Product data sheet
Characteristics

ATV61HC11N4D
SPEED DRIVE 150 HP 460VATV61 NO DC CHOKE



Main

Range of Product	Altivar 61
Product or Component Type	Variable speed drive
Product Specific Application	Pumping and ventilation machine
Component name	ATV61
Motor power kW	110 kW, 3 phase 380...480 V
Maximum Horse Power Rating	150 hp, 3 phase 380...480 V
Power supply voltage	380...480 V - 15...10 %
Supply number of phases	3 phase
Line current	168 A 480 V 3 phase 110 kW / 150 hp 202 A 380 V 3 phase 110 kW / 150 hp
EMC filter	Level 3 EMC filter
Variant	Without DC choke
Assembly style	With heat sink
Apparent power	133 kVA 380 V 3 phase 110 kW / 150 hp
Maximum prospective line Isc	35 kA 3 phase
Maximum transient current	258 A 60 s, 3 phase
Nominal switching frequency	2.5 kHz
Switching frequency	2...8 kHz adjustable 2.5...8 kHz with derating factor
Asynchronous motor control	Voltage/Frequency ratio, 2 points Voltage/Frequency ratio, 5 points Voltage/Frequency ratio - Energy Saving, quadratic U/f Flux vector control without sensor, standard
Synchronous motor control profile	Vector control without sensor, standard
Communication Port Protocol	CANopen Modbus
Type of polarization	No impedance Modbus
Option card	Communication card APOGEE FLN Communication card BACnet Communication card CC-Link Controller inside programmable card Communication card DeviceNet Communication card EtherNet/IP Communication card Fipio I/O extension card Communication card Interbus-S Communication card LonWorks Communication card METASYS N2 Communication card Modbus Plus Communication card Modbus TCP Communication card Modbus/Uni-Telway Multi-pump card Communication card Profibus DP Communication card Profibus DP V1

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Complementary

Product destination	Asynchronous motors Synchronous motors
Power supply voltage limits	323…528 V
Power supply frequency	50...60 Hz - 5...5 %
Power supply frequency limits	47.5...63 Hz
Continuous output current	215 A 2.5 kHz, 380 V - 3 phase 215 A 2.5 kHz, 460 V - 3 phase
Output frequency	0.1…500 Hz
Speed range	1…100 in open-loop mode, without speed feedback
Speed accuracy	+/- 10 % of nominal slip 0.2 Tn to Tn without speed feedback
Torque accuracy	+/- 15 % in open-loop mode, without speed feedback
Transient overtorque	130 % of nominal motor torque +/- 10 % 60 s
Braking torque	<= 125 % with braking resistor 30 % without braking resistor
Regulation loop	Frequency PI regulator
Motor slip compensation	Automatic whatever the load Adjustable Not available in voltage/frequency ratio (2 or 5 points) Can be suppressed
Diagnostic	For drive voltage 1 LED (red)
Output voltage	<= power supply voltage
Electrical isolation	Between power and control terminals
Type of cable for mounting in an enclosure	With an IP21 or an IP31 kit 3 IEC cable 104 °F (40 °C), copper 70 °C / PVC With UL Type 1 kit 3 UL 508 cable 104 °F (40 °C), copper 75 °C / PVC Without mounting kit 1 IEC cable 113 °F (45 °C), copper 70 °C / PVC Without mounting kit 1 IEC cable 113 °F (45 °C), copper 90 °C / XLPE/EPR
Electrical connection	Terminal 2.5 mm² / AWG 14 AI1-/AI1+, AI2, AO1, R1A, R1B, R1C, R2A, R2B, LI1...LI6, PWR) Terminal 2 x 100 mm² / 2 x 250 kcmil L1/R, L2/S, L3/T, U/T1, V/T2, W/T3) Terminal 60 mm² / 250 kcmil PA, PB) Terminal 2 x 100 mm² / 2 x 250 kcmil PC/-, PO, PA/+)
Tightening torque	5.31 Lbf.In (0.6 N.m) AI1-/AI1+, AI2, AO1, R1A, R1B, R1C, R2A, R2B, LI1...LI6, PWR) 212.42 Lbf.In (24 N.m), 212 lb.in L1/R, L2/S, L3/T, U/T1, V/T2, W/T3) 362.88 Lbf.In (41 N.m), 360 lb.in PC/-, PO, PA/+) 106.21 lbf.in (12 N.m), 106 lb.in PA, PB)
Supply	Internal supply for reference potentiometer (1 to 10 kOhm) 10.5 V DC, +/- 5 %, <10 mA overload and short-circuit protection Internal supply 24 V DC 21…27 V), <200 mA overload and short-circuit protection External supply 24 V DC 19…30 V)
Analogue input number	2
Analogue input type	AI1-/AI1+ bipolar differential voltage +/- 10 V DC 24 V max 11 bits + sign AI2 software-configurable current 0...20 mA 242 Ohm 11 bits AI2 software-configurable voltage 0...10 V DC 24 V max 30000 Ohm 11 bits
Sampling time	2 Ms +/- 0.5 ms AI1-/AI1+) - analog input 2 Ms +/- 0.5 ms AI2) - analog input 2 Ms +/- 0.5 ms AO1) - analog output 2 Ms +/- 0.5 ms LI1...LI5) - discrete input 2 ms +/- 0.5 ms LI6)if configured as logic input - discrete input
Absolute accuracy precision	+/- 0.6 % AI1-/AI1+) for a temperature variation 60 °C +/- 0.6 % AI2) for a temperature variation 60 °C +/- 1 % AO1) for a temperature variation 60 °C
Linearity error	+/- 0.15 % of maximum value AI1-/AI1+) +/- 0.15 % of maximum value AI2) +/- 0.2 % AO1)
Analogue output number	1
Analogue output type	AO1 software-configurable current 0...20 mA 500 Ohm 10 bits AO1 software-configurable voltage 0...10 V DC 470 Ohm 10 bits AO1 software-configurable logic output 10 V, 20 mA
Discrete output number	2
Discrete output type	Configurable relay logic R1A, R1B, R1C) NO/NC - 100000 cycles Configurable relay logic R2A, R2B) NO - 100000 cycles

