Specifications





## variable speed drive ATV71 -250kW-400HP - 480V - EMC filtergraphic terminal

ATV71HC25N4

() Discontinued on: Feb 17, 2021

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

# Product availability: Non-Stock - Not normally stocked in distribution facility

### Main

Wall						
Range Of Product	Altivar 71					
Product Or Component Type	Variable speed drive					
Product Specific Application	Complex, high-power machines					
Component Name	ATV71					
Motor Power Kw	220 kW, 3 phase 380480 V 250 kW, 3 phase 380480 V					
Maximum Horse Power Rating	350 hp, 3 phase 380480 V 400 hp, 3 phase 380480 V					
Maximum Motor Cable Length	328.08 ft (100 m) shielded cable 656.17 ft (200 m) unshielded cable					
Power Supply Voltage	380480 V - 1510 %					
Phase	3 phase					
Line Current	320 A 480 V 3 phase 220 kW / 350 hp 357 A 480 V 3 phase 250 kW / 400 hp 396 A 380 V 3 phase 220 kW / 350 hp 444 A 380 V 3 phase 250 kW / 400 hp					
Emc Filter	Integrated					
Assembly Style	With heat sink					
Variant	Reinforced version					
Apparent Power	260.6 kVA 380 V 3 phase 220 kW / 350 hp 292.2 kVA 380 V 3 phase 250 kW / 400 hp					
Prospective Line Isc	50 kA 3 phase					
Nominal Output Current	427 A 2.5 kHz 380 V 3 phase 220 kW / 350 hp 427 A 2.5 kHz 460 V 3 phase 220 kW / 350 hp 481 A 2.5 kHz 380 V 3 phase 250 kW / 400 hp 481 A 2.5 kHz 460 V 3 phase 250 kW / 400 hp					
Maximum Transient Current	640 A 60 s 3 phase 220 kW / 350 hp 704 A 2 s 3 phase 220 kW / 350 hp 721 A 60 s 3 phase 250 kW / 400 hp 793 A 2 s 3 phase 250 kW / 400 hp					
Output Frequency	0.1500 Hz					
Nominal Switching Frequency	2.5 kHz					
Switching Frequency	2.58 kHz adjustable 2.58 kHz with derating factor					

Price is "List Price" and may be subject to a trade discount - check with your local distributor or retailer for actual price.

Asynchronous Motor Control Profile	Sensorless flux vector control (SFVC) (voltage or current vector) Flux vector control (FVC) with sensor (current vector) Voltage/frequency ratio (2 or 5 points) ENA (Energy adaptation) system for unbalanced loads
---------------------------------------	---

Type Of Polarization

No impedance Modbus

# Complementary

Product Destination	Synchronous motors Asynchronous motors					
Power Supply Voltage Limits	323528 V					
Power Supply Frequency	5060 Hz - 55 %					
Power Supply Frequency Limits	47.563 Hz					
Speed Range	1100 asynchronous motor in open-loop mode, without speed feedback 11000 asynchronous motor in closed-loop mode with encoder feedback 150 synchronous motor in open-loop mode, without speed feedback					
Speed Accuracy	+/- 0.01 % of nominal speed in closed-loop mode with encoder feedback 0.2 Tn to Tn +/- 10 % of nominal slip without speed feedback 0.2 Tn to Tn					
Torque Accuracy	+/- 15 % in open-loop mode, without speed feedback +/- 5 % in closed-loop mode with encoder feedback					
Transient Overtorque	170 % +/- 10 % 60 s every 10 minutes 220 % +/- 10 % 2 s					
Braking Torque	<= 150 % with braking or hoist resistor 30 % without braking resistor					
Synchronous Motor Control Profile	Vector control without speed feedback					
Regulation Loop	Adjustable PI regulator					
Motor Slip Compensation	Not available in voltage/frequency ratio (2 or 5 points) Automatic whatever the load Adjustable Suppressable					
Diagnostic	for drive voltage 1 LED (red)					
Output Voltage	<= power supply voltage					
Insulation	Electrical between power and control					
Type Of Cable For Mounting In An Enclosure	With a NEMA Type1 kit 3 UL 508 cable 104 °F (40 °C), copper 75 °C / PVC With an IP21 or an IP31 kit 3 IEC cable 104 °F (40 °C), copper 70 °C / PVC Without mounting kit 1 IEC cable 113 °F (45 °C), copper 70 °C / PVC Without mounting kit 1 IEC cable 113 °F (45 °C), copper 90 °C / XLPE/EPR					
Electrical Connection	Terminal 2.5 mm², AWG 14 AI1-/AI1+, AI2, AO1, R1A, R1B, R1C, R2A, R2B, LI1LI6, PWR) Terminal 4 x 185 mm² L1/R, L2/S, L3/T, U/T1, V/T2, W/T3) Terminal 4 x 185 mm² PC/-, PA/+)					
Tightening Torque	5.31 lbf.in (0.6 N.m) Al1-/Al1+, Al2, AO1, R1A, R1B, R1C, R2A, R2B, Ll1Ll6, PWR) 362.88 lbf.in (41 N.m), 360 lb.in L1/R, L2/S, L3/T, U/T1, V/T2, W/T3) 362.88 lbf.in (41 N.m), 360 lb.in PC/-, PA/+)					
Supply	Internal supply for reference potentiometer (1 to 10 kOhm) 10.5 V DC +/- 5 %, <10 mA overload and short-circuit protection Internal supply 24 V DC 2127 V), <200 mA overload and short-circuit protection					
Analogue Input Number	2					
Analogue Input Type	Al1-/Al1+ bipolar differential voltage +/- 10 V DC 24 V max 11 bits + sign Al2 software-configurable current 020 mA 242 Ohm 11 bits Al2 software-configurable voltage 010 V DC 24 V max 30000 Ohm 11 bits					
Input Sampling Time	2 ms +/- 0.5 ms Al1-/Al1+) - analog 2 ms +/- 0.5 ms Al2) - analog 2 ms +/- 0.5 ms Ll1Ll5) - discrete 2 ms +/- 0.5 ms Ll6)if configured as logic input - discrete					

