

## Altivar® 61, 71, 630 and 930 Type 1 Conduit Box Kits VW3A9209–VW3A9214

Retain for future use.

### INTRODUCTION

This bulletin contains installation instructions for Altivar® 61, 71, 630 and 930 conduit box kits, VW3A9209–VW3A9214. The conduit box kits provide a Type 1 enclosure rating. These kits are for use only on Altivar 61, Altivar 71, Altivar 630 and Altivar 930 drive controllers rated 230 V or 460 V. See Table 2 on page 2 for the drive catalog numbers.


**Table 1: Conduit Box Kit Contents**

Quantity	Part Description
1	Conduit box
1	Conduit box cover
1	Conduit support frame
1	EMC plate
1	Secondary EMC plate <sup>1</sup>
1	Conduit plate
2	Hardware clip with M5 nut
See note <sup>2</sup>	M4 screws
See note <sup>3</sup>	M6 screws

<sup>1</sup> For use with VW3A9209 only.

<sup>2</sup> M4 screws: VW3A9211 contains 8; VW3A9210 contains 13; VW3A9209 and VW3A9212–VW3A9214 contain 15.

<sup>3</sup> M6 screws: VW3A9209 and VW3A9210 contain 6; VW3A9211–VW3A9214 contain 10.


DANGER

**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

- Only appropriately trained persons who are familiar with and understand the contents of this manual and all other pertinent product documentation and who have received safety training to recognize and avoid hazards involved are authorized to work on and with this drive system. Installation, adjustment, repair and maintenance must be performed by qualified personnel.
- The system integrator is responsible for compliance with all local and national electrical code requirements as well as all other applicable regulations with respect to grounding of all equipment.
- Many components of the product, including the printed circuit boards, operate with mains voltage. Do not touch. Use only electrically insulated tools.
- Do not touch unshielded components or terminals with voltage present.
- Motors can generate voltage when the shaft is rotated. Prior to performing any type of work on the drive system, block the motor shaft to prevent rotation.
- AC voltage can couple voltage to unused conductors in the motor cable. Insulate both ends of unused conductors of the motor cable.
- Do not short across the DC bus terminals or the DC bus capacitors or the braking resistor terminals.
- Before performing work on the drive system:
  - Disconnect all power, including external control power that may be present.
  - Place a "Do Not Turn On" label on all power switches.
  - Lock all power switches in the open position.
  - Wait 15 minutes to allow the DC bus capacitors to discharge. The DC bus LED is not an indicator of the absence of DC bus voltage that can exceed 800 Vdc.
  - Measure the voltage on the DC bus between the DC bus terminals (PA/+, PC/-) using a properly rated voltmeter to verify that the voltage is < 42 Vdc.
  - If the DC bus capacitors do not discharge properly, contact your local Schneider Electric representative.
- Install and close all covers before applying voltage.

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

### Tools Required

Use the following tools for the procedures in this bulletin:

