

# Product data sheet

Specifications



## variable speed drive ATV11 - 0.37kW - 120V 1-phase supply - IP20

ATV11HU09F1U

! Discontinued on: 31 December 2010

! End-of-service on: 31 December 2012

! Discontinued

### Main

Range of product	Altivar
Product or component type	Variable speed drive
Product specific application	Simple machine
Component name	ATV11
Application market	USA market
Assembly style	With heat sink
EMC filter	Without EMC filter
Built-in fan	Without
Network number of phases	Single phase
[Us] rated supply voltage	100...120 V - 15...10 %
Supply frequency	50...60 Hz - 5...5 %
Motor power kW	0.37 kW
Motor power hp	0.5 hp
Line current	9 A at 100 V, I <sub>sc</sub> = 1 kA
Nominal output current	2.4 A 230 V motor 4 kHz
Maximum transient current	3.6 A for 60 s
Power dissipation in W	23 W at nominal load
Switching frequency	2...16 kHz adjustable 4...16 kHz with derating factor
Braking torque	150 % of nominal motor torque with braking resistor at high inertia 20 % of nominal motor torque without braking resistor at no load 80 % of nominal motor torque with braking resistor at no load
Asynchronous motor control profile	Sensorless flux vector control with PWM type motor control signal
Electrical connection	Terminal, clamping capacity: 1.5 mm <sup>2</sup> , AWG 14 (AI1, RA-RC, LI1...LI4, DO) Terminal, clamping capacity: 1.5 mm <sup>2</sup> , AWG 14 (L1, L2, L3, U, V, W, PA, PC)
Supply	Internal supply for logic inputs: 15 V (+/- 15 %) 100 mA, protection type: overload and short-circuit protection Internal supply for reference potentiometer (2.2 to 10 kOhm): 5...5.25 VDC 10 mA, protection type: overload and short-circuit protection
Analogue input type	Configurable current AI1 4...20 mA 250 Ohm without adding resistor Configurable voltage AI1 0...5 V 40000 Ohm only with internal supply Configurable current AI1 0...20 mA 250 Ohm Configurable voltage AI1 0...10 V 40000 Ohm

<b>Sampling duration</b>	AI1: 20 ms analog LI1...LI4: 20 ms discrete
<b>Response time</b>	20 ms DO
<b>Linearity error</b>	DO: +/- 1 % for output AI: +/- 5 % for input
<b>Discrete input type</b>	Assignable LI1 forward 5000 Ohm 15 V 24 V Assignable LI2 reverse 5000 Ohm 15 V 24 V Assignable LI3/LI4 4 preset speeds 5000 Ohm 15 V 24 V
<b>Discrete input logic</b>	Negative (LI1...LI4), > 11 V (state 0), < 5 V (state 1) Positive logic (source) (LI1...LI4), < 5 V (state 0), > 11 V (state 1)
<b>Discrete output type</b>	Assignable as external voltage DO 30 V max, 30 mA Assignable as open collector logic output DO 100 Ohm, 50 mA max Factory set as PWM open collector output DO at 2 kHz 10 mA max Protected relay logic RA-RC 1 NO Assignable as internal voltage DO
<b>Minimum switching current</b>	RA-RC 10 mA at 24 V DC
<b>Maximum switching current</b>	2 A 250 V AC inductive cos phi = 0.4 7 ms RA-RC 2 A 30 V DC inductive cos phi = 0.4 7 ms RA-RC 5 A 250 V AC resistive cos phi = 1 0 ms RA-RC 5 A 30 V DC resistive cos phi = 1 0 ms RA-RC
<b>Protection type</b>	Line supply overvoltage: drive Line supply undervoltage: drive Overcurrent between output phases and earth: drive Overheating protection: drive Short-circuit between motor phases: drive Thermal protection: motor
<b>Frequency resolution</b>	Display unit: 0.1 Hz Analog input: converter A/D, 10 bits
<b>Electromagnetic compatibility</b>	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 Radiated radio-frequency electromagnetic field immunity test level 3 conforming to EN/IEC 61000-4-3
<b>Maximum motor cable length</b>	20 m with additional EMC filter from 2 to 16 kHz conforming to EN 55011 class A group 1 5 m with additional EMC filter from 2 to 16 kHz conforming to EN 55011 class B
<b>Vibration resistance</b>	1 gn (f= 13...200 Hz) conforming to EN/IEC 60068-2-6 1.5 mm peak to peak (f= 3...13 Hz) conforming to EN/IEC 60068-2-6
<b>Shock resistance</b>	15 gn for 11 ms conforming to EN/IEC 60068-2-27
<b>Relative humidity</b>	5...93 % without condensation conforming to IEC 60068-2-3 5...93 % without dripping water conforming to IEC 60068-2-3
<b>Ambient air temperature for operation</b>	-10...40 °C without derating 40...50 °C by removing the protective cover from the top of the drive 50...60 °C by removing the protective cover from the top of the drive with current derating of 2.2 % per °C
<b>Operating altitude</b>	<= 1000 m without derating > 1000 m with current derating 1 % per 100 m
<b>Complementary</b>	
<b>Product destination</b>	Asynchronous motors
<b>Supply voltage limits</b>	85...130 V
<b>Network frequency limits</b>	47.5...63 Hz
<b>Speed drive output frequency</b>	0...200 Hz
<b>Nominal switching frequency</b>	4 kHz
<b>Speed range</b>	1...20
<b>Transient overtorque</b>	150...170 % of nominal motor torque
<b>Regulation loop</b>	Possible correction for machines with high resistive torque/inertia/fast cycles Adjustable frequency Factory-set with the speed loop stability and gain
<b>Motor slip compensation</b>	Preset in factory Adjustable
<b>Prospective line Isc</b>	1 kA

<b>Output voltage</b>	<= 2 x power supply voltage
<b>Insulation</b>	Electrical between power and control
<b>Analogue input number</b>	1
<b>Discrete input number</b>	4
<b>Discrete output number</b>	2
<b>Acceleration and deceleration ramps</b>	Linear from 0 to 99.9 s
<b>Braking to standstill</b>	By DC injection
<b>Insulation resistance</b>	>= 500 mOhm
<b>Marking</b>	CE
<b>Operating position</b>	Vertical +/- 10 degree
<b>CAD overall width</b>	72 mm
<b>CAD overall height</b>	142 mm
<b>CAD overall depth</b>	125 mm
<b>Outer dimension</b>	142 x 72 x 101 mm
<b>Product weight</b>	1.1 kg

## Environment

<b>Standards</b>	EN 50178
<b>Product certifications</b>	UL C-Tick N998 CSA
<b>IP degree of protection</b>	IP20
<b>Ambient air temperature for storage</b>	-25...65 °C

## Contractual warranty

<b>Warranty</b>	18 months
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## Recommended replacement(s)

ATV11HU09F1U is replaced by:



variable speed drive ATV12 - 0.37kW - 0.55hp - 100..120V - 1ph - with heat sink  
ATV12H037F1