Altivar 212

Variable speed drives for asynchronous motors

Installation manual

09/2011

S1A53832

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Schneider Electric

The information provided in this documentation contains general descriptions and/or technical characteristics of the performance of the products contained herein. 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. It is the duty of any such user or integrator to perform the appropriate and complete risk analysis, evaluation and testing of the products with respect to the relevant specific application or use thereof. Neither Schneider Electric nor any of its affiliates or subsidiaries shall be responsible or liable for misuse of the information contained herein. If you have any suggestions for improvements or amendments or have found errors in this publication, please notify us.

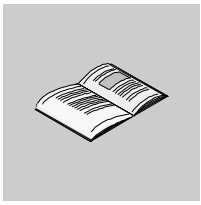
All pertinent state, regional, and local safety regulations must be observed when installing and using this product. For reasons of safety and to help ensure compliance with documented system data, only the manufacturer should perform repairs to components.

When devices are used for applications with technical safety requirements, the relevant instructions must be followed.

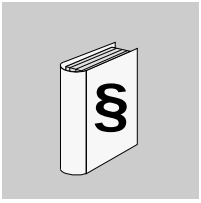
Failure to use Schneider Electric software or approved software with our hardware products may result in injury, harm, or improper operating results.

Failure to observe this information can result in injury or equipment damage.

Table of content



Safety Information



Important Information

NOTICE

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of this symbol to a Danger or Warning safety label indicates that an electrical hazard exists, which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates an imminently hazardous situation, which, if not avoided, **will result** in death or serious injury.

⚠ WARNING

WARNING indicates a potentially hazardous situation, which, if not avoided, **can result** in death, serious injury or equipment damage.

⚠ CAUTION

CAUTION indicates a potentially hazardous situation, which, if not avoided, **can result** in injury or equipment damage.

CAUTION

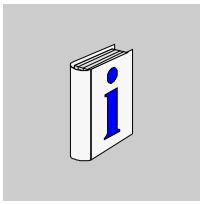
CAUTION, used without the safety alert symbol, indicates a potentially hazardous situation which, if not avoided, **can result** in equipment damage.

PLEASE NOTE

The word "drive" as used in this manual refers to the controller portion of the adjustable speed drive as defined by NEC.

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this product.

About the book



At a Glance

Document Scope

The purpose of this document is:

- to give you mechanical and electrical information related to the ATV212 drive,
- to show you how to install and wire this drive.

Validity Note

This documentation is valid for the Altivar 212 drive.

Related Documents

Title of Documentation	Reference Number
ATV212 Quick Start	S1A53825
ATV212 Programming manual	S1A53838
ATV212 Modbus manual	S1A53844
ATV212 BACnet manual	S1A53845
ATV212 Metasys N2 manual	S1A53846
ATV212 Apogee FLN P1 manual	S1A53847
ATV212 LONWORKS manual	S1A53848

You can download the latest versions of these technical publications and other technical information from our website at www.schneider-electric.com.

Introduction

1

What's in this Chapter?

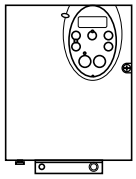
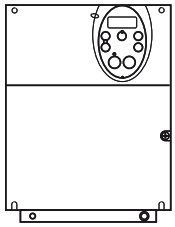
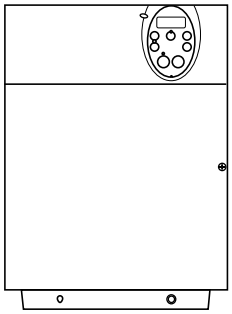
This chapter contains the following topics:

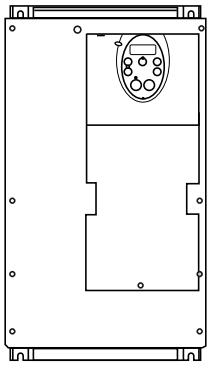
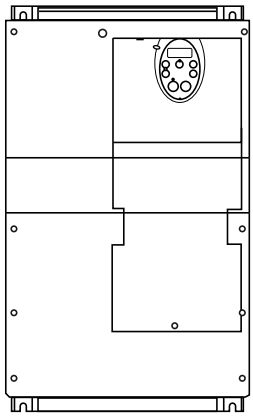
Device overview

The product

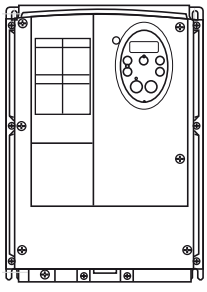
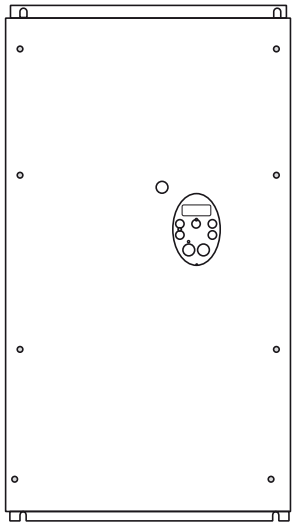
The ATV212 drive is mainly dedicated to HVAC applications in Building sector. The ATV212 drive family consists of five IP21 and two IP55 product sizes

The IP21 «H» range - 5 drive sizes - Three-phase 50/60 Hz supply voltage

ATV212H075M3X, U15M3X, U22M3X, 075N4, U15N4, U22N4, U30M3X, U40M3X, U30N4, U40N4, U55N4	ATV212HU55M3X, U75M3X, U75N4, D11N4	ATV212HD11M3X, D15M3X, D15N4, D18M3X, D18N4, D22N4S
0.75 to 5.5 kW	5.5 to 11 kW	11 to 22 kW
		

ATV212HD22M3X, D22N4, D30N4, D37N4, D45N4	ATV212HD30M3X, D55N4, D75N4
22 to 45 kW	30 to 75 kW
	

The IP55 «W» range - 2 drive sizes - Three-phase 50/60 Hz supply voltage

ATV21W075N4…U22N4, U30N4...U75N4	ATV12WD11N4...D75N4
0.75 to 7.5 kW	11 to 75 kW
	

Reference description

IP21 and IP55 variable speed drives - Three-phase 50/60 Hz supply voltage: 200 ... 240 V and 380 ... 480 V

ATV	212	H	D30	N4	S

Product designation ATV - Altivar

Product range

Degree of protection
H - IP21 product
W - IP55 product

Drive rating
075 - 0.75 kW (1 HP)
U15 - 1.5 kW (2 HP)
U22 - 2.2 kW (3 HP)
U30 - 3 kW
U40 - 4 kW (5 HP)
U55 - 5.5 kW ($7^{1/2}$ HP)
U75 - 7.5 kW (10 HP)
D11 - 11 kW (15 HP)
D15 - 15 kW (20 HP)
D18 - 18.5 kW (25 HP)
D22 - 22 kW (30 HP)
D30 - 30 kW (40 HP)
D37 - 37 kW (50 HP)
D45 - 45 kW (60 HP)
D55 - 55 kW (75 HP)
D75 - 75 kW (100 HP)

380 - 480 V range only

Power supply voltage
M3X : 200 - 240 V range three-phase
N4 : 380 - 480 V range three-phase (With integrated EMC filter C2, C3)
N4C : 380 - 480 V range three-phase (With integrated C1 EMC filter for UL Type 12/IP55 products ATV212W●●●●●●)

Slim version
Available for 22 kW (30 HP) rating, IP21 version

Before you begin

2

What's in this Chapter?

