

Product data sheet

Specifications



variable speed drive, Altivar Process ATV600, ATV630, 7.5hp, 500 to 690V, IP21

ATV630U75Y6

Main

Range of product	Altivar Process ATV600
Product specific application	Process and utilities
Product or component type	Variable speed drive
Variant	Standard version
Device short name	ATV630
Mounting mode	Wall mount
Communication port protocol	Ethernet Modbus serial Modbus TCP
[Us] rated supply voltage	500...690 V - 15...10 %
[Us] rated supply voltage	500...690 V
Relative symmetric mains voltage tolerance	10 %
Relative symmetric network frequency tolerance	5 %
nominal output current	9.5 A
IP degree of protection	IP21
Product destination	Asynchronous motors Synchronous motors
EMC filter	Integrated with 25 m conforming to IEC 61800-3 category C3
IP degree of protection	IP21 conforming to IEC 60529 IP00 conforming to IEC 61800-5-1
Type of cooling	Forced convection
Supply frequency	50...60 Hz - 5...5 %
Motor power kW	5.5 kW at 500 V (normal duty) 4 kW at 500 V (heavy duty) 7.5 kW at 690 V (normal duty) 5.5 kW at 690 V (heavy duty)
Motor power hp	7.5 hp at 500 V normal duty 5 hp at 500 V heavy duty 10 hp at 690 V normal duty 7.5 hp at 690 V heavy duty
Line current	7.7 A at 600 V (heavy duty) 10.4 A at 500 V (normal duty)
Continuous output current	9.5 A at 4 kHz for heavy duty 7.2 A at 4 kHz for heavy duty
Speed drive output frequency	0.1...500 Hz
Safety function	STO (safe torque off) SIL 3

Option card	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 Slot A: communication module, Profibus DP V1
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Complementary

Discrete input number	8
Discrete input type	DI7, DI8 programmable as pulse input: 0...30 kHz, 24 V DC (<= 30 V)
Discrete input logic	16 preset speeds
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
Analogue input number	3
Analogue input type	AI1, AI2, AI3 software-configurable voltage: 0...10 V DC, impedance: 31.5 kOhm, resolution 12 bits AI1, AI2, AI3 software-configurable current: 0...20 mA, impedance: 250 Ohm, resolution 12 bits AI2 voltage analog input: - 10...10 V DC, impedance: 31.5 kOhm, resolution 12 bits
Analogue output number	2
Analogue output type	Software-configurable voltage AQ1, AQ2: 0...10 V DC impedance 470 Ohm, resolution 10 bits Software-configurable current AQ1, AQ2: 0...20 mA, resolution 10 bits Software-configurable current DQ-, DQ+: 30 V DC Software-configurable current DQ-, DQ+: 100 mA
Relay output number	3
Relay output type	Configurable relay logic R2: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R1: fault relay NO/NC electrical durability 100000 cycles
Maximum switching current	Relay output R1, R2, R3 on resistive load, cos phi = 1: 3 A at 30 V DC Relay output R1, R2, R3 on inductive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 250 V AC Relay output R1, R2, R3 on inductive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 30 V DC Relay output R1, R2, R3 on resistive load, cos phi = 1: 3 A at 250 V AC
Minimum switching current	Relay output R1, R2, R3: 5 mA at 24 V DC
Network number of phases	3 phases
Physical interface	Ethernet 2-wire RS 485
Method of access	Slave Modbus TCP
Transmission rate	10, 100 Mbits 4800 bps, 9600 bps, 19200 bps, 38.4 Kbps
Transmission frame	RTU
Output voltage	<= power supply voltage
Permissible temporary current boost	1.5 x I _n during 60 s (heavy duty) 1.1 x I _n during 60 s (normal duty)
Data format	8 bits, configurable odd, even or no parity

