

# Product data sheet

Specifications



variable speed drive, Altivar Process  
ATV600, ATV630, 37kW, 50hp, 500  
to 690V, IP00

ATV630D37Y6

## Main

|   |  |
|---|--|
| <b>Range of product</b>                               | Altivar Process ATV600   |
| <b>Product specific application</b>                   | Process and utilities  |
| <b>Product or component type</b>                      | Variable speed drive   |
| <b>Variant</b>  | Standard version   |
| <b>Device short name</b>                              | ATV630   |
| <b>Mounting mode</b>                                  | Wall mount   |
| <b>Communication port protocol</b>                    | Modbus TCP<br>Modbus serial<br>Ethernet  |
| <b>[Us] rated supply voltage</b>                      | 500...690 V - 15...10 %  |
| <b>[Us] rated supply voltage</b>                      | 500...690 V  |
| <b>Relative symmetric mains voltage tolerance</b>     | 10 %   |
| <b>Relative symmetric network frequency tolerance</b> | 5 %  |
| <b>nominal output current</b>                         | 45.0 A   |
| <b>IP degree of protection</b>                        | IP21   |
| <b>Product destination</b>                            | Asynchronous motors<br>Synchronous motors  |
| <b>EMC filter</b>                                     | Integrated with 25 m conforming to IEC 61800-3 category C3   |
| <b>IP degree of protection</b>                        | IP00 conforming to IEC 61800-5-1<br>IP00 conforming to IEC 60529<br>IP20 (with kit VW3A9706) conforming to IEC 61800-5-1<br>IP20 (with kit VW3A9706) conforming to IEC 60529 |
| <b>Type of cooling</b>                                | Forced convection  |
| <b>Supply frequency</b>                               | 50...60 Hz - 5...5 %   |
| <b>Motor power kW</b>                                 | 30 kW at 500 V (normal duty)<br>22 kW at 500 V (heavy duty)<br>37 kW at 690 V (normal duty)<br>30 kW at 690 V (heavy duty)   |
| <b>Motor power hp</b>                                 | 40 hp at 500 V normal duty<br>30 hp at 500 V heavy duty<br>50 hp at 690 V normal duty<br>40 hp at 690 V heavy duty   |
| <b>Line current</b>                                   | 47.2 A at 500 V (normal duty)<br>46.2 A at 690 V (normal duty)<br>37.7 A at 500 V (heavy duty)<br>38.5 A at 690 V (heavy duty)   |
| <b>Continuous output current</b>                      | 34 A at 2.5 kHz for heavy duty<br>45 A at 2.5 kHz for normal duty  |

|                                     |   |
|-------------------------------------|---|
| <b>Speed drive output frequency</b> | 0.1...500 Hz  |
| <b>Safety function</b>              | STO (safe torque off) SIL 3   |
| <b>Option card</b>                  | Slot A: communication module, Profibus DP V1<br>Slot A: communication module, PROFINET<br>Slot A: communication module, DeviceNet<br>Slot A: communication module, Modbus TCP/EtherNet/IP<br>Slot A: communication module, CANopen daisy chain RJ45<br>Slot A: communication module, CANopen SUB-D 9<br>Slot A: communication module, CANopen screw terminals<br>Slot A/slot B: digital and analog I/O extension module<br>Slot A/slot B: output relay extension module<br>Slot A: communication module, Ethernet IP/Modbus TCP/MD-Link<br>Communication module, BACnet MS/TP<br>Communication module, Ethernet Powerlink |

