

ATV630U40N4

variable speed drive, Altivar Process ATV600,
ATV630, 4kW, 5hp, 380 to 480V, IP21, UL type
1





Galvenā

Produkta sērija	Altivar Process ATV600
Produkta vai sastāvdaļas veids	Variable speed drive
Produkta specifiskais pielietojums	Process and utilities
Ierīces īsais nosaukums	ATV630
Variants	Standard version
Produkta mērķa pielietojums	Asynchronous motors Synchronous motors
EMC filter	Integrated 50 m EN/IEC 61800-3 category C2 Integrated 150 m EN/IEC 61800-3 category C3
IP aizsardzības pakāpe	IP21 atbilst IEC 61800-5-1 IP21 atbilst IEC 60529
[Us] nominālais barošanas spriegums	380...480 V
Degree of protection	UL type 1 UL 508C
Type of cooling	Forced convection
Supply frequency	50...60 Hz - 5...5 %
[Us] rated supply voltage	380...480 V - 15...10 %
Motor power kW	4 kW normal duty) 3 kW heavy duty)
Motor power hp	5 Hp normal duty 4 hp heavy duty
Line current	7,6 A 380 V normal duty) 6,7 A 480 V normal duty) 6 A 380 V heavy duty) 5,4 A 480 V heavy duty)
Prospective line I _{sc}	50 kA
Apparent power	5,6 KVA 480 V normal duty) 4,5 kVA 480 V heavy duty)
Continuous output current	9,3 A 4 kHz normal duty 7,2 A 4 kHz 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
Speed drive output frequency	0,1...500 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

Komunikācijas porta protokols	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

Papildinošs

Montāžas veids	Wall mount
Maximum transient current	10,8 A 60 s heavy duty) 10,2 A 60 s normal duty)
Tīkla fāžu skaits	3 fāzes
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
Izvada spriegums	<= 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	Not available in permanent magnet motor law Adjustable Automatic whatever the load Can be suppressed
Acceleration and deceleration ramps	Linear adjustable separately from 0.01...9999 s
Fiziskais "interfeiss"	Ethernet 2-wire RS 485
Braking to standstill	By DC injection
Protection type	Termiskā aizsardzība motor Safe torque off motor Motor phase break motor Termiskā aizsardzība drive Safe torque off drive Pārkaršana drive Overcurrent between output phases and earth drive Overload of output voltage drive Īssavienojuma aizsardzība 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
Pārraides ātrums	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
Transmission frame	RTU
Electrical connection	Control removable screw terminals 0.5...1.5 mm ² AWG 20...AWG 16 Motor skrūvju spaile 2.5...6 mm ² AWG 14...AWG 10 Line side skrūvju spaile 2.5...6 mm ² AWG 14...AWG 10
Connector type	RJ45 on the remote graphic terminal)Ethernet/Modbus TCP RJ45 on the remote graphic terminal)Modbus serial
Data format	8 bits, configurable odd, even or no parity

Type of polarization	No impedance
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 pārslodzes un īssavienojuma aizsardzība Internal supply for reference potentiometer (1 to 10 kOhm) 10.5 V DC +/- 5 %, <10 mA pārslodzes un īssavienojuma aizsardzība Internal supply for digital inputs and STO 24 V DC 21...27 V), <200 mA pārslodzes un īssavienojuma aizsardzība
Lokālā signalizēšana	Priekš local diagnostic 3 LEDs Priekš iegultās komunikācijas statuss 3 LEDs (dual colour) Priekš communication module status 4 LEDs (dual colour) Priekš sprieguma klātbūtne 1 LED (sarkans)
Platums	144 mm
Augstums	350 mm
Dziļums	203 mm
Neto svars	4,6 kg
Analogue input number	3
Analogue input type	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
Discrete input number	8
Discrete input type	DI7, DI8 programmable as pulse input 0...30 kHz, 24 V DC <= 30 V)
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...DI8), < 5 V, > 11 V Negative logic (sink) DI1...DI8), > 16 V, < 10 V
Analogue output number	2
Analogue output type	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
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 cikli Configurable relay logic R2 sequence relay NĒ 100000 cikli Configurable relay logic R3 sequence relay NĒ 100000 cikli
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 pretestības, cos phi = 1 3 A 250 V AC Relay output R1, R2, R3 pretestības, cos phi = 1 3 A 30 V DC Relay output R1, R2, R3 induktīvs, cos phi = 0,4 7 ms 2 A 250 V AC Relay output R1, R2, R3 induktīvs, cos phi = 0,4 7 ms 2 A 30 V DC
Izolācija	Between power and control terminals
Maximum output frequency	500 kHz
Maksimālā ieejas strāva	7,6 A