Response Time	<= 100 ms in STO (Safe Torque Off)					
	AO1 2 ms +/- 0.5 ms analog					
	R1A, R1B, R1C 7 ms +/- 0.5 ms discrete					
	R2A, R2B 7 ms +/- 0.5 ms discrete					
Absolute Accuracy Precision	1/0.6% Ald (Ald 1) for a temperature variation 60 °C					
Absolute Accuracy Trecision	+/- 0.6 % AI1-/AI1+) for a temperature variation 60 °C					
	+/- 0.6 % Al2) for a temperature variation 60 °C +/- 1 % AO1) for a temperature variation 60 °C					
Linearity Error	+/- 0.15 % of maximum value Al1-/Al1+, Al2)					
	+/- 0.2 % AO1)					
Analogue Output Number	1					
Analogue Output Type	AO1 software-configurable logic output 10 V 20 mA					
	AO1 software-configurable current 020 mA 500 Ohm 10 bits					
	AO1 software-configurable voltage 010 V DC 470 Ohm 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					
Minimum Switching Current	3 mA 24 V DC configurable relay logic					
Maximum Switching Current	R1, R2 2 A 250 V AC inductive, cos phi = 0.4					
	R1, R2 2 A 30 V DC inductive, cos phi = 0.4					
	R1, R2 5 A 250 V AC resistive, cos phi = 1					
	R1, R2 5 A 30 V DC resistive, cos phi = 1					
Discrete Input Number	7					
Discrete Input Type	LI1LI5 programmable 24 V DC level 1 PLC 3500 Ohm					
	LI6 switch-configurable 24 V DC level 1 PLC 3500 Ohm					
	LI6 switch-configurable PTC probe 06 1500 Ohm					
	PWR safety input 24 V DC 1500 Ohm ISO 13849-1 level d					
Discrete Input Logic	Negative logic (sink) LI1LI5), > 16 V, < 10 V					
	Positive logic (source) LI1LI5), < 5 V, > 11 V					
	Negative logic (sink) Ll6)if configured as logic input, > 16 V, < 10 V					
	Positive logic (source) LI6)if configured as logic input, < 5 V, > 11 V					
Acceleration And Deceleration	Automatic adaptation of ramp if braking capacity exceeded, by using resistor					
Ramps	Linear adjustable separately from 0.01 to 9000 s					
	S, U or customized					
	Du DO initiation					
Proking To Standatill						
Braking To Standstill	By DC injection					
Braking To Standstill Protection Type	Against exceeding limit speed drive					
	Against exceeding limit speed drive Against input phase loss drive Break on the control circuit drive					
	Against exceeding limit speed drive Against input phase loss drive Break on the control circuit drive Input phase breaks drive					
	Against exceeding limit speed drive Against input phase loss drive Break on the control circuit drive Input phase breaks drive Line supply overvoltage drive					
	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					
	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					
	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					
	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					
	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 Overcurrent between output phases and earth drive Overvoltages on the DC bus drive Short-circuit between motor phases drive					
	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 Short-circuit between motor phases drive Thermal protection drive					
	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 Overcurrent between output phases and earth drive Overvoltages on the DC bus drive Short-circuit between motor phases drive					
	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 Overvoltages on the DC bus drive Short-circuit between motor phases drive Thermal protection drive Motor phase break motor					
	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 Overchating protection drive Overvoltages on the DC bus drive Short-circuit between motor phases drive Thermal protection drive Motor phase break motor Power removal motor					
Protection Type Insulation Resistance	Against exceeding limit speed drive Against input phase loss drive Break on the control circuit drive Input phase breaks drive Line supply overvoltage drive Overcurrent between output phases and earth drive Overcurrent between output phases and earth drive Overvoltages on the DC bus drive Short-circuit between motor phases drive Thermal protection drive Motor phase break motor Power removal motor Thermal protection motor > 1 mOhm 500 V DC for 1 minute to earth					
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         Overcurrent between output phases and earth drive         Overheating protection drive         Overvoltages on the DC bus drive         Short-circuit between motor phases drive         Thermal protection drive         Motor phase break motor         Power removal motor         Thermal protection motor         > 1 mOhm 500 V DC for 1 minute to earth         Analog input 0.024/50 Hz					
Protection Type Insulation Resistance	Against exceeding limit speed drive Against input phase loss drive Break on the control circuit drive Input phase breaks drive Line supply overvoltage drive Overcurrent between output phases and earth drive Overcurrent between output phases and earth drive Overvoltages on the DC bus drive Short-circuit between motor phases drive Thermal protection drive Motor phase break motor Power removal motor Thermal protection motor > 1 mOhm 500 V DC for 1 minute to earth					