- #2 Phillips screwdriver
- M5 wrench
- Voltmeter

Figure 1: Example of Altivar 61/71 Drive Controller with Conduit Box Kit Mounted

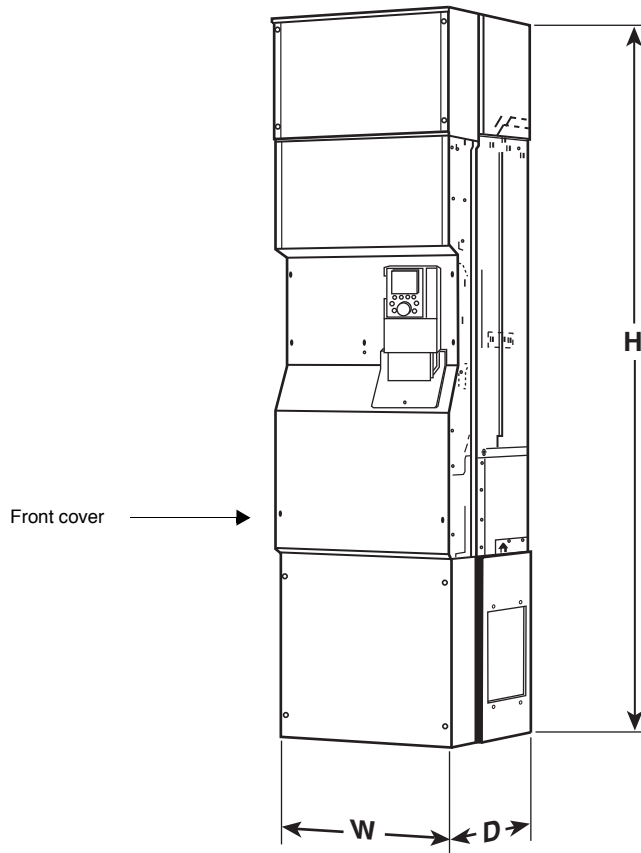


Table 2: Altivar 61/71/630/930 Conduit Box Kits

Conduit Kit Number	For Use with Drive Controllers:				For Use with Drive Controllers			
	230 V		460 V		230 V		460 V	
	ATV61H..... <sup>1</sup>	ATV71H.....	ATV61H.....	ATV71H.....	ATV630..... <sup>2</sup>	ATV930.....	ATV630.....	ATV930.....
VW3A9209	D55M3X D75M3X	D55M3X	D90N4 C11N4	D90N4	— —	— —	— —	— —
VW3A9210	D90M3X	D75M3X	C13N4	C11N4	—	—	—	—
VW3A9211	—	—	C16N4	C13N4	—	—	—	—
VW3A9212	—	—	C22N4	C16N4	—	—	C22N4	C22N4 C22N4C
VW3A9213	—	—	C25N4	C20N4	—	—	C25N4, C31N4	C25N4C
VW3A9214 <sup>3</sup>	—	—	C31N4	C25N4 C28N4	—	—	—	C31N4C

<sup>1</sup> The symbol “.” indicates the part of the number that varies with controller size or rating.

<sup>2</sup> The symbol “.” indicates the part of the number that varies with controller size or rating.

<sup>3</sup> Conduit box kit VW3A9214 is intended for use with C20N4, C25N4, C28N4, and C31N4 drive controllers with a mounted braking unit.

**Table 3: Overall Drive Controller Dimensions with Conduit Kit Mounted**

Conduit Kit Number	Dimensions in. (mm)		
	Depth (D)	Width (W)	Height (H)
VW3A9209	14.56 (369.82)	12.59 (319.79)	44.80 (1137.92)
VW3A9210	14.56 (369.82)	14.17 (359.92)	52.00 (1320.80)
VW3A9211	14.56 (369.82)	13.38 (339.85)	59.33 (1506.98)
VW3A9212	16.61 (421.89)	17.32 (439.93)	61.55 (1563.37)
VW3A9213	18.46 (468.88)	23.22 (589.79)	61.61 (1564.89)
VW3A9214 <sup>1</sup>	18.50 (469.90)	26.16 (664.46)	61.61 (1564.89)

<sup>1</sup> Conduit box kit VW3A9214 is intended for use with C20N4, C25N4, C28N4, and C31N4 drive controllers with a mounted braking unit.

If the drive was not connected to mains for an extended period of time, the capacitors must be restored to their full performance before the motor is started.

## **NOTICE**

### **REDUCED CAPACITOR PERFORMANCE**

- Apply mains voltage to the drive for one hour before starting the motor if the drive has not been connected to mains for the following periods of time:
  - 12 months at a maximum storage temperature of +50°C (+122°F)
  - 24 months at a maximum storage temperature of +45°C (+113°F)
  - 36 months at a maximum storage temperature of +40°C (+104°F)
- Verify that no Run command can be applied before the period of one hour has elapsed.
- Verify the date of manufacture if the drive is commissioned for the first time and run the specified procedure if the date of manufacture is more than 12 months in the past.

