# **Product datasheet**

Specification





# variable speed drive, Easy Altivar 610, 11kW, 15hp, 380 to 460V, IP20

ATV610D11N4

# 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	11 kW for normal duty 7.5 kW for heavy duty	
Motor Power Hp	15 hp for normal duty 10 hp for heavy duty	
Line Current	22 A at 380 V (normal duty) 19.6 A at 460 V (normal duty) 16.4 A at 380 V (heavy duty) 14.6 A at 460 V (heavy duty)	
Prospective Line Isc	22 kA	
Apparent Power	15.6 kVA at 460 V (normal duty) 11.6 kVA at 460 V (heavy duty)	
Continuous Output Current	23.5 A at 4 kHz for normal duty 16.5 A at 4 kHz for heavy duty	
Maximum Transient Current	25.9 A during 60 s (normal duty) 24.8 A during 60 s (heavy duty)	
Asynchronous Motor Control Profile	Constant torque standard Optimized torque mode Variable torque standard	
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	
	Adjustable	
	Not available in permanent magnet motor law	
	Can be suppressed	
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 terminal: 0.51.5 mm²	
	Line side, screw terminal: 416 mm²	
	Motor, screw terminal: 416 mm <sup>2</sup>	
Connector Type	1 P M5 (on the remate graphic terminal) for Modhus social	
	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	171 mm	
Height	360 mm	
	423 mm with EMC plate	
Depth	233 mm	
Net Weight	7.730 kg	
Analogue Input Number	3	
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Anla Discrete Input Type  All, ALZ, All 3 software-configurable voltage: 010 V DC, impedance: 30 kOhm, resolution 12 bits All, ALZ, All 3 software-configurable current: 020 mA, impedance: 250 Ohm, resolution 12 bits All, ALZ, All 3 software-configurable current: 020 mA, impedance: 250 Ohm, resolution 12 bits All, ALZ All 3 software-configurable temperature probe or water fewel sensor  Discrete Input Type  DIS. DI6 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)  Input Compatibility  DIS. DI6 programmable as pulse input; 030 kHz, 24 V DC (<= 30 V)  Input Compatibility  DIS. DI6 pulse input level 1 PLC conforming to IEC 655.468  Discrete Input Logic  Positive logic (source): DIS. DI6 configurable logic input, < 5 V (state 0), > 11 V (state 1), Positive logic (source): DIS. DI6 configurable logic input, < 5 V (state 0), > 10 V (state 1), Positive logic (source): DIS. DI6 configurable pulse input, < 0.6 V (state 0), > 2.5 V (state 1), Positive logic (source): DIS. DI6 configurable pulse input, < 0.6 V (state 0), > 2.5 V (state 1), Positive logic (source): DIS. DI6 configurable pulse input, < 0.6 V (state 0), > 2.5 V (state 1), Positive logic (source): DIS. DI6 configurable pulse input, < 0.6 V (state 0), > 2.5 V (state 1), Positive logic (source): DIS. DI6 configurable pulse input, < 0.6 V (state 0), > 2.5 V (state 1), Positive logic (source): DIS. DI6 configurable pulse input, < 0.6 V (state 0), > 2.5 V (state 1), Positive logic (source): DI6 configurable pulse input, < 0.6 V (state 0), > 2.5 V (state 0),				
Discrete Input Number  Discrete Input Type  Diff. Diff programmable as logic input, 24 V DC (= 30 V), impedance: 3.5 kOhm Diff. Diff programmable as logic input, 2.0. 30 kHz, 24 V DC (= 30 V)  Input Compatibility  Diff. Diff. logic input level 1 PLC conforming to IEC 618-48  Discrete Input Logic  Positive logic (source): Diff. Diff. configurable logic input, < 3 V (state 0), > 11 V (state 1)  Negative logic (source): Diff. Diff. configurable logic input, < 16 V (state 0), > 10 V (state 1)  Negative logic (source): Diff. Diff configurable logic input, > 16 V (state 0), > 10 V (state 1)  Positive logic (source): Diff. Diff configurable logic input, > 16 V (state 0), > 2.5 V (state 1)  Positive logic (source): Diff. Diff configurable logic input, > 16 V (state 0), > 2.5 V (state 1)  Positive logic (source): Diff. Diff configurable pulse input, < 0.6 V (state 0), > 2.5 V (state 1)  Positive logic (source): Diff. Diff