



### Main

|                                    |   |
|------------------------------------|---|
| Range of product                   | Altivar 61  |
| Product or component type          | Variable speed drive  |
| Product specific application       | Pumping and ventilation machine   |
| Component name                     | ATV61   |
| Motor power kW                     | 11 kW 3 phases at 380...480 V   |
| Motor power hp                     | 15 hp 3 phases at 380...480 V   |
| [Us] rated supply voltage          | 380...480 V (- 15...10 %)   |
| Network number of phases           | 3 phases  |
| Line current                       | 30 A for 480 V 3 phases 11 kW / 15 hp<br>36.6 A for 380 V 3 phases 11 kW / 15 hp  |
| EMC filter                         | Level 3 EMC filter  |
| Assembly style                     | With heat sink  |
| Apparent power                     | 24.1 kVA for 380 V 3 phases 11 kW / 15 hp   |
| Prospective line I <sub>sc</sub>   | 22 kA 3 phases  |
| Maximum transient current          | 33.2 A for 60 s 3 phases  |
| Nominal switching frequency        | 12 kHz  |
| Switching frequency                | 1...16 kHz adjustable<br>12...16 kHz with derating factor   |
| Asynchronous motor control profile | Voltage/Frequency ratio, 2 points<br>Voltage/Frequency ratio, 5 points<br>Flux vector control without sensor, standard<br>Voltage/Frequency ratio - Energy Saving, quadratic U/f  |
| Synchronous motor control profile  | Vector control without sensor, standard   |
| Communication port protocol        | CANopen<br>Modbus   |
| Type of polarization               | No impedance for Modbus   |
| Option card                        | APOGEE FLN communication card<br>BACnet communication card<br>CC-Link communication card<br>Controller inside programmable card<br>DeviceNet communication card<br>Ethernet/IP communication card<br>Fipio communication card<br>I/O extension card<br>Interbus-S communication card<br>LonWorks communication card |

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

METASYS N2 communication card  
 Modbus Plus communication card  
 Modbus TCP communication card  
 Modbus/Uni-Telway communication card  
 Multi-pump card  
 Profibus DP communication card  
 Profibus DP V1 communication card

## Complementary

|                           |   |
|---------------------------|---|
| Product destination       | Asynchronous motors<br>Synchronous motors   |
| Supply voltage limits     | 323...528 V   |
| Supply frequency          | 50...60 Hz (- 5...5 %)  |
| Network frequency         | 47.5...63 Hz  |
| Continuous output current | 21 A at 12 kHz, 460 V 3 phases<br>27.7 A at 12 kHz, 380 V 3 phases  |
| Output frequency          | 0.1...599 Hz  |
| Speed range               | 1...100 in open-loop mode, without speed feedback   |
| Speed accuracy            | +/- 10 % of nominal slip for 0.2 T <sub>n</sub> to T <sub>n</sub> torque variation without speed feedback   |
| Torque accuracy           | +/- 15 % in open-loop mode, without speed feedback  |
| Transient overtorque      | 130 % of nominal motor torque, +/- 10 % for 60 s  |
| Braking torque            | 30 % without braking resistor<br>≤ 125 % with braking resistor  |
| Regulation loop           | Frequency PI regulator  |
| Motor slip compensation   | Adjustable<br>Automatic whatever the load<br>Can be suppressed<br>Not available in voltage/frequency ratio (2 or 5 points)  |
| Local signalling          | 1 LED red presence of drive voltage   |
| Output voltage            | ≤ power supply voltage  |
| Isolation                 | Between power and control terminals   |
| Type of cable             | With an IP21 or an IP31 kit : 3-strand IEC cable at 40 °C, copper 70 °C PVC<br>Without mounting kit : 1-strand IEC cable at 45 °C, copper 70 °C PVC<br>Without mounting kit : 1-strand IEC cable at 45 °C, copper 90 °C XLPE/EPR<br>With UL Type 1 kit : 3-strand UL 508 cable at 40 °C, copper 75 °C PVC     |
| Electrical connection     | AI1-/AI1+, AI2, AO1, R1A, R1B, R1C, R2A, R2B, LI1...LI6, PWR terminal 2.5 mm <sup>2</sup> / AWG 14<br>L1/R, L2/S, L3/T, U/T1, V/T2, W/T3, PC/-, PO, PA/+, PA, PB terminal 16 mm <sup>2</sup> / AWG 4  |
| Tightening torque         | L1/R, L2/S, L3/T, U/T1, V/T2, W/T3, PC/-, PO, PA/+, PA, PB 3 N.m / 26.5 lb.in<br>AI1-/AI1+, AI2, AO1, R1A, R1B, R1C, R2A, R2B, LI1...LI6, PWR 0.6 N.m   |
| Supply                    | Internal supply for reference potentiometer (1 to 10 kOhm) 10.5 V DC +/- 5 %, ≤ 10 mA for overload and short-circuit protection<br>Internal supply 24 V DC (21...27 V), ≤ 200 mA for overload and short-circuit protection<br>External supply 24 V DC (19...30 V)   |
| Analogue input number     | 2   |
| Analogue input type       | AI1-/AI1+ bipolar differential voltage +/- 10 V DC, input voltage 24 V max, resolution 11 bits + sign<br>AI2 software-configurable current 0...20 mA, impedance 242 Ohm, resolution 11 bits<br>AI2 software-configurable voltage 0...10 V DC, input voltage 24 V max, impedance 30000 Ohm, resolution 11 bits |
| Sampling duration         | Discrete input LI6 (if configured as logic input) 2 ms, +/- 0.5 ms<br>Analog input AI1-/AI1+ 2 ms, +/- 0.5 ms<br>Analog input AI2 2 ms, +/- 0.5 ms<br>Analog output AO1 2 ms, +/- 0.5 ms<br>Discrete input LI1...LI5 2 ms, +/- 0.5 ms   |
| Accuracy                  | AI1-/AI1+ +/- 0.6 % for a temperature variation 60 °C<br>AI2 +/- 0.6 % for a temperature variation 60 °C<br>AO1 +/- 1 % for a temperature variation 60 °C   |
| Linearity error           | AI1-/AI1+ +/- 0.15 % of maximum value<br>AI2 +/- 0.15 % of maximum value<br>AO1 +/- 0.2 %   |
| Analogue output number    | 1   |
| Analogue output type      | AO1 software-configurable current, analogue output range 0...20 mA, impedance 500 Ohm, resolution 10 bits<br>AO1 software-configurable logic output 10 V, ≤ 20 mA   |

