# Product datasheet

Specifications



## Variable speed drive ATV310 - 1.5 kW - 2 hp - 380...460 V - 3 phase

ATV310HU15N4E

## Main

| | |
|---|---|
| **Range of product** | 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** | 1.5 kW for heavy duty |
| **Motor power hp** | 2 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<br>9600 bit/s<br>19200 bit/s<br>38400 bit/s |
| **Number of addresses** | 1…247 for Modbus |
| **Communication service** | Read holding registers (03) 29 words<br>Write single register (06) 29 words<br>Write multiple registers (16) 27 words<br>Read/write multiple registers (23) 4/4 words<br>Read device identification (43) |
| **Line current** | 6.5 A at 380 V (heavy duty)<br>5.4 A at 460 V (heavy duty) |
| **Apparent power** | 4.3 kVA at 460 V (heavy duty) |
| **Prospective line Isc** | 5 kA ( heavy duty ) |
| **Continuous output current** | 4.1 A heavy duty |
| **Maximum transient current** | 6.2 A during 60 s (heavy duty) |

Excluding VAT, FCA Jabal Ali & are subject to change – check with your local distributor.

Disclaimer: This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications

| | |
|---|---|
| **Power dissipation in W** | 60.4 W, at In (heavy duty) |
| **Speed drive output frequency** | 0.5…400 Hz |
| **Nominal switching frequency** | 4 kHz |
| **Switching frequency** | 2...12 kHz adjustable |
| **Speed range** | 1…20 for asynchronous motor |
| **Transient overtorque** | 170…200 % of nominal motor torque depending on drive rating and type of motor |
| **Braking torque** | Up to 150 % of nominal motor torque with braking resistor<br>Up to 70 % of nominal motor torque without braking resistor |
| **Asynchronous motor control profile** | Voltage/frequency ratio (V/f)<br>Voltage/frequency ratio - Energy Saving, quadratic U/f<br>Sensorless vector control (SVC) |
| **Motor slip compensation** | Adjustable |
| **Output voltage** | 380...460 V three phase |
| **Electrical connection** | Terminal, clamping capacity: 1.5...2.5 mm², 16 AWG...14 AWG (L1, L2, L3, PA/+, PB, U, V, W) |
| **Tightening torque** | 0.8…1 N.m |
| **Insulation** | Electrical between power and control |
| **Supply** | Internal supply for reference potentiometer: 5 V (4.75…5.25 V)DC, <10 mA with overload and short-circuit protection<br>Internal supply for logic inputs: 24 V (20.4…28.8 V)DC, <100 mA with overload and short-circuit protection |
| **Analogue input number** | 1 |
| **Analogue input type** | Configurable current AI1 0...20 mA 250 Ohm<br>Configurable voltage AI1 0...10 V 30 kOhm<br>Configurable voltage AI1 0...5 V 30 kOhm |
| **Discrete input number** | 4 |
| **Discrete input type** | Programmable LI1...LI4 24 V 18...30 V |
| **Discrete input logic** | Negative logic (sink), > 16 V (state 0), < 10 V (state 1), input impedance 3.5 kOhm<br>Positive logic (source), 0...< 5 V (state 0), > 11 V (state 1) |
| **Sampling duration** | 10 ms for analogue input<br>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: 0...10 V AC 0...10 V 0…0.02 A, impedance: 470 Ohm, resolution 8 bits<br>AO1 software-configurable current: 0...20 mA, impedance: 800 Ohm, resolution 8 bits |
| **Discrete output number** | 2 |
| **Discrete output type** | Logic output LO+, LO-<br>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<br>2 A at 30 V DC on inductive load cos phi = 0.4 L/R = 7 ms for logic relay<br>3 A at 250 V AC on resistive load cos phi = 1 L/R = 0 ms for logic relay<br>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 0...999.9 s<br>S<br>U |
| **Braking to standstill** | By DC injection, <30 s |

