



### Main

|                                    |   |
|------------------------------------|---|
| Range of product                   | Altivar Process ATV600  |
| Product or component type          | Variable speed drive  |
| Product specific application       | Process and utilities   |
| Device short name                  | ATV630  |
| Variant                            | Standard version  |
| Product destination                | Asynchronous motors<br>Synchronous motors   |
| EMC filter                         | Integrated with 50 m conforming to EN/IEC 61800-3 category C2<br>Integrated with 150 m conforming to EN/IEC 61800-3 category C3 |
| IP degree of protection            | IP21 conforming to IEC 61800-5-1<br>IP21 conforming to IEC 60529  |
| Degree of protection               | UL type 1 conforming to UL 508C   |
| Type of cooling                    | Forced convection   |
| Supply frequency                   | 50...60 Hz - 5...5 %  |
| Network number of phases           | 3 phases  |
| [Us] rated supply voltage          | 380...480 V - 15...10 %   |
| Motor power kW                     | 0.75 KW (normal duty)<br>0.37 KW (heavy duty)   |
| Motor power hp                     | 1 Hp normal duty<br>0.5 Hp heavy duty   |
| Line current                       | 1.5 A at 380 V (normal duty)<br>1.3 A at 480 V (normal duty)<br>0.9 A at 380 V (heavy duty)<br>0.8 A at 480 V (heavy duty)      |
| Prospective line I <sub>sc</sub>   | 50 KA   |
| Apparent power                     | 1.1 KVA at 480 V (normal duty)<br>0.7 KVA at 480 V (heavy duty)   |
| Continuous output current          | 2.2 A at 4 kHz for normal duty<br>1.5 A at 4 kHz for heavy duty   |
| Maximum transient current          | 2.4 A during 60 s (normal duty)<br>2.3 A during 60 s (heavy duty)   |
| Asynchronous motor control profile | Constant torque standard<br>Variable torque standard<br>Optimized torque mode   |
| Synchronous motor control profile  | Permanent magnet motor<br>Synchronous reluctance motor  |
| Output frequency                   | 0.0001...0.5 KHz  |
| Speed drive output frequency       | 0.1...599 Hz  |
| Nominal switching frequency        | 4 kHz   |
| Switching frequency                | 2...12 kHz adjustable<br>4...12 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 | Modbus TCP<br>Ethernet<br>Modbus serial   |
| Option card                 | Slot A: communication module, Profibus DP V1<br>Slot A: communication module, Profinet<br>Slot A: communication module, DeviceNet<br>Slot A: communication module, Modbus TCP/EtherNet/IP<br>Slot A: communication module, CANopen daisy chain RJ45<br>Slot A: communication module, CANopen SUB-D 9<br>Slot A: communication module, CANopen screw terminals<br>Slot A/slot B: digital and analog I/O extension module<br>Slot A/slot B: output relay extension module<br>Slot A: communication module, Ethernet IP/Modbus TCP/MD-Link<br>Communication module, BACnet MS/TP<br>Communication module, Ethernet Powerlink |

## Complementary

|                                     |  |
|-------------------------------------|--|
| Output voltage                      | $\leq$ power supply voltage  |
| Permissible temporary current boost | 1.1 x $I_n$ during 60 s (normal duty)<br>1.5 x $I_n$ during 60 s (heavy duty)  |
| Motor slip compensation             | Not available in permanent magnet motor law<br>Can be suppressed<br>Automatic whatever the load<br>Adjustable  |
| Acceleration and deceleration ramps | Linear adjustable separately from 0.01...9999 s  |
| Braking to standstill               | By DC injection  |
| Protection type                     | Thermal protection: motor<br>Safe torque off: motor<br>Motor phase break: motor<br>Thermal protection: drive<br>Safe torque off: drive<br>Overheating: drive<br>Overcurrent between output phases and earth: drive<br>Overload of output voltage: drive<br>Short-circuit protection: drive<br>Motor phase break: drive<br>Overvoltages on the DC bus: drive<br>Line supply overvoltage: drive<br>Line supply undervoltage: drive<br>Line supply phase loss: drive<br>Overspeed: drive<br>Break on the control circuit: drive |
| Frequency resolution                | Display unit: 0.1 Hz<br>Analog input: 0.012/50 Hz  |
| Electrical connection               | Control: removable screw terminals 0.5...1.5 mm <sup>2</sup> /AWG 20...AWG 16<br>Motor: screw terminal 2.5...6 mm <sup>2</sup> /AWG 14...AWG 10<br>Line side: screw terminal 2.5...6 mm <sup>2</sup> /AWG 14...AWG 10  |
| Connector type                      | RJ45 (on the remote graphic terminal) for Ethernet/Modbus TCP<br>RJ45 (on the remote graphic terminal) for Modbus serial   |
| Physical interface                  | 2-wire RS 485 for Modbus serial  |
| Transmission frame                  | RTU for Modbus serial  |
| Transmission rate                   | 10/100 Mbit/s for Ethernet IP/Modbus TCP<br>4.8, 9.6, 19.2, 38.4 kbit/s for Modbus serial  |
| Exchange mode                       | Half duplex, full duplex, autonegotiation Ethernet/Modbus TCP  |
| Data format                         | 8 bits, configurable odd, even or no parity for Modbus serial  |
| Type of polarization                | No impedance for Modbus serial   |
| Number of addresses                 | 1...247 for Modbus serial  |
| Method of access                    | Slave Modbus TCP   |
| Supply                              | External supply for digital inputs: 24 V DC (19...30 V), <1.25 mA, protection-type: overload and short-circuit protection<br>Internal supply for reference potentiometer (1 to 10 kOhm): 10.5 V D-C +/- 5 %, <10 mA, protection type: overload and short-circuit protection<br>Internal supply for digital inputs and STO: 24 V DC (21...27 V), <200 mA, protection type: overload and short-circuit protection  |
| Local signalling                    | 3 LEDs local diagnostic:<br>3 LEDs (dual colour) embedded communication status:<br>4 LEDs (dual colour) communication module status:<br>1 LED (red) presence of voltage:   |
| Width                               | 144 Mm   |
| Height                              | 350 Mm   |

