

Product datasheet

Specifications



enclosed variable speed drive ATV61 Plus-LH 400 KW 400V - IP23 - low harmonic

ATV61EXC2C40N4H

 **Discontinued on:** Jan 23, 2021

 **Discontinued**

Main

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|---------------------------|---|
| Range Of Product | Altivar 61 Plus-LH |
| Product Or Component Type | Variable speed drive |
| Device Short Name | ATV61 |
| Product Destination | Asynchronous motors Synchronous motors |
| Assembly Style | In floor-standing enclosure compact version |
| Kit Composition | A switch and fast-acting fuses A line choke A wired ready-assembled Schneider Spacial SF enclosure Clean power filter with integrated EMC filter Control transformer 230 V AC Terminals/bars for motor connection Active infeed converter ATV61HC40N4D standard drive IP00 An IP65 remote mounting kit for graphic display terminal Power supply 24 V DC |
| Emc Filter | Integrated |
| Network Number Of Phases | 3 phases |
| Rated Supply Voltage | 380...415 V +/- 10 % |
| Supply Voltage Limits | 342...457 V |
| Supply Frequency | 50...60 Hz - 5...5 % |
| Network Frequency Limits | 47.5...63 Hz |
| Motor Power Kw | 400 kW, 3 phases at 380...415 V |
| Line Current | 628 A at 400 V3 phases / 400 kW |
| Ip Degree Of Protection | IP23 |

Complementary

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|------------------------------|---|
| Apparent Power | 435 kVA for 400 V, 3 phases 400 kW |
| Prospective Line Isc | 100 kA with external fuses 35 kA without external fuses 70 kA with option circuit breaker |
| Continuous Output Current | 759 A, 2.5 kHz at 400 V 3 phases |
| Maximum Transient Current | 911 A (duration=60 s) at 400 V 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 |

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

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| 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 |
| Braking Torque | 100 % continuous 120 % for 60 seconds |
| Asynchronous Motor Control Profile | Flux vector control without sensor, standard Energy saving ratio Voltage/frequency ratio (2 or 5 points) |
| Synchronous Motor Control Profile | Vector control without sensor, standard |
| Regulation Loop | Adjustable PI regulator |
| Motor Slip Compensation | Not available in voltage/frequency ratio (2 or 5 points) Can be suppressed Adjustable Automatic whatever the load |
| Overvoltage Category | Class 3 conforming to EN 50178 |
| Local Signalling | LCD display unit for operation function, status and configuration - mounted in the front door |
| Output Voltage | <= power supply voltage |
| Isolation | Between power and control terminals |
| Type Of Cable | IEC cable at 40 °C, copper 70 °C / PVC |
| Electrical Connection | Terminal - 2.5 mm ² / AWG 14 (AI1-/AI1+, AI2, AO1, R1A, R1B, R1C, R2A, R2B, LI1...LI6, PWR) entry from the bottom Bar M12 - 4 x 300 mm ² (L1/R, L2/S, L3/T) entry from the bottom Bar M12 - 4 x 240 mm ² (U/T1, V/T2, W/T3) entry from the bottom |
| Motor Recommended Cable Cross Section | 3 (3 x 185) mm ² |
| Short-Circuit Protection | 500 A 2 fuses type gI - power supply upstream |
| Supply | External supply: 24 V (19...30 V)DC, <1 A, 30 W Internal supply for reference potentiometer: 10 V (10...11 V)DC, <10 mA Internal supply: 24 V (21...27 V)DC, <100 mA |
| Analogue Input Number | 2 |
| Analogue Input Type | AI2 software-configurable voltage: 0...10 V DC, 24 V max, impedance: 30 kOhm, sampling time: 1.5...2.5 ms, resolution: 11 bits AI1-/AI1+ bipolar differential voltage: +/- 10 V DC, 24 V max, sampling time: 1.5...2.5 ms, resolution: 11 bits + sign AI2 software-configurable current: 0...20 mA/4...20 mA, impedance: 250 Ohm, sampling time: 1.5...2.5 ms, resolution: 11 bits |
| Analogue Output Number | 1 |
| Analogue Output Type | Software-configurable voltage: (AO1) 0...10 V DC - 470 Ohm - sampling time: 1.5...2.5 ms - resolution: 10 bits Software-configurable current: (AO1) 0...20 mA/4...20 mA - 500 Ohm - sampling time: 1.5...2.5 ms - resolution: 10 bits |
| Discrete Output Number | 1 |
| Discrete Output Type | Configurable relay logic: (R1A, R1B, R1C)NO/NC - 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 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 2 A at 30 V DC on inductive load - L/R = 7 ms for configurable relay logic |
| Discrete Input Number | 6 |

