

# Product data sheet

Specifications



## Variable speed drive, Altivar Process ATV600, ATV630, 7.5kW/10 hp, 380...480 V, IP21/UL type 1

**ATV630U75N4**

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

**Price\* : 2,326.80 USD**

### Main

<b>Range of Product</b>	Altivar Process ATV600
<b>Product or Component Type</b>	Variable speed drive
<b>Product Specific Application</b>	Process and utilities
<b>Device short name</b>	ATV630
<b>Variant</b>	Standard version
<b>Product destination</b>	Asynchronous motors Synchronous motors
<b>EMC filter</b>	Integrated 164.04 ft (50 m) EN/IEC 61800-3 category C2 Integrated 492.13 ft (150 m) EN/IEC 61800-3 category C3
<b>IP degree of protection</b>	IP21IEC 61800-5-1 IP21IEC 60529
<b>[Us] rated supply voltage</b>	380...480 V
<b>Degree of protection</b>	UL type 1 UL 508C
<b>Type of cooling</b>	Forced convection
<b>Supply frequency</b>	50...60 Hz - 5...5 % 380...480 V - 15...10 %
<b>Motor power kW</b>	7.5 kW normal duty) 5.5 kW heavy duty)
<b>Maximum Horse Power Rating</b>	10 hp normal duty 7.5 hp heavy duty
<b>Line current</b>	13.8 A 380 V normal duty) 11.9 A 480 V normal duty) 10.5 A 380 V heavy duty) 9.2 A 480 V heavy duty)
<b>Prospective line Isc</b>	50 kA
<b>Apparent power</b>	9.9 kVA 480 V normal duty) 7.6 kVA 480 V heavy duty)
<b>Continuous output current</b>	16.5 A 4 kHz normal duty 12.7 A 4 kHz heavy duty
<b>Asynchronous motor control profile</b>	Variable torque standard Optimized torque mode Constant torque standard
<b>Synchronous motor control profile</b>	Permanent magnet motor Synchronous reluctance motor

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

Speed drive output frequency	0.1...500 Hz
<b>Nominal switching frequency</b>	4 kHz
<b>Switching frequency</b>	2...12 kHz adjustable 4...12 kHz with derating factor
Safety function	STO (safe torque off) SIL 3
Discrete input logic	16 preset speeds
Communication Port Protocol	Ethernet Modbus serial Modbus TCP
Option card	Slot A communication module, Profibus DP V1 Slot A communication module, PROFINET Slot A communication module, DeviceNet Slot A communication module, Modbus TCP/EtherNet/IP Slot A communication module, CANopen daisy chain RJ45 Slot A communication module, CANopen SUB-D 9 Slot A communication module, CANopen screw terminals Slot A/slot B digital and analog I/O extension module Slot A/slot B output relay extension module Slot A communication module, Ethernet IP/Modbus TCP/MD-Link communication module, BACnet MS/TP communication module, Ethernet Powerlink