configurable pulse input, < 0.6 V (state 0), > 2.5 V (state 1)  Software-configurable current AO1, AO2: 0.20 mA, resolution 10 bits Software-configurable current AO1, AO2: 0.20 mA, resolution 10 bits Software-configurable voltage AO1, AO2: 0.20 mA, resolution 10 bits Software-configurable voltage AO1, AO2: 0.20 mA, resolution 10 bits Software-configurable voltage AO1, AO2: 0.20 mA, resolution 10 bits Software-configurable voltage AO1, AO2: 0.20 mA, resolution 10 bits Software-configurable voltage aO1, AO2: 0.20 mA, resolution 10 bits Software-configurable voltage AO1, AO2: 0.20 mA, resolution 10 bits Software-configurable voltage AO1, AO2: 0.20 mA, resolution 10 bits Software-configurable voltage AO1, AO2: 0.20 mA, resolution 10 bits Software-configurable voltage AO1, AO2: 0.20 mA, resolution 10 bits Software-configurable voltage AO1, AO2: 0.20 mA, resolution 10 bits Software-configurable voltage AO1, AO2: 0.20 mA, resolution 10 bits Software-configurable voltage AO1, AO2: 0.20 mA, resolution 10 bits Software-configurable voltage AO1, AO2: 0.20 mA, resolution 10 00 C analog input AO1, AO2: 0.20 mA, vol	Analogue Input Type	resolution 12 bits Al1, Al2, Al3 software-configurable current: 020 mA, impedance: 250 Ohm, resolution 12 bits		
Discrete Input Type  Discrete Input Type  Discrete Input Compatibility  Discrete Input Compatibility  Discrete Input Compatibility  Discrete Input Compatibility  Discrete Input Logic  Discrete Input Logic  Positive logic (source): Discrete Input Logic input, < 5 V (state 0), > 11 V (state 1), Positive logic (source): Discrete Input Logic input, < 5 V (state 0), > 11 V (state 1), Positive logic (source): Discrete Input Logic  Positive logic (source): Discrete Input Logic input, < 16 V (state 0), > 10 V (state 1), Positive logic (source): Discrete Input Logic input, > 16 V (state 0), > 10 V (state 1), Positive logic (source): Discrete Input Logic input, > 16 V (state 0), > 2.5 V (state 0), Positive logic (source): Discrete Input Logic input, > 16 V (state 0), > 2.5 V (state 0), Positive logic (source): Discrete Input Logic input, > 16 V (state 0), > 2.5 V (state 0), Positive logic (source): Discrete Input Logic input, > 16 V (state 0), > 2.5 V (state 0), Positive logic (source): Discrete Input Logic input, > 16 V (state 0), > 2.5 V (state 0), > 2.5 V (state 0), Positive logic (source): Discrete Input Logic Input Logic Input Logic Input, > 16 V (state 0), > 10 V (state 0), Positive Input Logic Input, > 16 V (state 0), > 2.5 V (state 0), > 2.5 V (state 0), Positive Input Logic Input Lo	Discrete Input Number			
DIS. DIB programmable as pulse input: 030 kHz, 24 V DC (<= 30 V)  Imput Compatibility  DIS. DIB: pulse input tevel 1 PLC conforming to IEC 61131-2 DIS. DIB: pulse input tevel 1 PLC conforming to IEC 61131-2 DIS. DIB: pulse input tevel 1 PLC conforming to IEC 61131-2 DIS. DIB: pulse input tevel 1 PLC conforming to IEC 61131-2 DIS. DIB: pulse input tevel 1 PLC conforming to IEC 61131-2 DIS. DIB: pulse input tevel pulse input, < 5 V (state 0), > 11 V (state 1) Rogative 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)  Analogue Output Number  2  Analogue Output Type Software-configurable current AQ1, AQ2: 020 mA, resolution 10 bits Software-configurable voltage AQ1. AQ2: 020 mA, resolution 10 bits Software-configurable voltage AQ1. AQ2: 020 mA, resolution 10 bits Software-configurable voltage AQ1. AQ2: 010 V DC impedance 470 Ohm, resolution 10 bits Software-configurable voltage aQ1. AQ2: 010 V DC impedance 470 Ohm, resolution 10 bits Software-configurable voltage aQ1. AQ2: 010 V DC impedance 470 Ohm, resolution 10 bits Software-configurable voltage aQ1. AQ2: 010 V DC impedance 470 Ohm, resolution 10 bits Software-configurable voltage application 10 bits Software-configurable voltage relay logic R1: fault relay NO/NC electrical durability 100000 cycles Configurable relay logic R1: fault relay NO/NC electrical durability 10				
