





## Main

|                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Range of product                   | Altivar Process ATV900                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Product or component type          | Variable speed drive                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Device application                 | Industrial application                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Device short name                  | ATV930                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Variant                            | Standard version<br>With braking chopper                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Product destination                | Asynchronous motors<br>Synchronous motors                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Mounting mode                      | Wall mount                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| EMC filter                         | Integrated conforming to EN/IEC 61800-3 category C3 with <= 150 m motor cable maxi                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| IP degree of protection            | IP21 conforming to IEC 61800-5-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Degree of protection               | UL type 1 conforming to UL 508C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Type of cooling                    | Forced convection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Supply frequency                   | 50...60 Hz (+/- 5 %)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Network number of phases           | 3 phases                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| [Us] rated supply voltage          | 380...480 V (- 15...10 %)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Motor power kW                     | 0.75 kW (normal duty)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Motor power hp                     | 1 hp (normal duty)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Line current                       | 1.5 A at 380 V (normal duty)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Prospective line Isc               | 50 kA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Apparent power                     | 1.1 kVA at 480 V (normal duty)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Continuous output current          | 2.2 A at 4 kHz (normal duty)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Maximum transient current          | 2.6 A during 60 s (normal duty)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Asynchronous motor control profile | Constant torque standard<br>Variable torque standard<br>Optimized torque mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Synchronous motor control profile  | Permanent magnet motor<br>Synchronous reluctance motor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Speed drive output frequency       | 0.1...599 Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 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<br>Modbus serial<br>Modbus TCP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Option module                      | Slot A: communication module Profibus DP V1<br>Slot A: communication module Profinet<br>Slot A: communication module DeviceNet<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: communication module EtherCAT<br>Slot A/slot B/slot C: digital and analog I/O extension module<br>Slot A/slot B/slot C: output relay extension module<br>Slot B: 5/12 V digital encoder interface module<br>Slot B: analog encoder interface module<br>Slot B: resolver encoder interface module |

