### ATV930D15N4

**variable speed drive, ATV930, 15kW, 400/480V, with braking unit, IP21**

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#### Main

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Range of product</strong></td>
<td>Altivar Process ATV900</td>
</tr>
<tr>
<td><strong>Product or component type</strong></td>
<td>Variable speed drive</td>
</tr>
<tr>
<td><strong>Device application</strong></td>
<td>Industrial application</td>
</tr>
<tr>
<td><strong>Device short name</strong></td>
<td>ATV930</td>
</tr>
<tr>
<td><strong>Variant</strong></td>
<td>Standard version</td>
</tr>
<tr>
<td></td>
<td>With braking chopper</td>
</tr>
<tr>
<td><strong>Product destination</strong></td>
<td>Asynchronous motors</td>
</tr>
<tr>
<td></td>
<td>Synchronous motors</td>
</tr>
<tr>
<td><strong>Mounting mode</strong></td>
<td>Wall mount</td>
</tr>
<tr>
<td><strong>EMC filter</strong></td>
<td>Integrated conforming to EN/IEC 61800-3 category C3 with &lt;= 150 m motor cable maxi</td>
</tr>
<tr>
<td><strong>IP degree of protection</strong></td>
<td>IP21 conforming to IEC 61800-5-1</td>
</tr>
<tr>
<td><strong>Degree of protection</strong></td>
<td>UL type 1 conforming to UL 508C</td>
</tr>
<tr>
<td><strong>Type of cooling</strong></td>
<td>Forced convection</td>
</tr>
<tr>
<td><strong>Supply frequency</strong></td>
<td>50...60 Hz (+/- 5 %)</td>
</tr>
<tr>
<td><strong>Network number of phases</strong></td>
<td>3 phases</td>
</tr>
<tr>
<td><strong>[Us] rated supply voltage</strong></td>
<td>380...480 V (- 15...10 %)</td>
</tr>
<tr>
<td><strong>Motor power kW</strong></td>
<td>15 kW (normal duty)</td>
</tr>
<tr>
<td><strong>Motor power hp</strong></td>
<td>20 hp (normal duty)</td>
</tr>
<tr>
<td><strong>Line current</strong></td>
<td>27 A at 380 V (normal duty)</td>
</tr>
<tr>
<td><strong>Prospective line Isc</strong></td>
<td>50 kA</td>
</tr>
<tr>
<td><strong>Apparent power</strong></td>
<td>19.4 kVA at 480 V (normal duty)</td>
</tr>
<tr>
<td><strong>Continuous output current</strong></td>
<td>31.7 A at 4 kHz (normal duty)</td>
</tr>
<tr>
<td><strong>Maximum transient current</strong></td>
<td>38 A during 60 s (normal duty)</td>
</tr>
<tr>
<td><strong>Asynchronous motor control profile</strong></td>
<td>Constant torque standard</td>
</tr>
<tr>
<td></td>
<td>Variable torque standard</td>
</tr>
<tr>
<td></td>
<td>Optimized torque mode</td>
</tr>
<tr>
<td><strong>Synchronous motor control profile</strong></td>
<td>Permanent magnet motor</td>
</tr>
<tr>
<td></td>
<td>Synchronous reluctance motor</td>
</tr>
<tr>
<td><strong>Speed drive output frequency</strong></td>
<td>0.1...599 Hz</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.*

*Sep 15, 2019*
### Nominal switching frequency
4 kHz

### Switching frequency
2...16 kHz adjustable

### Safety function
STO (safe torque off) SIL 3

### Number of preset speeds
16 preset speeds

### Communication port protocol
- Ethernet/IP
- Modbus serial
- Modbus TCP

### Option module
- Slot A : communication module for Profinet
- Slot A : communication module for DeviceNet
- Slot A : communication module for CANopen daisy chain RJ45
- Slot A : communication module for CANopen SUB-D 9
- Slot A : communication module for CANopen screw terminals
- Slot A/slot B/slot C : digital and analog I/O extension module
- Slot A/slot B/slot C : output relay extension module
- Slot B : 5/12 V digital encoder interface module
- Slot B : analog encoder interface module
- Slot B : resolver encoder interface module

### Complementary

#### Output voltage
<= power supply voltage

#### 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
- Motor : thermal protection
- Motor : safe torque off
- Motor : motor phase break
- Drive : thermal protection
- Drive : safe torque off
- Drive : overheating
- Drive : overcurrent between output phases and earth
- Drive : overload of output voltage
- Drive : short-circuit protection
- Drive : motor phase break
- Drive : overvoltages on the DC bus
- Drive : line supply overvoltage
- Drive : line supply undervoltage
- Drive : line supply phase loss
- Drive : overspeed
- Drive : break on the control circuit

#### Frequency resolution
- Display unit : 0.1 Hz
- Analog input : 0.012/50 Hz

#### Electrical connection
- Control, screw terminal : 0.5...1.5 mm² (AWG 20...AWG 16)

#### Connector type
- 2 RJ45 (on the control block) for Ethernet IP/Modbus TCP

#### 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
- 4.8, 9.6, 19.2, 38.4 kbit/s for Modbus serial

#### Exchange mode
- Half duplex, full duplex, autonegotiation for Ethernet IP/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
- For Modbus serial

#### Method of access
- Slave for Modbus TCP

#### Supply
- External supply for digital inputs : 24 V DC (19...30 V) current <= 1.25 mA (overload and short-circuit protection)

