

ATV310HU30N4E

variable speed drive ATV310, 3 kW, 4 hp,
380...460 V, 3 phase, without filter



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 | 3 kW |
| Motor power hp | 4 hp |
| Noise level | 50 dB |

Complementary

| | |
|----------------------------------|--|
| Product destination | Asynchronous motors |
| Quantity per set | Set of 1 |
| EMC filter | Without EMC filter |
| Type of cooling | Integrated fan |
| Supply frequency | 50/60 Hz +/- 5 % |
| 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 | 9.2 A 46.6 A |
| Apparent power | 7.3 KVA 31.2 kVA |
| Prospective line I _{sc} | 5 KA 5 kA |
| Continuous output current | 7.1 A at 4 kHz 36 A at 4 kHz |
| Maximum transient current | 10.7 A for 60 s 39.6 A for 60 s |
| Power dissipation in W | 80.24 W at I _n 508.9 W at I _n |
| Speed drive output frequency | 0.5...400 Hz |
| Nominal switching frequency | 4 kHz |
| Switching frequency | 2...12 kHz adjustable |
| Speed range | 1...20 |
| Transient overtorque | 170...200 % of nominal motor torque depending on drive rating and type of motor |

The information provided in this documentation contains general descriptions and/or technical characteristics of the performance of the products contained herein. 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. It is the duty of any such user or integrator to perform the appropriate and complete risk analysis, evaluation and testing of the products with respect to the relevant specific application or use thereof. Neither Schneider Electric Industries SAS nor any of its affiliates or subsidiaries shall be responsible or liable for misuse of the information contained herein.

| | |
|-------------------------------------|--|
| Braking torque | Up to 150 % of nominal motor torque with braking resistor at high inertia Up to 70 % of nominal motor torque without braking resistor |
| Asynchronous motor control profile | Energy saving ratio Energy saving ratio Sensorless flux vector control |
| Motor slip compensation | Preset in factory Adjustable |
| Output voltage | 380...460 V three phase |
| Electrical connection | Terminal, clamping capacity: 1.5...4 mm ² (L1, L2, L3, PA+, PB, U, V, W) |
| Tightening torque | 1.2...1.4 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 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 Configurable voltage AI1 0...10 V 30 kOhm 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 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: 0...10 V, impedance: 470 Ohm, resolution 8 bits AO1 software-configurable current: 0...20 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 | U S Linear from 0...999.9 s |
| 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 | 151 mm |
| Width | 140 mm |
| Depth | 184 mm |
| Net weight | 1.8 kg |

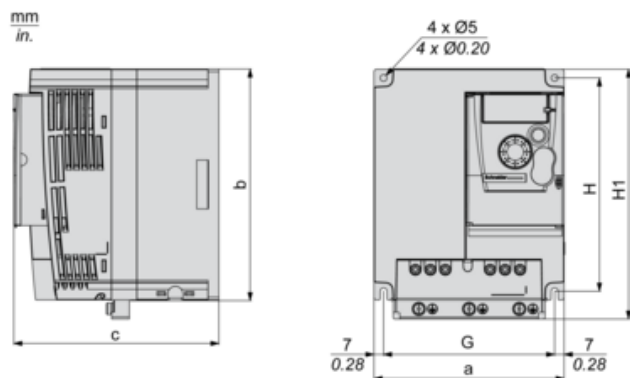
Environment

| | |
|---------------------------------------|--|
| Electromagnetic compatibility | Electrical fast transient/burst immunity test - test level: level 4 conforming to EN/IEC 61000-4-4 Electrostatic discharge immunity test - test level: level 3 conforming to EN/IEC 61000-4-2 Immunity to conducted disturbances - test level: level 3 conforming to EN/IEC 61000-4-6 Radiated radio-frequency electromagnetic field immunity test - test level: level 3 conforming to EN/IEC 61000-4-3 Voltage dips and interruptions immunity test conforming to EN/IEC 61000-4-11 Surge immunity test - test level: level 3 conforming to EN/IEC 61000-4-5 |
| Standards | EN/IEC 61800-3 EN/IEC 61800-3 |
| IP degree of protection | IP20 without blanking plate on upper part IP41 top |
| Pollution degree | 2 conforming to EN/IEC 61800-5-1 |
| Environmental characteristic | Dust pollution resistance class 3S2 conforming to EN/IEC 60721-3-3 Chemical pollution resistance class 3C3 conforming to EN/IEC 60721-3-3 |
| Shock resistance | 15 gn conforming to EN/IEC 60068-2-27 for 11 ms |
| Relative humidity | 5...95 % without condensation conforming to IEC 60068-2-3 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 55...60 °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 Weight | 2.158 kg |
| Package 1 Height | 19 cm |
| Package 1 width | 18.5 cm |
| Package 1 Length | 23 cm |

Dimensions



Dimensions in mm

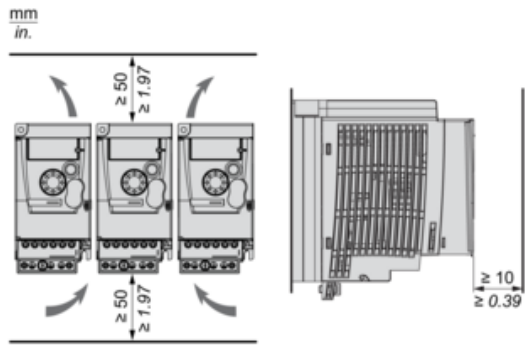
| a | b | c | G | H | H1 | Ø | For screws |
|-----|-----|-----|-----|-----|-----|---|------------|
| 140 | 171 | 151 | 126 | 157 | 184 | 5 | M4 |

Dimensions in in.

| a | b | c | G | H | H1 | Ø | For screws |
|------|------|------|------|------|------|------|------------|
| 5.51 | 6.73 | 5.94 | 4.96 | 6.18 | 7.24 | 0.20 | M4 |

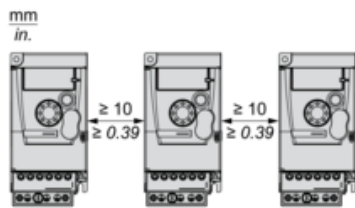
Mounting Recommendations

Clearance



Mounting Types

Mounting Type A

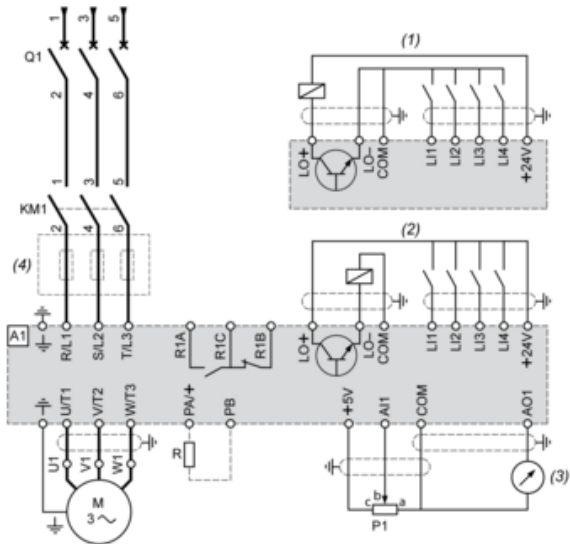


Mounting Type B



Remove the protective cover from the top of the drive.

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)