Product data sheet Characteristics

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	380460 V - 1510 %	
Motor power kW	0.37 KW	
Motor power hp	0.5 Hp	

Complementary

Complementary	
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 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	1.8 A
Apparent power	1.4 KVA
Prospective line Isc	5 KA
Continuous output current	1.5 A at 4 kHz
Maximum transient current	2.3 A for 60 s
Power dissipation in W	19.63 W at In
Speed drive output frequency	0.5400 Hz
Nominal switching frequency	4 kHz
Switching frequency	212 kHz adjustable
Speed range	120
Transient overtorque	170200 % of nominal motor torque depending on drive rating and type of motor

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, impedance: 470 Ohm, resolution 8 bits	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
Adjustable Blectrical connection Terminal, clamping capacity: 1.5 2.5 mm² (L1, L2, L3, PA+, PB, U, V, W) Tightening torque 0.81 N.M Insulation Electrical between power and control Internal supply for reference potentiometer: 5 V (4.75 525 V)DC, <10 mA without overload and short-circuit protection Internal supply for reference potentiometer: 5 V (4.75 525 V)DC, <10 mA without overload and short-circuit protection Internal supply for reference potentiometer: 5 V (4.75 525 V)DC, <10 mA without overload and short-circuit protection Analogue input number 1 Configurable current Al1 020 mA 250 Ohm Configurable voltage Al1 010 V 30 kOhm Configurable voltage Al1 010 V (state 1) input impedance 3.5 kOhr Positive logic (source), 05 V (state 0), × 10 V (state 1) Configurable voltage Al1 010 V Configurable voltage	Asynchronous motor control profile	Energy saving ratio
Electrical connection Terminal, clamping capacity: 1.52.5 mm² (L1, L2, L3, PA+, PB, U, V, W) Tightening torque 0.81 N.M O.81 N.M Electrical between power and control Insulation Electrical between power and control Internal supply for reference potentiometer: 5 V (4.75525 V)DC, <10 mA with- overload and short-circuit protection Analogue input number 1 Analogue input number 1 Analogue input type Configurable current A11 020 m A250 Ohm Configurable voltage A1.010 V 30 KOhm Configurable voltage A1.05 V 30 KOhm Discrete input logic Programmable L11L14 24 V 1830 V Discrete input logic Negative logic (sink), > 16 V (state 0), > 11 V (state 1), input impedance 3.5 kOhr Positive logic (source), 05 V 5 V (state 0), > 11 V (state 1) Sampling duration 10 Ms for analogue input 20 Ms. tolerance +/- 1 ms for logic input 21 King output number 1 Analogue output number 1 Analogue output number 1 Analogue output type A0 Steware-configurable voltage: 010 V, impedance: 470 Ohm, resolution 8 bits A01 software-configurable current: 020 mA, impedance: 800 Ohm, resolution 8 bits A01 software-configurable current: 020 mA, impedance: 800 Ohm, resolution 8 bits A02 Steware Stewar	Motor slip compensation	•
Tightening torque 0.81 N.M Electrical between power and control Insulation Electrical between power and control Internal supply for legic inputs: 24 V (4.755.25 V)DC, <10 mA withover-load and short-circuit protection Internal supply for legic inputs: 24 V (20.428.8 V)DC, <100 mA with over-load and short-circuit protection Analogue input number 1 Analogue input number 2 Configurable current A11 020 mA 250 Ohm Configurable voltage A11 05V 30 KOhm Discrete input number 4 Programmable L11L14 24 V 1830 V Discrete input type Programmable L11L14 24 V 1830 V Discrete input logic Negative logic (sink). > 16 V (state 0). < 10 V (state 1), input impedance 3.5 KOhr Positive logic (source), 0 < 5 V (state 0). > 11 V (state 1) 10 Ms for analogue input 20 Ms, tolerance +/- 1 ms for logic input Linearity error 4-0.3 % of maximum value for analogue input Analogue output number 1 Analogue output type A01 software-configurable voltage: 010 V, impedance: 470 Ohm, resolution 8 bits A01 software-configurable current: 020 mA, impedance: 800 Ohm, resolution 8 bits A01 software-configurable current: 020 mA, impedance: 800 Ohm, resolution 8 bits A01 software-configurable current: 020 mA, impedance: 800 Ohm, resolution 8 bits