Product data sheet
Characteristics

ATV630C11N4
variable speed drive ATV630 - 110kW/150HP - 380...480V - IP00

The information provided in this documentation contains general descriptions and/or technical characteristics of the performance of the products contained herein.
This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications.
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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 Synchronous motors
Mounting mode	Wall mount
EMC filter	Integrated EN/IEC 61800-3 category C3 <= 150 m
IP degree of protection	IP00 conforming to IEC 61800-5-1 IP21 (with kit VW3A9704) conforming to IEC 61800-5-1 IP21 (with kit VW3A9704) conforming to IEC 60529 IP00 conforming to IEC 60529
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	110 kW normal duty 90 kW heavy duty
Motor power hp	150 hp normal duty 125 hp heavy duty
Line current	201 A 380 V normal duty 165 A 480 V normal duty 170 A 380 V heavy duty 143 A 480 V heavy duty
Prospective line Isc	50 kA
Apparent power	121.8 kVA 480 V normal duty 102.6 kVA 480 V heavy duty
Continuous output current	211 A 2.5 kHz normal duty 173 A 2.5 kHz heavy duty
Maximum transient current	232.1 A 60 s normal duty 259.5 A 60 s heavy duty
Asynchronous motor control profile	Optimized torque mode Variable torque standard Constant torque standard
Synchronous motor control profile	Synchronous reluctance motor Permanent magnet motor
Output frequency	0.0001...0.5 kHz
Speed drive output frequency	0.1...599 Hz
Nominal switching frequency	2.5 kHz
Switching frequency	2...8 kHz adjustable 2.5...8 kHz with derating factor
Safety function	STO (safe torque off) SIL 3
Discrete input logic	16 preset speeds

Communication port protocol	Modbus serial Modbus TCP Ethernet
Option card	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 Digital and analog I/O extension module slot A/slot B Output relay extension module slot A/slot B Communication module Ethernet IP/Modbus TCP/ MD-Link slot A Communication module BACnet MS/TP Communication module Ethernet Powerlink

Complementary

Output voltage	<= power supply voltage
Permissible temporary current boost	1.1 x In 60 s normal duty 1.5 x In 60 s heavy duty
Motor slip compensation	Adjustable Can be suppressed Automatic whatever the load Not available in permanent magnet motor law
Acceleration and deceleration ramps	Linear adjustable separately from 0.01...9999 s
Braking to standstill	By DC injection
Protection type	Safe torque off motor Motor phase break motor Safe torque off drive Overheating drive Short-circuit protection drive Motor phase break drive Overspeed drive Break on the control circuit drive Overvoltages on the DC bus drive Overload of output voltage drive Line supply overvoltage drive Line supply phase loss drive Line supply undervoltage drive Overcurrent between output phases and earth drive Thermal protection motor Thermal protection drive
Frequency resolution	Display unit Analog input
Electrical connection	Removable screw terminals 0.5...1.5 mm² AWG 20...AWG 16 control Screw terminal 2 x 50...3 x 120 mm² 2 x AWG 1/0...2 x 300 kcmil line side Screw terminal 2 x 50...3 x 120 mm² 2 x AWG 1/0...2 x 300 kcmil motor
Connector type	RJ45 Ethernet/Modbus TCP on the remote graphic terminal 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 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 % <= 10 mA overload and short-circuit protection External supply for digital inputs 24 V DC 19...30 V <= 1.25 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	3 LEDs local diagnostic 3 LEDs dual colour embedded communication status 4 LEDs dual colour communication module status 1 LED red presence of voltage
Width	12.6 in (320 mm)
Height	33.54 in (852 mm)
Depth	15.35 in (390 mm)
Product weight	180.78 lb(US) (82 kg)
Analogue input number	3
Analogue input type	Software-configurable voltage AI1, AI2, AI3 0...10 V DC 30 kOhm 12 bits 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 Programmable as pulse input DI5, DI6 0...30 kHz 24 V DC Safe torque off STOA, STOB 24 V DC > 2.2 kOhm
Input compatibility	Level 1 PLC EN/IEC 61131-2 DI1...DI6 discrete input Level 1 PLC IEC 65A-68 DI5, DI6 discrete input Level 1 PLC EN/IEC 61131-2 STOA, STOB discrete input
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	+/- 0.15 % of maximum value analog input AI1, AI2, AI3 +/- 0.2 % analog output AO1, AO2
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	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 3 A 30 V DC resistive 1 R1, R2, R3 relay output 2 A 250 V AC inductive 0.4 7 ms R1, R2, R3 relay output 2 A 30 V DC inductive 0.4 7 ms R1, R2, R3 relay output
Isolation	Between power and control terminals
Specific application	Utility
IP degree of protection	IP21
Variable speed drive application selection	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