Discrete Input Logic Positive logic (source): D11D16 configurable logic input, < 5 V (state 0), > 11 V (state 1) Regative logic (sink): D11D16 configurable logic input, < 5 V (state 0), < 10 V (state 1) Rogative logic (sink): D11D16 configurable logic input, < 0.6 V (state 0), < 10 V (state 1) Positive logic (source): D15. D16 configurable logic input, < 0.6 V (state 0), > 2.5 V (state 1)  Analogue Output Number  2 Analogue Output Type Software-configurable current AQ1, AQ2: 010 V DC impedance 470 Ohm, resolution 10 bits Software-configurable current AQ1, AQ2: 010 V DC impedance 470 Ohm, resolution 10 bits Software-configurable current AQ1, AQ2: 010 V DC impedance 470 Ohm, resolution 10 bits Software-configurable current AQ1, AQ2: 010 V DC impedance 470 Ohm, resolution 10 bits Software-configurable current AQ1, AQ2: 010 V DC impedance 470 Ohm, resolution 10 bits Software-configurable current AQ1, AQ2: 010 V DC impedance 470 Ohm, resolution 10 bits Software-configurable current AQ1, AQ2: 010 V DC impedance 470 Ohm, resolution 10 bits Software-configurable current AQ1, AQ2: 010 V DC impedance 470 Ohm, resolution 10 bits Software-configurable current AQ1, AQ2: 010 V DC impedance 470 Ohm, resolution 10 bits Software-configurable relative 470 of the resolution 470 Ohm, resol	Discrete input Type			
(state 1) Negative logic (sink): D11Dl6 configurable logic input, > 16 V (state 0), < 10 V (state 1) Positive logic (source): D15, D16 configurable pulse input, < 0.6 V (state 0), < 2.5 V (state 1) Positive logic (source): D15, D16 configurable pulse input, < 0.6 V (state 0), > 2.5 V (state 1) Positive logic (source): D15, D16 configurable pulse input, < 0.6 V (state 0), > 2.5 V (state 1) Positive logic (source): D15, D16 configurable pulse input, < 0.6 V (state 0), > 2.5 V (state 1) Positive logic (source): D15, D16 configurable pulse input, < 0.6 V (state 0), > 2.5 V (sta	Input Compatibility			
Negative logic (sink): DI1DI6 configurable logic input, > 16 V (state 0), < 10 V (state 1)	Discrete Input Logic			
Positive logic (source): DIS, DI6 configurable pulse input, < 0.6 V (state 0), > 2.5 V (state 1)  Analogue Output Number 2  Analogue Output Type Software-configurable current AQ1, AQ2: 020 mA, resolution 10 bits Software-configurable voltage AQ1, AQ2: 010 V DC impedance 470 Ohm, resolution 10 bits Software-configurable voltage AQ1, AQ2: 010 V DC impedance 470 Ohm, resolution 10 bits Software-configurable voltage AQ1, AQ2: 010 V DC impedance 470 Ohm, resolution 10 bits Software-configurable voltage AQ1, AQ2: 010 V DC impedance 470 Ohm, resolution 10 vis Software-configurable voltage AQ1, AQ2: 010 V DC impedance 470 Ohm, resolution 10 vis Software-configurable voltage input 2 ms +/- 0.5 ms (011, DI6)configurable - discrete input 5 ms +/- 1 ms (AQ1, AQ2) - analog output 10 ms +/- 1 ms (AQ1, AQ2) - analog output 10 ms +/- 1 ms (AQ1, AQ2) - analog output 10 ms +/- 1 ms (AQ1, AQ2) - 4/- 0.2 % for anal		Negative logic (sink): DI1DI6 configurable logic input, > 16 V (state 0), < 10 V (state		
Analogue Output Type  Software-configurable current AQ1, AQ2: 020 mA, resolution 10 bits Software-configurable voltage AQ1, AQ2: 010 V DC impedance 470 Ohm, resolution 10 bits  Sampling Duration  5 ms +/- 0.1 ms (AI1, AI2, AI3) - analog input 2 ms +/- 0.5 ms (DI1DI6)configurable - discrete input 5 ms +/- 1 ms (DI5, DI6)configurable - discrete input 5 ms +/- 1 ms (DI5, DI6)configurable - public input 10 ms +/- 1 ms (AQ1, AQ2) - analog output 4/- 0.6 % AI1, AI2, AI3 for a temperature variation 60 °C analog output 4/- 1 % AQ1, AQ2 for a temperature variation 60 °C analog output Linearity Error  AI1, AI2, AI3: +/- 0.15 % of maximum value for analog input AQ1, AQ2: +/- 0.2 % for analog output AQ1, AQ2: +/- 0.2 % for analog output 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 R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO: electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO: electrical durability 100000 cycles Configurable		Positive logic (source): DI5, DI6 configurable pulse input, < 0.6 V (state 0), > 2.5 V		