## Complementary

Mounting Mode	Wall mount
Maximum transient current	18.2 A 60 s normal duty) 19.1 A 60 s heavy duty)
Phase	3 phase
Discrete output number	0
Discrete output type	Relay outputs R1A, R1B, R1C 250 V AC 3000 mA Relay outputs R1A, R1B, R1C 30 V DC 3000 mA Relay outputs R2A, R2C 250 V AC 5000 mA Relay outputs R2A, R2C 30 V DC 5000 mA Relay outputs R3A, R3C 250 V AC 5000 mA Relay outputs R3A, R3C 30 V DC 5000 mA
Output voltage	<= power supply voltage
Permissible temporary current boost	1.1 x I <sub>n</sub> 60 s normal duty) 1.5 x I <sub>n</sub> 60 s heavy duty)
Motor slip compensation	Not available in permanent magnet motor law Can be suppressed Automatic whatever the load Adjustable
Acceleration and deceleration ramps	Linear adjustable separately from 0.01...9999 s
Physical interface	Ethernet 2-wire RS 485
Braking to standstill	By DC injection
Protection type	Thermal protection motor Safe torque off motor Motor phase break motor Thermal protection drive Safe torque off drive Overheating drive Overcurrent between output phases and earth drive Overload of output voltage drive Short-circuit protection drive Motor phase break drive Overvoltages on the DC bus drive Line supply overvoltage drive Line supply undervoltage drive Line supply phase loss drive Overspeed drive Break on the control circuit drive
Transmission Rate	10, 100 Mbits 4800 bps, 9600 bps, 19200 bps, 38.4 Kbps
Frequency resolution	Display unit 0.1 Hz 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 4...6 mm <sup>2</sup> AWG 12...AWG10
<b>Connector type</b>	RJ45 on the remote graphic terminal)Ethernet/Modbus TCP 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 Internal supply for reference potentiometer (1 to 10 kOhm) 10.5 V DC +/- 5 %, <10 mA overload and short-circuit protection 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 for embedded communication status 3 LEDs (dual colour) for communication module status 4 LEDs (dual colour) 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>Product 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 AI1, AI2, AI3 software-configurable current 0...20 mA 250 Ohm 12 bits 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 DI5, DI6 discrete input level 1 PLC IEC 65A-68 STOA, STOB discrete input level 1 PLC EN/IEC 61131-2  Positive logic (source) DI1...DI8), < 5 V, > 11 V 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 Software-configurable current AQ1, AQ2 0...20 mA 10 bits Software-configurable current DQ-, DQ+ 30 V DC Software-configurable current DQ-, DQ+ 100 mA
<b>Sampling duration</b>	2 ms +/- 0.5 ms DI1...DI4) - discrete input 5 ms +/- 1 ms DI5, DI6) - discrete input 5 ms +/- 0.1 ms AI1, AI2, AI3) - analog input 10 ms +/- 1 ms AO1) - analog output
<b>Accuracy</b>	+/- 0.6 % AI1, AI2, AI3 for a temperature variation 60 °C analog input +/- 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 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 Configurable relay logic R2 sequence relay NO 100000 cycles 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 Relay output R1, R2, R3 resistive, cos phi = 1 3 A 30 V DC Relay output R1, R2, R3 inductive, cos phi = 0.4 7 ms 2 A 250 V AC Relay output R1, R2, R3 inductive, cos phi = 0.4 7 ms 2 A 30 V DC

Isolation	Between power and control terminals
Maximum output frequency	500 kHz
<b>Maximum Input Current per Phase</b>	13.8 A
<b>Variable speed drive application selection</b>	Building - HVAC compressor centrifugal Food and beverage processing other application Mining mineral and metal fan Mining mineral and metal pump Oil and gas fan Water and waste water other application Building - HVAC screw compressor Food and beverage processing pump Food and beverage processing fan Food and beverage processing atomization Oil and gas electro submersible pump (ESP) Oil and gas water injection pump Oil and gas jet fuel pump Oil and gas compressor for refinery Water and waste water centrifuge pump Water and waste water positive displacement pump Water and waste water electro submersible pump (ESP) Water and waste water screw pump Water and waste water lobe compressor Water and waste water screw compressor Water and waste water compressor centrifugal Water and waste water fan Water and waste water conveyor Water and waste water mixer
<b>Motor power range AC-3</b>	7...11 kW 380...440 V 3 phase 7...11 kW 480...500 V 3 phase
Quantity per Set	1
Enclosure mounting	Wall mounted
<b>Environment</b>	
Insulation resistance	> 1 MOhm 500 V DC for 1 minute to earth
Noise level	56 dB 86/188/EEC
<b>Power dissipation in W</b>	Natural convection 172 W 380 V 4 kHz Forced convection 44 W 380 V 4 kHz
Volume of cooling air	27210.21 Gal/hr(US) (103 m3/h)
Operating position	Vertical +/- 10 degree
Maximum THDI	<48 % from 80...100 % of load IEC 61000-3-12
<b>Electromagnetic compatibility</b>	Electrostatic discharge immunity test level 3 IEC 61000-4-2 Radiated radio-frequency electromagnetic field immunity test level 3 IEC 61000-4-3 Electrical fast transient/burst immunity test level 4 IEC 61000-4-4 1.2/50 µs - 8/20 µs surge immunity test level 3 IEC 61000-4-5 Conducted radio-frequency immunity test level 3 IEC 61000-4-6
Pollution degree	2 EN/IEC 61800-5-1
Vibration resistance	1.5 mm peak to peak 2...13 Hz)IEC 60068-2-6 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
<b>Ambient air temperature for operation</b>	5...122 °F (-15...50 °C) without derating) 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 1000...4800 m with current derating 1 % per 100 m
<b>Product Certifications</b>	DNV-GL ATEX INERIS UL ATEX zone 2/22 CSA TÜV
Marking	CE

