### ATV630D30N4
variable speed drive ATV630 - 30kW/40HP - 380...480V - IP21/UL type 1

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#### Main

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
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<tbody>
<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</td>
</tr>
<tr>
<td></td>
<td>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></td>
<td>Integrated EN/IEC 61800-3 category C2 &lt;= 50 m</td>
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<tr>
<td>IP degree of protection</td>
<td>IP21 conforming to IEC 61800-5-1</td>
</tr>
<tr>
<td></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>30 kW normal duty</td>
</tr>
<tr>
<td></td>
<td>22 kW heavy duty</td>
</tr>
<tr>
<td>Motor power hp</td>
<td>40 hp normal duty</td>
</tr>
<tr>
<td></td>
<td>30 hp heavy duty</td>
</tr>
<tr>
<td>Line current</td>
<td>53.3 A 380 V normal duty</td>
</tr>
<tr>
<td></td>
<td>45.9 A 480 V normal duty</td>
</tr>
<tr>
<td></td>
<td>40.5 A 380 V heavy duty</td>
</tr>
<tr>
<td></td>
<td>35.8 A 480 V heavy duty</td>
</tr>
<tr>
<td>Prospective line Isc</td>
<td>50 kA</td>
</tr>
<tr>
<td>Apparent power</td>
<td>38.2 kVA 480 V normal duty</td>
</tr>
<tr>
<td></td>
<td>29.8 kVA 480 V heavy duty</td>
</tr>
<tr>
<td>Continuous output current</td>
<td>61.5 A 4 kHz normal duty</td>
</tr>
<tr>
<td></td>
<td>46.3 A 4 kHz heavy duty</td>
</tr>
<tr>
<td>Maximum transient current</td>
<td>67.7 A 60 s normal 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.
Asynchronous motor control profile
- 69.5 A 60 s heavy duty
- Constant torque standard
- Variable torque standard
- Optimized torque mode

Synchronous motor control profile
- Permanent magnet motor
- Synchronous reluctance motor

Speed drive output frequency
- 0.1...599 Hz

Output frequency
- 0.0001...0.5 kHz

Nominal switching frequency
- 4 kHz

Switching frequency
- 2...12 kHz adjustable
- 4...12 kHz with derating factor

Safety function
- STO (safe torque off) SIL 3

Discrete input logic
- 16 preset speeds

Communication port protocol
- Ethernet
- Modbus serial
- Modbus TCP

Option card
- Communication module Profibus DP V1 slot A
- 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
- Adjustable
- 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 25...50 mm² AWG 4...AWG 1 line side
- Screw terminal 25...50 mm² AWG 4...AWG 1 motor

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
### Exchange mode
- Modbus serial
- 4.8, 9.6, 19.2, 38.4 kbit/s
- Half duplex, full duplex, autonegotiation

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

### Type of polarization
- Modbus serial
- No impedance

### Number of addresses
- Modbus serial
- 1...247

### 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

<table>
<thead>
<tr>
<th>Width</th>
<th>226 mm</th>
</tr>
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<tbody>
<tr>
<td>Height</td>
<td>673 mm</td>
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<tr>
<td>Depth</td>
<td>271 mm</td>
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<tr>
<td>Product weight</td>
<td>28 kg</td>
</tr>
</tbody>
</table>

### Analogue input number
- 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
<table>
<thead>
<tr>
<th>Motor power range AC-3</th>
<th>30...50 kW 380...440 V 3 phases 30...50 kW 480...500 V 3 phases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor starter type</td>
<td>Variable speed drive</td>
</tr>
</tbody>
</table>

**Environment**

<table>
<thead>
<tr>
<th>Insulation resistance</th>
<th>&gt; 1 mOhm 500 V DC for 1 minute to earth</th>
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<tbody>
<tr>
<td>Noise level</td>
<td>63.5 dB 86/188/EEC</td>
</tr>
<tr>
<td>Power dissipation in W</td>
<td>93 W natural convection 380 V 4 kHz 640 W forced convection 380 V 4 kHz</td>
</tr>
<tr>
<td>Volume of cooling air</td>
<td>240 m3/h</td>
</tr>
<tr>
<td>Operating position</td>
<td>Vertical +/- 10 degree</td>
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<tr>
<td>THDI</td>
<td>&lt;= 48 % from 80...100 % of load IEC 61000-3-12</td>
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<tr>
<td>Electromagnetic</td>
<td>Conducted radio-frequency immunity test level 3 IEC 61000-4-6</td>
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<tr>
<td>compatibility</td>
<td>1.2/50 µs - 8/20 µs surge immunity test level 3 IEC 61000-4-5</td>
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<tr>
<td></td>
<td>Electrical fast transient/burst immunity test level 4 IEC 61000-4-4</td>
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<tr>
<td></td>
<td>Electrostatic discharge immunity test level 3 IEC 61000-4-2</td>
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<tr>
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<td>Radiated radio-frequency electromagnetic field immunity test level 3 IEC 61000-4-3</td>
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<tr>
<td>Pollution degree</td>
<td>2 EN/IEC 61800-5-1</td>
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<tr>
<td>Vibration resistance</td>
<td>1.5 mm peak to peak 2...13 Hz IEC 60068-2-6 1 gn 13...200 Hz IEC 60068-2-6</td>
</tr>
<tr>
<td>Shock resistance</td>
<td>15 gn 11 ms IEC 60068-2-27</td>
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<tr>
<td>Relative humidity</td>
<td>5...95 % without condensation IEC 60068-2-3</td>
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<tr>
<td>Ambient air temperature for operation</td>
<td>-15...50 °C without derating 50...60 °C with derating factor</td>
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<tr>
<td>Ambient air temperature for storage</td>
<td>-40...70 °C</td>
</tr>
<tr>
<td>Operating altitude</td>
<td>1000...4800 m with current derating 1 % per 100 m &lt;= 1000 m without derating</td>
</tr>
<tr>
<td>Environmental characteristic</td>
<td>Chemical pollution resistance class 3C3 EN/IEC 60721-3-3 Dust pollution resistance class 3S3 EN/IEC 60721-3-3</td>
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<tr>
<td>Standards</td>
<td>EN/IEC 61800-3</td>
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<td>EN/IEC 61800-3 environment 1 category C2</td>
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<td>EN/IEC 61800-3 environment 2 category C3</td>
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<td>UL 508C</td>
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<td>IEC 60721-3</td>
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<td>IEC 61508</td>
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<td>ATEX zone 2/22</td>
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<tr>
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<td>REACH</td>
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<tr>
<td>Marking</td>
<td>CE</td>
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### Offer Sustainability