Software-configurable voltage AQ1, AQ2: 010 V DC impedance 470 Ohm, resolution 10 bits  Sampling Duration  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 (AD1, AD2) - analog output  Accuracy  +/- 0.6 % Al1, Al2, Al3 for a temperature variation 60 °C analog input +/- 1 % AQ1, AQ2 for a temperature variation 60 °C analog output  Linearity Error  Al1, Al2, Al3: +/- 0.15 % of maximum value for analog input AQ1, AQ2: +/- 0.2 % for analog output  Linearity Error  Al1, Al2, Al3: +/- 0.15 % of maximum value for analog input AQ1, AQ2: +/- 0.2 % for analog output  Relay Output Number  3  Relay Output Type  Configurable relay logic R1: fault relay NO/NC electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable R4: R2: R3: sequence relay NO electrical durability 100000	Analogue Output Number	2		
2 ms +/- 0.5 ms (D11Dib)configurable - discrete input 5 ms +/- 1 ms (D15Dib)configurable - pulse input 10 ms +/- 1 ms (D15Dib)configurable - pulse input 10 ms +/- 1 ms (A01A02) - analog output  4/- 0.6 % A11A12A13 for a temperature variation 60 °C analog input +/- 1 % A01A02 for a temperature variation 60 °C analog output  Linearity Error  A11A12A13+/- 0.15 % of maximum value for analog input AQ1A02:_+/- 0.2 % for analog output  Relay Output Number  3  Relay Output Type  Configurable relay logic R2: sequence 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 Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles C00004-100000000000000000000000000000000	Analogue Output Type	Software-configurable voltage AQ1, AQ2: 010 V DC impedance 470 Ohm,		
S ms +/- 1 ms (DJS, DI6)configurable - pulse input 10 ms +/- 1 ms (AQ1, AQ2) - analog output	Sampling Duration			
Accuracy +/- 0.6 % Al1, Al2, Al3 for a temperature variation 60 °C analog input +/- 1 % AQ1, AQ2 for a temperature variation 60 °C analog output  Linearity Error Al1, Al2, Al3: +/- 0.15 % of maximum value for analog input AQ1, AQ2: +/- 0.2 % for analog output  Relay Output Number 3  Relay Output Type 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 Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable R6: 8: sequence relay NO electrical durability 100000 cycles Configurable R6: 8: sequence relay NO electrical durability 100000 cycles Configurable R6: 8: sequence relay NO electrical durability 100000 cycles Configurable R6: 8: sequence relay NO electrical durability 100000 cycles Configurable R6: 8: sequence relay NO electrical durability less level 3 conforming to EC 61000-4-2 Radiated radio-frequency electromagnetic field immunity test level 3 conforming to EC 61000-4-3 Electrical fast transient/burst immunity test level 3 conforming to IEC 61000-4-4 1.2:55 yr. s- 8:20 yr. 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		5 ms +/- 1 ms (DI5, DI6)configurable - pulse input		
+/- 1 % AQ1, AQ2 for a temperature variation 60 °C analog output  Linearity Error  Al1, Al2, Al3: +/- 0.15 % of maximum value for analog input AQ1, AQ2: +/- 0.2 % for analog output  Relay Output Number  3  Relay Output Type  Configurable relay logic R1: fault relay NO/NC electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Configurable relay NO electrical durability 100000 cycles Refresh Time  Relay output (R1, R2, R3): 5 ms (+/- 0.5 ms)  Minimum Switching Current  Relay output R1, R2, R3: 5 m at 24 V DC  Maximum Switching Current  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 350 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  Isolation  Between power and control terminals  Insulation Resistance  > 1 MOhm 500 V DC for 1 minute to earth  Environment  Noise Level  56 dB conforming to 86/188/EEC  Power Dissipation In W  310 W(forced convection) at 380 V, switching frequency 4 kHz 54 W(natural convection) at 380 V, switching frequency 4 kHz 54 W(natural convection) at 380 V, switching frequency 4 kHz Rediated radio-frequency electromagnetic field immunity test level 3 conforming to IEC 61000-4-2 Rediated radio-frequency electromagnetic field immunity test level 3 conforming to IEC 61000-4-4 1.2/50 y se - 8/20 ys 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		10 ms +/- 1 ms (AQ1, AQ2) - analog output		
