

# Product datasheet

Specifications



variable speed drive, Easy Altivar 310, heavy duty, 22kW, 30hp, normal duty, 30kW, 40hp, 380 to 460V, C3 EMC embedded

ATV310HD22N4EF

## 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	380...460 V - 15...10 %
Motor power kW	22 kW for heavy duty 30 kW for normal duty
Motor power hp	30 hp for heavy duty 40 hp for normal duty
Noise level	50 dB

## Complementary

Quantity per set	Set of 1
EMC filter	Integrated
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	1...247 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	64.2 A at 380 V (heavy duty) 71.2 A at 380 V (normal duty) 53.2 A at 460 V (heavy duty) 59.2 A at 460 V (normal duty)
Apparent power	46.2 kVA at 460 V (heavy duty) 47 kVA at 460 V (normal duty)

<b>Prospective line Isc</b>	22 kA ( heavy duty ) 5 kA ( normal duty )
<b>Continuous output current</b>	46 A heavy duty 60 A normal duty
<b>Maximum transient current</b>	69 A during 60 s (heavy duty) 66 A during 60 s (normal duty)
<b>Power dissipation in W</b>	568.8 W, at In (heavy duty) 735.6 W, at In (normal duty)
<b>Speed drive output frequency</b>	0.5...400 Hz
<b>Nominal switching frequency</b>	4 kHz
<b>Switching frequency</b>	2...12 kHz adjustable
<b>Speed range</b>	1...20 for asynchronous motor
<b>Transient overtorque</b>	170...200 % of nominal motor torque depending on drive rating and type of motor
<b>Braking torque</b>	Up to 150 % of nominal motor torque with braking resistor Up to 70 % of nominal motor torque without braking resistor
<b>Asynchronous motor control profile</b>	Voltage/frequency ratio (V/f) Voltage/frequency ratio - Energy Saving, quadratic U/f Sensorless vector control (SVC)
<b>Motor slip compensation</b>	Adjustable
<b>Output voltage</b>	380...460 V three phase
<b>Electrical connection</b>	Terminal, clamping capacity: 25...35 mm <sup>2</sup> , AWG 3...AWG 2 (L1, L2, L3, PA/+, PB, U, V, W)
<b>tightening torque</b>	2.2...2.4 N.m
<b>Insulation</b>	Electrical between power and control
<b>Supply</b>	Internal supply for reference potentiometer: 5 V (4.75...5.25 V)DC, <10 mA with overload and short-circuit protection Internal supply for logic inputs: 24 V (20.4...28.8 V)DC, <100 mA with overload and short-circuit protection
<b>Analogue input number</b>	1
<b>Analogue input type</b>	Configurable current AI1 0...20 mA 250 Ohm Configurable voltage AI1 0...10 V 30 kOhm Configurable voltage AI1 0...5 V 30 kOhm
<b>Discrete input number</b>	4
<b>Discrete input type</b>	Programmable LI1...LI4 24 V 18...30 V
<b>Discrete input logic</b>	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)
<b>Sampling duration</b>	10 ms for analogue input 20 ms, tolerance +/- 1 ms for logic input
<b>Linearity error</b>	+/- 0.3 % of maximum value for analogue input
<b>Analogue output number</b>	1
<b>Analogue output type</b>	AO1 software-configurable voltage: 0...10 V AC 0...10 V 0...0.02 A, impedance: 470 Ohm, resolution 8 bits AO1 software-configurable current: 0...20 mA, impedance: 800 Ohm, resolution 8 bits
<b>Discrete output number</b>	2
<b>Discrete output type</b>	Logic output LO+, LO- Protected relay output R1A, R1B, R1C 1 C/O
<b>Minimum switching current</b>	5 mA at 24 V DC for logic relay
<b>Maximum switching current</b>	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

