# Product data sheet

**ATV630D75N4**  
Variable speed drive ATV630 - 75kW/100HP - 380...480V - IP21/UL type 1

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## Characteristics

### Main

<table>
<thead>
<tr>
<th>Description</th>
<th>Specification</th>
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<tr>
<td>Range of product</td>
<td>Altivar Process AT600</td>
</tr>
<tr>
<td>Product or component type</td>
<td>Variable speed drive</td>
</tr>
<tr>
<td>Product specific application</td>
<td>Process and utilities</td>
</tr>
<tr>
<td>Device short name</td>
<td>ATV630</td>
</tr>
<tr>
<td>Variant</td>
<td>Standard version</td>
</tr>
<tr>
<td>Product destination</td>
<td>Asynchronous motors, Synchronous motors</td>
</tr>
<tr>
<td>Mounting mode</td>
<td>Wall mount</td>
</tr>
<tr>
<td>EMC filter</td>
<td>Integrated EN/IEC 61800-3 category C3 &lt;= 150 m</td>
</tr>
<tr>
<td>IP degree of protection</td>
<td>IP21 conforming to IEC 61800-5-1</td>
</tr>
<tr>
<td>IP degree of protection</td>
<td>IP21 conforming to IEC 60529</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>UL type 1 UL 508C</td>
</tr>
<tr>
<td>Type of cooling</td>
<td>Forced convection</td>
</tr>
<tr>
<td>Supply frequency</td>
<td>50...60 Hz - 5...5 %</td>
</tr>
<tr>
<td>Network number of phases</td>
<td>3 phases</td>
</tr>
<tr>
<td>[Us] rated supply voltage</td>
<td>380...480 V - 15...10 %</td>
</tr>
<tr>
<td>Motor power kW</td>
<td>75 kW normal duty, 55 kW heavy duty</td>
</tr>
<tr>
<td>Motor power hp</td>
<td>100 hp normal duty, 75 hp heavy duty</td>
</tr>
<tr>
<td>Line current</td>
<td>131.3 A 380 V normal duty, 112.7 A 480 V normal duty, 98.9 A 380 V heavy duty, 86.9 A 480 V heavy duty</td>
</tr>
<tr>
<td>Prospective line Isc</td>
<td>50 kA</td>
</tr>
<tr>
<td>Apparent power</td>
<td>93.7 kVA 480 V normal duty, 72.2 kVA 480 V heavy duty</td>
</tr>
<tr>
<td>Continuous output current</td>
<td>145 A 2.5 kHz normal duty, 106 A 2.5 kHz heavy duty</td>
</tr>
<tr>
<td>Maximum transient current</td>
<td>159.5 A 60 s normal duty, 159 A 60 s heavy duty</td>
</tr>
</tbody>
</table>

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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.

Jul 3, 2019
<table>
<thead>
<tr>
<th>Asynchronous motor control profile</th>
<th>Constant torque standard</th>
<th>Optimized torque mode</th>
</tr>
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<tr>
<td>Synchronous motor control profile</td>
<td>Permanent magnet motor</td>
<td>Synchronous reluctance motor</td>
</tr>
<tr>
<td>Speed drive output frequency</td>
<td>0.1...599 Hz</td>
<td></td>
</tr>
<tr>
<td>Output frequency</td>
<td>0.0001...0.5 kHz</td>
<td></td>
</tr>
<tr>
<td>Nominal switching frequency</td>
<td>2.5 kHz</td>
<td></td>
</tr>
<tr>
<td>Switching frequency</td>
<td>2...8 kHz adjustable</td>
<td>2.5...8 kHz with derating factor</td>
</tr>
<tr>
<td>Safety function</td>
<td>STO (safe torque off) SIL 3</td>
<td></td>
</tr>
<tr>
<td>Discrete input logic</td>
<td>16 preset speeds</td>
<td></td>
</tr>
<tr>
<td>Communication port protocol</td>
<td>Ethernet</td>
<td>Modbus serial</td>
</tr>
<tr>
<td></td>
<td>Modbus TCP</td>
<td></td>
</tr>
</tbody>
</table>