## Complementary

|                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Output voltage                      | $\leq$ power supply voltage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Motor slip compensation             | Adjustable<br>Automatic whatever the load<br>Can be suppressed<br>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<br>Motor: safe torque off<br>Motor: motor phase break<br>Drive: thermal protection<br>Drive: safe torque off<br>Drive: overheating<br>Drive: overcurrent between output phases and earth<br>Drive: overload of output voltage<br>Drive: short-circuit protection<br>Drive: motor phase break<br>Drive: overvoltages on the DC bus<br>Drive: line supply overvoltage<br>Drive: line supply undervoltage<br>Drive: line supply phase loss<br>Drive: overspeed<br>Drive: break on the control circuit |
| Frequency resolution                | Display unit: 0.1 Hz<br>Analog input: 0.012/50 Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Electrical connection               | Control, screw terminal: 0.5...1.5 mm <sup>2</sup> (AWG 20...AWG 16)                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Connector type                      | 2 RJ45 (on the control block) Ethernet IP/Modbus TCP                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Physical interface                  | 2-wire RS 485 Modbus serial                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Transmission frame                  | RTU Modbus serial                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Transmission rate                   | 10/100 Mbit/s Ethernet IP/Modbus TCP<br>4.8, 9.6, 19.2, 38.4 kbit/s for Modbus serial                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Exchange mode                       | Half duplex, full duplex, autonegotiation Ethernet IP/Modbus TCP                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Data format                         | 8 bits, configurable odd, even or no parity Modbus serial                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Type of polarization                | No impedance Modbus serial                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Number of addresses                 | For Modbus serial                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Method of access                    | Slave Modbus TCP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Supply                              | External supply for digital inputs: 24 V DC (19...30 V) current $\leq$ 1.25 mA (overload and short-circuit protection)                                                                                                                                                                                                                                                                                                                                                                                                       |
| Local signalling                    | 3 mono/dual colour LED for local diagnostic                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Width                               | 5.67 in (144 mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Height                              | 13.78 in (350 mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Depth                               | 8.11 in (206 mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Product weight                      | 9.92 lb(US) (4.5 kg)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Analogue input number               | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Analogue input type                 | Software-configurable voltage AI1, AI2, AI3: 0...10 V DC impedance 30 kOhm, resolution 12 bits                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Discrete input number               | 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Discrete input type                 | Programmable DI1...DI8: 24 V DC ( $\leq$ 30 V) impedance 3.5 kOhm                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Input compatibility                 | Discrete input DI1...DI8: level 1 PLC conforming to EN/IEC 61131-2                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Analogue output number              | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Discrete output number              | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Discrete output type                | Logic output DQ+ : 0...1 kHz ( $\leq$ 30 V) DC, 100 mA                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Sampling duration                   | Discrete input DI1...DI8: 2 ms (+/- 0.5 ms)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Accuracy                            | Analog input AI1, AI2, AI3: +/- 0.6 % for a temperature variation 60 °C<br>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                           | 54.5 dB conforming to 86/188/EEC                                                                                                                                                                                                                                                                                                                                                                                                 |
| Power dissipation in W                | 26 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<br>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                 | 10038.72 Gal/hr(US) (38 m3/h)                                                                                                                                                                                                                                                                                                                                                                                                    |
| Operating position                    | Vertical +/- 10 degree                                                                                                                                                                                                                                                                                                                                                                                                           |
| THDI                                  | <= 48 % full 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<br>Electrical fast transient/burst immunity test level 4 conforming to IEC 61000-4-4<br>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>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<br>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<br>122...140 °F (50...60 °C) with derating factor                                                                                                                                                                                                                                                                                                                                                            |
| Ambient air temperature for storage   | -40...158 °F (-40...70 °C)                                                                                                                                                                                                                                                                                                                                                                                                       |
| Operating altitude                    | 1000...4800 m with current derating 1 % per 100 m                                                                                                                                                                                                                                                                                                                                                                                |
| Standards                             | EN/IEC 61800-3<br>UL 508C<br>EN/IEC 61800-5-1<br>IEC 61000-3-12<br>IEC 60721-3<br>IEC 61508<br>IEC 13849-1<br>EN/IEC 61800-3 (environment 1 category C2)<br>EN/IEC 61800-3 (environment 2 category C3)                                                                                                                                                                                                                           |
| Product certifications                | CSA<br>TÜV<br>UL<br>REACH                                                                                                                                                                                                                                                                                                                                                                                                        |
| Marking                               | CE                                                                                                                                                                                                                                                                                                                                                                                                                               |

## Ordering and shipping details

|                       |                             |
|-----------------------|-----------------------------|
| Category              | 22276 - ATV930 FRAMES 1 & 2 |
| Discount Schedule     | CP4E                        |
| GTIN                  | 00785901960577              |
| Nbr. of units in pkg. | 1                           |
| Package weight(Lbs)   | 12.800000000000001          |
| Returnability         | N                           |
| Country of origin     | ID                          |

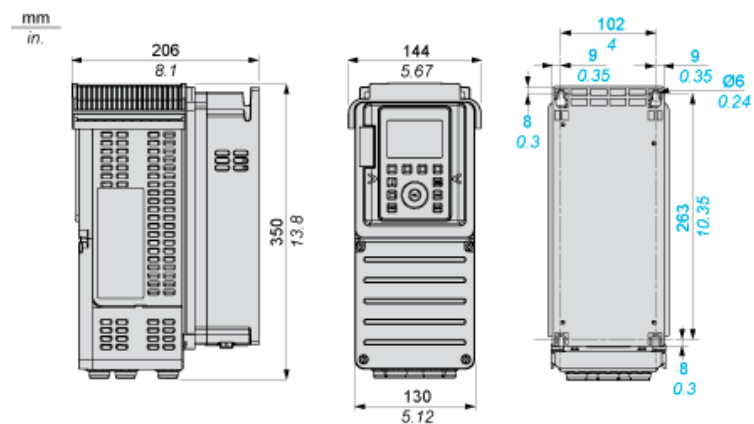
## Offer Sustainability

|                                  |                                                                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Sustainable offer status         | Green Premium product                                                                                                              |
| RoHS (date code: YYWW)           | Compliant - since 1526 - Schneider Electric declaration of conformity <a href="#">Schneider Electric declaration of conformity</a> |
| REACH                            | Reference not containing SVHC above the threshold                                                                                  |
| Product environmental profile    | Available <a href="#">Product Environmental Profile</a>                                                                            |
| Product end of life instructions | Available <a href="#">End Of Life Information</a>                                                                                  |

