





## Main

|                                    |                                                                                                          |
|------------------------------------|----------------------------------------------------------------------------------------------------------|
| Range of product                   | Altivar Process ATV600                                                                                   |
| Product or component type          | Variable speed drive                                                                                     |
| Product specific application       | Process and utilities                                                                                    |
| Device short name                  | ATV630                                                                                                   |
| Variant                            | Standard version                                                                                         |
| Product destination                | Asynchronous motors<br>Synchronous motors                                                                |
| Mounting mode                      | Wall mount                                                                                               |
| EMC filter                         | Integrated EN/IEC 61800-3 category C3 <= 150 m<br>Integrated EN/IEC 61800-3 category C2 <= 50 m          |
| IP degree of protection            | IP21 conforming to IEC 61800-5-1<br>IP21 conforming to IEC 60529                                         |
| Degree of protection               | UL type 1 UL 508C                                                                                        |
| Type of cooling                    | Forced convection                                                                                        |
| Supply frequency                   | 50...60 Hz - 5...5 %                                                                                     |
| Network number of phases           | 3 phases                                                                                                 |
| [Us] rated supply voltage          | 380...480 V - 15...10 %                                                                                  |
| Motor power kW                     | 15 kW normal duty<br>11 kW heavy duty                                                                    |
| Motor power hp                     | 20 hp normal duty<br>15 hp heavy duty                                                                    |
| Line current                       | 27 A 380 V normal duty<br>23.3 A 480 V normal duty<br>20.6 A 380 V heavy duty<br>18.1 A 480 V heavy duty |
| Prospective line Isc               | 50 kA                                                                                                    |
| Apparent power                     | 19.4 kVA 480 V normal duty<br>15 kVA 480 V heavy duty                                                    |
| Continuous output current          | 31.7 A 4 kHz normal duty<br>23.5 A 4 kHz heavy duty                                                      |
| Maximum transient current          | 34.9 A 60 s normal duty<br>35.3 A 60 s heavy duty                                                        |
| Asynchronous motor control profile | Constant torque standard<br>Variable torque standard<br>Optimized torque mode                            |
| Synchronous motor control profile  | Synchronous reluctance motor<br>Permanent magnet motor                                                   |
| Speed drive output frequency       | 0.1...599 Hz                                                                                             |
| Output frequency                   | 0.0001...0.5 kHz                                                                                         |
| Nominal switching frequency        | 4 kHz                                                                                                    |
| Switching frequency                | 2...12 kHz adjustable<br>4...12 kHz with derating factor                                                 |
| Safety function                    | STO (safe torque off) SIL 3                                                                              |
| Discrete input logic               | 16 preset speeds                                                                                         |

| Communication port protocol | Modbus TCP<br>Modbus serial<br>Ethernet                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Option card                 | Communication module Profibus DP V1 slot A<br>Communication module Profinet slot A<br>Communication module DeviceNet slot A<br>Communication module Modbus TCP/EtherNet/IP slot A<br>Communication module CANopen daisy chain RJ45 slot A<br>Communication module CANopen SUB-D 9 slot A<br>Communication module CANopen screw terminals slot A<br>Digital and analog I/O extension module slot A/slot B<br>Output relay extension module slot A/slot B<br>Communication module Ethernet IP/Modbus TCP/MD-Link slot A<br>Communication module BACnet MS/TP<br>Communication module Ethernet Powerlink |

