

# Product data sheet

Specifications



variable speed drive, Altivar Process  
ATV600, ATV630, cabinet  
Integration, IP00, 45kW, 380...480V,  
for US

ATV630D45N4ZU

**Product availability: Stock - Normally stocked in distribution facility**

## 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 32.8 ft (10 m) IEC 61800-3 category C2<br>Integrated 164.04 ft (50 m) IEC 61800-3 category C3<br>With EMC plate option |
| IP degree of protection            | IP20(IEC 61800-5-1<br>IP00 at bottom terminals)IEC 60529                                                                          |
| [Us] rated supply voltage          | 380...480 V                                                                                                                       |
| type of cooling                    | Forced convection                                                                                                                 |
| Supply frequency                   | 50...60 Hz - 5...5 %                                                                                                              |
| [Us] rated supply voltage          | 380...480 V - 15...10 %                                                                                                           |
| Motor power kW                     | 45 kW normal duty)<br>37 kW heavy duty)                                                                                           |
| Maximum Horse Power Rating         | 60 hp normal duty<br>50 hp heavy duty                                                                                             |
| Line current                       | 79.8 A 380 V normal duty)<br>69.1 A 480 V normal duty)<br>67.1 A 380 V heavy duty)<br>59 A 480 V heavy duty)                      |
| Prospective line Isc               | 50 kA                                                                                                                             |
| Apparent power                     | 57.4 kVA 480 V normal duty)<br>49.1 kVA 480 V heavy duty)                                                                         |
| Continuous output current          | 88 A 4 kHz normal duty<br>74.5 A 4 kHz heavy duty                                                                                 |
| Asynchronous motor control profile | Optimized torque mode<br>Constant torque standard<br>Variable torque standard                                                     |
| Synchronous motor control profile  | Permanent magnet motor<br>Synchronous reluctance motor                                                                            |
| Speed drive output frequency       | 0.1...500 Hz                                                                                                                      |
| Nominal switching frequency        | 4 kHz                                                                                                                             |

Price is "List Price" and may be subject to a trade discount – check with your local distributor or retailer for actual price.

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

|                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Communication Port Protocol | Modbus serial<br>Ethernet<br>Modbus TCP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 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

|                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mounting Mode                       | Cabinet mount                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Maximum transient current           | 96.8 A 60 s normal duty)<br>111.8 A 60 s heavy duty)                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Phase                               | 3 phase                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Discrete output number              | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Discrete output type                | Relay outputs R1A, R1B, R1C 250 V AC 3000 mA<br>Relay outputs R1A, R1B, R1C 30 V DC 3000 mA<br>Relay outputs R2A, R2C 250 V AC 5000 mA<br>Relay outputs R2A, R2C 30 V DC 5000 mA<br>Relay outputs R3A, R3C 250 V AC 5000 mA<br>Relay outputs R3A, R3C 30 V DC 5000 mA                                                                                                                                                                                                                                        |
| Output voltage                      | <= power supply voltage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Permissible temporary current boost | 1.1 x In 60 s normal duty)<br>1.5 x In 60 s heavy duty)                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Motor slip compensation             | Adjustable<br>Not available in permanent magnet motor law<br>Automatic whatever the load<br>Can be suppressed                                                                                                                                                                                                                                                                                                                                                                                                |
| Acceleration and deceleration ramps | Linear adjustable separately from 0.01...9999 s                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Physical interface                  | Ethernet<br>2-wire RS 485                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 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 |
| Transmission Rate                   | 10, 100 Mbits<br>4800 bps, 9600 bps, 19200 bps, 38.4 Kbps                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

