

Product data sheet

Characteristics

ATV31CU75N4ZH28

variable speed drive ATV31 - 3p - 7.5kW - 3x 380-500V - IP55 - complete



Main

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| Range of product | Altivar 31 |
| Product or component type | Variable speed drive |
| Product destination | Asynchronous motors |
| Product specific application | Wire guiding Simple machine |
| Assembly style | Enclosed |
| Component name | ATV31 |
| EMC filter | Integrated |
| Power supply voltage | 380...500 V - 15...10 % |
| Power supply frequency | 50...60 Hz - 5...5 % |
| Network number of phases | 3 phases |
| Motor power kW | 7.5 kW |
| Motor power hp | 10 hp |
| Line current | 21 A 500 V 1 kA 27.7 A 380 V 1 kA |
| Apparent power | 18 kVA |
| Maximum prospective line Isc | 22 kA |
| Nominal output current | 17 A 4 kHz |
| Maximum transient current | 25.5 A for 60 s |
| Power dissipation in W | 269 W at nominal load |
| Speed range | 1...50 |
| Transient overtorque | 150...170 % of nominal motor torque |
| Asynchronous motor control profile | Factory set : constant torque Sensorless flux vector control with PWM type motor control signal |
| Analogue input number | 3 |
| IP degree of protection | IP55 |

Complementary

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| Power supply voltage limit | 323...550 V |
| Power supply frequency limits | 47.5...63 Hz |
| Speed drive output frequency | 0.5...500 Hz |
| Nominal switching frequency | 4 kHz |
| Switching frequency | 2...16 kHz adjustable |
| Braking torque | <= 150 % during 60 s with braking resistor 100 % with braking resistor continuously 30 % without braking resistor |
| Regulation loop | Frequency PI regulator |
| Motor slip compensation | Automatic whatever the load Suppressable Adjustable |
| Output voltage | <= power supply voltage |
| Electrical connection | AI1, AI2, AI3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, LI1...LI6 terminal 2.5 mm ² AWG 14 L1, L2, L3, U, V, W, PA, PB, PA/+, PC/- terminal 2.5 mm ² AWG 14 |
| Tightening torque | AI1, AI2, AI3, AOV, AOC, R1A, R1B, R1C, R2A, R2B, LI1...LI6: 0.6 N.m L1, L2, L3, U, V, W, PA, PB, PA/+, PC/-: 0.8 N.m |
| Insulation | Electrical between power and control |

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| Supply | Internal supply for logic inputs 19...30 V, <100 mA overload protection Internal supply for logic inputs 19...30 V, <100 mA short-circuit protection Internal supply for reference potentiometer 10...10.8 V, <10 mA overload protection Internal supply for reference potentiometer 10...10.8 V, <10 mA short-circuit protection |
| Analogue input type | AI3 configurable current 0...20 mA, impedance: 250 Ohm AI1 configurable voltage 0...10 V, input voltage 30 V max, impedance: 30000 Ohm AI2 configurable voltage +/- 10 V, input voltage 30 V max, impedance: 30000 Ohm |
| Input sampling time | LI1...LI6: 4 ms discrete AI1, AI2, AI3: 8 ms analog |
| Output response time | AOV, AOC 8 ms for analog R1A, R1B, R1C, R2A, R2B 8 ms for discrete |
| Linearity error | +/- 0.2 % for output |
| Analogue output number | 2 |
| Analogue output type | AOC configurable current: 0...20 mA, impedance: 800 Ohm, resolution: 8 bits AOV configurable voltage: 0...10 V, impedance: 470 Ohm, resolution: 8 bits |
| Discrete input logic | Positive logic (source) (LI1...LI6), < 5 V (state 0), > 11 V (state 1) Logic input not wired (LI1...LI4), < 13 V (state 1) Negative logic (source) (LI1...LI6), > 19 V (state 0) |
| Discrete output number | 2 |
| Discrete output type | Configurable relay logic: (R1A, R1B, R1C) 1 NO + 1 NC - 100000 cycles Configurable relay logic: (R2A, R2B) NC - 100000 cycles |
| Minimum switching current | 10 mA 5 V DC R1-R2 |
| Maximum switching current | 2 A at 250 V AC on inductive load - cos phi = 0.4 - L/R = 7 ms (R1-R2) 2 A at 30 V DC on inductive load - cos phi = 0.4 - L/R = 7 ms (R1-R2) 5 A at 250 V AC on resistive load - cos phi = 1 - L/R = 0 ms (R1-R2) 5 A at 30 V DC on resistive load - cos phi = 1 - L/R = 0 ms (R1-R2) |
| Discrete input number | 6 |
| Discrete input type | (LI1...LI6) programmable at 24 V, 0...100 mA for PLC, impedance: 3500 Ohm |
| Acceleration and deceleration ramps | Linear adjustable separately from 0.1 to 999.9 s S, U or customized |
| Braking to standstill | By DC injection |
| Protection type | Input phase breaks: drive Line supply overvoltage and undervoltage safety circuits: drive Line supply phase loss safety function, for three phases supply: drive Motor phase breaks: drive Overcurrent between output phases and earth (on power up only): drive Overheating protection: drive Short-circuit between motor phases: drive Thermal protection: motor |
| Insulation resistance | >= 500 mOhm 500 V DC for 1 minute |
| Local signalling | 1 LED (red) for drive voltage Four 7-segment display units for CANopen bus status |
| Time constant | 5 ms for reference change |
| Frequency resolution | Display unit: 0.1 Hz Analog input: 0.1...100 Hz |
| Communication port protocol | Modbus CANopen |
| Connector type | 1 RJ45 for CANopen via VW3 CANTAP2 adaptor 1 RJ45 for Modbus |
| Physical interface | RS485 multidrop serial link for Modbus |
| Transmission frame | RTU for Modbus |
| Transmission rate | 10, 20, 50, 125, 250, 500 kbps or 1 Mbps for CANopen via VW3 CANTAP2 adaptor 4800, 9600 or 19200 bps for Modbus |
| Number of addresses | 1...127 for CANopen via VW3 CANTAP2 adaptor 1...247 for Modbus |
| Number of drive | 127 for CANopen via VW3 CANTAP2 adaptor 31 for Modbus |
| Marking | CE |
| Operating position | Vertical +/- 10 degree |
| Net weight | 23.6 kg |

Environment

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| Dielectric strength | 2410 V DC between earth and power terminals 3400 V AC between control and power terminals |
| Electromagnetic compatibility | 1.2/50 μ s - 8/20 μ s surge immunity test level 3 conforming to IEC 61000-4-5 Electrical fast transient/burst immunity test level 4 conforming to IEC 61000-4-4 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 |
| Standards | EN 50178 |
| Product certifications | C-Tick |
| Pollution degree | 2 |
| Protective treatment | TC |
| Vibration resistance | 1 gn (f= 13...150 Hz) conforming to EN/IEC 60068-2-6 1.5 mm (f= 3...13 Hz) conforming to EN/IEC 60068-2-6 |
| Shock resistance | 15 gn for 11 ms conforming to EN/IEC 60068-2-27 |
| 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 storage | -25...70 °C |
| Ambient air temperature for operation | -10...50 °C without derating (with protective cover on top of the drive) -10...60 °C with derating factor (without protective cover on top of the drive) |
| Operating altitude | <= 1000 m without derating >= 1000 m with current derating 1 % per 100 m |