## Complementary

|                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Output voltage                      | $\leq$ power supply voltage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Permissible temporary current boost | 1.1 x In 60 s normal duty<br>1.5 x In 60 s heavy duty                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Motor slip compensation             | Can be suppressed<br>Adjustable<br>Not available in permanent magnet motor law<br>Automatic whatever the load                                                                                                                                                                                                                                                                                                                                                                                                |
| Acceleration and deceleration ramps | Linear adjustable separately from 0.01...9999 s                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Braking to standstill               | By DC injection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Protection type                     | Safe torque off motor<br>Motor phase break motor<br>Safe torque off drive<br>Overheating drive<br>Short-circuit protection drive<br>Motor phase break drive<br>Overspeed drive<br>Break on the control circuit drive<br>Overvoltages on the DC bus drive<br>Overload of output voltage drive<br>Line supply overvoltage drive<br>Line supply phase loss drive<br>Line supply undervoltage drive<br>Overcurrent between output phases and earth drive<br>Thermal protection motor<br>Thermal protection drive |
| Frequency resolution                | Display unit<br>Analog input                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Electrical connection               | Removable screw terminals 0.5...1.5 mm <sup>2</sup> AWG 20...AWG 16 control<br>Screw terminal 10...16 mm <sup>2</sup> AWG 8...AWG 6 line side<br>Screw terminal 10...16 mm <sup>2</sup> AWG 8...AWG 6 motor                                                                                                                                                                                                                                                                                                  |
| Connector type                      | RJ45 Ethernet/Modbus TCP on the remote graphic terminal<br>RJ45 Modbus serial on the remote graphic terminal                                                                                                                                                                                                                                                                                                                                                                                                 |
| Physical interface                  | 2-wire RS 485 Modbus serial                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Transmission frame                  | RTU Modbus serial                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Transmission rate                   | 10/100 Mbit/s Ethernet IP/Modbus TCP<br>4.8, 9.6, 19.2, 38.4 kbit/s Modbus serial                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Exchange mode                       | Half duplex, full duplex, autonegotiation Ethernet/Modbus TCP                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Data format                         | 8 bits, configurable odd, even or no parity Modbus serial                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Type of polarization                | No impedance Modbus serial                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Number of addresses                 | Modbus serial                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Method of access                    | Slave Modbus TCP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Supply                              | Internal supply for reference potentiometer (1 to 10 kOhm) 10.5 V DC +/- 5 % $\leq$ 10 mA overload and short-circuit protection<br>External supply for digital inputs 24 V DC 19...30 V $\leq$ 1.25 mA overload and short-circuit protection<br>Internal supply for digital inputs and STO 24 V DC 21...27 V $\leq$ 200 mA overload and short-circuit protection                                                                                                                                             |

|                           |                                                                                                                                                                                                                          |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Local signalling          | 3 LEDs local diagnostic<br>3 LEDs dual colour embedded communication status<br>4 LEDs dual colour communication module status<br>1 LED red presence of voltage                                                           |
| Width                     | 8.31 in (211 mm)                                                                                                                                                                                                         |
| Height                    | 21.5 in (546 mm)                                                                                                                                                                                                         |
