

variable speed drive, Easy Altivar 610, 30kW, 40hp, 380 to 460V, IP20

ATV610D30N4

Main

Mairi		
Range of product	Easy Altivar 610	
Product or component type	Variable speed drive	
Product specific application	Fan, pump, compressor, conveyor	
Device short name	ATV610	
Variant	Standard version	
Product destination	Asynchronous motors Synchronous motors	
Mounting mode	Cabinet mount	
EMC filter	Integrated conforming to IEC 61800-3 category C3 with 50 m	
IP degree of protection	IP20	
type of cooling	Forced convection	
Supply frequency	5060 Hz +/-5 %	
Network number of phases	3 phases	
[Us] rated supply voltage	380460 V - 1510 %	
Motor power kW	30 kW for normal duty 22 kW for heavy duty	
Motor power hp	40 hp for normal duty 30 hp for heavy duty	
Line current	62.5 A at 380 V (normal duty) 55.8 A at 460 V (normal duty) 49.7 A at 380 V (heavy duty) 42.5 A at 460 V (heavy duty)	
Prospective line Isc	22 kA	
Apparent power	44.5 kVA at 460 V (normal duty) 33.8 kVA at 460 V (heavy duty)	
Continuous output current	61.5 A at 4 kHz for normal duty 46.3 A at 4 kHz for heavy duty	
Maximum transient current	67.7 A during 60 s (normal duty) 69.5 A during 60 s (heavy duty)	
Asynchronous motor control profile	Variable torque standard Constant torque standard Optimized torque mode	
Output frequency	0.1500 Hz	
Nominal switching frequency	4 kHz	
Switching frequency	212 kHz adjustable	
number of preset speeds	16 preset speeds	

Communication port protocol	Modbus serial
Option card	Slot A: communication card, Profibus DP V1 Slot A: digital or analog I/O extension card Slot A: relay output card

Complementary

Complementary		
Output voltage	<= power supply voltage	
Motor slip compensation	Automatic whatever the load	
	Can be suppressed	
	Adjustable	
	Not available in permanent magnet motor law	
Acceleration and deceleration	S, U or customized	
ramps	Linear adjustable separately from 0.01 to 9000 s	
Braking to standstill	By DC injection	
Protection type	Thermal protection: motor	
	Motor phase break: motor	
	Thermal protection: 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, screw terminals: 0.51.5 mm²	
	Line side, screw terminal: 2550 mm ²	
	Motor, screw terminal: 2550 mm²	
Connector type	1 RJ45 (on the remote graphic terminal) for Modbus serial	
Physical interface	2-wire RS 485 for Modbus serial	
Transmission frame	RTU for Modbus serial	
Transmission rate	4.8, 9.6, 19.2, 38.4 kbit/s for Modbus serial	
Type of polarization	No impedance for Modbus serial	
Number of addresses	1247 for Modbus serial	
Method of access	Slave	
Supply	External supply for digital inputs: 24 V DC (1930 V), <1.25 mA, protection type:	
	overload and short-circuit protection	
	Internal supply for reference potentiometer (1 to 10 kOhm): 10.5 V DC +/- 5 %, <10	
	mA, protection type: overload and short-circuit protection	
Local signalling	2 LEDs for local diagnostic	
	1 LED (yellow) for embedded communication status	
	2 LEDs (dual colour) for communication module status	
	1 LED (red) for presence of voltage	
Width	226 mm	
Height	613 mm	
<u></u>	706 mm with EMC plate	
Depth	271 mm	
Net weight	25.5 kg	
Analogue input number	3	
- G	-	