This chapter contains the following topics:

Safety instructions

Read and understand these instructions before performing any procedure with this drive.

⚠⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Read and understand this manual before installing or operating the drive. Installation, adjustment, repair, and maintenance must be performed by qualified personnel.
- The user is responsible for compliance with all international and national electrical code requirements with respect to grounding of all equipment.
- Many parts of this drive, including the printed circuit boards, operate at the line voltage. DO NOT TOUCH. Use only electrically insulated tools.
- DO NOT touch unshielded components or terminal strip screw connections with voltage present.
- DO NOT short across terminals PA/+ and PC/– or across the DC bus capacitors.
- Before servicing the drive:
  - Disconnect all power, including external control power that may be present.
  - Place a “DO NOT TURN ON” label on all power disconnects.
  - Lock all power disconnects in the open position.
  - WAIT 15 MINUTES to allow the DC bus capacitors to discharge.
  - Measure the voltage of the DC bus between the PA/+ and PC/– terminals to ensure that the voltage is less than 42 Vdc.
  - If the DC bus capacitors do not discharge completely, contact your local Schneider Electric representative. Do not repair or operate the drive.
- Install and close all covers before applying power or starting and stopping the drive.

Failure to follow these instructions will result in death or serious injury.

⚠ DANGER

UNINTENDED EQUIPMENT OPERATION

- Read and understand the programming manual before operating the drive.
- Any changes made to the parameter settings must be performed by qualified personnel.

Failure to follow these instructions will result in death or serious injury.

⚠WARNING

LOSS OF CONTROL

- The designer of any wiring scheme must consider the potential failure modes of control channels and, for certain critical control functions, provide a means to achieve a safe state during and after a channel failure. Examples of critical control functions are emergency stop and overtravel stop.
- Separate or redundant control channels must be provided for critical control functions.
- System control channels may include links carried out by the communication. Consideration must be given to the implications of unanticipated transmission delays or failures of the link[1].

Failure to follow these instructions can result in death, serious injury, or equipment damage.

1. For additional information, refer to NEMA ICS 1.1 (latest edition), “Safety Guidelines for the Application, Installation, and Maintenance of Solid State Control” and to NEMA ICS 7.1 (latest edition), “Safety Standards for Construction and Guide for Selection, Installation and Operation of Adjustable-Speed Drive Systems.”

⚠CAUTION

INCOMPATIBLE LINE VOLTAGE

Before turning on and configuring the drive, ensure that the line voltage is compatible with the supply voltage range shown on the drive nameplate. The drive may be damaged if the line voltage is not compatible.

Failure to follow these instructions can result in injury or equipment damage.

Before removing the drive from its packaging, verify that the carton was not damaged in shipping. Carton damage usually indicates improper handling and the potential for device damage. If any damage is found, notify the carrier and your Schneider Electric representative.

⚠WARNING
DAMAGED PACKAGING If the packaging appears damaged: - handle with care - check if the product appears damaged **Failure to follow these instructions can result in death, serious injury, or equipment damage.**

⚠WARNING
DAMAGED DRIVE EQUIPMENT Do not operate or install any drive or drive accessory that appears damaged. **Failure to follow these instructions can result in death, serious injury, or equipment damage.**

Storing and shipping

If the drive is not immediately installed, store it in a clean, dry area where the ambient temperature is between –25 and +70 °C (–13 to +158 °F). If the drive has to be shipped to another location, use the original shipping material and carton to help protect the drive.

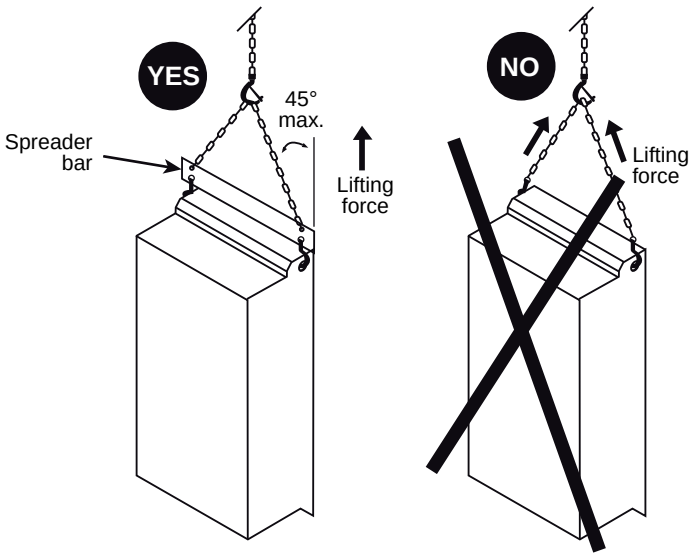
Lifting and handling instructions

⚠WARNING

HANDLING AND LIFTING HAZARD

Keep the area below any equipment being lifted clear of all personnel and property. Use the lifting method illustrated in following figure.

Failure to follow these instructions can result in death, serious injury, or equipment damage.



- Altivar 212 drives up to ATV212HD22N4S and ATV212W075N4 can be removed from their packaging and installed without a handling device.
- A hoist must be used for higher ratings.
- After removing the drive from its packaging, inspect it for damage. If any damage is found, notify the carrier and your sales representative.
- Verify that the drive nameplate and label conform to the packing slip and corresponding purchase order.

⚠WARNING

RISK OF TOPPLING

- Keep the drive on the pallet until ready to install.
- Never place the drive in an upright position without proper support, such as a hoist, braces, or other mounting supports.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

CAUTION

RISK OF DERATED PERFORMANCE DUE TO CAPACITOR AGING

The product capacitor performances after a long time storage above 2 years can be degraded.
In that case, before using the product , apply the following procedure:

- Use a variable AC supply connected between L1 and L2 (even for ATV212●●●N4 references).
- Increase AC supply voltage to have:
  - 25% of rated voltage during 30 min
  - 50% of rated voltage during 30 min
  - 75% of rated voltage during 30 min
  - 100% of rated voltage during 30 min

Failure to follow these instructions can result in equipment damage.

Steps for setting up

3

What's in this Chapter?

This chapter contains the following topics:

Steps for setting up

INSTALLATION

1. Check the delivery of the drive

- ☐ Check that the part number printed on the label is the same as that on the purchase order.
- ☐ Remove the Altivar from its packaging and check that it has not been damaged in transit.

