

ATV21HU55N4

variable speed drive - ATV21 - 5.5kW 7.5HP - 480V - EMC filter class A - IP20



Main

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| Range of product | Altivar 21 |
| Product or component type | Variable speed drive |
| Product destination | Asynchronous motors |
| Product specific application | Pumps and fans in HVAC |
| Assembly style | With heat sink |
| Component name | ATV21 |
| EMC filter | Class A EMC filter integrated |
| [Us] rated supply voltage | 380...480 V - 15...10 % |
| Network number of phases | 3 phases |
| Motor power kW | 5,5 kW |
| Motor power hp | 7,5 hp |
| Speed range | 1...10 |
| Transient overtorque | 120 % of nominal motor torque +/- 10 % 60 s |
| Asynchronous motor control profile | Constant voltage/frequency ratio Constant voltage/frequency ratio with automatic IR compensation Current flux vector control (FVC) without speed feedback Energy saving ratio Quadratic voltage/frequency ratio |
| Communication port protocol | Modbus |
| Type of polarization | No impedance |
| IP degree of protection | IP20 on upper part without blanking plate on cover EN/IEC 61800-5-1 IP20 on upper part without blanking plate on cover EN/IEC 60529 IP21 EN/IEC 60529 IP21 EN/IEC 61800-5-1 IP41 on upper part EN/IEC 60529 IP41 on upper part EN/IEC 61800-5-1 |
| Option card | Communication card LonWorks Communication card METASYS N2 Communication card APOGEE FLN Communication card BACnet |

Complementary

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| Supply voltage limits | 323...528 V |
| Supply frequency | 50...60 Hz - 5...5 % |
| Network frequency limits | 47,5...63 Hz |
| Line current | 8,6 A 480 V 10,9 A 380 V |
| Apparent power | 9,1 kVA 380 V |
| Prospective line Isc | 22 kA |
| Continuous output current | 12 A 380/460 V |
| Maximum transient current | 13,2 A 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 |

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| Speed accuracy | +/- 10 % of nominal slip 0.2 Tn to Tn |
| Torque accuracy | +/- 15 % |
| Regulation loop | Adjustable PI regulator |
| Motor slip compensation | Adjustable Automatic whatever the load Not available in voltage/frequency ratio motor control |
| Local signalling | 1 LED red DC bus energized |
| Output voltage | <= power supply voltage |
| Insulation | Electrical between power and control |
| Type of cable | IEC cable without mounting kit 1 45 °C copper 70 °C PVC IEC cable without mounting kit 1 45 °C copper 90 °C XLPE/EPR UL 508 cable with UL Type 1 kit 3 40 °C copper 75 °C PVC |
| Electrical connection | Terminal 2,5 mm ² 14 VIA, VIB, FM, FLA, FLB, FLC, RY, RC, F, R, RES Terminal 6 mm ² 10 L1/R, L2/S, L3/T |
| Tightening torque | 0,6 N.m VIA, VIB, FM, FLA, FLB, FLC, RY, RC, F, R, RES 1,3 N.m 11.5 lb.in L1/R, L2/S, L3/T |
| Supply | Internal supply 24 V DC 21...27 V ≤ 200 mA overload and short-circuit protection Internal supply for reference potentiometer (1 to 10 kOhm) 10.5 V DC +/- 5 % ≤ 10 mA overload and short-circuit protection |
| Analogue input number | 2 |
| Analogue input type | Configurable PTC probe VIB 0...6 probes 1500 Ohm Configurable voltage VIB 0...10 V DC 24 V max 30000 Ohm 11 bits Switch-configurable current VIA 0...20 mA 242 Ohm 11 bits Switch-configurable voltage VIA 0...10 V DC 24 V max 30000 Ohm 11 bits |
| Sampling duration | 2 ms F +/- 0.5 ms discrete 2 ms R +/- 0.5 ms discrete 2 ms RES +/- 0.5 ms discrete 2 ms VIA +/- 0.5 ms analog 2 ms VIB +/- 0.5 ms analog |
| Response time | 2 ms +/- 0.5 ms analog FM 7 ms +/- 0.5 ms discrete FLA, FLC 7 ms +/- 0.5 ms discrete FLB, FLC 7 ms +/- 0.5 ms discrete RY, RC |
| 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 | +/- 0.15 % of maximum value input VIA +/- 0.15 % of maximum value input VIB +/- 0.2 % output FM |
| Analogue output number | 1 |
| Analogue output type | Switch-configurable current FM 0...20 mA 500 Ohm 10 bits Switch-configurable voltage FM 0...10 V DC 470 Ohm 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 24 V DC configurable relay logic |
| Maximum switching current | 2 A 250 V AC inductive cos phi = 0.4 L/R = 7 ms FL, R 2 A 30 V DC inductive cos phi = 0.4 L/R = 7 ms FL, R 5 A 250 V AC resistive cos phi = 1 L/R = 0 ms FL, R 5 A 30 V DC resistive cos phi = 1 L/R = 0 ms FL, R |
| Discrete input type | Programmable F 24 V DC level 1 PLC 3500 Ohm Programmable R 24 V DC level 1 PLC 3500 Ohm Programmable RES 24 V DC level 1 PLC 3500 Ohm |
| Discrete input logic | Negative logic (sink) F, R, RES ≥ 16 V ≤ 10 V Positive logic (source) F, R, RES ≤ 5 V ≥ 11 V |
| Acceleration and deceleration ramps | Automatic based on the load Linear adjustable separately from 0.01 to 3200 s |
| Braking to standstill | By DC injection |