Motor power range AC-3	110...220 kW 380...440 V 3 phases 110...220 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	69.9 dB 86/188/EEC
Power dissipation in W	2026 W forced convection 380 V 2.5 kHz
Volume of cooling air	158506.07 Gal/hr(US) (600 m3/h)
Operating position	Vertical +/- 10 degree
THDI	<= 48 % full load IEC 61000-3-12
Electromagnetic compatibility	Conducted radio-frequency immunity test level 3 IEC 61000-4-6 1.2/50 µs - 8/20 µs surge immunity test level 3 IEC 61000-4-5 Electrical fast transient/burst immunity test level 4 IEC 61000-4-4 Electrostatic discharge immunity test level 3 IEC 61000-4-2 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 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 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 <= 3280.84 ft (1000 m) without
Environmental characteristic	Chemical pollution resistance class 3C3 EN/IEC 60721-3-3 Dust pollution resistance class 3S3 EN/IEC 60721-3-3
Standards	EN/IEC 61800-3 EN/IEC 61800-3 environment 1 category C2 EN/IEC 61800-3 environment 2 category C3 UL 508C EN/IEC 61800-5-1 IEC 61000-3-12 IEC 60721-3 IEC 61508 IEC 13849-1
Product certifications	TÜV CSA ATEX INERIS DNV-GL ATEX zone 2/22 REACH UL
Marking	CE

Ordering and shipping details

Category	22207 - ATV630 FRAMES 5 & 6
Discount Schedule	CP4E
GTIN	00785901638148
Nbr. of units in pkg.	1
Package weight(Lbs)	220
Returnability	N
Country of origin	IN

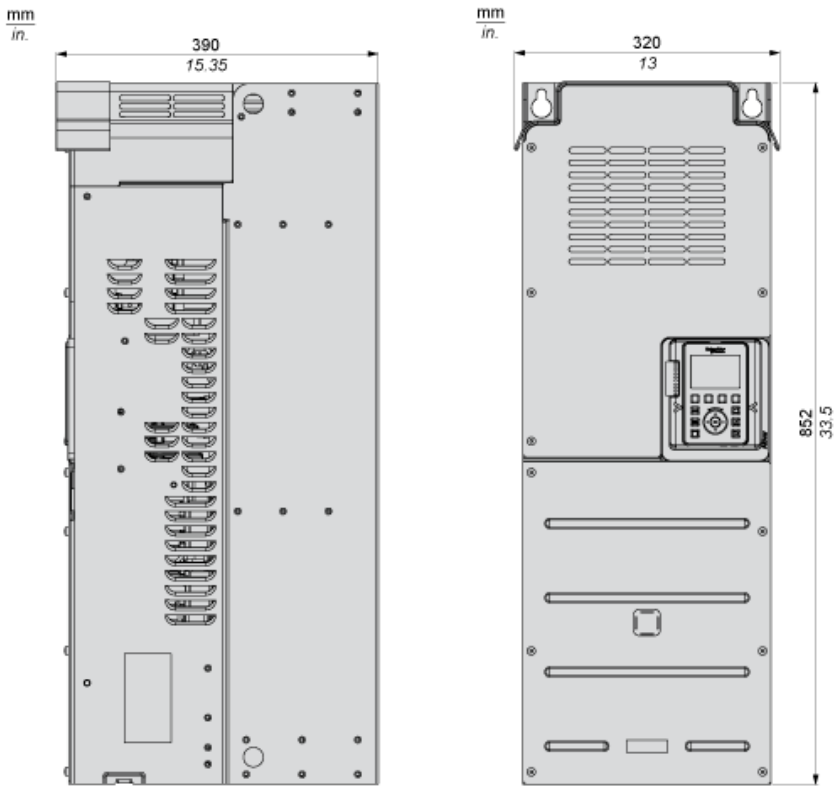
Offer Sustainability

Sustainable offer status	Green Premium product
RoHS (date code: YYWW)	Compliant - since 1450 - Schneider Electric declaration of conformity Schneider Electric declaration of conformity
REACh	Reference not containing SVHC above the threshold
Product environmental profile	Available Product Environmental Profile
Product end of life instructions	Available End Of Life Information
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 www.p65warnings.ca.gov

