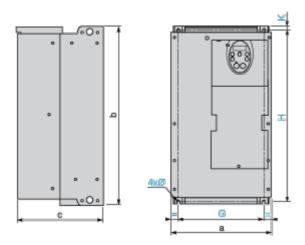
# **Certifications & Standards**

Reach Regulation	REACh Declaration
Eu Rohs Directive	Pro-active compliance (Product out of EU RoHS legal scope)
China Rohs Regulation	China RoHS declaration
Environmental Disclosure	Product Environmental Profile
Weee	The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins.
Weee Circularity Profile	

# ATV212HD22M3X

# **Dimensions Drawings**

## **Dimensions**



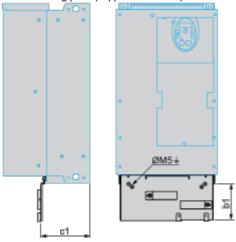
#### Dimensions in mm

Dillie	11510115 111 111111							
ΑTV	/212H	а	b	С	G	Н	K	Ø
	M3X N4, D30N4	240	420	214	206	403	10	6
D37	N4, D45N4	240	550	244	206	529	10	6

# Dimensions in in

Dimensions in in.							
ATV212H	а	b	С	G	Н	K	Ø
D22M3X D22N4, D30N4	9.45	16.54	8.43	8.11	15.87	0.39	0.24
D37N4, D45N4	9.45	21.65	9.60	8.11	20.83	0.39	0.24

## EMC mounting plate (supplied with drive)



#### Dimensions in mm

ATV212H	b1	c1
D22M3X D22N4, D30N4	122	120
D37N4, D45N4	113	127

# Product data sheet ATV212HD22M3X

Dimensions in in.

ATV212H	b1	c1
D22M3X D22N4, D30N4	4.80	4.72
D37N4, D45N4	4.45	5.00

# ATV212HD22M3X

## Mounting and Clearance

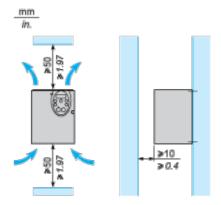
# **Mounting Recommendations**

#### Clearance

Depending on the conditions in which the drive is to be used, its installation will require certain precautions and the use of appropriate accessories.

Install the unit vertically:

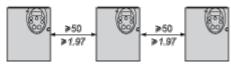
- Do not place it close to heating elements.
- Leave sufficient free space to ensure that the air required for cooling purposes can circulate from bottom to the top of the unit.

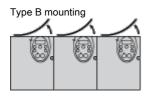


## **Mounting Types**

## Type A mounting

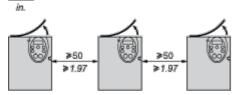






#### Type C mounting





By removing the protective blanking cover from the top of the drive, the degree of protection for the drive becomes IP21. The protective blanking cover may vary according to the drive model, see opposite.

# ATV212HD22M3X

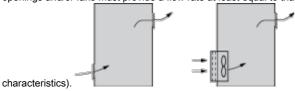
#### Specific Recommendations for Mounting in an Enclosure

To help ensure proper air circulation in the drive:

• Fit ventilation grilles.

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• Check that there is sufficient ventilation. If there is not, install a forced ventilation unit with a filter. The openings and/or fans must provide a flow rate at least equal to that of the drive fans (refer to the product



- Use special filters with UL Type 12/IP54 protection.
- Remove the blanking cover from the top of the drive.

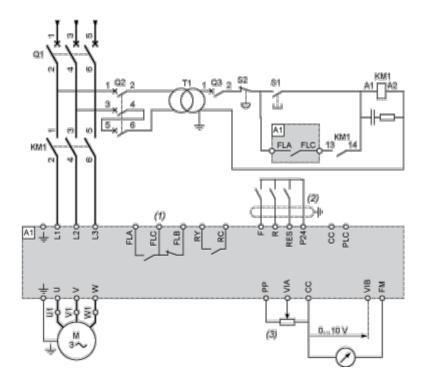
#### Sealed Metal Enclosure (IP54 Degree of Protection)

The drive must be mounted in a dust and damp proof enclosure in certain environmental conditions, such as dust, corrosive gases, high humidity with risk of condensation and dripping water, splashing liquid, etc. This enables the drive to be used in an enclosure where the maximum internal temperature reaches 50°C.