Type of polarization	No impedance
Frequency resolution	Analog input: 0.012/50 Hz Display unit: 0.1 Hz
Electrical connection	Motor: screw terminal 6...10 mm ² /AWG 10...AWG 8 Line side: screw terminal 6...10 mm ² /AWG 10...AWG 8 Control: removable screw terminals 0.5...1.5 mm ² /AWG 20...AWG 16
Connector type	RJ45 (on the remote graphic terminal) for Modbus serial RJ45 (on the remote graphic terminal) for Ethernet/Modbus TCP
Exchange mode	Half duplex, full duplex, autonegotiation Ethernet/Modbus TCP
Number of addresses	1...247 for Modbus serial
Supply	Internal supply for reference potentiometer (1 to 10 kOhm): 10.5 V DC +/- 5 %, <10 mA, protection type: overload and short-circuit protection Internal supply for digital inputs and STO: 24 V DC (21...27 V), <200 mA, protection type: overload and short-circuit protection External supply for digital inputs: 24 V DC (19...30 V), <1.25 mA, protection type: overload and short-circuit protection
Local signalling	3 LEDs (dual colour) for embedded communication status 4 LEDs (dual colour) for communication module status 1 LED (red) for presence of voltage 3 LEDs for local diagnostic
Input compatibility	DI5, DI6: discrete input level 1 PLC conforming to IEC 65A-68 STOA, STOB: discrete input level 1 PLC conforming to IEC 61131-2 DI1...DI6: discrete input level 1 PLC conforming to IEC 61131-2
Discrete input logic	Positive logic (source) (DI1...DI8), < 5 V (state 0), > 11 V (state 1) Negative logic (sink) (DI1...DI8), > 16 V (state 0), < 10 V (state 1)
Sampling duration	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 2 ms +/- 0.5 ms (DI1...DI4) - discrete input
Accuracy	+/- 1 % AO1, AO2 for a temperature variation 60 °C analog output +/- 0.6 % AI1, AI2, AI3 for a temperature variation 60 °C analog input
Linearity error	AO1, AO2: +/- 0.2 % for analog output AI1, AI2, AI3: +/- 0.15 % of maximum value for analog input
Refresh time	Relay output (R1, R2, R3): 5 ms (+/- 0.5 ms)
Isolation	Between power and control terminals
Enclosure mounting	Wall mounted
4 quadrant operation possible	False
Asynchronous motor control profile	Constant torque standard Optimized torque mode Variable torque standard
Synchronous motor control profile	Synchronous reluctance motor Permanent magnet motor
Maximum output frequency	500 kHz
Acceleration and deceleration ramps	S, U or customized Linear adjustable separately from 0.01...9999 s
Motor slip compensation	Adjustable Can be suppressed Not available in permanent magnet motor law Automatic whatever the load
Switching frequency	4...12 kHz with derating factor 2...8 kHz adjustable
Nominal switching frequency	4 kHz
Braking to standstill	By DC injection
Brake chopper integrated	False

Maximum input current	10.5 A
Maximum output voltage	690.0 V
Apparent power	8 kVA at 600 V (heavy duty) 12.5 kVA at 690 V (normal duty)
Maximum transient current	14.3 A during 60 s (heavy duty) 10.8 A during 60 s (heavy duty)
Network frequency	50...60 Hz
Prospective line Isc	70 kA
Base load current at high overload	7.2 A
Base load current at low overload	9.5 A
Power dissipation in W	Forced convection: 110 W at 600 V, switching frequency 4 kHz Natural convection: 88 W at 500 V, switching frequency 4 kHz
With safety function Safely Limited Speed (SLS)	False
With safety function Safe brake management (SBC/SBT)	False
With safety function Safe Operating Stop (SOS)	False
With safety function Safe Position (SP)	False
With safety function Safe programmable logic	False
With safety function Safe Speed Monitor (SSM)	False
With safety function Safe Stop 1 (SS1)	False
With sft fct Safe Stop 2 (SS2)	False
With safety function Safe torque off (STO)	True
With safety function Safely Limited Position (SLP)	False
With safety function Safe Direction (SDI)	False
Protection type	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 Thermal protection: motor
Quantity per set	1
Width	246 mm
Height	420 mm
Depth	242 mm
Product weight	22 kg

Environment

Insulation resistance	> 1 MOhm 500 V DC for 1 minute to earth
Noise level	52 dB conforming to 86/188/EEC