Dimensions

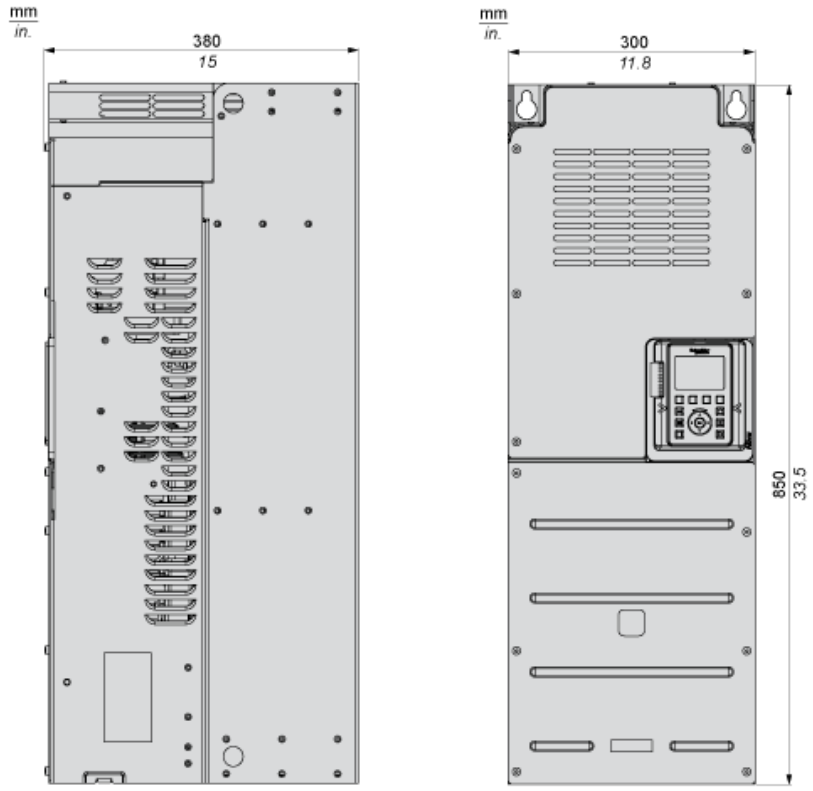
Drives with IP21 Top Cover

Right and Front Views



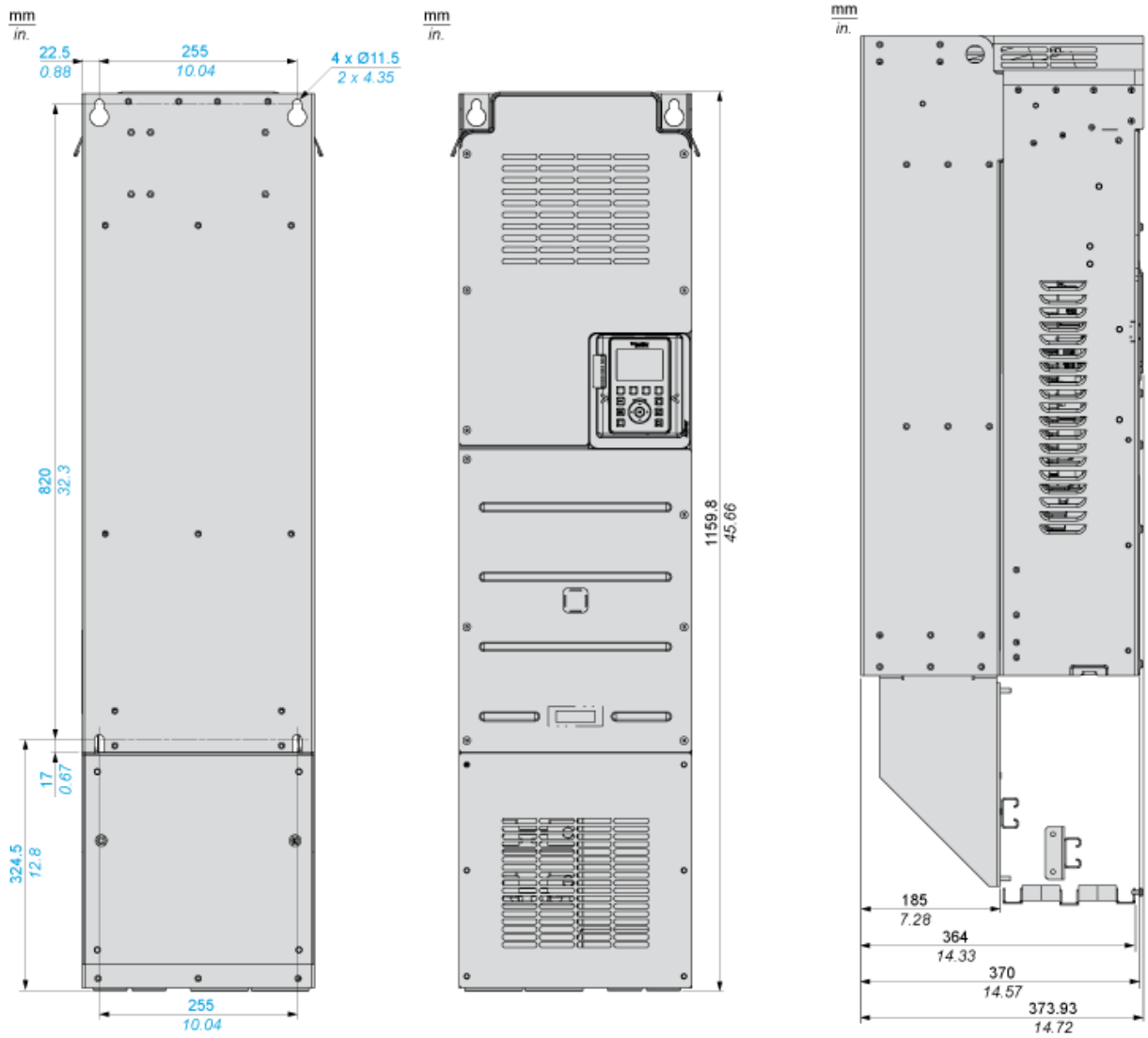
Drives Without IP21 Top Cover

Right and Front Views