## Complementary

|                                  |  |
|----------------------------------|--|
| <b>Discrete input number</b>     | 8  |
| <b>Discrete input type</b>       | DI7, DI8 programmable as pulse input: 0...30 kHz, 24 V DC (<= 30 V)  |
| <b>Discrete input logic</b>      | 16 preset speeds   |
| <b>Discrete output number</b>    | 0  |
| <b>Discrete output type</b>      | Relay outputs R1A, R1B, R1C 250 V AC 3000 mA<br>Relay outputs R1A, R1B, R1C 30 V DC 3000 mA<br>Relay outputs R2A, R2C 250 V AC 5000 mA<br>Relay outputs R2A, R2C 30 V DC 5000 mA<br>Relay outputs R3A, R3C 250 V AC 5000 mA<br>Relay outputs R3A, R3C 30 V DC 5000 mA  |
| <b>Analogue input number</b>     | 3  |
| <b>Analogue input type</b>       | AI1, AI2, AI3 software-configurable voltage: 0...10 V DC, impedance: 31.5 kOhm, resolution 12 bits<br>AI1, AI2, AI3 software-configurable current: 0...20 mA, impedance: 250 Ohm, resolution 12 bits<br>AI2 voltage analog input: - 10...10 V DC, impedance: 31.5 kOhm, 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, resolution 10 bits<br>Software-configurable current DQ-, DQ+: 30 V DC<br>Software-configurable current DQ-, DQ+: 100 mA  |
| <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 100000 cycles<br>Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles   |
| <b>Maximum switching current</b> | Relay output R1, R2, R3 on resistive load, cos phi = 1: 3 A at 250 V AC<br>Relay output R1, R2, R3 on resistive load, cos phi = 1: 3 A at 30 V DC<br>Relay output R1, R2, R3 on inductive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 250 V AC<br>Relay output R1, 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>Network number of phases</b>  | 3 phases   |
| <b>Physical interface</b>        | Ethernet<br>2-wire RS 485  |
| <b>Method of access</b>          | Slave Modbus TCP   |
| <b>Transmission rate</b>         | 10, 100 Mbits<br>4800 bps, 9600 bps, 19200 bps, 38.4 Kbps  |
| <b>Transmission frame</b>        | RTU  |
| <b>Output voltage</b>            | <= power supply voltage  |

|  |  |
|--|--|
| <b>Permissible temporary current boost</b> | 1.1 x I <sub>n</sub> during 60 s (normal duty)<br>1.5 x I <sub>n</sub> during 60 s (heavy duty)  |
| <b>Data format</b>                         | 8 bits, configurable odd, even or no parity  |
| <b>Type of polarization</b>                | No impedance   |
| <b>Frequency resolution</b>                | Display unit: 0.1 Hz<br>Analog input: 0.012/50 Hz  |
| <b>Electrical connection</b>               | Control: removable screw terminals 0.5...1.5 mm <sup>2</sup> /AWG 20...AWG 16<br>Motor: screw terminal 16...50 mm <sup>2</sup> /AWG 6...AWG 1<br>Line side: screw terminal 16...50 mm <sup>2</sup> /AWG 6...AWG 1  |
| <b>Connector type</b>                      | RJ45 (on the remote graphic terminal) for Ethernet/Modbus TCP<br>RJ45 (on the remote graphic terminal) for Modbus serial   |
| <b>Exchange mode</b>                       | Half duplex, full duplex, autonegotiation Ethernet/Modbus TCP  |
| <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>                    | 3 LEDs for local diagnostic<br>3 LEDs (dual colour) for embedded communication status<br>4 LEDs (dual colour) for communication module status<br>1 LED (red) for presence of voltage   |
| <b>Input compatibility</b>                 | DI1...DI6: discrete input level 1 PLC conforming to IEC 61131-2<br>DI5, DI6: discrete 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)  |
| <b>Sampling duration</b>                   | 2 ms +/- 0.5 ms (DI1...DI4) - discrete input<br>5 ms +/- 1 ms (DI5, DI6) - discrete input<br>5 ms +/- 0.1 ms (AI1, AI2, AI3) - analog input<br>10 ms +/- 1 ms (AO1) - analog output  |
| <b>Accuracy</b>                            | +/- 0.6 % AI1, AI2, AI3 for a temperature variation 60 °C analog input<br>+/- 1 % AO1, AO2 for a temperature variation 60 °C analog output   |
| <b>Linearity error</b>                     | AI1, AI2, AI3: +/- 0.15 % of maximum value for analog input<br>AO1, AO2: +/- 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  |
| <b>Enclosure mounting</b>                  | Wall mounted   |
| <b>4 quadrant operation possible</b>       | False  |
| <b>Asynchronous motor control profile</b>  | Constant torque standard<br>Optimized torque mode<br>Variable torque standard  |
| <b>Synchronous motor control profile</b>   | Permanent magnet motor<br>Synchronous reluctance motor   |
| <b>Maximum output frequency</b>            | 500 kHz  |
| <b>Acceleration and deceleration ramps</b> | S, U or customized<br>Linear adjustable separately from 0.01...9999 s  |
| <b>Motor slip compensation</b>             | Adjustable<br>Can be suppressed<br>Not available in permanent magnet motor law<br>Automatic whatever the load  |
| <b>Switching frequency</b>                 | 1...4.9 kHz adjustable<br>2.5...4.9 kHz with derating factor   |
| <b>Nominal switching frequency</b>         | 2.5 kHz  |