A01 software-configurable current: 020 mA, impedance: 800 Ohm, resolution 8 bits A01 software-configurable current: 020 mA, impedance: 800 Ohm, resolution 8 bits A01 software-configurable current: 020 mA, impedance: 800 Ohm, resolution 8 bits A02 by Con 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 inductive load cos phi = 0.4 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 4 A at 30 V DC on resistive load cos phi = 1 L/R = 0 ms for logic relay 3 A at 250 V AC on inductive load cos phi = 1 L/R = 0 ms for logic relay 4 A at 30 V DC on resistive load cos phi = 0.4 L/R = 7 ms for logic relay 5 C	Output voltage	380460 V three phase
Insulation Electrical between power and control Internal supply or reference potentiometer: \$ 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 over- load and short-direction protection Analogue input number 1 Analogue input type Configurable voltage AH 1 010 V 30 kOhm Configurable voltage AH 1 05 V 30 kOhm Configurable voltage In 1 V (state 1), input impedance 3.5 kOhr Postive Journal AH 1 V (state 1), input impedance 3.5 kOhr Configurable voltage AH 1 05 V 30 kOhm Configurable voltage In 1 V (state 1), input impedance 3.5 kOhr Configurable voltage In 1 05 V 30 kOhm Configurable voltage AH 1 05 V 30 kOhm Configurable volt	Electrical connection	Terminal, clamping capacity: 1.52.5 mm² (L1, L2, L3, PA/+, PB, U, V, W)
Internal supply for reference potentiometer: 5 V (4.755.25 V)DC, <10 mA with-overfoad and short-circuit protection internal supply for logic inputs. 24 V (2.428.8 V)DC, <100 mA with overload and short-circuit protection publication.	Tightening torque	0.81 N.M
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 05 V 30 KOhm Discrete input number 4 Discrete input number A Programmable LI1LI4 24 V 1830 V Discrete input togic Negative logic (sink), > 16 V (state 0), < 10 V (state 1), input impedance 3.5 KOhr 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 20 Ms, tolerance +/- 1 ms for logic input 4 Analogue output humber 1 Analogue output type AO1 software-configurable voltage: 010 V, 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 3 M At 24 V DC for logic relay 4 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 inductive load cos phi = 1 L/R = 0 ms for logic relay 4 A at 30 V DC on inductive 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 4 A at 30 V DC on resistive load cos phi = 1 L/R = 0 ms for logic relay 4 A star on V DC on recipitate load cos phi = 1 L/R = 0 ms for logic relay 4 A star on V DC on recipitate load cos phi = 1 L/R = 0 ms for logic relay 4 A star on V DC on recipitate load cos phi = 1 L/R = 0 ms for logic relay 4 A star on V DC on recipitate load cos phi = 1 L/R = 0 ms for logic relay 4 A star on V DC on recipitate load cos phi = 1 L/R = 0 ms for logic relay 4 A star on V DC on recipitate load cos phi = 1 L/R = 0 ms for logic relay 4 A star on V DC on recipitate load cos phi = 1 L/R = 0 ms for logic relay 4 A star on V DC on recipi	Insulation	Electrical between power and control
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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 130 Mm Width 72 Mm Depth 143 Mm	Acceleration and deceleration ramps	
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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 130 Mm Width 72 Mm Depth 143 Mm	Braking to standstill	
Display unit: 0.1 Hz Time constant 20 Ms +/- 1 ms for reference change Operating position Vertical +/- 10 degree Height 130 Mm Width 72 Mm Depth 143 Mm	·	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
Operating positionVertical +/- 10 degreeHeight130 MmWidth72 MmDepth143 Mm	Frequency resolution	9 1
Height 130 Mm Width 72 Mm Depth 143 Mm	Time constant	20 Ms +/- 1 ms for reference change
Width 72 Mm Depth 143 Mm	Operating position	Vertical +/- 10 degree
Depth 143 Mm	Height	130 Mm
	Width	72 Mm
	Depth	143 Mm
Net weight 0.7 Kg	Net weight	0.7 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 61800-5-1
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	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

Product Life Status: Commercialised