Maximum response time	<= 100 ms in STO (Safe Torque Off) R1A, R1B, R1C <= 7 ms +/- 0.5 ms R2A, R2B <= 7 ms +/- 0.5 ms
Minimum switching current	3 mA 24 V DC configurable relay logic
Maximum switching current	R1, R2 2 A 250 V AC inductive, cos phi = 0.4 7 ms R1, R2 2 A 30 V DC inductive, cos phi = 0.4 7 ms R1, R2 5 A 250 V AC resistive, cos phi = 1 0 ms R1, R2 5 A 30 V DC resistive, cos phi = 1 0 ms
Discrete input number	7
Discrete input type	Programmable LI1...LI5) 24 V DC <= 30 V)level 1 PLC - 3500 Ohm Switch-configurable LI6) 24 V DC <= 30 V)level 1 PLC - 3500 Ohm Switch-configurable PTC probe LI6)0…6 - 1500 Ohm Safety input PWR) 24 V DC <= 30 V) - 1500 Ohm
Discrete input logic	Negative logic (sink) LI1...LI5), > 16 V, < 10 V Positive logic (source) LI1...LI5), < 5 V, > 11 V Negative logic (sink) LI6)if configured as logic input, > 16 V, < 10 V Positive logic (source) LI6)if configured as logic input, < 5 V, > 11 V
Acceleration and deceleration ramps	Linear adjustable separately from 0.01 to 9000 s S, U or customized Automatic adaptation of ramp if braking capacity exceeded, by using resistor
Braking to standstill	By DC injection
Protection type	Against exceeding limit speed drive Against input phase loss drive Break on the control circuit drive Input phase breaks drive Line supply overvoltage drive Line supply undervoltage drive Overcurrent between output phases and earth drive Overheating protection drive Overvoltages on the DC bus drive Power removal drive Short-circuit between motor phases drive Thermal protection drive Motor phase break motor Power removal motor Thermal protection motor
Insulation resistance	> 1 mOhm 500 V DC for 1 minute to earth
Frequency resolution	Analog input 0.024/50 Hz Display unit 0.1 Hz
Connector type	1 RJ45 on front face)Modbus 1 RJ45 on terminal)Modbus Male SUB-D 9 on RJ45CANopen
Physical interface	2-wire RS 485 Modbus
Transmission frame	RTU Modbus
Transmission rate	4800 bps, 9600 bps, 19200 bps, 38.4 Kbps Modbus on terminal 9600 bps, 19200 bps Modbus on front face 20 kbps, 50 kbps, 125 kbps, 250 kbps, 500 kbps, 1 Mbps CANopen
Data format	8 bits, 1 stop, even parity Modbus on front face 8 bits, odd even or no configurable parity Modbus on terminal
Number of addresses	1…127 CANopen 1…247 Modbus
Method of access	Slave CANopen
Marking	CE
Operating position	Vertical +/- 10 degree
Net Weight	132.28 lb(US) (60 kg)
Width	12.60 in (320 mm)
Height	26.77 in (680 mm)
Depth	14.84 in (377 mm)