2. Check the line voltage compatibility

- ☐ Check that the voltage range of the drive is compatible with the supply voltage (see page 20).

Steps 1 to 4 must be performed with the **power off**.

3. Mount the drive vertically

- ☐ Mount the drive in accordance with the instructions in this document (see page 25).
- ☐ Install any options required (see option documentation).

4. Wire the drive (see page 38)

- ☐ Connect the line supply and the ground, after making sure that the power is off.
- ☐ Connect the motor, ensuring that its connections correspond to the voltage.
- ☐ Connect the control part.

PROGRAMMING

5. Please refer to the programming manual.

Technical data

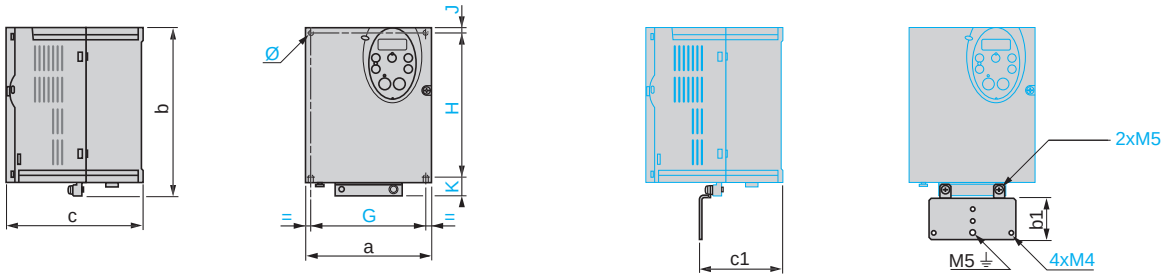
4

What's in this Chapter?

This chapter contains the following topics:

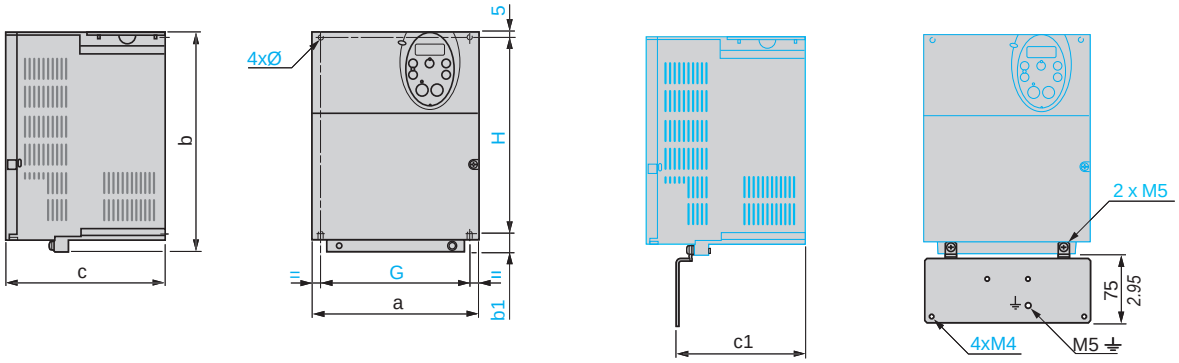
ATV212H dimensions and weights

The figures below shows outline drawings of the ATV212 drives and the tables gives the dimensions and weights of the various models.

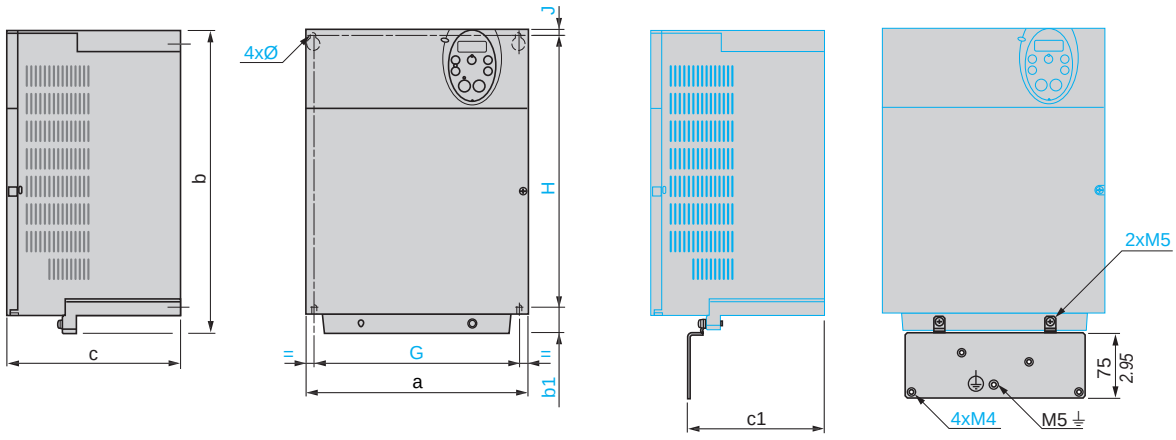


ATV212H	Dimensions mm (in.)										Weight kg (lb)
	a	b	b1	c	c1	G	H	K	J	Ø	
075M3X, U15M3X, U22M3X	107 (4.2)	143 (5.6)	49 (1.93)	150 (5.9)	67.3 (2.65)	93 (3.6)	121.5 (4.7)	16.5 (0.65)	5 (0.20)	5 (0.20)	1.80 (3.978)
075N4, U15N4, U22N4											2.00 (4.42)
U30M3X, U40M3X	142 (5.6)	184 (7.2)	48 (1.8)	150 (5.9)	88.8 (3.50)	126 (4.9)	157 (6.1)	20.5 (0.8)	6.5 (0.26)	5 (0.20)	3.05 (6.741)
U30N4, U40N4, U55N4											3.35 (7.404)

