Product data sheet
Characteristics

ATV61HD90N4
SPEED DRIVE 125 HP 460 V ATV61



Commercial status
End of Commercialisation : JAN 01, 2017

⚠ End of Commercialisation

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	90 KW, 3 phases at 380...480 V
Motor power hp	125 Hp, 3 phases at 380...480 V
[Us] rated supply voltage	380...480 V - 15...10 %
Network number of phases	3 phases
Line current	143 A for 480 V 3 phases 90 kW / 125 hp 166 A for 380 V 3 phases 90 kW / 125 hp
EMC filter	Level 3 EMC filter
Assembly style	With heat sink
Apparent power	109.3 KVA at 380 V 3 phases 90 kW / 125 hp
Prospective line Isc	35 KA for 3 phases
Maximum transient current	214.8 A for 60 s, 3 phases
Nominal switching frequency	4 kHz
Switching frequency	2...8 kHz adjustable 4...8 kHz with derating factor
Asynchronous motor control profile	Voltage/Frequency ratio, 5 points Voltage/Frequency ratio, 2 points Flux vector control without sensor, standard Voltage/Frequency ratio - Energy Saving, quadratic U/f
Synchronous motor control profile	Vector control without sensor, standard
Communication port protocol	Modbus CANopen
Type of polarization	No impedance for Modbus
Option card	Communication card for APOGEE FLN Communication card for BACnet Communication card for CC-Link Controller inside programmable card for Modbus Plus Communication card for DeviceNet Communication card for EtherNet/IP Communication card for Fipio I/O extension card for Profibus DP Communication card for Interbus-S Communication card for LonWorks Communication card for METASYS N2 Communication card for Modbus Plus Communication card for Modbus TCP Communication card for Modbus/Uni-Telway Multi-pump card for Fipio Communication card for Profibus DP Communication card for Profibus DP V1

Complementary

Product destination	Asynchronous motors Synchronous motors
Supply voltage limits	323…528 V
Supply frequency	50...60 Hz - 5...5 %
Network frequency	47.5...63 Hz
Continuous output current	179 A at 4 kHz, 380 V - 3 phases 179 A at 4 kHz, 460 V - 3 phases
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 % for 60 s
Braking torque	<= 125 % with braking resistor 30 % without braking resistor
Regulation loop	Frequency PI regulator
Motor slip compensation	Automatic whatever the load Can be suppressed Not available in voltage/frequency ratio (2 or 5 points) Adjustable
Local signalling	1 LED (red) for drive voltage
Output voltage	<= power supply voltage
Isolation	Between power and control terminals
Type of cable	With an IP21 or an IP31 kit: 3 wire(s)IEC cable at 40 °C, copper 70 °C / PVC With UL Type 1 kit: 3 wire(s)UL 508 cable at 40 °C, copper 75 °C / PVC Without mounting kit: 1 wire(s)IEC cable at 45 °C, copper 70 °C / PVC Without mounting kit: 1 wire(s)IEC cable at 45 °C, copper 90 °C / XLPE/EPR
Electrical connection	Terminal 2.5 mm² / 14 AWG (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	0.6 N.M (AI1-/AI1+, AI2, AO1, R1A, R1B, R1C, R2A, R2B, LI1...LI6, PWR) 24 N.M, 212 lb.in (L1/R, L2/S, L3/T, U/T1, V/T2, W/T3) 41 N.M, 360 lb.in (PC/-, PO, PA/+) 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 with overl Internal supply: 24 V DC (21…27 V), <200 mA with 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, resolution 11 bits + sign AI2 software-configurable current: 0...20 mA, impedance: 242 Ohm, resolution 11 bits AI2 software-configurable voltage: 0...10 V DC 24 V max, impedance: 30000 Ohm, resolution 11 b
Sampling duration	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
Accuracy	+/- 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, analogue output range 0...20 mA, impedance: 500 Ohm, resolu AO1 software-configurable voltage, analogue output range 0...10 V DC, impedance: 470 Ohm, res 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
Response time	<= 100 ms in STO (Safe Torque Off) R1A, R1B, R1C <= 7 ms, tolerance +/- 0.5 ms R2A, R2B <= 7 ms, tolerance +/- 0.5 ms
Minimum switching current	3 MA at 24 V DC for configurable relay logic