Relay Output Number  Relay Output Type  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 Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles Refresh Time  Relay output (R1, R2, R3): 5 ms (+/- 0.5 ms)  Minimum Switching Current  Relay output R1, R2, R3: 5 mA at 24 V DC  Maximum Switching Current  Relay output R1, R2, R3 on resistive load, cos phi = 1: 3 A at 35 V DC 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  Isolation  Between power and control terminals  Insulation Resistance  > 1 MOhm 500 V DC for 1 minute to earth  Environment  Noise Level  56 dB conforming to 86/188/EEC  Operating Position  Vertical +/- 10 degree  Vertical +/- 10 degree  Ilectromagnetic 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 61000-4-4 1./250 µs - 8/20 µs surge 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 61000-4-6	Accuracy			
Relay Output Type  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 Refresh Time  Relay output (R1, R2, R3): 5 ms (+/- 0.5 ms)  Minimum Switching Current  Relay output R1, R2, R3: 5 mA at 24 V DC  Maximum Switching Current  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  Isolation  Between power and control terminals  Insulation Resistance  > 1 MOhm 500 V DC for 1 minute to earth  Environment  Noise Level  56 dB conforming to 86/188/EEC  Power Dissipation In W  310 W(forced convection) at 380 V, switching frequency 4 kHz 54 W(natural convection) at 380 V, switching frequency 4 kHz 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 61000-4-4 12/50 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 61000-4-5 Conducted radio-frequency immunity test level 3 conforming to IEC 61000-4-6  Pollution Degree  2 conforming to IEC 61800-5-1  Vibration Resistance	Linearity Error			
Configurable relay logic R2: sequence relay NO electrical durability 100000 cycles Configurable relay logic R3: sequence relay NO electrical durability 100000 cycles  Refresh Time Relay output (R1, R2, R3): 5 ms (+/- 0.5 ms)  Minimum Switching Current Relay output R1, R2, R3: 5 mA at 24 V DC  Maximum Switching Current 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 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 inductive load, cos phi = 0.4 and L/R = 7 ms: 2 A at 30 V DC Isolation  Between power and control terminals  Insulation Resistance > 1 MOhm 500 V DC for 1 minute to earth  Environment  Noise Level 56 dB conforming to 86/188/EEC  Power Dissipation In W 310 W(forced convection) at 380 V, switching frequency 4 kHz 54 W(natural convection) at 380 V, switching frequency 4 kHz  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 61000-4-4 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 Conducted radio-frequency immunity test level 3 conforming to IEC 61000-4-6 Conducted radio-frequency immunity test level 3 conforming to IEC 61000-4-6 Conducted radio-frequency immunity test level 3 conforming to IEC 61000-4-6 Conducted radio-frequency immunity test level 3 conforming to IEC 61000-4-6 Conducted radio-frequency immunity test level 3 conforming to IEC 61000-4-6 Conducted radio-frequency immunity test level 3 conforming to IEC 61000-4-6 Conducted radio-frequency immunity test level 3 conforming to IE	Relay Output Number	3		