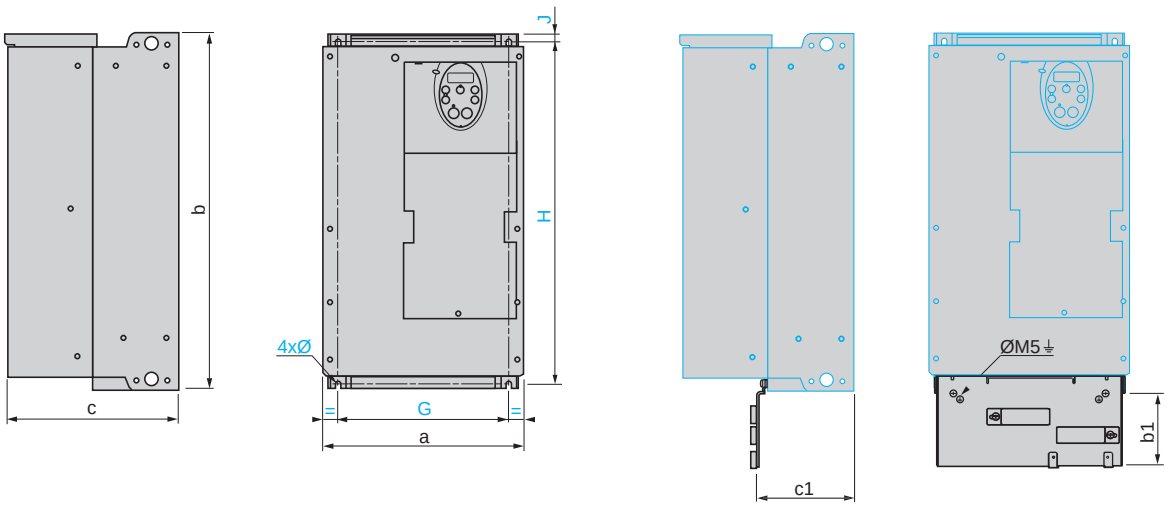
ATV212HU55M3X, U75M3X, HU75N4, HD11N4



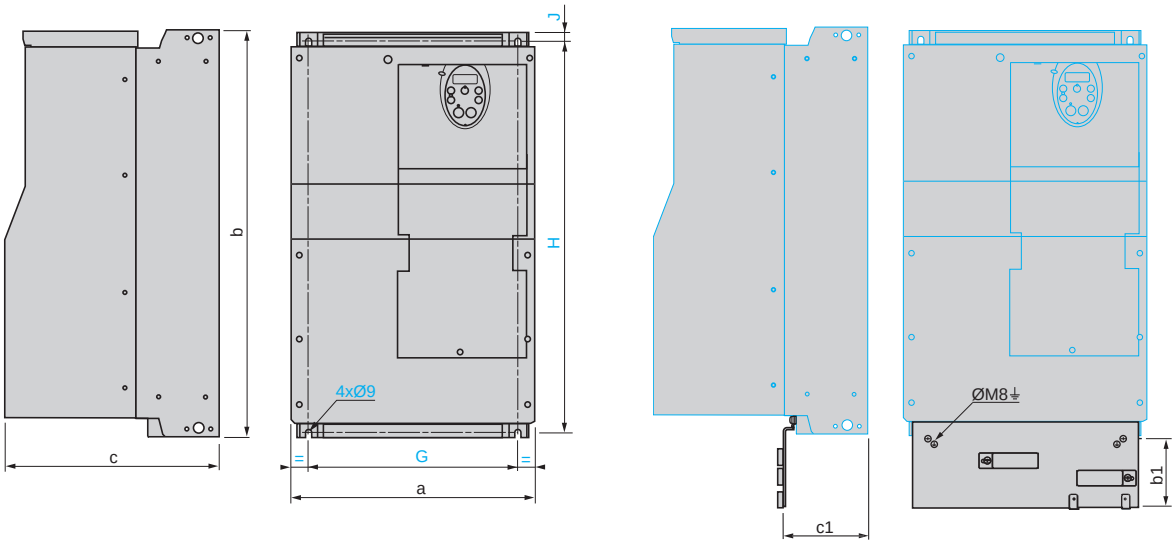
ATV212HD11M3X, D15M3X, HD15N4, HD18N4, HD22N4S



ATV212H	Dimensions mm (in.)									Weight kg (lb)
	a	b	b1	c	c1	G	H	J	Ø	
U55M3X, U75M3X, U75N4, D11N4	180 (7)	232 (9.1)	17 (0.67)	170 (6.7)	134.8 (5.31)	160 (6.3)	210 (8.2)	5 (0.20)	5 (0.20)	6.10 (13.481)
D11M3X, D15M3X D15N4, D18N4, D18M3X, D22N4S	245 (9.6)	329.5 (12.97)	27.5 (1.08)	190 (7.5)	147.6 (5.81)	225 (8.8)	295 (11.6)	7 (0.28)	6 (0.24)	11.50 (25.4)

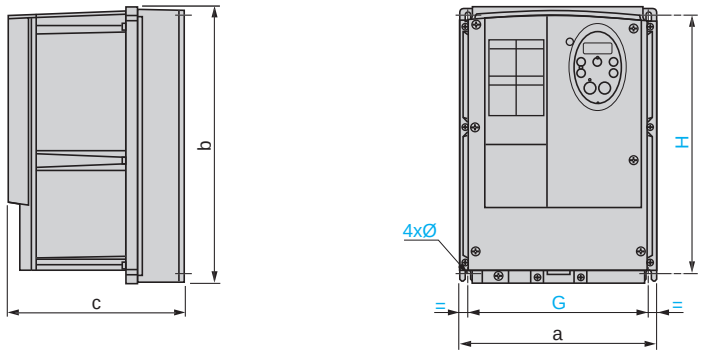


ATV212H	Dimensions mm (in.)									Weight kg (lb)
	a	b	b1	c	c1	G	H	J	Ø	
D22M3X	240 (9.4)	420 (16.5)	122 (4.8)	214 (8.4)	120 (4.72)	206 (8.1)	403 (15.8)	10 (0.39)	6 (0.24)	27.40 (60.554)
D22N4, D30N4										26.40 (58.344)
D37N4, D45N4	240 (9.4)	550 (21.65)	113 (4.45)	244 (9.61)	127 (5.0)	206 (8.1)	529 (20.83)	10 (0.39)	6 (0.24)	23.50 (51.81)

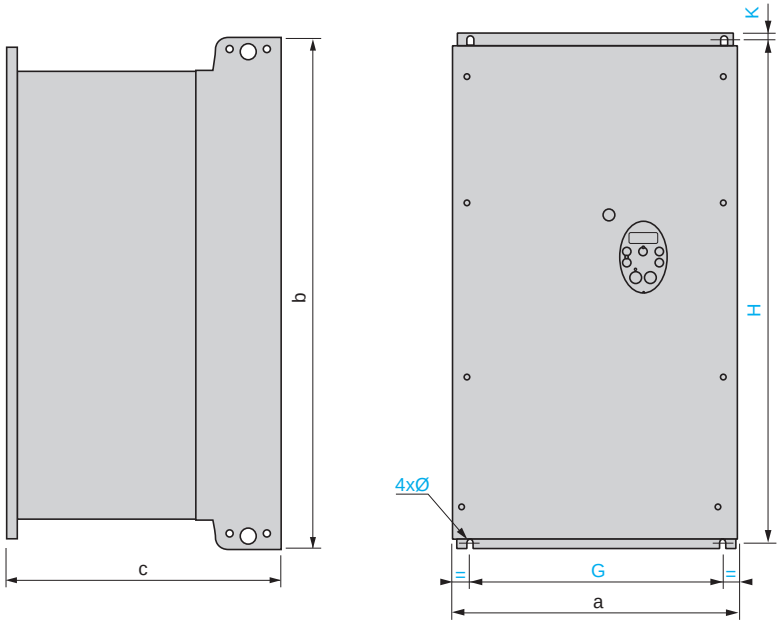


ATV212H	Dimensions mm (in.)									Weight kg (lb)
	a	b	b1	c	c1	G	H	J	Ø	
D30M3X	320 (12.5)	630 (24.8)	118 (4.65)	290 (11.4)	173 (6.81)	280 (11)	604.5 (23.8)	10 (0.39)	9 (0.35)	38.650 (85.42)
D55N4, D75N4	320 (12.5)	630 (24.8)	118 (4.65)	290 (11.4)	173 (6.81)	280 (11)	604.5 (23.8)	10 (0.39)	9 (0.35)	39.70 (87.74

