

# Product datasheet

Specifications



variable speed drive, Altivar Process ATV900, ATV930, 5.5kW, 200 to 240V, with braking unit, IP21

ATV930U55M3

## Main

|                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Range of product</b>                   | Altivar Process ATV900                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Device application</b>                 | Industrial application                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>product or component type</b>          | Variable speed drive                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>product destination</b>                | Asynchronous motors<br>Synchronous motors                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Product specific application</b>       | Process for industrial                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>variant</b>                            | Standard version<br>With braking chopper                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Network number of phases</b>           | 3 phases                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>mounting mode</b>                      | Wall mount                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Communication port protocol</b>        | Modbus TCP<br>EtherNet/IP<br>Modbus serial                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>[Us] rated supply voltage</b>          | 200...240 V - 15...10 %                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Motor power kW</b>                     | 5.5 kW for normal duty<br>4.0 kW for heavy duty                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Continuous output current</b>          | 25.4 A at 4 kHz for normal duty<br>18.7 A at 4 kHz for heavy duty                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>EMC filter</b>                         | Integrated<br>With EMC plate option                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>IP degree of protection</b>            | IP21                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Degree of protection</b>               | UL type 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>option module</b>                      | Slot A: communication module for Profibus DP V1<br>Slot A: communication module for PROFINET<br>Slot A: communication module for DeviceNet<br>Slot A: communication module for EtherCAT<br>Slot A: communication module for CANopen daisy chain RJ45<br>Slot A: communication module for CANopen SUB-D 9<br>Slot A: communication module for CANopen screw terminals<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<br>communication module for Ethernet Powerlink |
| <b>Discrete input logic</b>               | 16 preset speeds                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Asynchronous motor control profile</b> | Variable torque standard<br>Constant torque standard<br>Optimized torque mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Synchronous motor control profile</b>  | Permanent magnet motor<br>Synchronous reluctance motor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Maximum output frequency</b>           | 599 Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

|                                    |                                                                                                                                |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| <b>Switching frequency</b>         | 2...16 kHz adjustable<br>4...16 kHz with derating factor                                                                       |
| <b>Nominal switching frequency</b> | 4 kHz                                                                                                                          |
| <b>Line current</b>                | 20.2 A at 200 V (normal duty)<br>15.1 A at 200 V (heavy duty)<br>17.1 A at 240 V (normal duty)<br>13.0 A at 240 V (heavy duty) |
| <b>Apparent power</b>              | 7.6 kVA at 240 V (normal duty)<br>6 kVA at 240 V (heavy duty)                                                                  |
| <b>Maximum transient current</b>   | 30.5 A during 60 s (normal duty)<br>28.1 A during 60 s (heavy duty)                                                            |
| <b>Network frequency</b>           | 50...60 Hz                                                                                                                     |
| <b>Prospective line Isc</b>        | 50 kA                                                                                                                          |

