

Product data sheet

Specifications



variable speed drive ATV61Q - 250kW / 400HP - 380...480V - IP20

ATV61QC25N4

⚠ Discontinued on: Jan 3, 2022

⚠ To be end-of-service on: Dec 31, 2029

⚠ Discontinued - Service only

Main

Range Of Product	Altivar 61Q
Product Or Component Type	Variable speed drive
Device Short Name	ATV61Q
Product Destination	Asynchronous motors Synchronous motors
Product Specific Application	Pumping and ventilation machine
Assembly Style	With heat sink
Emc Filter	Integrated
Network Number Of Phases	3 phases
[Us] Rated Supply Voltage	380...480 V - 15...10 %
Supply Voltage Limits	323...528 V
Supply Frequency	50...60 Hz - 5...5 %
Network Frequency Limits	47.5...63 Hz
Motor Power Kw	250 kW, 3 phases at 380...480 V
Motor Power Hp	400 hp, 3 phases at 380...480 V
Maximum Motor Cable Length	100 m shielded cable without motor choke 200 m unshielded cable without motor choke 250 m unshielded cable with motor choke 200 m shielded cable with motor choke
Line Current	435 A for 480 V 3 phases 250 kW / 400 hp 444 A for 380 V 3 phases 250 kW / 400 hp

Complementary

Apparent Power	292.2 kVA at 380 V 3 phases 250 kW / 400 hp
Prospective Line Isc	50 kA for 3 phases
Continuous Output Current	481 A at 2.5 kHz, 380 V - 3 phases 481 A at 2.5 kHz, 460 V - 3 phases
Maximum Transient Current	577.2 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 without speed feedback 0.2 Tn to Tn

Disclaimer: This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications

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
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
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) 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 / AWG 14 (AI1-/AI1+, AI2, AO1, R1A, R1B, R1C, R2A, R2B, LI1...LI6, PWR) Terminal 4 x 185 mm² / 3 x 350 kcmil (L1/R, L2/S, L3/T, U/T1, V/T2, W/T3) Terminal 4 x 185 mm² / 3 x 350 kcmil (PC/-, PO, PA/+)
Tightening Torque	41 N.m, 360 lb.in (PC/-, PO, PA/+) 41 N.m, 360 lb.in (L1/R, L2/S, L3/T, U/T1, V/T2, W/T3) 0.6 N.m (AI1-/AI1+, AI2, AO1, R1A, R1B, R1C, R2A, R2B, LI1...LI6, PWR)
Supply	External supply: 24 V DC (19...30 V) - 30 W Internal supply for reference potentiometer (1 to 10 kOhm): 10.5 V DC, +/- 5 %, <10 mA with overload and short-circuit protection Internal supply: 24 V DC (21...27 V), <200 mA with overload and short-circuit protection
Analogue Input Number	2
Analogue Input Type	AI2 software-configurable voltage: 0...10 V DC 24 V max, impedance: 30000 Ohm, resolution 11 bits 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
Sampling Duration	2 ms +/- 0.5 ms (LI6) if configured as logic input - discrete input 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
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: 0...20 mA, impedance: 500 Ohm, resolution 10 bits AO1 software-configurable voltage: 0...10 V DC, impedance: 470 Ohm, resolution 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
Response Time	R1A, R1B, R1C <= 7 ms, tolerance +/- 0.5 ms R2A, R2B <= 7 ms, tolerance +/- 0.5 ms <= 100 ms in STO (Safe Torque Off)
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	LI1...LI5: programmable 24 V DC with level 1 PLC, impedance: 3500 Ohm LI6: switch-configurable 24 V DC with level 1 PLC, impedance: 3500 Ohm LI6: switch-configurable PTC probe 0...6, impedance: 1500 Ohm PWR: safety input 24 V DC, impedance: 1500 Ohm
Discrete Input Logic	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) 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)
Acceleration And Deceleration Ramps	Automatic adaptation of ramp if braking capacity exceeded, by using resistor S, U or customized Linear adjustable separately from 0.01 to 9000 s
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
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 to earth
Frequency Resolution	Analog input: 0.024/50 Hz Display unit: 0.1 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	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
Type Of Polarization	No impedance for Modbus
Number Of Addresses	1...127 for CANopen 1...247 for Modbus

Method Of Access	Slave CANopen
Type Of Cooling	Water cooled
Cooling Fluid Type	Industrial water Water-glycol mixture Clean water
Operating Temperature Water	5...55 °C
Thermal Losses	5000 W 100 % of line current for area of liquid cooling (power part) 1030 W 100 % of line current for area of air cooling (control part)
Flow Velocity	24
Pressure Drop	1 bar
Volume Of Cooling Water	0.4 l
Operating Position	Vertical +/- 10 degree
Net Weight	140 kg
Option Card	Communication card for APOGEE FLN Communication card for BACnet Communication card for CC-Link Communication card for DeviceNet Communication card for EtherNet/IP Communication card for Fipio 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 Communication card for Profibus DP Communication card for Profibus DP V1 Controller inside programmable card I/O extension card Multi-pump card
Width	585 mm
Height	950 mm
Depth	377 mm