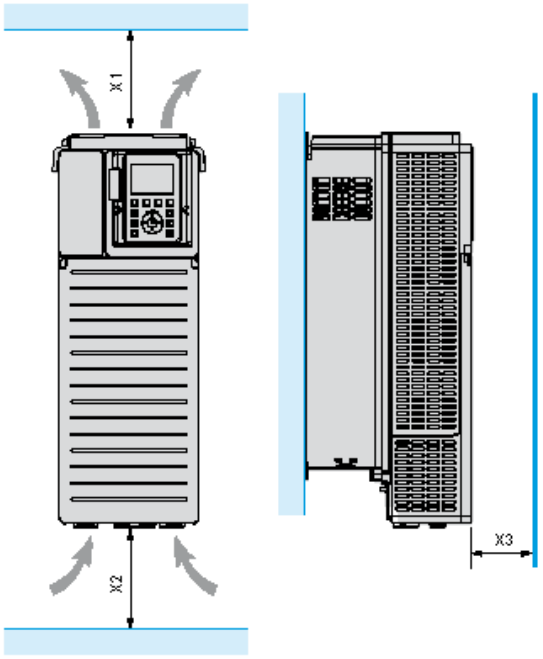


Drives with Lower Conduit Box Sold Separately

Rear, Front and Left Views



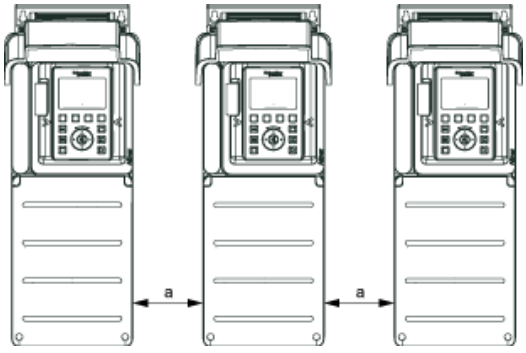
Clearances



X1	X2	X3
≥ 250 mm (10 in.)	≥ 250 mm (10 in.)	≥ 100 mm (3.94 in.)