## Complementary

|                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Discrete input number</b>     | 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Discrete input type</b>       | DI1...DI8 programmable, 24 V DC ( $\leq 30$ V), impedance: 3.5 kOhm<br>DI7, DI8 programmable as pulse input: 0...30 kHz, 24 V DC ( $\leq 30$ V)<br>STOA, STOB safe torque off, 24 V DC ( $\leq 30$ V), impedance: $> 2.2$ kOhm                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Discrete output number</b>    | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Discrete output type</b>      | Logic output DQ+ 0...1 kHz $\leq 30$ V DC 100 mA<br>Programmable as pulse output DQ+ 0...30 kHz $\leq 30$ V DC 20 mA<br>Logic output DQ- 0...1 kHz $\leq 30$ V DC 100 mA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Analogue input number</b>     | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Analogue input type</b>       | AI1, AI2, AI3 software-configurable voltage: 0...10 V DC, impedance: 30 kOhm, resolution 12 bits<br>AI1, AI2, AI3 software-configurable current: 0...20 mA/4...20 mA, impedance: 250 Ohm, resolution 12 bits                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Analogue output number</b>    | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Analogue output type</b>      | Software-configurable voltage AQ1, AQ2: 0...10 V DC impedance 470 Ohm, resolution 10 bits<br>Software-configurable current AQ1, AQ2: 0...20 mA impedance 500 Ohm, resolution 10 bits                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Relay output number</b>       | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Relay output type</b>         | Configurable relay logic R1: fault relay NO/NC electrical durability 100000 cycles<br>Configurable relay logic R2: sequence relay NO electrical durability 1000000 cycles<br>Configurable relay logic R3: sequence relay NO electrical durability 1000000 cycles                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Maximum switching current</b> | Relay output R1 on resistive load, $\cos \phi = 1$ : 3 A at 250 V AC<br>Relay output R1 on resistive load, $\cos \phi = 1$ : 3 A at 30 V DC<br>Relay output R1 on inductive load, $\cos \phi = 0.4$ and $L/R = 7$ ms: 2 A at 250 V AC<br>Relay output R1 on inductive load, $\cos \phi = 0.4$ and $L/R = 7$ ms: 2 A at 30 V DC<br>Relay output R2, R3 on resistive load, $\cos \phi = 1$ : 5 A at 250 V AC<br>Relay output R2, R3 on resistive load, $\cos \phi = 1$ : 5 A at 30 V DC<br>Relay output R2, R3 on inductive load, $\cos \phi = 0.4$ and $L/R = 7$ ms: 2 A at 250 V AC<br>Relay output R2, R3 on inductive load, $\cos \phi = 0.4$ and $L/R = 7$ ms: 2 A at 30 V DC |
| <b>Minimum switching current</b> | Relay output R1, R2, R3: 5 mA at 24 V DC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Physical interface</b>        | Ethernet<br>2-wire RS 485                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Connector type</b>            | 2 RJ45<br>1 RJ45                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Method of access</b>          | Slave Modbus TCP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Transmission rate</b>         | 10, 100 Mbits<br>4.8 kbps<br>9600 bit/s<br>19200 bit/s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