| Depth                     | 9.13 in (232 mm)                                                                                                                                                                                                         |
| Product weight            | 29.98 lb(US) (13.6 kg)                                                                                                                                                                                                   |
| Analogue input number     | 3                                                                                                                                                                                                                        |
| Analogue input type       | Software-configurable voltage AI1, AI2, AI3 0...10 V DC 30 kOhm 12 bits<br>Software-configurable current AI1, AI2, AI3 0...20 mA/4...20 mA 250 Ohm 12 bits                                                               |
| Discrete input number     | 8                                                                                                                                                                                                                        |
| Discrete input type       | Programmable DI1...DI6 24 V DC 3.5 kOhm<br>Programmable as pulse input DI5, DI6 0...30 kHz 24 V DC<br>Safe torque off STOA, STOB 24 V DC > 2.2 kOhm                                                                      |
| Input compatibility       | Level 1 PLC EN/IEC 61131-2 DI1...DI6 discrete input<br>Level 1 PLC IEC 65A-68 DI5, DI6 discrete input<br>Level 1 PLC EN/IEC 61131-2 STOA, STOB discrete input                                                            |
| Discrete input logic      | Positive logic (source) DI1...DI6 < 5 V > 11 V<br>Negative logic (sink) DI1...DI6 > 16 V < 10 V<br>Positive logic (source) DI5, DI6 < 0.6 V > 2.5 V<br>Positive logic (source) STOA, STOB < 5 V > 11 V                   |
| Analogue output number    | 2                                                                                                                                                                                                                        |
| Analogue output type      | Software-configurable voltage AO1, AO2 0...10 V DC 470 Ohm 10 bits<br>Software-configurable current AO1, AO2 0...20 mA 10 bits                                                                                           |
| Sampling duration         | 2 ms +/- 0.5 ms DI1...DI4 discrete input<br>5 ms +/- 1 ms DI5, DI6 discrete input<br>5 ms +/- 0.1 ms AI1, AI2, AI3 analog input<br>10 ms +/- 1 ms AO1 analog output                                                      |
| Accuracy                  | +/- 0.6 % AI1, AI2, AI3 for a temperature variation 60 °C analog input<br>+/- 1 % AO1, AO2 for a temperature variation 60 °C analog output                                                                               |
| Linearity error           | +/- 0.15 % of maximum value analog input AI1, AI2, AI3<br>+/- 0.2 % analog output AO1, AO2                                                                                                                               |
| Relay output number       | 3                                                                                                                                                                                                                        |
| Relay output type         | Configurable relay logic R1 fault relay NO/NC 100000 cycles<br>Configurable relay logic R2 sequence relay NO 100000 cycles<br>Configurable relay logic R3 sequence relay NO 100000 cycles                                |
| Refresh time              | 5 ms +/- 0.5 ms R1, R2, R3 relay output                                                                                                                                                                                  |
| Minimum switching current | 5 mA 24 V DC R1, R2, R3 relay output                                                                                                                                                                                     |
| Maximum switching current | 3 A 250 V AC resistive 1 R1, R2, R3 relay output<br>3 A 30 V DC resistive 1 R1, R2, R3 relay output<br>2 A 250 V AC inductive 0.4 7 ms R1, R2, R3 relay output<br>2 A 30 V DC inductive 0.4 7 ms R1, R2, R3 relay output |
| Isolation                 | Between power and control terminals                                                                                                                                                                                      |
| Functionality             | Full                                                                                                                                                                                                                     |
| Specific application      | Utility                                                                                                                                                                                                                  |
| IP degree of protection   | IP21                                                                                                                                                                                                                     |

