

# Instruction Bulletin

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## Altivar<sup>®</sup> 71 Drive Controllers Errata to Bulletin atv71e\_installation\_manual\_en\_v3

Retain for future use.

### INTRODUCTION

This document provides additional information and corrections to the instructions provided in the *Altivar<sup>®</sup> 71 Installation Manual*, instruction bulletin atv71e\_installation\_manual\_en\_v3 (module 1755849).

To facilitate cross referencing, the section headings in this bulletin match the section headings in the Installation Manual. The page location of the section headings are listed in the Contents of the Installation Manual.

Make the following changes to the Installation Manual.

### IMPORTANT INFORMATION

#### Please Note

Replace the disclaimer note with the following:

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 material.

## BEFORE YOU BEGIN

Read this document carefully and store it with the Installation Manual for future reference.

### **⚠ DANGER**

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

- Read and understand this document and bulletin atv71e\_installation\_manual\_en\_v3 before installing or operating the Altivar 71 drive controller. 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 controller, 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 controller:
  - 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. Then follow the “Bus Voltage Measurement Procedure” on page 3 of this bulletin to verify that the DC voltage is less than 42 V. The drive LED is not an indicator of the absence of DC bus voltage.
- Install and close all covers before applying power or starting and stopping the drive controller.

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

### **⚠ DANGER**

#### **UNINTENDED EQUIPMENT OPERATION**

With regard to the connection diagrams for safety applications described in the *Altivar® 71 Installation Manual*:

- Refer to IEC 61508, *Functional Safety of Electrical/Electronic/Programmable Electronic Safety Related System, Parts 1–7, 2000*.
- Completely understand the applications and environment defined by Safety Integrity Level 2 (SIL2) within IEC 61508.
- Do not exceed SIL2 ratings in the application of the product.
- The following terms are used in this document are used in the context of Safety Integrity Level 2 of IEC 61508: power removal safety function, safety-type signals, safely, and safe conditions.

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

## PRELIMINARY RECOMMENDATIONS

### Installing the AC choke on ATV71H••Y drives

Insert the following safety message to this section.

## CAUTION

### CONTROLLER DAMAGE

A 3–5% impedance input line reactor is required on all ATV71HC••Y drive controller installations.

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

### POSITION OF THE CHARGING LED

Replace the Bus Voltage Measurement Procedure section with the following:

### 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.

The DC bus voltage can exceed 1,000 Vdc. Use a properly rated voltage-sensing device when performing this procedure. To measure the DC bus voltage:

1. Disconnect all power.
2. Wait 15 minutes to allow the DC bus to discharge.
3. Measure the voltage of the DC bus between the PA/+ and PC/– terminals to ensure that the voltage is less than 42 Vdc.
4. If the DC bus capacitors do not discharge completely, contact your local Schneider Electric representative. Do not repair or operate the drive controller.

## ⚠ DANGER

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

Read and understand the precautions in “Before you begin” on page 2 of this Errata sheet before performing this procedure.

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

## WIRING RECOMMENDATIONS

Good wiring practice requires the separation of control wiring from all power (line) wiring. In addition, power wiring to the motor must have the maximum possible separation from all other power wiring, whether from the same drive controller or other drive controllers. Do not run power and control wiring, or multiple power wiring, in the same conduit. This separation reduces the possibility of coupling electrical transients from power circuits into control circuits or from motor power wiring into other power circuits.

Follow the practices below when wiring ATV71 drive controllers:

- Verify that the voltage and frequency of the input supply line and the voltage, frequency, and current of the motor match the rating on the drive controller nameplate.
- Use metallic conduit for all drive controller wiring. Do not run control and power wiring in the same conduit.
- Separate the metallic conduits carrying power wiring or low-level control wiring by at least 76 mm (3 in.).
- Separate the non-metallic conduits or cable trays carrying power wiring from the metallic conduit carrying control wiring by at least 305 mm (12 in.).

### Length of motor cables

Add the following information to the note.

*NOTE: A load reactor or motor protecting filter is recommended for all 575 V applications, especially when the unshielded motor leads connected to an ATV71HC••Y drive controller exceeds 30 m (98 ft.).*

## CONTROL TERMINALS

### Removing the terminal card

The safety message should read:

<b>CAUTION</b>
<b>IMPROPERLY SECURED TERMINAL CARD</b>
When replacing the control terminal card, be sure to torque the captive screw to 1.1–1.7 N•m (9.7–15 lb-in).
<b>Failure to follow these instructions can result in equipment damage.</b>

### Arrangement of the control terminals

In the table, Characteristics and functions of the terminals, under Programmable logic inputs and Functions headings, be advised of the following hazard.

<b>⚠ DANGER</b>
<b>UNINTENDED EQUIPMENT OPERATION</b>
When the SW1 switch is set to “Sink Int” or “Sink Ext,” the common must never be connected to ground or the protective ground, as there is a risk of accidental starting on the first insulation fault.
<b>Failure to follow these instructions will result in death or serious injury.</b>

## OPTION TERMINALS

### Logic I/O option card terminals (VW3A3201)

In the table, Characteristics and functions of the terminals, under Programmable logic inputs and Functions headings, be advised of the following hazard.