|                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Transmission frame</b>                                   | RTU                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Number of addresses</b>                                  | 1...247                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Data format</b>                                          | 8 bits, configurable odd, even or no parity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Type of polarization</b>                                 | No impedance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>4 quadrant operation possible</b>                        | True                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Acceleration and deceleration ramps</b>                  | Linear adjustable separately from 0.01...9999 s                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Motor slip compensation</b>                              | Adjustable<br>Automatic whatever the load<br>Can be suppressed<br>Not available in permanent magnet motor law                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Braking to standstill</b>                                | By DC injection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Brake chopper integrated</b>                             | True                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Maximum input current</b>                                | 20.2 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Maximum output voltage</b>                               | 240.0 V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Relative symmetric network frequency tolerance</b>       | 5 %                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Base load current at high overload</b>                   | 18.7 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Base load current at low overload</b>                    | 25.4 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Power dissipation in W</b>                               | Natural convection: 47 W at 200 V, switching frequency 4 kHz<br>Forced convection: 179 W at 200 V, switching frequency 4 kHz                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>With safety function Safely Limited Speed (SLS)</b>      | True                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>With safety function Safe brake management (SBC/SBT)</b> | True                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>With safety function Safe Operating Stop (SOS)</b>       | False                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>With safety function Safe Position (SP)</b>              | False                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>With safety function Safe programmable logic</b>         | False                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>With safety function Safe Speed Monitor (SSM)</b>        | False                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>With safety function Safe Stop 1 (SS1)</b>               | True                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>With sft fct Safe Stop 2 (SS2)</b>                       | False                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>With safety function Safe torque off (STO)</b>           | True                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>With safety function Safely Limited Position (SLP)</b>   | False                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>With safety function Safe Direction (SDI)</b>            | False                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Protection type</b>                                      | 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 |
| <b>Quantity per set</b>                                     | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Width</b>                                                | 171 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Height</b>                | 409 mm                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Depth</b>                 | 236 mm                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>net weight</b>            | 7.7 kg                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Electrical connection</b> | Control: screw terminal 0.5...1.5 mm <sup>2</sup> /AWG 20...AWG 16<br>Line side: screw terminal 6 mm <sup>2</sup> /AWG 10<br>DC bus: screw terminal 6 mm <sup>2</sup> /AWG 10<br>Motor: screw terminal 10 mm <sup>2</sup> /AWG 8                                                                                                                                                                               |
| <b>Transmission rate</b>     | 10/100 Mbit/s for Ethernet IP/Modbus TCP<br>4.8, 9.6, 19.2, 38.4 kbit/s for Modbus serial                                                                                                                                                                                                                                                                                                                      |
| <b>Exchange mode</b>         | Half duplex, full duplex, autonegotiation Ethernet IP/Modbus TCP                                                                                                                                                                                                                                                                                                                                               |
| <b>Data format</b>           | 8 bits, configurable odd, even or no parity for Modbus serial                                                                                                                                                                                                                                                                                                                                                  |
| <b>Type of polarization</b>  | No impedance for Modbus serial                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Number of addresses</b>   | 1...247 for Modbus serial                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Supply</b>                | External supply for digital inputs: 24 V DC (19...30 V), <1.25 mA, protection type: overload and short-circuit protection<br>Internal supply for reference potentiometer (1 to 10 kOhm): 10.5 V DC +/- 5 %, <10 mA, protection type: overload and short-circuit protection<br>Internal supply for digital inputs and STO: 24 V DC (21...27 V), <200 mA, protection type: overload and short-circuit protection |
| <b>Local signalling</b>      | Local diagnostic: 3 LED (mono/dual colour)<br>Embedded communication status: 5 LED (dual colour)<br>Communication module status: 2 LED (dual colour)<br>Presence of voltage: 1 LED (red)                                                                                                                                                                                                                       |
| <b>Input compatibility</b>   | DI1...DI8: discrete input level 1 PLC conforming to IEC 61131-2<br>DI7, DI8: pulse input level 1 PLC conforming to IEC 65A-68<br>STOA, STOB: discrete input level 1 PLC conforming to IEC 61131-2                                                                                                                                                                                                              |
| <b>Discrete input logic</b>  | Positive logic (source) (DI1...DI8), < 5 V (state 0), > 11 V (state 1)<br>Negative logic (sink) (DI1...DI8), > 16 V (state 0), < 10 V (state 1)<br>Positive logic (source) (DI7, DI8), < 0.6 V (state 0), > 2.5 V (state 1)<br>Positive logic (source) (STOA, STOB), < 5 V (state 0), > 11 V (state 1)                                                                                                         |
| <b>Sampling duration</b>     | 2 ms +/- 0.5 ms (DI1...DI8) - discrete input<br>5 ms +/- 1 ms (DI7, DI8) - pulse input<br>1 ms +/- 1 ms (AI1, AI2, AI3) - analog input<br>5 ms +/- 1 ms (AQ1, AQ2) - analog output                                                                                                                                                                                                                             |
| <b>Accuracy</b>              | +/- 0.6 % AI1, AI2, AI3 for a temperature variation 60 °C analog input<br>+/- 1 % AQ1, AQ2 for a temperature variation 60 °C analog output                                                                                                                                                                                                                                                                     |
| <b>Linearity error</b>       | AI1, AI2, AI3: +/- 0.15 % of maximum value for analog input<br>AQ1, AQ2: +/- 0.2 % for analog output                                                                                                                                                                                                                                                                                                           |
| <b>Refresh time</b>          | Relay output (R1, R2, R3): 5 ms (+/- 0.5 ms)                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Isolation</b>             | Between power and control terminals                                                                                                                                                                                                                                                                                                                                                                            |