Al2, Al3 software-configurable temperature probe or water level sensor 6 DI1Dl6 programmable as logic input, 24 V DC (<= 30 V), impedance: 3.5 kOhm Dl5, Dl6 programmable as pulse input: 030 kHz, 24 V DC (<= 30 V) DI1Dl6: logic input level 1 PLC conforming to IEC 61131-2 Dl5, Dl6: pulse input level 1 PLC conforming to IEC 65A-68 Positive logic (source): Dl1Dl6 configurable logic input, < 5 V (state 0), > 11 V (state 1) Negative logic (sink): Dl1Dl6 configurable logic input, > 16 V (state 0), < 10 V (state 1) Positive logic (source): Dl5, Dl6 configurable pulse input, < 0.6 V (state 0), > 2.5 V (state 1)	
DI1DI6 programmable as logic input, 24 V DC (<= 30 V), impedance: 3.5 kOhm DI5, DI6 programmable as pulse input: 030 kHz, 24 V DC (<= 30 V) DI1DI6: logic input level 1 PLC conforming to IEC 61131-2 DI5, DI6: pulse input level 1 PLC conforming to IEC 65A-68 Positive logic (source): DI1DI6 configurable logic input, < 5 V (state 0), > 11 V (state 1) Negative logic (sink): DI1DI6 configurable logic input, > 16 V (state 0), < 10 V (state 1) Positive logic (source): DI5, DI6 configurable pulse input, < 0.6 V (state 0), > 2.5 V (state 1)	
DI5, DI6 programmable as pulse input: 030 kHz, 24 V DC (<= 30 V) DI1DI6: logic input level 1 PLC conforming to IEC 61131-2 DI5, DI6: pulse input level 1 PLC conforming to IEC 65A-68 Positive logic (source): DI1DI6 configurable logic input, < 5 V (state 0), > 11 V (state 1) Negative logic (sink): DI1DI6 configurable logic input, > 16 V (state 0), < 10 V (state 1) Positive logic (source): DI5, DI6 configurable pulse input, < 0.6 V (state 0), > 2.5 V (state 1)	
DI5, DI6: pulse input level 1 PLC conforming to IEC 65A-68 Positive logic (source): DI1DI6 configurable logic input, < 5 V (state 0), > 11 V (state 1) Negative logic (sink): DI1DI6 configurable logic input, > 16 V (state 0), < 10 V (state 1) Positive logic (source): DI5, DI6 configurable pulse input, < 0.6 V (state 0), > 2.5 V (state 1)	
(state 1) Negative logic (sink): DI1DI6 configurable logic input, > 16 V (state 0), < 10 V (state 1) Positive logic (source): DI5, DI6 configurable pulse input, < 0.6 V (state 0), > 2.5 V (state 1)	
2	
Software-configurable current AQ1, AQ2: 020 mA, resolution 10 bits Software-configurable voltage AQ1, AQ2: 010 V DC impedance 470 Ohm, resolution 10 bits	
5 ms +/- 0.1 ms (Al1, Al2, Al3) - analog input 2 ms +/- 0.5 ms (Dl1Dl6)configurable - discrete input 5 ms +/- 1 ms (Dl5, Dl6)configurable - pulse input 10 ms +/- 1 ms (AQ1, AQ2) - analog output	
+/- 0.6 % Al1, Al2, Al3 for a temperature variation 60 °C analog input +/- 1 % AQ1, AQ2 for a temperature variation 60 °C analog output	
Al1, Al2, Al3: +/- 0.15 % of maximum value for analog input AQ1, AQ2: +/- 0.2 % for analog output	
3	
Configurable relay logic R1: fault relay NO/NC electrical durability 100000 cycles Configurable relay logic R2: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles	
Relay output (R1, R2, R3): 5 ms (+/- 0.5 ms)	
Relay output R1, R2, R3: 5 mA at 24 V DC	
Relay output R1, R2, R3 on resistive load, cos phi = 1: 3 A at 250 V AC 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	
Between power and control terminals	
> 1 MOhm 500 V DC for 1 minute to earth	

Noise level	75 dB conforming to 86/188/EEC 649 W(forced convection) at 380 V, switching frequency 4 kHz 91 W(natural convection) at 380 V, switching frequency 4 kHz	
Power dissipation in W		
Volume of cooling air	240 m3/h	
Operating position	Vertical +/- 10 degree	
Electromagnetic compatibility	Electrostatic discharge immunity test level 3 conforming to IEC 61000-4-2 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	
Pollution degree	2 conforming to IEC 61800-5-1	