AO1 software-configurable voltage, analogue output range 0...10 V DC, impedance 470 Ohm, resolution 10 bits

|                                     |  |
|-------------------------------------|--|
| Discrete output number              | 2  |
| Discrete output type                | (R1A, R1B, R1C) configurable relay logic NO/NC, electrical durability 100000 cycles<br>(R2A, R2B) configurable relay logic NO, electrical durability 100000 cycles   |
| Response time                       | <= 100 ms in STO (Safe Torque Off)<br>R1A, R1B, R1C <= 7 ms, tolerance +/- 0.5 ms<br>R2A, R2B <= 7 ms, tolerance +/- 0.5 ms  |
| Minimum switching current           | Configurable relay logic 3 mA at 24 V DC   |
| Maximum switching current           | R1, R2 on resistive load, 5 A at 30 V DC, cos phi = 1, 0 ms<br>R1, R2 on inductive load, 2 A at 30 V DC, cos phi = 0.4, 7 ms<br>R1, R2 on resistive load, 5 A at 250 V AC, cos phi = 1, 0 ms<br>R1, R2 on inductive load, 2 A at 250 V AC, cos phi = 0.4, 7 ms   |
| Discrete input number               | 7  |
| Discrete input type                 | (LI1...LI5) programmable, 24 V DC, voltage limits <= 30 V, with level 1 PLC, impedance 3500 Ohm<br>(LI6) switch-configurable, 24 V DC, voltage limits <= 30 V, with level 1 PLC, impedance 3500 Ohm<br>(LI6) switch-configurable PTC probe, 0...6, impedance 1500 Ohm<br>(PWR) safety input, 24 V DC, voltage limits <= 30 V, impedance 1500 Ohm   |
| Discrete input logic                | LI1...LI5 positive logic (source), < 5 V (state 0), > 11 V (state 1)<br>LI1...LI5 negative logic (sink), > 16 V (state 0), < 10 V (state 1)<br>LI6 (if configured as logic input) negative logic (sink), > 16 V (state 0), < 10 V (state 1)<br>LI6 (if configured as logic input) positive logic (source), < 5 V (state 0), > 11 V (state 1)   |
| Acceleration and deceleration ramps | Automatic adaptation of ramp if braking capacity exceeded, by using resistor<br>Linear adjustable separately from 0.01 to 9000 s<br>S, U or customized   |
| Braking to standstill               | By DC injection  |
| Protection type                     | Drive against exceeding limit speed<br>Drive against input phase loss<br>Drive break on the control circuit<br>Drive input phase breaks<br>Drive line supply overvoltage<br>Drive line supply undervoltage<br>Drive overcurrent between output phases and earth<br>Drive overheating protection<br>Drive overvoltages on the DC bus<br>Drive power removal<br>Drive short-circuit between motor phases<br>Drive thermal protection<br>Motor motor phase break<br>Motor power removal<br>Motor thermal protection |
| Insulation resistance               | > 1 mOhm at 500 V DC for 1 minute to earth   |
| Frequency resolution                | Analog input 0.024/50 Hz<br>Display unit 0.1 Hz  |
| Connector type                      | 1 RJ45 for Modbus on front face<br>1 RJ45 for Modbus on terminal<br>Male SUB-D 9 on RJ45 for CANOpen   |
| Physical interface                  | 2-wire RS 485 for Modbus   |
| Transmission frame                  | RTU for Modbus   |
| Transmission rate                   | 20 kbps, 50 kbps, 125 kbps, 250 kbps, 500 kbps, 1 Mbps for CANOpen<br>4800 bps, 9600 bps, 19200 bps, 38.4 Kbps for Modbus on terminal<br>9600 bps, 19200 bps for Modbus on front face  |
| Data format                         | 8 bits, 1 stop, even parity for Modbus on front face<br>8 bits, odd even or no configurable parity for Modbus on terminal  |
| Number of addresses                 | 1...247 for Modbus<br>1...127 for CANOpen  |
| Method of access                    | Slave for CANOpen  |
| Marking                             | CE   |
| Operating position                  | Vertical +/- 10 degree   |
| Product weight                      | 7 kg   |
| Width                               | 210 mm   |
| Height                              | 295 mm   |
| Depth                               | 213 mm   |