Maximum switching current	R1, R2: 2 A at 250 V AC inductive load, cos phi = 0.4 and L/R = 7 ms R1, R2: 2 A at 30 V DC inductive load, cos phi = 0.4 and L/R = 7 ms R1, R2: 5 A at 250 V AC resistive load, cos phi = 1 and L/R = 0 ms R1, R2: 5 A at 30 V DC resistive load, cos phi = 1 and L/R = 0 ms
Discrete input number	7
Discrete input type	Programmable (LI1...LI5)24 V DC (<= 30 V), with level 1 PLC - 3500 Ohm Switch-configurable (LI6)24 V DC (<= 30 V), with level 1 PLC - 3500 Ohm Switch-configurable PTC probe (LI6)0…6 probes - 1500 Ohm Safety input (PWR)24 V DC (<= 30 V) - 1500 Ohm
Discrete input logic	Negative logic (sink) (LI1...LI5), > 16 V (state 0), < 10 V (state 1) Positive logic (source) (LI1...LI5), < 5 V (state 0), > 11 V (state 1) Negative logic (sink) (LI6)if configured as logic input, > 16 V (state 0), < 10 V (state 1) Positive logic (source) (LI6)if configured as logic input, < 5 V (state 0), > 11 V (state 1)
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) for Modbus 1 RJ45 (on terminal) for Modbus Male SUB-D 9 on RJ45 for CANopen
Physical interface	2-wire RS 485 for Modbus
Transmission frame	RTU for Modbus
Transmission rate	4800 bps, 9600 bps, 19200 bps, 38.4 Kbps for Modbus on terminal 9600 bps, 19200 bps for Modbus on front face 20 kbps, 50 kbps, 125 kbps, 250 kbps, 500 kbps, 1 Mbps for CANopen
Data format	8 bits, 1 stop, even parity for Modbus on front face 8 bits, odd even or no configurable parity for Modbus on terminal
Number of addresses	1…127 for CANopen 1…247 for Modbus
Method of access	Slave CANopen
Marking	CE
Operating position	Vertical +/- 10 degree
Net weight	84 Kg
Width	320 Mm
Height	920 Mm
Depth	377 Mm

Environment

Noise level	60.5 DB conforming to 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 conforming to IEC 61000-4-6 Electrical fast transient/burst immunity test level 4 conforming to IEC 61000-4-4 Electrostatic discharge immunity test level 3 conforming to IEC 61000-4-2 Radiated radio-frequency electromagnetic field immunity test level 3 conforming to IEC 61000-4-3 Voltage dips and interruptions immunity test conforming to IEC 61000-4-11
Standards	IEC 61800-3 environments 2 category C3 EN 55011 class A group 2 UL Type 1 IEC 60721-3-3 class 3C2 IEC 61800-5-1 IEC 61800-3 environments 1 category C3 IEC 61800-3
Product certifications	C-Tick[RETURN]DNV[RETURN]GOST[RETURN]CSA[RETURN]UL[RETURN]NOM 117
Pollution degree	3 conforming to IEC 61800-5-1 3 conforming to UL 840
IP degree of protection	IP41 on upper part conforming to IEC 60529 IP41 on upper part conforming to IEC 61800-5-1 IP54 on lower part conforming to IEC 60529 IP54 on lower part conforming to IEC 61800-5-1 IP00 on lower part conforming to IEC 60529 IP00 conforming to IEC 61800-5-1 IP30 on side parts conforming to IEC 60529 IP30 on side parts conforming to IEC 61800-5-1 IP30 on the front panel conforming to IEC 60529 IP30 on the front panel conforming to IEC 61800-5-1
Vibration resistance	0.6 gn (f= 10…200 Hz) conforming to IEC 60068-2-6 1.5 mm peak to peak (f= 3…10 Hz) conforming to IEC 60068-2-6
Shock resistance	7 gn for 11 ms conforming to IEC 60068-2-27
Relative humidity	5…95 % without condensation conforming to IEC 60068-2-3 5…95 % without dripping water conforming to IEC 60068-2-3
Ambient air temperature for operation	-10…45 °C (without derating) 45…60 °C (with derating factor)
Ambient air temperature for storage	-25…70 °C
Operating altitude	<= 1000 m without derating 1000...3000 m with current derating 1 % per 100 m

Packing Units

Unit Type of Package 1	PCE
Number of Units in Package 1	1

Offer Sustainability

Mercury free	Yes
Sustainable packaging	No
Environmental Disclosure	Product Environmental Profile
EU RoHS Directive	Compliant
California proposition 65	WARNING: This product can expose you to chemicals including: Lead and lead compounds, which
WEEE Label	The product must be disposed on European Union markets following specific waste collection and

Contractual warranty

Warranty (in months)	18

Product Life Status : End of commercialisation

ATV61HD90N4 may be replaced by any of the following products:



ATV630C11N4

variable speed drive, Altivar Process ATV600, ATV630, 110kW, 150hp, 380 to 480V, IP00

Qty 1

Substitution date: |



ATV630D90N4

variable speed drive, Altivar Process ATV600, ATV630, 90kW, 125hp, 380 to 480V, IP21, UL type 1

Qty 1

Substitution date: |