Product data sheet
Characteristics

ATV310HU40N4A
variable speed drive, Altivar ATV310, 5.5 kW/7.5hp normal duty, 4 kW/5hp heavy duty, 380 to 460 V, 3 phases, without EMC filter



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
Phase	Three phase
[Us] rated supply voltage	380...460 V - 15...10 %
Motor power kW	5.5 KW normal duty 4 KW heavy duty
Maximum Horse Power Rating	7.5 Hp normal duty 5 Hp heavy duty
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)Modbus
Physical interface	2-wire RS 485 Modbus
Transmission frame	RTU Modbus
Transmission rate	4800 bit/s 9600 bit/s 19200 bit/s 38400 bit/s
Number of addresses	1…247 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	18.0 A 380 V normal duty) 13.7 A 380 V heavy duty) 14.9 A 460 V normal duty) 11.4 A 460 V heavy duty)
Apparent power	15.1 KVA 460 V normal duty) 9.1 KVA 460 V heavy duty)

Prospective line Isc	5 KA 22 KA
Continuous output current	12.1 A normal duty 9.5 A heavy duty
Maximum transient current	13.3 A 60 s normal duty) 14.3 A 60 s heavy duty)
Power dissipation in W	126.4 W, at In normal duty) 102.7 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
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 Up to 70 % of nominal motor torque without braking resistor
Asynchronous motor control profile	Quadratic voltage/frequency 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 2.5...4 mm² L1, L2, L3, PA/+, PB, U, V, W)
Tightening torque	10.6…12.4 Lbf.In (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 overload and short-circu Internal supply for logic inputs 24 V 20.4…28.8 V)DC, <100 mA overload and short-circuit protecti
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, < 10 V 3.5 kOhm Positive logic (source), 0...< 5 V, > 11 V
Sampling duration	10 Ms analogue input 20 Ms +/- 1 ms logic input
Linearity error	+/- 0.3 % of maximum value analogue input
Analogue output number	1
Analogue output type	AO1 software-configurable voltage 0...10 V 470 Ohm 8 bits AO1 software-configurable current 0...20 mA 800 Ohm 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 24 V DC logic relay
Maximum switching current	2 A 250 V AC inductive cos phi = 0.4 L/R = 7 ms logic relay 2 A 30 V DC inductive cos phi = 0.4 L/R = 7 ms logic relay 3 A 250 V AC resistive cos phi = 1 L/R = 0 ms logic relay 4 A 30 V DC resistive cos phi = 1 L/R = 0 ms logic relay
Acceleration and deceleration ramps	Linear from 0...999.9 s U 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 I²t
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	7.2 In (184 mm)

Width	5.5 In (140 mm)
Depth	5.9 In (151 mm)
Net Weight	4.0 Lb(US) (1.8 kg)

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 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
IP degree of protection	IP20 without blanking plate on upper part IP41 top
Pollution degree	2 IEC 61800-5-1
Environmental characteristic	Dust pollution resistance class 3S2 IEC 60721-3-3 Chemical pollution resistance class 3C3 IEC 60721-3-3
Shock resistance	15 gn 11 ms IEC 60068-2-27
Relative humidity	5…95 % without condensation IEC 60068-2-3 5…95 % without dripping water IEC 60068-2-3
Ambient Air Temperature for Storage	-13…158 °F (-25…70 °C)
Ambient air temperature for operation	14…131 °F (-10…55 °C) without derating 131…140 °F (55…60 °C) protective cover from the top of the drive removed with current derati
Operating altitude	<= 3280.84 ft (1000 m) without derating

Packing Units

Unit Type of Package 1	PCE
Nbr. of units in pkg.	1
Package 1 Height	7.302 In (18.546 cm)
Package 1 Width	7.399 In (18.794 cm)
Package 1 Length	9.490 In (24.105 cm)
Package weight(Lbs)	4.764 Lb(US) (2.161 kg)
Unit Type of Package 2	S04
Number of Units in Package 2	4
Package 2 Height	11.8 In (30 cm)
Package 2 Width	15.7 In (40 cm)
Package 2 Length	23.6 In (60 cm)
Package 2 Weight	21.519 Lb(US) (9.761 kg)

Environmental data

Recyclability potential, in %	23
Total lifecycle Carbon footprint	4 992 kg CO2 eq.
Carbon footprint of the manufacturing phase [A1 to A3]	64.78508193708028
Carbon footprint of the manufacturing phase [A1 to A3]	65 kg CO2 eq.
Carbon footprint of the distribution phase [A4]	0.20921665093529085
Carbon footprint of the distribution phase [A4]	0.2 kg CO2 eq.
Carbon footprint of the installation phase [A5]	0.5813860479678823
Carbon footprint of the installation phase [A5]	0.6 kg CO2 eq.
Carbon footprint of the use phase [B2, B3, B4, B6]	4921.252630124855
Carbon footprint of the use phase [B2, B3, B4, B6]	4 921 kg CO2 eq.
Mercury free	Yes
Sustainable packaging	Yes
Carbon footprint of the end-of-life phase [C1 to C4]	4.830739655149531
Carbon footprint of the end-of-life phase [C1 to C4]	5 kg CO2 eq.
Environmental Disclosure	Product Environmental Profile
Carbon footprint (kg CO2 eq, Total Life cycle)	4992
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
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
Circularity Profile	End Of Life Information
Take-back	No

Contractual warranty

Warranty (in months)	18

Product Life Status : Commercialised