

# Product data sheet

## Characteristics

# ATV630D15M3

Variable speed drive, Altivar Process ATV600, ATV630, 15kW/20 hp, 200...240 V, IP21/UL type 1

Product availability : Stock - Normally stocked in distribution facility



Price\* : 3,128.00 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	Synchronous motors Asynchronous motors
EMC filter	Without EMC filter
IP degree of protection	IP21IEC 61800-5-1 IP21IEC 60529
Degree of protection	UL type 1 UL 508C
Type of cooling	Forced convection
Supply frequency	50...60 Hz - 5...5 %
[Us] rated supply voltage	200...240 V - 15...10 %
Motor power kW	15 kW normal duty) 11 kW heavy duty)
Maximum Horse Power Rating	20 hp normal duty 15 hp heavy duty)
Line current	52.6 A 200 V normal duty) 45.5 A 240 V normal duty) 40.1 A 200 V heavy duty) 34.3 A 240 V heavy duty)
Prospective line I <sub>sc</sub>	50 kA
Apparent power	18.9 kVA 240 V normal duty) 14.3 kVA 240 V heavy duty)
Continuous output current	63.4 A 4 kHz normal duty 46.8 A 4 kHz heavy duty)

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

Maximum transient current	69.7 A 60 s normal duty) 70.2 A 60 s heavy duty)
Asynchronous motor control profile	Variable torque standard Constant torque standard Optimized torque mode
Synchronous motor control profile	Permanent magnet motor Synchronous reluctance motor
Output frequency	0.0001...0.5 kHz
Speed drive output frequency	0.1...599 Hz
Nominal switching frequency	4 kHz
Switching frequency	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
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	Can be suppressed Automatic whatever the load Not available in permanent magnet motor law Adjustable
Acceleration and deceleration ramps	Linear adjustable separately from 0.01...9999 s
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
Frequency resolution	Display unit 0.1 Hz Analog input 0.012/50 Hz
Electrical connection	Control removable screw terminals 0.5...1.5 mm <sup>2</sup> AWG 20...AWG 16 Line side screw terminal 25...50 mm <sup>2</sup> AWG 4...AWG 1 Motor screw terminal 25...50 mm <sup>2</sup> AWG 4...AWG 1
Connector type	RJ45 on the remote graphic terminal)Ethernet/Modbus TCP RJ45 on the remote graphic terminal)Modbus serial
Exchange mode	Half duplex, full duplex, autonegotiation Ethernet/Modbus TCP

Number of addresses	1...247 Modbus serial
Method of access	Slave Modbus TCP
Supply	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
Local signalling	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)
Width	8.90 in (226 mm)
Height	26.50 in (673 mm)
Depth	10.67 in (271 mm)
Net Weight	29.98 lb(US) (13.6 kg)
Analogue input number	3
Analogue input type	AI1, AI2, AI3 software-configurable voltage 0...10 V DC 30 kOhm 12 bits AI1, AI2, AI3 software-configurable current 0...20 mA/4...20 mA 250 Ohm 12 bits
Discrete input number	8
Discrete input type	DI1...DI6 programmable, 24 V DC <= 30 V)3.5 kOhm DI5, DI6 programmable as pulse input 0...30 kHz, 24 V DC <= 30 V) STOA, STOB safe torque off, 24 V DC <= 30 V)> 2.2 kOhm
Input compatibility	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
Discrete input logic	Positive logic (source) DI1...DI6), < 5 V, > 11 V Negative logic (sink) DI1...DI6), > 16 V, < 10 V Positive logic (source) DI5, DI6), < 0.6 V, > 2.5 V 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 Software-configurable current AO1, AO2 0...20 mA 10 bits
Sampling duration	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
Accuracy	+/- 0.6 % AI1, AI2, AI3 for a temperature variation 60 °C analog input +/- 1 % AO1, AO2 for a temperature variation 60 °C analog output
Linearity error	AI1, AI2, AI3 +/- 0.15 % of maximum value analog input AO1, AO2 +/- 0.2 % analog output
Relay output number	3
Relay output type	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
Refresh time	Relay output R1, R2, R3)5 ms +/- 0.5 ms)
Minimum switching current	Relay output R1, R2, R3 5 mA 24 V DC
Maximum switching current	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
Variable speed drive application selection	Compressor centrifugal Building - HVAC Other application Food and beverage processing Fan Mining mineral and metal Pump Mining mineral and metal Fan Oil and gas Other application Water and waste water Screw compressor Building - HVAC Pump Food and beverage processing Fan Food and beverage processing Atomization Food and beverage processing Electro submersible pump (ESP) Oil and gas Water injection pump Oil and gas Jet fuel pump Oil and gas Compressor for refinery Oil and gas

