

# Product data sheet

Specifications



variable speed drive, Altivar Process  
ATV600, ATV630, 11kW, 15hp, 380  
to 480V, IP21, UL type 1

ATV630D11N4

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

**Price\* : 2,803.20 USD**

## Main

|                                    |   |
|------------------------------------|---|
| Range of Product                   | Altivar Process ATV600  |
| Product or Component Type          | Variable speed drive  |
| Product Specific Application       | Process and utilities   |
| Device short name                  | ATV630  |
| Variant                            | Standard version  |
| Product destination                | Asynchronous motors<br>Synchronous motors   |
| EMC filter                         | Integrated 164.04 ft (50 m) EN/IEC 61800-3 category C2<br>Integrated 492.13 ft (150 m) EN/IEC 61800-3 category C3 |
| IP degree of protection            | IP21IEC 61800-5-1<br>IP21IEC 60529  |
| [Us] rated supply voltage          | 380...480 V   |
| Degree of protection               | UL type 1 UL 508C   |
| Type of cooling                    | Forced convection   |
| Supply frequency                   | 50...60 Hz - 5...5 %<br>380...480 V - 15...10 %   |
| Motor power kW                     | 11 kW normal duty)<br>7.5 kW heavy duty)  |
| Maximum Horse Power Rating         | 15 hp normal duty<br>10 hp heavy duty   |
| Line current                       | 19.8 A 380 V normal duty)<br>17 A 480 V normal duty)<br>14.1 A 380 V heavy duty)<br>12.5 A 480 V heavy duty)      |
| Prospective line Isc               | 50 kA   |
| Apparent power                     | 14.1 kVA 480 V normal duty)<br>10.4 kVA 480 V heavy duty)   |
| Continuous output current          | 23.5 A 4 kHz normal duty<br>16.5 A 4 kHz heavy duty   |
| Asynchronous motor control profile | Constant torque standard<br>Optimized torque mode<br>Variable torque standard                                     |
| Synchronous motor control profile  | Permanent magnet motor<br>Synchronous reluctance motor  |
| Speed drive output frequency       | 0.1...500 Hz  |

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

|                                    |   |
|------------------------------------|---|
| <b>Nominal switching frequency</b> | 4 kHz   |
| <b>Switching frequency</b>         | 2...12 kHz adjustable<br>4...12 kHz with derating factor  |
| <b>Safety function</b>             | STO (safe torque off) SIL 3   |
| <b>Discrete input logic</b>        | 16 preset speeds  |
| <b>Communication Port Protocol</b> | Modbus TCP<br>Ethernet<br>Modbus serial   |
| <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>Mounting Mode</b>                       | Wall mount   |
| <b>Maximum transient current</b>           | 25.9 A 60 s normal duty)<br>24.8 A 60 s heavy duty)  |
| <b>Phase</b>                               | 3 phase  |
| <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>Output voltage</b>                      | <= power supply voltage  |
| <b>Permissible temporary current boost</b> | 1.1 x I <sub>n</sub> 60 s normal duty)<br>1.5 x I <sub>n</sub> 60 s heavy duty)  |
| <b>Motor slip compensation</b>             | Adjustable<br>Can be suppressed<br>Not available in permanent magnet motor law<br>Automatic whatever the load  |
| <b>Acceleration and deceleration ramps</b> | Linear adjustable separately from 0.01...9999 s  |
| <b>Physical interface</b>                  | Ethernet<br>2-wire RS 485  |
| <b>Braking to standstill</b>               | By DC injection  |
| <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>Transmission Rate</b>                   | 10, 100 Mbits<br>4800 bps, 9600 bps, 19200 bps, 38.4 Kbps  |
| <b>Frequency resolution</b>                | Display unit 0.1 Hz<br>Analog input 0.012/50 Hz  |
| <b>Transmission frame</b>                  | RTU  |
| <b>Electrical connection</b>               | Control removable screw terminals 0.5...1.5 mm <sup>2</sup> AWG 20...AWG 16  |

