Product data sheet
Characteristics

ATV212HU55M3X
variable speed drive ATV212 - 5.5kW - 7.5hp - 240V - 3ph - wo EMC - IP21

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	200...240 V - 15...10 %
Supply voltage limits	170…264 V
Supply frequency	50...60 Hz - 5...5 %
EMC filter	Without EMC filter
Line current	17.3 A at 240 V 20.8 A at 200 V

Complementary

Apparent power	9.2 KVA at 240 V
Prospective line Isc	22 KA
Continuous output current	24.2 A at 230 V
Maximum transient current	26.6 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	Voltage/Frequency ratio - Energy Saving, quadratic U/f Flux vector control without sensor, standard Voltage/Frequency ratio, 2 points Voltage/Frequency ratio, automatic IR compensation (U/f + automatic Uo) Voltage/Frequency ratio, 5 points
Regulation loop	Adjustable PI regulator
Motor slip compensation	Not available in voltage/frequency ratio motor control Adjustable Automatic whatever the load

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 16 mm² / AWG 6
Tightening torque	0.6 N.M (VIA, VIB, FM, FLA, FLB, FLC, RY, RC, F, R, RES) 2.5 N.M, 22 lb.in (L1/R, L2/S, L3/T)
Supply	Internal supply for reference potentiometer (1 to 10 kOhm): 10.5 V D-C +/- 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, imped-ance: 30000 Ohm, resolution 10 bits VIB configurable voltage: 0...10 V DC 24 V max, impedance: 30000 Ohm, resolu-tion 10 bits VIB configurable PTC probe: 0...6 probes, impedance: 1500 Ohm VIA switch-configurable current: 0...20 mA, impedance: 250 Ohm, resolu-tion 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, resolu-tion 10 bits FM switch-configurable current 0...20 mA, impedance: 970 Ohm, resolu-tion 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	Linear adjustable separately from 0.01 to 3200 s Automatic based on the load
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	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 port protocol	METASYS N2 APOGEE FLN LonWorks BACnet Modbus
Connector type	1 open style 1 RJ45
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 Write multiple registers (16) 2 words maximum Write single register (06) Time out setting from 0.1 to 100 s Monitoring inhibitable Read device identification (43)
Option card	Communication card for LonWorks
Operating position	Vertical +/- 10 degree
Width	180 Mm
Height	232 Mm
Depth	170 Mm
Net weight	6.1 Kg
Power dissipation in W	249 W
Air flow	85 M3/H
Specific application	HVAC
IP degree of protection	IP21
Discrete and process manufacturing	Building - HVAC Compressor for scroll Building - HVAC Fan Building - HVAC Pump
Power range	4…6 KW at 200…240 V 3 phases
Motor starter type	Variable speed drive

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	IP20 on upper part without blanking plate on cover conforming to EN/IEC 61800-5-1 IP20 on upper part without blanking plate on cover conforming to EN/IEC 60529 IP21 conforming to EN/IEC 61800-5-1 IP21 conforming to EN/IEC 60529 IP41 on upper part conforming to EN/IEC 61800-5-1 IP41 on upper part 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	51 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	IEC 61800-3 EN 61800-3 environments 2 category C1 IEC 61800-3 environments 1 category C3 EN 61800-3 environments 1 category C3 IEC 61800-5-1 IEC 61800-3 environments 1 category C1 EN 61800-3 EN 61800-3 environments 2 category C2 EN 61800-3 environments 1 category C1 EN 61800-3 environments 2 category C3 IEC 61800-3 environments 1 category C2 IEC 61800-3 environments 2 category C3 IEC 61800-3 environments 2 category C1 EN 61800-3 environments 1 category C2 EN 61800-5-1 UL Type 1 IEC 61800-3 environments 2 category C2
Product certifications	NOM 117 UL C-Tick CSA
Marking	CE

Packing Units

Unit Type of Package 1	PCE
Number of Units in Package 1	1
Package 1 Weight	5.732 Kg
Package 1 Height	27 Cm
Package 1 width	29.5 Cm
Package 1 Length	23.5 Cm
Unit Type of Package 2	P06
Number of Units in Package 2	10
Package 2 Weight	70.32 Kg
Package 2 Height	80 Cm
Package 2 width	80 Cm
Package 2 Length	60 Cm

Offer Sustainability

Sustainable offer status	Green Premium product
EU RoHS Directive	Pro-active compliance (Product out of EU RoHS legal scope) EU RoHS Declaration
Mercury free	Yes
RoHS exemption information	Yes
China RoHS Regulation	China RoHS Declaration
Environmental Disclosure	Product Environmental Profile
Circularity Profile	End Of Life Information
WEEE	The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins
California proposition 65	WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

Contractual warranty

Warranty	18 months

Product Life Status : Commercialised