|                        |                                                                                                                                                                                                                                                                                                                                                     |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Frequency resolution   | Display unit 0.1 Hz<br>Analog input 0.012/50 Hz                                                                                                                                                                                                                                                                                                     |
| Transmission frame     | RTU                                                                                                                                                                                                                                                                                                                                                 |
| Electrical connection  | Control removable screw terminals 0.5...1.5 mm² AWG 20...AWG 16<br>Line side screw terminal 35...50 mm² AWG 2...AWG 1<br>Motor screw terminal 50 mm² AWG 1                                                                                                                                                                                          |
| Connector type         | RJ45 on the remote graphic terminal)Ethernet/Modbus TCP<br>RJ45 on the remote graphic terminal)Modbus serial                                                                                                                                                                                                                                        |
| Data format            | 8 bits, configurable odd, even or no parity                                                                                                                                                                                                                                                                                                         |
| Type of polarization   | No impedance                                                                                                                                                                                                                                                                                                                                        |
| Exchange mode          | Half duplex, full duplex, autonegotiation Ethernet/Modbus TCP                                                                                                                                                                                                                                                                                       |
| Number of addresses    | 1...247 Modbus serial                                                                                                                                                                                                                                                                                                                               |
| Method of access       | Slave Modbus TCP                                                                                                                                                                                                                                                                                                                                    |
| Supply                 | External supply for digital inputs 24 V DC 19...30 V), <1.25 mA overload and short-circuit protection<br>Internal supply for reference potentiometer (1 to 10 kOhm) 10.5 V DC +/- 5 %, <10 mA overload and short-circuit protection<br>Internal supply for digital inputs and STO 24 V DC 21...27 V), <200 mA overload and short-circuit protection |
| Local signalling       | for local diagnostic 3 LEDs<br>for embedded communication status 3 LEDs (dual colour)<br>for communication module status 4 LEDs (dual colour)<br>for presence of voltage 1 LED (red)                                                                                                                                                                |
| Width                  | 8.3 in (210 mm)                                                                                                                                                                                                                                                                                                                                     |
| Height                 | 23.5 in (597 mm)                                                                                                                                                                                                                                                                                                                                    |
| Depth                  | 10.3 in (262 mm)                                                                                                                                                                                                                                                                                                                                    |
| Net Weight             | 58.4 lb(US) (26.5 kg)                                                                                                                                                                                                                                                                                                                               |
| Analogue input number  | 3                                                                                                                                                                                                                                                                                                                                                   |
| Analogue input type    | AI1, AI2, AI3 software-configurable voltage 0...10 V DC 31.5 kOhm 12 bits<br>AI1, AI2, AI3 software-configurable current 0...20 mA 250 Ohm 12 bits<br>AI2 voltage analog input - 10...10 V DC 31.5 kOhm 12 bits                                                                                                                                     |
| Discrete input number  | 8                                                                                                                                                                                                                                                                                                                                                   |
| Discrete input type    | DI7, DI8 programmable as pulse input 0...30 kHz, 24 V DC <= 30 V)                                                                                                                                                                                                                                                                                   |
| Input compatibility    | DI1...DI6 discrete input level 1 PLC IEC 61131-2<br>DI5, DI6 discrete input level 1 PLC IEC 65A-68<br>STOA, STOB discrete input level 1 PLC IEC 61131-2                                                                                                                                                                                             |
| Discrete input logic   | Positive logic (source) DI1...DI8), < 5 V, > 11 V<br>Negative logic (sink) DI1...DI8), > 16 V, < 10 V                                                                                                                                                                                                                                               |
| Analogue output number | 2                                                                                                                                                                                                                                                                                                                                                   |
| Analogue output type   | Software-configurable voltage AQ1, AQ2 0...10 V DC 470 Ohm 10 bits<br>Software-configurable current AQ1, AQ2 0...20 mA 10 bits<br>Software-configurable current DQ-, DQ+ 30 V DC<br>Software-configurable current DQ-, DQ+ 100 mA                                                                                                                   |
| Sampling duration      | 2 ms +/- 0.5 ms DI1...DI4) - discrete input<br>5 ms +/- 1 ms DI5, DI6) - discrete input<br>5 ms +/- 0.1 ms AI1, AI2, AI3) - analog input<br>10 ms +/- 1 ms AO1) - analog output                                                                                                                                                                     |
| Accuracy               | +/- 0.6 % AI1, AI2, AI3 for a temperature variation 60 °C analog input<br>+/- 1 % AO1, AO2 for a temperature variation 60 °C analog output                                                                                                                                                                                                          |
| Linearity error        | AI1, AI2, AI3 +/- 0.15 % of maximum value analog input<br>AO1, AO2 +/- 0.2 % analog output                                                                                                                                                                                                                                                          |
| Relay output number    | 3                                                                                                                                                                                                                                                                                                                                                   |

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Relay output type                          | Configurable relay logic R1 fault relay NO/NC 100000 cycles<br>Configurable relay logic R2 sequence relay NO 100000 cycles<br>Configurable relay logic R3 sequence relay NO 100000 cycles                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Refresh time                               | Relay output R1, R2, R3)5 ms +/- 0.5 ms)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Minimum switching current                  | Relay output R1, R2, R3 5 mA 24 V DC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Maximum switching current                  | Relay output R1, R2, R3 resistive, cos phi = 1 3 A 250 V AC<br>Relay output R1, R2, R3 resistive, cos phi = 1 3 A 30 V DC<br>Relay output R1, R2, R3 inductive, cos phi = 0.4 7 ms 2 A 250 V AC<br>Relay output R1, R2, R3 inductive, cos phi = 0.4 7 ms 2 A 30 V DC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Isolation                                  | Between power and control terminals                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Maximum output frequency                   | 500 kHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Maximum Input Current per Phase            | 79.8 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Variable speed drive application selection | Building - HVAC compressor centrifugal<br>Food and beverage processing other application<br>Mining mineral and metal fan<br>Mining mineral and metal pump<br>Oil and gas fan<br>Water and waste water other application<br>Building - HVAC screw compressor<br>Food and beverage processing pump<br>Food and beverage processing fan<br>Food and beverage processing atomization<br>Oil and gas electro submersible pump (ESP)<br>Oil and gas water injection pump<br>Oil and gas jet fuel pump<br>Oil and gas compressor for refinery<br>Water and waste water centrifuge pump<br>Water and waste water positive displacement pump<br>Water and waste water electro submersible pump (ESP)<br>Water and waste water screw pump<br>Water and waste water lobe compressor<br>Water and waste water screw compressor<br>Water and waste water compressor centrifugal<br>Water and waste water fan<br>Water and waste water conveyor<br>Water and waste water mixer |
| Motor power range AC-3                     | 30...50 kW 380...440 V 3 phase<br>30...50 kW 480...500 V 3 phase                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Quantity per Set                           | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Enclosure mounting                         | With heat sink                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