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Variable speed drive application selection | Building - HVAC compressor centrifugal<br>Food and beverage processing other application<br>Mining mineral and metal fan<br>Mining mineral and metal pump<br>Oil and gas fan<br>Water and waste water other application<br>Building - HVAC screw compressor<br>Food and beverage processing pump<br>Food and beverage processing fan<br>Food and beverage processing atomization<br>Oil and gas electro submersible pump (ESP)<br>Oil and gas water injection pump<br>Oil and gas jet fuel pump<br>Oil and gas compressor for refinery<br>Water and waste water centrifuge pump<br>Water and waste water positive displacement pump<br>Water and waste water electro submersible pump (ESP)<br>Water and waste water screw pump<br>Water and waste water lobe compressor<br>Water and waste water screw compressor<br>Water and waste water compressor centrifugal<br>Water and waste water fan<br>Water and waste water conveyor<br>Water and waste water mixer |
| Motor power range AC-3                     | 15...25 kW 380...440 V 3 phases<br>15...25 kW 480...500 V 3 phases                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Motor starter type                         | Variable speed drive                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

## Environment

|                                       |                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Insulation resistance                 | > 1 MOhm 500 V DC for 1 minute to earth                                                                                                                                                                                                                                                                                                                    |
| Noise level                           | 59.5 dB 86/188/EEC                                                                                                                                                                                                                                                                                                                                         |
| Power dissipation in W                | 59 W natural convection 380 V 4 kHz<br>366 W forced convection 380 V 4 kHz                                                                                                                                                                                                                                                                                 |
| Volume of cooling air                 | 56798.01 Gal/hr(US) (215 m3/h)                                                                                                                                                                                                                                                                                                                             |
| Operating position                    | Vertical +/- 10 degree                                                                                                                                                                                                                                                                                                                                     |
| THDI                                  | <= 48 % from 80...100 % of load IEC 61000-3-12                                                                                                                                                                                                                                                                                                             |
| Electromagnetic compatibility         | Conducted radio-frequency immunity test level 3 IEC 61000-4-6<br>1.2/50 µs - 8/20 µs surge immunity test level 3 IEC 61000-4-5<br>Electrical fast transient/burst immunity test level 4 IEC 61000-4-4<br>Electrostatic discharge immunity test level 3 IEC 61000-4-2<br>Radiated radio-frequency electromagnetic field immunity test level 3 IEC 61000-4-3 |
| Pollution degree                      | 2 EN/IEC 61800-5-1                                                                                                                                                                                                                                                                                                                                         |
| Vibration resistance                  | 1.5 mm peak to peak 2...13 Hz IEC 60068-2-6<br>1 gn 13...200 Hz IEC 60068-2-6                                                                                                                                                                                                                                                                              |
| Shock resistance                      | 15 gn 11 ms IEC 60068-2-27                                                                                                                                                                                                                                                                                                                                 |
| Relative humidity                     | 5...95 % without condensation IEC 60068-2-3                                                                                                                                                                                                                                                                                                                |
| Ambient air temperature for operation | -15...50 °C without<br>122...140 °F (50...60 °C) with derating factor                                                                                                                                                                                                                                                                                      |
| Ambient air temperature for storage   | -40...158 °F (-40...70 °C)                                                                                                                                                                                                                                                                                                                                 |
| Operating altitude                    | 1000...4800 m with current derating 1 % per 100 m<br><= 3280.84 ft (1000 m) without                                                                                                                                                                                                                                                                        |
| Environmental characteristic          | Chemical pollution resistance class 3C3 EN/IEC 60721-3-3<br>Dust pollution resistance class 3S3 EN/IEC 60721-3-3                                                                                                                                                                                                                                           |
| Standards                             | EN/IEC 61800-3<br>EN/IEC 61800-3 environment 1 category C2<br>EN/IEC 61800-3 environment 2 category C3<br>UL 508C<br>EN/IEC 61800-5-1<br>IEC 61000-3-12<br>IEC 60721-3<br>IEC 61508<br>IEC 13849-1                                                                                                                                                         |
| Product certifications                | UL<br>ATEX zone 2/22<br>ATEX INERIS<br>CSA<br>TÜV<br>DNV-GL<br>REACH                                                                                                                                                                                                                                                                                       |
| Marking                               | CE                                                                                                                                                                                                                                                                                                                                                         |

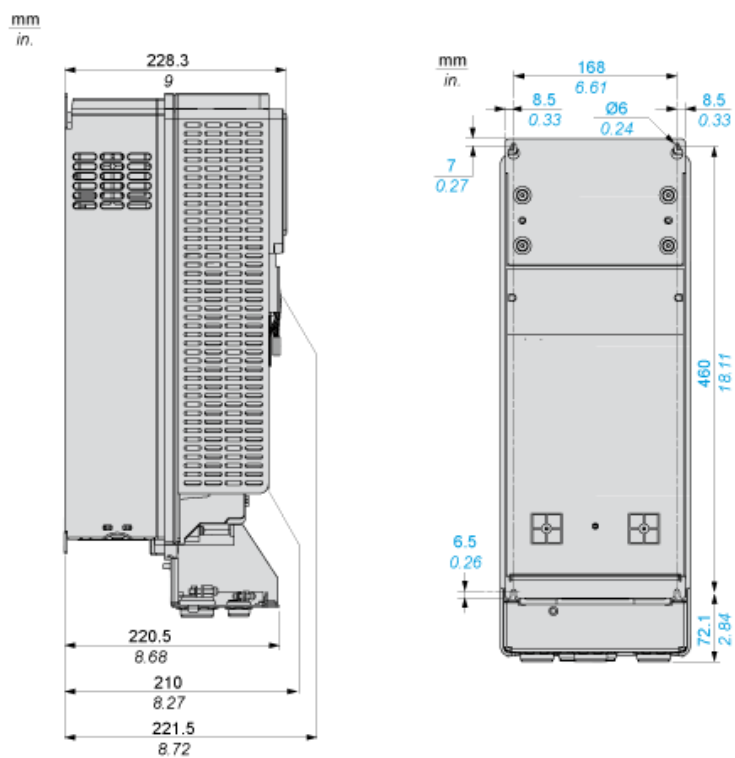
## Ordering and shipping details

|                       |                             |
|-----------------------|-----------------------------|
| Category              | 22206 - ATV630 FRAMES 3 & 4 |
| Discount Schedule     | CP4E                        |
| GTIN                  | 00785901490944              |
| Nbr. of units in pkg. | 1                           |
| Package weight(Lbs)   | 36.590000000000003          |
| Returnability         | Y                           |
| Country of origin     | IN                          |

