



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	IP21 conforming to IEC 61800-5-1 IP21 conforming to IEC 60529
Degree of protection	UL type 1 UL 508C
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	55 kW normal duty 45 kW heavy duty
Motor power hp	75 hp normal duty 60 hp heavy duty
Line current	97.2 A 380 V normal duty 84.2 A 480 V normal duty 81.4 A 380 V heavy duty 71.8 A 480 V heavy duty
Prospective line Isc	50 kA
Apparent power	70 kVA 480 V normal duty 59.7 kVA 480 V heavy duty
Continuous output current	106 A 2.5 kHz normal duty 88 A 2.5 kHz heavy duty
Maximum transient current	116.6 A 60 s normal duty 132 A 60 s heavy duty

Disclaimer: 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

Asynchronous motor control profile	Constant torque standard Variable torque standard Optimized torque mode
Synchronous motor control profile	Permanent magnet motor
Speed drive output frequency	0.1...599 Hz
Output frequency	0.0001...0.5 kHz
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	Ethernet Modbus serial Modbus TCP
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

Complementary

Output voltage	<= power supply voltage
Permissible temporary current boost	1.1 x I _n 60 s normal duty 1.5 x I _n 60 s heavy duty
Motor slip compensation	Adjustable Automatic whatever the load Can be suppressed 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 mm ² AWG 20...AWG 16 control Screw terminal 70...120 mm ² AWG 1/0...250 kcmil line side Screw terminal 70...120 mm ² AWG 1/0...250 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	1...247 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	290 mm
Height	922 mm
Depth	323 mm
Product weight	56.5 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
Functionality	Full
Specific application	Utility
IP degree of protection	IP21
Discrete and process manufacturing	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

Power range	55...100 kW 380...440 V 3 phases 55...100 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	62.4 dB 86/188/EEC
Power dissipation in W	131 W natural convection 380 V 2.5 kHz 917 W forced convection 380 V 2.5 kHz
Volume of cooling air	295 m ³ /h
Operating position	Vertical +/- 10 degree
THDI	<= 48 % from 80...100 % of 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 derating 50...60 °C with derating factor
Ambient air temperature for storage	-40...70 °C
Operating altitude	1000...4800 m with current derating 1 % per 100 m <= 1000 m without derating
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	ATEX INERIS ATEX zone 2/22 CSA TÜV UL REACH DNV-GL
Marking	CE

Offer Sustainability

Sustainable offer status	Green Premium product
RoHS (date code: YYWW)	Compliant - since 1426 - Schneider Electric declaration of conformity Schneider Electric declaration of conformity
REACH	Reference not containing SVHC above the threshold Reference not containing SVHC above the threshold
Product environmental profile	Available Product environmental
Product end of life instructions	Available End of life manual