<b>⚠ DANGER</b>
<b>UNINTENDED EQUIPMENT OPERATION</b>
When the SW3 switch is set to “Sink Int” or “Sink Ext,” the common must never be connected to ground or the protective ground, as there is a risk of accidental starting on the first insulation fault.
<b>Failure to follow these instructions will result in death or serious injury.</b>

### Extended I/O option card terminals (VW3A3202)

In the Characteristics and functions of the terminals table:

- Under Programmable logic inputs, be advised of the following hazard:

<b>⚠ DANGER</b>
<b>UNINTENDED EQUIPMENT OPERATION</b>
When the SW4 switch is set to “Sink Int” or “Sink Ext,” the common must never be connected to ground or the protective ground, as there is a risk of accidental starting on the first insulation fault.
<b>Failure to follow these instructions will result in death or serious injury.</b>

- Under the terminals, RP, and Electrical characteristics headings, the wattage of the listed resistors is:

- $510 \Omega \geq 1/4 W$
- $910 \Omega \geq 1/2 W$
- $1,300 \Omega \geq 1/2 W$

## CONNECTION DIAGRAMS

### Connection diagrams conforming to standards EN 954-1 category 3 and IEC/EN 61508 capacity SIL2, stopping category 0 in accordance with standard IEC/EN 60204-1

- Replace the note about hoisting applications with the following Danger message.

<b>⚠ DANGER</b>
<b>UNINTENDED EQUIPMENT OPERATION</b>
Use the provided power removal connection diagram for hoisting applications.
<b>Failure to follow these instructions will result in death or serious injury.</b>

- Replace the sentence below the note about hoisting applications with the following:  
A contact on the Preventa XPS AC module must be inserted in any brake control circuit to allow for brake engagement when the Power Removal function is activated. For more information about brake control logic, refer to the *Altivar 71 Programming Manual*.

**Connection diagrams conforming to standards EN 954-1 category 3 and IEC/EN 61508 capacity SIL2, stopping category 1 in accordance with standard IEC/EN 60204-1**

- Under Step 4 of the instructions, the last bullet should read “A logic input on the Preventa module can be used to indicate that the drive controller is operating in safe conditions as defined by SIL2 requirements in the IEC/EN 61508 standard.”
- Replace the note about hoisting applications with the following Warning message.

<b>⚠ DANGER</b>
<b>UNINTENDED EQUIPMENT OPERATION</b>
Do not use the provided power removal connection diagram for hoisting applications.
<b>Failure to follow these instructions can result in death or serious injury.</b>

**Connection of several drives in parallel on the DC bus**

- Under Step 5 of the instructions, the last bullet should read “A logic input on the Preventa module can be used to indicate that the drive controller is operating in safe conditions as defined by SIL2 requirements in the IEC/EN 61508 standard.”
- The last sentence of both sections, add the following note:  
*NOTE: For fuse selection, refer to the Altivar 71 Variable Speed Drives Catalog, document number DIA2ED2050104EN.*
- Under Connection on DC bus between drives with different ratings, replace the safety message with the following:

<b>CAUTION</b>
<b>RISK OF DAMAGE TO DRIVES</b>
<ul style="list-style-type: none"><li>• The output current rating of Drive 1 must be large enough to supply all of the motors capable of operating simultaneously.</li><li>• When the drive controller in diagram 3 is a 200–230 V ATV71HD75M3X and is only powered by a DC bus and not the R/L1, S/L2, and T/L3 terminals, a separate 200–230 V, 50/60 Hz three-phase power supply (R0, S0, T0 terminals) must be provided for the fans.</li><li>• When the drive controller in diagram 3 is a 380–480 V ATV71HC••N4 and is only powered by a DC bus and not the R/L1, S/L2, and T/L3 terminals, a separate 380–480 V, 50/60 Hz three-phase power supply (R0, S0, T0 terminals) must be provided for the fans.</li><li>• When the drive controller in diagram 3 is a 500–690 V ATV71HC••Y and is only powered by a DC bus and not the R/L1, S/L2, and T/L3 terminals, a separate 380–480 V, 50/60 Hz three-phase power supply (R0, S0, T0 terminals) must be provided for the fans.<sup>1</sup></li></ul>
<b>Failure to follow these instructions can result in equipment damage.</b>

<sup>1</sup> When the ATV71HC••Y 500–690 V drive controllers are powered by R/L1, S/L2, and T/L3 terminals, an internal transformer supplies 380–490 V three-phase power to the fans.

## USE ON AN IT SYSTEM AND CORNER GROUNDED SYSTEM

- Under the heading IT system, replace the second paragraph with the following:  
Altivar 71 drive controllers feature built-in common mode RFI (EMC) filters. When an ATV71HC••Y drive controller is operating on an isolated or resistance grounded electrical distribution system, the filters **must** be isolated (disconnected). For any other drive controller referenced in this manual the filter should be isolated (disconnected).
- Under the heading Corner grounded system, replace the Warning message about risk of electric shock with the following text and Danger message:  
The ATV71HC••Y drive controllers **must never** be connected on a corner grounded electrical distribution system. When any other drive controller referenced in this manual is connected to a corner grounded electrical distribution system, the filters must be isolated (disconnected).

### DANGER

#### RISK OF ELECTRIC SHOCK

The ATV71HC••Y drive controllers must not be connected on a corner grounded electrical distribution system.

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

## ELECTROMAGNETIC COMPATIBILITY, WIRING

- Below the heading Electromagnetic compatibility, insert the following:  
**Principle of Electromagnetic Compatibility**  
If the grounds between the drive controller and the connected equipment are equipotential, make the connection at both ends of the shield. If the drive controller and connected equipment are not at the same potential, connect the shield at the drive controller only.
- Below the subheading, Principle, the second bullet should read  
“Use molded cables with shielding connected to ground at both ends for the motor cables, braking resistor (if used), and control-signal wiring. Metal ducting or conduit can be used for part of the shielding length provided that there is no break in continuity.”

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