Pollution degree	2 conforming to IEC 61800-5-1
Vibration resistance	1 gn (f= 13...200 Hz) conforming to IEC 60068-2-6 1.5 mm peak to peak (f= 2...13 Hz) conforming to IEC 60068-2-6
Shock resistance	15 gn for 11 ms conforming to IEC 60068-2-27
Relative humidity	5...95 % without condensation conforming to IEC 60068-2-3
Ambient air temperature for operation	50...60 °C (with derating factor) -15...50 °C (without derating)
Operating altitude	1000...4800 m with current derating 1 % per 100 m <= 1000 m without derating
Operating position	Vertical +/- 10 degree
Product certifications	TÜV CSA UL
Marking	CE
Standards	IEC 61800-3 IEC 61800-5-1 IEC 61000-3-12 IEC 60721-3 IEC 61508 IEC 13849-1 UL 508C
Maximum THDI	<48 % with external line choke conforming to IEC 61000-3-12
Electromagnetic compatibility	Radiated radio-frequency electromagnetic field immunity test level 3 conforming to IEC 61000-4-3 Electrical fast transient/burst immunity test level 4 conforming to IEC 61000-4-4 1.2/50 µs - 8/20 µs surge immunity test level 3 conforming to IEC 61000-4-5 Conducted radio-frequency immunity test level 3 conforming to IEC 61000-4-6 Electrostatic discharge immunity test level 3 conforming to IEC 61000-4-2
Environmental class (during operation)	Class 3C3 according to IEC 60721-3-3 Class 3S3 according to IEC 60721-3-3
Maximum acceleration under shock impact (during operation)	150 m/s ² at 11 ms
Maximum acceleration under vibrational stress (during operation)	10 m/s ² at 13...200 Hz
Maximum deflection under vibratory load (during operation)	1.5 mm at 2...13 Hz
Permitted relative humidity (during operation)	Class 3K5 according to EN 60721-3
Volume of cooling air	330 m ³ /h
Overvoltage category	III
Regulation loop	Adjustable PID regulator
Noise level	58 dB
Pollution degree	2
Ambient air transport temperature	-40...70 °C
Ambient air temperature for storage	-40...70 °C

Packing Units

Unit Type of Package 1	PCE
Number of Units in Package 1	1
Package 1 Height	48.000 cm
Package 1 Width	40.000 cm
Package 1 Length	80.000 cm

Package 1 Weight

31.000 kg



Environmental Data

Schneider Electric aims to achieve Net Zero status by 2050 through supply chain partnerships, lower impact materials, and circularity via our ongoing “Use Better, Use Longer, Use Again” campaign to extend product lifetimes and recyclability.

[Environmental Data explained >](#)

[How we assess product sustainability >](#)

Environmental footprint

Total lifecycle Carbon footprint 4274

Environmental Disclosure [Product Environmental Profile](#)

Use Better

Materials and Substances

Packaging made with recycled cardboard Yes

Packaging without single use plastic No

[EU RoHS Directive](#) Pro-active compliance (Product out of EU RoHS legal scope)

SCIP Number 075941f9-bf60-4e63-ae5c-6fe3c8035357

REACH Regulation [REACH Declaration](#)

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 www.P65Warnings.ca.gov**

Energy efficiency

Product contributes to saved and avoided emissions Yes

Use Again

Repack and remanufacture

End of life manual availability [End of Life Information](#)

