Product datasheet

Specifications





variable speed drive, Easy Altivar 310, heavy duty, 2.2kW, 3hp, 380 to 460V, without EMC

ATV310HU22N4E

Main

Range of product	Easy Altivar 310			
Product or component type	Variable speed drive			
Product specific application	Simple machine			
Assembly style	With heat sink			
Device short name	ATV310			
Network number of phases	Three phase			
[Us] rated supply voltage	380460 V - 1510 %			
Motor power kW	2.2 kW for heavy duty			
Motor power hp	3 hp for heavy duty			
Noise level	50 dB			

Complementary

Quantity per set	Set of 1					
EMC filter	Without EMC filter					
Type of cooling	Integrated fan					
Communication port protocol	Modbus					
Connector type	RJ45 (on front face) for Modbus					
Physical interface	2-wire RS 485 for Modbus					
Transmission frame	RTU for Modbus					
Transmission rate	4800 bit/s 9600 bit/s 19200 bit/s 38400 bit/s					
Number of addresses	1247 for Modbus					
Communication service	Read holding registers (03) 29 words Write single register (06) 29 words Write multiple registers (16) 27 words Read/write multiple registers (23) 4/4 words Read device identification (43)					
Line current	8.8 A at 380 V (heavy duty) 7.2 A at 460 V (heavy duty)					
Apparent power	5.7 kVA at 460 V (heavy duty)					
Prospective line Isc	5 kA (heavy duty)					
Continuous output current	5.5 A heavy duty					
Maximum transient current	8.3 A during 60 s (heavy duty)					

Power dissipation in W	75.5 W, at In (heavy duty)						
Speed drive output frequency	0.5400 Hz						
Nominal switching frequency	4 kHz						
Switching frequency	212 kHz adjustable						
Speed range	120 for asynchronous motor						
Transient overtorque	170200 % of nominal motor torque depending on drive rating and type of motor						
Braking torque	Up to 150 % of nominal motor torque with braking resistor Up to 70 % of nominal motor torque without braking resistor						
Asynchronous motor control profile	Voltage/frequency ratio (V/f) Voltage/frequency ratio - Energy Saving, quadratic U/f Sensorless vector control (SVC)						
Motor slip compensation	Adjustable						
Output voltage	380460 V three phase						
Electrical connection	Terminal, clamping capacity: 1.52.5 mm², AWG 16AWG 14 (L1, L2, L3, PA/+, PB, U, V, W)						
Tightening torque	0.81 N.m						
Insulation	Electrical between power and control						
Supply	Internal supply for reference potentiometer: 5 V (4.755.25 V)DC, <10 mA with overload and short-circuit protection Internal supply for logic inputs: 24 V (20.428.8 V)DC, <100 mA with overload and short-circuit protection						
Analogue input number	1						
Analogue input type	Configurable current AI1 020 mA 250 Ohm Configurable voltage AI1 010 V 30 kOhm Configurable voltage AI1 05 V 30 kOhm						
Discrete input number	4						
Discrete input type	Programmable LI1LI4 24 V 1830 V						
Discrete input logic	Negative logic (sink), > 16 V (state 0), < 10 V (state 1), input impedance 3.5 kOhm Positive logic (source), 0< 5 V (state 0), > 11 V (state 1)						
Sampling duration	10 ms for analogue input 20 ms, tolerance +/- 1 ms for logic input						
Linearity error	+/- 0.3 % of maximum value for analogue input						
Analogue output number	1						
Analogue output type	AO1 software-configurable voltage: 010 V AC 010 V 00.02 A, impedance: 470 Ohm, resolution 8 bits AO1 software-configurable current: 020 mA, impedance: 800 Ohm, resolution 8 bits						
Discrete output number	2						
Discrete output type	Logic output LO+, LO- Protected relay output R1A, R1B, R1C 1 C/O						
Minimum switching current	5 mA at 24 V DC for logic relay						
Maximum switching current	2 A at 250 V AC on inductive load cos phi = 0.4 L/R = 7 ms for logic relay 2 A at 30 V DC on inductive load cos phi = 0.4 L/R = 7 ms for logic relay 3 A at 250 V AC on resistive load cos phi = 1 L/R = 0 ms for logic relay 4 A at 30 V DC on resistive load cos phi = 1 L/R = 0 ms for logic relay						
Acceleration and deceleration ramps	Linear from 0999.9 s S U						
Braking to standstill	By DC injection, <30 s						

Protection type	Line supply overvoltage Line supply undervoltage Overcurrent between output phases and earth Overheating protection Short-circuit between motor phases Against input phase loss in three-phase Thermal motor protection via the drive by continuous calculation of I ² t
Frequency resolution	Analog input: converter A/D, 10 bits Display unit: 0.1 Hz
Time constant	20 ms +/- 1 ms for reference change
Operating position	Vertical +/- 10 degree
Height	143 mm
Width	105 mm
Depth	151 mm
Net weight	1.1 kg
Supply frequency	50/60 Hz +/- 5 %
Product destination	Asynchronous motors

