

# Product datasheet

Specifications



variable speed drive, Easy Altivar 310, 0.37kW, 0.5hp, 380 to 460V, 3 phase, without filter

ATV310H037N4E

## 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               | 0.37 kW for heavy duty  |
| Motor Power Hp               | 0.5 hp for heavy duty   |

## Complementary

|                             |                                                                                                                                                                                                          |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Quantity Per Set            | Set of 1                                                                                                                                                                                                 |
| Emc Filter                  | Without EMC filter                                                                                                                                                                                       |
| Type Of Cooling             | Self-cooled                                                                                                                                                                                              |
| 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                | 2.1 A at 380 V (heavy duty)<br>1.8 A at 460 V (heavy duty)                                                                                                                                               |
| Apparent Power              | 1.4 kVA at 460 V (heavy duty)                                                                                                                                                                            |
| Prospective Line Isc        | 5 kA ( heavy duty )                                                                                                                                                                                      |
| Continuous Output Current   | 1.5 A heavy duty                                                                                                                                                                                         |
| Maximum Transient Current   | 2.3 A during 60 s (heavy duty)                                                                                                                                                                           |
| Power Dissipation In W      | 22.7 W, at In (heavy duty)                                                                                                                                                                               |

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

|                                            |                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <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 70 % of nominal motor torque without braking resistor                                                                                                                                                                                                                                                    |
| <b>Asynchronous Motor Control Profile</b>  | Voltage/frequency ratio (V/f)<br>Voltage/frequency ratio - Energy Saving, quadratic U/f<br>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: 1.5...2.5 mm², AWG 16...AWG 14 (L1, L2, L3, U, V, W)                                                                                                                                                                                                                              |
| <b>Tightening Torque</b>                   | 0.8...1 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<br>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<br>Configurable voltage AI1 0...10 V 30 kOhm<br>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<br>Positive logic (source), 0...< 5 V (state 0), > 11 V (state 1)                                                                                                                                                          |
| <b>Sampling Duration</b>                   | 10 ms for analogue input<br>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<br>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-<br>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<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 |
| <b>Acceleration And Deceleration Ramps</b> | Linear from 0...999.9 s<br>S<br>U                                                                                                                                                                                                                                                                              |
| <b>Braking To Standstill</b>               | By DC injection, <30 s                                                                                                                                                                                                                                                                                         |
| <b>Protection Type</b>                     | 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 I²t                       |

|                      |                                                              |
|----------------------|--------------------------------------------------------------|
| 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                | 72 mm                                                        |
| Depth                | 130 mm                                                       |
| Net Weight           | 0.8 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 61800-3<br>IEC 61800-5-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 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 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             | 13.000 cm |
| Package 1 Width              | 18.500 cm |
| Package 1 Length             | 19.000 cm |
| Package 1 Weight             | 1.014 kg  |
| Unit Type Of Package 2       | P12       |
| Number Of Units In Package 2 | 66        |
| Package 2 Height             | 90.000 cm |

|                  |            |
|------------------|------------|
| Package 2 Width  | 80.000 cm  |
| Package 2 Length | 120.000 cm |
| Package 2 Weight | 70.000 kg  |

Sustainability



**Green Premium™ label** is Schneider Electric’s commitment to delivering products with best-in-class environmental performance. Green Premium promises compliance with the latest regulations, transparency on environmental impacts, as well as circular and low-CO<sub>2</sub> products.

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[Learn more about Green Premium >](#)

[Guide to assess a product’s sustainability >](#)



Transparency   RoHS/REACH

## Well-being performance

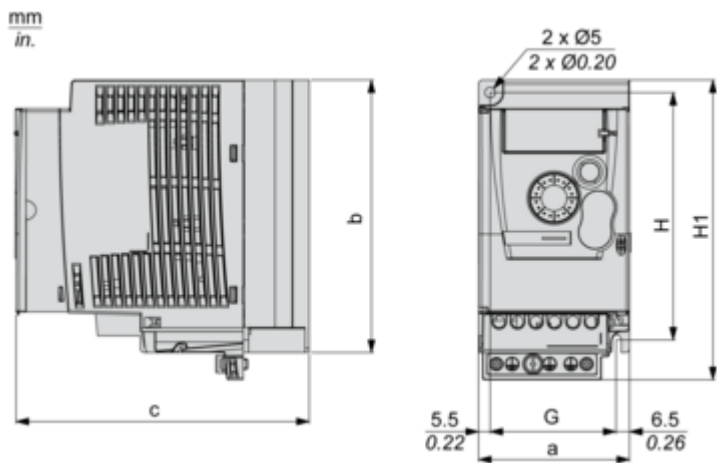
|                                                                                                              |     |
|--------------------------------------------------------------------------------------------------------------|-----|
|  Mercury Free               |     |
|  RoHS Exemption Information | Yes |