Take-back No

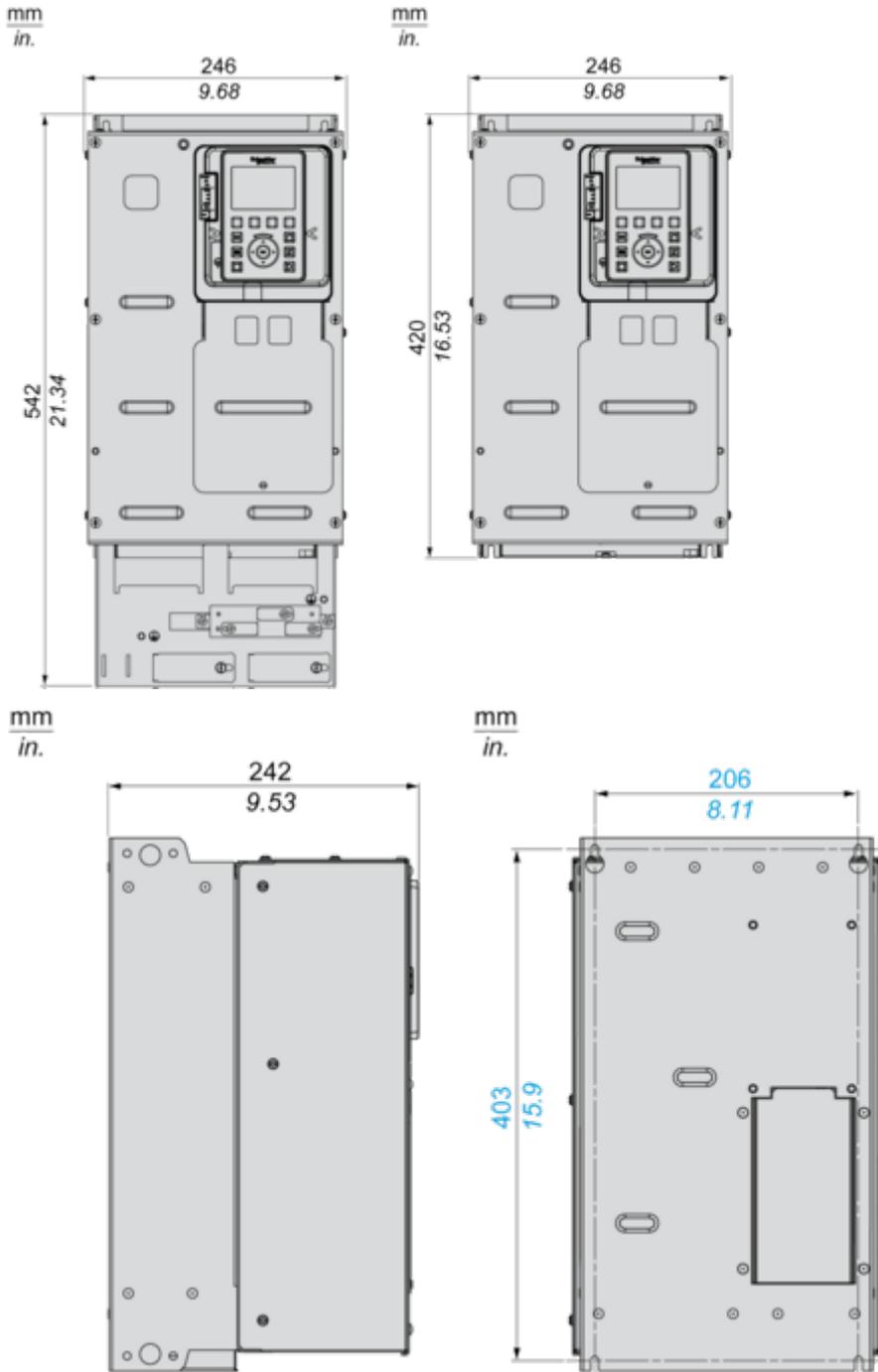
WEEE Label  The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins

