Specification





variable speed drive ATV212 - 22kW - 30hp - 480V - 3ph - EMC class C1 - IP55

ATV212WD22N4C

Main

Device Short Name	ATV212					
Product Destination	Asynchronous motors					
Network Number Of Phases	3 phases					
Motor Power Kw	2 kW					
Motor Power Hp	30 hp					
Supply Voltage Limits	323528 V					
Supply Frequency	5060 Hz - 55 %					
Line Current	33.1 A at 480 V 41.1 A at 380 V					
Range Of Product	Altivar 212					
Product Or Component Type	Variable speed drive					
Product Specific Application	Pumps and fans in HVAC					
Communication Port Protocol	Modbus METASYS N2 BACnet LonWorks APOGEE FLN					
[Us] Rated Supply Voltage	380480 V - 1510 %					
Emc Filter	Class C1 EMC filter integrated					
Ip Degree Of Protection	IP55					

Complementary

Apparent Power	33.2 kVA at 380 V					
Continuous Output Current	43.5 A at 380 V 43.5 A at 460 V					
Maximum Transient Current	47.9 A for 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	1 LED (red) for DC bus energized					
Output Voltage	<= power supply voltage					
Isolation	Electrical between power and control					
Type Of Cable	Without mounting kit: 1 wire(s)IEC cable at 45 °C, copper 90 °C / XLPE/EPR Without mounting kit: 1 wire(s)IEC cable at 45 °C, copper 70 °C / PVC With UL Type 1 kit: 3 wire(s)UL 508 cable at 40 °C, copper 75 °C / PVC					

Electrical Connection	VIA, VIB, FM, FLA, FLB, FLC, RY, RC, F, R, RES: terminal 2.5 mm² / AWG 14 L1/R, L2/S, L3/T: terminal 25 mm² / AWG 3 U/T1, V/T2, W/T3: terminal 50 mm² / AWG 1/0 0.6 N.m (VIA, VIB, FM, FLA, FLB, FLC, RY, RC, F, R, RES) 4.3 N.m, 38 lb.in (L1/R, L2/S, L3/T) 24 N.m, 212 lb.in (U/T1, V/T2, W/T3)						
Tightening Torque							
Supply	Internal supply for reference potentiometer (1 to 10 kOhm): 10.5 V DC +/- 5 %, <10 A, protection type: overload and short-circuit protection Internal supply: 24 V DC (2127 V), <200 A, protection type: 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, tolerance +/- 0.5 ms for analog output(s) FLA, FLC 7 ms, tolerance +/- 0.5 ms for discrete output(s) FLB, FLC 7 ms, tolerance +/- 0.5 ms for discrete output(s) RY, RC 7 ms, tolerance +/- 0.5 ms for discrete output(s)						
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 for input VIB: +/- 0.15 % of maximum value for input FM: +/- 0.2 % for output						
Analogue Output Type	FM switch-configurable voltage 010 V DC, impedance: 7620 Ohm, resolution 10 bits FM switch-configurable current 020 mA, impedance: 970 Ohm, resolution 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 at 24 V DC for configurable relay logic						
Maximum Switching Current	5 A at 250 V AC on resistive load - cos phi = 1 - L/R = 0 ms (FL, R) 5 A at 30 V DC on resistive load - cos phi = 1 - L/R = 0 ms (FL, R) 2 A at 250 V AC on inductive load - cos phi = 0.4 - L/R = 7 ms (FL, R) 2 A at 30 V DC on inductive load - cos phi = 0.4 - L/R = 7 ms (FL, R)						
Discrete Input Type	F programmable 24 V DC, with level 1 PLC, impedance: 4700 Ohm R programmable 24 V DC, with level 1 PLC, impedance: 4700 Ohm RES programmable 24 V DC, with level 1 PLC, impedance: 4700 Ohm						
Discrete Input Logic	Positive logic (source) (F, R, RES), <= 5 V (state 0), >= 11 V (state 1) Negative logic (sink) (F, R, RES), >= 16 V (state 0), <= 10 V (state 1)						
Dielectric Strength	3535 V DC between earth and power terminals 5092 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	Monitoring inhibitable Read device identification (43) Write single register (06) Time out setting from 0.1 to 100 s Read holding registers (03) 2 words maximum Write multiple registers (16) 2 words maximum						
Option Card	Communication card for LonWorks						
Specific Application	HVAC						
Discrete Output Number	2						
Analogue Input Number	2						