Protection Type Insulation Resistance	Against exceeding limit speed drive         Against input phase loss drive         Break on the control circuit drive         Input phase breaks drive         Line supply overvoltage drive         Overcurrent between output phases and earth drive         Overheating protection drive         Overvoltages on the DC bus drive         Short-circuit between motor phases drive         Thermal protection drive         Motor phase break motor         Power removal motor         Thermal protection motor         > 1 mOhm 500 V DC for 1 minute to earth         Analog input 0.024/50 Hz					
Protection Type Insulation Resistance Frequency Resolution	Against exceeding limit speed drive         Against input phase loss drive         Break on the control circuit drive         Input phase breaks drive         Line supply overvoltage drive         Divercurrent between output phases and earth drive         Overroutages on the DC bus drive         Short-circuit between motor phases drive         Thermal protection drive         Motor phase break motor         Power removal motor         Thermal protection motor         > 1 mOhm 500 V DC for 1 minute to earth         Analog input 0.024/50 Hz         Display unit 0.1 Hz					
Protection Type Insulation Resistance Frequency Resolution Communication Port Protocol	Against exceeding limit speed drive         Against input phase loss drive         Break on the control circuit drive         Input phase breaks drive         Line supply overvoltage drive         Overcurrent between output phases and earth drive         Overheating protection drive         Overvoltages on the DC bus drive         Short-circuit between motor phases drive         Thermal protection drive         Motor phase break motor         Power removal motor         Thermal protection motor         > 1 mOhm 500 V DC for 1 minute to earth         Analog input 0.024/50 Hz         Display unit 0.1 Hz         CANopen         Modbus					
Protection Type Insulation Resistance Frequency Resolution	Against exceeding limit speed drive         Against input phase loss drive         Break on the control circuit drive         Input phase breaks drive         Line supply overvoltage drive         Overcurrent between output phases and earth drive         Overheating protection drive         Overvoltages on the DC bus drive         Short-circuit between motor phases drive         Thermal protection drive         Motor phase break motor         Power removal motor         Thermal protection motor         > 1 mOhm 500 V DC for 1 minute to earth         Analog input 0.024/50 Hz         Display unit 0.1 Hz         CANopen         Modbus         1 RJ45 on front face)Modbus					
Protection Type Insulation Resistance Frequency Resolution Communication Port Protocol	Against exceeding limit speed drive         Against input phase loss drive         Break on the control circuit drive         Input phase breaks drive         Line supply overvoltage drive         Overcurrent between output phases and earth drive         Overheating protection drive         Overvoltages on the DC bus drive         Short-circuit between motor phases drive         Thermal protection drive         Motor phase break motor         Power removal motor         Thermal protection motor         > 1 mOhm 500 V DC for 1 minute to earth         Analog input 0.024/50 Hz         Display unit 0.1 Hz         CANopen         Modbus					
Protection Type Insulation Resistance Frequency Resolution Communication Port Protocol Connector 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         Overcurrent between output phases and earth drive         Overvoltages on the DC bus drive         Short-circuit between motor phases drive         Thermal protection drive         Motor phase break motor         Power removal motor         Thermal protection motor         > 1 mOhm 500 V DC for 1 minute to earth         Analog input 0.024/50 Hz         Display unit 0.1 Hz         CANopen         Modbus         1 RJ45 on front face)Modbus         1 RJ45 on terminal)Modbus         Male SUB-D 9 on RJ45CANopen					
Protection Type Insulation Resistance Frequency Resolution Communication Port Protocol	Against exceeding limit speed drive         Against input phase loss drive         Break on the control circuit drive         Input phase breaks drive         Line supply overvoltage drive         Overcurrent between output phases and earth drive         Overheating protection drive         Overvoltages on the DC bus drive         Short-circuit between motor phases drive         Thermal protection drive         Motor phase break motor         Power removal motor         Thermal protection motor         > 1 mOhm 500 V DC for 1 minute to earth         Analog input 0.024/50 Hz         Display unit 0.1 Hz         CANopen         Modbus         1 RJ45 on front face)Modbus					
Protection Type Insulation Resistance Frequency Resolution Communication Port Protocol Connector 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         Overcurrent between output phases and earth drive         Overvoltages on the DC bus drive         Short-circuit between motor phases drive         Thermal protection drive         Motor phase break motor         Power removal motor         Thermal protection motor         > 1 mOhm 500 V DC for 1 minute to earth         Analog input 0.024/50 Hz         Display unit 0.1 Hz         CANopen         Modbus         1 RJ45 on front face)Modbus         1 RJ45 on terminal)Modbus         Male SUB-D 9 on RJ45CANopen					

