



Commercial status

Discontinued on: 31 December 2020

To be end-of-service on: 31 December 2028

⚠ To be discontinued

Main

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|------------------------------------|---|
| Range of product | Altivar 71 |
| Product or component type | Variable speed drive |
| Product specific application | Complex, high-power machines |
| Component name | ATV71 |
| Motor power kW | 90 kW, 3 phases at 380...480 V |
| Motor power hp | 125 hp, 3 phases at 380...480 V |
| Maximum motor cable length | 100 m shielded cable 200 m unshielded cable |
| Power supply voltage | 380...480 V - 15...10 % |
| Network number of phases | 3 phases |
| Line current | 134 A for 480 V 3 phases 90 kW / 125 hp 166 A for 380 V 3 phases 90 kW / 125 hp |
| EMC filter | Integrated |
| Assembly style | With heat sink |
| Variant | Reinforced version |
| Apparent power | 109.3 kVA at 380 V 3 phases 90 kW / 125 hp |
| Prospective line I _{sc} | 35 kA for 3 phases |
| Nominal output current | 179 A at 2.5 kHz 380 V 3 phases 90 kW / 125 hp 179 A at 2.5 kHz 460 V 3 phases 90 kW / 125 hp |
| Maximum transient current | 269 A for 60 s 3 phases 90 kW / 125 hp 295 A for 2 s 3 phases 90 kW / 125 hp |
| Output frequency | 0.1...500 Hz |
| Nominal switching frequency | 2.5 kHz |
| Switching frequency | 2.5...8 kHz adjustable 2.5...8 kHz with derating factor |
| Asynchronous motor control profile | Voltage/frequency ratio (2 or 5 points) Sensorless flux vector control (SFVC) (voltage or current vector) Flux vector control (FVC) with sensor (current vector) ENA (Energy adaptation) system for unbalanced loads |

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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| Type of polarization | No impedance for Modbus |
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Complementary