**Failure to follow these instructions can result in equipment damage.**

If the specified procedure cannot be performed without a Run command because of internal mains contactor control, perform this procedure with the power stage enabled, but the motor being at standstill so that there is no appreciable mains current in the capacitors.

## **BUS VOLTAGE MEASUREMENT PROCEDURE**

Before working on the drive controller, remove all power and wait 15 minutes to allow the DC bus to discharge. Then measure the DC bus voltage between the PA/+ and PC/- terminals.

## **DANGER**

### **HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

Read and understand the safety instructions “This bulletin contains installation instructions for Altivar® 61, 71, 630 and 930 conduit box kits, VW3A9209–VW3A9214. The conduit box kits provide a Type 1 enclosure rating. These kits are for use only on Altivar 61, Altivar 71, Altivar 630 and Altivar 930 drive controllers rated 230 V or 460 V. See Table 2 on page 2 for the drive catalog numbers.” on page 1 before performing this procedure.

**Failure to follow this instruction will result in death or serious injury.**

The DC bus voltage can exceed 1000 Vdc. Use a properly rated voltage sensing device when performing this procedure.

To measure the DC bus voltage:

1. Disconnect the drive controller’s power supply.
2. Wait 15 minutes to allow the DC bus capacitors to discharge.
3. Measure the voltage of the DC bus between the PA/+ and the PC/- terminals to verify that the voltage is less than 45 Vdc.

*NOTE: The PA/+ and the PC/- terminals are marked on the power terminal block.*

4. If the DC bus capacitors do not discharge completely, contact your local Schneider Electric representative. **Do not operate the drive controller and do not attempt to replace component parts.**

## INSTALLATION

### ⚠ CAUTION

#### SHARP EDGES

Use all necessary personal protective equipment (PPE) such as gloves when performing any type of work whatsoever on or with this product.

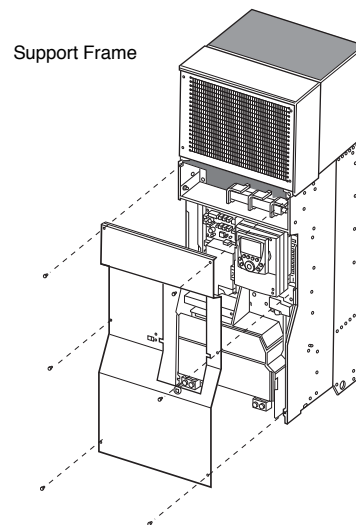
**Failure to follow these instructions can result in minor injury or equipment damage.**

Before installing the conduit box kit, perform the bus voltage measurement procedure described in “Bus Voltage Measurement Procedure” above.

To install the conduit kit:

1. Remove the front cover from the drive controller. See Figure 2.

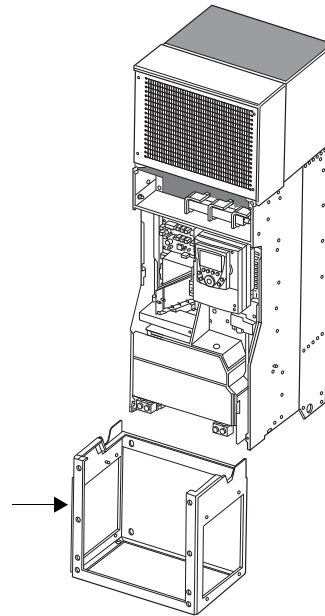
**Figure 2: Removing the Front Cover**



2. Place the support frame for the conduit box under the drive controller, aligning it with the chassis of the drive controller. See Figure 3.

The support frame may vary in size and shape depending on the kit catalog number. The openings in the support frame are provided to facilitate air flow through heat sinks.