## Environment

|                               |                                                                                                      |
|-------------------------------|------------------------------------------------------------------------------------------------------|
| <b>Operating altitude</b>     | <= 1000 m without derating<br>1000...4800 m with current derating 1 % per 100 m                      |
| <b>Operating position</b>     | Vertical +/- 10 degree                                                                               |
| <b>Product certifications</b> | UL<br>TÜV<br>CSA                                                                                     |
| <b>marking</b>                | CE                                                                                                   |
| <b>Standards</b>              | UL 508C<br>IEC 61800-3<br>IEC 61800-5-1<br>IEC 61000-3-12<br>IEC 60721-3<br>IEC 61508<br>IEC 13849-1 |

|                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Maximum THDI</b>                                                     | <48 % from 80...100 % of load conforming to IEC 61000-3-12                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Assembly style</b>                                                   | Enclosed                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Electromagnetic compatibility</b>                                    | 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 $\mu$ s - 8/20 $\mu$ s 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 |
| <b>Environmental class (during operation)</b>                           | Class 3C3 according to IEC 60721-3-3<br>Class 3S3 according to IEC 60721-3-3                                                                                                                                                                                                                                                                                                                                                               |
| <b>Maximum acceleration under shock impact (during operation)</b>       | 150 m/s <sup>2</sup> at 11 ms                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Maximum acceleration under vibrational stress (during operation)</b> | 10 m/s <sup>2</sup> at 13...200 Hz                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Maximum deflection under vibratory load (during operation)</b>       | 1.5 mm at 2...13 Hz                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Permitted relative humidity (during operation)</b>                   | Class 3K5 according to EN 60721-3                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Volume of cooling air</b>                                            | 103 m <sup>3</sup> /h                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Overvoltage category</b>                                             | III                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Regulation loop</b>                                                  | Adjustable PID regulator                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Insulation resistance</b>                                            | > 1 MOhm 500 V DC for 1 minute to earth                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Noise level</b>                                                      | 56 dB conforming to 86/188/EEC                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Vibration resistance</b>                                             | 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                                                                                                                                                                                                                                                                                                                        |
| <b>Shock resistance</b>                                                 | 15 gn for 11 ms conforming to IEC 60068-2-27                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Environmental characteristic</b>                                     | Chemical pollution resistance class 3C3 conforming to IEC 60721-3-3<br>Dust pollution resistance class 3S3 conforming to IEC 60721-3-3                                                                                                                                                                                                                                                                                                     |
| <b>Relative humidity</b>                                                | 5...95 % without condensation conforming to IEC 60068-2-3                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Ambient air temperature for operation</b>                            | -15...50 °C (without derating)<br>50...60 °C (with derating factor)                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Noise level</b>                                                      | 56 dB                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Pollution degree</b>                                                 | 2                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Ambient air transport temperature</b>                                | -40...70 °C                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Ambient air temperature for storage</b>                              | -40...70 °C                                                                                                                                                                                                                                                                                                                                                                                                                                |

## Packing Units

|                                     |           |
|-------------------------------------|-----------|
| <b>Unit Type of Package 1</b>       | PCE       |
| <b>Number of Units in Package 1</b> | 1         |
| <b>Package 1 Height</b>             | 34.700 cm |
| <b>Package 1 Width</b>              | 21.500 cm |
| <b>Package 1 Length</b>             | 58.000 cm |
| <b>Package 1 Weight</b>             | 10.204 kg |
| <b>Unit Type of Package 2</b>       | P06       |
| <b>Number of Units in Package 2</b> | 3         |
| <b>Package 2 Height</b>             | 75.000 cm |
| <b>Package 2 Width</b>              | 60.000 cm |
| <b>Package 2 Length</b>             | 80.000 cm |

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Package 2 Weight

43.612 kg

## Sustainability

**Green Premium™ label** is Schneider Electric's commitment to delivering products with best-in-class environmental performance. Green Premium promises compliance with the latest regulations, transparency on environmental impacts, as well as circular and low-CO<sub>2</sub> products.

**Guide to assessing product sustainability** is a white paper that clarifies global eco-label standards and how to interpret environmental declarations.