Vibration resistance	1.5 mm peak to peak (f= 213 Hz) conforming to IEC 60068-2-6 1 gn (f= 13200 Hz) conforming to IEC 60068-2-6	
Shock resistance	15 gn for 11 ms conforming to IEC 60068-2-27	
Relative humidity	595 % without condensation conforming to IEC 60068-2-3	
Ambient air temperature for operation	-1545 °C (without derating) 4560 °C (with derating factor)	
Ambient air temperature for storage	-4070 °C	
Operating altitude	<= 1000 m without derating 10004800 m with current derating 1 % per 100 m	
Environmental characteristic	Chemical pollution resistance class 3C3 conforming to IEC 60721-3-3 Dust pollution resistance class 3S3 conforming to IEC 60721-3-3	
Standards	IEC 61800-3 Environment 2 category C3 IEC 61800-3 IEC 61800-5-1 IEC 60721-3	
Marking	CE	

Packing Units

Unit Type of Package 1	PCE
Number of Units in Package 1	1
Package 1 Height	34.000 cm
Package 1 Width	51.000 cm
Package 1 Length	72.000 cm
Package 1 Weight	36 300 kg



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	
Carbon footprint (kg.eq.CO2 per CR, Total Life cycle)	53505
Environmental Disclosure	Product Environmental Profile

Use Better

Packaging made with recycled cardboard	No
Packaging without single use plastic	No
EU RoHS Directive	Pro-active compliance (Product out of EU RoHS legal scope)
REACh Regulation	REACh Declaration
Product contributes to saved and avoided emissions	Yes

Use Longer

Ů Lifetime extension		
Upgradeability	Yes	

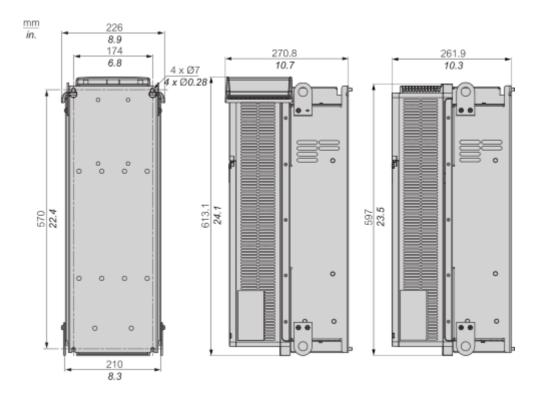
Use Again

○ Repack and remanufacture	
Circularity Profile	End of Life Information
Take-back	No

Dimensions Drawings

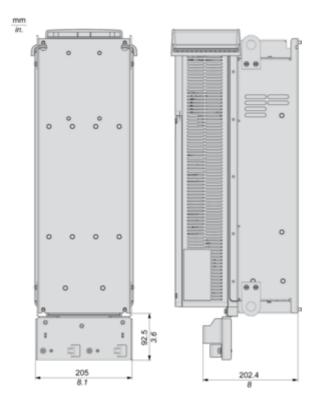
Dimensions

IP20 Drives



Drawings from left to right: rear view, right side view with top cover, right side view without top cover.

IP20 Drives With EMC Plate

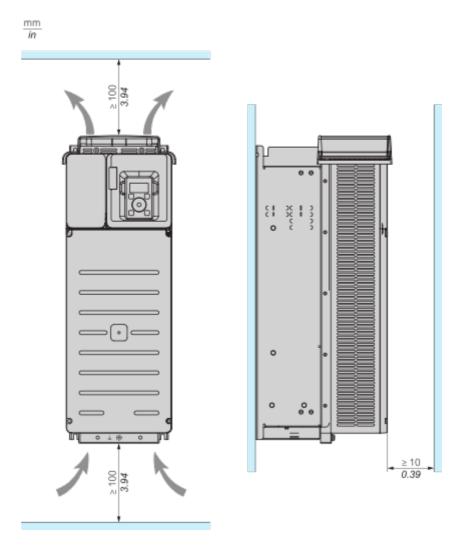


Drawings from left to right: rear view, right side view with top cover.