Analogue Input Type	VIA switch-configurable voltage: 010 V DC 24 V max, impedance: 30000 Ohm, resolution 10 bits VIB configurable voltage: 010 V DC 24 V max, impedance: 30000 Ohm, resolution 10 bits VIB configurable PTC probe: 06 probes, impedance: 1500 Ohm VIA switch-configurable current: 020 mA, impedance: 250 Ohm, resolution 10 bits						
Analogue Output Number	1						
Physical Interface	2-wire RS 485						
Connector Type	1 RJ45 1 open style						
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, 5 points Voltage/frequency ratio, automatic IR compensation (U/f + automatic Uo) Voltage/frequency ratio - Energy Saving, quadratic U/f Flux vector control without sensor, standard Voltage/frequency ratio, 2 points						
Torque Accuracy	+/- 15 %						
Transient Overtorque	120 % of nominal motor torque +/- 10 % for 60 s						
Acceleration And Deceleration Ramps	Linear adjustable separately from 0.01 to 3200 s Automatic based on the load						
Motor Slip Compensation	Automatic whatever the load Not available in voltage/frequency ratio motor control Adjustable						
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	284 mm						
Height	720 mm						
Depth	315 mm						
 Net Weight	58.5 kg						

Environment

Pollution Degree 3 conforming to IEC 61800-5-1

Ip Degree Of Protection	IP55 conforming to IEC 61800-5-1 IP55 conforming to IEC 60529						
Vibration Resistance	1.5 mm (f= 313 Hz) conforming to IEC 60068-2-6 1 gn (f= 13200 Hz) conforming to EN/IEC 60068-2-8						
Shock Resistance	15 gn for 11 ms conforming to IEC 60068-2-27						
Environmental Characteristic	Classes 3C1 conforming to IEC 60721-3-3 Classes 3S2 conforming to IEC 60721-3-3						
Noise Level	59.9 dB conforming to 86/188/EEC						
Operating Altitude	10003000 m limited to 2000 m for the Corner Grounded distribution network with current derating 1 % per 100 m <= 1000 m without derating						
Relative Humidity	595 % without condensation conforming to IEC 60068-2-3 595 % without dripping water conforming to IEC 60068-2-3						
Ambient Air Temperature For Operation	-1040 °C (without derating) 4050 °C (with derating factor)						
Operating Position	Vertical +/- 10 degree						
Product Certifications	UL NOM 117 C-Tick CSA						
Marking	CE						
	IEC 61800-3 environments 2 category C3 IEC 61800-3 environments 1 category C1 IEC 61800-3 IEC 61800-3 environments 1 category C1 IEC 61800-5-1 IEC 61800-3 environments 2 category C1 EN 55011 group 1 class B IEC 61800-3 IEC 61800-3 environments 1 category C2 IEC 61800-3 environments 1 category C2 IEC 61800-3 category C1 IEC 61800-3 category C1 IEC 61800-3 environments 1 category C3 IEC 61800-3 environments 2 category C2 IEC 61800-3 environments 2 category C2 IEC 61800-3 environments 2 category C2 IEC 61800-3 environments 2 category C1 IEC 61800-3 environments 2 category C1 IEC 61800-3 environments 2 category C3 IEC 61800-3 environments 2 category C3 IEC 61800-3 environments 2 category C1 IEC 61800-3 environments 2 category C1 IEC 61800-3 environments 2 category C1						
Assembly Style	With heat sink						
Electromagnetic Compatibility	Electrostatic discharge immunity test level 3 conforming to IEC 61000-4-2 Radiated radio-frequency electromagnetic field immunity test level 3 conforming to IEC 61000-4-3 Electrical fast transient/burst immunity test level 4 conforming to IEC 61000-4-4 1.2/50 µs - 8/20 µs surge immunity test level 3 conforming to IEC 61000-4-5 Conducted radio-frequency immunity test level 3 conforming to IEC 61000-4-6 Voltage dips and interruptions immunity test conforming to IEC 61000-4-11						
Regulation Loop	Adjustable PI regulator						
Ambient Air Temperature For Storage	-2570 °C						
Packing Units							
Unit Type Of Package 1	PCE						
Number Of Units In Package 1	1						
Package 1 Height	45 cm						
Package 1 Width	44 cm						
Package 1 Length	114 cm						

Package 1 Weight 34 kg

Contractual warranty

Warranty 12 months

Sustainability Screen Premium

Green PremiumTM **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-CO₂ 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