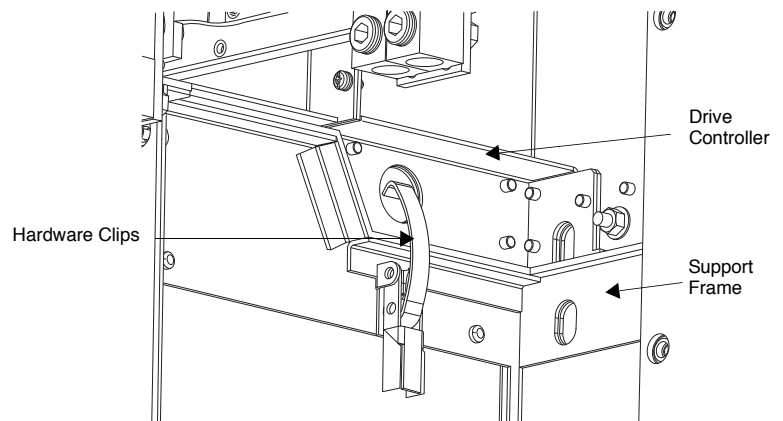
**Figure 3: Aligning the Support Frame to the Drive Controller's Chassis**



3. Attach the hardware clips to the side of the support frame using the M5-0.8 nut and captive conical washer (see Figure 4). Torque the nut to 26 lb-in (2.94 N·m).

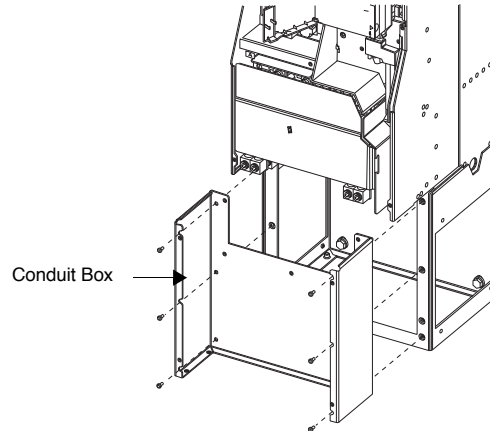
Clip the support frame in place using the hardware clip.

**Figure 4: Attaching the Hardware Clip**



4. Attach the conduit box to the support frame using the M6 screws provided. See Figure 5. Torque the screws to 48 lb-in (5.42 N·m).

**Figure 5: Attaching the Conduit Box to the Support Frame**



5. The EMC plate varies in size and shape depending on the kit catalog number.

### **▲ CAUTION**

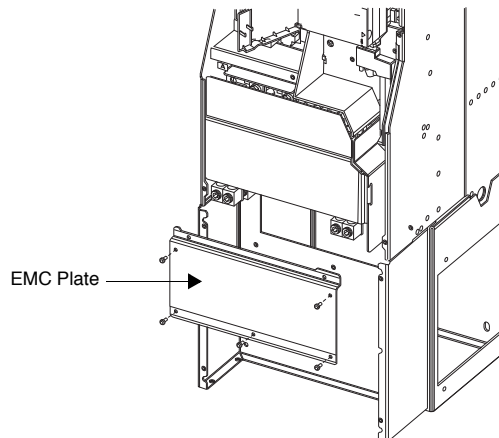
#### **IMPROPER EQUIPMENT OPERATION**

- Be sure to install the EMC plate as directed in these instructions.
- Do not operate the drive controller without the EMC plate properly in place.

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

Mount the EMC plate into both the conduit box and drive controller using the M6 screws as shown in Figure 6. Torque the screws to the values shown in Table 4 on page 7. For kits VW3A9210–VW3A9214, skip to Step 7 on page 7.

