Product data sheet
Characteristics

ATV212WD22N4
variable speed drive, Altivar 212, 22kW, 30hp, 480V, 3 phases, with EMC class C2, IP55



Main

Device short name	ATV212
Product destination	Asynchronous motors
Network number of phases	3 phases
Motor power kW	22 KW
Motor power hp	30 Hp
Supply voltage limits	323…528 V
Supply frequency	50...60 Hz - 5...5 %
Line current	33.1 A at 480 V 41.6 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	METASYS N2 LonWorks BACnet APOGEE FLN Modbus
[Us] rated supply voltage	380...480 V - 15...10 %
EMC filter	Class C2 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	0.5…200 Hz
Speed range	1…10
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 / 14 AWG L1/R, L2/S, L3/T: terminal 50 mm² / 1/0 AWG
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 ty Internal supply: 24 V DC (21…27 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 0...10 V DC, impedance: 7620 Ohm, resolution 10 bits FM switch-configurable current 0...20 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	Write multiple registers (16) 2 words maximum Read device identification (43) Write single register (06) Monitoring inhibitable Read holding registers (03) 2 words maximum Time out setting from 0.1 to 100 s
Option card	Communication card for LonWorks
Functionality	Mid
Specific application	HVAC
Discrete output number	2
Analogue input number	2
Analogue input type	VIA switch-configurable voltage: 0...10 V DC 24 V max, impedance: 30000 Ohm, resolution 10 bits VIB configurable voltage: 0...10 V DC 24 V max, impedance: 30000 Ohm, resolution 10 bits VIB configurable PTC probe: 0...6 probes, impedance: 1500 Ohm VIA switch-configurable current: 0...20 mA, impedance: 250 Ohm, resolution 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	1…247
Data format	8 bits, 1 stop, odd even or no configurable parity
Type of polarization	No impedance
Asynchronous motor control profile	Voltage/Frequency ratio - Energy Saving, quadratic U/f Voltage/Frequency ratio, 5 points Flux vector control without sensor, standard Voltage/Frequency ratio, automatic IR compensation (U/f + automatic Uo) Voltage/Frequency ratio, 2 points
Torque accuracy	+/- 15 %

Transient overtorque	120 % of nominal motor torque +/- 10 % for 60 s
Acceleration and deceleration ramps	Automatic based on the load Linear adjustable separately from 0.01 to 3200 s
Motor slip compensation	Not available in voltage/frequency ratio motor control Automatic whatever the load Adjustable
Switching frequency	6...16 kHz adjustable 8...16 kHz with derating factor
Nominal switching frequency	8 kHz
Braking to standstill	By DC injection
Network frequency	47.5...63 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	49.5 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= 3…13 Hz) conforming to IEC 60068-2-6 1 gn (f= 13…200 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	1000...3000 m limited to 2000 m for the Corner Grounded distribution network with current dera <= 1000 m without derating
Relative humidity	5…95 % without condensation conforming to IEC 60068-2-3 5…95 % without dripping water conforming to IEC 60068-2-3
Ambient air temperature for operation	-10…40 °C (without derating) 40…50 °C (with derating factor)
Operating position	Vertical +/- 10 degree
Product certifications	UL[RETURN]CSA[RETURN]NOM 117[RETURN]C-Tick
Marking	CE
Standards	IEC 61800-5-1 IEC 61800-3 environments 1 category C1 IEC 61800-3 environments 1 category C2 IEC 61800-3 environments 1 category C3 IEC 61800-3 environments 2 category C1 IEC 61800-3 environments 2 category C2 IEC 61800-3 environments 2 category C3 CE UL CSA C-Tick N1831 GOST
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	-25…70 °C

Packing Units

Unit Type of Package 1	PCE
Number of Units in Package 1	1
Package 1 Height	50.000 Cm
Package 1 Width	60.000 Cm
Package 1 Length	120.000 Cm
Package 1 Weight	40.000 Kg

Offer Sustainability

Mercury free	Yes
Sustainable packaging	No
Environmental Disclosure	Product Environmental Profile
Packaging made with recycled cardboard	No
Packaging without single use plastic	Yes
SCIP Number	91c5351a-f7de-4fe3-98f9-eeb2cc54ad0d
REACh Regulation	Reference contains Substances of Very High Concern above the threshold
EU RoHS Directive	Compliant By Exemption
California proposition 65	WARNING: This product can expose you to chemicals including: Lead and lead compounds, which
Product contributes to saved and avoided emissions	Yes
End of life manual availability	End Of Life Information
Take-back	No
WEEE Label	The product must be disposed on European Union markets following specific waste collection and

Contractual warranty

Warranty (in months)	18

Product Life Status : End of commerc. announced

ATV212WD22N4 is replaced by the following product range:



363587046

Variable speed drives up to 250kW (400HP) for reliable performance of HVAC machines, sustainable efficiency of comm

Substitution date: |