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 Water and waste water

Motor power range AC-3	15...25 kW 200...240 V 3 phase
------------------------	--------------------------------

## Environment

Insulation resistance	> 1 MOhm 500 V DC for 1 minute to earth
Noise level	63.5 dB 86/188/EEC
Power dissipation in W	Natural convection 87 W 200 V 4 kHz Forced convection 486 W 200 V 4 kHz
Volume of cooling air	63402.43 Gal/hr(US) (240 m3/h)
Operating position	Vertical +/- 10 degree
Maximum THDI	<48 % from 80...100 % of load IEC 61000-3-12
Electromagnetic compatibility	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
Ambient air temperature for operation	5...122 °F (-15...50 °C) without derating) 122...140 °F (50...60 °C) with derating factor)
Ambient air temperature for storage	-40...158 °F (-40...70 °C)
Operating altitude	<= 1000 m without derating 1000...4800 m with current derating 1 % per 100 m
Standards	UL 508C EN/IEC 61800-3 Environment 1 category C2 EN/IEC 61800-3 Environment 2 category C3 EN/IEC 61800-3 EN/IEC 61800-5-1 IEC 61000-3-12 IEC 60721-3 IEC 61508 IEC 13849-1
Product certifications	ATEX zone 2/22 TÜV CSA DNV-GL UL ATEX INERIS
Marking	CE


## Ordering and shipping details

Category	22206 - ATV630 FRAMES 3 & 4
Discount Schedule	CP4E
GTIN	03606480701481
Nbr. of units in pkg.	1
Package weight(Lbs)	61.73 lb(US) (28 kg)
Returnability	Yes
Country of origin	IN

## Packing Units

Unit Type of Package 1	PCE
Package 1 Height	13.78 in (35 cm)
Package 1 width	20.47 in (52 cm)
Package 1 Length	32.28 in (82 cm)
Unit Type of Package 2	CAR
Number of Units in Package 2	1
Package 2 Weight	61.73 lb(US) (28 kg)
Package 2 Height	20.47 in (52 cm)
Package 2 width	13.78 in (35 cm)
Package 2 Length	31.89 in (81 cm)