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| Discrete Input Type | Programmable (LI1...LI4) 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 logic (source) (LI1...LI6), 0...5 V (state 0), 11...30 V (state 1) Negative logic (sink) (LI1...LI6), 16...30 V (state 0), 0...10 V (state 1) Positive logic (source) (PWR), 0...2 V (state 0), 17...30 V (state 1) |
| Acceleration And Deceleration Ramps | Linear adjustable separately from 0.01 to 9000 s S, U or customized |
| Braking To Standstill | By regenerative braking with active front end |
| Protection Type | Against exceeding limit speed: drive Against input phase loss: 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: motor Motor phase break: 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 | Modbus CANopen |
| 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 |

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| Function Available | Safe standstill for power circuit PTC relay for power circuit Pt100 relay for power circuit Insulation monitoring for power circuit Design for IT networks for power circuit External 230 V supply terminals for power circuit Buffer voltage 24 V DC power supply for power circuit Enclosure lighting for power circuit Key switch (local/remote) for power circuit Motor heating for power circuit External motor fan for power circuit Voltmeter for power circuit Door handle for main switch for power circuit Ammeter for power circuit Enclosure heating for power circuit Motor choke for power circuit Cable entry via the top for power circuit Enclosure plinth for power circuit Relay output C/O for control circuit External 24 V DC supply terminals for power circuit Control terminals for control circuit Adaptor for 115 V logic inputs for control circuit Isolated amplifier for control circuit |
| 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 Multi-pump card Basic I/O extension card Extended I/O extension card Encoder interface cards |
| Operating Position | Vertical +/- 10 degree |
| Colour Of Enclosure | Light grey (RAL 7035) |
| Width | 2000 mm |
| Height | 2157 mm |
| Depth | 642 mm |
| Net Weight | 1455 kg |

Environment

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|------------------------|---|
| Standards | EN 60204-1 EN 61800-3 environments 2 category C3 EN 61800-5-1 EN 61800-2 |
| Product Certifications | GOST C-Tick ATEX |
| Marking | CE |
| Noise Level | 71 dB |
| Pollution Degree | 2 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 3M3 conforming to EN/IEC 60721-3-3 |

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| Shock Resistance | 4 gn for 11 ms conforming to EN/IEC 60068-2-27 3M2 conforming to EN/IEC 60721-3-3 |
| Environmental Characteristic | 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 1.8 % per °C) |
| Ambient Air Temperature For Storage | -25...70 °C |
| Volume Of Cooling Air | 3600 m3/h |
| Operating Altitude | <= 1000 m without derating 1000...3000 m with current derating 1 % per 100 m |

Packing Units

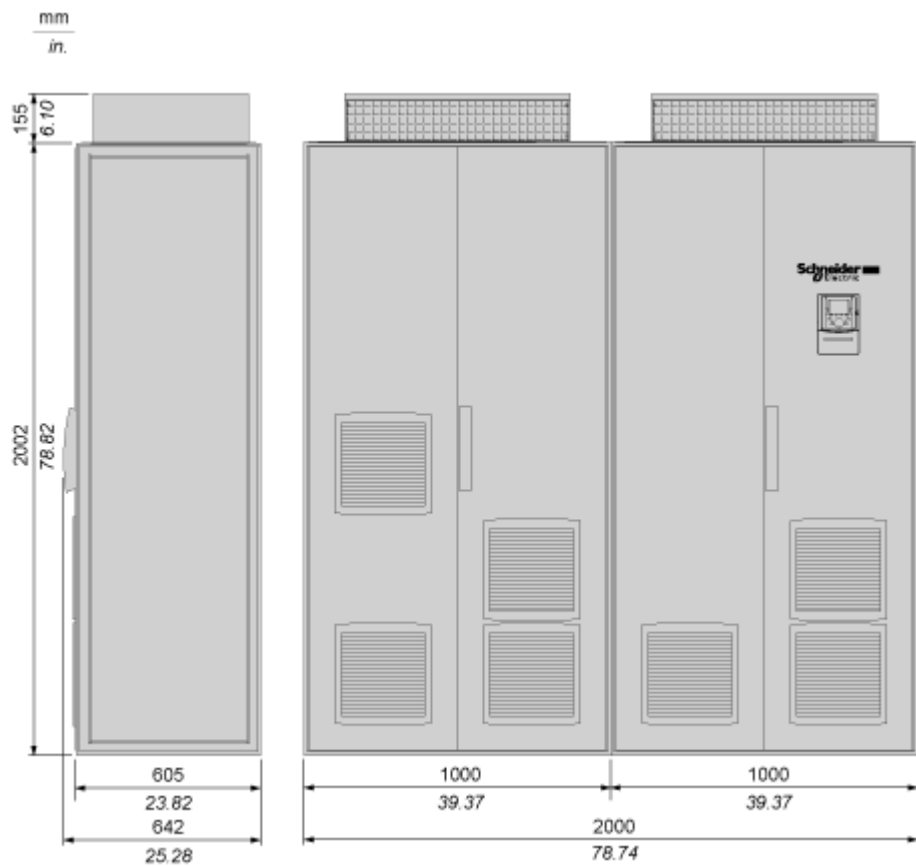
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|------------------------------|-----------|
| Unit Type Of Package 1 | PCE |
| Number Of Units In Package 1 | 1 |
| Package 1 Height | 216.0 cm |
| Package 1 Width | 64.0 cm |
| Package 1 Length | 20.0 cm |
| Package 1 Weight | 1454.0 kg |

