

Main

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| Range of product | Altivar Process ATV600 |
| Product or component type | Variable speed drive |
| Product specific application | Process and utilities |
| Device short name | ATV6A0 |
| Variant | Modular version |
| Product destination | Synchronous motors Asynchronous motors |
| Mounting mode | Cabinet mount |
| Kit composition | Set of fuses 1 control unit Power connection Mechanical mounting kits 2 power module 160 kW 1 front cover |
| EMC filter | Integrated with <= 300 m conforming to EN/IEC 61800-3 category C3 |
| IP degree of protection | IP00 (for IP21 or IP54 cabinet integration) conforming to IEC 60529 IP00 (for IP21 or IP54 cabinet integration) conforming to IEC 61800-5-1 |
| Type of cooling | Forced convection |
| Supply frequency | 50...60 Hz - 5...5 % |
| Network number of phases | 3 phases |
| [Us] rated supply voltage | 480 V - 15...10 % |
| Prospective line I _{sc} | 50 kA |
| Asynchronous motor control profile | Constant torque standard Variable torque standard Optimized torque mode |
| Synchronous motor control profile | Permanent magnet motor |
| Speed drive output frequency | 0.1...500 Hz |
| Nominal switching frequency | 2.5 kHz |
| Switching frequency | 2..8 kHz adjustable 2.5...8 kHz with derating factor |
| Safety function | STO (safe torque off) SIL 3 |
| Discrete input logic | 16 preset speeds |

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| Communication port protocol | Ethernet Modbus serial Modbus TCP |
| Option card | Slot A: communication module Modbus TCP/EtherNet/IP Slot A: communication module Profibus DP V1 Slot A/slot B: output relay extension module Slot A: communication module CANopen screw terminals Slot A: communication module DeviceNet Slot A: communication module Profinet Slot A/slot B: digital and analog I/O extension module Slot A: communication module CANopen daisy chain RJ45 Slot A: communication module CANopen SUB-D 9 |

Complementary

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| Output voltage | \leq power supply voltage |
| Permissible temporary current boost | 1.1 x In during 60 s during normal duty) 1.5 x In during 60 s during heavy duty) |
| Motor slip compensation | Automatic whatever the load Can be suppressed Not available in permanent magnet motor law Adjustable |
| Acceleration and deceleration ramps | S, U or customized Linear adjustable separately from 0.01...9999 s |
| Braking to standstill | By DC injection |
| Protection type | Line supply undervoltage: drive Short-circuit protection: drive Safe torque off: drive Line supply overvoltage: drive Line supply phase loss: drive Thermal protection: drive Overload of output voltage: drive Safe torque off: motor Break on the control circuit: drive Motor phase break: motor Motor phase break: drive Thermal protection: motor Overcurrent between output phases and earth: drive Overvoltages on the DC bus: drive Overspeed: drive Overheating: drive |
| Frequency resolution | Analog input: 0.012/50 Hz Display unit: 0.1 Hz |
| Electrical connection | Line side: screw terminal Control: removable screw terminals 0.5...1.5 mm ² /AWG 20...AWG 16 Motor: M10 x 2 bars |
| Connector type | RJ45 (on the remote graphic terminal)For Ethernet/Modbus TCP RJ45 (on the remote graphic terminal)For Modbus serial |
| Physical interface | 2-wire RS 485For Modbus serial |
| Transmission frame | RTUFor Modbus serial |
| Transmission rate | 4.8, 9.6, 19.2, 38.4 kbit/sFor Modbus serial 10/100 Mbit/sFor Ethernet IP/Modbus TCP |
| Exchange mode | Half duplex, full duplex, autonegotiation Ethernet/Modbus TCP |
| Data format | 8 bits, configurable odd, even or no parityFor Modbus serial |
| Type of polarization | No impedanceFor Modbus serial |
| Number of addresses | For Modbus serial |
| Method of access | Slave Modbus TCP |
| Supply | External supply for digital inputs: 24 V DC (19...30 V) \leq 1.25 mA overload and short-circuit protection Internal supply for reference potentiometer (1 to 10 kOhm): 10.5 V D-C +/- 5 % \leq 10 mA overload and short-circuit protection Internal supply for digital inputs and STO: 24 V DC (21...27 V) \leq 200 mA overload and short-circuit protection |
| Local signalling | Local diagnostic: 3 LEDs Embedded communication status: 3 LEDs (dual colour) Communication module status: 4 LEDs (dual colour) |
| Analogue input number | 3 |
| Analogue input type | AI1, AI2, AI3 software-configurable voltage: 0...10 V DC 30 kOhm 12 bits AI1, AI2, AI3 software-configurable current: 0...20 mA/4...20 mA 250 Ohm 12 bits |
| Discrete input number | 8 |