<table>
<thead>
<tr>
<th><strong>Sustainable offer status</strong></th>
<th><strong>Green Premium product</strong></th>
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<tbody>
<tr>
<td><strong>RoHS (date code: YYWW)</strong></td>
<td>Compliant - since 1426 - Schneider Electric declaration of conformity</td>
</tr>
<tr>
<td><strong>REACH</strong></td>
<td>Reference not containing SVHC above the threshold</td>
</tr>
<tr>
<td><strong>Product environmental profile</strong></td>
<td>Available</td>
</tr>
<tr>
<td><strong>Product end of life instructions</strong></td>
<td>Available</td>
</tr>
</tbody>
</table>

- [Schneider Electric declaration of conformity](#)
- [Product Environmental Profile](#)
- [End of Life Information](#)
Dimensions

Drives with IP21 Top Cover
Front, Left and Rear Views

Drives Without IP21 Top Cover
Left and Rear Views
### Clearances

<table>
<thead>
<tr>
<th>X1</th>
<th>X2</th>
<th>X3</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 100 mm (3.94 in.)</td>
<td>≥ 100 mm (3.94 in.)</td>
<td>≥ 10 mm (0.39 in.)</td>
</tr>
</tbody>
</table>
Mounting Types

Mounting Type A: Individual IP21

Mounting Type B: Side by Side IP20 (Possible, 2 Drives Only)

Mounting Type C: Individual IP20

a ≥ = 110 mm (4.33 in.)
Three-Phase Power Supply with Upstream Breaking via Line Contactor

Connection diagrams conforming to standards EN 954-1 category 1 and IEC/EN 61508 capacity SIL1, stopping category 0 in accordance with standard IEC/EN 60204-1

(1) Line choke if used
(2) Use relay R1 set to operating state Fault to switch Off the product once an error is detected.

A1 : Drive
KM1 : Line Contactor
Q2, Q3 : Circuit breakers
S1, S2 : Pushbuttons
T1 : Transformer for control part
Three-Phase Power Supply with Downstream Breaking via Contactor

Connection diagrams conforming to standards EN 954-1 category 1 and IEC/EN 61508 capacity SIL1, stopping category 0 in accordance with standard IEC/EN 60204-1.

(1) Line choke if used
(2) Use relay R1 set to operating state Fault to switch Off the product once an error is detected.

A1: Drive
KM1: Contactor
Control Block Wiring Diagram

(1) Safe Torque Off
(2) Analog Output
(3) Digital Input
(4) Reference potentiometer
(5) Analog Input
R1A, R1B Fault relay
R2A, R2C Sequence relay
R3A, R3C Sequence relay

Sensor Connection
It is possible to connect either 1 or 3 sensors on terminals AI2 or AI3.
Sink / Source Switch Configuration

The switch is used to adapt the operation of the logic inputs to the technology of the programmable controller outputs.

- Set the switch to Source (factory setting) if using PLC outputs with PNP transistors.
- Set the switch to Ext if using PLC outputs with NPN transistors.

Switch Set to SRC (Source) Position Using the Output Power Supply for the Digital Inputs

Switch Set to SRC (Source) Position and Use of an External Power Supply for the DIs

Switch Set to SK (Sink) Position Using the Output Power Supply for the Digital Inputs

Switch Set to EXT Position Using an External Power Supply for the DIs
Derating Curves

- **40 °C (104 °F)** - Mounting type A, B and C
- **50 °C (122 °F)** - Mounting type A, B and C
- **60 °C (140 °F)** - Mounting type B and C

**In:** Nominal Drive Current
**SF:** Switching Frequency