Product data sheet

Specifications

Discontinued - Service only

enclosed variable speed drive ATV71 Plus-LH - 132 KW - 400V - IP23- low harmonic

ATV71EXC2C13N4H

Discontinued on: Mar 12, 2021

To be end-of-service on: Dec 31, 2028

Main

Range Of Product	Altivar 71 Plus-LH
Product Or Component Type	Variable speed drive
Device Short Name	ATV71
Product Destination	Synchronous motors Asynchronous motors
Assembly Style	In floor-standing enclosure compact version
Kit Composition	Terminals/bars for motor connection An IP65 remote mounting kit for graphic display terminal Power supply 24 V DC A line choke Clean power filter with integrated EMC filter Control transformer 230 V AC A switch and fast-acting fuses Active infeed converter A wired ready-assembled Schneider Spacial SF enclosure ATV71HC13N4 standard drive IP00

Complementary

Emc Filter	Integrated
Network Number Of Phases	3 phases
[Us] Rated Supply Voltage	380...415 V +/- 10 %
Supply Voltage Limits	342…457 V
Supply Frequency	50...60 Hz +/- 5 %
Network Frequency Limits	47.5…63 Hz
Motor Power Kw	132 kW, 3 phases at 380...415 V
Line Current	212 A at 400 V3 phases / 132 kW
Apparent Power	147 kVA for 400 V, 3 phases 132 kW
Prospective Line Isc	100 kA with external fuses 100 kA with option circuit breaker
Continuous Output Current	259 A, 2.5 kHz at 400 V 3 phases
Maximum Transient Current	388 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

Speed Range	1…100 in open-loop mode, without speed feedback
Speed Accuracy	+/- 0.01 % of nominal speed 0.2 Tn to Tn in closed-loop mode with encoder feedback +/- 10 % of nominal slip 0.2 Tn to Tn without speed feedback
Torque Accuracy	+/- 15 % in open-loop mode, without speed feedback +/- 5 % in closed-loop mode with encoder feedback
Transient Overtorque	170 % of nominal motor torque +/- 10 % for 60 s 220 % of nominal motor torque +/- 10 % for 2 s
Braking Torque	100 % continuous 120 % for 60 seconds
Asynchronous Motor Control Profile	Vector control with/without speed feedback Voltage/frequency ratio (2 or 5 points) ENA (Energy adaptation) system for unbalanced loads
Synchronous Motor Control Profile	Vector control without sensor, standard Vector control with sensor, standard
Regulation Loop	Adjustable PI regulator
Motor Slip Compensation	Adjustable Automatic whatever the load Can be suppressed Not available in voltage/frequency ratio (2 or 5 points)
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 mm² / AWG 14 (AI1-/AI1+, AI2, AO1, R1A, R1B, R1C, R2A, R2B, LI1...LI6, PWR) entry from the bottom Terminal M10 - 2 x 150 mm² (L1/R, L2/S, L3/T) entry from the bottom Terminal M12 - 2 x 240 mm² (U/T1, V/T2, W/T3) entry from the bottom
Motor Recommanded Cable Cross Section	3 x 150 mm²
Short-Circuit Protection	315 A for fuse 3 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

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	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

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 CC-Link Communication card for DeviceNet Communication card for EtherNet/IP Communication card for Fipio Communication card for Interbus-S 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 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	800 mm
Height	2157 mm
Depth	642 mm
Net Weight	610 kg