<b>Standards</b>	UL 508C EN/IEC 61800-3 EN/IEC 61800-3 environment 1 category C2 EN/IEC 61800-3 environment 2 category C3 EN/IEC 61800-5-1 IEC 61000-3-12 IEC 60721-3 IEC 61508 IEC 13849-1
------------------	--

<b>Overvoltage category</b>	III
-----------------------------	-----

<b>Regulation loop</b>	Adjustable PID regulator
	56 dB
	2

## Ordering and shipping details

<b>Category</b>	22205-ATV630 FRAMES 1 & 2
-----------------	---------------------------

<b>Discount Schedule</b>	CP4E
--------------------------	------

<b>GTIN</b>	3606480758157
-------------	---------------

<b>Returnability</b>	Yes
----------------------	-----

<b>Country of origin</b>	ID
--------------------------	----

## Packing Units

<b>Unit Type of Package 1</b>	PCE
-------------------------------	-----

<b>Number of Units in Package 1</b>	1
-------------------------------------	---

<b>Package 1 Height</b>	8.46 in (21.500 cm)
-------------------------	---------------------

<b>Package 1 Width</b>	23.23 in (59.000 cm)
------------------------	----------------------

<b>Package 1 Length</b>	13.78 in (35.000 cm)
-------------------------	----------------------

<b>Package 1 Weight</b>	22.69 lb(US) (10.291 kg)
-------------------------	--------------------------

<b>Unit Type of Package 2</b>	P06
-------------------------------	-----

<b>Number of Units in Package 2</b>	3
-------------------------------------	---

<b>Package 2 Height</b>	29.53 in (75.000 cm)
-------------------------	----------------------

<b>Package 2 Width</b>	23.62 in (60.000 cm)
------------------------	----------------------

<b>Package 2 Length</b>	31.50 in (80.000 cm)
-------------------------	----------------------

<b>Package 2 Weight</b>	96.72 lb(US) (43.873 kg)
-------------------------	--------------------------

## Offer Sustainability

<b>Sustainable offer status</b>	Green Premium product
---------------------------------	-----------------------

<b>California proposition 65</b>	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>
----------------------------------	---

<b>REACH Regulation</b>	<a href="#">REACH Declaration</a>
-------------------------	-----------------------------------

<b>EU RoHS Directive</b>	Pro-active compliance (Product out of EU RoHS legal scope) <a href="#">EU RoHS Declaration</a>
--------------------------	---

<b>Mercury free</b>	Yes
---------------------	-----

<b>China RoHS Regulation</b>	<a href="#">China RoHS declaration</a>
------------------------------	--

<b>RoHS exemption information</b>	Yes
-----------------------------------	-----

<b>Environmental Disclosure</b>	<a href="#">Product Environmental Profile</a>
---------------------------------	---

<b>Circularity Profile</b>	<a href="#">End of Life Information</a>
----------------------------	---

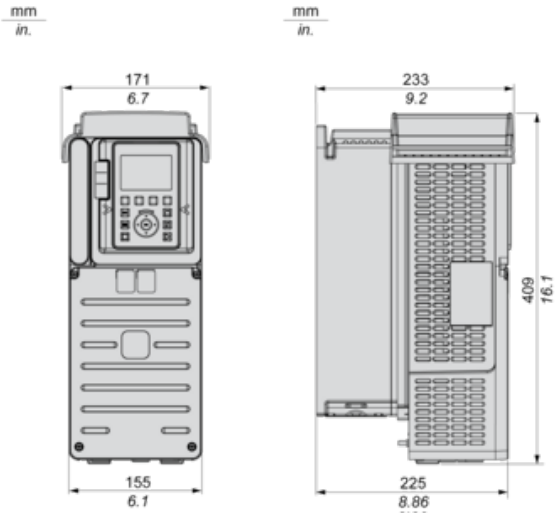
<b>WEEE</b>	The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins.
-------------	--