## Certifications & Standards

|                          |                                                                                                                             |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Reach Regulation         | <a href="#">REACH Declaration</a>                                                                                           |
| Eu Rohs Directive        | Compliant with Exemptions                                                                                                   |
| China Rohs Regulation    | <a href="#">China RoHS declaration</a>                                                                                      |
| Environmental Disclosure | <a href="#">Product Environmental Profile</a>                                                                               |
| Weee                     | The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins |
| Circularity Profile      | <a href="#">End of Life Information</a>                                                                                     |

Dimensions Drawings

Dimensions



Dimensions in mm

| a  | b   | c   | G  | H   | H1  | Ø | For screws |
|----|-----|-----|----|-----|-----|---|------------|
| 72 | 130 | 130 | 60 | 118 | 143 | 5 | M4         |

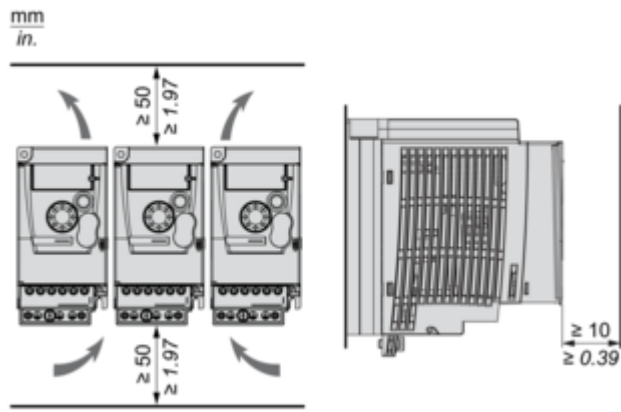
Dimensions in in.

| a    | b    | c    | G    | H    | H1   | Ø    | For screws |
|------|------|------|------|------|------|------|------------|
| 2.83 | 5.12 | 5.12 | 2.36 | 4.65 | 5.63 | 0.20 | M4         |

Mounting and Clearance

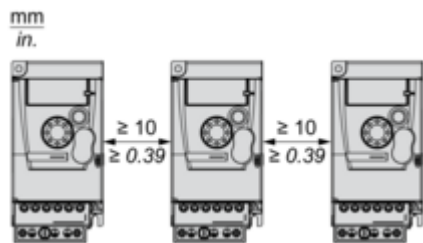
Mounting Recommendations

Clearance

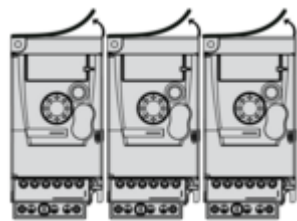


Mounting Types

Mounting Type A



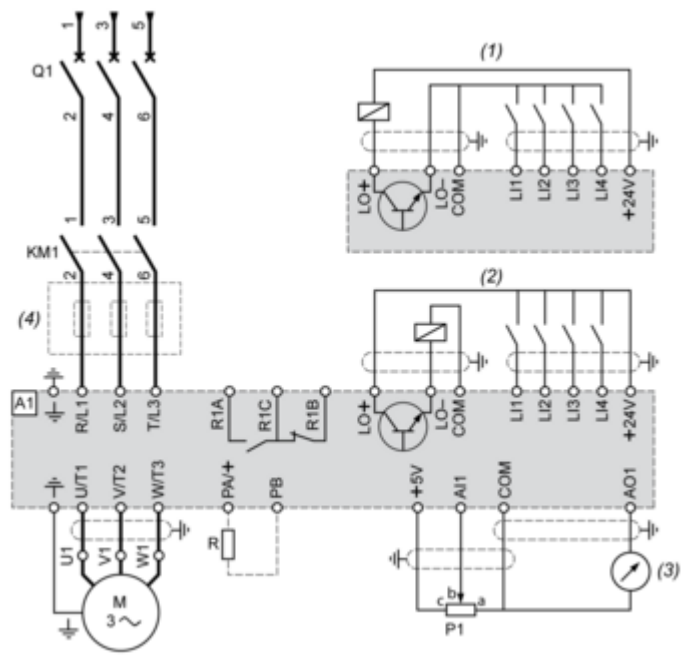
Mounting Type B



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)