| | |
|---|---|
| **Protection type** | Line supply overvoltage<br>Line supply undervoltage<br>Overcurrent between output phases and earth<br>Overheating protection<br>Short-circuit between motor phases<br>Against input phase loss in three-phase<br>Thermal motor protection via the drive by continuous calculation of $I^2t$ |
| **Frequency resolution** | Analog input: converter A/D, 10 bits<br>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<br>Electrostatic discharge immunity test - test level: level 3 conforming to IEC 61000-4-2<br>Immunity to conducted disturbances - test level: level 3 conforming to IEC 61000-4-6<br>Radiated radio-frequency electromagnetic field immunity test - test level: level 3 conforming to IEC 61000-4-3<br>Voltage dips and interruptions immunity test conforming to IEC 61000-4-11<br>Surge immunity test - test level: level 3 conforming to IEC 61000-4-5 |
| **Standards** | IEC 61800-5-1<br>IEC 61800-3 |
| **Product certifications** | CE<br>EAC<br>KC |
| **IP degree of protection** | IP20 without blanking plate on upper part<br>IP4X top |
| **Pollution degree** | 2 conforming to IEC 61800-5-1 |
| **Environmental characteristic** | Dust pollution resistance class 3S2 conforming to IEC 60721-3-3<br>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** | 5…95 % without condensation conforming to IEC 60068-2-3<br>5…95 % without dripping water conforming to IEC 60068-2-3 |
| **Ambient air temperature for storage** | -25…70 °C |
| **Ambient air temperature for operation** | -10…55 °C without derating<br>55…60 °C protective cover from the top of the drive removed with current derating<br>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** | 17.500 cm |
| **Package 1 Length** | 19.500 cm |

| | |
|---|---|
| **Package 1 Weight** | 1.264 kg |
| **Unit Type of Package 2** | P06 |
| **Number of Units in Package 2** | 33 |
| **Package 2 Height** | 72.000 cm |
| **Package 2 Width** | 60.000 cm |
| **Package 2 Length** | 80.000 cm |
| **Package 2 Weight** | 58.000 kg |

## Contractual warranty

| | |
|---|---|
| **Warranty (in months)** | 18 |

## 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 | **2 145 kg CO2 eq.** |
| Carbon footprint of the manufacturing phase [A1 to A3] | **38 kg CO2 eq.** |
| Carbon footprint of the distribution phase [A4] | **0.1 kg CO2 eq.** |
| Carbon footprint of the installation phase [A5] | **0.3 kg CO2 eq.** |
| Carbon footprint of the use phase [B2, B3, B4, B6] | **2 104 kg CO2 eq.** |
| Carbon footprint of the end-of-life phase [C1 to C4] | **3 kg CO2 eq.** |
| Environmental Disclosure | Product Environmental Profile |

## Use Better

### Materials and Substances

| | |
|---|---|
| Packaging made with recycled cardboard | **Yes** |
| Packaging without single use plastic | **Yes** |
| SCIP Number | **8caa9e5a-61b8-40bf-8895-7032db79a439** |
| EU RoHS Directive | Compliant By Exemption |
| REACh Regulation | Reference contains Substances of Very High Concern above the threshold |

