Specifications





# variable speed drive ATV212 - 45kW - 60hp - 480V - 3ph - EMC class C2 - IP55

Local distributor code:
398227401 ATV212WD45N4

EAN Code: 3606480322297

## Main

Device Short Name	ATV212					
Product Destination	Asynchronous motors					
Network Number Of Phases	3 phases					
Motor Power Kw	45 kW					
Motor Power Hp	60 hp					
Supply Voltage Limits	323528 V					
Supply Frequency	5060 Hz - 55 %					
Line Current	83.8 A at 380 V 65.9 A at 480 V					
Range Of Product	Altivar 212					
Product Or Component Type	Variable speed drive					
Product Specific Application	Pumps and fans in HVAC					
Communication Port Protocol	BACnet APOGEE FLN Modbus LonWorks METASYS N2					
[Us] Rated Supply Voltage	380480 V - 1510 %					
Emc Filter	Class C2 EMC filter integrated					
Ip Degree Of Protection	IP55					

# Complementary

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Apparent Power	61.9 kVA at 380 V					
Continuous Output Current	94 A at 380 V 94 A at 460 V					
Maximum Transient Current	103.4 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 50 mm² / AWG 1/0					
Tightening Torque	0.6 N.m (VIA, VIB, FM, FLA, FLB, FLC, RY, RC, F, R, RES) 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, 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	Read holding registers (03) 2 words maximum Read device identification (43) Time out setting from 0.1 to 100 s Write multiple registers (16) 2 words maximum Monitoring inhibitable Write single register (06)					
Option Card	Communication card for LonWorks					
Functionality	Mid					
Specific Application	HVAC					
Discrete Output Number	2					
Analogue Input Number	2					

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					
1					
2-wire RS 485					
1 RJ45					
1 open style					
9600 bps or 19200 bps					
RTU					
1247					
8 bits, 1 stop, odd even or no configurable parity					
No impedance					
Flux vector control without sensor, standard					
Voltage/frequency ratio, 2 points Voltage/frequency ratio, 5 points					
Voltage/frequency ratio - Energy Saving, quadratic U/f					
Voltage/frequency ratio, automatic IR compensation (U/f + automatic Uo)					
+/- 15 %					
120 % of nominal motor torque +/- 10 % for 60 s					
Automatic based on the load Linear adjustable separately from 0.01 to 3200 s					
Automatic whatever the load Not available in voltage/frequency ratio motor control Adjustable					
616 kHz adjustable 816 kHz with derating factor					
8 kHz					
By DC injection					
47.563 Hz					
22 kA					
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					
284 mm					
880 mm					
343 mm					

# **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	64 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	NOM 117 C-Tick UL CSA						
Marking	CE						
Assembly Style Electromagnetic Compatibility	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 C1 IEC 61800-3 environments 2 category C1 IEC 61800-3 category C2 EN 55011 class A group 1 IEC 61800-3 environments 1 category C2 IEC 61800-3 environments 1 category C3 IEC 61800-3 environments 2 category C3 IEC 61800-3 environments 2 category C1 EN 61800-3 category C3 IEC 61800-3 category C2 IEC 61800-3 IEC 61800-3 environments 2 category C3 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 1 category C2 IEC 61800-3 environments 1 category C2 IEC 61800-3 environments 1 category C2 IEC 61800-3 environments 1 category C3 IEC 6100-4-2 IEC 6100-4-2 Radiated radio-frequency electromagnetic field immunity test level 3 conforming to IEC 61000-4-4 1.2/50 µs - 8/20 µs surge immunity test level 4 conforming to IEC 61000-4-5 Conducted radio-frequency immunity test level 3 conforming to IEC 61000-4-6						
Bandakan Laur	Voltage dips and interruptions immunity test conforming to IEC 61000-4-11						
Regulation Loop  Ambient Air Temperature For	-2570 °C						
Packing Units							
Unit Type Of Package 1	PCE						
Number Of Units In Package 1	1						
Package 1 Height	46 cm						
Package 1 Width	44 cm						
Package 1 Length	111.4 cm						
Package 1 Weight	44 kg						