Dimensions Drawings

Dimensions

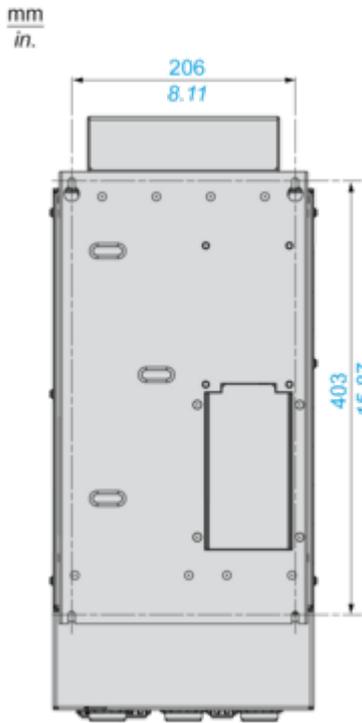
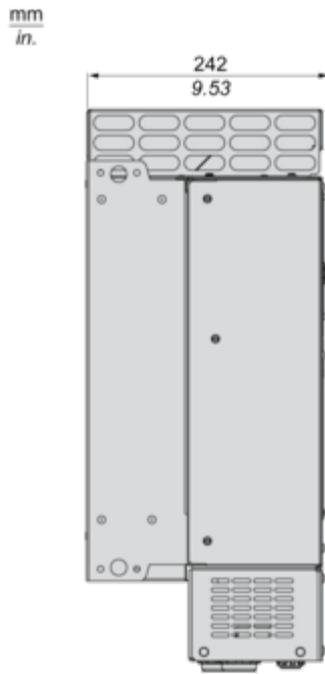
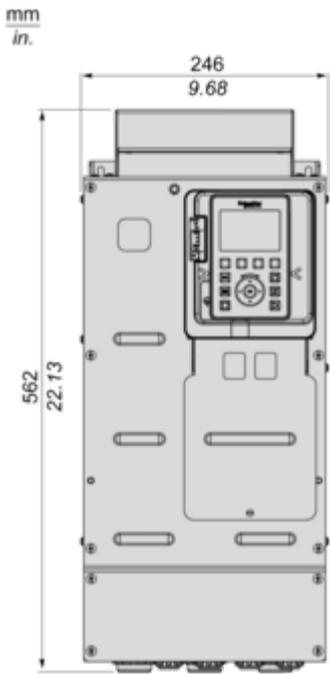
Drives without Top Cover