**Dimensions**

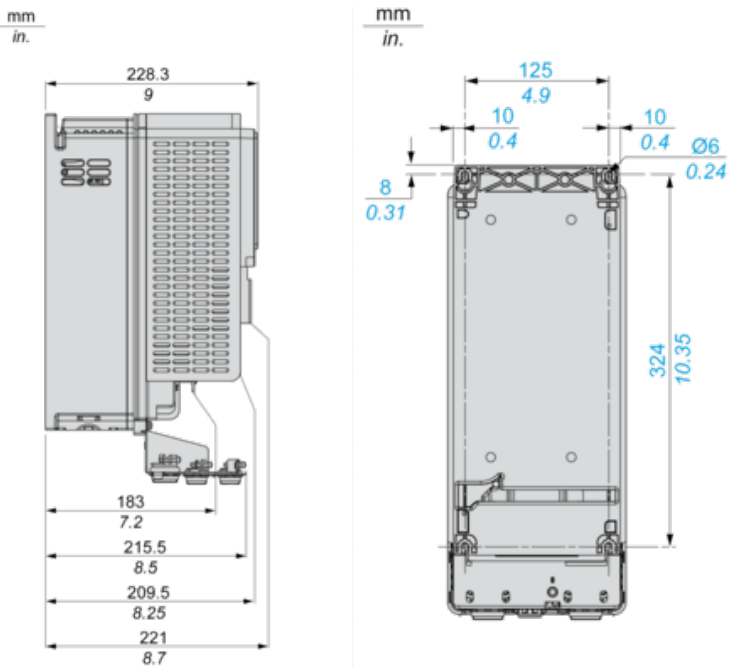
**Drives with IP21 Top Cover**

Front and Left Views

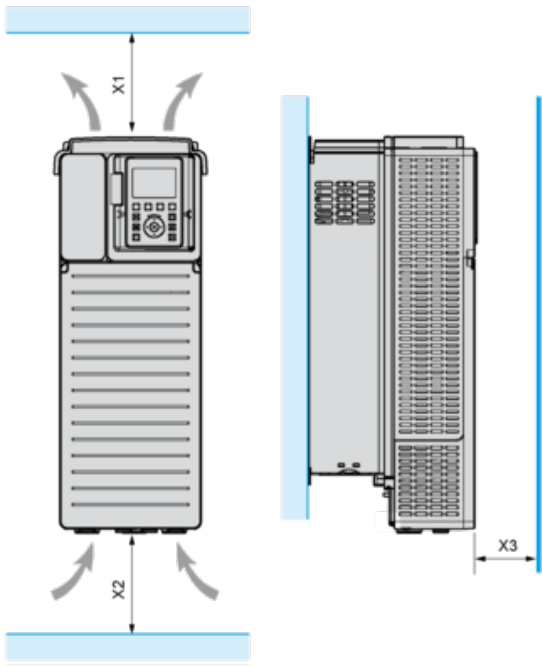


**Drives Without IP21 Top Cover**

Left and Rear Views



**Clearances**



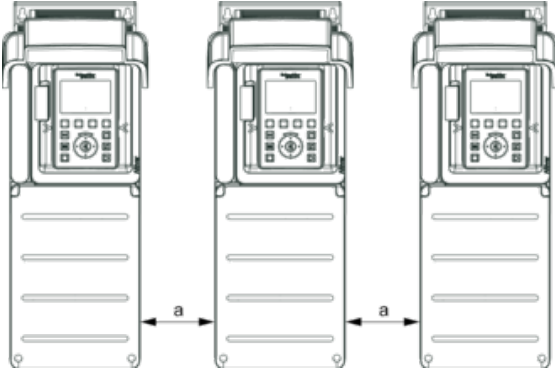
X1	X2	X3
≥ 100 mm (3.94 in.)	≥ 100 mm (3.94 in.)	≥ 10 mm (0.39 in.)