#### Connections and Schema

#### **Recommended Wiring Diagram**

#### 3-Phase Power Supply



A1: ATV 212 drive

KM1: Contactor

Q1: Circuit breaker

Q2: GV2 L rated at twice the nominal primary current of T1

Q3: GB2CB05

S1, S2: XB4 B or XB5 A pushbuttons

T1: 100 VA transformer 220 V secondary

- (1) Fault relay contacts for remote signalling of the drive status
- (2) Connection of the common for the logic inputs depends on the positioning of the switch (Source, PLC, Sink)
- (3) Reference potentiometer SZ1RV1202

**NOTE:** All terminals are located at the bottom of the drive. Install interference suppressors on all inductive circuits near the drive or connected on the same circuit, such as relays, contactors, solenoid valves, fluorescent lighting, etc.

#### **Switches (Factory Settings)**

Voltage/current selection for analog I/O (VIA and VIB)



Voltage/current selection for analog I/O (FM)



# ATV212HD22M3X

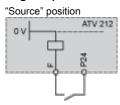
Selection of logic type PLC

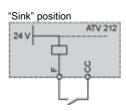
Sink Source (2)

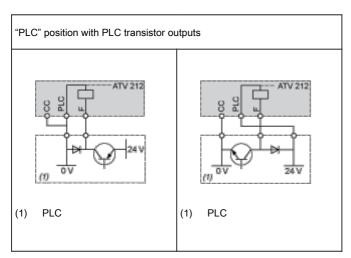
- (1) negative logic
- (2) positive logic

# **Other Possible Wiring Diagrams**

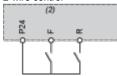
## Logic Inputs According to the Position of the Logic Type Switch





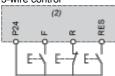


## 2-wire control



- F: Forward
- R: Preset speed
- (2) ATV 212 control terminals

3-wire control

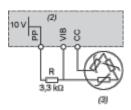


- F: Forward
- R: Stop
- RES: Reverse
- (2) ATV 212 control terminals

PTC probe

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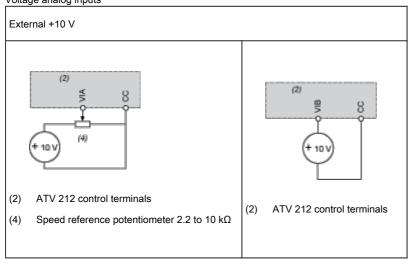
# ATV212HD22M3X



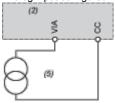
- (2) ATV 212 control terminals
- (3) Motor

## **Analog Inputs**

Voltage analog inputs

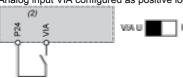


Analog input configured for current: 0-20 mA, 4-20 mA, X-Y mA



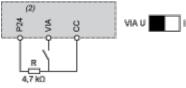
- (2) ATV 212 control terminals
- (5) Source 0-20 mA, 4-20 mA, X-Y mA

Analog input VIA configured as positive logic input ("Source" position)



(2) ATV 212 control terminals

Analog input VIA configured as negative logic input ("Sink" position)



(2) ATV 212 control terminals

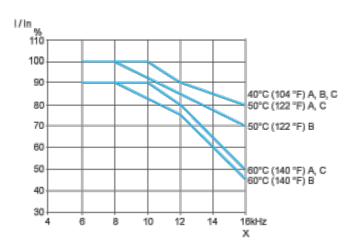
# ATV212HD22M3X

#### Performance Curves

## **Derating Curves**

The derating curves for the drive nominal current (In) depend on the temperature, the switching frequency and the mounting type (A, B or C).

For intermediate temperatures (45°C for example), interpolate between 2 curves.



#### X Switching frequency