[Learn more about Green Premium >](#)

[Guide to assess a product's sustainability >](#)



Transparency RoHS/REACH

## Resource performance

Upgraded Components Available

## Well-being performance

Mercury Free

Rohs Exemption Information Yes

## Certifications & Standards

Reach Regulation [REACH Declaration](#)

Eu Rohs Directive Pro-active compliance (Product out of EU RoHS legal scope)

China Rohs Regulation [China RoHS declaration](#)

Environmental Disclosure [Product Environmental Profile](#)

Weee The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins

Circularity Profile [End of Life Information](#)

Dimensions Drawings

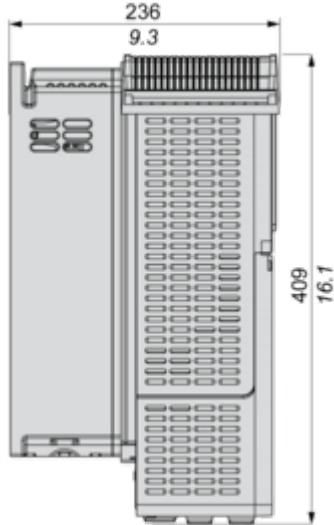
Dimensions

Front, Left and Rear View

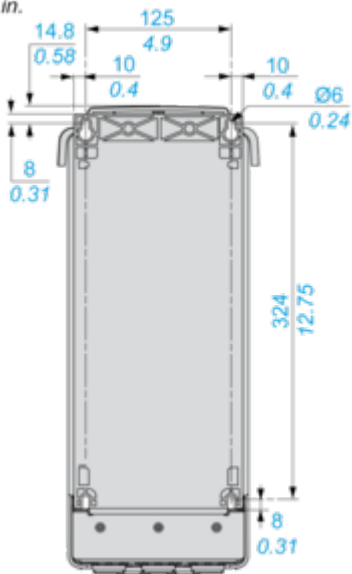
mm  
in.



mm  
in.



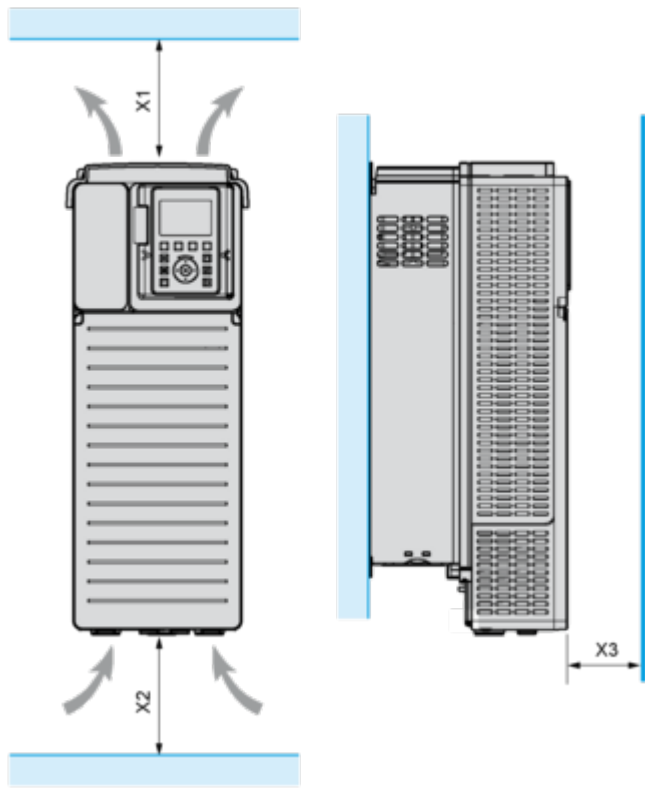
mm  
in.





