

variable speed drive, Easy Altivar 310, heavy duty, 4kW, 5hp, normal duty, 5.5kW, 7.5hp, 380 to 460V, without EMC

ATV310HU40N4E

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 | 4 kW for heavy duty 5.5 kW for normal duty |
| Motor power hp | 5 hp for heavy duty 7.5 hp for normal 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 | 13.7 A at 380 V (heavy duty) 18.0 A at 380 V (normal duty) 11.4 A at 460 V (heavy duty) 14.9 A at 460 V (normal duty) |
| Apparent power | 9.1 kVA at 460 V (heavy duty) 15.1 kVA at 460 V (normal duty) |

| Prospective line Isc | 5 kA (heavy duty) 5 kA (normal duty) | |
|------------------------------------|---|--|
| Continuous output current | 9.5 A heavy duty 12.1 A normal duty | |
| Maximum transient current | 14.3 A during 60 s (heavy duty) 13.3 A during 60 s (normal duty) | |
| Power dissipation in W | 115.1 W, at In (heavy duty) 158.3 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: 2.54 mm², AWG 14AWG 12 (L1, L2, L3, PA/+, PB, U, V, W) | |
| Tightening torque | 1.21.4 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 |
| 3. | 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 |
| requericy resolution | Display unit: 0.1 Hz |
| | Display unit. 0.1 Hz |
| Time constant | 20 ms +/- 1 ms for reference change |
| Operating position | Vertical +/- 10 degree |
| Height | 184 mm |
| Width | 140 mm |
| Depth | 151 mm |
| Net weight | 1.8 kg |
| Supply frequency | 50/60 Hz +/- 5 % |
| | |

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 | 18.800 cm |
|------------------------------|-----------|
| Package 1 Width | 18.290 cm |
| Package 1 Length | 23.110 cm |
| Package 1 Weight | 2.160 kg |
| Unit Type of Package 2 | S03 |
| Number of Units in Package 2 | 2 |
| Package 2 Height | 30.000 cm |
| Package 2 Width | 30.000 cm |
| Package 2 Length | 40.000 cm |
| Package 2 Weight | 4.981 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) | 10280 |
| Environmental Disclosure | Product Environmental Profile |

Use Better

| Materials and Substances | |
|--|---------------------------|
| EU RoHS Directive | Compliant with Exemptions |
| REACh Regulation | REACh Declaration |
| China RoHS Regulation | China RoHS declaration |
| ∜ Energy efficiency | |
| Product contributes to saved and avoided emissions | Yes |

Use Again

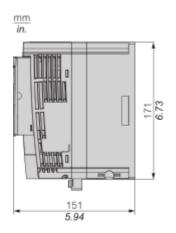
| ○ Repack and remanufacture | |
|----------------------------|-------------------------|
| Circularity Profile | End of Life Information |
| Take-back | No |

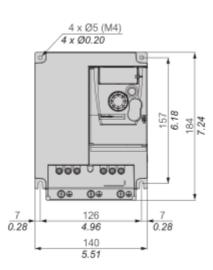
Product datasheet

ATV310HU40N4E

Dimensions Drawings

Dimensions



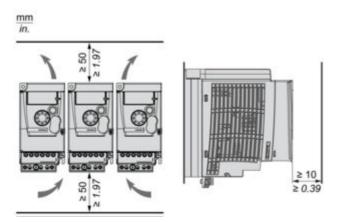


ATV310HU40N4E

Mounting and Clearance

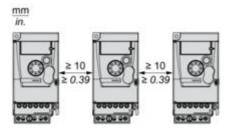
Mounting Recommendations

Clearance

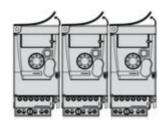


Mounting Types

Mounting Type A



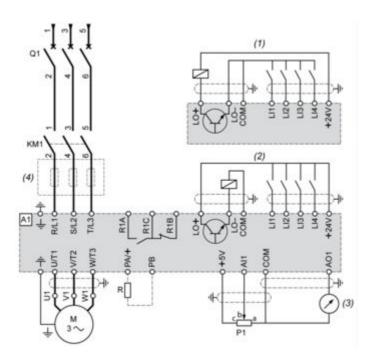
Mounting Type B



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)