ATV212W dimensions and weights



ATV212W	Dimensions mm (in.)						Weight kg (lb)
	a	b	c	G	H	Ø	
075N4…U22N4	215 (8.5)	297 (11.7)	192 (7.6)	197 (7.8)	277 (10.9)	5.5 (0.2)	7.00 (15.43)
075N4C…U22N4C							7.50 (16.53)
U30N4…U55N4	230 (9.1)	340 (13.4)	208 (8.2)	212 (8.3)	318 (12.5)		9.65 (21.27)
U75N4							10.95 (24.14)
U30N4C…U55N4C							10.55 (23.53)
U75N4C							11.85 (26.13)



ATV212W	Dimensions mm (in.)							Weight kg (lb)
	a	b	c	G	H	K	Ø	
D11N4, D15N4,	290 (11.41)	560 (22.05)	315 (12.40)	250 (9.84)	544 (21.42)	8 (0.3)	6 (0.24)	30.3 (66.78)
D11N4C, D15N4C								36.5 (80.45)
D18N4,	310 (12.20)	665 (26.18)	315 (12.40)	270 (10.62)	650 (25.59)	10 (0.4)	6 (0.24)	374 (82.43)
D18N4C								45 (99.18)
D22N4, D30N4,	284 (11.18)	720 (28.35)	315 (12.40)	245 (9.64)	700 (27.56)	10 (0.4)	7 (0.27)	49.5 (109.10)
D22N4C, D30N4C								58.5 (128.93)
D37N4, D45N4	284 (11.18)	880 (34.34)	343 (13.50)	245 (9.64)	860 (33.86)	10 (0.4)	7 (0.27)	57.4 (126.5)
D37N4C, D45N4C								77.4 (171)
D55N4, D75N4,	362 (14.25)	1000 (39.37)	364 (14.33)	300 (11.81)	975 (38.39)	10 (0.4)	9 (0.35)	61.9 (136.5)
D55N4C, D75N4C								88.4 (195)

Electrical data

ATV212H●●●●●● - Three-phase supply voltage: 200 ... 240 V 50/60 Hz

Motor		Line supply (input)					Drive (output)		Reference (5)
Power indicated on plate (1)		Max. line current (2)		Apparent power	Max. prospective line Isc (3)	Power dissipated at nominal current	Nominal current (1)	Max. transient current (1) (4)	
		at 200 V	at 240 V	at 240 V					
kW	**HP**	**A**	**A**	**kVA**	**kA**	**W**	**A**	**A**	
0.75	1	3.3	2.7	1.1	5	63	4.6	5.1	ATV212H075M3X
1.5	2	6.1	5.1	2.1	5	101	7.5	8.3	ATV212HU15M3X
2.2	3	8.7	7.3	3.0	5	120	10.6	11.7	ATV212HU22M3X
3	—	—	10.0	4.2	5	146	13.7	15.1	ATV212HU30M3X
4	5	14.6	13.0	5.4	5	193	18.7	19.3	ATV212HU40M3X
5.5	7.5	20.8	17.3	7.2	22	249	24.2	26.6	ATV212HU55M3X
7.5	10	27.9	23.3	9.7	22	346	32.0	35.2	ATV212HU75M3X
11	15	42.1	34.4	14.3	22	459	46.2	50.8	ATV212HD11M3X
15	20	56.1	45.5	18.9	22	629	61.0	67.1	ATV212HD15M3X
18.5	25	67.3	55.8	23.2	22	698	74.8	82.3	ATV212HD18M3X
22	30	80.4	66.4	27.6	22	763	88.0	96.8	ATV212HD22M3X
30	40	113.3	89.5	37.2	22	1085	117.0	128.7	ATV212HD30M3X

ATV212H●●●●●● - Three-phase supply voltage: 380 ... 480 V 50/60 Hz

Drives with an integrated EMC filter, category C2, C3

Motor		Line supply (input)					Drive (output)		Reference (5)
Power indicated on plate (1)		Max. line current (2)		Apparent power	Max. prospective line Isc (3)	Power dissipated at nominal current	Nominal current (1)	Max. transient current (1) (4)	
		at 380 V	at 480 V	at 380 V					
kW	**HP**	**A**	**A**	**kVA**	**kA**	**W**	**A**	**A**	
0.75	1	1.7	1.4	1.1	5	55	2.2	2.4	ATV212H075N4
1.5	2	3.2	2.5	2.1	5	78	3.7	4.0	ATV212HU15N4
2.2	3	4.6	3.6	3.0	5	103	5.1	5.6	ATV212HU22N4
3	—	6.2	4.9	4.1	5	137	7.2	7.9	ATV212HU30N4
4	5	8.1	6.4	5.3	5	176	9.1	10.0	ATV212HU40N4
5.5	7.5	10.9	8.6	7.2	22	215	12.0	13.2	ATV212HU55N4
7.5	10	14.7	11.7	9.7	22	291	16.0	17.6	ATV212HU75N4
11	15	21.1	16.8	13.9	22	430	22.5	24.8	ATV212HD11N4
15	20	28.5	22.8	18.7	22	625	30.5	33.6	ATV212HD15N4
18.5	25	34.8	27.8	22.9	22	603	37.0	40.7	ATV212HD18N4
22	30	41.1	32.8	27	22	723	43.5	47.9	ATV212HD22N4S
22	30	41.6	33.1	27.3	22	626	43.5	47.9	ATV212HD22N4
30	40	56.7	44.7	37.3	22	847	58.5	64.4	ATV212HD30N4
37	50	68.9	54.4	45.3	22	976	79	86.9	ATV212HD37N4
45	60	83.8	65.9	55.2	22	1253	94	103.4	ATV212HD45N4
55	75	102.7	89	67.6	22	1455	116	127.6	ATV212HD55N4
75	100	141.8	111.3	93.3	22	1945	160	176	ATV212HD75N4

(1) These values are given for a nominal switching frequency of 12 kHz up to ATV212HD15M3X and up to ATV212HD15N4 or 8 kHz for ATV212HD18M3X…HD30M3X and ATV212HD18N4…HD75N4 drives, 6 kHz for ATV212HD22N4S, for use in continuous operation at 40°C (104 °F) ambient.
The switching frequency can be set between 6 and 16 kHz for all ratings.
Above 8 kHz or 12 kHz, depending on the rating, the drive will reduce the switching frequency automatically in the event of an excessive temperature rise. For continuous operation above the nominal switching frequency, derate the nominal drive current. See page 26 for derating curves as a function of switching frequency, ambient temperature, and mounting conditions.