Mounting and Clearance

Clearances



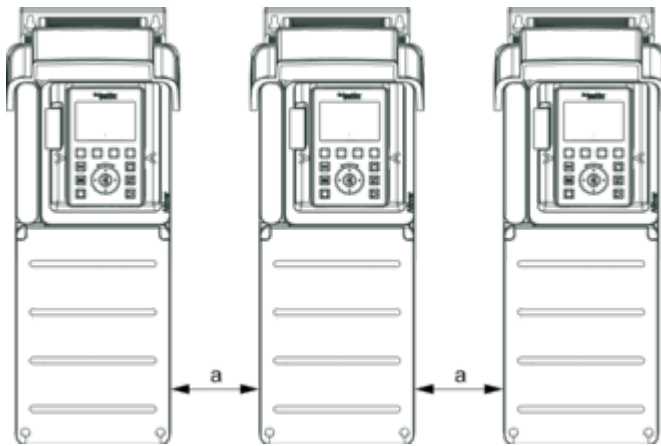
| X1                  | X2                  | X3                 |
|---------------------|---------------------|--------------------|
| ≥ 100 mm (3.94 in.) | ≥ 100 mm (3.94 in.) | ≥ 10 mm (0.39 in.) |

- 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**

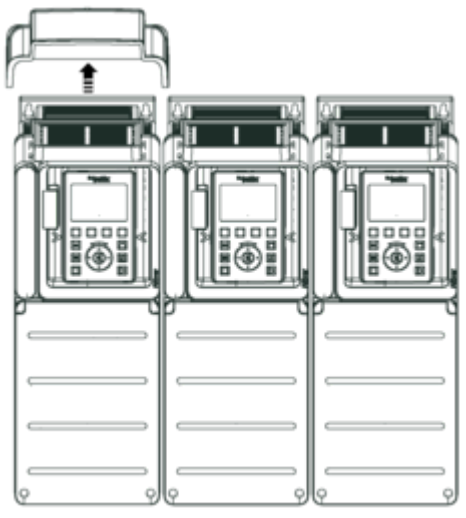
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**Mounting Type A: Individual IP21**