|   |  |
|---|--|
| <b>Braking to standstill</b>                                | By DC injection  |
| <b>Brake chopper integrated</b>                             | False  |
| <b>Maximum input current</b>                                | 47.2 A   |
| <b>Maximum output voltage</b>                               | 690.0 V  |
| <b>Apparent power</b>                                       | 55.2 kVA at 690 V (normal duty)<br>46 kVA at 690 V (heavy duty)  |
| <b>Maximum transient current</b>                            | 51 A during 60 s (heavy duty)<br>49.5 A during 60 s (normal duty)  |
| <b>Network frequency</b>                                    | 50...60 Hz   |
| <b>Prospective line Isc</b>                                 | 70 kA  |
| <b>Base load current at high overload</b>                   | 34.0 A   |
| <b>Base load current at low overload</b>                    | 45.0 A   |
| <b>Power dissipation in W</b>                               | Natural convection: 178 W at 500 V, switching frequency 2.5 kHz<br>Forced convection: 557 W at 500 V, switching frequency 2.5 kHz  |
| <b>With safety function Safely Limited Speed (SLS)</b>      | False  |
| <b>With safety function Safe brake management (SBC/SBT)</b> | False  |
| <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>               | False  |
| <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>  | 331 mm   |
| <b>Height</b>   | 630 mm   |
| <b>Depth</b>  | 297 mm   |
| <b>Net weight</b>   | 53 kg  |

## Environment

|   |  |
|---|--|
| <b>Insulation resistance</b>  | > 1 MOhm 500 V DC for 1 minute to earth  |
| <b>Noise level</b>  | 52 dB conforming to 86/188/EEC   |
| <b>Pollution degree</b>   | 2 conforming to IEC 61800-5-1  |
| <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>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>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>   | CSA<br>TÜV<br>UL   |
| <b>Marking</b>  | CE   |
| <b>Standards</b>  | UL 508C<br>IEC 61800-3<br>EN/IEC 61800-3 environment 2 category C3<br>IEC 61800-5-1<br>IEC 61000-3-12<br>IEC 60721-3<br>IEC 61508<br>IEC 13849-1   |
| <b>Maximum THDI</b>   | <48 % with external line choke conforming to IEC 61000-3-12  |
| <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 µs - 8/20 µs surge immunity test level 3 conforming to IEC 61000-4-5<br>Conducted radio-frequency immunity test level 3 conforming to IEC 61000-4-6 |
| <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>  | 406 m <sup>3</sup> /h  |
| <b>Overvoltage category</b>   | III  |
| <b>Regulation loop</b>  | Adjustable PID regulator   |
| <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> | 58.0 cm  |
| <b>Package 1 Width</b>  | 42.0 cm  |
| <b>Package 1 Length</b> | 108.0 cm |
| <b>Package 1 Weight</b> | 52.0 kg  |

## Environmental Data

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

[Environmental Data explained >](#)

[How we assess product sustainability >](#)

### Environmental footprint

Total lifecycle Carbon footprint 10708

Environmental Disclosure [Product Environmental Profile](#)

## Use Better

### Materials and Substances

Packaging made with recycled cardboard Yes

Packaging without single use plastic No

[EU RoHS Directive](#) Pro-active compliance (Product out of EU RoHS legal scope)

SCIP Number 94885478-b375-4334-93be-492cfc5a4813

REACH Regulation [REACH Declaration](#)

California proposition 65 **WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)**

### Energy efficiency

Product contributes to saved and avoided emissions Yes

## Use Again

### Repack and remanufacture

End of life manual availability [End of Life Information](#)