Contractual warranty

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| Warranty | 18 months |
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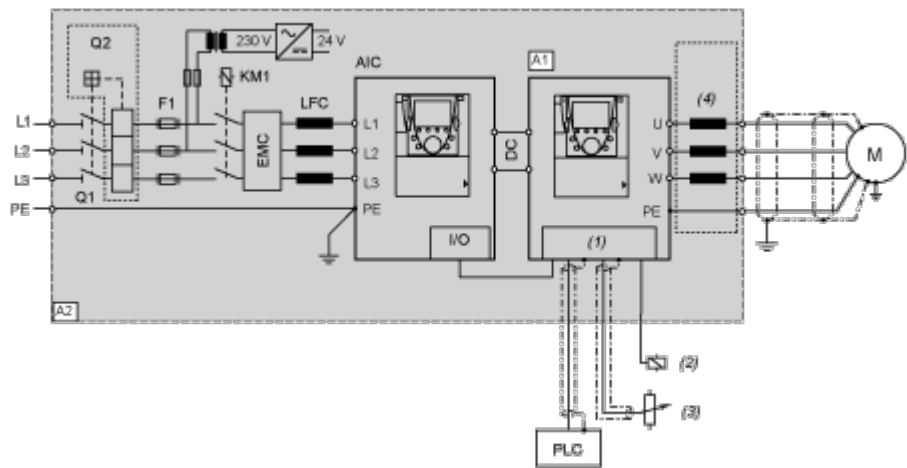
Dimensions Drawings

Dimensions



Connections and Schema

Wiring Diagram



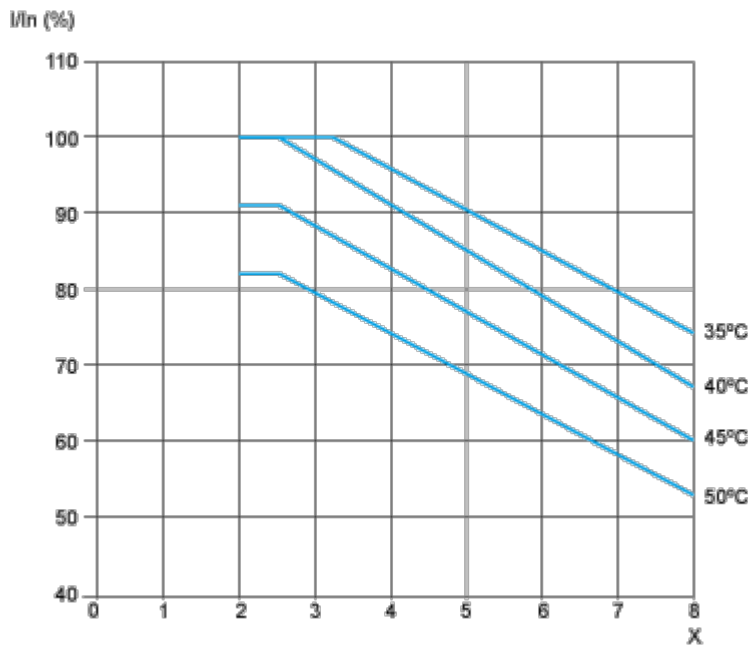
- A1 Drive
- A2 Enclosure
- AIC Active Infeed Converter
- M Motor
- Q1 Main switch built-in as standard
- Q2 Optional circuit breaker
- F1 Main fuses
- KM1 Line contactor
- EMC EMC filter
- LFC Line Filter Choke
- (1) Control
- (2) Relay control
- (3) Reference potentiometer
- (4) Option motor choke

Performance Curves

Derating Curves

The derating curves for the drive nominal current (In) are dependent on the temperature and switching frequency. For intermediate temperatures, interpolate between 2 curves.

NOTE: The drive will reduce the switching frequency automatically in the event of excessive temperature rise.



X Switching frequency (kHz)

NOTE: The temperatures shown correspond to the temperature of the air entering the enclosure.