Minimum Switching Current Relay output R1, R2, R3: 5 mA at 24 V DC  Maximum Switching Current 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  Isolation Between power and control terminals  Insulation Resistance > 1 MOhm 500 V DC for 1 minute to earth  Environment  Noise Level 56 dB conforming to 86/188/EEC  Power Dissipation In W 310 W(forced convection) at 380 V, switching frequency 4 kHz 54 W(natural convection) at 380 V, switching frequency 4 kHz 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 61000-4-5 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	Relay Output Type	Configurable relay logic R2: sequence relay NO electrical durability 100000 cycles		
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  Isolation  Between power and control terminals  Insulation Resistance  > 1 MOhm 500 V DC for 1 minute to earth  Environment  Noise Level  56 dB conforming to 86/188/EEC  Power Dissipation In W  310 W(forced convection) at 380 V, switching frequency 4 kHz 54 W(natural convection) at 380 V, switching frequency 4 kHz 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 61000-4-4 1.2/50 µs - 8/20 µs surge immunity test level 4 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	Refresh Time	Relay output (R1, R2, R3): 5 ms (+/- 0.5 ms)		
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  Isolation Between power and control terminals  Insulation Resistance > 1 MOhm 500 V DC for 1 minute to earth  Environment  Noise Level 56 dB conforming to 86/188/EEC  Power Dissipation In W 310 W(forced convection) at 380 V, switching frequency 4 kHz 54 W(natural convection) at 380 V, switching frequency 4 kHz 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	Minimum Switching Current	Relay output R1, R2, R3: 5 mA at 24 V DC		
Insulation Resistance > 1 MOhm 500 V DC for 1 minute to earth  Environment  Noise Level 56 dB conforming to 86/188/EEC  Power Dissipation In W 310 W(forced convection) at 380 V, switching frequency 4 kHz 54 W(natural convection) at 380 V, switching frequency 4 kHz  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	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		
Environment  Noise Level 56 dB conforming to 86/188/EEC  Power Dissipation In W 310 W(forced convection) at 380 V, switching frequency 4 kHz 54 W(natural convection) at 380 V, switching frequency 4 kHz  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	Isolation	Between power and control terminals		
Noise Level       56 dB conforming to 86/188/EEC         Power Dissipation In W       310 W(forced convection) at 380 V, switching frequency 4 kHz         54 W(natural convection) at 380 V, switching frequency 4 kHz         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	Insulation Resistance	> 1 MOhm 500 V DC for 1 minute to earth		
Power Dissipation In W  310 W(forced convection) at 380 V, switching frequency 4 kHz 54 W(natural convection) at 380 V, switching frequency 4 kHz  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	Environment			
54 W(natural convection) at 380 V, switching frequency 4 kHz         Operating Position       Vertical +/- 10 degree         Electromagnetic Compatibility       Electrostatic discharge immunity test level 3 conforming to IEC 61000-4-2	Noise Level	56 dB conforming to 86/188/EEC		
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	Power Dissipation In W			
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	Operating Position	Vertical +/- 10 degree		
Vibration Resistance 1.5 mm peak to peak (f= 213 Hz) conforming to IEC 60068-2-6	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		
Form to Form (*	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)	
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	21.5 cm
Package 1 Width	34.0 cm
Package 1 Length	58.0 cm
Package 1 Weight	9.48 kg
Unit Type Of Package 2	S06
Number Of Units In Package 2	3
Package 2 Height	73.0 cm
Package 2 Width	80.0 cm
Package 2 Length	60.0 cm
Package 2 Weight	36.44 kg