# **Logistical informations**

Country Of Origin

FR

# **Contractual warranty**

Warranty

26 Apr 2024

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

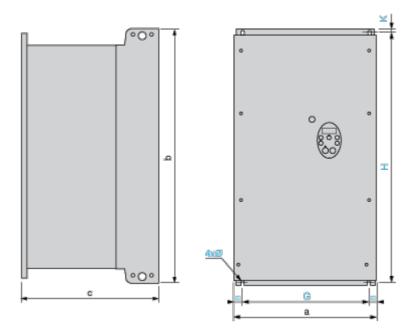
Yes

# **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					
Circularity Profile	End of Life Information					

# **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 ATV212WD45N4

## ATV212WD45N4

#### Mounting and Clearance

## **Mounting Recommendations**

#### Clearance

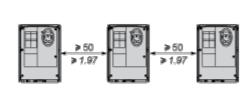
Depending on the conditions in which the drive is to be used, its installation will require certain precautions and the use of appropriate accessories.

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

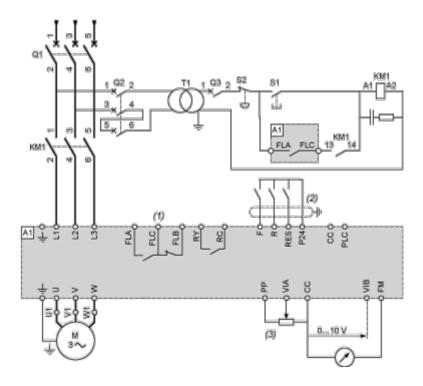




#### Connections and Schema

#### **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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# ATV212WD45N4

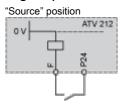
Selection of logic type PLC

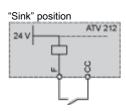
Sink Source (2)

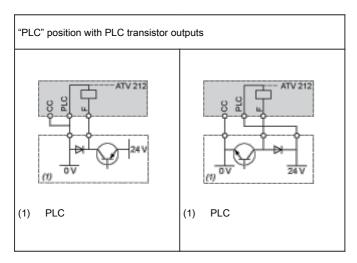
- (1) negative logic
- (2) positive logic

## **Other Possible Wiring Diagrams**

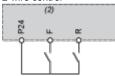
#### Logic Inputs According to the Position of the Logic Type Switch





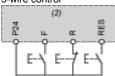


#### 2-wire control



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

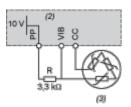
3-wire control



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

PTC probe

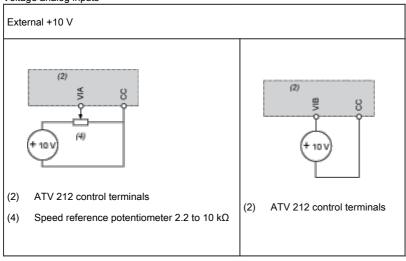
## ATV212WD45N4



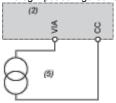
- (2) ATV 212 control terminals
- (3) Motor

#### **Analog Inputs**

Voltage analog inputs

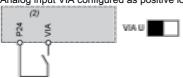


Analog input configured for current: 0-20 mA, 4-20 mA, X-Y mA



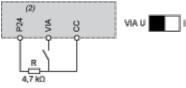
- (2) ATV 212 control terminals
- (5) Source 0-20 mA, 4-20 mA, X-Y mA

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)



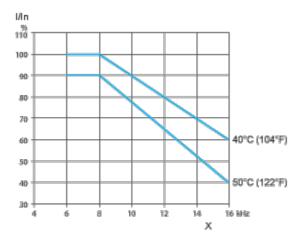
(2) ATV 212 control terminals

# ATV212WD45N4

## 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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