Front View with EMC Plate, Front, Left and Rear Views without EMC Plate



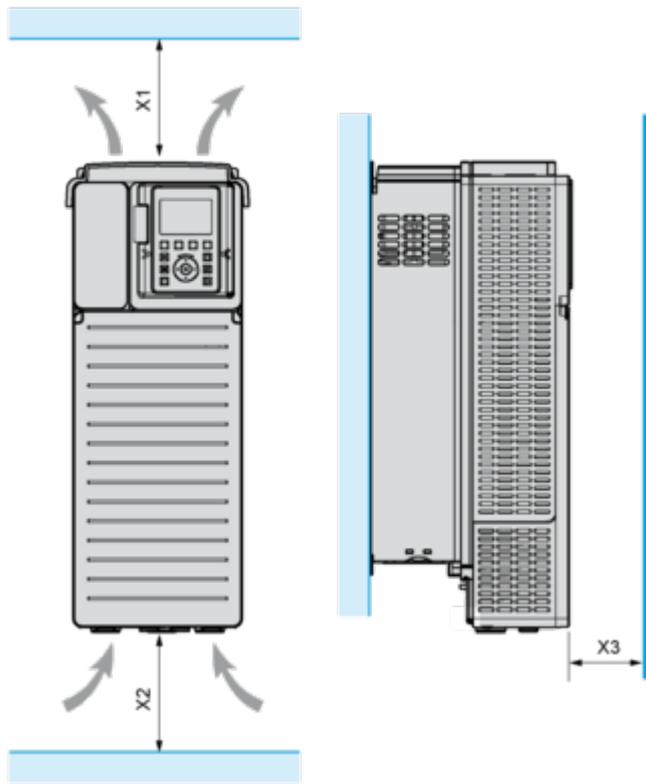
Drives with IP20 Top Cover

Front, Left and Rear Views



Mounting and Clearance

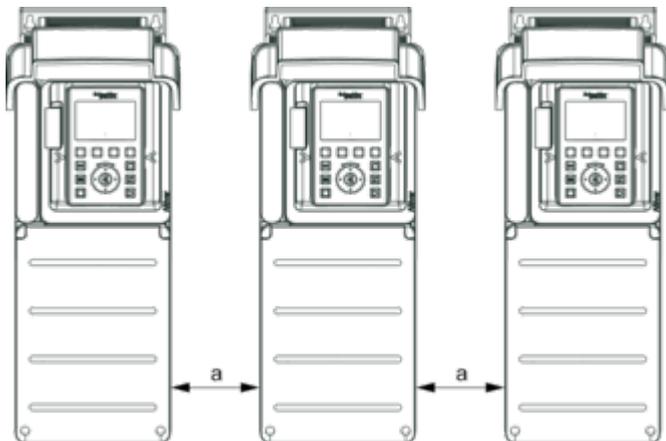
Clearances



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

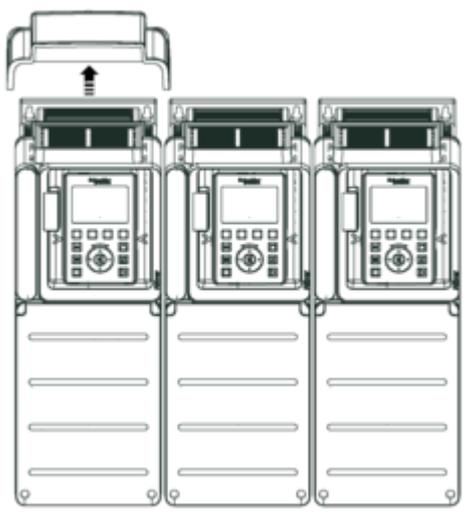
Mounting Types

Mounting Type A: Individual IP21

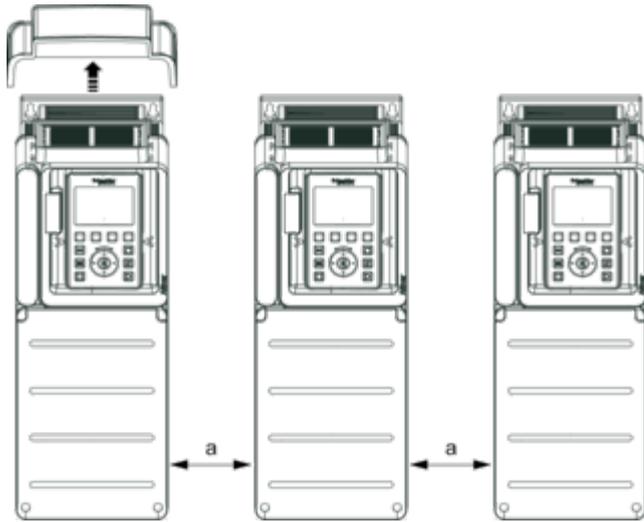


$a \geq 0$

Mounting Type B: Side by Side IP20



Mounting Type C: Individual IP20

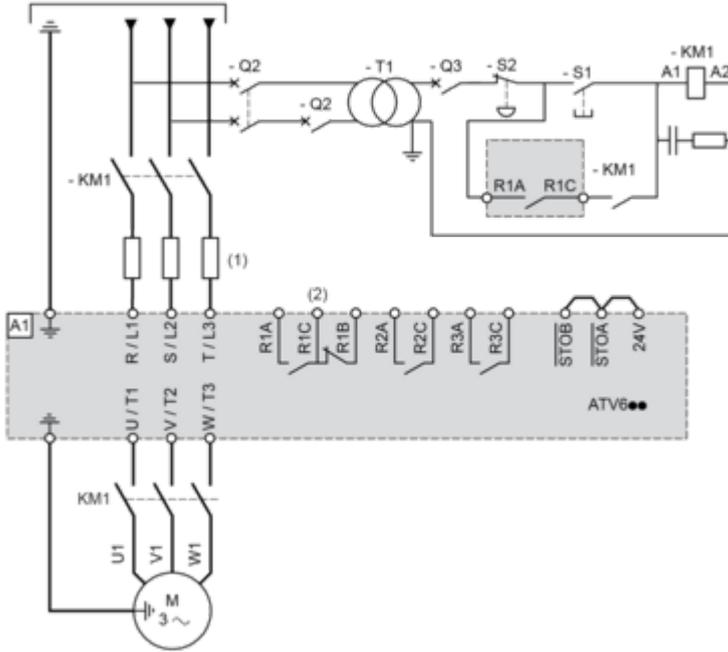


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Connections and Schema