Mounting Types

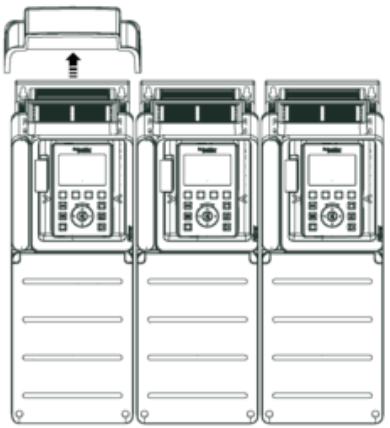
---

Mounting Type A: Individual IP21

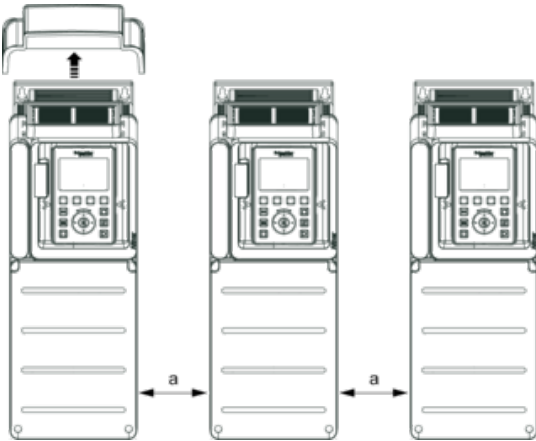


$a \geq 100 \text{ mm (3.94 in.)}$

Mounting Type B: Side by Side IP20



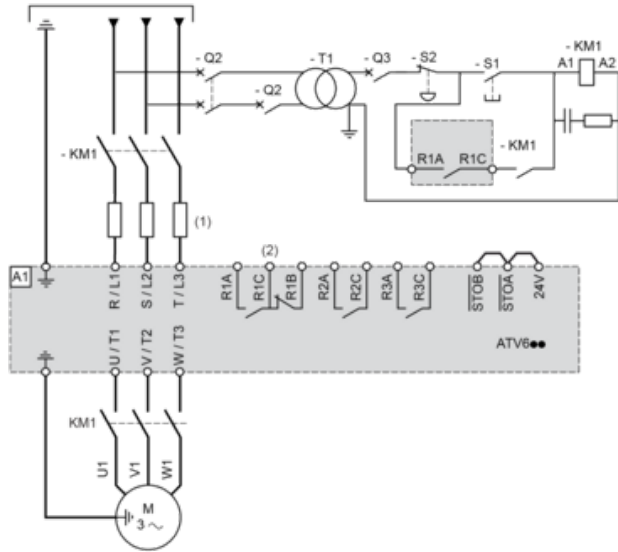
Mounting Type C: Individual IP20



$a \geq 0$

**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

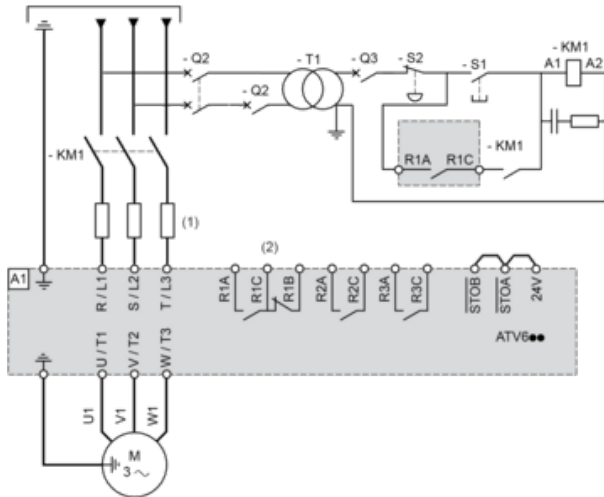
Q2, Q3 : Circuit breakers

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



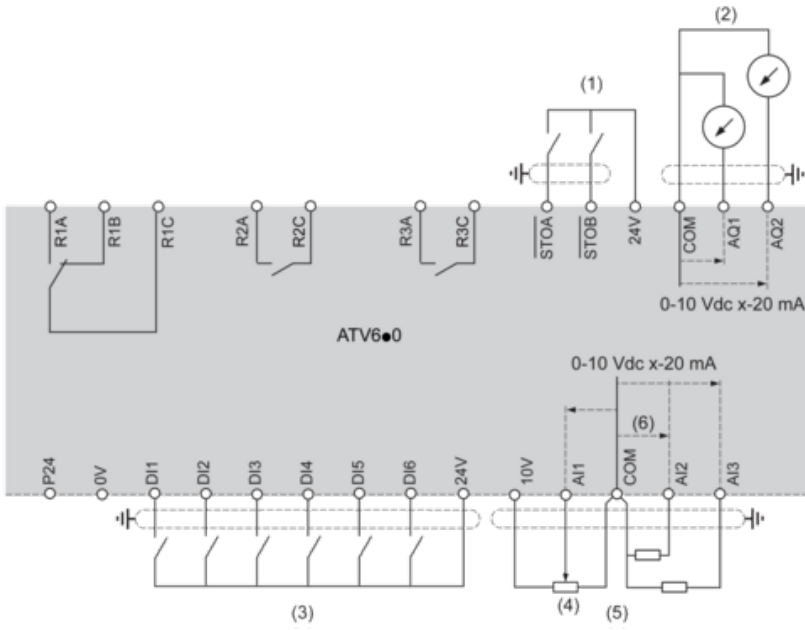
(1) Line choke if used

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

A1 : Drive

KM1 : Contactor

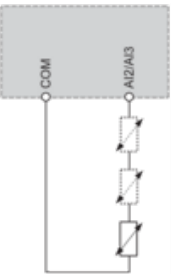
**Control Block Wiring Diagram**



- (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.

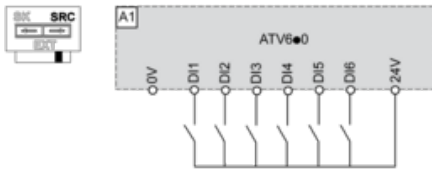