Dimensions

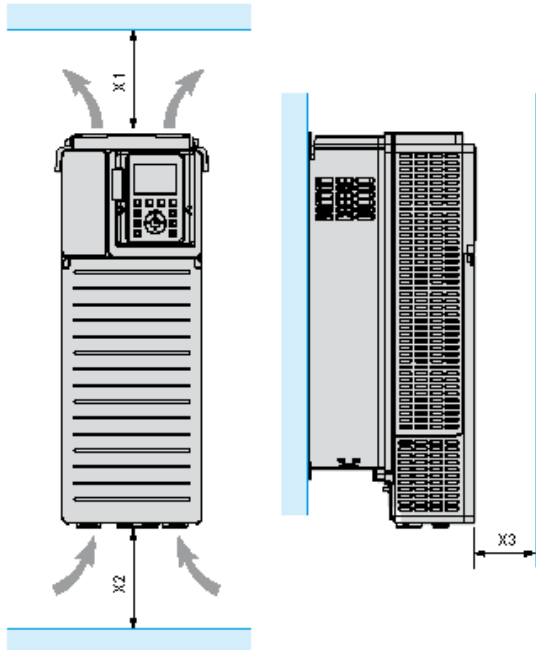
Drives with IP21 Top Cover

Front and Left View

Drives Without IP21 Top Cover

Left and Rear View

Clearances



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

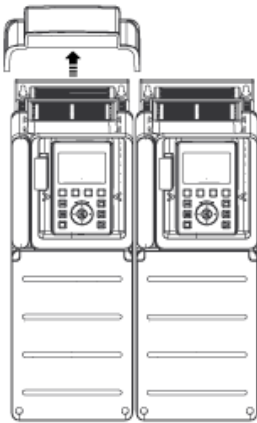
Mounting Types

Mounting Type A: Individual IP21

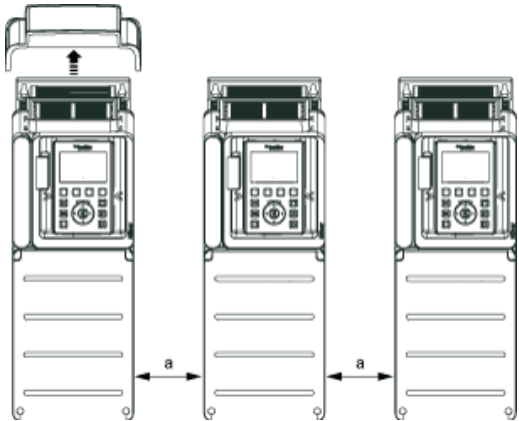


$a \geq 110 \text{ mm (4.33 in.)}$

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



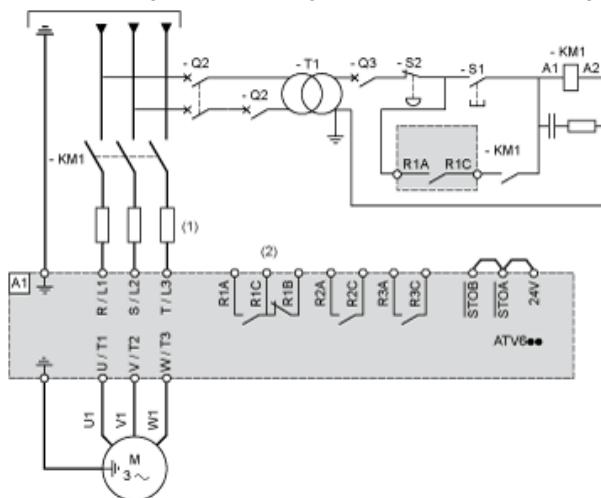
Mounting Type C: Individual IP20



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

Three-Phase Power Supply with Upstream Breaking via Line Contactor

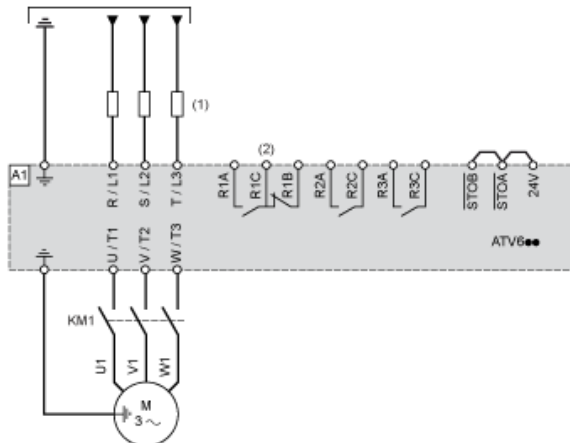
Connection diagrams conforming to standards EN 954-1 category 1 and IEC/EN 61508 capacity SIL1, stopping category 0 in accordance with standard IEC/EN 60204-1



- (1) Line choke if used
- (2) Use relay output 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

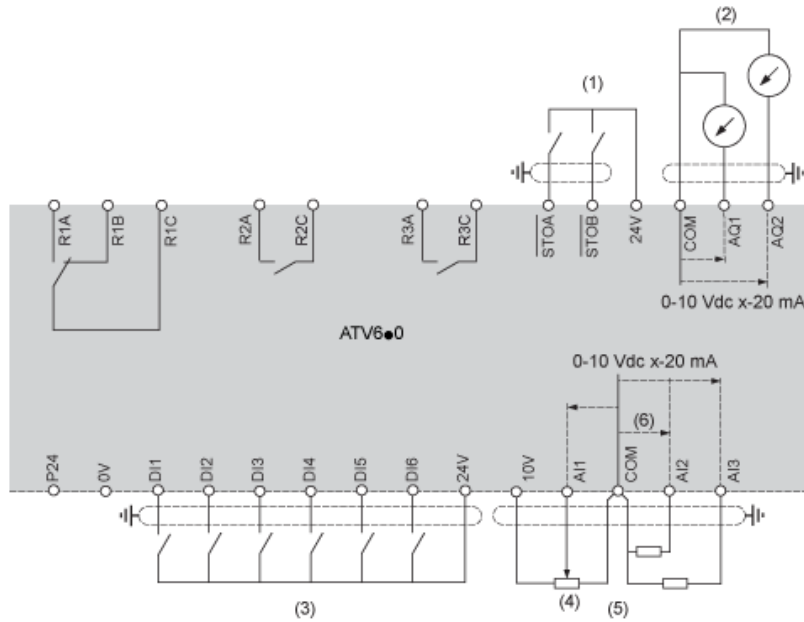
Three-Phase Power Supply with Downstream Breaking Contactor

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 output R1 set to operating state Fault to switch Off the product once an error is detected.
- A1 : Drive
- KM1 : Contactor

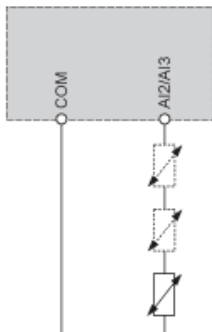
Control Block Wiring Diagram



- (1) Safe Torque Off
- (2) Analog Output
- (3) Digital Input
- (4) Reference potentiometer
- (5) Analog Input
- R1A, R1B, R1C 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.