Transmission Rate	4800 bps, 9600 bps, 19200 bps, 38.4 Kbps Modbus on terminal 9600 bps, 19200 bps Modbus on front face 20 kbps, 50 kbps, 125 kbps, 250 kbps, 500 kbps, 1 Mbps CANopen						
Data Format	8 bits, 1 stop, even parity Modbus on front face 8 bits, odd even or no configurable parity Modbus on terminal						
Number Of Addresses	1127 CANopen 1247 Modbus						
Method Of Access	Slave CANopen						
Marking	CE						
Operating Position	Vertical +/- 10 degree						
Height	46.85 in (1190 mm)						
Depth	14.84 in (377 mm)						
Width	23.43 in (595 mm)						
Net Weight	456.36 lb(US) (207 kg)						
Functionality	Full						
Specific Application	Other applications						
Option Card	Communication card CC-Link Controller inside programmable card Communication card DeviceNet Communication card EtherNet/IP Communication card Fipio I/O extension card Communication card Interbus-S Interface card for encoder Communication card Modbus Plus Communication card Modbus TCP Communication card Modbus/Uni-Telway Overhead crane card Communication card Profibus DP Communication card Profibus DP						

### Environment

Noise Level	77 dB 86/188/EEC				
Dielectric Strength	3535 V DC between earth and power terminals 5092 V DC between control and power terminals 1.2/50 μs - 8/20 μs surge immunity test level 3 IEC 61000-4-5 Conducted radio-frequency immunity test level 3 IEC 61000-4-6 Electrical fast transient/burst immunity test level 4 IEC 61000-4-4 Electrostatic discharge immunity test level 3 IEC 61000-4-2 Radiated radio-frequency electromagnetic field immunity test level 3 IEC 61000-4-3 Voltage dips and interruptions immunity test IEC 61000-4-11				
Electromagnetic Compatibility					
Standards	EN/IEC 61800-5-1 UL Type 1 IEC 60721-3-3 class 3C2 EN 61800-3 environments 1 category C3 EN/IEC 61800-3 EN 55011 class A group 2 EN 61800-3 environments 2 category C3				
Product Certifications	NOM 117 GOST CSA C-tick UL				
Pollution Degree	2 EN/IEC 61800-5-1 3 UL 840				
Ip Degree Of Protection	IP20				
Vibration Resistance         0.6 gn 10200 Hz)EN/IEC 60068-2-6           1.5 mm peak to peak 310 Hz)EN/IEC 60068-2-6					