**Green Premium**<sup>TM</sup> **label** is Schneider Electric's commitment to delivering products with best-inclass environmental performance. Green Premium promises compliance with the latest regulations, transparency on environmental impacts, as well as circular and low-CO<sub>2</sub> products.

**Guide to assessing product sustainability** is a white paper that clarifies global eco-label standards and how to interpret environmental declarations.

Learn more about Green Premium >

Guide to assess a product's sustainability >





Transparency RoHS/REACh

#### Resource performance



## Well-being performance



Mercury Free



Rohs Exemption Information

Yes

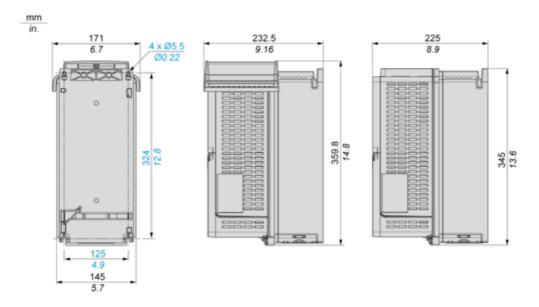
# **Certifications & Standards**

Reach Regulation	REACh Declaration	
Eu Rohs Directive	Pro-active compliance (Product out of EU RoHS legal scope)	
China Rohs Regulation	China RoHS declaration	
Environmental Disclosure	Product Environmental Profile	
Weee	The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins	
Circularity Profile	End of Life Information	

#### **Dimensions Drawings**

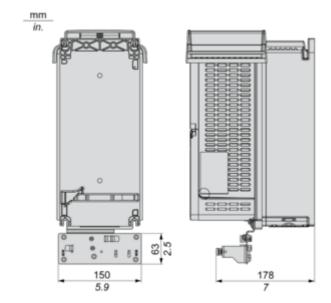
#### **Dimensions**

#### **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

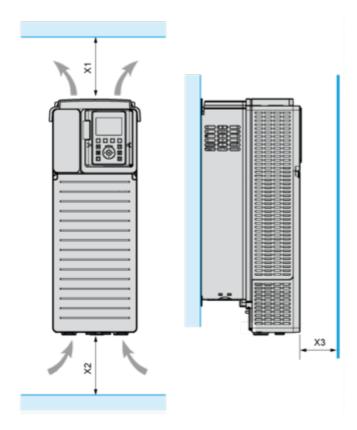


Drawings from left to right: rear view, right side view with top cover.