#### Local signalling
- 3 mono/dual colour LED for local diagnostic

#### Width
211 mm

#### Height
545.9 mm

#### Depth
235 mm
<table>
<thead>
<tr>
<th><strong>Product weight</strong></th>
<th>13.6 kg</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Analogue input number</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Analogue input type</strong></td>
<td>Software-configurable voltage AI1, AI2, AI3 : 0...10 V DC impedance 30 kOhm, resolution 12 bits</td>
</tr>
<tr>
<td><strong>Discrete input number</strong></td>
<td>10</td>
</tr>
<tr>
<td><strong>Discrete input type</strong></td>
<td>Programmable DI1...DI8 : 24 V DC (&lt;= 30 V) impedance 3.5 kOhm</td>
</tr>
<tr>
<td><strong>Input compatibility</strong></td>
<td>Discrete input DI1...DI8 : level 1 PLC conforming to EN/IEC 61131-1-2</td>
</tr>
<tr>
<td><strong>Analogue output number</strong></td>
<td>2</td>
</tr>
<tr>
<td><strong>Discrete output number</strong></td>
<td>2</td>
</tr>
<tr>
<td><strong>Discrete output type</strong></td>
<td>Logic output DQ+ : 0...1 kHz (&lt;= 30 V) DC, 100 mA</td>
</tr>
<tr>
<td><strong>Sampling duration</strong></td>
<td>Discrete input DI1...DI8 : 2 ms (+/- 0.5 ms)</td>
</tr>
</tbody>
</table>
| **Accuracy**               | Analog input AI1, AI2, AI3 : +/- 0.6 % for a temperature variation 60 °C  
Analog output AQ1, AQ2 : +/- 1 % for a temperature variation 60 °C |
| **Linearity error**        | Analog input AI1, AI2, AI3 : +/- 0.15 % of maximum value |
| **Maximum switching current** | Relay output R1 on resistive load (cos phi = 1) : 3 A at 250 V AC |
| **Relay output number**    | 3                     |
| **Relay output type**      | Configurable relay logic R1 : fault relay NO/NC electrical durability 100000 cycles |
| **Refresh time**           | Relay output R1, R2, R3 : 5 ms (+/- 0.5 ms) |
| **Minimum switching current** | Relay output R1, R2, R3 : 5 mA at 24 V DC |
| **Isolation**              | Between power and control terminals |
| **Specific application**   | Process               |
| **IP degree of protection**| IP21                  |
| **Motor starter type**     | Variable speed drive |

### Environment

| **Insulation resistance**         | > 1 mOhm at 500 V DC for 1 minute to earth |
| **Noise level**                   | 59.5 dB conforming to 86/188/EEC           |
| **Power dissipation in W**        | 59 W (natural convection) at 380 V switching frequency 4 kHz |
| **Vibration resistance**          | 1.5 mm peak to peak (f = 2...13 Hz) conforming to IEC 60068-2-6  
1 gn (f = 13...200 Hz) conforming to IEC 60068-2-6 |
| **Shock resistance**              | 15 gn during 11 ms conforming to IEC 60068-2-27 |
| **Volume of cooling air**         | 215 m3/h                                 |
| **Operating position**            | Vertical +/- 10 degree                   |
| **THDI**                          | <= 48 % from 80...100 % of load conforming to IEC 61000-3-12 |
| **Electromagnetic compatibility** | 1.2/50 µs - 8/20 µs surge immunity test level 3 conforming to IEC 61000-4-5  
Electrical fast transient/burst immunity test level 4 conforming to IEC 61000-4-4  
Electrostatic discharge immunity test level 3 conforming to IEC 61000-4-2  
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 |
| **Pollution degree**              | 2 EN/IEC 61800-5-1                     |
| **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 |
| **Relative humidity**             | 5...95 % without condensation conforming to IEC 60068-2-3 |
| **Ambient air temperature for operation** | -15...50 °C without  
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 |

**Standards**

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

**Product certifications**

- CSA
- TUV
- UL
## Offer Sustainability

<table>
<thead>
<tr>
<th>Sustainable offer status</th>
<th>Green Premium product</th>
</tr>
</thead>
<tbody>
<tr>
<td>RoHS (date code: YYWW)</td>
<td>Compliant - since 1526 - Schneider Electric declaration of conformity</td>
</tr>
<tr>
<td>REACh</td>
<td>Reference not containing SVHC above the threshold</td>
</tr>
<tr>
<td>Product environmental profile</td>
<td>Available</td>
</tr>
<tr>
<td>Product end of life instructions</td>
<td>Available</td>
</tr>
</tbody>
</table>

Schneider Electric declaration of conformity

Reference not containing SVHC above the threshold

Available

Product Environmental Profile

End of Life Information
Dimensions

Front, Left and Rear View

Product data sheet
Dimensions Drawings

ATV930D15N4
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>

- Mount the device in a vertical position (±10°). This is required for cooling the device.
- Do not mount the device close to heat sources.
- Leave sufficient free space so that the air required for cooling purposes can circulate from the bottom to the top of the drive.
Mounting Types

Mounting Type A: Individual IP21

Mounting Type B: Side by Side IP20

Mounting Type C: Individual IP20
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
(6) Digital Output
(7) 0-10 Vdc, 0-20 mA
(8) 0-10 Vdc, -10 Vdc...+10 Vdc

R1A, R1B, R1C: Fault relay
R2A, R2C: Sequence relay
R3A, R3C: Sequence relay

Sensor Connection

It is possible to connect either 1 or 3 sensors on terminals AI1 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