### Energy efficiency

| | |
|---|---|
| Product contributes to saved and avoided emissions | **Yes** |

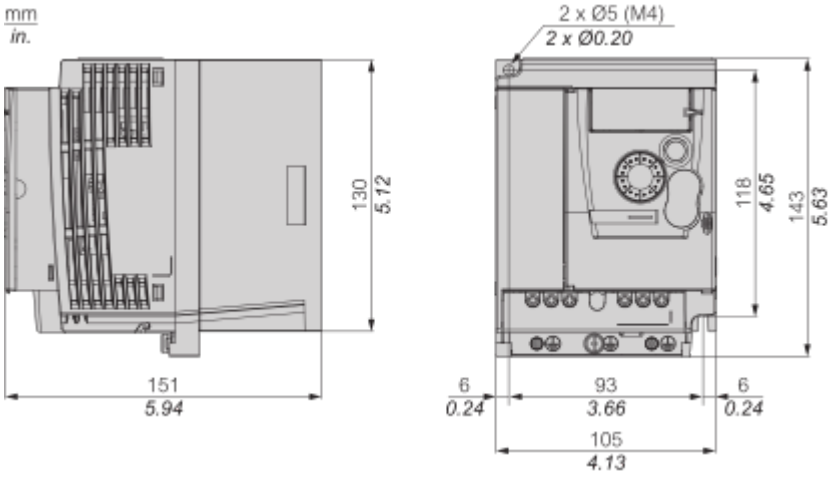
## Use Again

### Repack and remanufacture

| | |
|---|---|
| Recyclability potential, in % | **23** |
| End of life manual availability | End of Life Information |
| 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** |

Dimensions Drawings

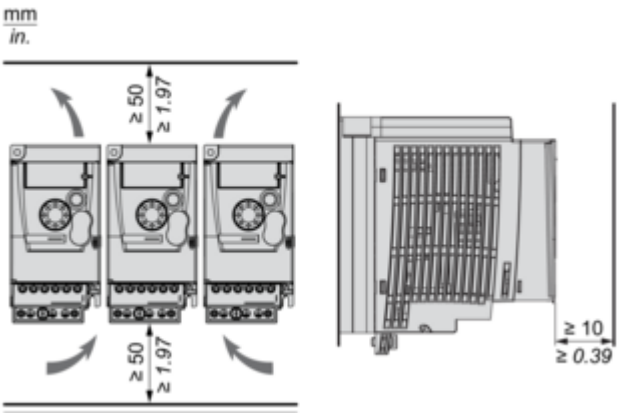
**Dimensions**



## Mounting and Clearance

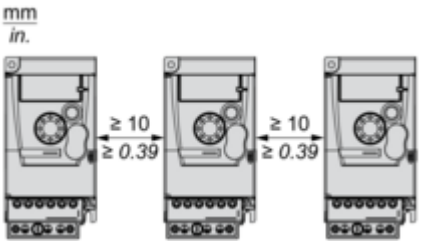
### Mounting Recommendations

#### Clearance

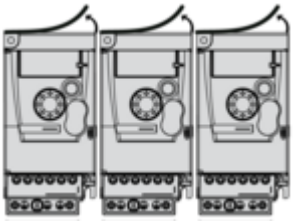



#### Mounting Types

Mounting Type A



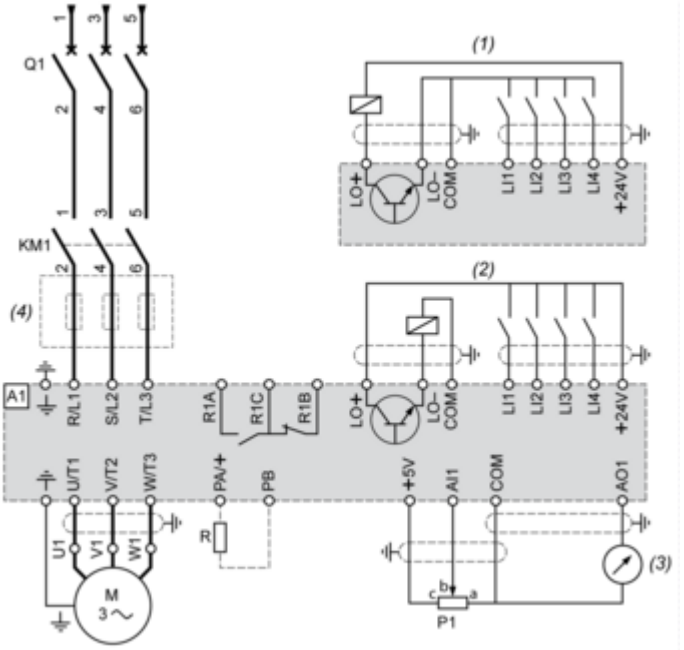

Mounting Type B



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**