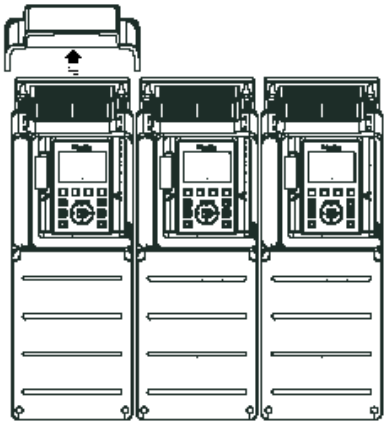
Mounting Types

Mounting Type A: Individual IP21

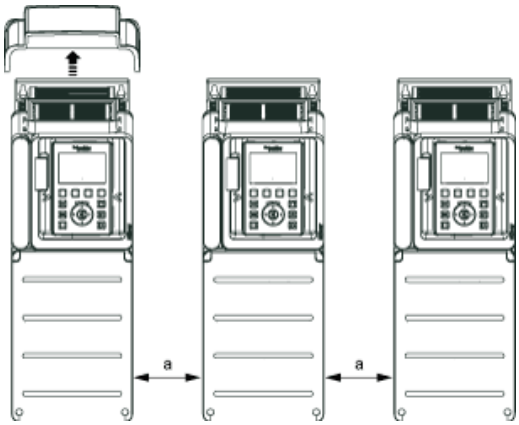


a ≥ = 110 mm (4.33 in.)

Mounting Type B: Side by Side IP20 , Only possible at ambient temperature lower than 40 °C (104 °F)



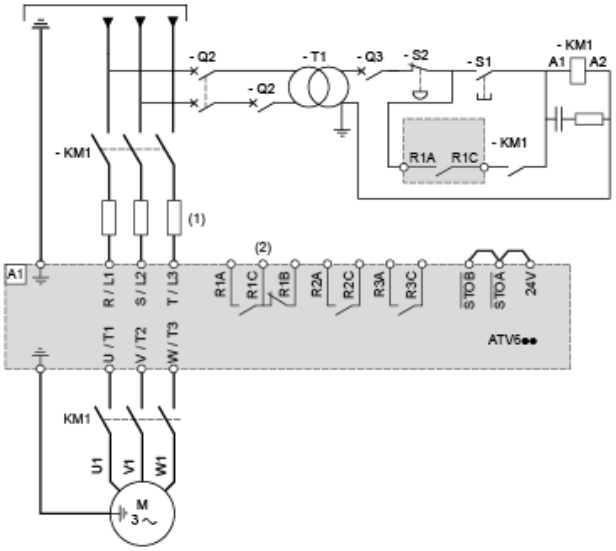
Mounting Type C: Individual IP20



a ≥ = 110 mm (4.33 in.)

Three-Phase Power Supply with Upstream Breaking via Line Contactor

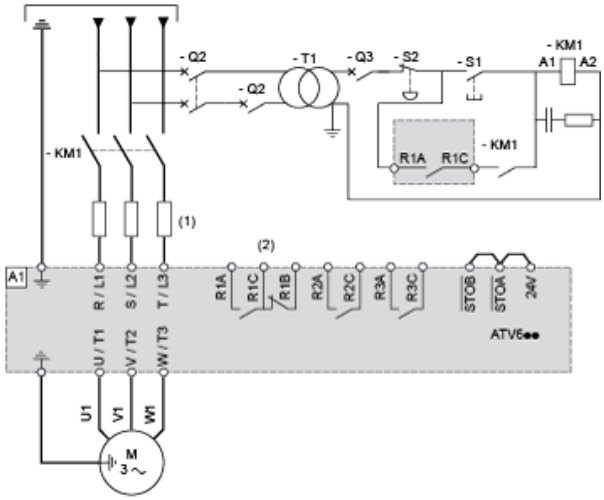
Connection diagrams conforming to standards EN 954-1 category 1 and IEC/EN 61508 capacity SIL1, stopping category 0 in accordance with standard IEC/EN 60204-1