Shock Resistance	4 gn 11 ms EN/IEC 60068-2-27 595 % without condensation IEC 60068-2-3 595 % without dripping water IEC 60068-2-3				
Relative Humidity					
Ambient Air Temperature For Operation	14122 °F (-1050 °C) without derating)				
Ambient Air Temperature For Storage	-13158 °F (-2570 °C)				
Operating Altitude	<= 3280.84 ft (1000 m) without derating 3280.849842.52 ft (10003000 m) with current derating 1 % per 100 m				

# Ordering and shipping details

Category	US1CP4C22133
Discount Schedule	CP4C
Gtin	3389119201087
Returnability	No
Country Of Origin	AT

# **Packing Units**

Unit Type Of Package 1	PCE			
Number Of Units In Package 1	1			
Package 1 Height	16.93 in (43.0 cm)			
Package 1 Width	20.08 in (51.0 cm)			
Package 1 Length	48.23 in (122.5 cm)			
Package 1 Weight	149.91 lb(US) (68.0 kg)			

### **Contractual warranty**

Warranty

18 months

## Sustainability Screen

**Green Premium<sup>TM</sup> label** is Schneider Electric's commitment to delivering products with best-inclass environmental performance. Green Premium promises compliance with the latest regulations, transparency on environmental impacts, as well as circular and low-CO<sub>2</sub> products.

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

Yes

Learn more about Green Premium >

Guide to assess a product's sustainability >



RoHS/REACh

### Well-being performance

Mercury Free

Rohs Exemption Information

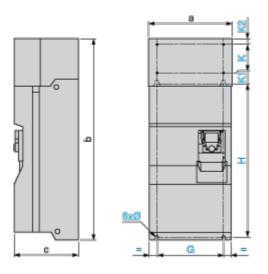
### **Certifications & Standards**

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.			
California Proposition 65	WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov			

**Dimensions Drawings** 

#### UL Type 1/IP 20 Drives

### Dimensions with or without 1 Option Card (1)



Dimensions in mm

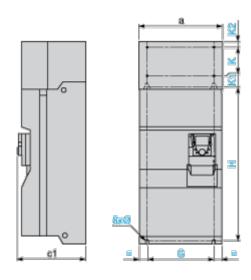
а	b	с	G	Н	K	K1	K2	Ø
595	1190	377	540	920	150	75	30	11.5

Dimensions in in.

а	b	с	G	Н	К	K1	K2	Ø
23.43	46.85	14.84	21.26	36.22	5.90	2.95	1.18	0.45

(1) Option cards: I/O extension cards, communication cards or "Controller Inside" programmable card.

#### Dimensions with 2 Option Cards (1)



Dimensions in mm

а	c1	G	Н	K	K1	K2	Ø
595	392	540	920	150	75	30	11.5

Dimensions in in.

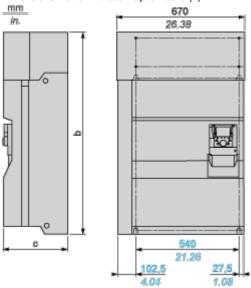
### ATV71HC25N4

а	c1	G	Н	К	K1	K2	Ø
23.43	15.43	21.26	36.22	5.90	2.95	1.18	0.45

(1) Option cards: I/O extension cards, communication cards or "Controller Inside" programmable card.

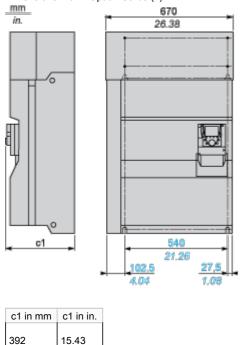
#### Drive with Braking Unit VW3A7101

Dimensions with or without 1 Option Card (1)



b in mm	c in mm	b in in.	c in in.
1190	377	46.85	14.84

(1) Option cards: I/O extension cards, communication cards or "Controller Inside" programmable card. Dimensions with 2 Option Cards (1)



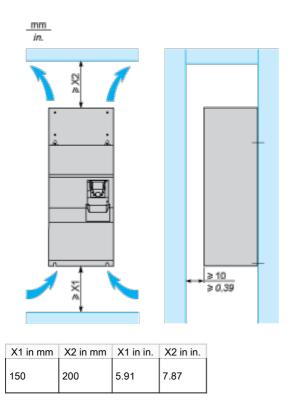
(1) Option cards: I/O extension cards, communication cards or "Controller Inside" programmable card.