<b>Acceleration and deceleration ramps</b>	Linear from 0...999.9 s S U
<b>Braking to standstill</b>	By DC injection, <30 s
<b>Protection type</b>	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 <sup>2</sup> t
<b>Frequency resolution</b>	Analog input: converter A/D, 10 bits Display unit: 0.1 Hz
<b>Time constant</b>	20 ms +/- 1 ms for reference change
<b>Operating position</b>	Vertical +/- 10 degree
<b>Height</b>	390 mm
<b>Width</b>	180 mm
<b>Depth</b>	212 mm
<b>Net weight</b>	9.7 kg
<b>Supply frequency</b>	50/60 Hz +/- 5 %
<b>Product destination</b>	Asynchronous motors

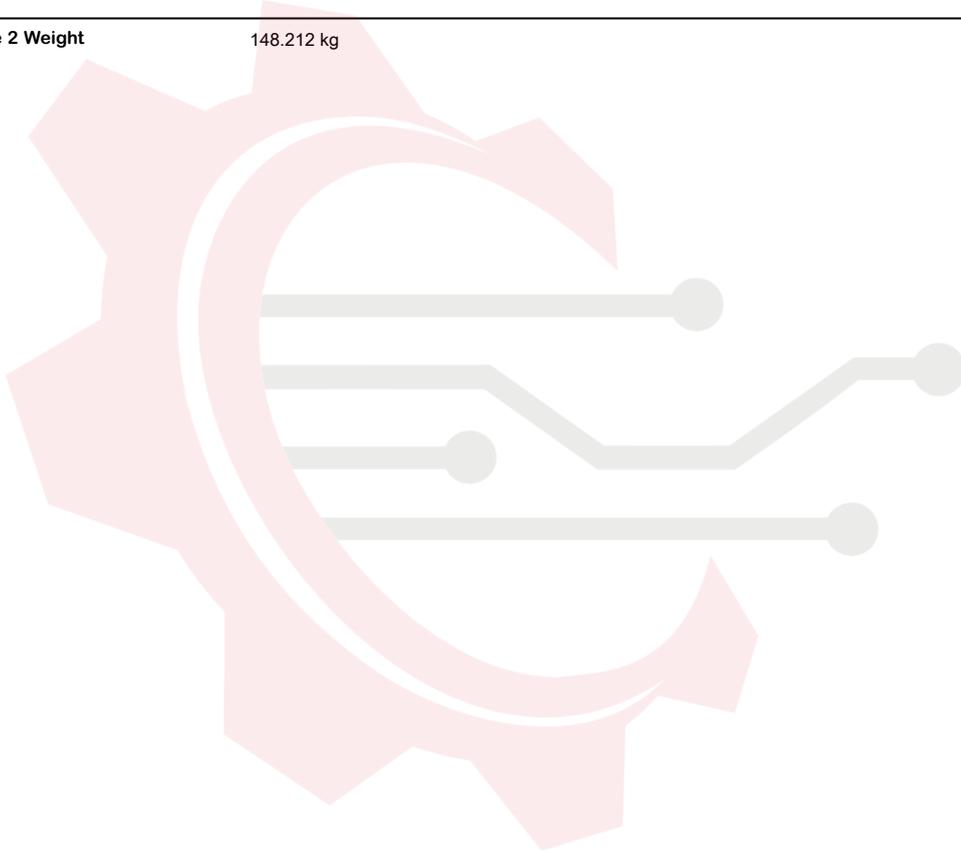
## Environment

<b>Electromagnetic compatibility</b>	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
<b>Standards</b>	IEC 61800-5-1 IEC 61800-3
<b>Product certifications</b>	CE EAC KC
<b>IP degree of protection</b>	IP20 without blanking plate on upper part IP4X top
<b>Pollution degree</b>	2 conforming to IEC 61800-5-1
<b>Environmental characteristic</b>	Dust pollution resistance class 3S2 conforming to IEC 60721-3-3 Chemical pollution resistance class 3C3 conforming to IEC 60721-3-3
<b>Shock resistance</b>	15 gn conforming to IEC 60068-2-27 for 11 ms
<b>Relative humidity</b>	5...95 % without condensation conforming to IEC 60068-2-3 5...95 % without dripping water conforming to IEC 60068-2-3
<b>Ambient air temperature for storage</b>	-25...70 °C
<b>Ambient air temperature for operation</b>	-10...55 °C without derating 55...60 °C protective cover from the top of the drive removed with current derating 2.2 % per °C
<b>Operating altitude</b>	<= 1000 m without derating