Motor screw terminal 6...10 mm<sup>2</sup> AWG 10...AWG 8  
Line side screw terminal 6 mm<sup>2</sup> AWG 10

|                                  |   |
|----------------------------------|---|
| <b>Connector type</b>            | RJ45 on the remote graphic terminal)Ethernet/Modbus TCP<br>RJ45 on the remote graphic terminal)Modbus serial  |
| <b>Data format</b>               | 8 bits, configurable odd, even or no parity   |
| <b>Type of polarization</b>      | No impedance  |
| <b>Exchange mode</b>             | Half duplex, full duplex, autonegotiation Ethernet/Modbus TCP   |
| <b>Number of addresses</b>       | 1...247 Modbus serial   |
| <b>Method of access</b>          | Slave Modbus TCP  |
| <b>Supply</b>                    | External supply for digital inputs 24 V DC 19...30 V), <1.25 mA overload and short-circuit protection<br>Internal supply for reference potentiometer (1 to 10 kOhm) 10.5 V DC +/- 5 %, <10 mA overload and short-circuit protection<br>Internal supply for digital inputs and STO 24 V DC 21...27 V), <200 mA overload and short-circuit protection |
| <b>Local signalling</b>          | for local diagnostic 3 LEDs<br>for embedded communication status 3 LEDs (dual colour)<br>for communication module status 4 LEDs (dual colour)<br>for presence of voltage 1 LED (red)  |
| <b>Width</b>                     | 6.73 in (171 mm)  |
| <b>Height</b>                    | 16.10 in (409 mm)   |
| <b>Depth</b>                     | 9.17 in (233 mm)  |
| <b>Net Weight</b>                | 16.98 lb(US) (7.7 kg)   |
| <b>Analogue input number</b>     | 3   |
| <b>Analogue input type</b>       | AI1, AI2, AI3 software-configurable voltage 0...10 V DC 31.5 kOhm 12 bits<br>AI1, AI2, AI3 software-configurable current 0...20 mA 250 Ohm 12 bits<br>AI2 voltage analog input - 10...10 V DC 31.5 kOhm 12 bits   |
| <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>Input compatibility</b>       | DI1...DI6 discrete input level 1 PLC EN/IEC 61131-2<br>DI5, DI6 discrete input level 1 PLC IEC 65A-68<br>STOA, STOB discrete input level 1 PLC EN/IEC 61131-2   |
| <b>Discrete input logic</b>      | Positive logic (source) DI1...DI8), < 5 V, > 11 V<br>Negative logic (sink) DI1...DI8), > 16 V, < 10 V   |
| <b>Analogue output number</b>    | 2   |
| <b>Analogue output type</b>      | Software-configurable voltage AQ1, AQ2 0...10 V DC 470 Ohm 10 bits<br>Software-configurable current AQ1, AQ2 0...20 mA 10 bits<br>Software-configurable current DQ-, DQ+ 30 V DC<br>Software-configurable current DQ-, DQ+ 100 mA   |
| <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 analog input<br>AO1, AO2 +/- 0.2 % analog output  |
| <b>Relay output number</b>       | 3   |
| <b>Relay output type</b>         | 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   |
| <b>Refresh time</b>              | Relay output R1, R2, R3)5 ms +/- 0.5 ms)  |
| <b>Minimum switching current</b> | Relay output R1, R2, R3 5 mA 24 V DC  |
| <b>Maximum switching current</b> | Relay output R1, R2, R3 resistive, cos phi = 1 3 A 250 V AC<br>Relay output R1, R2, R3 resistive, cos phi = 1 3 A 30 V DC<br>Relay output R1, R2, R3 inductive, cos phi = 0.4 7 ms 2 A 250 V AC<br>Relay output R1, R2, R3 inductive, cos phi = 0.4 7 ms 2 A 30 V DC  |
| <b>Isolation</b>                 | Between power and control terminals   |
| <b>Maximum output frequency</b>  | 500 kHz   |