Environment

Ambient Air Temperature For Operation	-10...50 °C (without derating) 50...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
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
Pollution Degree	3 conforming to EN/IEC 61800-5-1 3 conforming to UL 840
Ip Degree Of Protection	IP00 conforming to EN/IEC 60529 IP00 conforming to EN/IEC 61800-5-1 IP30 on side parts conforming to EN/IEC 60529 IP30 on side parts conforming to EN/IEC 61800-5-1 IP30 on the front panel conforming to EN/IEC 60529 IP30 on the front panel conforming to EN/IEC 61800-5-1 IP41 on upper part conforming to EN/IEC 60529 IP41 on upper part conforming to EN/IEC 61800-5-1 IP54 on lower part conforming to EN/IEC 60529 IP54 on lower part conforming to EN/IEC 61800-5-1

Vibration Resistance	0.6 gn (f= 10...200 Hz) conforming to EN/IEC 60068-2-6 1.5 mm peak to peak (f= 3...10 Hz) conforming to EN/IEC 60068-2-6
Shock Resistance	4 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
Noise Level	68 dB conforming to 86/188/EEC
Standards	EN/IEC 61800-3 EN/IEC 61800-5-1 EN 61800-3 environments 2 category C3 EN 61800-3 environments 1 category C3 UL Type 1 EN 55011 class A group 2 IEC 60721-3-3 class 3C2
Product Certifications	C-Tick UL NOM 117 GOST DNV CSA
Marking	CE

Packing Units

Unit Type Of Package 1	PCE
Number Of Units In Package 1	1
Package 1 Height	53.0 cm
Package 1 Width	63.5 cm
Package 1 Length	129.0 cm
Package 1 Weight	160.0 kg

Contractual warranty

Warranty	18 months
----------	-----------

Sustainability



Green Premium™ label is Schneider Electric’s commitment to delivering products with best-in-class environmental performance. Green Premium promises compliance with the latest regulations, transparency on environmental impacts, as well as circular and low-CO₂ products.

Guide to assessing product sustainability is a white paper that clarifies global eco-label standards and how to interpret environmental declarations.

[Learn more about Green Premium >](#)

[Guide to assess a product’s sustainability >](#)

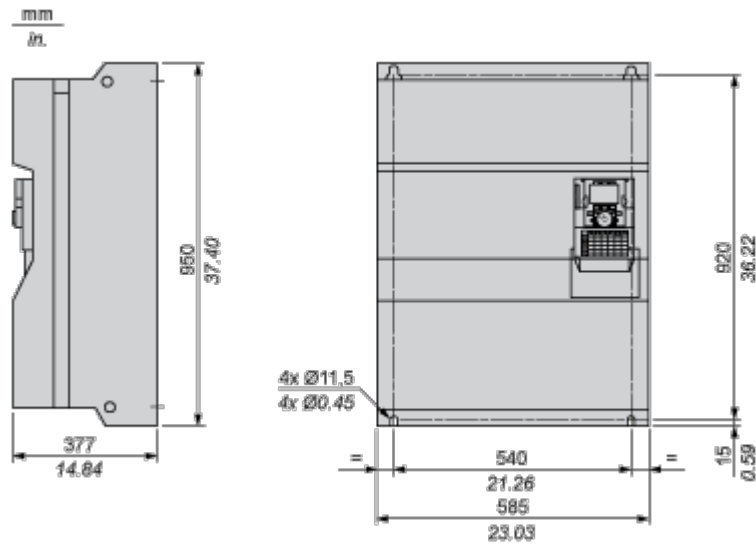
Well-being performance

 Mercury Free	
 Rohs Exemption Information	Yes
Eu Rohs Directive	Pro-active compliance (Product out of EU RoHS legal scope) EU RoHS Declaration
China Rohs Regulation	China RoHS declaration
Weee	The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins