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	4...6 kW 380...440 V 3 fāzes 4...6 kW 480...500 V 3 fāzes
Daudzums komplektā	1
Sadalnes korpusa stiprinājums	Wall mounted

Vide

Insulation resistance	> 1 MOhm 500 V DC for 1 minute to earth
Noise level	54,5 dB 86/188/EEC
Power dissipation in W	Natural convection 33 W 380 V 4 kHz Forced convection 97 W 380 V 4 kHz
Volume of cooling air	38 m ³ /h
Operating position	Vertical +/- 10 degree
Maximum THDI	<48 % pilna slodze 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	-15...50 °C without derating) 50...60 °C with derating factor)
Apkārtējā gaisa temperatūra uzglabāšanai	-40...70 °C
Operating altitude	<= 1000 m without derating 1000...4800 m with current derating 1 % per 100 m
Produkta sertifikācija	DNV-GL[RETURN]ATEX zone 2/22[RETURN]ATEX INERIS[RETURN]TÜV[RETURN]CSA[RETURN]UL
Marķējums	CE
Standarti	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
Pārsprieguma kategorija	III
Regulation loop	Adjustable PID regulator
Noise level	54,5 dB
Piesārņojuma pakāpe	2

Iepakojšanas vienības

Pirmā iepakojuma vienības tips	PCE
Vienību skaits 1. iepakojumā	1
1. iepakojuma augstums	31,500 cm
1. iepakojuma platums	19,000 cm
1. iepakojuma garums	40,500 cm
1. iepakojuma svars	6,136 kg
Otrā iepakojuma vienības tips	P06
Vienību skaits 2. iepakojumā	6
2. iepakojuma augstums	75,000 cm
2. iepakojuma platums	60,000 cm
2. iepakojuma garums	80,000 cm
2. iepakojuma svars	49,816 kg

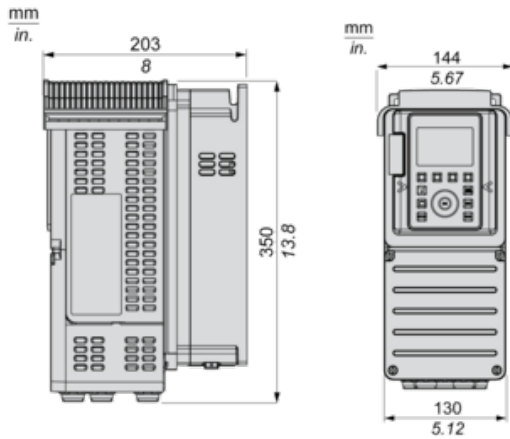
Piedāvājiēt ilgtspēju

Ilgtspējīgs piedāvājuma statuss	Green Premium izstrādājums
REACH regula	REACH Deklarācija
ES RoHS direktīva	Proaktīva atbilstība (uz izstrādājumu neattiecas ES RoHS juridiskās saistības)
Nesatur dzīvsudrabu	Jā
Ķīnas RoHS regula	Ķīnas RoHS Deklarācija
Informācija par RoHS izņēmumiem	Jā
Vides informācijas publiskošana	Produkta Ietekme Uz Vidi
Cirkularitātes profils	Informācija Par Eksploatācijas Izbeigšanu
WEEE	Eiropas Savienības tirgū no šī produkta ir jāatbrīvojas, ievērojot noteiktu atkritumu savākšanas kārtību, un produkts nedrīkst nonākt sadzīves atkritumu tvertnēs.
Atjaunināšanas iespējas	Pieejamas atjauninātas komponentes