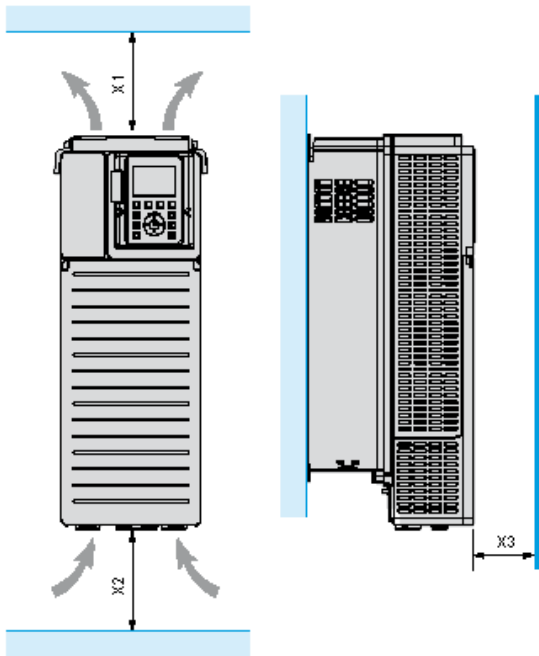
## Offer Sustainability

|                                  |                                                                                                                                    |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Sustainable offer status         | Green Premium product                                                                                                              |
| RoHS (date code: YYWW)           | Compliant - since 1426 - Schneider Electric declaration of conformity <a href="#">Schneider Electric declaration of conformity</a> |
| REACH                            | Reference not containing SVHC above the threshold                                                                                  |
| Product environmental profile    | Available <a href="#">Product Environmental Profile</a>                                                                            |
| Product end of life instructions | Available <a href="#">End Of Life Information</a>                                                                                  |
| California proposition 65        | WARNING: This product can expose you to chemicals including:                                                                       |
| - - - - - Substance 1            | Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm.   |
| - - - - - Substance 2            | Bisphenol A (BPA), which is known to the State of California to cause birth defects or other reproductive harm.                    |
| - - - - - More information       | For more information go to <a href="http://www.p65warnings.ca.gov">www.p65warnings.ca.gov</a>                                      |

### Front and Left Views



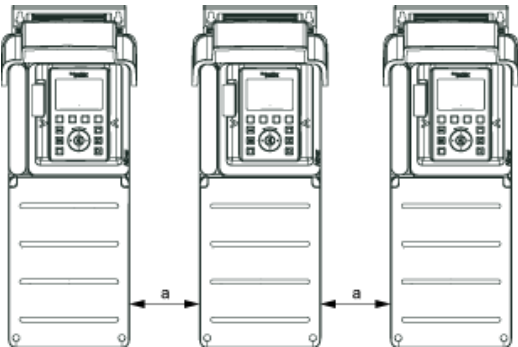
Clearances



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

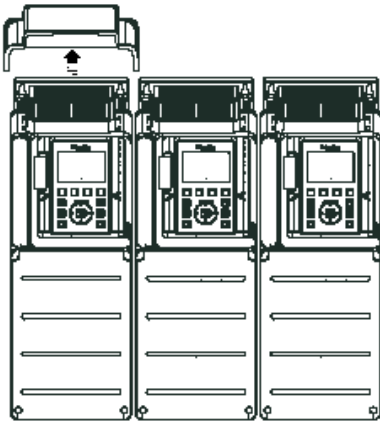
Mounting Types

Mounting Type A: Individual IP21

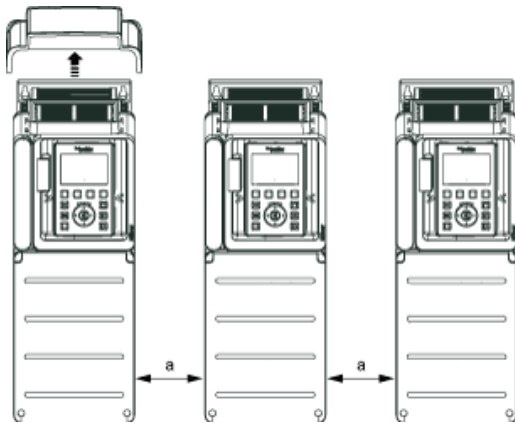


a ≥ 100 mm (3.94 in.)