Take-back No

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

Dimensions Drawings

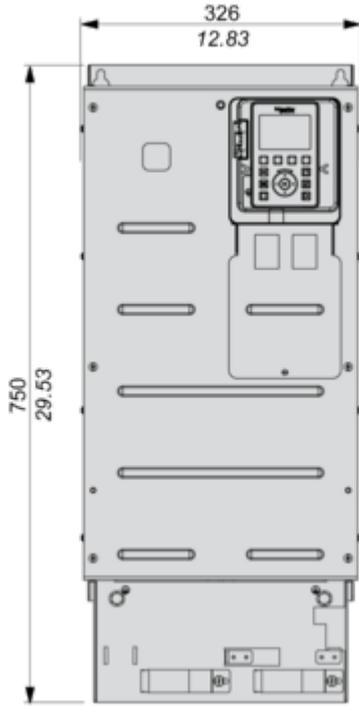
Dimensions

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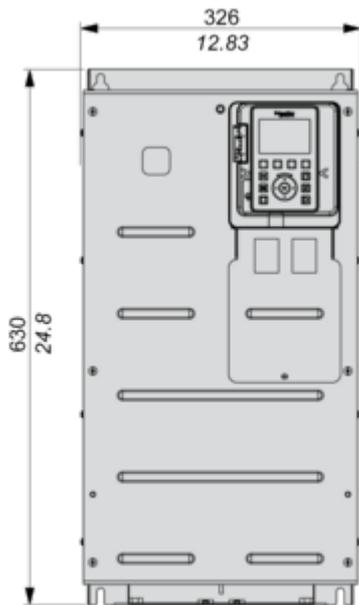
Drives without Top Cover

Front View with EMC Plate, Front, Left and Rear Views without EMC Plate

mm  
in.



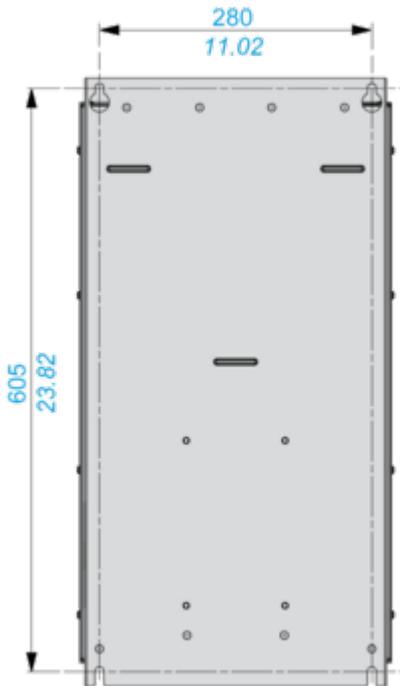
mm  
in.



mm  
in.

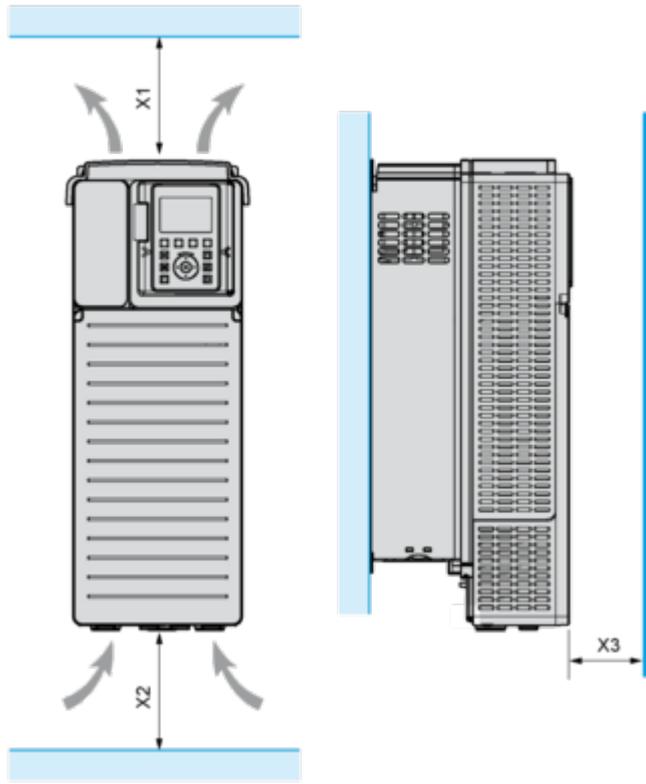


mm  
in.



