## **Product datasheet**

Specifications





# variable speed drive ATV610 - 30 kW/40 HP - 380...415 V - IP20

ATV610D30N4

#### Main

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
Mounting mode	Cabinet mount
EMC filter	Integrated conforming to EN/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
Network number of phases  [Us] rated supply voltage	3 phases 380460 V - 1510 %
	380460 V - 1510 % 30 kW for normal duty
[Us] rated supply voltage	380460 V - 1510 %
[Us] rated supply voltage  Motor power kW	380460 V - 1510 %  30 kW for normal duty 22 kW for heavy duty  40 hp for normal duty
[Us] rated supply voltage  Motor power kW  Motor power hp	380460 V - 1510 %  30 kW for normal duty 22 kW for heavy duty  40 hp for normal duty 30 hp for heavy duty  62.5 A at 380 V (normal duty) 55.8 A at 460 V (normal duty)
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[Us] rated supply voltage  Motor power kW  Motor power hp  Line current	380460 V - 1510 %  30 kW for normal duty 22 kW for heavy duty  40 hp for normal duty 30 hp for heavy duty  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)
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Maximum transient current	67.7 A during 60 s (normal duty)
	69.5 A during 60 s (heavy duty)
Asynchronous motor control pro	offile Variable torque standard
	Constant torque standard
	Optimized torque mode
Output frequency	0.00010.5 kHz
Nominal switching frequency	4 kHz
Switching frequency	212 kHz adjustable
	Z 12 Ki iz aujustabie
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	
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 ra	S, U or customized
Acceleration and deceleration 12	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	
Electrical connection	Control, screw terminals: 0.51.5 mm²  Line side, screw terminal: 2550 mm²
	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 shortcircuit 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 706 mm with EMC plate
Depth Droduct weight	271 mm
Product weight	25.5 kg
Analogue input number	3
Analogue input type	Al1, Al2, Al3 software-configurable voltage: 010 V DC, impedance: 30 kOhm, resolution 12 bits Al1, Al2, Al3 software-configurable current: 020 mA, impedance: 250 Ohm, resolution 12 bits Al2, Al3 software-configurable temperature probe or water level sensor
Discrete input number	6
2	DI5, DI6 programmable as pulse input: 030 kHz, 24 V DC (<= 30 V)  Jul 26, 2023
Input compatibility	DI1DI6: logic input level 1 PLC conforming to EN/IEC 61131-2 DI5, DI6: pulse input level 1 PLC conforming to IEC 65A-68
Discrete input logic	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)
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
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 (AQ1, AQ2) - 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
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

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	75 dB conforming to 86/188/EEC
Power dissipation in W	649 W(forced convection) at 380 V, switching frequency 4 kHz 91 W(natural convection) at 380 V, switching frequency 4 kHz
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 EN/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 EN/IEC 60721-3-3  Dust pollution resistance class 3S3 conforming to EN/IEC 60721-3-3
Standards  Marking	EN/IEC 61800-3 Environment 2 category C3 EN/IEC 61800-3 EN/IEC 61800-5-1 IEC 60721-3 CE
Jul 26, 2023 Packing Units	3
Unit Type of Package 1	PCE

Package 1 Height	34.000 cm
Package 1 Width	51.000 cm
Package 1 Length	72.000 cm
Package 1 Weight	36.300 kg

### Offer Sustainability

Sustainable offer status	Green Premium product
REACh Regulation	REACh Declaration
EU RoHS Directive	Pro-active compliance (Product out of EU RoHS legal scope)
	EU RoHS Declaration
Mercury free	Yes
China RoHS Regulation	China RoHS declaration
RoHS exemption information	Yes
Environmental Disclosure	Product Environmental Profile
Circularity Profile	End of Life Information
WEEE	The product must be disposed on European Union markets following specific waste collection and
	never end up in rubbish bins
Upgradeability	Upgradeable through digital modules and upgraded components

#### $Recommended\ replacement (s$