

variable speed drive, Easy Altivar 310, heavy duty, 18.5kW, 25hp, normal duty, 22kW, 30hp, 380 to 460V, without EMC

ATV310HD18N4E

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	18.5 kW for heavy duty 22 kW for normal duty
Motor power hp	25 hp for heavy duty 30 hp for normal duty
Noise level	50 dB

Complementary

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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	55.3 A at 380 V (heavy duty) 54.1 A at 380 V (normal duty) 45.8 A at 460 V (heavy duty) 45.1 A at 460 V (normal duty)
Apparent power	36.5 kVA at 460 V (heavy duty) 35.7 kVA at 460 V (normal duty)

Prospective line Isc	22 kA (heavy duty) 5 kA (normal duty)	
Continuous output current	39 A heavy duty 43 A normal duty	
Maximum transient current	58.5 A during 60 s (heavy duty) 47.3 A during 60 s (normal duty)	
Power dissipation in W	515.9 W, at In (heavy duty) 539.4 W, at In (normal 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: 1625 mm², AWG 4AWG 3 (L1, L2, L3, PA/+, PB, U, V, W)	
Tightening torque	2.22.4 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 Al1 020 mA 250 Ohm Configurable voltage Al1 010 V 30 kOhm Configurable voltage Al1 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	Linear from 0999.9 s	
ramps	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 I2t	
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	330 mm	
Width	180 mm	
Depth	191 mm	
Net weight	6.3 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 61800-5-1 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 operation	-1055 °C without derating 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	19.1 cm
Package 1 Width	18.0 cm
Package 1 Length	33.0 cm
Package 1 Weight	7.6 kg
Unit Type of Package 2	P06
Number of Units in Package 2	6
Package 2 Height	105.0 cm
Package 2 Width	60.0 cm
Package 2 Length	80.0 cm
Package 2 Weight	61.6 kg



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	
Carbon footprint (kg.eq.CO2 per CR, Total Life cycle)	46053
Environmental Disclosure	Product Environmental Profile

Use Better

Packaging made with recycled cardboard	Yes
Packaging without single use plastic	Yes
SCIP Number	30b3a72c-fdb4-413d-8bce-931fe72b30f7
China RoHS Regulation	China RoHS declaration
[™] Energy efficiency	
Product contributes to saved and avoided emissions	Yes

Use Again

○ Repack and remanufacture	
Circularity Profile	End of Life Information
Take-back	No

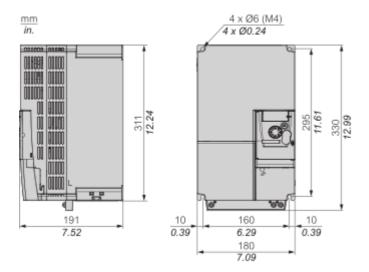
Product datasheet

ATV310HD18N4E

Dimensions Drawings

Dimensions

Side and Front Sides

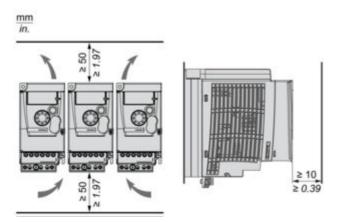


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Mounting and Clearance

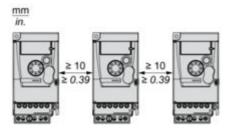
Mounting Recommendations

Clearance

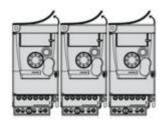


Mounting Types

Mounting Type A



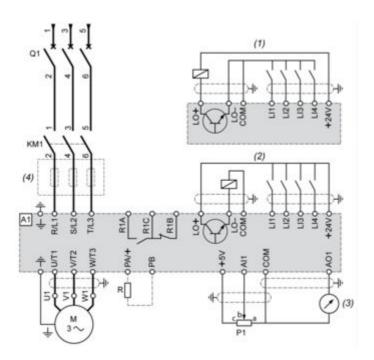
Mounting Type B



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)