|   |  |
|---|--|
| <b>Maximum Input Current per Phase</b>            | 19.8 A   |
| <b>Variable speed drive application selection</b> | 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 |
| <b>Motor power range AC-3</b>                     | 7...11 kW 380...440 V 3 phase<br>7...11 kW 480...500 V 3 phase   |
| <b>Quantity per Set</b>                           | 1  |
| <b>Enclosure mounting</b>                         | Wall mounted   |
| <b>Environment</b>                                |  |
| <b>Insulation resistance</b>                      | > 1 MOhm 500 V DC for 1 minute to earth  |
| <b>Noise level</b>                                | 56 dB 86/188/EEC   |
| <b>Power dissipation in W</b>                     | Natural convection 51 W 380 V 4 kHz<br>Forced convection 255 W 380 V 4 kHz   |
| <b>Volume of cooling air</b>                      | 27210.21 Gal/hr(US) (103 m3/h)   |
| <b>Operating position</b>                         | Vertical +/- 10 degree   |
| <b>Maximum THDI</b>                               | <48 % from 80...100 % of load IEC 61000-3-12   |
| <b>Electromagnetic compatibility</b>              | Electrostatic discharge immunity test level 3 IEC 61000-4-2<br>Radiated radio-frequency electromagnetic field immunity test level 3 IEC 61000-4-3<br>Electrical fast transient/burst immunity test level 4 IEC 61000-4-4<br>1.2/50 µs - 8/20 µs surge immunity test level 3 IEC 61000-4-5<br>Conducted radio-frequency immunity test level 3 IEC 61000-4-6   |
| <b>Pollution degree</b>                           | 2 EN/IEC 61800-5-1   |
| <b>Vibration resistance</b>                       | 1.5 mm peak to peak 2...13 Hz)IEC 60068-2-6<br>1 gn 13...200 Hz)IEC 60068-2-6  |
| <b>Shock resistance</b>                           | 15 gn 11 ms IEC 60068-2-27   |
| <b>Relative humidity</b>                          | 5...95 % without condensation IEC 60068-2-3  |
| <b>Ambient air temperature for operation</b>      | 5...122 °F (-15...50 °C) without derating)<br>122...140 °F (50...60 °C) with derating factor)  |
| <b>Ambient Air Temperature for Storage</b>        | -40...158 °F (-40...70 °C)   |
| <b>Operating altitude</b>                         | <= 3280.84 ft (1000 m) without derating<br>1000...4800 m with current derating 1 % per 100 m   |
| <b>Product Certifications</b>                     | ATEX INERIS<br>CSA<br>UL<br>ATEX zone 2/22<br>DNV-GL<br>TÜV  |
| <b>Marking</b>                                    | CE   |
| <b>Standards</b>                                  | UL 508C<br>EN/IEC 61800-3<br>EN/IEC 61800-3 environment 1 category C2<br>EN/IEC 61800-3 environment 2 category C3<br>EN/IEC 61800-5-1  |

IEC 61000-3-12  
IEC 60721-3  
IEC 61508  
IEC 13849-1

|                      |                          |
|----------------------|--------------------------|
| Overvoltage category | III                      |
| Regulation loop      | Adjustable PID regulator |
|                      | 56 dB                    |
|                      | 2                        |

## Ordering and shipping details

|                   |                           |
|-------------------|---------------------------|
| Category          | 22205-ATV630 FRAMES 1 & 2 |
| Discount Schedule | CP4E                      |
| GTIN              | 3606480758164             |
| Returnability     | Yes                       |
| Country of origin | ID                        |

## Packing Units

|                              |                          |
|------------------------------|--------------------------|
| Unit Type of Package 1       | PCE                      |
| Number of Units in Package 1 | 1                        |
| Package 1 Height             | 13.78 in (35.000 cm)     |
| Package 1 Width              | 8.46 in (21.500 cm)      |
| Package 1 Length             | 22.83 in (58.000 cm)     |
| Package 1 Weight             | 23.08 lb(US) (10.467 kg) |
| Unit Type of Package 2       | P06                      |
| Number of Units in Package 2 | 3                        |
| Package 2 Height             | 29.53 in (75.000 cm)     |
| Package 2 Width              | 23.62 in (60.000 cm)     |
| Package 2 Length             | 31.50 in (80.000 cm)     |
| Package 2 Weight             | 97.89 lb(US) (44.401 kg) |