Mounting and Clearance

Clearances

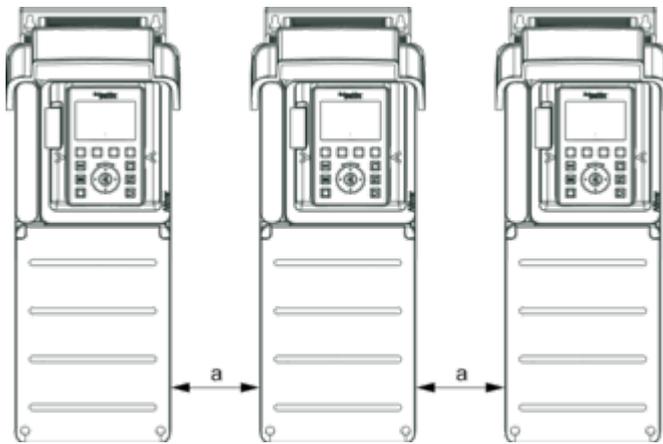


| X1                  | X2                  | X3                 |
|---------------------|---------------------|--------------------|
| ≥ 100 mm (3.94 in.) | ≥ 100 mm (3.94 in.) | ≥ 10 mm (0.39 in.) |

Mounting Types

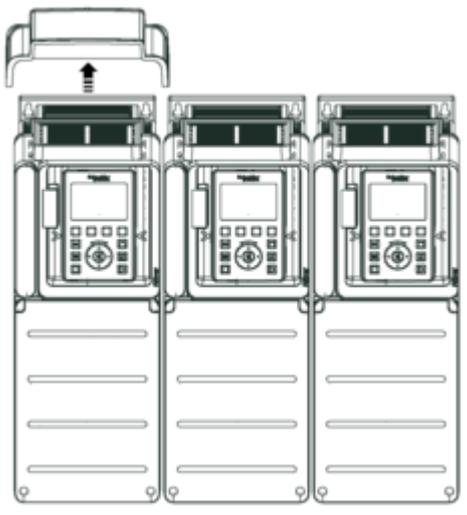
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**Mounting Type A: Individual IP21**