(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

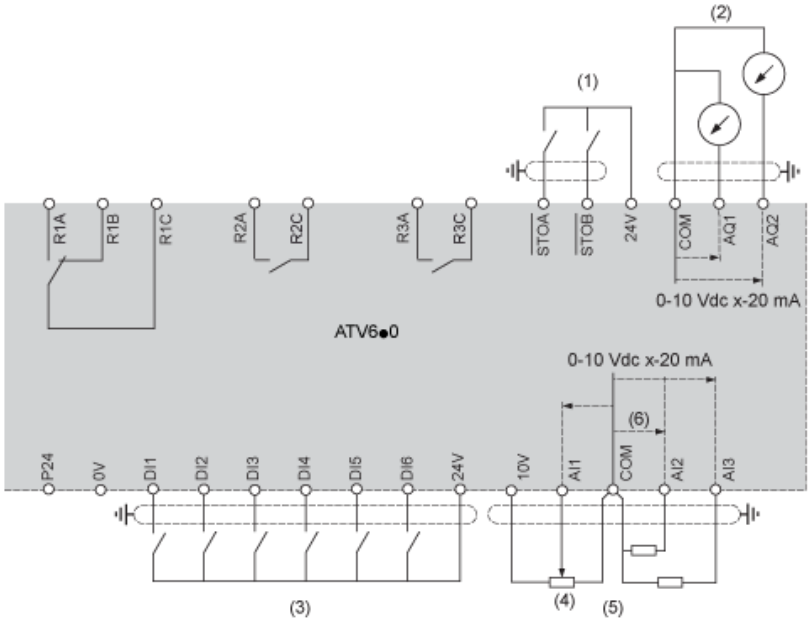
Three-Phase Power Supply with Downstream Breaking via Contactor

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

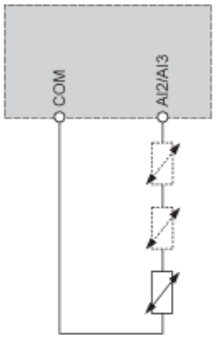
Control Block Wiring Diagram



(1) Safe Torque Off
(2) Analog Output
(3) Digital Input
(4) Reference potentiometer
(5) Analog Input
R1A, 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.

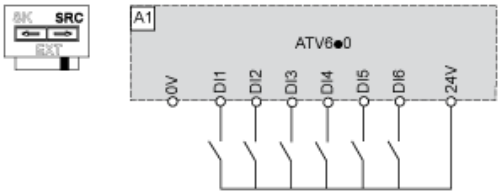


Sink / Source Switch Configuration

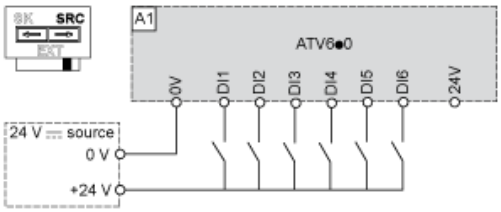
The switch is used to adapt the operation of the logic inputs to the technology of the programmable controller outputs.

- 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.

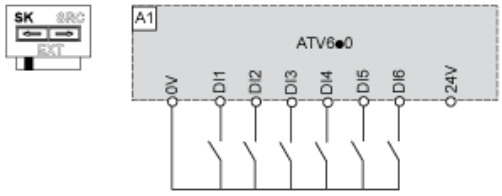
Switch Set to SRC (Source) Position Using the Output Power Supply for the Digital Inputs



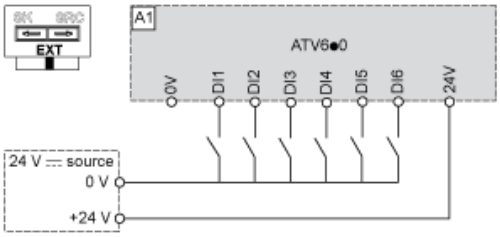
Switch Set to SRC (Source) Position and Use of an External Power Supply for the DIs



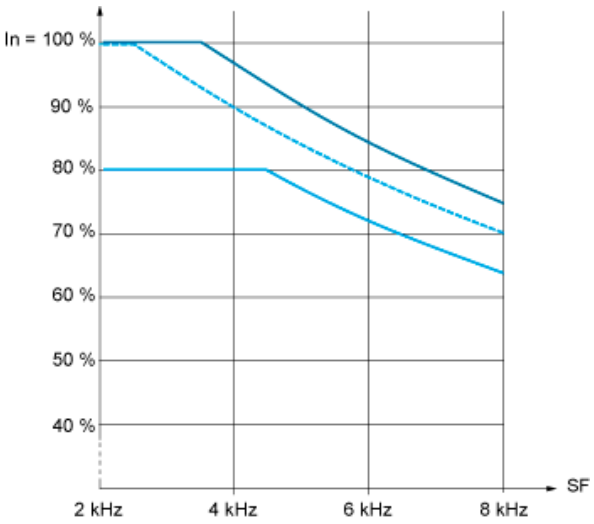
Switch Set to SK (Sink) Position Using the Output Power Supply for the Digital Inputs



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 and C
60 °C (140 °F) - Mounting type C
In : Nominal Drive Current
SF : Switching Frequency

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