**Sink / Source Switch Configuration**

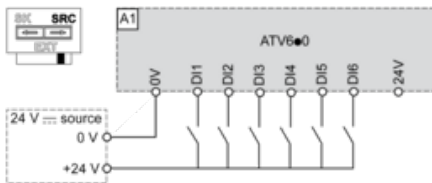
The switch is used to adapt the operation of the logic inputs to the technology of the programmable controller outputs.

- 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.

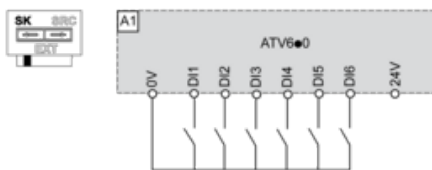
**Switch Set to SRC (Source) Position Using the Output Power Supply for the Digital Inputs**



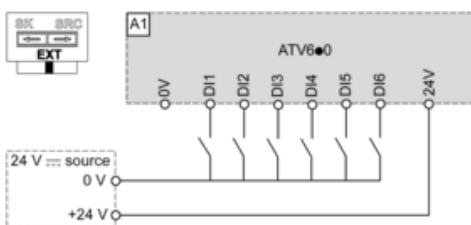
**Switch Set to SRC (Source) Position and Use of an External Power Supply for the DIs**



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

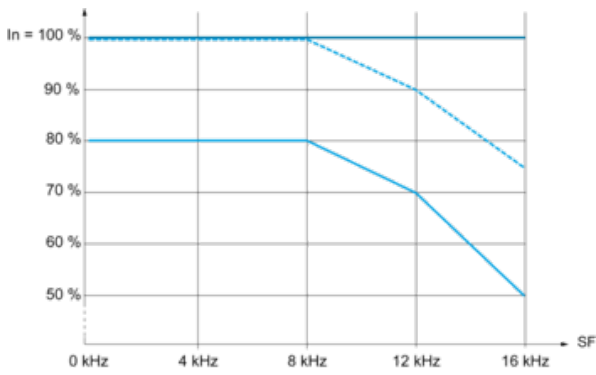


**Switch Set to EXT Position Using an External Power Supply for the DIs**



**Derating Curves**

---



— 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)**