Product data sheet
Characteristics

ATV61ES5C11N4
enclosed variable speed drive ATV61Plus - 110 kW-400V - IP54- simplified version



⚠ End of Commercialisation

Commercial status
End of Commercialisation : JUL 30, 2021

Main

Range of product	Altivar 61 Plus
Product or component type	Variable speed drive
Device short name	ATV61
Product destination	Asynchronous motors Synchronous motors
Product specific application	Pumping and ventilation machine
Assembly style	Ready to use In floor-standing enclosure with separate air flows
Kit composition	Circuit breaker A plinth A wired ready-assembled Sarel Spacial 6000 enclosure ATV61HC11N4 drive on heatsink A DC choke Motor terminals An IP65 remote mounting kit for graphic display terminal
EMC filter	Integrated
Network number of phases	3 phases
[Us] rated supply voltage	380...415 V +/- 10 %
Supply frequency	50...60 Hz
Motor power kW	110 KW, 3 phases at 380...415 V
Line current	189 A at 400 V3 phases / 110 kW
IP degree of protection	IP54

Complementary

Apparent power	133 KVA for 400 V3 phases / 110 kW
Prospective line Isc	50 KA with external fuses
Continuous output current	215 A at 2.5 kHz, 400 V3 phases
Maximum transient current	258 A for 60 s 3 phases
Speed drive output frequency	0.1…500 Hz
Nominal switching frequency	2.5 kHz
Switching frequency	2...8 kHz adjustable 2.5...8 kHz with derating factor
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	120 % of nominal motor torque for 60 s 135 % of nominal motor torque for 2 s
Braking torque	30 % without braking resistor <= 125 % with braking resistor

Asynchronous motor control profile	Flux vector control without sensor, standard Voltage/Frequency ratio - Energy Saving, quadratic U/f Voltage/Frequency ratio, 5 points Voltage/Frequency ratio, 2 points
Synchronous motor control profile	Vector control without sensor, standard
Regulation loop	Adjustable PI regulator
Motor slip compensation	Adjustable Suppressable Not available in voltage/frequency ratio (2 or 5 points) Automatic whatever the load
Supply voltage limits	342…457 V
Network frequency limits	47.5…63 Hz
Overvoltage category	Class 3 conforming to EN 50178
Local signalling	LCD display unit for operation function, status and configuration
Output voltage	<= supply voltage
Isolation	Electrical between power and control
Type of cable	IEC cable at 40 °C, copper 70 °C / PVC
Electrical connection	Terminal M12 - 2 x 185 mm² (L1/R, L2/S, L3/T) Terminal M10 - 2 x 150 mm² (U/T1, V/T2, W/T3) Terminal - 2.5 mm² / 14 AWG (AI1-/AI1+, AI2, AO1, R1A, R1B, R1C, R2A, R2B, LI1...LI6, PWR)
Motor recommanded cable cross section	3 x 120 mm²
Short-circuit protection	250 A fuse protection type gI - power supply upstream
Supply	External supply: 24 V (19…30 V)DC, <1 A Internal supply for reference potentiometer: 10 V (10…11 V)DC, <10 A Internal supply: 24 V (21…27 V)DC, <100 A
Analogue input number	2
Analogue input type	AI2 software-configurable voltage: 0...10 V DC, 24 V max, impedance: 30 kOhm, sampling time: 1. AI1-/AI1+ bipolar differential voltage: +/- 10 V DC, 24 V max, sampling time: 1.5…2.5 ms, resolutio AI2 software-configurable current: 0...20 mA/4...20 mA, impedance: 250 Ohm, sampling time: 1.5.
Analogue output number	1
Analogue output type	Software-configurable voltage: (AO1) 0...10 V DC - 470 Ohm - sampling time: 1.5…2.5 ms - resolu Software-configurable current: (AO1) 0...20 mA/4...20 mA - 500 Ohm - sampling time: 1.5…2.5 ms
Discrete output number	2
Discrete output type	Configurable relay logic: (R1A, R1B, R1C)NO/NC - 6.5...7.5 ms - 100000 cycles Configurable relay logic: (R2A, R2B)NO - 6.5...7.5 ms - 100000 cycles
Minimum switching current	3 MA at 24 V DC (configurable relay logic)
Maximum switching current	5 A at 250 V AC on resistive load - cos phi = 1 for configurable relay logic 2 A at 30 V DC on inductive load - L/R = 7 ms for configurable relay logic 5 A at 30 V DC on resistive load - L/R = 0 ms for configurable relay logic 2 A at 250 V AC on inductive load - cos phi = 0.4 for configurable relay logic
Discrete input number	7
Discrete input type	Programmable (LI1...LI5) at 24 V DC <= 30 V level 1 PLC 3.5 kOhm (duration=1.5…2.5 ms) Switch-configurable (LI6) at 24 V DC <= 30 V level 1 PLC 1.5 kOhm (duration=1.5…2.5 ms) Safety input (PWR) at 24 V DC <= 30 V 1.5 kOhm
Discrete input logic	Positive (PWR), 0...2 V (state 0), 17...30 V (state 1) Positive (LI1...LI6), 0...5 V (state 0), 11...30 V (state 1) Negative (LI1...LI6), 16...30 V (state 0), 0...10 V (state 1)
Acceleration and deceleration ramps	Linear adjustable separately from 0.01 to 9000 s S, U or customized
Braking to standstill	By DC injection, <60 s
Protection type	Overheating protection: drive Thermal protection: drive Short-circuit between motor phases: drive Input phase breaks: drive Overcurrent between output phases and earth: drive Overvoltages on the DC bus: drive Break on the control circuit: drive Against exceeding limit speed: drive Line supply undervoltage: drive Line supply overvoltage: drive Against input phase loss: drive Thermal protection: motor Motor phase break: motor Power removal: drive Power removal: motor
Dielectric strength	3535 V DC between earth and power terminals 5092 V DC between control and power terminals
Insulation resistance	> 1 mOhm 500 V DC for 1 minute