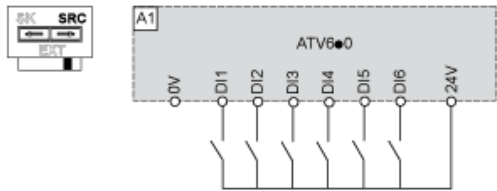


Sink / Source Switch Configuration

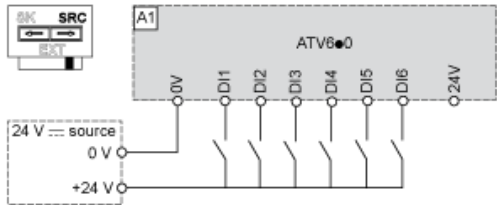
The switch is used to adapt the operation of the logic inputs to the technology of the programmable controller outputs.

- 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.

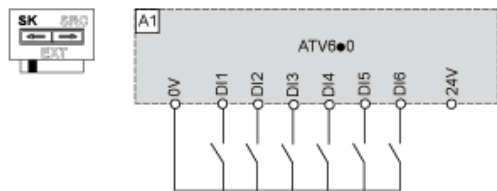
Switch Set to SRC (Source) Position Using the Output Power Supply for the Digital Inputs



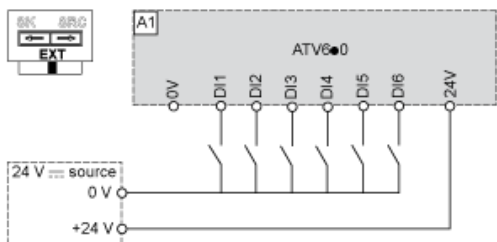
Switch Set to SRC (Source) Position and Use of an External Power Supply for the DIs



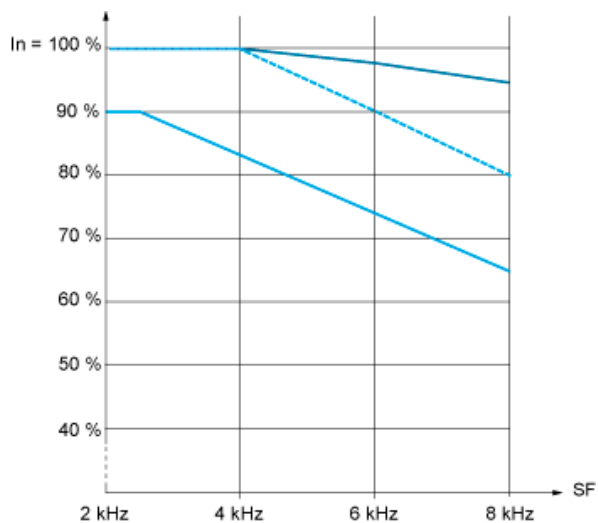
Switch Set to SK (Sink) Position Using the Output Power Supply for the Digital Inputs



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

Our Proposal: Circuit Breaker + Contactor + Drive for Motor Power 55 kW and 380 or 440 VAC

Motor power (kW)	ICU (kA)	Breaker	Contactors (*)	Motor Starter
55 kW for 380 V	36	 LV430830	LC1D115P7	ATV630D55N4
55 kW for 440 V	35	 LV429740	LC1D95P7	ATV630D55N4

Non contractual pictures.

(*) You can select the contactor proposed or variants. Please consider examples hereafter or follow the link to the complete offer.

Motor power kW	Coil voltage VAC - 50/60 Hz	24	48	110	115	220	230	400	Other
55 kW for 380 V	LC1D115 ..	B7	E7	F7	FE7	M7	P7	V7	Complete Offer
55 kW for 440 V	LC1D95 ..	B7	E7	F7	FE7	M7	P7	V7	Complete Offer

Motor power kW	Coil voltage VDC	24	48	110	125	220	230	Other
55 kW for 380 V	LC1D115 ..	BD	ED	-	-	-	-	Complete Offer
55 kW for 440 V	LC1D95 ..	BD	ED	-	-	-	-	Complete Offer

(**) You can select the breaker proposed or variants. Please consider examples hereafter or follow the link to the complete offer.

Motor power kW	ICU (Breaker with capacity level F F	ICU (Breaker with capacity level H H	ICU (Breaker with capacity level N N	Other
55 kW for 380 V	36 LV430830	70 LV430834	50 LV430832	Complete Offer
55 kW for 440 V	35 LV429740	65 LV429760	50 LV429750	Complete Offer