#### ATV610D11N4

# Mounting and Clearance

#### Clearances

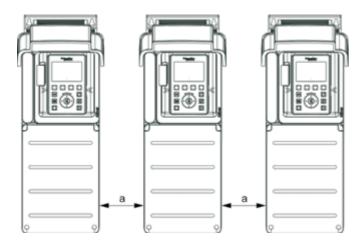


X1	X2	X3
≥ 100 mm (3.94 in.)	≥ 100 mm (3.94 in.)	≥ 10 mm (0.39 in.)

- $_{\bullet}$  Mount the device in a vertical position (±10°). This is required for cooling the device.
- Do not mount the device close to heat sources.
- Leave sufficient free space so that the air required for cooling purposes can circulate from the bottom to the top of the drive.

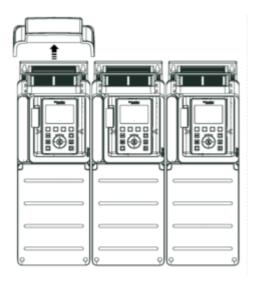
#### **Mounting Types**

#### Mounting Type A: Individual IP21



a ≥ = 100 mm (3.94 in.)

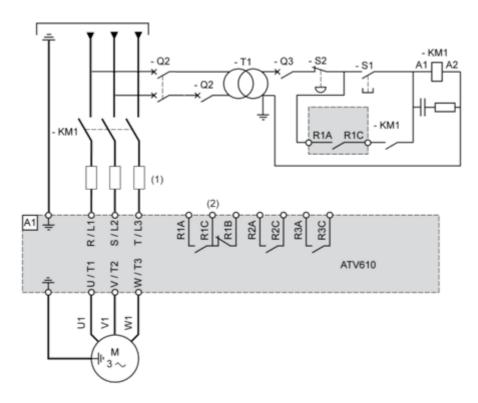
#### Mounting Type B: Side by Side IP20



## ATV610D11N4

#### Connections and Schema

#### Single or Three-phase Power Supply - Diagram With Line Contactor



(1) Line chokes

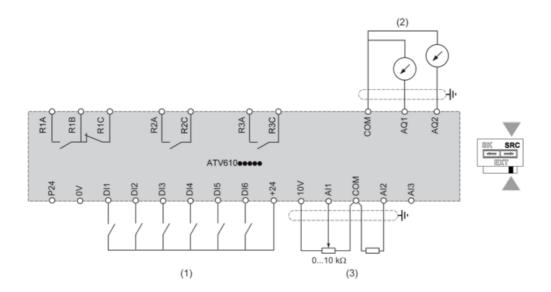
(2) See control block wiring diagram

A1 : Drive

KM1 : Line Contactor Q2, Q3 : Circuit breakers S1, S2 : Pushbuttons

T1: Transformer for control part

#### **Control Block Wiring Diagram**



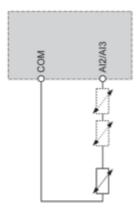
(1) Digital Input (2) Analog Output

(3) Analog Input

R1A, R1B, R1C : Fault relay output R2A, R2C : Sequence relay output R3A, R3C : Sequence relay output

#### **Sensor Connection**

It is possible to connect either 1 or 3 sensors on terminals Al2 or Al3.

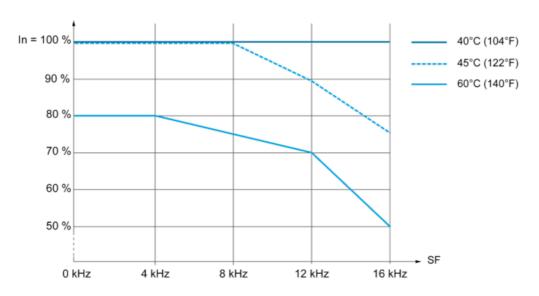


# **Product datasheet**

# ATV610D11N4

#### Performance Curves

# **Derating Curves**



In: Nominal Drive Current SF: Switching Frequency

11