#### Mounting and Clearance

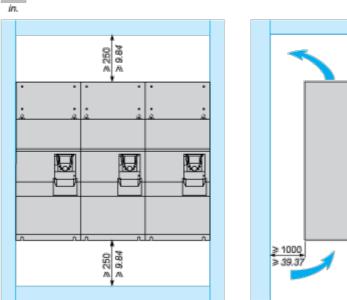
#### **Mounting Recommendations**

#### Clearance

mm



These drives can be mounted side by side, observing the following mounting recommendations:



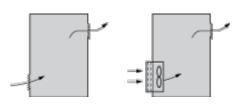
### ATV71HC25N4

#### Specific Recommendations for Mounting the Drive in an Enclosure

#### Ventilation

To ensure proper air circulation in the drive:

- Fit ventilation grilles.
- Ensure that there is sufficient ventilation. If there is not, install a forced ventilation unit with a filter. The openings and/or fans must provide a flow rate at least equal to that of the drive fans (refer to the product characteristics).



- Use special filters with IP 54 protection.
- Remove the blanking cover from the top of the drive.

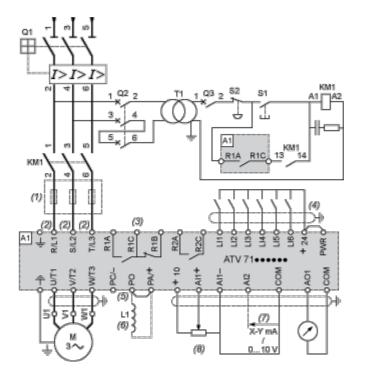
#### Dust and Damp Proof Metal Enclosure (IP 54)

The drive must be mounted in a dust and damp proof enclosure in certain environmental conditions: dust, corrosive gases, high humidity with risk of condensation and dripping water, splashing liquid, etc. This enables the drive to be used in an enclosure where the maximum internal temperature reaches 50°C.

#### Connections and Schema

Wiring Diagram Conforming to Standards EN 954-1 Category 1, IEC/EN 61508 Capacity SIL1, in Stopping Category 0 According to IEC/EN 60204-1

#### Three-Phase Power Supply with Upstream Breaking via Contactor



A1 ATV71 drive

- L1 DC choke
- Q1 Circuit-breaker
- Q2 GV2 L rated at twice the nominal primary current of T1
- Q3 GB2CB05

S1, S2 XB4 B or XB5 A pushbuttons

T1 100 VA transformer 220 V secondary

(1) Line choke (three-phase); mandatory for ATV71HC11Y...HC63Y drives (except when a special transformer is used (12-pulse)).

(2) For ATV71HC40N4 drives combined with a 400 kW motor, ATV71HC50N4 and ATV71HC40Y...HC63Y, refer to the power terminal connections diagram.

(3) Fault relay contacts. Used for remote signalling of the drive status.

(4) Connection of the common for the logic inputs depends on the positioning of the SW1 switch. The above diagram shows the internal power supply switched to the "source" position (for other connection types, refer to the user guide).

(5) There is no PO terminal on ATV71HC11Y...HC63Y drives.

(6) Optional DC choke for ATV71H•••M3, ATV71HD11M3X...HD45M3X, ATV71•075N4...•D75N4 and ATV71P•••N4Z drives. Connected in place of the strap between the PO and PA/+ terminals. For ATV71HD55M3X, HD75M3X, ATV71HD90N4...HC50N4 drives, the choke is supplied with the drive; the customer is responsible for connecting it.

(7) Software-configurable current (0...20 mA) or voltage (0...10 V) analog input.

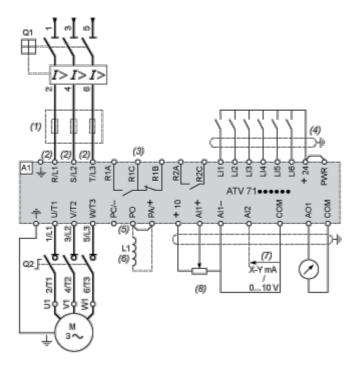
(8) Reference potentiometer.