### Mounting Type B: Side by Side IP20



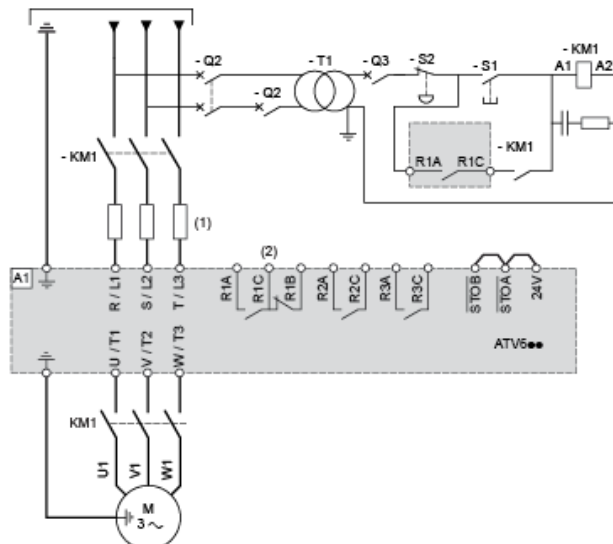
### Mounting Type C: Individual IP20



$a \geq 0$

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

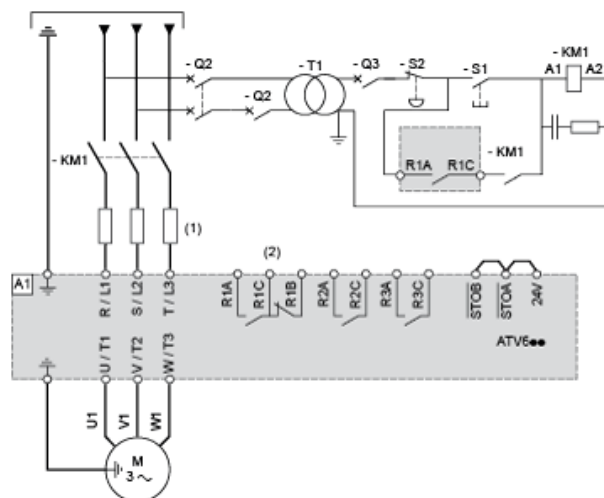
Connection diagrams conforming to standards EN 954-1 category 1 and IEC/EN 61508 capacity SIL1, stopping category 0 in accordance with standard IEC/EN 60204-1



- (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, Circuit breakers
- Q3 :
- S1, Pushbuttons
- S2 :
- T1 : Transformer for control part

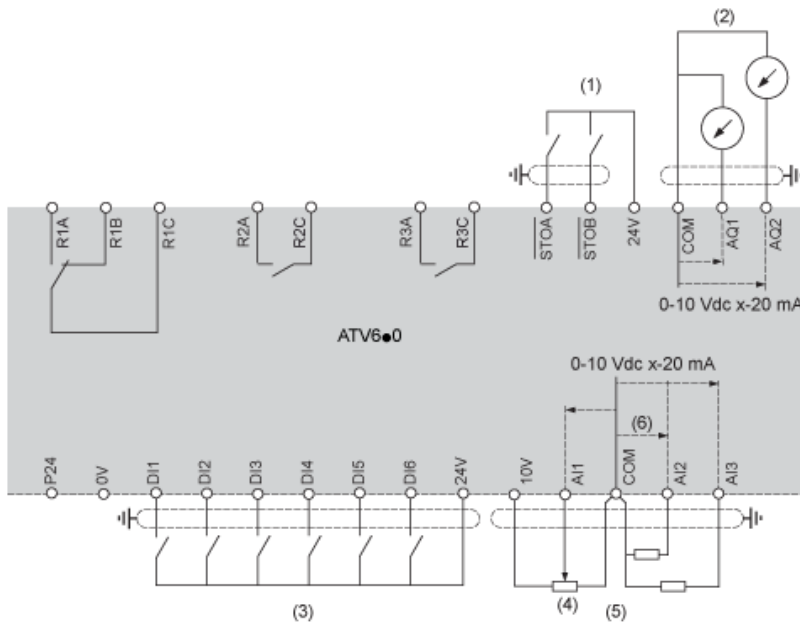
## Three-Phase Power Supply with Downstream Breaking via Contactor