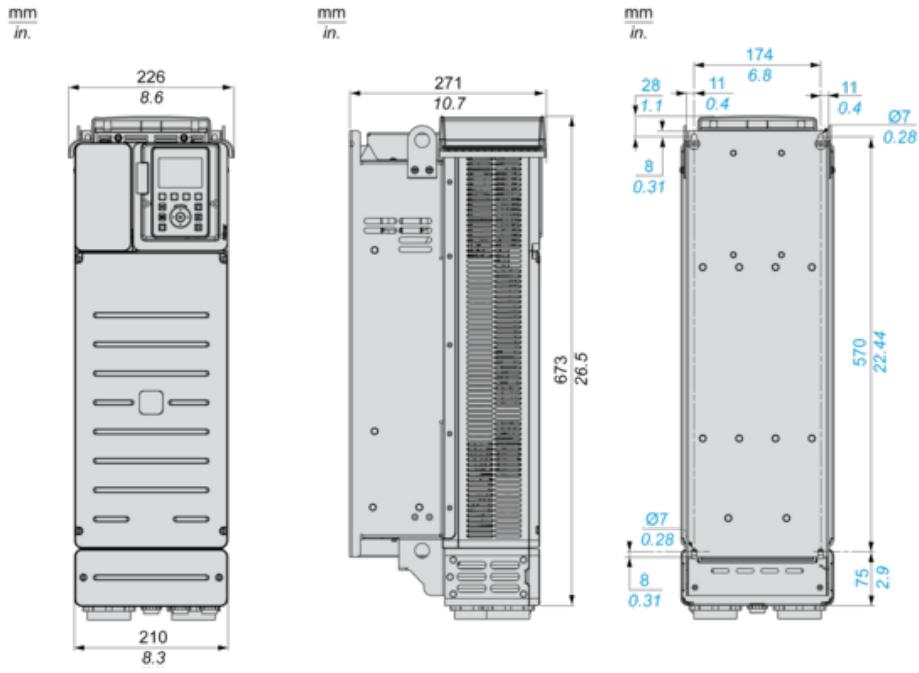
## Offer Sustainability

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) <a href="#">EU RoHS Declaration</a>
Mercury free	Yes
RoHS exemption information	<a href="#">Yes</a>
China RoHS Regulation	<a href="#">China RoHS declaration</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	<a href="#">Upgraded components available</a> 

## Dimensions

### Drives with IP21 Top Cover

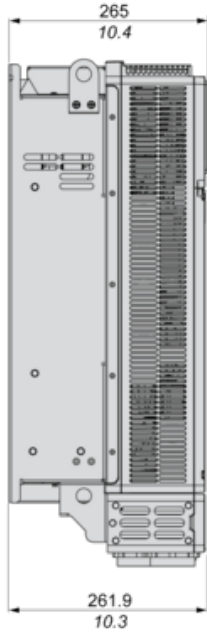
Front, Left and Rear Views



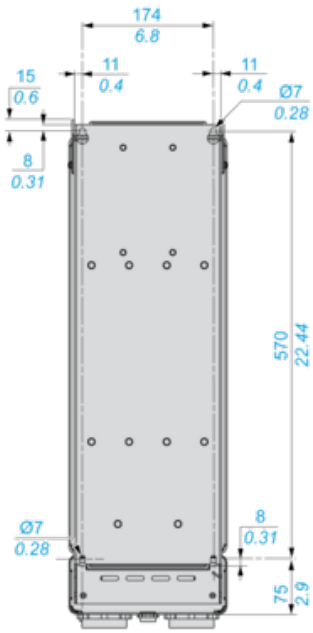
### Drives Without IP21 Top Cover

Left and Rear Views

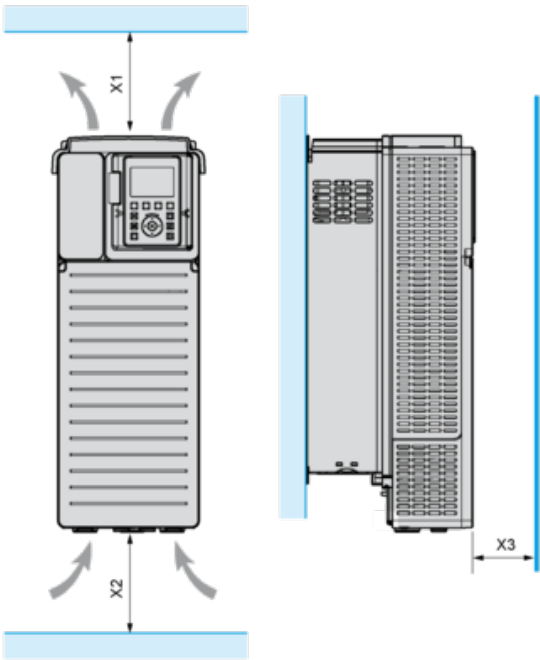
mm  
in.



mm  
in.



Clearances



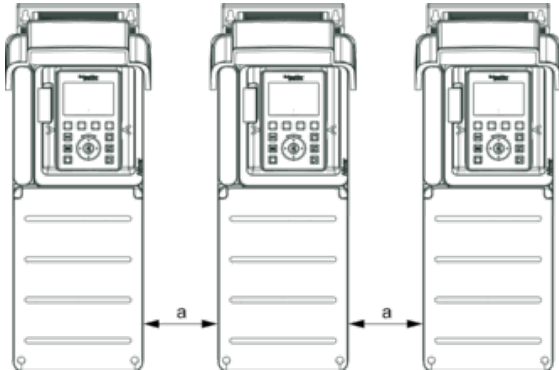
X1	X2	X3
≥ 100 mm (3.94 in.)	≥ 100 mm (3.94 in.)	≥ 10 mm (0.39 in.)