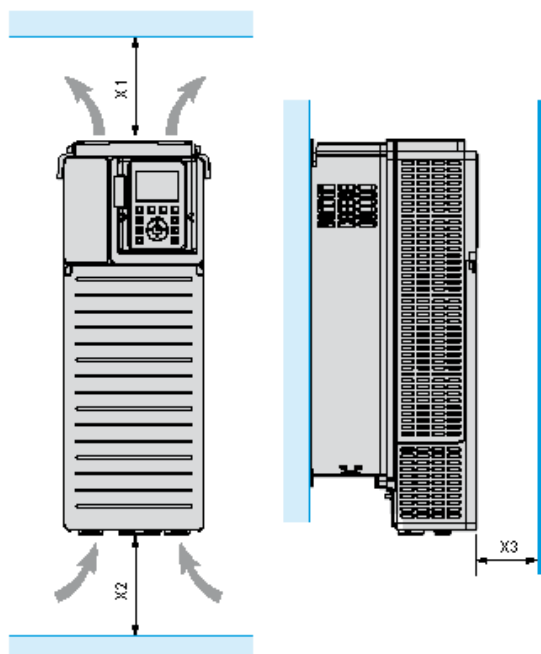
|                            |                                                                                                                                  |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| California proposition 65  | WARNING: This product can expose you to chemicals including:                                                                     |
| - - - - - Substance 1      | Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. |
| - - - - - Substance 2      | Bisphenol A (BPA), which is known to the State of California to cause birth defects or other reproductive harm.                  |
| - - - - - More information | For more information go to <a href="http://www.p65warnings.ca.gov">www.p65warnings.ca.gov</a>                                    |

## Dimensions

### IP21 / UL Type 1 Drives - Right Side, Front and Rear View



## Clearances

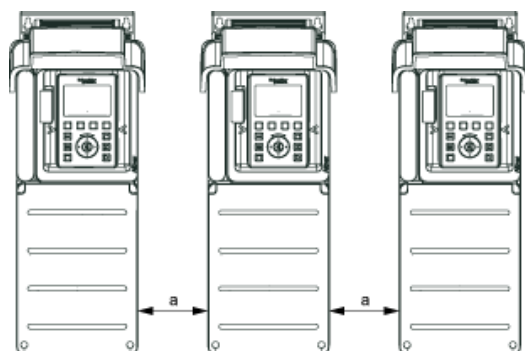


| X1                               | X2                               | X3                              |
|----------------------------------|----------------------------------|---------------------------------|
| $\geq 100 \text{ mm (3.94 in.)}$ | $\geq 100 \text{ mm (3.94 in.)}$ | $\geq 10 \text{ mm (0.39 in.)}$ |

- Mount the device in a vertical position ( $\pm 10^\circ$ ). 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.

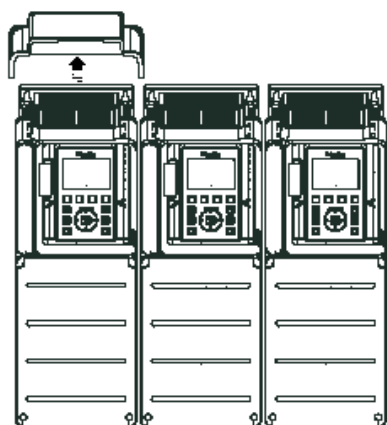
## Mounting Types

### Mounting Type A: Individual IP21



$a \geq 100 \text{ mm (3.94 in.)}$

## Mounting Type B: Side by Side IP20



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