**Figure 6: Installing the EMC Plate**

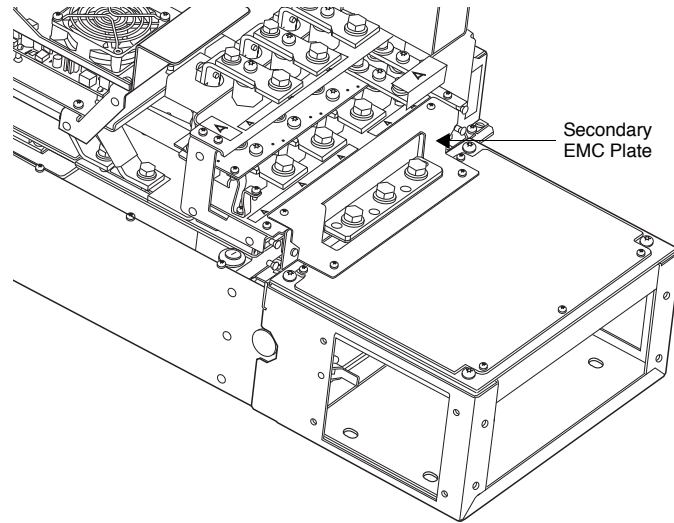


**Table 4: Torque Values**

Kit Number	Screw Size	Torque
VW3A9209	M4	13 lb-in (1.47 N•m)
VW3A9210		
VW3A9211	M6	48 lb-in (5.42 N•m)
VW3A9212		
VW3A9213		
VW3A9214		

6. For kit VW3A9209, use the M4 screws to install the secondary EMC plate. See Figure 7.
  - Thread two M4 screws into the conduit box assembly.
  - Thread two M4 screws into the drive controller.
  - Torque the screws to 13 lb-in (1.47 N•m).

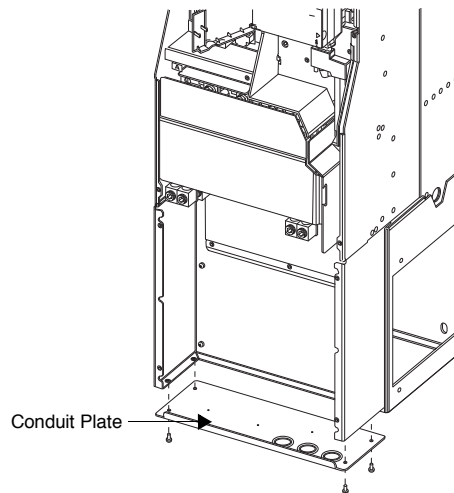
**Figure 7: Installing the Secondary EMC Plate**



*NOTE: For clarity, the walls of the conduit box are not shown.*

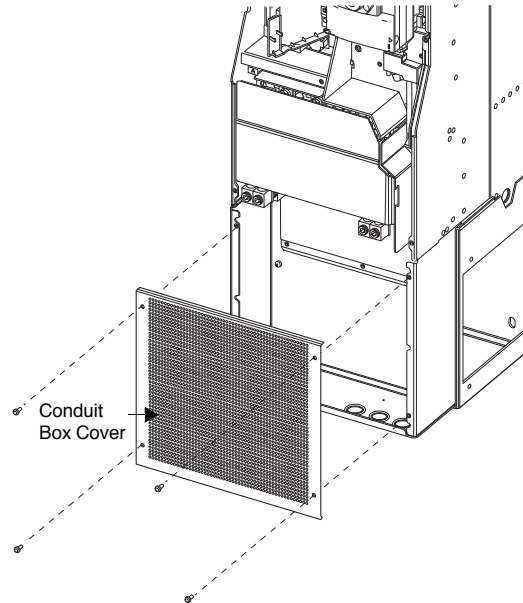
7. Install the conduit plate using the M4 screws provided. Torque the screws to 13 lb-in (1.47 N•m). See Figure 8.

**Figure 8: Installing the Conduit Plate**



8. Knockouts are provided for the control cables. Use either a hole saw or a punch to cut entries for power conduit passage.
9. Install the conduit box cover using the M4 screws provided. Torque the screws to 13 lb-in (1.47 N•m). See Figure 9.

Figure 9: Installing the Conduit Box Cover



10. Replace the front cover (see Figure 2 on page 4) onto the drive controller.

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