Dimensions

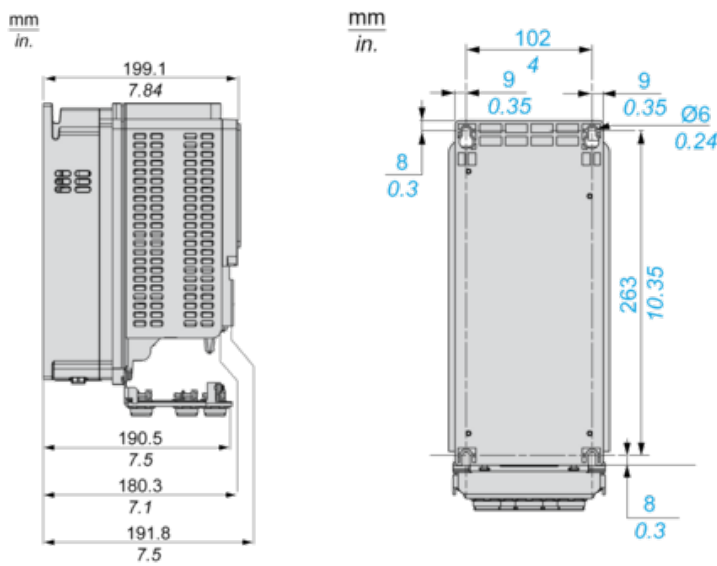
Drives with IP21 Top Cover

Right and Front Views



Drives Without IP21 Top Cover

Left and Rear Views



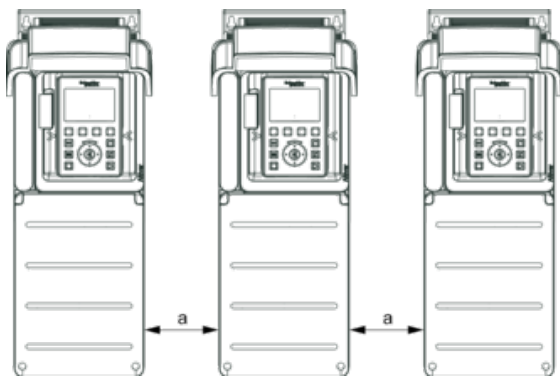
Clearances



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 ≥ 100 mm (3.94 in.)

Mounting Type B: Side by Side IP20



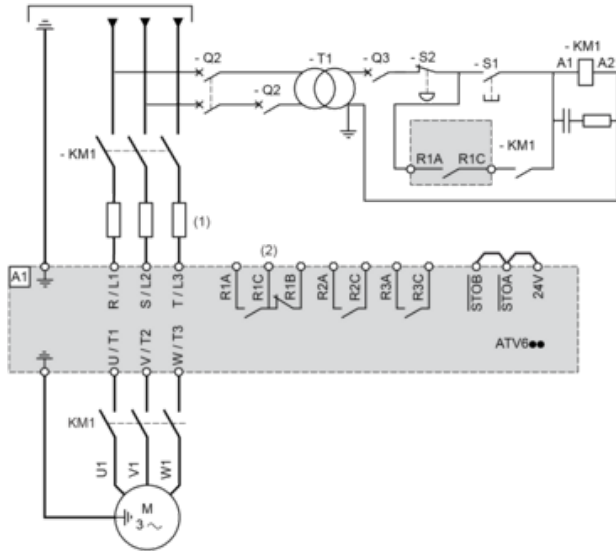
Mounting Type C: Individual IP20



$a \geq 0$

Three-Phase Power Supply with Upstream Breaking via Line Contactor

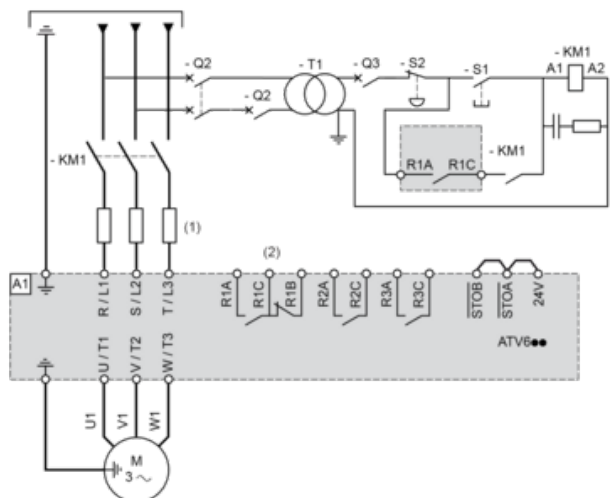
Connection diagrams conforming to standards EN 954-1 category 1 and IEC/EN 61508 capacity SIL1, stopping category 0 in accordance with standard IEC/EN 60204-1