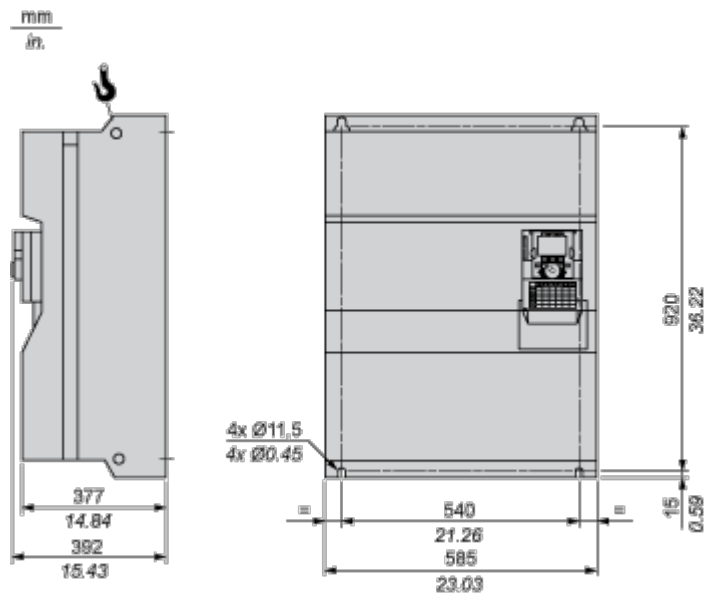
Dimensions Drawings

Dimensions

Without or with 1 option card

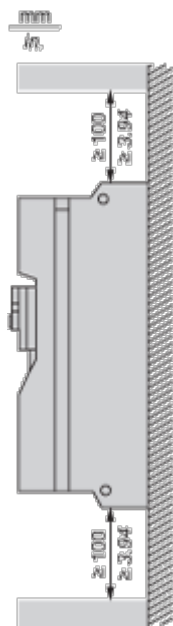


With 2 option cards



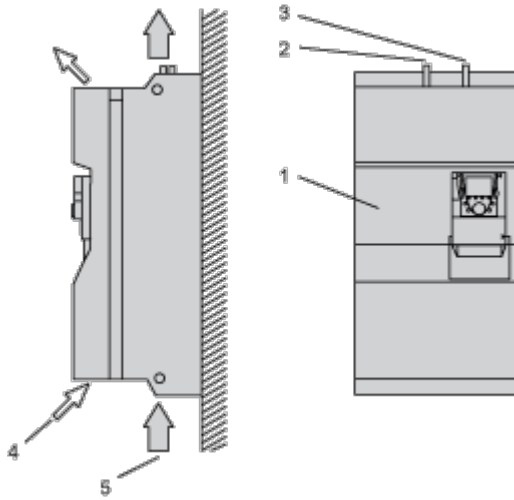
Mounting and Clearance

Clearance



Wall-Mounting

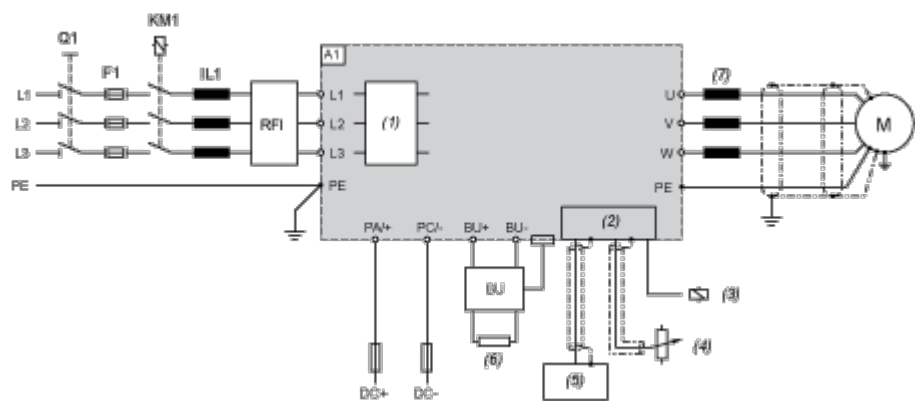
The drive is designed for installation on the wall, in an electrical room or into an enclosure. The device is built according to pollution degree 2. If the environment does not correspond to these conditions then the necessary transition of the pollution degree must be provided e.g. by means of an enclosure.



- (1) Drive
- (2) Cooling water inlet
- (3) Cooling water return
- (4) Cooling air for control part
- (5) Cooling air for power part (only capacitors)

Connections and Schema

Wiring Diagram

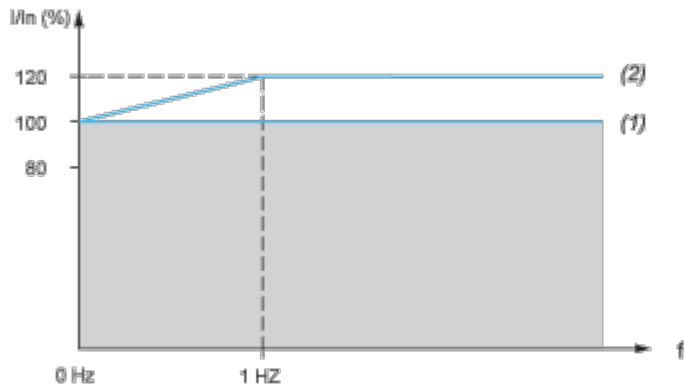


- A1 Drive
- BU Braking Unit
- F1 Fast-acting semi-conductor fuse
- IL1 Line choke
- KM1 Optional line contactor
- M Motor
- Q1 Switch
- RFI Optional radio frequency interference filter
- (1) Filter
- (2) Control
- (3) Relay control
- (4) Control potentiometer
- (5) PLC
- (6) External optional braking resistor
- (7) Optional motor choke

Performance Curves

Continuous Current at Output Frequencies < 1 Hz

Due to the especially efficient liquid cooling of the drive a high overload capability is also available in the speed range of < 1 Hz.



- (1) Continuous operation: 120% overload capability
- (2) Overload 120% for 60 s

Power Derating

4 kHz pulse frequency	+5°K air temperature
8%	10%