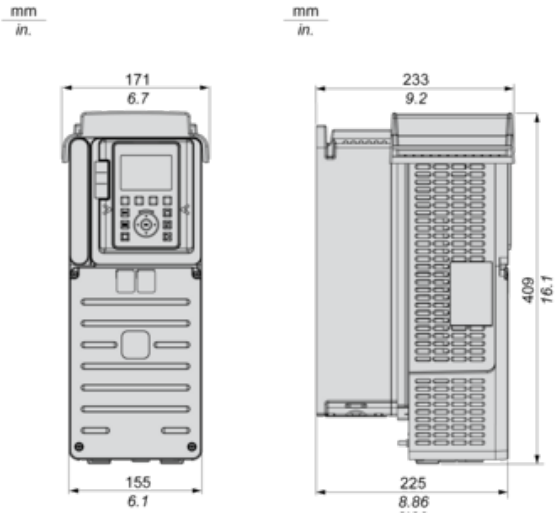
## Offer Sustainability

|                            |   |
|----------------------------|---|
| Sustainable offer status   | Green Premium product   |
| 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 <a href="http://www.P65Warnings.ca.gov">www.P65Warnings.ca.gov</a> |
| REACH Regulation           | <a href="#">REACH Declaration</a>   |
| EU RoHS Directive          | Pro-active compliance (Product out of EU RoHS legal scope)<br><a href="#">EU RoHS Declaration</a>   |
| Mercury free               | Yes   |
| China RoHS Regulation      | <a href="#">China RoHS declaration</a>  |
| RoHS exemption information | <a href="#">Yes</a>   |
| Environmental Disclosure   | <a href="#">Product Environmental Profile</a>   |
| Circularity Profile        | <a href="#">End of Life Information</a>   |
| WEEE                       | The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins.  |
| Upgradeability             | Upgraded components available   |