Environment

Electromagnetic compatibility	Electrical fast transient/burst immunity test - test level: level 4 conforming to IEC 61000-4-4					
	Electrostatic discharge immunity test - test level: level 3 conforming to IEC 61000-4-2					
	Immunity to conducted disturbances - test level: level 3 conforming to IEC 61000-4-6					
	Radiated radio-frequency electromagnetic field immunity test - test level: level 3 conforming to IEC 61000-4-3					
	Voltage dips and interruptions immunity test conforming to IEC 61000-4-11					
	Surge immunity test - test level: level 3 conforming to IEC 61000-4-5					
Standards	IEC 61800-3					
product certifications	CE					
	EAC					
	KC					
IP degree of protection	IP20 without blanking plate on upper part					
	IP4X top					
Pollution degree	2 conforming to IEC 61800-5-1					
Environmental characteristic	Dust pollution resistance class 3S2 conforming to IEC 60721-3-3					
	Chemical pollution resistance class 3C3 conforming to IEC 60721-3-3					
Shock resistance	15 gn conforming to IEC 60068-2-27 for 11 ms					
Relative humidity	595 % without condensation conforming to IEC 60068-2-3					
	595 % without dripping water conforming to IEC 60068-2-3					
Ambient air temperature for storage	-2570 °C					
Ambient air temperature for	-1055 °C without derating					
operation	5560 °C protective cover from the top of the drive removed with current derating					
	2.2 % per °C					
Operating altitude	<= 1000 m without derating					

Packing Units

•	
Unit Type of Package 1	PCE
Number of Units in Package 1	1
Package 1 Height	16.000 cm
Package 1 Width	17.270 cm
Package 1 Length	19.300 cm

Package 1 Weight	1.410 kg
Unit Type of Package 2	S04
Number of Units in Package 2	6
Package 2 Height	30.000 cm
Package 2 Width	40.000 cm
Package 2 Length	60.000 cm
Package 2 Weight	9.238 kg



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Transparency RoHS/REACh

Well-being performance



Mercury Free



Rohs Exemption Information

Yes

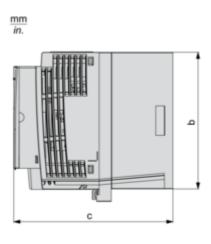
Certifications & Standards

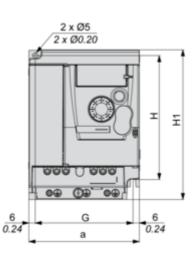
Reach Regulation	EACh Declaration				
Eu Rohs Directive	Compliant with Exemptions				
China Rohs Regulation	China RoHS declaration				
Environmental Disclosure	Product Environmental Profile				
Weee	The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins				
Circularity Profile	End of Life Information				

ATV310HU22N4E

Dimensions Drawings

Dimensions





Dimensions in mm

а	b	С	G	Н	H1	Ø	For screws
105	130	151	93	118	143	5	M4

Dimensions in in.

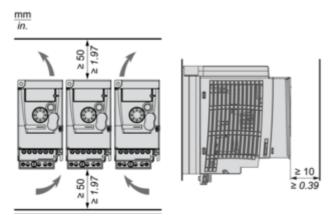
а	b	С	G	Н	H1	Ø	For screws
4.13	5.12	5.94	3.66	4.65	5.63	0.20	M4

ATV310HU22N4E

Mounting and Clearance

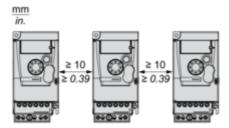
Mounting Recommendations

Clearance

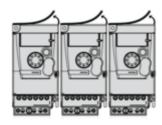


Mounting Types

Mounting Type A



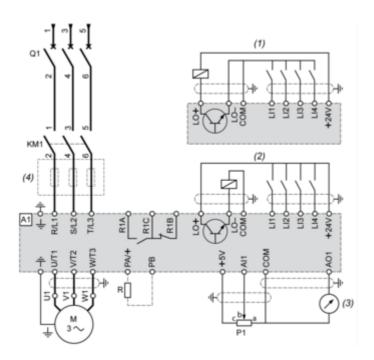
Mounting Type B



Remove the protective cover from the top of the drive.

Connections and Schema

Three-Phase Power Supply Wiring Diagram



A1: Drive

KM1 : Contactor (only if a control circuit is needed)

P1: 2.2 kΩ reference potentiometer. This can be replaced by a 10 kΩ potentiometer (maximum).

Q1 : Circuit breaker

R: Braking resistor (optional)

(1) Negative logic (Sink)

(2) Positive logic (Source) (factory set configuration)

(3) 0...10 V or 0...20 mA

(4) Line choke three-phase (optional)

Image of product / Alternate images

Alternative