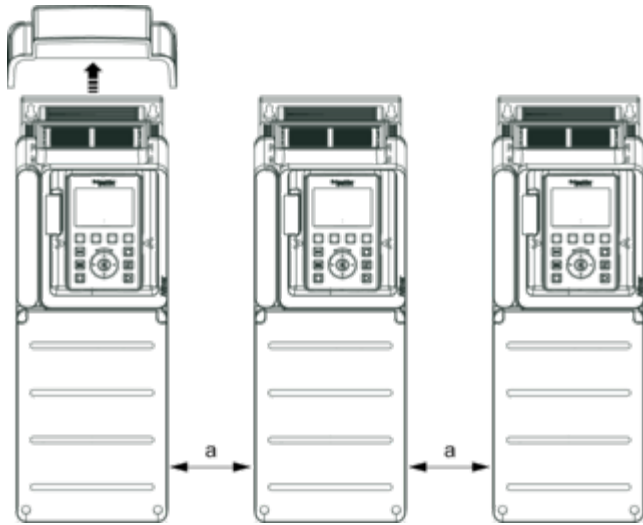


$a \geq 100 \text{ mm (3.94 in.)}$

**Mounting Type B: Side by Side IP20**



**Mounting Type C: Individual IP20**

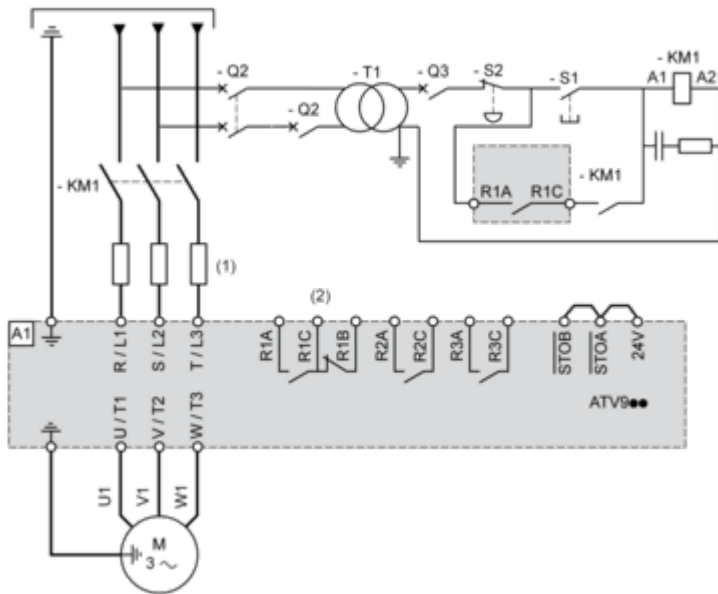


$a \geq 0$

Connections and Schema

**Three-Phase Power Supply with Upstream Breaking via Line Contactor**

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



(1) Line choke if used

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

A1 : Drive

KM1 : Line Contactor

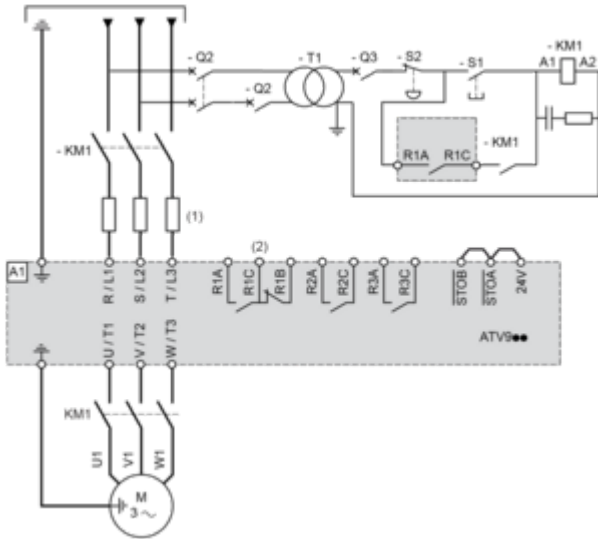
Q2, Q3 : Circuit breakers

S1, S2 : Pushbuttons

T1 : Transformer for control part

**Three-Phase Power Supply with Downstream Breaking via Contactor**

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



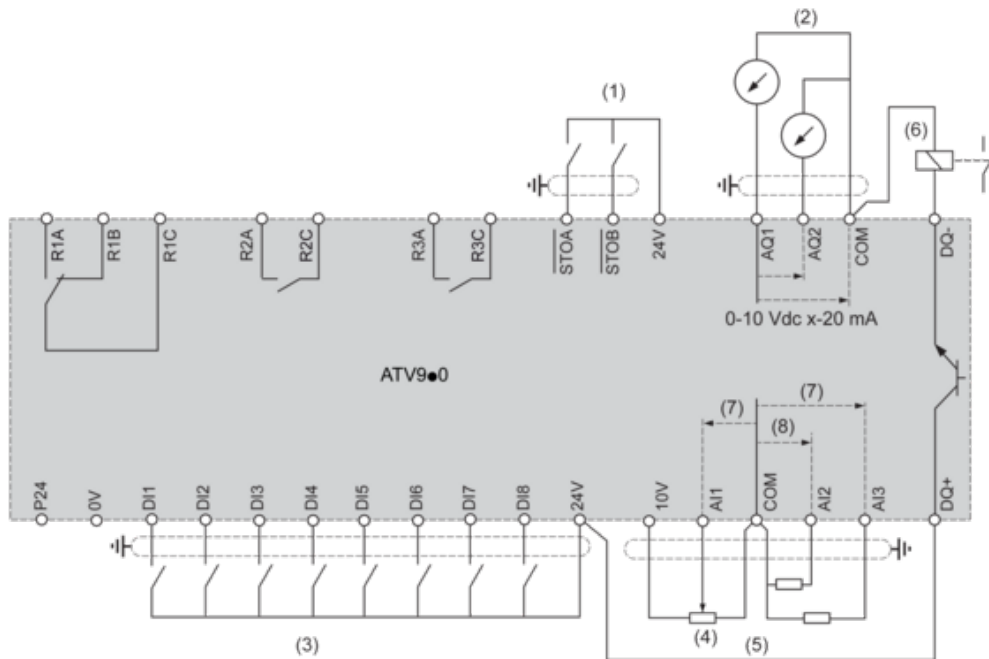
(1) Line choke if used

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

A1 : Drive

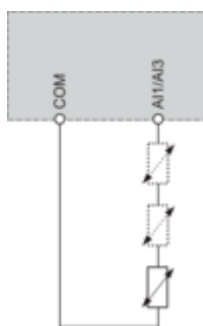
KM1 : Contactor

Control Block Wiring Diagram



- (1) Safe Torque Off
  - (2) Analog Output
  - (3) Digital Input
  - (4) Reference potentiometer
  - (5) Analog Input
  - (6) Digital Output
  - (7) 0-10 Vdc, x-20 mA
  - (8) 0-10 Vdc, -10 Vdc...+10 Vdc
- R1A, R1B, R1C** : Fault relay  