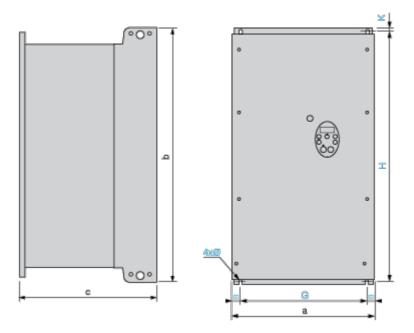
Certifications & Standards

Reach Regulation	Pro-active compliance (Product out of EU RoHS legal scope)				
Eu Rohs Directive					
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				
Circularity Profile	End of Life Information				

ATV212WD22N4C

Dimensions Drawings

Dimensions



Dimensions in mm

ATV212W	а	b	С	G	Н	K	Ø
D11N4, D15N4 D11N4C, D15N4C	290	560	315	250	544	8	6
D18N4 D18N4C	310	665	315	270	650	10	6
D22N4, D30N4 D22N4C, D30N4C	284	720	315	245	700	10	7
D37N4, D45N4 D37N4C, D45N4C	284	880	343	245	860	10	7
D55N4, D75N4 D55N4C, D75N4C	362	1000	364	300	975	10	9

Dimensions in in.

ATV212W	а	b	С	G	Н	K	ø
D11N4, D15N4 D11N4C, D15N4C	11.42	22.05	12.40	9.84	21.42	0.31	0.24
D18N4 D18N4C	12.20	26.18	12.40	10.63	25.59	0.39	0.24
D22N4, D30N4 D22N4C, D30N4C	11.18	28.35	12.40	9.65	27.56	0.39	0.27
D37N4, D45N4 D37N4C, D45N4C	11.18	34.65	13.50	9.65	33.86	0.39	0.27
D55N4, D75N4 D55N4C, D75N4C	14.25	39.37	14.33	11.81	38.39	0.39	0.35

Product datasheet ATV212WD22N4C

ATV212WD22N4C

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

Type A Mounting

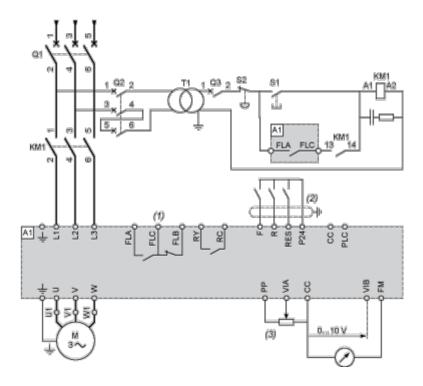




Connections and Schema

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)

VIA U I PTC

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

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ATV212WD22N4C

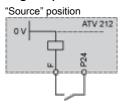
Selection of logic type PLC

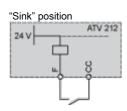
Sink Source (2)

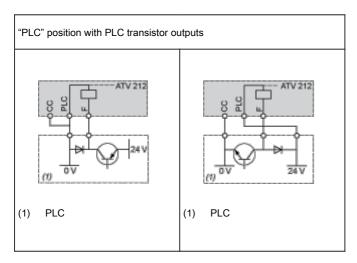
- (1) negative logic
- (2) positive logic

Other Possible Wiring Diagrams

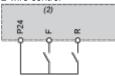
Logic Inputs According to the Position of the Logic Type Switch





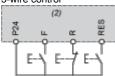


2-wire control



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

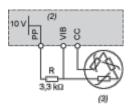
3-wire control



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

PTC probe

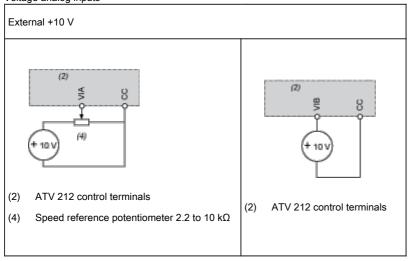
ATV212WD22N4C



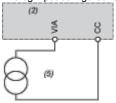
- (2) ATV 212 control terminals
- (3) Motor

Analog Inputs

Voltage analog inputs

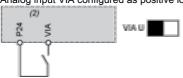


Analog input configured for current: 0-20 mA, 4-20 mA, X-Y mA



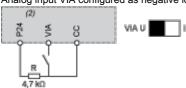
- (2) ATV 212 control terminals
- (5) Source 0-20 mA, 4-20 mA, X-Y mA

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)



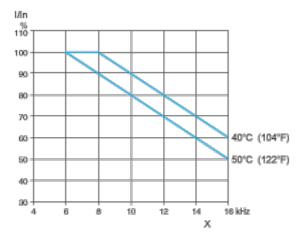
(2) ATV 212 control terminals

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Performance Curves

Derating Curves

The derating curves for the drive nominal current (In) depend on the temperature and the switching frequency. For intermediate temperatures (45°C for example), interpolate between 2 curves.



X Switching frequency

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