Environment

Noise level	60.5 dB 86/188/EEC
Dielectric strength	3535 V DC between earth and power terminals 5092 V DC between control and power terminals
Electromagnetic compatibility	Conducted radio-frequency immunity test level 3 IEC 61000-4-6 Electrical fast transient/burst immunity test level 4 IEC 61000-4-4 Electrostatic discharge immunity test level 3 IEC 61000-4-2 Radiated radio-frequency electromagnetic field immunity test level 3 IEC 61000-4-3 Voltage dips and interruptions immunity test IEC 61000-4-11
Standards	EN 61800-3 environments 2 category C3 IEC 60721-3-3 class 3C2 EN 61800-3 environments 1 category C3 UL Type 1 EN/IEC 61800-3 EN 55011 class A group 2 EN/IEC 61800-5-1
Product Certifications	UL DNV NOM 117 GOST C-tick CSA
Pollution degree	3 EN/IEC 61800-5-1 3 UL 840
Degree of proctection	IP41 on upper part EN/IEC 60529 IP41 on upper part EN/IEC 61800-5-1 IP54 on lower part EN/IEC 60529 IP54 on lower part EN/IEC 61800-5-1 IP00 EN/IEC 60529 IP00 EN/IEC 61800-5-1 IP30 on side parts EN/IEC 60529 IP30 on side parts EN/IEC 61800-5-1 IP30 on the front panel EN/IEC 60529 IP30 on the front panel EN/IEC 61800-5-1
Vibration resistance	0.6 gn 10…200 Hz)EN/IEC 60068-2-6 1.5 mm peak to peak 3…10 Hz)EN/IEC 60068-2-6
Shock resistance	7 gn 11 ms EN/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 operation	14…113 °F (-10…45 °C) without derating) 113…140 °F (45…60 °C) with derating factor)
Ambient Air Temperature for Storage	-13…158 °F (-25…70 °C)
Operating altitude	<= 3280.84 ft (1000 m) without derating 3280.84...9842.52 ft (1000...3000 m) with current derating 1 % per 100 m

Ordering and shipping details

Category	22138 - ATV61 60 THRU 150 HP DRIVES
Discount Schedule	CP4C
GTIN	00785901685500
Nbr. of units in pkg.	1
Package weight(Lbs)	174 lb(US) (78.93 kg)
Returnability	No
Country of origin	IN

Packing Units

Package 1 Height	5.300 dm
Package 1 width	4.150 dm
Package 1 Length	12.300 dm

Offer Sustainability

Sustainable offer status	Green Premium product
California proposition 65	WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov
REACh Regulation	REACh Declaration
EU RoHS Directive	Pro-active compliance (Product out of EU RoHS legal scope) EU RoHS Declaration
Mercury free	Yes
RoHS exemption information	Yes
China RoHS Regulation	China RoHS Declaration
Environmental Disclosure	Product Environmental Profile
WEEE	The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins.

Contractual warranty

Warranty	18 months