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| 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 | 3 kW |
| Motor power hp | 4 hp |
| [Us] rated supply voltage | 380...480 V - 15...10 % |
| Supply voltage limits | 323...528 V |
| Supply frequency | 50...60 Hz - 5...5 % |
| Network frequency | 47.5...63 Hz |
| EMC filter | Class C1 EMC filter integrated |
| Line current | 6.2 A at 380 V 5 A at 480 V |

Complementary

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| Apparent power | 5.5 kVA at 380 V |
| Prospective line I _{sc} | 5 kA |
| Continuous output current | 7.2 A at 380 V 7.2 A at 460 V |
| Maximum transient current | 7.9 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 |

Disclaimer: This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications

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| 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 Voltage/frequency ratio, 5 points Voltage/frequency ratio, automatic IR compensation (U/f + automatic Uo) Flux vector control without sensor, standard Voltage/frequency ratio, 2 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)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 mm ² / AWG 14 L1/R, L2/S, L3/T: terminal 6 mm ² / 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 | Linear adjustable separately from 0.01 to 3200 s Automatic based on the load |

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| 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 Modbus LonWorks APOGEE FLN BACnet |
| 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 | Time out setting from 0.1 to 100 s Read holding registers (03) 2 words maximum Read device identification (43) Write multiple registers (16) 2 words maximum Monitoring inhibitible 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 |
| Specific application | HVAC |
| IP degree of protection | IP55 |

Environment

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| 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 μ s - 8/20 μ s 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 | IP55 conforming to EN/IEC 61800-5-1 IP55 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 |

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| | 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 |
| 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) 40...50 °C (with derating factor) |
| Ambient air temperature for storage | -25...70 °C |
| Standards | IEC 61800-3 environments 1 category C3 EN 61800-3 category C1 EN 61800-3 IEC 61800-3 IEC 61800-3 environments 1 category C1 EN 61800-3 environments 2 category C3 EN 61800-3 environments 1 category C3 EN 55011 group 1 class B IEC 61800-3 category C1 EN 61800-5-1 EN 61800-3 environments 1 category C2 IEC 61800-3 environments 2 category C3 EN 61800-3 environments 2 category C1 EN 61800-3 environments 2 category C2 IEC 61800-3 environments 2 category C1 IEC 61800-5-1 EN 61800-3 environments 1 category C1 IEC 61800-3 environments 1 category C2 IEC 61800-3 environments 2 category C2 |
| Product certifications | C-Tick UL NOM 117 CSA |
| Marking | CE |

Offer Sustainability

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| Sustainable offer status | Green Premium product |
| REACH Regulation | REACH Declaration |
| EU RoHS Directive | Not applicable, out of EU RoHS legal scope |
| 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 |

Contractual warranty

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| Warranty | 18 months |
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