|                                    |  |
|------------------------------------|--|
| Depth                              | 203 Mm   |
| Net weight                         | 4.5 Kg   |
| Analogue input number              | 3  |
| Analogue input type                | AI1, AI2, AI3 software-configurable voltage: 0...10 V DC, impedance: 30 kOhm, resolution 12 bits<br>AI1, AI2, AI3 software-configurable current: 0...20 mA/4...20 mA, impedance: 250 Ohm, resolution 12 bits   |
| Discrete input number              | 8  |
| Discrete input type                | DI1...DI6 programmable, 24 V DC ( $\leq 30$ V), impedance: 3.5 kOhm<br>DI5, DI6 programmable as pulse input: 0...30 kHz, 24 V DC ( $\leq 30$ V)<br>STOA, STOB safe torque off, 24 V DC ( $\leq 30$ V), impedance: $> 2.2$ kOhm   |
| Input compatibility                | DI1...DI6: discrete input level 1 PLC conforming to EN/IEC 61131-2<br>DI5, DI6: discrete input level 1 PLC conforming to IEC 65A-68<br>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)<br>Negative logic (sink) (DI1...DI6), $> 16$ V (state 0), $< 10$ V (state 1)<br>Positive logic (source) (DI5, DI6), $< 0.6$ V (state 0), $> 2.5$ V (state 1)<br>Positive logic (source) (STOA, STOB), $< 5$ V (state 0), $> 11$ V (state 1)   |
| Analogue output number             | 2  |
| Analogue output type               | Software-configurable voltage AO1, AO2: 0...10 V DC impedance 470 Ohm, resolution 10 bits<br>Software-configurable current AO1, AO2: 0...20 mA, resolution 10 bits   |
| Sampling duration                  | 2 Ms $\pm 0.5$ ms (DI1...DI4) - discrete input<br>5 Ms $\pm 1$ ms (DI5, DI6) - discrete input<br>5 Ms $\pm 0.1$ ms (AI1, AI2, AI3) - analog input<br>10 Ms $\pm 1$ ms (AO1) - analog output  |
| Accuracy                           | $\pm 0.6$ % AI1, AI2, AI3 for a temperature variation 60 °C analog input<br>$\pm 1$ % AO1, AO2 for a temperature variation 60 °C analog output   |
| Linearity error                    | AI1, AI2, AI3: $\pm 0.15$ % of maximum value for analog input<br>AO1, AO2: $\pm 0.2$ % for analog output   |
| Relay output number                | 3  |
| Relay output type                  | Configurable relay logic R1: fault relay NO/NC electrical durability 100000 cycles<br>Configurable relay logic R2: sequence relay NO electrical durability 100000 cycles<br>Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles   |
| Refresh time                       | Relay output (R1, R2, R3): 5 ms ( $\pm 0.5$ ms)  |
| Minimum switching current          | Relay output R1, R2, R3: 5 mA at 24 V DC   |
| Maximum switching current          | Relay output R1, R2, R3 on resistive load, $\cos \phi = 1$ : 3 A at 250 V AC<br>Relay output R1, R2, R3 on resistive load, $\cos \phi = 1$ : 3 A at 30 V DC<br>Relay output R1, R2, R3 on inductive load, $\cos \phi = 0.4$ and L/R = 7 ms: 2 A at 250 V AC<br>Relay output R1, R2, R3 on inductive load, $\cos \phi = 0.4$ and L/R = 7 ms: 2 A at 30 V DC   |
| Isolation                          | Between power and control terminals  |
| Discrete and process manufacturing | Compressor centrifugal Building - HVAC<br>Other application Food and beverage processing<br>Fan Mining mineral and metal<br>Pump Mining mineral and metal<br>Fan Oil and gas<br>Other application Water and waste water<br>Screw compressor Building - HVAC<br>Pump Food and beverage processing<br>Fan Food and beverage processing<br>Atomization Food and beverage processing<br>Electro submersible pump (ESP) Oil and gas<br>Water injection pump Oil and gas<br>Jet fuel pump Oil and gas<br>Compressor for refinery Oil and gas<br>Centrifuge pump Water and waste water<br>Positive displacement pump Water and waste water<br>Electro submersible pump (ESP) Water and waste water<br>Screw pump Water and waste water<br>Lobe compressor Water and waste water<br>Screw compressor Water and waste water<br>Compressor centrifugal Water and waste water<br>Fan Water and waste water<br>Conveyor Water and waste water<br>Mixer Water and waste water |
| Power range                        | 0.55...1 KW at 380...440 V 3 phases<br>0.55...1 KW at 480...500 V 3 phases   |
| Mounting mode                      | Wall mount   |