**Option card**
- Communication module Profinet slot A
- Communication module DeviceNet slot A
- Communication module Modbus TCP/EtherNet/IP slot A
- Communication module CANopen daisy chain RJ45 slot A
- Communication module CANopen SUB-D 9 slot A
- Communication module CANopen screw terminals slot A
- Digital and analog I/O extension module slot A/slot B
- Output relay extension module slot A/slot B
- Communication module Ethernet IP/Modbus TCP/MD-Link slot A
- Communication module BACnet MS/TP
- Communication module Ethernet Powerlink

**Complementary**
- Output voltage <= power supply voltage
- Permissible temporary current boost 1.1 x In 60 s normal duty 1.5 x In 60 s heavy duty
- Motor slip compensation Adjusted
  - Automatic whatever the load
  - Can be suppressed
  - Not available in permanent magnet motor law
- Acceleration and deceleration ramps Linear adjustable separately from 0.01...9999 s
- Braking to standstill By DC injection
- Protection type Safe torque off motor Motor phase break motor Safe torque off drive Overheating drive Short-circuit protection drive Motor phase break drive Overspeed drive Break on the control circuit drive Overvoltages on the DC bus drive Overload of output voltage drive Line supply overvoltage drive Line supply phase loss drive Line supply undervoltage drive Overcurrent between output phases and earth drive Thermal protection motor Thermal protection drive
- Frequency resolution Display unit Analog input
- Electrical connection Removable screw terminals 0.5...1.5 mm² AWG 20...AWG 16 control Screw terminal 95...120 mm² AWG 3/0...250 kcmil motor Screw terminal 95...120 mm² AWG 3/0...250 kcmil line side
- Connector type RJ45 Ethernet/Modbus TCP on the remote graphic terminal RJ45 Modbus serial on the remote graphic terminal
- Physical interface 2-wire RS 485 Modbus serial
- Transmission frame RTU Modbus serial
- Transmission rate 10/100 Mbit/s Ethernet IP/Modbus TCP 4.8, 9.6, 19.2, 38.4 kbit/s Modbus serial
Exchange mode: Half duplex, full duplex, autonegotiation Ethernet/Modbus TCP

Data format: 8 bits, configurable odd, even or no parity Modbus serial

Type of polarization: No impedance Modbus serial

Number of addresses: 1...247 Modbus serial

Method of access: Slave Modbus TCP

Supply: Internal supply for reference potentiometer (1 to 10 kOhm) 10.5 V DC +/- 5 % <= 10 mA overload and short-circuit protection
External supply for digital inputs 24 V DC 19...30 V <= 1.25 mA overload and short-circuit protection
Internal supply for digital inputs and STO 24 V DC 21...27 V <= 200 mA overload and short-circuit protection

Local signalling: 3 LEDs local diagnostic
3 LEDs dual colour embedded communication status
4 LEDs dual colour communication module status
1 LED red presence of voltage

Width: 290 mm
Height: 922 mm
Depth: 323 mm

Product weight: 58 kg

Analogue input number: 3

Analogue input type: Software-configurable voltage AI1, AI2, AI3 0...10 V DC 30 kOhm 12 bits
Software-configurable current AI1, AI2, AI3 0...20 mA/4...20 mA 250 Ohm 12 bits

Discrete input number: 8

Discrete input type: Programmable DI1...DI6 24 V DC 3.5 kOhm
Programmable as pulse input DI5, DI6 0...30 kHz 24 V DC
Safe torque off STOA, STOB 24 V DC > 2.2 kOhm

Input compatibility: Level 1 PLC EN/IEC 61131-2 DI1...DI6 discrete input
Level 1 PLC IEC 65A-68 DI5, DI6 discrete input
Level 1 PLC EN/IEC 61131-2 STOA, STOB discrete input

Discrete input logic: Positive logic (source) DI1...DI6 < 5 V > 11 V
Negative logic (sink) DI1...DI6 > 16 V < 10 V
Positive logic (source) DI5, DI6 < 0.6 V > 2.5 V
Positive logic (source) STOA, STOB < 5 V > 11 V

Analogue output number: 2

Analogue output type: Software-configurable voltage AO1, AO2 0...10 V DC 470 Ohm 10 bits
Software-configurable current AO1, AO2 0...20 mA 10 bits