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

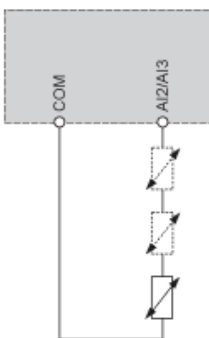
## Control Block Wiring Diagram



- (1) Safe Torque Off
- (2) Analog Output
- (3) Digital Input
- (4) Reference potentiometer
- (5) Analog Input
- (6) Reference potentiometer
- R1A, Fault relay
- R1B,
- R1C :
- R2A, Sequence relay
- R2C :
- R3A, Sequence relay
- R3C :

## Sensor Connection

It is possible to connect either 1 or 3 sensors on terminals AI2 or AI3.

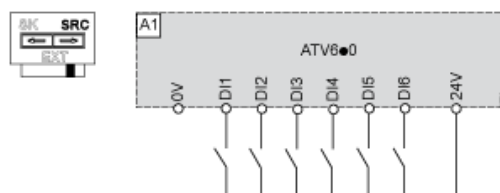


## Sink / Source Switch Configuration

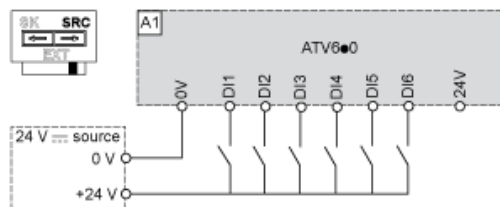
The switch is used to adapt the operation of the logic inputs to the technology of the programmable controller outputs.

- 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.

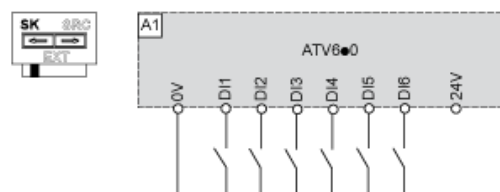
## Switch Set to SRC (Source) Position Using the Output Power Supply for the Digital Inputs



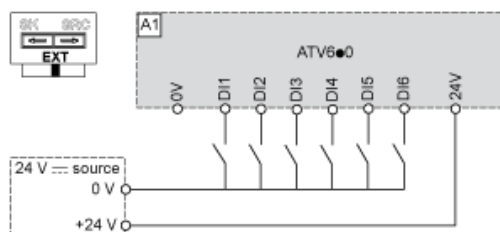
## Switch Set to SRC (Source) Position and Use of an External Power Supply for the DI's



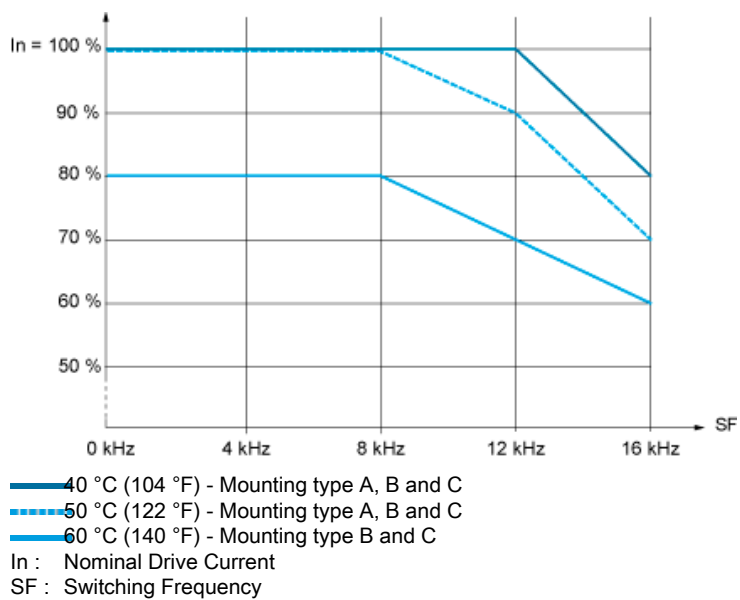
## Switch Set to SK (Sink) Position Using the Output Power Supply for the Digital Inputs



## Switch Set to EXT Position Using an External Power Supply for the DI's



### Derating Curves



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