**Dimensions**

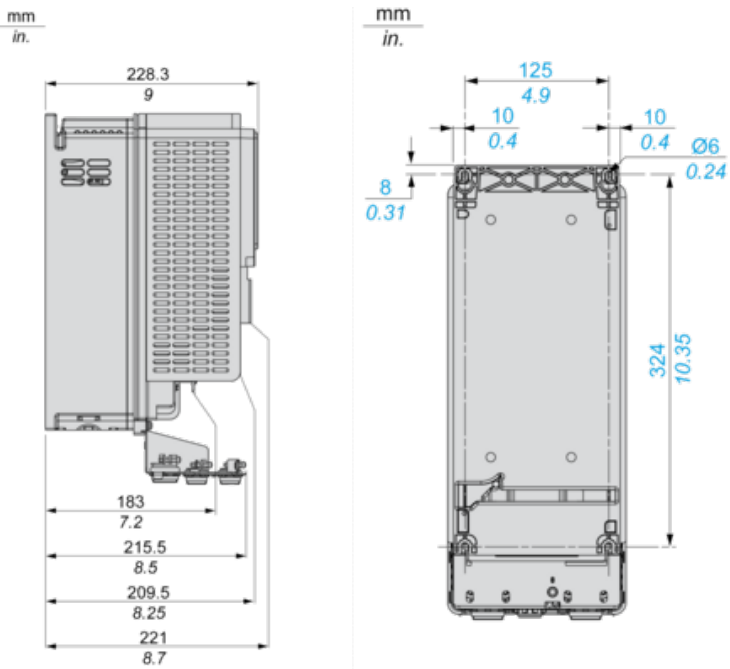
**Drives with IP21 Top Cover**

Front and Left Views



**Drives Without IP21 Top Cover**

Left and Rear Views



**Clearances**



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

**Mounting Types**

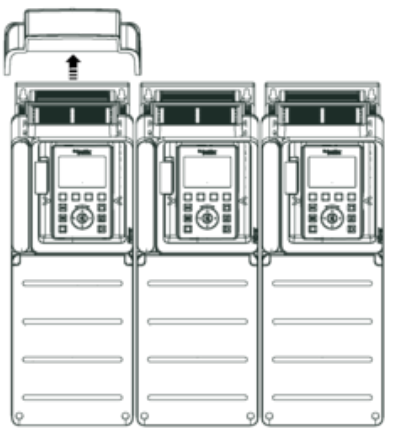
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**Mounting Type A: Individual IP21**