---

Mounting Types

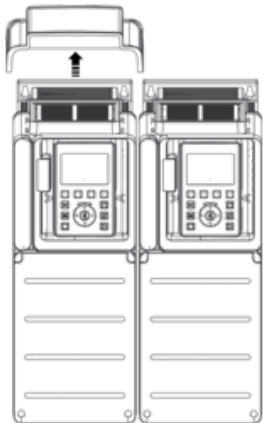
---

Mounting Type A: Individual IP21

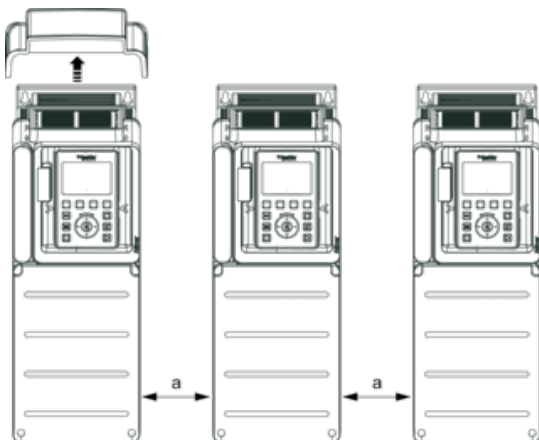


$a \geq 110 \text{ mm (4.33 in.)}$

Mounting Type B: Side by Side IP20 (Possible, 2 Drives Only)



