ATV212WU55N4CZH28

variable speed drive ATV212 - IP54 - 5-5 kW 3x380 480 V

Main

Range of product	Altivar 212
Product or component type	Variable speed drive
Device short name	ATV212
Product destination	Asynchronous motors
Product specific application	Pumps and fans in HVAC
Assembly style	With heat sink
Network number of phases	3 phases
Motor power kW	5.5 kW
Motor power hp	7.5 hp
[Us] rated supply voltage	380...480 V - 15...10 %
Supply voltage limits	323…528 V
Supply frequency	50...60 Hz - 5...5 %
EMC filter	Class C1 EMC filter integrated
Line current	11 A at 380 V
8.7 A at 480 V

Complementary

Apparent power	9.1 kVA at 380 V
Prospective line Isc	22 kA
Continuous output current	12 A at 380 V
12 A at 460 V
Maximum transient current	13.2 A for 60 s
Speed drive output frequency	0.5…200 Hz
Nominal switching frequency	12 kHz
Switching frequency	6...16 kHz adjustable
12...16 kHz with derating factor
Speed range	1…10
Speed accuracy	+/- 10 % of nominal slip 0.2 Tn to Tn
Torque accuracy	+/- 15 %
Transient overtorque	120 % of nominal motor torque +/- 10 % for 60 s
Asynchronous motor control profile	Flux vector control without sensor, standard
Voltage/Frequency ratio, 5 points
Voltage/Frequency ratio - Energy Saving, quadratic U/f
Voltage/Frequency ratio, automatic IR compensation (U/f + automatic Uo)
Voltage/frequency ratio, 2 points
Regulation loop	Adjustable PI regulator
Motor slip compensation	Automatic whatever the load
Not available in voltage/frequency ratio motor control
Adjustable
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 6 mm² / AWG 10

Tightening torque	1.3 N.M, 11.5 lb.in (L1/R, L2/S, L3/T) 0.6 N.m (VIA, VIB, FM, FLA, FLB, FLC, RY, RC, F, R, RES)
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 (21…27 V), <200 A, protection type: overload and short-circuit protection
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
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 number	1
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 number	2
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)
Acceleration and deceleration ramps	Automatic based on the load Linear adjustable separately from 0.01 to 3200 s
Braking to standstill	By DC injection
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
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 port protocol	METASYS N2 LonWorks Modbus BACnet APOGEE FLN
Connector type	1 RJ45 1 open style
Physical interface	2-wire RS 485
Transmission frame	RTU
Transmission rate	9600 bps or 19200 bps
Data format	8 bits, 1 stop, odd even or no configurable parity
Type of polarization	No impedance
Number of addresses	1…247
Communication service	Read holding registers (03) 2 words maximum Read device identification (43) Monitoring inhibitable Time out setting from 0.1 to 100 s Write multiple registers (16) 2 words maximum Write single register (06)
Option card	Communication card for LonWorks
Operating position	Vertical +/- 10 degree
Width	230 mm
Height	340 mm
Depth	208 mm
Net weight	10.55 kg

Environment

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
Pollution degree	3 conforming to IEC 61800-5-1
IP degree of protection	IP54 conforming to EN/IEC 61800-5-1 IP54 conforming to EN/IEC 60529
Vibration resistance	1.5 mm (f= 3…13 Hz) conforming to EN/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	55 dB conforming to 86/188/EEC
Operating altitude	1000...3000 m limited to 2000 m for the Corner Grounded distribution network with current derating 1 % per 100 m <= 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)
Ambient air temperature for storage	-25…70 °C

Standards	EN 61800-3 environments 2 category C1
	IEC 61800-5-1
	IEC 61800-3 environments 1 category C2
	EN 61800-3 environments 1 category C2
	IEC 61800-3 category C1
	IEC 61800-3 environments 2 category C1
	IEC 61800-3 environments 2 category C2
	EN 55011 group 1 class B
	EN 61800-3 category C1
	IEC 61800-3
	EN 61800-3 environments 1 category C3
	EN 61800-3 environments 1 category C1
	EN 61800-3 environments 2 category C3
	EN 61800-5-1
	EN 61800-3
	EN 61800-3 environments 2 category C2
	IEC 61800-3 environments 1 category C3
	IEC 61800-3 environments 2 category C3
	IEC 61800-3 environments 1 category C1
Product certifications	UL
	NOM 117
	C-Tick
	CSA
Marking	CE