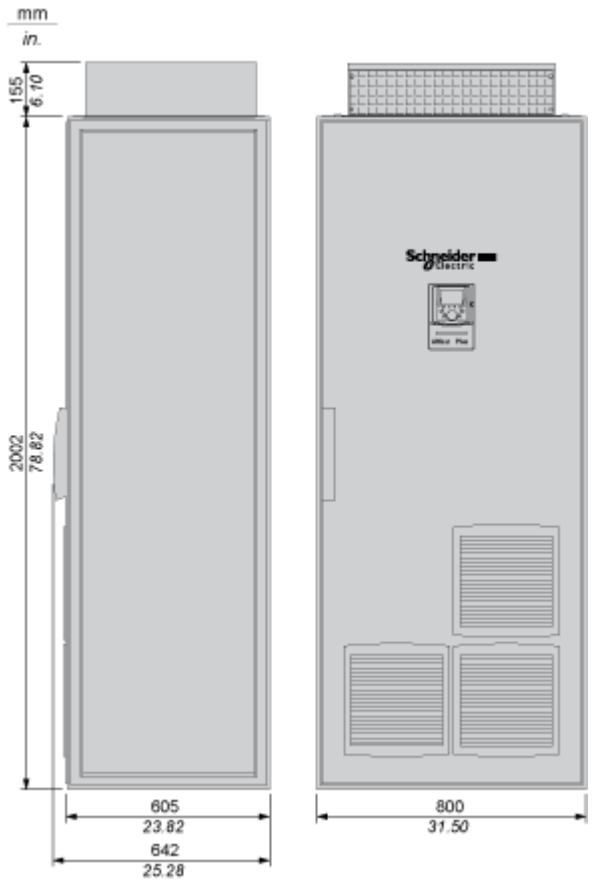
Environment

Ip Degree Of Protection	IP23
Standards	EN 60204-1 EN 61800-3 environments 2 category C3 EN 61800-2 EN 61800-5-1
Product Certifications	GOST ATEX C-Tick
Marking	CE
Noise Level	69 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
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	1200 m3/h
Operating Altitude	**<=** 1000 m without derating 1000...3000 m with current derating 1 % per 100 m

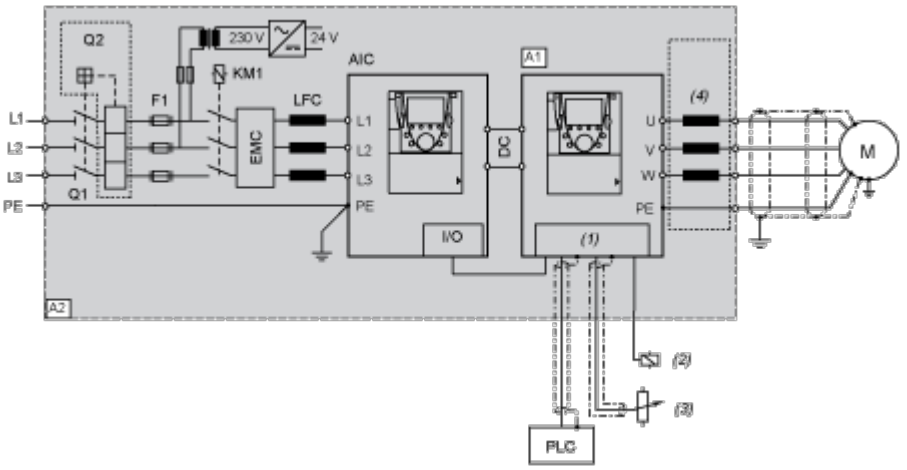
Dimensions Drawings

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

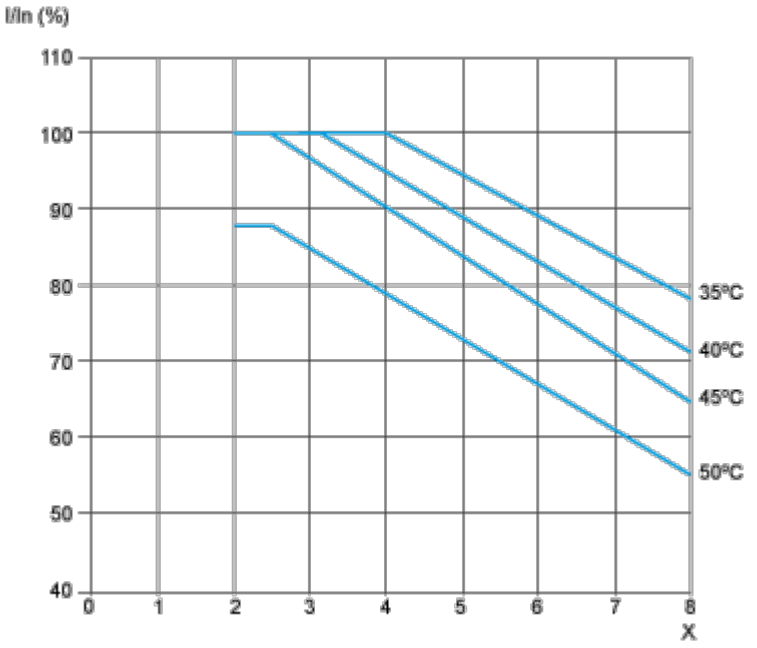
(4) Option motor choke

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.