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| Discrete input type | DI1...DI6 programmable 24 V DC (≤ 30 V) 3.5 kOhm DI5, DI6 programmable as pulse input: 0...30 kHz 24 V DC (≤ 30 V) STOA, STOB safe torque off 24 V DC (≤ 30 V) > 2.2 kOhm |
| Input compatibility | DI1...DI6: discrete input level 1 PLC conforming to EN/IEC 61131-2 DI5, DI6: discrete input level 1 PLC conforming to IEC 65A-68 STOA, STOB: discrete input level 1 PLC conforming to EN/IEC 61131-2 |
| Discrete input logic | Positive logic (source) (DI1...DI6) < 5 V (state 0) > 11 V (state 1) Negative logic (sink) (DI1...DI6) > 16 V (state 0) < 10 V (state 1) Positive logic (source) (DI5, DI6) < 0.6 V (state 0) > 2.5 V (state 1) Positive logic (source) (STOA, STOB) < 5 V (state 0) > 11 V (state 1) |
| Analogue output type | Software-configurable voltage AO1, AO2: 0...10 V DC impedance 470 Ohm 10 bits Software-configurable current AO1, AO2: 0...20 mA 10 bits |
| Analogue output number | 2 |
| Sampling duration | 2 ms +/- 0.5 ms (DI1...DI4) - discrete input 5 ms +/- 1 ms (DI5, DI6) - discrete input 5 ms +/- 0.1 ms (AI1, AI2, AI3) - analog input 10 ms +/- 1 ms (AO1) - analog output |
| Accuracy | +/- 0.6 % AI1, AI2, AI3 for a temperature variation 60 °C analog input +/- 1 % AO1, AO2 for a temperature variation 60 °C analog output |
| Linearity error | AI1, AI2, AI3: +/- 0.15 % of maximum value For analog input AO1, AO2: +/- 0.2 % For analog output |
| Relay output number | 3 |
| Relay output type | Configurable relay logic R1: fault relay NO/NC electrical durability 100000 cycles Configurable relay logic R2: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles |
| Refresh time | Relay output (R1, R2, R3): 5 ms (+/- 0.5 ms) |
| Maximum switching current | Relay output R1, R2, R3 on resistive load 1: 3 A at 250 V AC Relay output R1, R2, R3 on resistive load 1: 3 A at 30 V DC Relay output R1, R2, R3 on inductive load 0.4 and L/R = 7 ms: 2 A at 250 V AC Relay output R1, R2, R3 on inductive load 0.4 and L/R = 7 ms: 2 A at 30 V DC |
| Minimum switching current | Relay output R1, R2, R3: 5 mA at 24 V DC |
| Isolation | Between power and control terminals |
| Number of power modules | 2 |

Environment

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| Insulation resistance | > 1 mOhm 500 V DC for 1 minute to earth |
| Noise level | 70 dB conforming to 86/188/EEC |
| Power dissipation in W | Forced convection: 5440 W 2.5 kHz |
| THDI | ≤ 48 % full load conforming to IEC 61000-3-12 |
| Electromagnetic compatibility | Radiated radio-frequency electromagnetic field immunity test level 3 conforming to IEC 61000-4-3 Conducted radio-frequency immunity test level 3 conforming to IEC 61000-4-6 1.2/50 μ s - 8/20 μ s surge immunity test level 3 conforming to IEC 61000-4-5 Electrostatic discharge immunity test level 3 conforming to IEC 61000-4-2 Electrical fast transient/burst immunity test level 4 conforming to IEC 61000-4-4 |
| Pollution degree | 2 conforming to EN/IEC 61800-5-1 |
| Vibration resistance | 0.5 gn ($f = 13...200$ Hz) conforming to IEC 60068-2-6 1.5 mm peak to peak ($f = 2...13$ Hz) conforming to IEC 60068-2-6 |
| Shock resistance | 7 gn For 11 ms conforming to IEC 60068-2-27 |
| Relative humidity | 5...95 % without condensation conforming to IEC 60068-2-3 |
| Ambient air temperature for operation | 40...50 °C (with derating factor) -10...40 °C (without derating) |
| Ambient air temperature for storage | -40...70 °C |
| Operating altitude | 1000...4800 m with current derating 1 % per 100 m ≤ 1000 m without derating |
| Environmental characteristic | Chemical pollution resistance class 3C3 conforming to EN/IEC 60721-3-3 Dust pollution resistance class 3S3 conforming to EN/IEC 60721-3-3 |
| Standards | EN/IEC 61800-3 IEC 13849-1 EN/IEC 61800-5-1 IEC 61000-3-12 IEC 61508 IEC 60721-3 |

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| Product certifications | REACH TÜV |
| Marking | CE |

Product Life Status : **Commercialised**