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: +/- 0.15 % of maximum value analog input AI1, AI2, AI3
 +/- 0.2 % analog output AO1, AO2

Relay output number: 3

Relay output type: Configurable relay logic R1 fault relay NO/NC 100000 cycles
Configurable relay logic R2 sequence relay NO 100000 cycles
Configurable relay logic R3 sequence relay NO 100000 cycles

Refresh time: 5 ms +/- 0.5 ms R1, R2, R3 relay output
Minimum switching current: 5 mA 24 V DC R1, R2, R3 relay output
Maximum switching current: 3 A 250 V AC resistive 1 R1, R2, R3 relay output
3 A 30 V DC resistive 1 R1, R2, R3 relay output
2 A 250 V AC inductive 0.4 7 ms R1, R2, R3 relay output
2 A 30 V DC inductive 0.4 7 ms R1, R2, R3 relay output

Isolation: Between power and control terminals

Functionality: Full

Specific application: Utility

IP degree of protection: IP21

Variable speed drive application selection: Building - HVAC compressor centrifugal
Food and beverage processing other application
Mining mineral and metal fan
Mining mineral and metal pump
Oil and gas fan
Water and waste water other application
Building - HVAC screw compressor
Food and beverage processing pump
Food and beverage processing fan
Food and beverage processing atomization
Oil and gas electro submersible pump (ESP)
Oil and gas water injection pump
Oil and gas jet fuel pump
Oil and gas compressor for refinery
Water and waste water centrifuge pump
Water and waste water positive displacement pump
Water and waste water electro submersible pump (ESP)
Water and waste water screw pump
Water and waste water lobe compressor
Water and waste water screw compressor
Water and waste water compressor centrifugal
Water and waste water fan
Water and waste water conveyor
Water and waste water mixer

Motor power range AC-3
55...100 kW 380...440 V 3 phases
55...100 kW 480...500 V 3 phases

Motor starter type
Variable speed drive

**Environment**

**Insulation resistance**
> 1 mOhm 500 V DC for 1 minute to earth

**Noise level**
62.4 dB 86/188/EEC

**Power dissipation in W**
- 174 W natural convection 380 V 2.5 kHz
- 1369 W forced convection 380 V 2.5 kHz

**Volume of cooling air**
295 m3/h

**Operating position**
Vertical +/- 10 degree

**THDI**
<= 48 % from 80...100 % of load IEC 61000-3-12

**Electromagnetic compatibility**
- Conducted radio-frequency immunity test level 3 IEC 61000-4-6
- 1.2/50 µs - 8/20 µs surge immunity test level 3 IEC 61000-4-5
- Electrical fast transient/burst immunity test level 4 IEC 61000-4-4
- Electrostatic discharge immunity test level 3 IEC 61000-4-2
- Radiated radio-frequency electromagnetic field immunity test level 3 IEC 61000-4-3

**Pollution degree**
2 EN/IEC 61800-5-1

**Vibration resistance**
1.5 mm peak to peak 2...13 Hz IEC 60068-2-6
1 gn 13...200 Hz IEC 60068-2-6

**Shock resistance**
15 gn 11 ms IEC 60068-2-27

**Relative humidity**
5...95 % without condensation IEC 60068-2-3

**Ambient air temperature for operation**
-15...50 °C without derating
50...60 °C with derating factor

**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 EN/IEC 60721-3-3
- Dust pollution resistance class 3S3 EN/IEC 60721-3-3

**Standards**
- EN/IEC 61800-3
- EN/IEC 61800-3 environment 1 category C2
- EN/IEC 61800-3 environment 2 category C3
- UL 508C
- EN/IEC 61800-5-1
- IEC 61000-3-12
- IEC 60721-3
- IEC 61508
- IEC 13849-1

**Product certifications**
- ATEX INERIS
- ATEX zone 2/22
- CSA
- TÜV
- UL
- REACH
- DNV-GL

**Marking**
CE
<table>
<thead>
<tr>
<th>Offer Sustainability</th>
</tr>
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<tbody>
<tr>
<td>Sustainable offer status</td>
</tr>
<tr>
<td>RoHS (date code: YYWW)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>REACh</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Product environmental profile</td>
</tr>
<tr>
<td></td>
</tr>
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<td>Product end of life instructions</td>
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