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

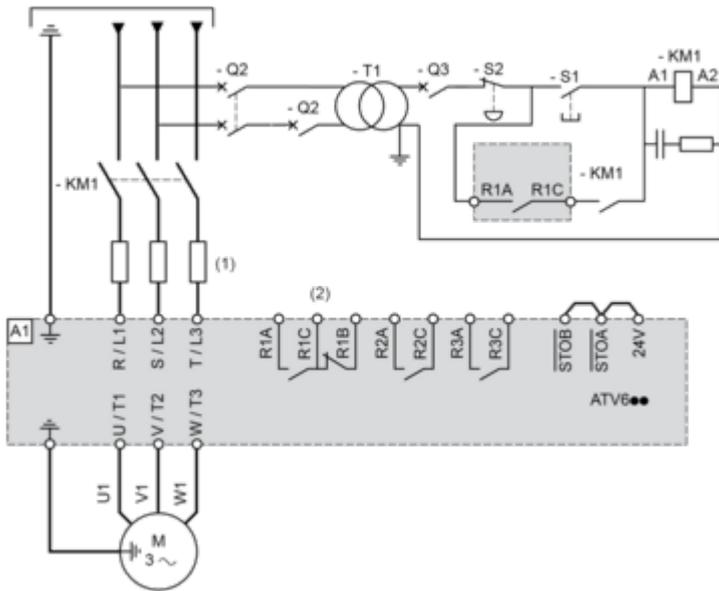
Q2, Q3 : Circuit breakers

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



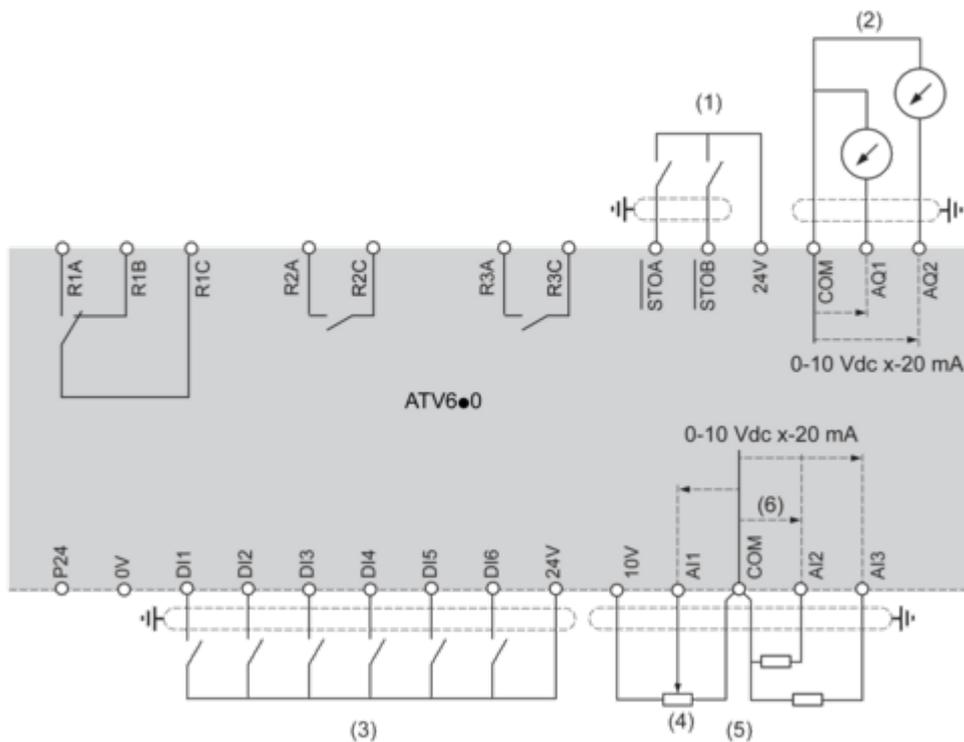
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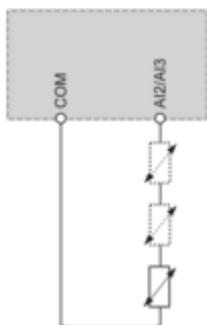
Control Block Wiring Diagram



- (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.

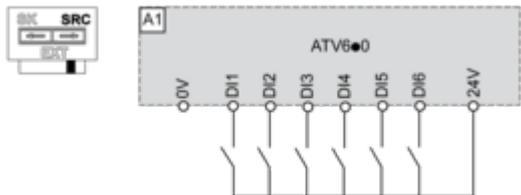


Sink / Source Switch Configuration

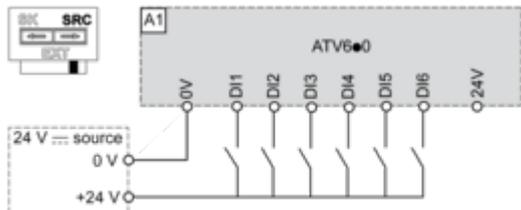
The switch is used to adapt the operation of the logic inputs to the technology of the programmable controller outputs.

