



## Main

Range of product	Altivar 12
Product or component type	Variable speed drive
Product destination	Asynchronous motors
Product specific application	Simple machine
Assembly style	With heat sink
Component name	ATV12
EMC filter	Integrated
Built-in fan	Without
Network number of phases	Single phase
[Us] rated supply voltage	200...240 V (- 15...10 %)
Motor power kW	0.75 kW
Motor power hp	1 hp
Communication port protocol	Modbus
Line current	8.5 A, 0...1 kA
Speed range	1...20
Transient overtorque	150...170 % of nominal motor torque
Asynchronous motor control profile	Sensorless flux vector control with PWM type motor control signal
IP degree of protection	IP20 without blanking plate on upper part

## Complementary

Supply frequency	50/60 Hz (+/- 5 %)
Continuous output current	4.2 A at 4 kHz
Maximum transient current	6.3 A for 60 s
Speed drive output frequency	0...400 Hz
Nominal switching frequency	4 kHz
Switching frequency	2...16 kHz adjustable 4...16 kHz with derating factor
Braking torque	Upto 150 % of nominal motor torque with braking resistor at high inertia Upto 70 % of nominal motor torque without braking resistor
Regulation loop	Adjustable Factory-set with the speed loop stability and gain
Motor slip compensation	Adjustable Preset in factory
Prospective line I <sub>sc</sub>	<= 1 kA
Output voltage	200...240 V triphase
Electrical connection	L1, L2, L3, U, V, W, PA, PC terminal 3.5 mm <sup>2</sup> (AWG 12)
Tightening torque	0.8 N.m
Insulation	Electrical between power and control
Supply	Internal supply for logic inputs 24 V DC, voltage limits 20.4...27.6 V 100 mA for overload and short-circuit protection Internal supply for reference potentiometer 5 V DC, voltage limits 4.75...5.25 V 10 mA for overload and short-circuit protection
Analogue input number	1
Analogue input type	AI1 configurable current 0...20 mA, impedance 250 Ohm AI1 configurable voltage 0...10 V, impedance 30 kOhm AI1 configurable voltage 0...5 V, impedance 30 kOhm

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Sampling duration	< 10 ms for analogue input 20 ms, tolerance +/- 1 ms for logic input
Linearity error	+/- 0.3 ms for analogue input
Discrete input number	4
Discrete input type	LI1...LI4 programmable 24 V, voltage limits 18...30 V
Discrete input logic	Negative by program, >= 16 V (state 0), < 10 V (state 1) Positive, 0...< 5 V (state 0), >= 11 V (state 1)
Discrete output number	3
Discrete output type	(CLO) transmitter (LO1) open collector (R1A, R1B, R1C) logic relay 1 C/O
Minimum switching current	5 mA at 24 V DC for logic relay
Maximum switching current	2 A at 250 V AC inductive load cos phi = 0.4, L/R= L/R = 7 ms for logic relay 2 A at 30 V DC inductive load cos phi = 0.4, L/R= L/R = 7 ms for logic relay 3 A at 250 V AC resistive load cos phi = 1, L/R= L/R = 0 ms for logic relay 4 A at 30 V DC resistive load cos phi = 1, L/R= L/R = 0 ms for logic relay
Acceleration and deceleration ramps	Linear from 0 to 999.9 s S U
Braking to standstill	By DC injection, 0.1...30 s
Protection type	Line supply overvoltage Line supply undervoltage Modbus serial link failure Overcurrent between output phases and earth Overheating protection Safety for no network three-phase Short-circuit between motor phases Thermal protection
Insulation resistance	>= 500 MOhm
Frequency resolution	Analog input converter A/D, 10 bits Display unit 0.1 Hz
Time constant	20 ms, tolerance +/- 1 ms for reference change
Marking	CE
Operating position	Vertical +/- 10 degree
Product weight	0.8 kg

## Environment

Electromagnetic compatibility	1.2/50 µs - 8/20 µs surge immunity test (level 3) conforming to EN/IEC 61000-4-5 Electrical fast transient/burst immunity test (level 4) conforming to EN/IEC 61000-4-4 Electrostatic discharge immunity test (level 3) conforming to EN/IEC 61000-4-2 Immunity to conducted disturbances (level 3) conforming to EN/IEC 61000-4-6 Radiated radio-frequency electromagnetic field immunity test (level 3) conforming to EN/IEC 61000-4-3
Standards	EN/IEC 61800-3
Product certifications	CSA C-Tick GOST NOM UL
Vibration resistance	1 gn (f = 13...200 Hz conforming to EN/IEC 60068-2-6 1.5 mm peak to peak (f = 3...13 Hz) drive unmounted on symmetrical DIN rail conforming to EN/IEC 60068-2-6
Shock resistance	15 gn for 11 ms conforming to EN/IEC 60068-2-27
Relative humidity	5...95 % without condensation conforming to IEC 60068-2-3 5...95 % without dripping water conforming to IEC 60068-2-3
Ambient air temperature for storage	-25...70 °C
Ambient air temperature for operation	-10...40 °C with protective cover from the top of the drive removed 40...60 °C with current derating 2.2 % per °C
Operating altitude	> 1000...2000 m with derating 1 % per 100 m 1000 m without derating
RoHS EUR status	Compliant
RoHS EUR conformity date	0901