## Environment

|                                       |  |
|---------------------------------------|--|
| Insulation resistance                 | > 1 MOhm 500 V DC for 1 minute to earth  |
| Noise level                           | 54.5 DB conforming to 86/188/EEC   |
| Power dissipation in W                | Natural convection: 26 W at 380 V, switching frequency 4 kHz<br>Forced convection: 21 W at 380 V, switching frequency 4 kHz  |
| Volume of cooling air                 | 38 M3/H  |
| Operating position                    | Vertical +/- 10 degree   |
| Maximum THDI                          | <48 % full load conforming to IEC 61000-3-12   |
| Electromagnetic compatibility         | Electrostatic discharge immunity test level 3 conforming to IEC 61000-4-2<br>Radiated radio-frequency electromagnetic field immunity test level 3 conforming-<br>to IEC 61000-4-3<br>Electrical fast transient/burst immunity test level 4 conforming to IEC 61000-4-4<br>1.2/50 µs - 8/20 µs surge immunity test level 3 conforming to IEC 61000-4-5<br>Conducted radio-frequency immunity test level 3 conforming to IEC 61000-4-6 |
| Pollution degree                      | 2 conforming to EN/IEC 61800-5-1   |
| Vibration resistance                  | 1.5 mm peak to peak (f= 2...13 Hz) conforming to IEC 60068-2-6<br>1 gn (f= 13...200 Hz) conforming to IEC 60068-2-6  |
| Shock resistance                      | 15 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 | -15...50 °C (without derating)<br>50...60 °C (with derating factor)  |
| Ambient air temperature for storage   | -40...70 °C  |
| Operating altitude                    | <= 1000 m without derating<br>1000...4800 m with current derating 1 % per 100 m  |
| Environmental characteristic          | Chemical pollution resistance class 3C3 conforming to EN/IEC 60721-3-3<br>Dust pollution resistance class 3S3 conforming to EN/IEC 60721-3-3   |
| Standards                             | UL 508C<br>EN/IEC 61800-3<br>Environment 1 category C2 EN/IEC 61800-3<br>Environment 2 category C3 EN/IEC 61800-3<br>EN/IEC 61800-5-1<br>IEC 61000-3-12<br>IEC 60721-3<br>IEC 61508<br>IEC 13849-1   |
| Product certifications                | TÜV<br>ATEX zone 2/22<br>CSA<br>DNV-GL<br>UL<br>REACH<br>ATEX INERIS   |
| Marking                               | CE   |

## Packing Units

|                              |          |
|------------------------------|----------|
| Unit Type of Package 1       | PCE      |
| Number of Units in Package 1 | 1        |
| Package 1 Weight             | 5.756 Kg |
| Package 1 Height             | 31.5 Cm  |
| Package 1 width              | 19 Cm    |
| Package 1 Length             | 40.5 Cm  |
| Unit Type of Package 2       | CAR      |
| Number of Units in Package 2 | 1        |
| Package 2 Weight             | 5.756 Kg |
| Package 2 Height             | 31.5 Cm  |
| Package 2 width              | 17.6 Cm  |
| Package 2 Length             | 40.5 Cm  |
| Unit Type of Package 3       | P06      |
| Number of Units in Package 3 | 6        |
| Package 3 Weight             | 47.54 Kg |
| Package 3 Height             | 80 Cm    |

|                  |       |
|------------------|-------|
| Package 3 width  | 80 Cm |
| Package 3 Length | 60 Cm |

### Offer Sustainability

|                            |   |
|----------------------------|---|
| Sustainable offer status   | Green Premium product   |
| EU RoHS Directive          | Pro-active compliance (Product out of EU RoHS legal scope) <a href="#">EU RoHS Declaration</a>                              |
| Mercury free               | Yes   |
| RoHS exemption information | <a href="#">Yes</a>   |
| China RoHS Regulation      | <a href="#">China RoHS Declaration</a>  |
| Environmental Disclosure   | <a href="#">Product Environmental Profile</a>   |
| Circularity Profile        | <a href="#">End Of Life Information</a>   |
| WEEE                       | The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins |

|                       |                       |
|-----------------------|-----------------------|
| Product Life Status : | <b>Commercialised</b> |
|-----------------------|-----------------------|