(2) Current on a line supply with the "Input withstand rating", see QuickStart guide.

(3) Current on a line supply with the indicated short-circuit current rating.

(4) The drive is designed to run up to 60 seconds at this level.

(5) See reference description on page 8.

ATV212W●●●●● - Three-phase supply voltage: 380 ... 480 V 50/60 Hz
Drives with an integrated EMC filter, category C2, C3

Motor		Line supply (input)				Drive (output)		Reference (5)
Power indicated on plate (1)		Max. line current (2)		Apparent power	Max. prospective line Isc (3)	Nominal current (1)	Max. transient current (1) (4)	
		at 380 V	at 480 V	at 380 V				
kW	**HP**	**A**	**A**	**kVA**	**kA**	**A**	**A**	
0.75	1	1.7	1.4	1.1	5	2.2	2.4	ATV212W075N4
1.5	2	3.2	2.5	2.1	5	3.7	4	ATV212WU15N4
2.2	3	4.6	3.6	3	5	5.1	5.6	ATV212WU22N4
3	—	6.2	4.9	4.1	5	7.2	7.9	ATV212WU30N4
4	5	8.1	6.4	5.3	5	9.1	10	ATV212WU40N4
5.5	7.5	10.9	8.6	7.2	22	12	13.2	ATV212WU55N4
7.5	10	14.7	11.7	9.7	22	16	17.6	ATV212WU75N4
11	15	21.2	16.9	14	22	22.5	24.8	ATV212WD11N4
15	20	28.4	22.6	18.7	22	30.5	33.6	ATV212WD15N4
18.5	25	34.9	27.8	23	22	37	40.7	ATV212WD18N4
22	30	41.6	33.1	27.3	22	43.5	47.9	ATV212WD22N4
30	40	56.7	44.7	37.3	22	58.5	64.4	ATV212WD30N4
37	50	68.9	54.4	45.3	22	79	86.9	ATV212WD37N4
45	60	83.8	65.9	55.2	22	94	103.4	ATV212WD45N4
55	75	102.7	89	67.6	22	116	127.6	ATV212WD55N4
75	100	141.8	111.3	93.3	22	160	176	ATV212WD75N4

ATV212W●●●●● - Three-phase supply voltage: 380 ... 480 V 50/60 Hz
Drives with an integrated C1 EMC filter

Motor		Line supply (input)				Drive (output)		Reference (5)
Power indicated on plate (1)		Max. line current (2)		Apparent power	Max. prospective line Isc (3)	Nominal current (1)	Max. transient current (1) (4)	
		at 380 V	at 480 V	at 380 V				
kW	**HP**	**A**	**A**	**kVA**	**A**	**A**	**A**	
0.75	1	1.7	1.4	1.1	5	2.2	2.4	ATV212W075N4C
1.5	2	3.2	2.6	2.1	5	3.7	4	ATV212WU15N4C
2.2	3	4.6	3.7	3	5	5.1	5.6	ATV212WU22N4C
3	—	6.2	5	4.1	5	7.2	7.9	ATV212WU30N4C
4	5	8.2	6.5	5.4	5	9.1	10	ATV212WU40N4C
5.5	7.5	11	8.7	7.2	22	12	13.2	ATV212WU55N4C
7.5	10	14.7	11.7	9.7	22	16	17.6	ATV212WU75N4C
11	15	21.1	16.7	13.9	22	22.5	24.8	ATV212WD11N4C
15	20	28.4	22.8	18.7	22	30.5	33.6	ATV212WD15N4C
18.5	25	34.5	27.6	22.7	22	37	40.7	ATV212WD18N4C
22	30	41.1	33.1	27.1	22	43.5	47.9	ATV212WD22N4C
30	40	58.2	44.4	38.3	22	58.5	64.4	ATV212WD30N4C
37	50	68.9	54.4	45.3	22	79	86.9	ATV212WD37N4C
45	60	83.8	65.9	55.2	22	94	103.4	ATV212WD45N4C
55	75	102.7	89	67.6	22	116	127.6	ATV212WD55N4C
75	100	141.8	111.3	93.3	22	160	176	ATV212WD75N4C

(1) These values are given for a nominal switching frequency of 12 kHz up to ATV212WD15M3X and up to ATV212HD15N4 or 8 kHz for ATV212WD18M3X…HD30M3X and ATV212WD18N4…HD75N4 drives, for use in continuous operation at 40°C (104 °F) ambient.
Above 8 kHz or 12 kHz, depending on the rating, the drive will reduce the switching frequency automatically in the event of an excessive temperature rise. For continuous operation above the nominal switching frequency, derate the nominal drive current. See page 26 for derating curves as a function of switching frequency, ambient temperature, and mounting conditions

(2) Current on a line supply with the "Input withstand rating", see page QuickStart guide.

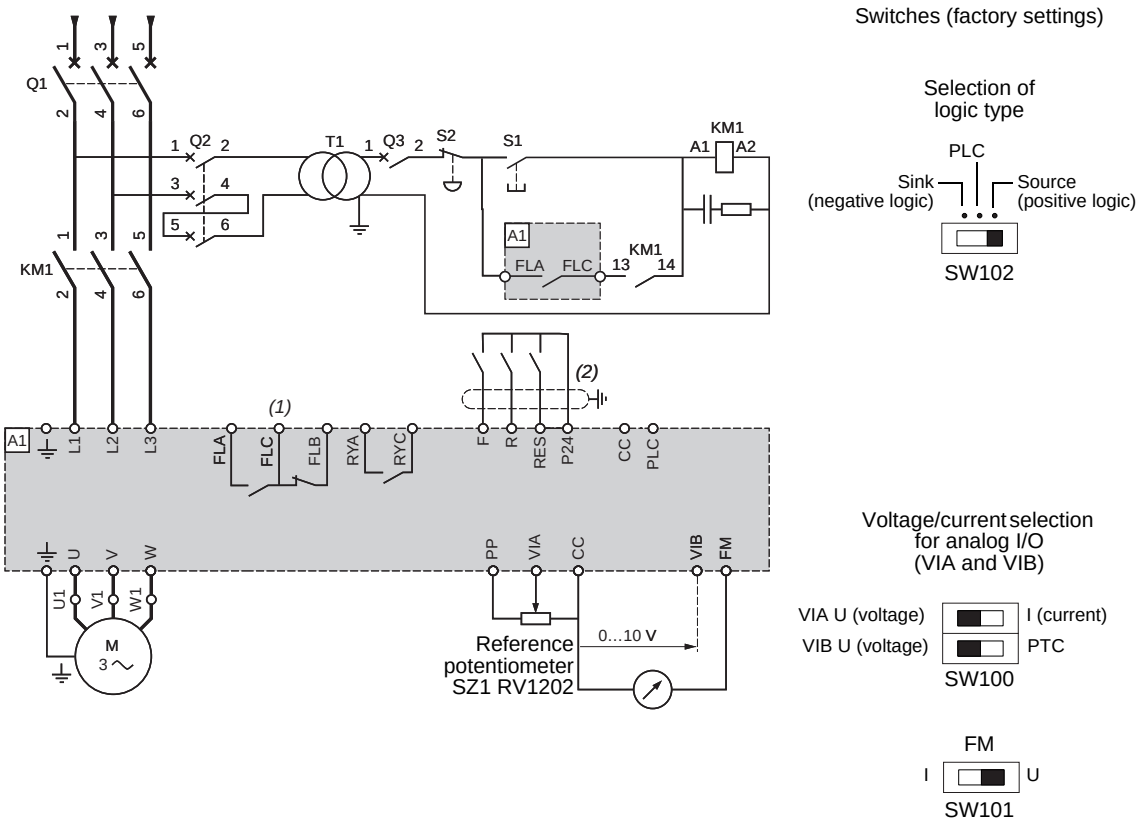
(3) Current on a line supply with the indicated short-circuit current rating.