KM1 Contactor

### ATV71HC25N4

Wiring Diagram Conforming to Standards EN 954-1 Category 1, IEC/EN 61508 Capacity SIL1, in Stopping Category 0 According to IEC/EN 60204-1

Three-Phase Power Supply with Downstream Breaking via Switch Disconnector



- A1 ATV71 drive
- L1 DC choke
- Q1 Circuit-breaker
- Q2 Switch disconnector (Vario)

(1) Line choke (three-phase), mandatory for ATV71HC11Y...HC63Y drives (except when a special transformer is used (12-pulse)).

(2) For ATV71HC40N4 drives combined with a 400 kW motor, ATV71HC50N4 and ATV71HC40Y...HC63Y, refer to the power terminal connections diagram.

(3) Fault relay contacts. Used for remote signalling of the drive status.

(4) Connection of the common for the logic inputs depends on the positioning of the SW1 switch. The above diagram shows the internal power supply switched to the "source" position (for other connection types, refer to the user guide).

(5) There is no PO terminal on ATV71HC11Y...HC63Y drives.

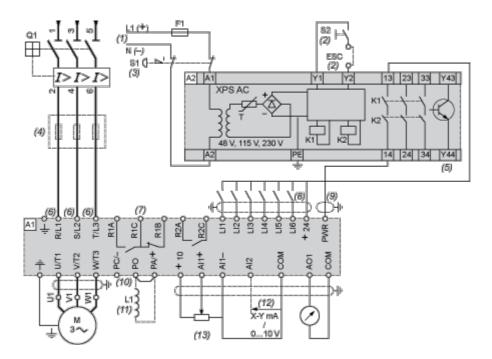
(6) Optional DC choke for ATV71H•••M3, ATV71HD11M3X...HD45M3X, ATV71•075N4...•D75N4 and ATV71P•••N4Z drives. Connected in place of the strap between the PO and PA/+ terminals. For ATV71HD55M3X, HD75M3X, ATV71HD90N4...HC50N4 drives, the choke is supplied with the drive; the customer is responsible for connecting it.

(7) Software-configurable current (0...20 mA) or voltage (0...10 V) analog input.

(8) Reference potentiometer.

Wiring Diagram Conforming to Standards EN 954-1 Category 3, IEC/EN 61508 Capacity SIL2, in Stopping Category 0 According to IEC/EN 60204-1

#### Three-Phase Power Supply, Low Inertia Machine, Vertical Movement



#### A1 ATV71 drive

A2 Preventa XPS AC safety module for monitoring emergency stops and switches. One safety module can manage the "Power Removal" function for several drives on the same machine. In this case, each drive must connect its PWR terminal to its + 24 V via the safety contacts on the XPS AC module. These contacts are independent for each drive.

F1 Fuse

L1 DC choke

Q1 Circuit-breaker

S1 Emergency stop button with 2 contacts

S2 XB4 B or XB5 A pushbutton

(1) Power supply: 24 Vdc or Vac, 48 Vac, 115 Vac, 230 Vac.

(2) S2: resets XPS AC module on power-up or after an emergency stop. ESC can be used to set external starting conditions.

(3) Requests freewheel stopping of the movement and activates the "Power Removal" safety function.

(4) Line choke (three-phase), mandatory for and ATV71HC11Y...HC63Y drives (except when a special transformer is used (12-pulse)).

(5) The logic output can be used to signal that the machine is in a safe stop state.

(6) For ATV71HC40N4 drives combined with a 400 kW motor, ATV71HC50N4 and ATV71HC40Y...HC63Y, refer to the power terminal connections diagram.

(7) Fault relay contacts. Used for remote signalling of the drive status.

(8) Connection of the common for the logic inputs depends on the positioning of the SW1 switch. The above diagram shows the internal power supply switched to the "source" position (for other connection types, refer to the user guide).

(9) Standardized coaxial cable, type RG174/U according to MIL-C17 or KX3B according to NF C 93-550, external diameter 2.54 mm /0.09 in., maximum length 15 m / 49.21 ft. The cable shielding must be earthed.

(10) There is no PO terminal on ATV71HC11Y...HC63Y drives.

