Product data sheet
Characteristics

ATV61E5D11N4

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	11 KW
Motor power hp	15 Hp
[Us] rated supply voltage	380...480 V - 15...10 %
Network number of phases	3 phases
Line current	17.8 A at 480 V 21.9 A at 380 V
EMC filter	Class C2 EMC filter integrated
Assembly style	Enclosed with Vario switch disconnector
Apparent power	14.4 KVA at 380 V
Prospective line Isc	22 KA
Maximum transient current	24.7 A for 60 s
Nominal switching frequency	8 kHz
Switching frequency	2...16 kHz adjustable 8...16 kHz with derating factor
Asynchronous motor control profile	Voltage/Frequency ratio - Energy Saving, quadratic U/f Flux vector control without sensor, standard Voltage/Frequency ratio, 5 points Voltage/Frequency ratio, 2 points
Synchronous motor control profile	Vector control without sensor, standard
Communication port protocol	CANopen Modbus
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 Communication card for DeviceNet Communication card for Ethernet/IP Communication card for Fipio I/O extension card 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 Communication card for Profibus DP Communication card for Profibus DP V1

Complementary

Product destination	Synchronous motors Asynchronous motors
Supply voltage limits	323…528 V
Supply frequency	50...60 Hz - 5...5 %
Network frequency limits	47.5…63 Hz
Continuous output current	21 A at 8 kHz, 460 V 22.5 A at 8 kHz, 380 V
Speed drive output frequency	0.5…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	Adjustable Automatic whatever the load Not available in voltage/frequency ratio (2 or 5 points) Can be suppressed
Local signalling	1 LED (red)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 m- m² / AWG 14 (AI1-/AI1+, AI2, AO1, R1A, R1B, R1C, R2A, R2B, LI1...LI6, PWR) Terminal 6 mm² / AWG 8 (U/T1, V/T2, W/T3, PC/-, PO, PA/+, PA, PB) Terminal 25 mm² / AWG 3 (L1/R, L2/S, L3/T)
Tightening torque	0.6 N.M (AI1-/AI1+, AI2, AO1, R1A, R1B, R1C, R2A, R2B, LI1...LI6, PWR) 3 N.M, 26.5 lb.in (U/T1, V/T2, W/T3, PC/-, PO, PA/+, PA, PB) 5.4 N.M, 47.7 lb.in (L1/R, L2/S, L3/T)
Supply	Internal supply: 24 V DC (21…27 V), <200 mA with overload and short-circuit protection Internal supply for reference potentiometer (1 to 10 kOhm): 10.5 V DC, +/- 5 %, <10 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 bits
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 +/- 0.6 % (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 logic output 10 V, 20 mA AO1 software-configurable current, analogue output range 0...20 mA, impedance: 500 Ohm, resolution 10 bits AO1 software-configurable voltage, analogue output range 0...10 V DC, impedance: 470 Ohm, resolution 10 bits
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	2 A at 250 V AC on inductive load - cos phi = 0.4 - L/R = 7 ms (R1, R2) 2 A at 30 V DC on inductive load - cos phi = 0.4 - L/R = 7 ms (R1, R2) 5 A at 250 V AC on resistive load - cos phi = 1 - L/R = 0 ms (R1, R2) 5 A at 30 V DC on resistive load - cos phi = 1 - L/R = 0 ms (R1, R2)
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	Automatic adaptation of ramp if braking capacity exceeded, by using resistor Linear adjustable separately from 0.01 to 9000 s S, U or customized
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 Male SUB-D 9 on RJ45 (on terminal) 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
Width	260 Mm
Height	525 Mm
Depth	310 Mm
Net weight	22.7 Kg

Environment

Noise level	55.6 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	1.2/50 µs - 8/20 µs surge immunity test level 3 conforming to IEC 61000-4-5 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 60721-3-3 class 3S2 UL Type 12 EN 61800-3 environments 1 category C2 EN 55011 class A group 1 EN 61800-3 environments 2 category C2 EN/IEC 61800-5-1 IEC 60721-3-3 class 3C1 EN/IEC 61800-3
Product certifications	GOST C-Tick NOM 117 UL CSA DNV
Pollution degree	2 conforming to EN/IEC 61800-5-1
IP degree of protection	IP54 conforming to EN/IEC 60529 IP54 conforming to EN/IEC 61800-5-1 IP54 conforming to UL Type 12
Vibration resistance	1 gn (f= 13…200 Hz) conforming to EN/IEC 60068-2-6 1.5 mm peak to peak (f= 3…13 Hz) conforming to EN/IEC 60068-2-6
Shock resistance	15 gn for 11 ms conforming to EN/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…40 °C (without) -10…50 °C (with derating factor)
Ambient air temperature for storage	-25…70 °C
Operating altitude	<= 1000 m without 1000...3000 m with current derating 1 % per 100 m

Contractual warranty

Warranty	18 months

Product Life Status : Commercialised

ATV61E5D11N4 may be replaced by any of the following products:

ATV650D11N4E

Qty 1

Reason for Substitution: End of life | Substitution date: 01 Jan 2016 | Dimensioni differenti tra nuova e vecchia gamma

ATV650D15N4E

Qty 1

Reason for Substitution: End of life | Substitution date: 01 Jan 2016 | Dimensioni differenti tra nuova e vecchia gamma

ATV650D11N4E

Qty 1

Reason for Substitution: End of life | Substitution date: 01 Jan 2016 | Dimensioni differenti tra nuova e vecchia gamma

ATV650D15N4E

Qty 1

Reason for Substitution: End of life | Substitution date: 01 Jan 2016 | Dimensioni differenti tra nuova e vecchia gamma

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ATV650D11N4E

Qty 1

Reason for Substitution: End of life | Substitution date: 01 Jan 2016 | Solution nouvelle gamme ATV630. Pour un usage normal, 110% de surcouple pendant 60s. Gamme en armoire. Encombrement différent entre ancienne et nouvelle gamme.

ATV650D11N4E

Qty 1

Reason for Substitution: End of life | Substitution date: 01 Jan 2016 | Solution nouvelle gamme ATV630. Pour un usage normal, 110% de surcouple pendant 60s. Gamme en armoire. Encombrement différent entre ancienne et nouvelle gamme.

ATV650D15N4E

Qty 1

Reason for Substitution: End of life | Substitution date: 01 Jan 2016 | Solution nouvelle gamme ATV630. Pour un usage sévère, 150% de surcouple pendant 60s. Gamme en armoire. Encombrement différent entre ancienne et nouvelle gamme.

ATV650D15N4E

Qty 1

Reason for Substitution: End of life | Substitution date: 01 Jan 2016 | Solution nouvelle gamme ATV630. Pour un usage sévère, 150% de surcouple pendant 60s. Gamme en armoire. Encombrement différent entre ancienne et nouvelle gamme.

ATV650D11N4E

Qty 1

Reason for Substitution: End of life | Substitution date: 01 Jan 2016 |

ATV650D15N4E

Qty 1

Reason for Substitution: End of life | Substitution date: 01 Jan 2016 |