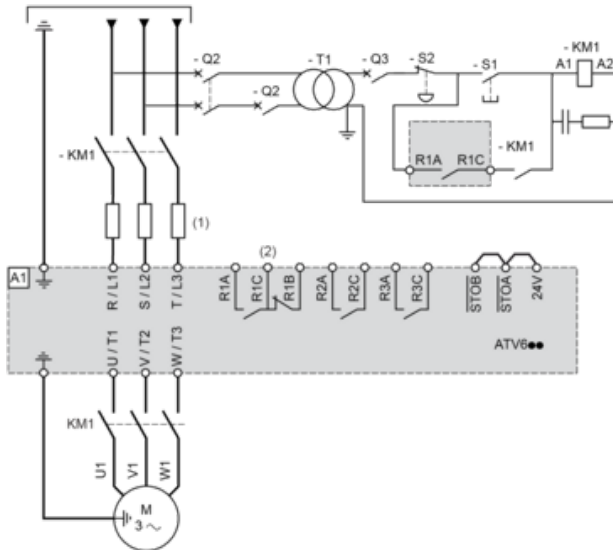
Mounting Type C: Individual IP20



$a \geq 110 \text{ mm (4.33 in.)}$

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

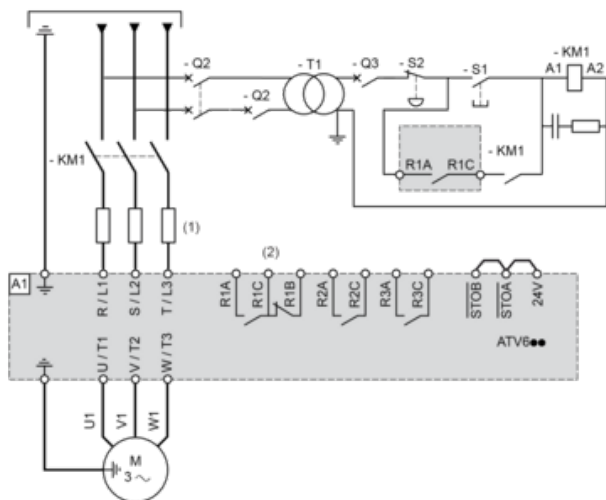
Q2, Q3 : Circuit breakers

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



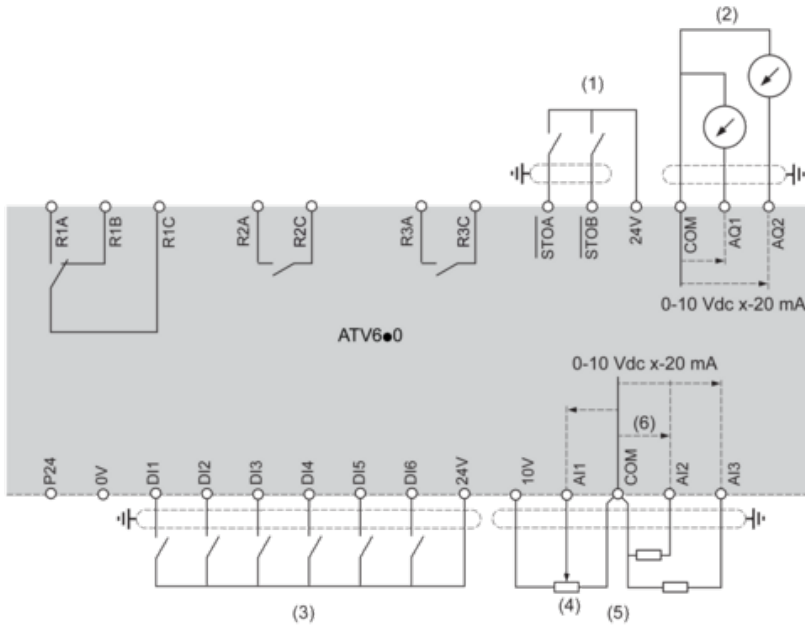
(1) Line choke if used

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

A1 : Drive

KM1 : Contactor

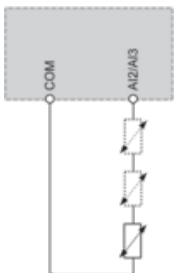
## Control Block Wiring Diagram



- (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.

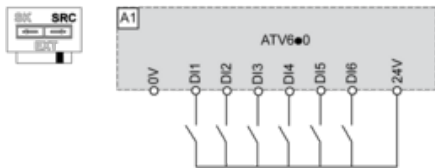


## Sink / Source Switch Configuration

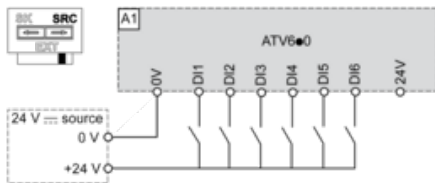
The switch is used to adapt the operation of the logic inputs to the technology of the programmable controller outputs.

- 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.

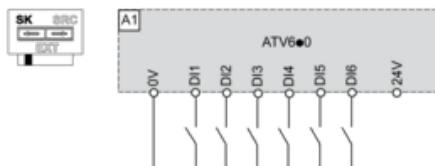
### Switch Set to SRC (Source) Position Using the Output Power Supply for the Digital Inputs



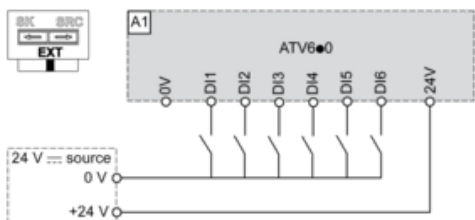
### Switch Set to SRC (Source) Position and Use of an External Power Supply for the DIs



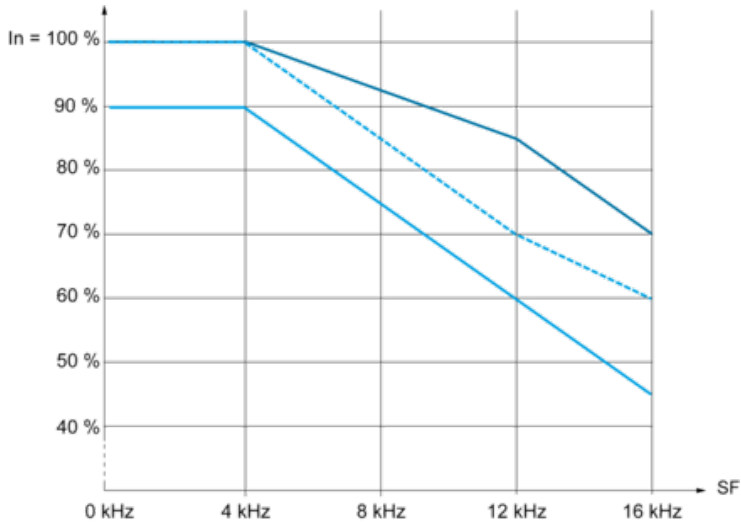
### Switch Set to SK (Sink) Position Using the Output Power Supply for the Digital Inputs



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



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