## Packing Units

<b>Unit Type of Package 1</b>	PCE
<b>Number of Units in Package 1</b>	1

Package 1 Height	30.000 cm
Package 1 Width	40.000 cm
Package 1 Length	60.000 cm
Package 1 Weight	10.700 kg
Unit Type of Package 2	P12
Number of Units in Package 2	12
Package 2 Height	105.000 cm
Package 2 Width	80.000 cm
Package 2 Length	120.000 cm
Package 2 Weight	148.212 kg



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## Environmental Data

Schneider Electric aims to achieve Net Zero status by 2050 through supply chain partnerships, lower impact materials, and circularity via our ongoing "Use Better, Use Longer, Use Again" campaign to extend product lifetimes and recyclability.

[Environmental Data explained >](#)

[How we assess product sustainability >](#)

 Environmental footprint	
Total lifecycle Carbon footprint	22888
Environmental Disclosure	<a href="#">Product Environmental Profile</a>

### Use Better

 Materials and Substances	
Packaging made with recycled cardboard	Yes
Packaging without single use plastic	Yes
<a href="#">EU RoHS Directive</a>	Compliant with Exemptions
SCIP Number	5b939136-3ce6-4efd-8751-a5f6e107c9f2
REACH Regulation	<a href="#">REACH Declaration</a>

 Energy efficiency	
Product contributes to saved and avoided emissions	Yes

### Use Again

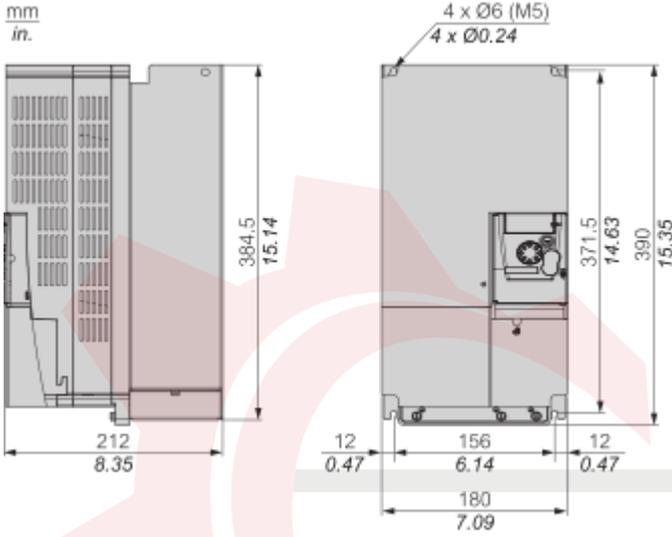
 Repack and remanufacture	
Recyclability potential, in %	23
End of life manual availability	<a href="#">End of Life Information</a>
Take-back	No

WEEE Label	 The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins
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Dimensions Drawings

Dimensions

Side and Front Sides



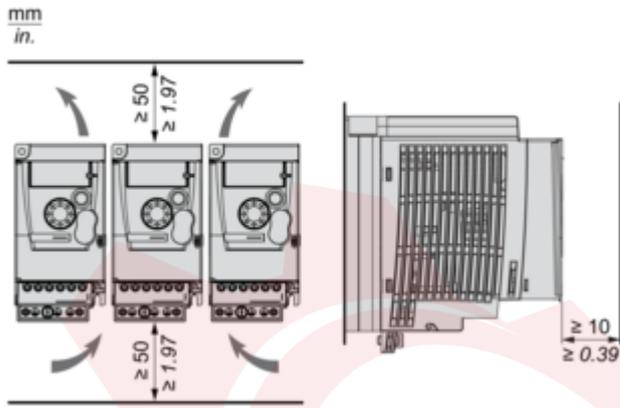
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Mounting and Clearance