- (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

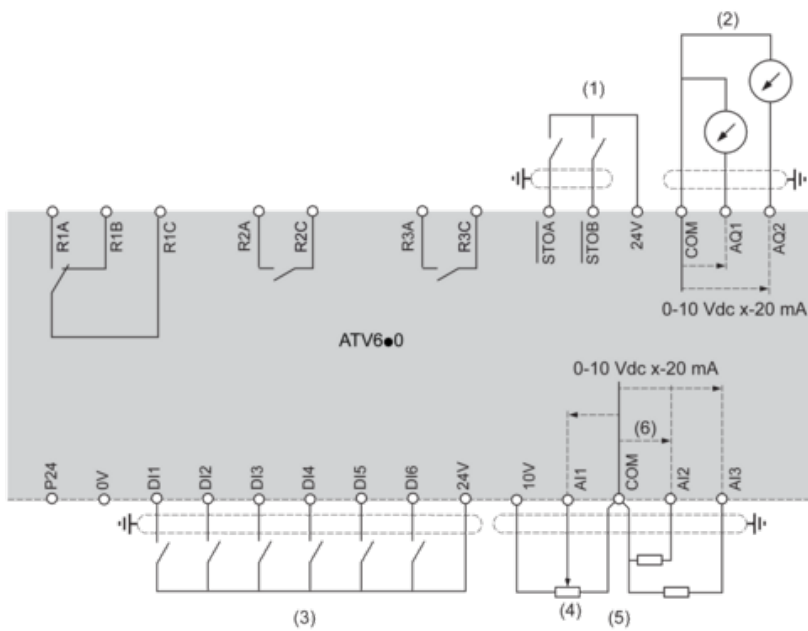
Three-Phase Power Supply with Downstream Breaking via Contactor

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

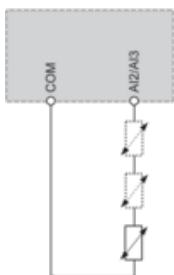
Control Block Wiring Diagram



- (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 AI2 or AI3.

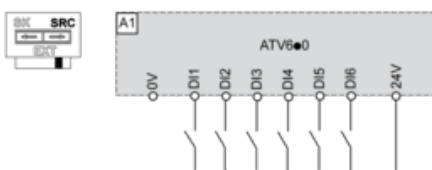


Sink / Source Switch Configuration

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



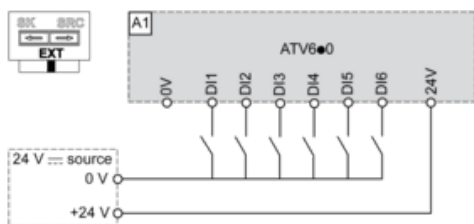
Switch Set to SRC (Source) Position and Use of an External Power Supply for the DIs



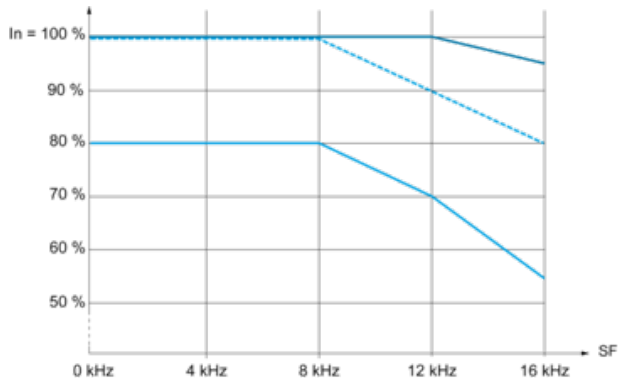
Switch Set to SK (Sink) Position Using the Output Power Supply for the Digital Inputs



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