(4) **Note:** The drive is designed to run up to 60 seconds at this level.

(5) See reference description on page 8.

Connection diagrams

Recommended diagram for ATV212H●●●M3X, ATV212●●●●N4, ATV212W●●●N4C



(1) Fault relay contacts. Used for remote signaling of the drive status.

(2) Connection of the common for the logic inputs depends on the position of the switch (Source, PLC, Sink); see page 45.

⚠ DANGER

UNINTENDED EQUIPMENT OPERATION

- Modify only the setting of switches when the product is switched off.
- Do not change the setting of switch SW102 unless your system is wired for sink logic.

Failure to follow these instructions will result in death or serious injury.

⚠ CAUTION

RISK OF BODY INJURY

use a screw driver to change the position of the switches.

Failure to follow these instructions can result in injury or equipment damage.

Note: All terminals are located at the bottom of the drive. Install interference suppressors on all inductive circuits near the drive or connected on the same circuit, such as relays, contactors, solenoid valves, fluorescent lighting, etc.

Examples of recommended circuit diagrams

Logic input switch

The logic input switch SW102 assigns the logic input type to either 24 V (source logic) or 0 V (sink logic).

⚠ DANGER

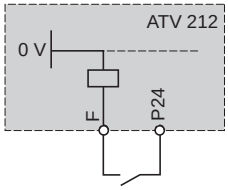
UNINTENDED EQUIPMENT OPERATION

- Prevent accidental grounding of logic inputs configured for sink logic. Accidental grounding can result in unintended activation of drive functions.
- Protect the signal conductors against damage that could result in unintentional conductor grounding.
- Follow NFPA 79 and EN 60204 guidelines for proper control circuit grounding practices.

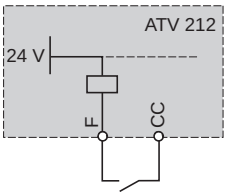
Failure to follow these instructions will result in death or serious injury.

Logic inputs according to the position of the logic type switch

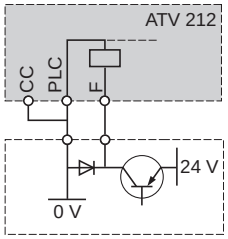
"Source" position



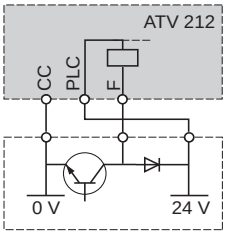
"Sink" position



"PLC" position with PLC transistor outputs

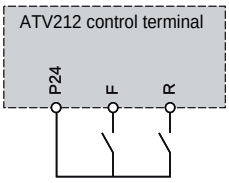


PLC



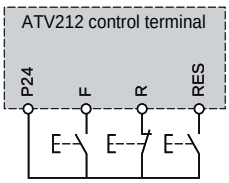
PLC

2-wire control



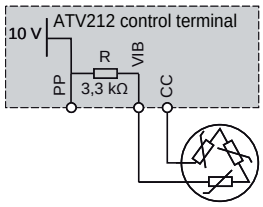
F: Forward
R: Preset speed

3-wire control



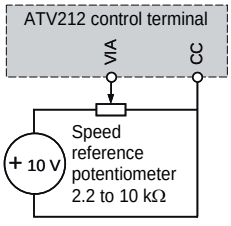
F: Forward
R: Stop
RES: Reverse

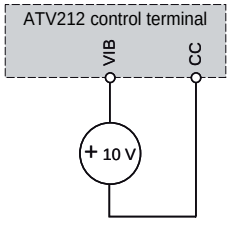
PTC probe



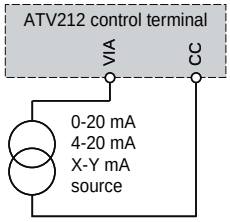
Analog inputs

Voltage analog inputs
External + 10 V

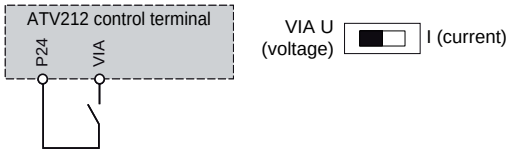




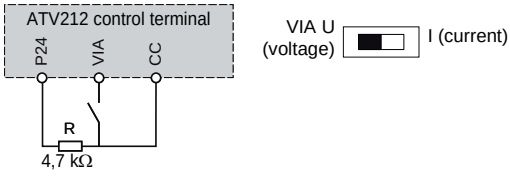
Voltage analog inputs
0-20 mA, 4-20 mA, X-Y mA



Voltage analog inputs
Positive logic («Source» position)



Negative logic («Sink» position)



Installation

5

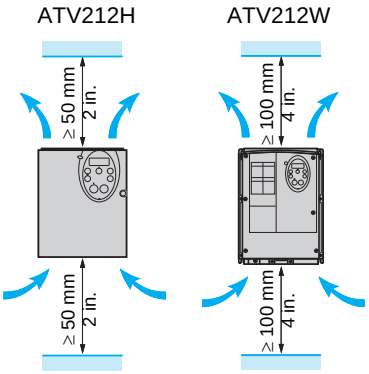
What's in this Chapter?

This chapter contains the following topics:

Drive mounting generalities

CAUTION
RISK OF DAMAGE TO THE DRIVE
Follow mounting recommendations described in this document.
Failure to follow these instructions can result in equipment damage.

Mounting and temperature conditions



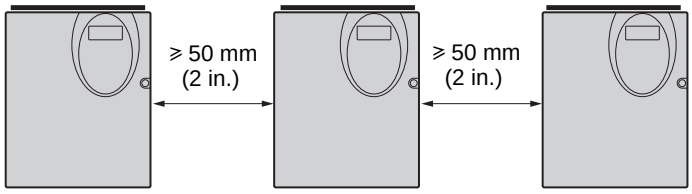
Depending on the conditions in which the drive is to be used, its installation will require certain precautions and the use of appropriate accessories.