Mounting Recommendations

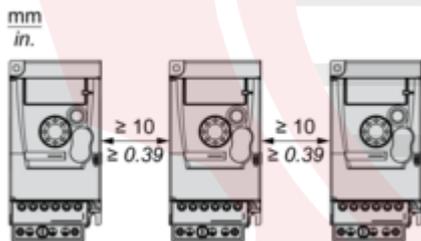
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Clearance

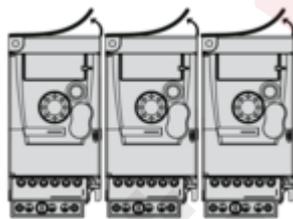


Mounting Types

Mounting Type A



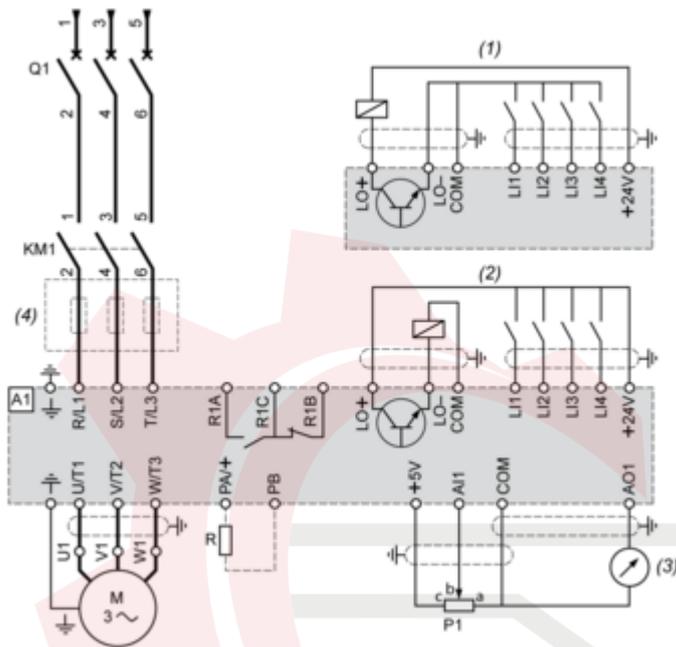
Mounting Type B



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)

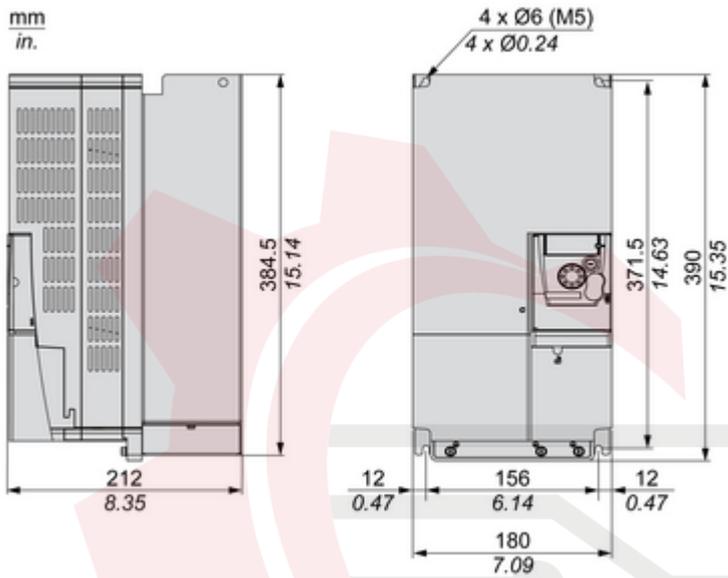
(3) 0...10 V or 0...20 mA

(4) Line choke three-phase (optional)

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Technical Illustration

Dimensions



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