# Product data sheet
## Characteristics

# ATV310H075N4A
variable speed drive, Altivar ATV310, 0.75 kW/1 hp heavy duty, 380 to 460 V, 3 phases, without EMC filter



## Main

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|---|---|
| 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 | 0.75 KW for heavy duty |
| Motor power hp | 1 Hp for heavy duty |

## Complementary

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|---|---|
| Product destination | Asynchronous motors |
| Quantity per set | Set of 1 |
| EMC filter | Without EMC filter |
| 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<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 | 3.5 A at 380 V (heavy duty)<br>3.1 A at 460 V (heavy duty) |
| Apparent power | 2.5 KVA at 460 V (heavy duty) |
| Prospective line Isc | 5 KA |
| Continuous output current | 2.3 A heavy duty |
| Maximum transient current | 3.5 A during 60 s (heavy duty) |
| Power dissipation in W | 28.8 W, at In (heavy duty) |
| Speed drive output frequency | 0.5…400 Hz |
| Nominal switching frequency | 4 kHz |

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|---|---|
| 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 |
| Braking torque | Up to 150 % of nominal motor torque with braking resistor at high inertia<br>Up to 70 % of nominal motor torque without braking resistor |
| Asynchronous motor control profile | Sensorless flux vector control<br>Energy saving ratio<br>Quadratic voltage/frequency ratio |
| Motor slip compensation | Preset in factory<br>Adjustable |
| Output voltage | 380...460 V three phase |
| Electrical connection | Terminal, clamping capacity: 1.5...2.5 mm² (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 shor<br>Internal supply for logic inputs: 24 V (20.4…28.8 V)DC, <100 mA with overload and short-circuit p |
| 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, 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 | U<br>Linear from 0...999.9 s<br>S |
| 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 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 | 140 Mm |
| Net weight | 0.8 Kg |

## Environment

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|---|---|
| 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<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 |
| IP degree of protection | IP20 without blanking plate on upper part<br>IP41 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

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|---|---|
| Unit Type of Package 1 | PCE |
| Number of Units in Package 1 | 1 |
| Package 1 Height | 12.794 Cm |
| Package 1 Width | 18.61 Cm |
| Package 1 Length | 19.071 Cm |
| Package 1 Weight | 1.02 Kg |
| Unit Type of Package 2 | S04 |
| Number of Units in Package 2 | 12 |
| Package 2 Height | 30 Cm |
| Package 2 Width | 40 Cm |
| Package 2 Length | 60 Cm |
| Package 2 Weight | 13.41 Kg |

## Offer Sustainability

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|---|---|
| Recyclability potential, in % | 23 |
| Total lifecycle Carbon footprint | 1 300 kg CO2 eq. |
| Carbon footprint of the manufacturing phase [A1 to A3] | 30.57879850801568 |
| Carbon footprint of the manufacturing phase [A1 to A3] | 31 kg CO2 eq. |
| Carbon footprint of the distribution phase [A4] | 0.09875103375936913 |
| Carbon footprint of the distribution phase [A4] | 0.1 kg CO2 eq. |
| Carbon footprint of the installation phase [A5] | 0.27441636692607124 |
| Carbon footprint of the installation phase [A5] | 0.3 kg CO2 eq. |
| Carbon footprint of the use phase [B2, B3, B4, B6] | 1266.8280754851369 |
| Carbon footprint of the use phase [B2, B3, B4, B6] | 1 267 kg CO2 eq. |
| Mercury free | Yes |
| Sustainable packaging | Yes |
| Carbon footprint of the end-of-life phase [C1 to C4] | 2.280127000579603 |
| Carbon footprint of the end-of-life phase [C1 to C4] | 2 kg CO2 eq. |
| Environmental Disclosure | Product Environmental Profile |
| Total lifecycle Carbon footprint | 1300 |
| Packaging made with recycled cardboard | Yes |
| Packaging without single use plastic | Yes |
| SCIP Number | 5b939136-3ce6-4efd-8751-a5f6e107c9f2 |
| REACh Regulation | Reference contains Substances of Very High Concern above the threshold |

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|---|---|
| EU RoHS Directive | Compliant By Exemption |
| California proposition 65 | WARNING: This product can expose you to chemicals including: Lead and lead compounds, which |
| Product contributes to saved and avoided emissions | Yes |
| End of life manual availability | End Of Life Information |
| Take-back | No |

## Contractual warranty

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

Product Life Status : Commercialised