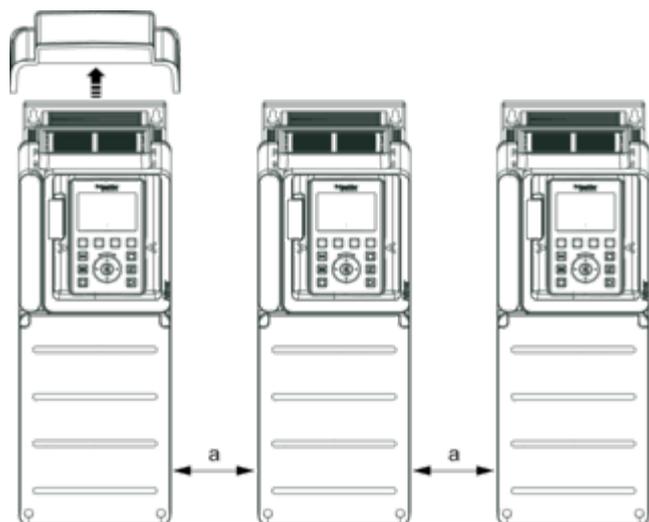


$a \geq 0$

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



**Mounting Type C: Individual IP20**

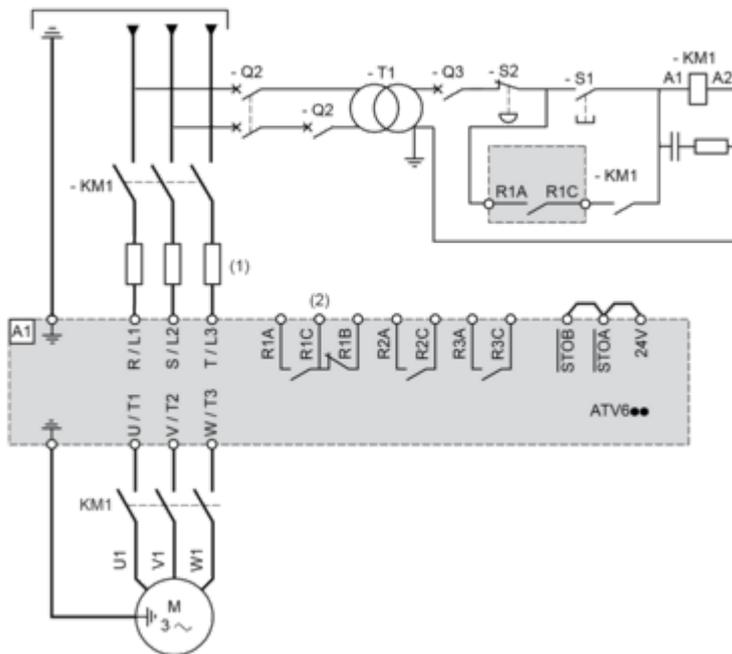


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Connections and Schema

**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

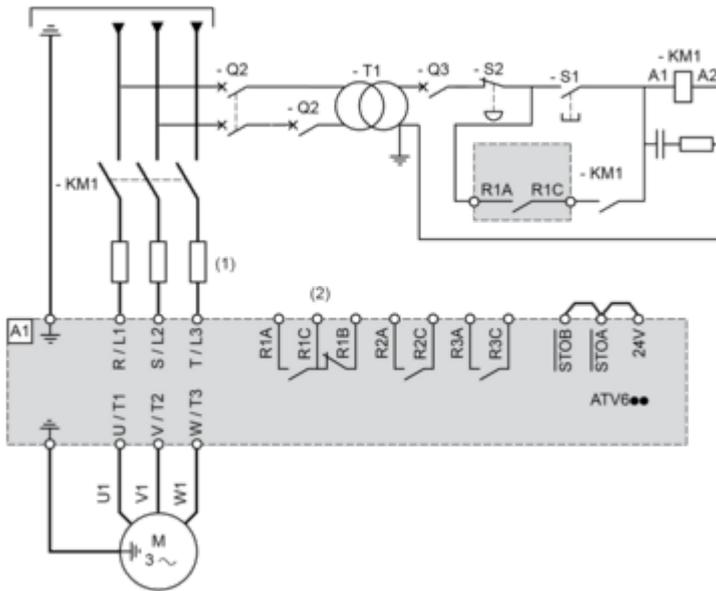
Q2, Q3 : Circuit breakers

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



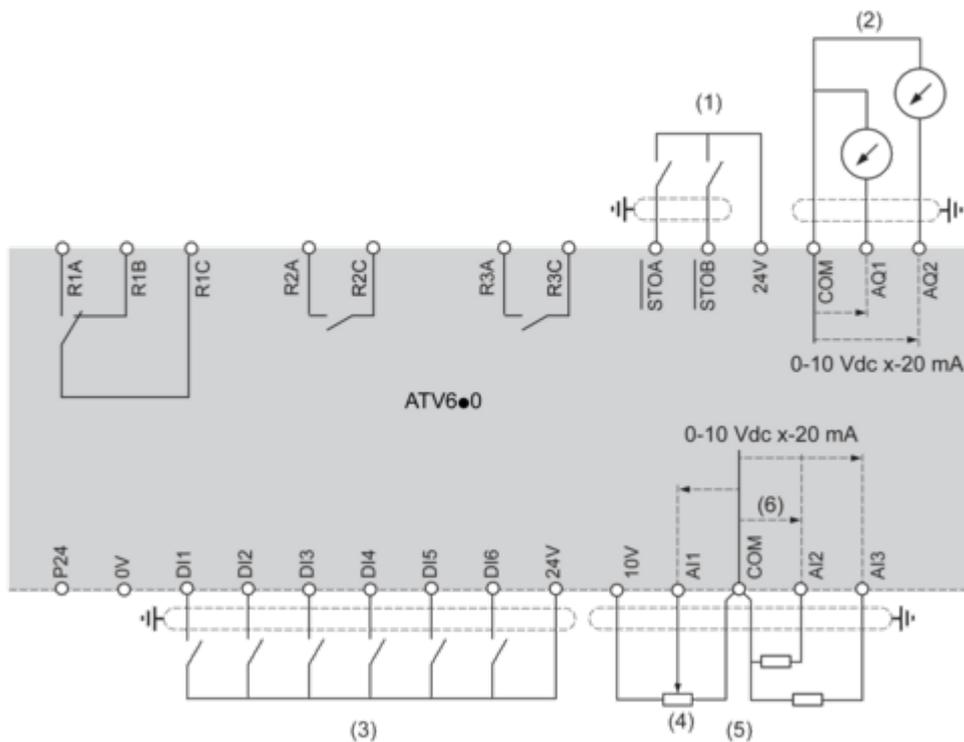
(1) Line choke if used

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

A1 : Drive

KM1 : Contactor

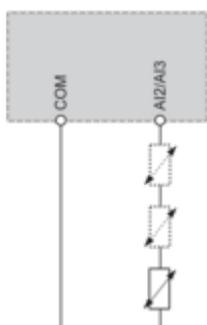
Control Block Wiring Diagram



- (1) Safe Torque Off
- (2) Analog Output
- (3) Digital Input
- (4) Reference potentiometer
- (5) Analog Input
- 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 AI2 or AI3.