Product datasheet ATV610D30N4

Mounting and Clearance

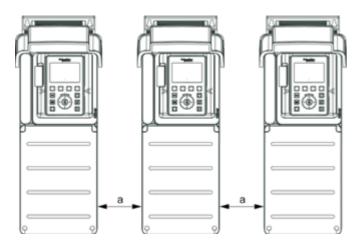
Clearances and Mounting Position - Wall Mounting



- Mount the device in a vertical position. This is required for cooling the device.
- Attach it on the mounting surface in compliance with standards, using 4 screws with captive washer.
- The use of washers is required with all mounting screws.
- Tighten the fixation screws.
- Do not mount the device close to heat sources.
- Avoid environmental effects like high temperatures and high humidity as well as dust, dirt and conductive gases.
- Adhere to the minimum installation distances for required cooling.
- Do not mount the device on flammable materials.

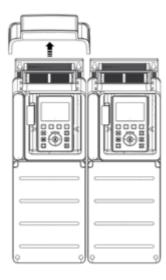
Mounting Types

Mounting Type A: Individual IP21



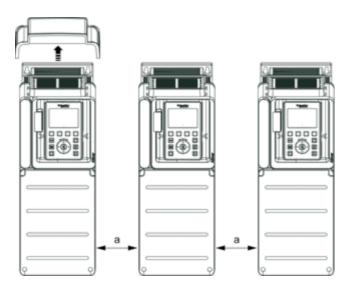
a ≥ = 110 mm (4.33 in.)

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



Mounting Type C: Individual IP20

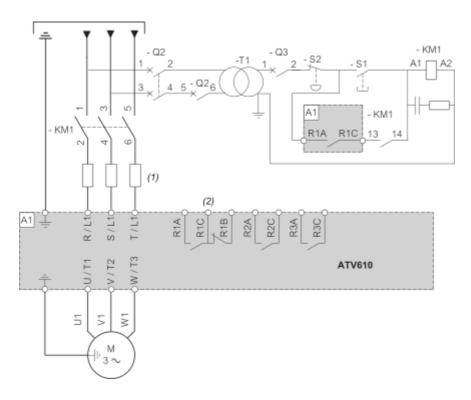
ATV610D30N4



a ≥ = 110 mm (4.33 in.)

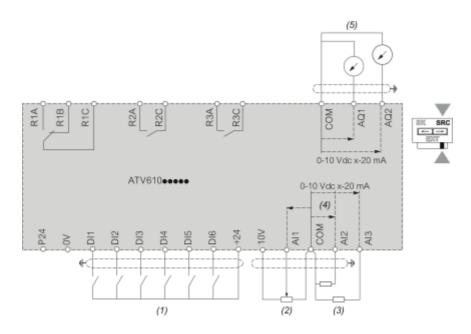
Connections and Schema

Three-phase Power Supply - Diagram With Line Contactor



- (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.

Control Block Wiring Diagram

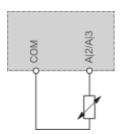


- (1): Digital Inputs
- (2): Reference potentiometer
- (3): Analog inputs
- (4): -10...+10 Vdc
- (5) : Analog outputs

Sensor Connection

Product datasheet

ATV610D30N4



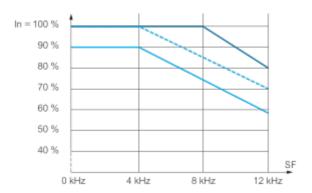
It is possible to connect either 1 sensors on terminals Al2 or Al3.

Product datasheet

ATV610D30N4

Performance Curves

Derating Curves



40 °C (104 °F) - Mounting type A, B and C 45 °C (113 °F) - Mounting type A, B and C 60 °C (140 °F) - Mounting type B and C

In: Nominal Drive Current SF: Switching Frequency