(11) Optional DC choke for ATV71H•••M3, ATV71HD11M3X...HD45M3X, ATV71•075N4...•D75N4 and ATV71P•••N4Z drives. Connected in place of the strap between the PO and PA/+ terminals. For ATV71HD55M3X,

### ATV71HC25N4

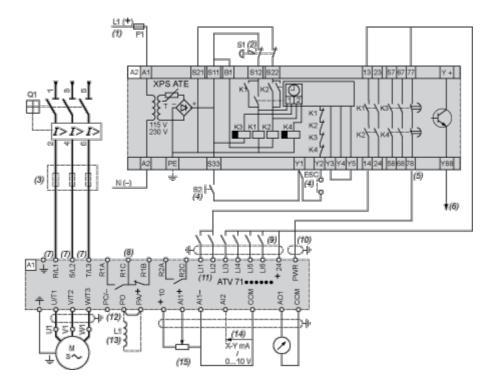
HD75M3X, ATV71HD90N4...HC50N4 drives, the choke is supplied with the drive; the customer is responsible for connecting it.

- (12) Software-configurable current (0...20 mA) or voltage (0...10 V) analog input.
- (13) Reference potentiometer.

### ATV71HC25N4

Wiring Diagram Conforming to Standards EN 954-1 Category 3, IEC/EN 61508 Capacity SIL2, in Stopping Category 1 According to IEC/EN 60204-1

#### Three-Phase Power Supply, High Inertia Machine



#### A1 ATV71 drive

A2 (5) Preventa XPS ATE safety module for monitoring emergency stops and switches. One safety module can manage the "Power Removal" safety function for several drives on the same machine. In this case the time delay must be adjusted on the drive controlling the motor that requires the longest stopping time. In addition, each drive must connect its PWR terminal to its + 24 V via the safety contacts on the XPS ATE module. These contacts are independent for each drive.

- F1 Fuse
- L1 DC choke
- Q1 Circuit-breaker
- S1 Emergency stop button with 2 N/C contacts
- S2 Run button
- (1) Power supply: 24 Vdc or Vac, 115 Vac, 230 Vac.
- (2) Requests controlled stopping of the movement and activates the "Power Removal" safety function.

(3) Line choke (three-phase), mandatory for ATV71HC11Y...HC63Y drives (except when a special transformer is used (12-pulse)).

(4) S2: resets XPS ATE module on power-up or after an emergency stop. ESC can be used to set external starting conditions.

(5) For stopping times requiring more than 30 seconds in category 1, use a Preventa XPS AV safety module which can provide a maximum time delay of 300 seconds.

(6) The logic output can be used to signal that the machine is in a safe state.

(7) For ATV71HC40N4 drives combined with a 400 kW motor, ATV71HC50N4 and ATV71HC40Y...HC63Y, refer to the power terminal connections diagram.

(8) Fault relay contacts. Used for remote signalling of the drive status.

### ATV71HC25N4

(9) Connection of the common for the logic inputs depends on the positioning of the SW1 switch. The above diagram shows the internal power supply switched to the "source" position (for other connection types, refer to the user guide).

(10) Standardized coaxial cable, type RG174/U according to MIL-C17 or KX3B according to NF C 93-550, external diameter 2.54 mm/0.09 in., maximum length 15 m/49.21 ft. The cable shielding must be earthed.

(11) Logic inputs LI1 and LI2 must be assigned to the direction of rotation: LI1 in the forward direction and LI2 in the reverse direction.

(12) There is no PO terminal on ATV71HC11Y...HC63Y drives.

(13) Optional DC choke for ATV71H•••M3, ATV71HD11M3X...HD45M3X, ATV71•075N4...•D75N4 and ATV71P•••N4Z drives. Connected in place of the strap between the PO and PA/+ terminals. For ATV71HD55M3X, HD75M3X, ATV71HD90N4...HC50N4 drives, the choke is supplied with the drive; the customer is responsible for connecting it.

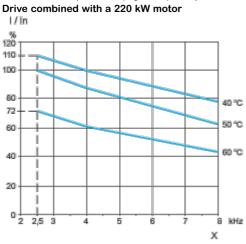
(14) Software-configurable current (0...20 mA) or voltage (0...10 V) analog input.

(15) Reference potentiometer.

#### Performance Curves

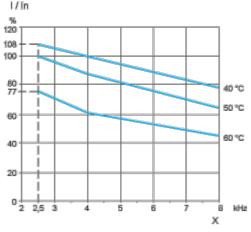
#### **Derating Curves**

The derating curves for the drive nominal current (In) depend on the temperature and the switching frequency. For intermediate temperatures (e.g. 55°C), interpolate between 2 curves.



X Switching frequency

Drive combined with a 250 kW motor



X Switching frequency