Frequency resolution	Display unit: 0.1 Hz Analog input: 0.024/50 Hz
Communication port protocol	CANopen Modbus
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	9600 bps, 19200 bps for Modbus on front face 4800 bps, 9600 bps, 19200 bps, 38.4 Kbps for Modbus on terminal 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
Type of polarization	No impedance for Modbus
Number of addresses	1…247 for Modbus 1…127 for CANopen
Method of access	Slave CANopen
Operating position	Vertical +/- 10 degree
Colour of enclosure	Light grey (RAL 7035)
Colour of base of enclosure	Dark grey (RAL 7022)
Width	600 Mm
Height	2362 Mm
Depth	642 Mm
Net weight	300 Kg

Environment

Electromagnetic compatibility	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- Electrical fast transient/burst immunity test level 4 conforming to IEC 61000-4-4 Conducted radio-frequency immunity test level 3 conforming to IEC 61000-4-6 1.2/50 µs - 8/20 µs surge immunity test level 3 conforming to IEC 61000-4-5 Voltage dips and interruptions immunity test conforming to IEC 61000-4-11
Standards	EN/IEC 61800-5-1 EN 61800-3 environments 1 category C3 EN 61800-3 environments 2 category C3 EN/IEC 61800-3 EN 55011 class A group 2
Product certifications	ATEX[RETURN]GOST
Marking	CE
Noise level	64 DB
Pollution degree	3 conforming to EN/IEC 61800-5-1
Vibration resistance	1.5 mm (f= 3…10 Hz) conforming to EN/IEC 60068-2-6 0.6 gn (f= 10…200 Hz) conforming to EN/IEC 60068-2-6 3M3 conforming to EN/IEC 60721-3-3
Shock resistance	4 gn for 11 ms conforming to EN/IEC 60068-2-27 3M2 conforming to EN/IEC 60721-3-3
Environmental characteristic	3C2 without condensation conforming to IEC 60721-3-3 3S2 without condensation conforming to IEC 60721-3-3 3K3 without condensation conforming to IEC 60721-3-3
Relative humidity	0…95 %
Ambient air temperature for operation	0…40 °C (without derating) 40…50 °C (with current derating of 2 % per °C)
Ambient air temperature for storage	-25…70 °C
Volume of cooling air	500 M3/H
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
Package 1 Height	240.0 Cm
Package 1 Width	62.0 Cm
Package 1 Length	62.0 Cm
Package 1 Weight	300.0 Kg
Unit Type of Package 2	CAR
Number of Units in Package 2	1
Package 2 Height	260.0 Cm
Package 2 Width	90.0 Cm
Package 2 Length	80.0 Cm
Package 2 Weight	310.0 Kg

Offer Sustainability

Sustainable packaging	No
Packaging made with recycled cardboard	No
Packaging without single use plastic	No
Take-back	No

Contractual warranty

Warranty (in months)	18

Product Life Status : End of commercialisation

ATV61ES5C11N4 may be replaced by any of the following products:



ATV650C11N4F

variable speed drive, Altivar Process ATV600, ATV650, 110kW, 380 to 440V, IP54, disconnect switch

Qty 1

Substitution date: |



ATV650C13N4F

variable speed drive, Altivar Process ATV600, ATV650, 132kW, 400 to 480V, floor standing

Qty 1

Substitution date: |