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| Product destination | Asynchronous motors Synchronous motors |
| Power supply voltage limits | 323...528 V |
| Power supply frequency | 50...60 Hz - 5...5 % |
| Power supply frequency limits | 47.5...63 Hz |
| Speed range | 1...100 for asynchronous motor in open-loop mode, without speed feedback 1...1000 for asynchronous motor in closed-loop mode with encoder feedback 1...50 for synchronous motor in open-loop mode, without speed feedback |
| Speed accuracy | +/- 0.01 % of nominal speed in closed-loop mode with encoder feedback 0.2 Tn to Tn +/- 10 % of nominal slip without speed feedback 0.2 Tn to Tn |
| Torque accuracy | +/- 15 % in open-loop mode, without speed feedback +/- 5 % in closed-loop mode with encoder feedback |
| Transient overtorque | 170 % of nominal motor torque +/- 10 % for 60 s every 10 minutes 220 % of nominal motor torque +/- 10 % for 2 s |
| Braking torque | <= 150 % with braking or hoist resistor 30 % without braking resistor |
| Synchronous motor control profile | Vector control without speed feedback |
| Regulation loop | Adjustable PI regulator |
| Motor slip compensation | Suppressable Not available in voltage/frequency ratio (2 or 5 points) Automatic whatever the load Adjustable |
| Diagnostic | 1 LED (red) for drive voltage |
| Output voltage | <= power supply voltage |
| Insulation | Electrical between power and control |
| Type of cable for mounting in an enclosure | With a NEMA Type1 kit: 3 wire(s)UL 508 cable at 40 °C, copper 75 °C / PVC With an IP21 or an IP31 kit: 3 wire(s)IEC cable at 40 °C, copper 70 °C / PVC Without mounting kit: 1 wire(s)IEC cable at 45 °C, copper 70 °C / PVC Without mounting kit: 1 wire(s)IEC cable at 45 °C, copper 90 °C / XLPE/EPR |
| Electrical connection | Terminal, clamping capacity: 2.5 mm ² , AWG 14 (AI1-/AI1+, AI2, AO1, R1A, R1B, R1C, R2A, R2B, LI1...LI6, PWR) Terminal, clamping capacity: 2 x 100 mm ² (L1/R, L2/S, L3/T, U/T1, V/T2, W/T3) Terminal, clamping capacity: 60 mm ² (PA, PB) Terminal, clamping capacity: 2 x 100 mm ² (PC/-, PO, PA/+) |
| Tightening torque | 0.6 N.m (AI1-/AI1+, AI2, AO1, R1A, R1B, R1C, R2A, R2B, LI1...LI6, PWR) 24 N.m, 212 lb.in (L1/R, L2/S, L3/T, U/T1, V/T2, W/T3) 12 N.m, 106 lb.in (PA, PB) 41 N.m, 360 lb.in (PC/-, PO, PA/+) |
| Supply | Internal supply for reference potentiometer (1 to 10 kOhm): 10.5 V DC +/- 5 %, <10 mA, protection type: overload and short-circuit protection Internal supply: 24 V DC (21...27 V), <200 mA, protection type: overload and short-circuit protection |
| Analogue input number | 2 |
| Analogue input type | AI1-/AI1+ bipolar differential voltage: +/- 10 V DC 24 V max, resolution 11 bits + sign AI2 software-configurable current: 0...20 mA, impedance: 242 Ohm, resolution 11 bits AI2 software-configurable voltage: 0...10 V DC 24 V max, impedance: 30000 Ohm, resolution 11 bits |
| Input sampling time | 2 ms +/- 0.5 ms (AI1-/AI1+) - analog input(s) 2 ms +/- 0.5 ms (AI2) - analog input(s) 2 ms +/- 0.5 ms (LI1...LI5) - discrete input(s) 2 ms +/- 0.5 ms (LI6)if configured as logic input - discrete input(s) |
| Response time | <= 100 ms in STO (Safe Torque Off) AO1 2 ms, tolerance +/- 0.5 ms for analog output(s) R1A, R1B, R1C 7 ms, tolerance +/- 0.5 ms for discrete output(s) R2A, R2B 7 ms, tolerance +/- 0.5 ms for discrete output(s) |
| Absolute accuracy precision | +/- 0.6 % (AI1-/AI1+) for a temperature variation 60 °C +/- 0.6 % (AI2) for a temperature variation 60 °C +/- 1 % (AO1) for a temperature variation 60 °C |
| Linearity error | +/- 0.15 % of maximum value (AI1-/AI1+, AI2) +/- 0.2 % (AO1) |
| Analogue output number | 1 |
| Analogue output type | AO1 software-configurable logic output 10 V 20 mA |

AO1 software-configurable current 0...20 mA, impedance: 500 Ohm, resolution 10 bits
 AO1 software-configurable voltage 0...10 V DC, impedance: 470 Ohm, resolution 10 bits

