

ATV11HU41M2E

variable speed drive ATV11 - 2.2kW - 230V 1-phase supply - IP20



Main

Range of product	Altivar 11
Product or component type	Variable speed drive
Product specific application	Simple machine
Component name	ATV11
Application market	European
Assembly style	With heat sink
EMC filter	Integrated
Built-in fan	With
Network number of phases	Single phase
[Us] rated supply voltage	200...240 V - 15...10 %
Supply frequency	50...60 Hz - 5...5 %
Motor power kW	2.2 kW
Line current	20.8 A 230 V 1 kA
Nominal output current	9.6 A 230 V motor 4 kHz
Maximum transient current	14.4 A 60 s
Power dissipation in W	96 W at nominal load
Switching frequency	2...16 kHz adjustable 4...16 kHz with derating factor
Braking torque	20 % of nominal motor torque without braking resistor at no load 80 % of nominal motor torque with braking resistor at no load 150 % of nominal motor torque with braking resistor at high inertia
Asynchronous motor control profile	Sensorless flux vector control with PWM type motor control signal
Electrical connection	Terminal 1.5 mm ² AWG 14 L1, L2, L3, U, V, W, PA, PC Terminal 1.5 mm ² AWG 14 AI1, RA-RC, LI1...LI4, DO
Supply	Internal supply for logic inputs 15 V (+/- 15 %) ≤ 100 A overload and short-circuit protection Internal supply for reference potentiometer (2.2 to 10 kOhm) 5...5.25 V DC ≤ 10 A overload and short-circuit protection
Analogue input type	Configurable current AI1 0...20 mA 250 Ohm Configurable current AI1 4...20 mA 250 Ohm without adding resistor Configurable voltage AI1 0...5 V 40000 Ohm only with internal supply Configurable voltage AI1 0...10 V 40000 Ohm
Sampling duration	20 ms AI1 analog 20 ms LI1...LI4 discrete
Response time	20 ms DO
Linearity error	+/- 1 % output DO +/- 5 % input AI
Discrete input type	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
Discrete input logic	Positive logic (source) LI1...LI4 < 5 V > 11 V

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Discrete output type	Assignable as external voltage DO 30 V max, 30 mA Assignable as internal voltage DO 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
Minimum switching current	10 mA 24 V DC RA-RC
Maximum switching current	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
Protection type	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
Frequency resolution	0.1 Hz display unit Converter A/D, 10 bits analog input
Electromagnetic compatibility	1.2/50 µs - 8/20 µs surge immunity test level 3 EN/IEC 61000-4-5 Electrical fast transient/burst immunity test level 4 EN/IEC 61000-4-4 Electrostatic discharge immunity test level 3 EN/IEC 61000-4-2 Radiated radio-frequency electromagnetic field immunity test level 3 EN/IEC 61000-4-3
Motor cable length	5 m without additional EMC filter from 2 to 12 kHz EN 55011 class B 5 m without additional EMC filter from 2 to 12 kHz EN 55022 class B 10 m without additional EMC filter from 2 to 16 kHz EN 55011 class A group 1 10 m without additional EMC filter from 2 to 16 kHz EN 55022 class A group 1 20 m with additional EMC filter from 2 to 16 kHz EN 55011 class B 50 m with additional EMC filter from 2 to 16 kHz EN 55011 class A group 1
Vibration resistance	1 gn 13...200 Hz EN/IEC 60068-2-6 1.5 mm peak to peak 3...13 Hz EN/IEC 60068-2-6
Shock resistance	15 gn 11 ms EN/IEC 60068-2-27
Relative humidity	5...93 % without condensation IEC 60068-2-3 5...93 % without dripping water IEC 60068-2-3
Ambient air temperature for operation	-10...40 °C without derating -10...50 °C by removing the protective cover from the top of the drive ≤ 60 °C with current derating of 2.2 % per °C above 50 °C
Operating altitude	> 1000 m with current derating 1 % per 100 m ≤ 1000 m without derating

Complementary

Product destination	Asynchronous motors
Supply voltage limits	170...264 V
Network frequency limits	47.5...63 Hz
Speed drive output frequency	0...200 Hz
Nominal switching frequency	4 kHz
Speed range	1...20
Transient overtorque	150...170 % of nominal motor torque
Regulation loop	Adjustable frequency Factory-set with the speed loop stability and gain Possible correction for machines with high resistive torque/inertia/fast cycles
Motor slip compensation	Adjustable Preset in factory
Prospective line I _{sc}	1 kA
Output voltage	≤ power supply voltage

Insulation	Electrical between power and control
Analogue input number	1
Discrete input number	4
Discrete output number	2
Acceleration and deceleration ramps	Linear from 0 to 99.9 s
Braking to standstill	By DC injection
Insulation resistance	> 500 MOhm
Marking	CE
Operating position	Vertical +/- 10 degree
Outer dimension	142 x 117 x 156 mm
Product weight	1.8 kg

Environment

Standards	EN 50178
Product certifications	C-Tick CSA N998 UL
IP degree of protection	IP20
Ambient air temperature for storage	-25...65 °C
RoHS EUR conformity date	0724
RoHS EUR status	Compliant