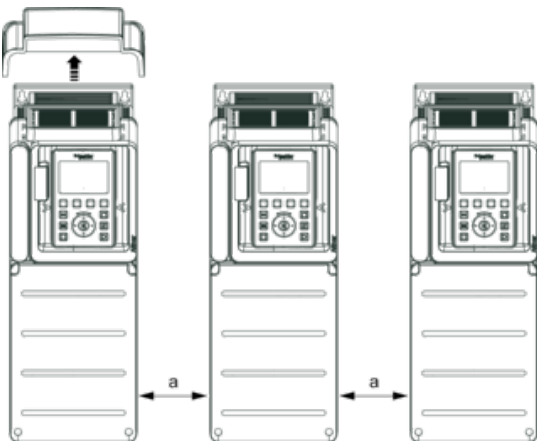


$a \geq 100 \text{ mm (3.94 in.)}$

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



**Mounting Type C: Individual IP20**

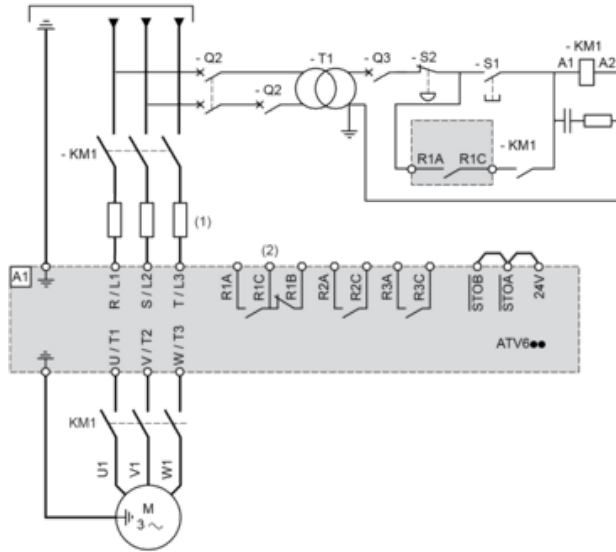


$a \geq 0$



**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

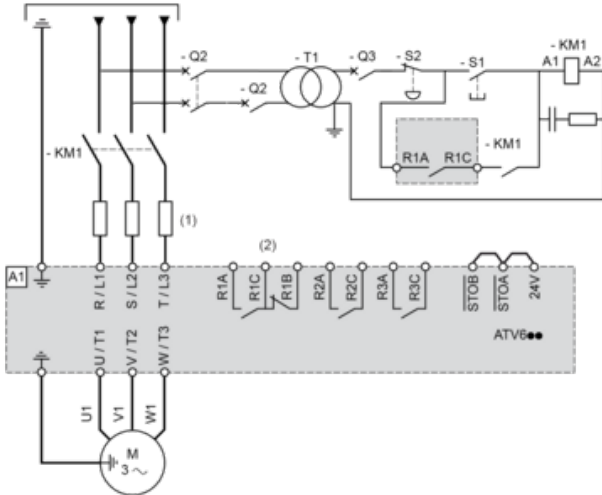
**Q2, Q3** : Circuit breakers

**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



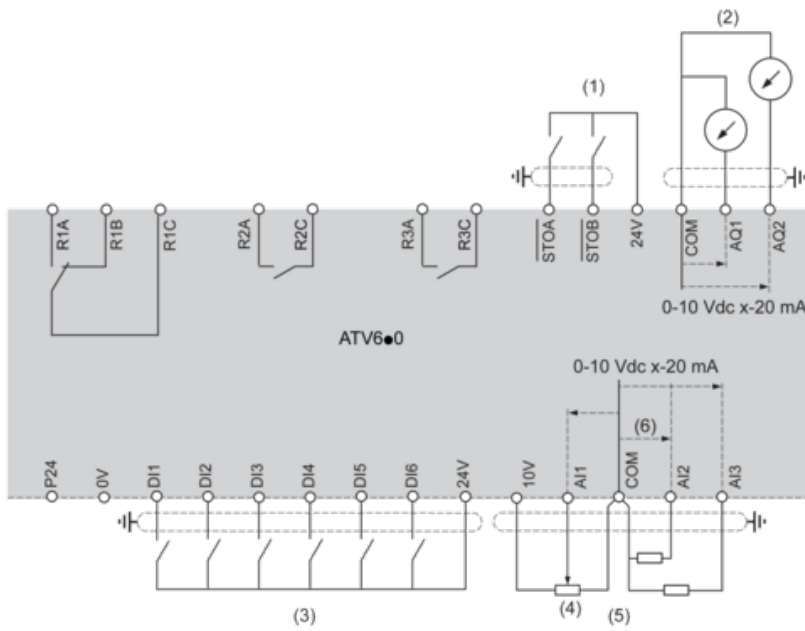
(1) Line choke if used

(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 A12 or A13.

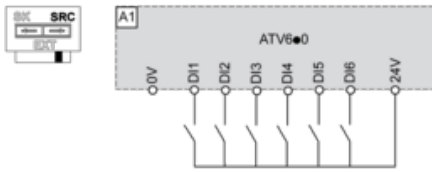


## Sink / Source Switch Configuration

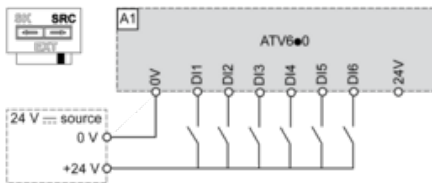
The switch is used to adapt the operation of the logic inputs to the technology of the programmable controller outputs.

- 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.

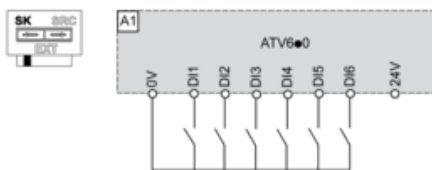
### Switch Set to SRC (Source) Position Using the Output Power Supply for the Digital Inputs



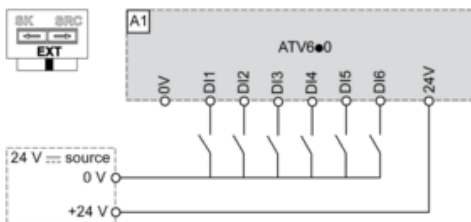
### Switch Set to SRC (Source) Position and Use of an External Power Supply for the DIs



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

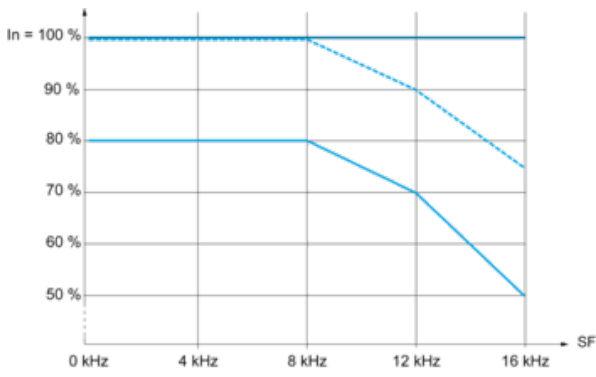


### Switch Set to EXT Position Using an External Power Supply for the DIs



**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

**Recommended replacement(s)**