## Environment

|                               |                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Insulation resistance         | > 1 MOhm 500 V DC for 1 minute to earth                                                                                                                                                                                                                                                                                                                                                                                          |
| Noise level                   | 63.5 dB 86/188/EEC                                                                                                                                                                                                                                                                                                                                                                                                               |
| Power dissipation in W        | Natural convection 121 W 380 V 4 kHz<br>Forced convection 943 W 380 V 4 kHz                                                                                                                                                                                                                                                                                                                                                      |
| Volume of cooling air         | 63402.4 Gal/hr(US) (240 m3/h)                                                                                                                                                                                                                                                                                                                                                                                                    |
| Operating position            | Vertical +/- 10 degree                                                                                                                                                                                                                                                                                                                                                                                                           |
| Maximum THDI                  | <48 % from 80...100 % of load 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 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 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 11 ms IEC 60068-2-27                                                                                                                                                                                                                                                                                                                                                                                                       |

|                                       |                                                                                                                                                                                           |
|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Relative humidity                     | 5...95 % without condensation IEC 60068-2-3                                                                                                                                               |
| Ambient air temperature for operation | 5...122 °F (-15...50 °C) (without derating)<br>122...140 °F (50...60 °C) (with derating factor)                                                                                           |
| Ambient Air Temperature for Storage   | -40...158 °F (-40...70 °C)                                                                                                                                                                |
| Operating altitude                    | <= 3280.84 ft (1000 m) without derating<br>1000...4800 m with current derating 1 % per 100 m                                                                                              |
| Product Certifications                | UL<br>ATEX zone 2/22<br>ATEX INERIS<br>CSA<br>TÜV<br>DNV-GL                                                                                                                               |
| Marking                               | CE                                                                                                                                                                                        |
| Standards                             | UL 508C<br>IEC 61800-3<br>IEC 61800-3 environment 1 category C2<br>EN/IEC 61800-3 environment 2 category C3<br>IEC 61800-5-1<br>IEC 61000-3-12<br>IEC 60721-3<br>IEC 61508<br>IEC 13849-1 |
| Assembly style                        | With heat sink                                                                                                                                                                            |
| Overvoltage category                  | III                                                                                                                                                                                       |
| Regulation loop                       | Adjustable PID regulator                                                                                                                                                                  |
| Noise level                           | 63.5 dB                                                                                                                                                                                   |
| pollution degree                      | 2                                                                                                                                                                                         |

## Ordering and shipping details

|                   |               |
|-------------------|---------------|
| Category          | US1CP4E22206  |
| Discount Schedule | CP4E          |
| GTIN              | 3606489739973 |
| Returnability     | Yes           |
| Country of origin | IN            |

## Packing Units

|                              |                        |
|------------------------------|------------------------|
| Unit Type of Package 1       | PCE                    |
| Number of Units in Package 1 | 1                      |
| Package 1 Height             | 21.42 in (54.4 cm)     |
| Package 1 Width              | 13.19 in (33.5 cm)     |
| Package 1 Length             | 33.07 in (84.0 cm)     |
| Package 1 Weight             | 65.04 lb(US) (29.5 kg) |

Environmental Data

Schneider Electric aims to achieve Net Zero status by 2050 through supply chain partnerships, lower impact materials, and circularity via our ongoing “Use Better, Use Longer, Use Again” campaign to extend product lifetimes and recyclability.

[Environmental Data explained >](#)

[How we assess product sustainability >](#)

| Environmental footprint                        |                                               |
|------------------------------------------------|-----------------------------------------------|
| Carbon footprint (kg CO2 eq, Total Life cycle) | 34141                                         |
| Environmental Disclosure                       | <a href="#">Product Environmental Profile</a> |

Use Better

| Materials and Substances               |                                                                                                                                                                                                                                                                                                    |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Packaging made with recycled cardboard | Yes                                                                                                                                                                                                                                                                                                |
| Packaging without single use plastic   | No                                                                                                                                                                                                                                                                                                 |
| SCIP Number                            | 0fe778b1-f7b5-4d62-ac8b-bed5a42cf3df                                                                                                                                                                                                                                                               |
| China RoHS Regulation                  | <a href="#">China RoHS declaration</a>                                                                                                                                                                                                                                                             |
| California proposition 65              | <b>WARNING:</b> This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to <a href="http://www.P65Warnings.ca.gov">www.P65Warnings.ca.gov</a> |

| Energy efficiency                                  |     |
|----------------------------------------------------|-----|
| Product contributes to saved and avoided emissions | Yes |

Use Again

| Repack and remanufacture |                                                                                                                                                                                                                  |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Circularity Profile      | <a href="#">End of Life Information</a>                                                                                                                                                                          |
| Take-back                | No                                                                                                                                                                                                               |
| WEEE                     |  The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins. |