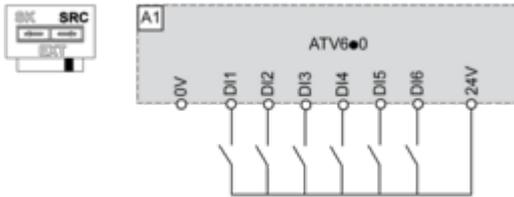


**Sink / Source Switch Configuration**

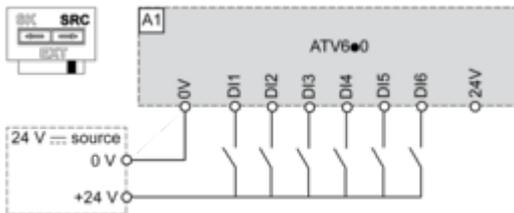
The switch is used to adapt the operation of the logic inputs to the technology of the programmable controller outputs.

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

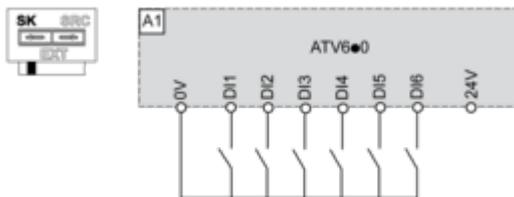
**Switch Set to SRC (Source) Position Using the Output Power Supply for the Digital Inputs**



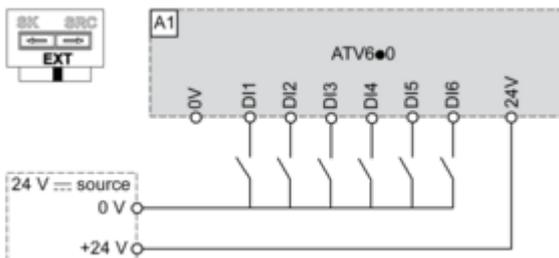
**Switch Set to SRC (Source) Position and Use of an External Power Supply for the DIs**



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



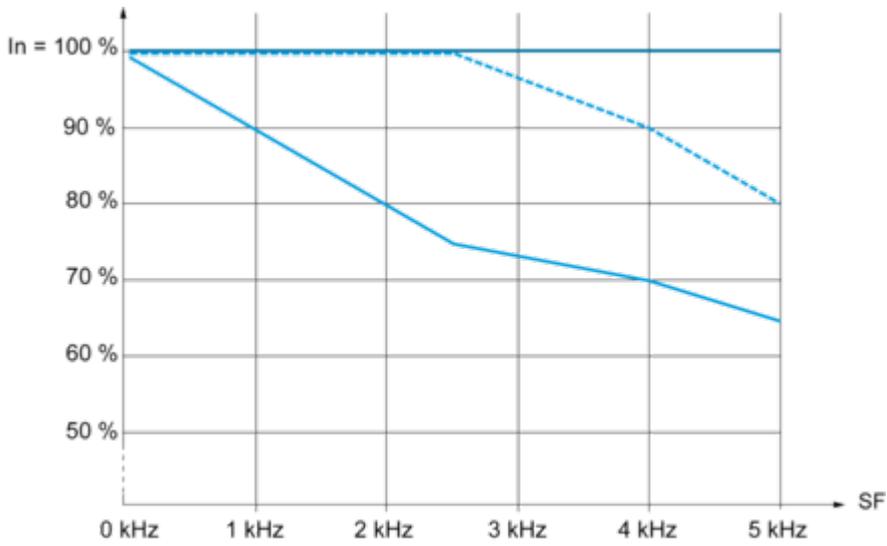
**Switch Set to EXT Position Using an External Power Supply for the DIs**



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

Technical Illustration

Dimensions

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Drives Without Top Cover, With EMC Plate



Drives Without Top Cover, Without EMC Plate