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| Protection type | Against exceeding limit speed drive Against input phase loss drive Break on the control circuit drive Input phase breaks drive Line supply overvoltage and undervoltage drive Line supply undervoltage drive Motor phase break motor Overcurrent between output phases and earth drive Overheating protection drive Overvoltages on the DC bus drive Short-circuit between motor phases drive Thermal power stage drive Thermal protection motor With PTC probes motor |
| Insulation resistance | ≥ 1 MOhm 500 V DC for 1 minute |
| Frequency resolution | 0.024/50 Hz analog input 0.1 Hz display unit |
| Connector type | 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 |
| Number of addresses | 1...247 |
| Communication service | Monitoring inhibitable Read device identification (43) Read holding registers (03) 2 words maximum Time out setting from 0.1 to 100 s Write multiple registers (16) 2 words maximum Write single register (06) |
| Marking | CE |
| Operating position | Vertical +/- 10 degree |
| Product weight | 3,35 kg |

Environment

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| Noise level | 51 dB 86/188/EEC |
| Dielectric strength | 3535 V DC between earth and power terminals 5092 V DC between control and power terminals |
| Electromagnetic compatibility | 1.2/50 µs - 8/20 µs surge immunity test level 3 IEC 61000-4-5 Conducted radio-frequency immunity test level 3 IEC 61000-4-6 Electrical fast transient/burst immunity test level 4 IEC 61000-4-4 Electrostatic discharge immunity test level 3 IEC 61000-4-2 Radiated radio-frequency electromagnetic field immunity test level 3 IEC 61000-4-3 Voltage dips and interruptions immunity test IEC 61000-4-11 |
| Standards | EN 55011 class A group 1 EN 61800-3 EN 61800-3 category C2 EN 61800-3 category C3 EN 61800-3 environments 1 category C1 EN 61800-3 environments 1 category C2 EN 61800-3 environments 1 category C3 EN 61800-3 environments 2 category C1 EN 61800-3 environments 2 category C2 EN 61800-3 environments 2 category C3 EN 61800-5-1 IEC 61800-3 IEC 61800-3 category C2 IEC 61800-3 category C3 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 IEC 61800-5-1 UL Type 1 |
| Product certifications | C-Tick CSA NOM 117 UL |

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| Vibration resistance | 1.5 mm 3...13 Hz EN/IEC 60068-2-6 1 gn 13...200 Hz EN/IEC 60068-2-8 |
| Shock resistance | 15 gn 11 ms IEC 60068-2-27 |
| Pollution degree | 3 IEC 61800-5-1 |
| Environmental characteristic | Classes 3C1 IEC 60721-3-3 Classes 3S2 IEC 60721-3-3 |
| Relative humidity | 5...95 % without condensation IEC 60068-2-3 5...95 % without dripping water IEC 60068-2-3 |
| Ambient air temperature for operation | -10...40 °C without > 50 °C with |
| Ambient air temperature for storage | -25...70 °C |
| Operating altitude | 1000...3000 m limited to 2000 m for the Corner Grounded distribution network ≤ 2000 m |
| RoHS EUR conformity date | 0808 |
| RoHS EUR status | Compliant |