## Environment

|                                       |  |
|---------------------------------------|--|
| Noise level                           | 57.4 dB conforming to 86/188/EEC   |
| Dielectric strength                   | 3535 V DC between earth and power terminals<br>5092 V DC between control and power terminals   |
| Electromagnetic compatibility         | Conforming to IEC 61000-4-2 level 3<br>Conforming to IEC 61000-4-11<br>Conforming to IEC 61000-4-6 level 3<br>Conforming to IEC 61000-4-3 level 3<br>Conforming to IEC 61000-4-4 level 4   |
| Standards                             | EN 55011 class A group 2<br>EN 61800-3 environments 1 category C3<br>EN 61800-3 environments 2 category C3<br>EN/IEC 61800-3<br>EN/IEC 61800-5-1<br>IEC 60721-3-3 class 3C1<br>IEC 60721-3-3 class 3S2<br>UL Type 1  |
| Product certifications                | CSA<br>C-Tick<br>DNV<br>GOST<br>NOM 117<br>UL  |
| Pollution degree                      | 2 conforming to EN/IEC 61800-5-1   |
| IP degree of protection               | IP20 on upper part without blanking plate on cover conforming to EN/IEC 60529<br>IP20 on upper part without blanking plate on cover conforming to EN/IEC 61800-5-1<br>IP21 conforming to EN/IEC 60529<br>IP21 conforming to EN/IEC 61800-5-1<br>IP41 on upper part conforming to EN/IEC 60529<br>IP41 on upper part conforming to EN/IEC 61800-5-1<br>IP54 on lower part conforming to EN/IEC 60529<br>IP54 on lower part conforming to EN/IEC 61800-5-1 |
| Vibration resistance                  | 1.5 mm peak to peak (f = 3...13 Hz) conforming to EN/IEC 60068-2-6<br>1 gn (f = 13...200 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<br>5...95 % without dripping water conforming to IEC 60068-2-3   |
| Ambient air temperature for operation | -10...50 °C without derating<br>50...60 °C with derating factor  |
| Ambient air temperature for storage   | -25...70 °C  |
| Operating altitude                    | <= 1000 m without derating<br>1000...3000 m with current derating 1 % per 100 m  |

## Contractual warranty

|                 |           |
|-----------------|-----------|
| Warranty period | 18 months |
|-----------------|-----------|

ATV61HD11N4 may be replaced by any of the following products:



### Drive Products ATV630D15N4

variable speed drive ATV630 - 15kW/20HP - 380...480V - IP21/UL type 1

Qty 1

Reason for Substitution: End of life | Substitution date: 01 April 2016



### Drive Products ATV630D15N4

variable speed drive ATV630 - 15kW/20HP - 380...480V - IP21/UL type 1

Qty 1

Reason for Substitution: End of life | Substitution date: 01 April 2016

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### Drive Products ATV630D11N4

variable speed drive ATV630 - 11kW/15HP - 380...480V - IP21/UL type 1

Qty 1

Reason for Substitution: End of life | Substitution date: 03 February 2016

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### Drive Products ATV630D11N4

variable speed drive ATV630 - 11kW/15HP - 380...480V - IP21/UL type 1

Qty 1

Reason for Substitution: End of life | Substitution date: 03 February 2016

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