- Install the drive vertically, at ± 10°.
- Fix it on the mounting surface using M5 screws with captive washer.
- Do not place it close to heating elements.
- Leave sufficient free space so that the air required for cooling purposes can circulate from the bottom to the top of the drive.
- Free space in front of the drive: 10 mm (0.39 in.) minimum.

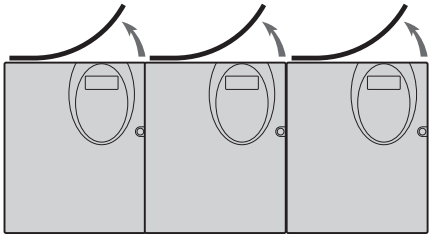
The use of washers is recommended with all mounting screws.

Mounting methods

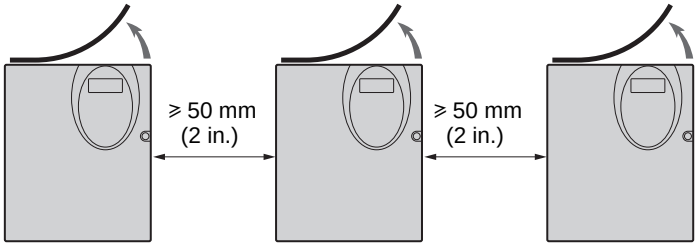
Type A mounting - ATV212H●●●M3X, ATV212H●●●N4● and ATV212W●●●N4, ATV212W●●●N4C
Free space ⩾ 50 mm (2 in.) on each side, with the protective cover in place.



Type B mounting - ATV212H●●●M3X, ATV212H●●●N4●
Drives mounted side-by-side, with the protective cover removed (degree of protection becomes open type IP20).



Type C mounting - ATV212H●●●M3X, ATV212H●●●N4●
Free space ⩾ 50 mm (2 in.) on each side, with the protective cover removed (degree of protection becomes open type IP20).



These mounting types are possible without derating up to 40°C (104 °F) at the factory-set switching frequency.
For other ambient temperatures and switching frequencies, see derating curves page 26.

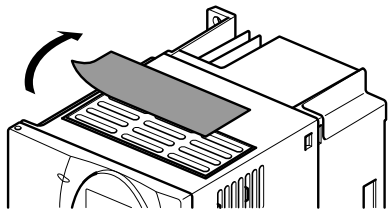
Removing the protective cover on ATV212H drives

See Mounting methods, page 25 to determine the type of mounting appropriate for your application before removing the protective cover from the drive.

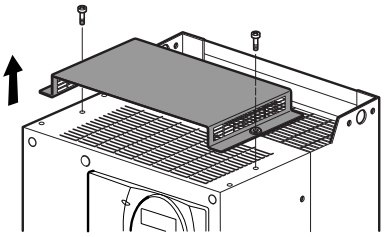
When IP20 protection is adequate, remove the protective cover on top of the drive as shown below.

For UL Type 1 protection, leave the protective cover on top of the drive and install a conduit entry kit (mounting outside the enclosure). See entry kit references in the catalog on www.schneider-electric.com.

ATV212H 075M3X to D18M3X, and ATV212H 075N4 to D22N4S



ATV212H D22M3X to D30M3X and ATV212H D22N4 to D30N4



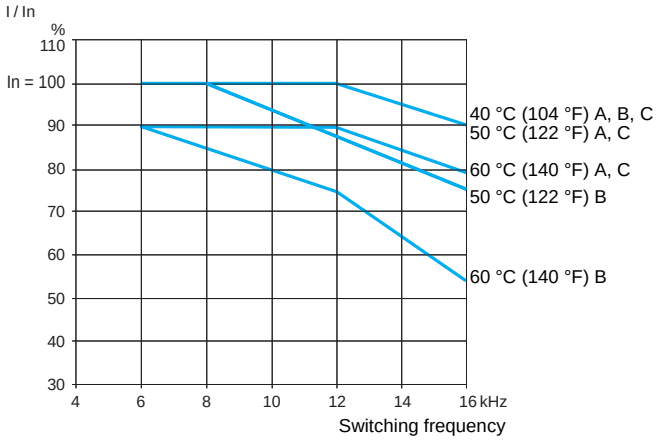
Derating curves

The curves illustrate the drive nominal current derating percentage (I/In%) as a function of the temperature, switching frequency, and the different types of mounting (A, B and C).

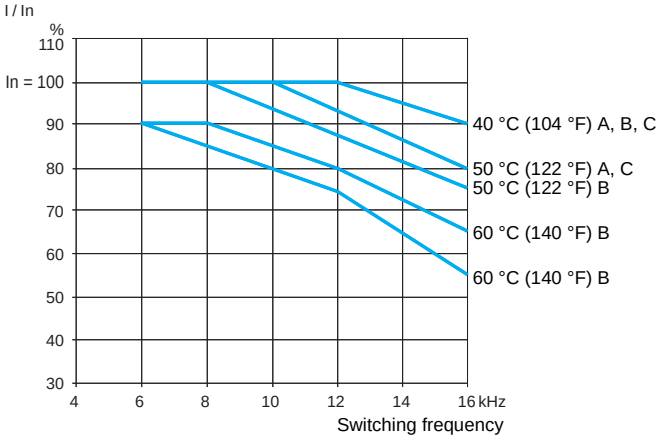
For example, 80% derating of a 20 hp, 460 V ATV212 drive nominally rated for 30.5 amperes continuously: 30.5 x 0.8 = 24.4 (15 hp).

For intermediate temperatures, interpolate between two curves.

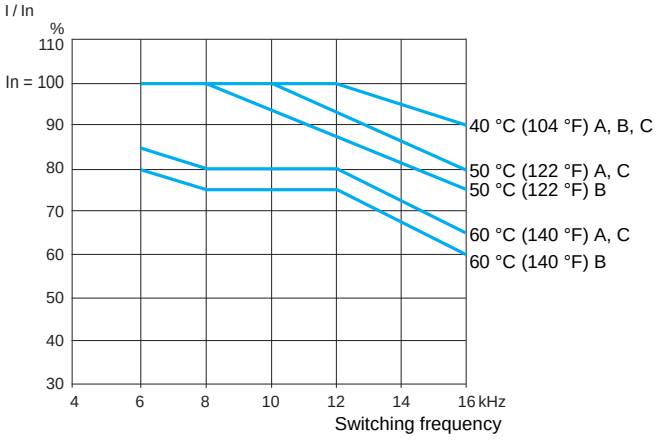
ATV212H075M3X



ATV212HU15M3X



ATV212HU22M3X



ATV212HU30M3X, HU40M3X