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| Discrete output number | 2 |
| Discrete output type | Configurable relay logic: (R1A, R1B, R1C) NO/NC - 100000 cycles Configurable relay logic: (R2A, R2B) NO - 100000 cycles |
| Minimum switching current | 3 mA at 24 V DC for configurable relay logic |
| Maximum switching current | R1, R2: 2 A at 250 V AC inductive load, cos phi = 0.4 R1, R2: 2 A at 30 V DC inductive load, cos phi = 0.4 R1, R2: 5 A at 250 V AC resistive load, cos phi = 1 R1, R2: 5 A at 30 V DC resistive load, cos phi = 1 |
| Discrete input number | 7 |
| Discrete input type | LI1...LI5: programmable 24 V DC with level 1 PLC, impedance: 3500 Ohm LI6: switch-configurable 24 V DC with level 1 PLC, impedance: 3500 Ohm LI6: switch-configurable PTC probe 0...6, impedance: 1500 Ohm PWR: safety input 24 V DC, impedance: 1500 Ohm conforming to ISO 13849-1 level d |
| Discrete input logic | Negative logic (sink) (LI1...LI5), > 16 V (state 0), < 10 V (state 1) Positive logic (source) (LI1...LI5), < 5 V (state 0), > 11 V (state 1) Negative logic (sink) (LI6)if configured as logic input, > 16 V (state 0), < 10 V (state 1) Positive logic (source) (LI6)if configured as logic input, < 5 V (state 0), > 11 V (state 1) |
| Acceleration and deceleration ramps | Automatic adaptation of ramp if braking capacity exceeded, by using resistor Linear adjustable separately from 0.01 to 9000 s S, U or customized |
| Braking to standstill | By DC injection |
| 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: drive Line supply undervoltage: drive Overcurrent between output phases and earth: drive Overheating protection: drive Overvoltages on the DC bus: drive Short-circuit between motor phases: drive Thermal protection: drive Motor phase break: motor Power removal: motor Thermal protection: motor |
| Insulation resistance | > 1 mOhm 500 V DC for 1 minute to earth |
| Frequency resolution | Analog input: 0.024/50 Hz Display unit: 0.1 Hz |
| Communication port protocol | Modbus CANopen |
| Connector type | 1 RJ45 (on front face) for Modbus 1 RJ45 (on terminal) for Modbus Male SUB-D 9 on RJ45 for CANopen |
| Physical interface | 2-wire RS 485 for Modbus |
| Transmission frame | RTU for Modbus |
| Transmission rate | 4800 bps, 9600 bps, 19200 bps, 38.4 Kbps for Modbus on terminal 9600 bps, 19200 bps for Modbus on front face 20 kbps, 50 kbps, 125 kbps, 250 kbps, 500 kbps, 1 Mbps for CANopen |
| Data format | 8 bits, 1 stop, even parity for Modbus on front face 8 bits, odd even or no configurable parity for Modbus on terminal |
| Number of addresses | 1...127 for CANopen 1...247 for Modbus |
| Method of access | Slave CANopen |
| Marking | CE |
| Operating position | Vertical +/- 10 degree |
| Height | 920 mm |
| Depth | 377 mm |
| Width | 320 mm |
| Net weight | 100 kg |
| Functionality | Full |
| Specific application | Other applications |

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| Option card | Communication card for CC-Link Controller inside programmable card Communication card for DeviceNet Communication card for Ethernet/IP Communication card for Fipio I/O extension card Communication card for Interbus-S Interface card for encoder Communication card for Modbus Plus Communication card for Modbus TCP Communication card for Modbus/Uni-Telway Overhead crane card Communication card for Profibus DP Communication card for Profibus DP V1 |
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Environment

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| Noise level | 60.5 dB conforming to 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 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 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 Voltage dips and interruptions immunity test conforming to IEC 61000-4-11 |
| Standards | EN/IEC 61800-5-1 EN 55011 class A group 2 EN 61800-3 environments 2 category C3 IEC 60721-3-3 class 3C2 UL Type 1 EN 61800-3 environments 1 category C3 EN/IEC 61800-3 |
| Product certifications | GOST NOM 117 C-Tick CSA UL |
| Pollution degree | 2 conforming to EN/IEC 61800-5-1 3 conforming to UL 840 |
| IP degree of protection | IP20 |
| Vibration resistance | 0.6 gn ($f= 10 \dots 200$ Hz) conforming to EN/IEC 60068-2-6 1.5 mm peak to peak ($f= 3 \dots 10$ Hz) conforming to EN/IEC 60068-2-6 |
| Shock resistance | 7 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 operation | -10...50 °C (without derating) |
| Ambient air temperature for storage | -25...70 °C |
| Operating altitude | <= 1000 m without derating 1000...3000 m with current derating 1 % per 100 m |

Packing Units

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| Package 1 Weight | 77.000 kg |
| Package 1 Height | 5.300 dm |
| Package 1 width | 4.100 dm |
| Package 1 Length | 12.250 dm |

Offer Sustainability

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| Sustainable offer status | Green Premium product |
| REACH Regulation | REACH Declaration |
| EU RoHS Directive | Pro-active compliance (Product out of EU RoHS legal scope) EU RoHS Declaration |
| Mercury free | Yes |

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| RoHS exemption information | Yes |
| China RoHS Regulation | China RoHS declaration |
| Environmental Disclosure | Product Environmental Profile |
| 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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ATV71HD90N4 is replaced by:



Drive Products ATV930C11N4C

variable speed drive, ATV930, 110kW, 400/480V, w/o braking unit, IP00

Qty 1

Reason for Substitution: End of life | Substitution date: 16 December 2020