**R2A, R2C** : Sequence relay  
**R3A, R3C** : Sequence relay

Sensor Connection



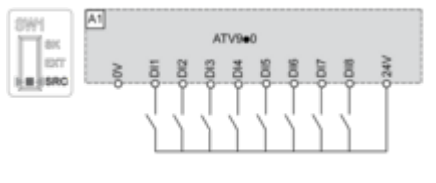
It is possible to connect either 1 or 3 sensors on terminals AI1 or AI3

**Sink / Source Switch Configuration**

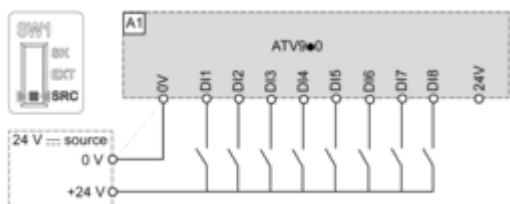
The switch is used to adapt the operation of the logic inputs to the technology of the programmable controller outputs.

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

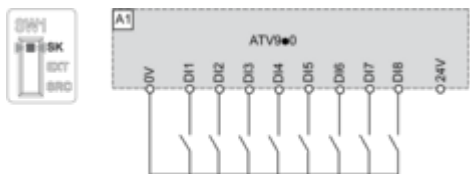
**Switch Set to SRC (Source) Position Using the Output Power Supply for the Digital Inputs**



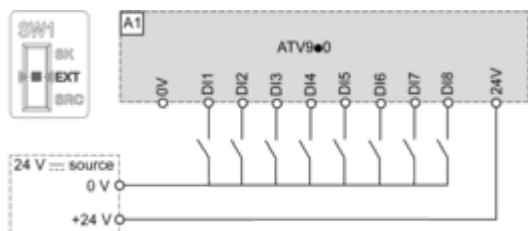
**Switch Set to SRC (Source) Position and Use of an External Power Supply for the DIs**



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



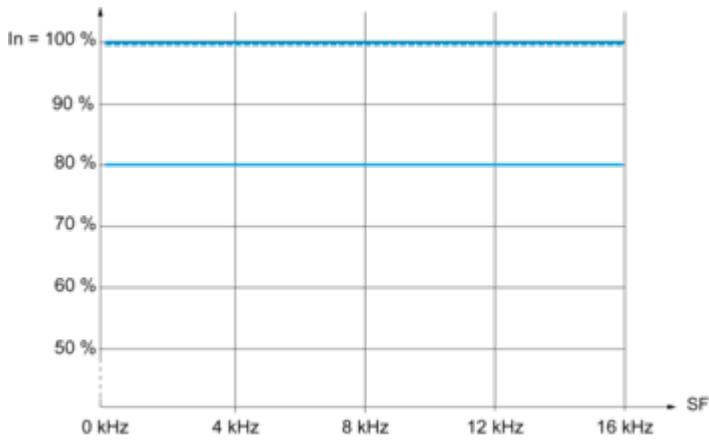
**Switch Set to EXT Position Using an External Power Supply for the DIs**



Performance Curves

Derating Curves

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— 40 °C (104 °F) - Mounting type A, B and C  
- - - 50 °C (122 °F) - Mounting type A, B and C  
— 60 °C (140 °F) - Mounting type B and C  
**In** : Nominal Drive Current  
**SF** : Switching Frequency