- 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.

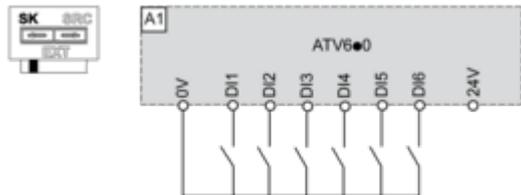
Switch Set to SRC (Source) Position Using the Output Power Supply for the Digital Inputs



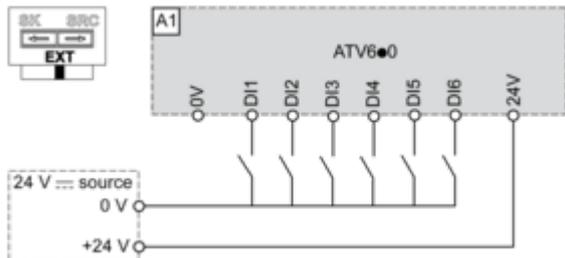
Switch Set to SRC (Source) Position and Use of an External Power Supply for the DIs



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

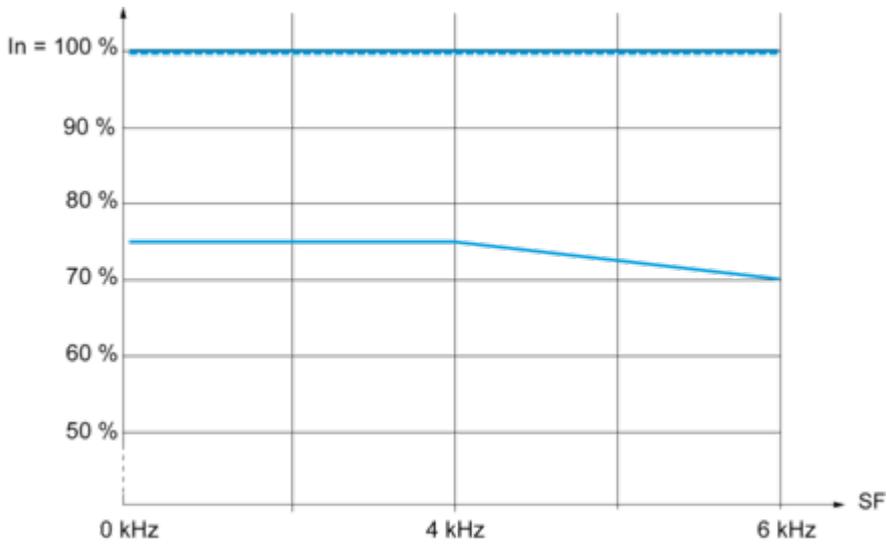


Switch Set to EXT Position Using an External Power Supply for the DIs



Performance Curves

Derating Curves



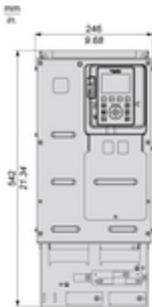
- 40 °C (104 °F) - Mounting type A, B and C
- - - 50 °C (122 °F) - Mounting type A, B and C
- 60 °C (140 °F) - Mounting type B and C

In : Nominal Drive Current
SF : Switching Frequency

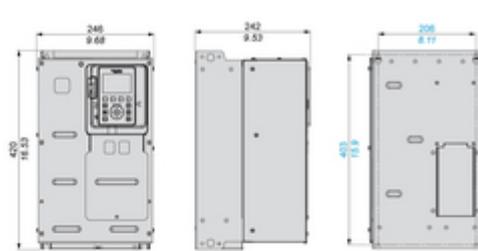
Technical Illustration

Dimensions

Drives Without Top Cover, With EMC Plate



Drives Without Top Cover, Without EMC Plate



Drives With IP20, Top Cover

