

Braking Resistors

Addendum to Braking Resistors for Lexium 05/15 Drives Instruction Sheet

Retain for future use.

1. Introduction

This addendum contains important corrections and additions to the instruction bulletins for the following Braking Resistors when used with Lexium Drives:

VW3 A7 600 series and VW3 A7 700 series,

See Lexium manuals for recommended models.

Read this document carefully and store it with the resistor instruction sheet and the Lexium Drives installation manual for future reference.

2. Important Information

Please read these instructions carefully and examine the device in order to familiarize yourself with it prior to installation, operation or maintenance. The specific messages below can appear in the documentation or on the device. They warn of potential dangers or draw your attention to information that can clarify or simplify a procedure.

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.

3. Before You Begin

Read and understand these instructions before performing any procedure with the resistor or the drive controller.

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Only qualified personnel who are familiar with and understand the contents of this manual are authorized to work on and with this servo drive system.
- The system manufacturer is responsible for compliance with all applicable regulations regarding grounding of the servo drive system.
- Many components, including the resistor and printed wiring boards, operate at mains voltage. **DO NOT TOUCH.**
- Do not touch unshielded components or screws of the terminals with voltage present.
- Control and power connections may be live even if the servo motor is not rotating.
- The servo motor generates voltage when the shaft is rotating. Lock the shaft of the servo motor to prevent rotation before starting work on the servo drive system.
- Before servicing the servo drive system:
 - Disconnect all power to all terminals
 - Place a “DO NOT TURN ON” label on the variable speed drive disconnect.
 - Lock the disconnect in the open position.
- Disconnect all power including external control power that may be present before servicing the drive. **WAIT 5 MINUTES** to allow the DC bus capacitors to discharge. Then follow the DC bus voltage measurement procedure given in this addendum to verify that the DC voltage is less than 40 VDC.
- Inspect the wires of the Braking resistor. Do not use the resistor if the wires are nicked or otherwise damaged.
- Install all covers and close the housing doors before applying power.

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


4. Bus Voltage Measurement Procedure

The PA/+ and PC/- terminals are located on the Lexium drive controller. To measure bus capacitor voltage:

1. Disconnect and verify that all power is removed from the drive controller. If the drive controller is housed in a large enclosure, disconnect and verify that all power is removed from the enclosure.
2. Wait 5 minutes to allow the DC bus to discharge.
3. For situations where the drive controller is housed in a user-supplied enclosure, open the outer enclosure door for access to the drive controller.
4. Set the volt meter to the 1000 VDC scale. Measure the bus capacitor voltage between the PA/+ and PC/- terminals to verify that the DC voltage is less than 40 V. **Do not short across capacitor terminals with voltage present!**
5. If the bus capacitors are not fully discharged, contact your Schneider Electric local representative -- **do not operate the drive controller.**
6. Close all doors to the drive controller and enclosure.

5. Connecting the Resistor

There is a risk that the resistor will overheat and eject hot gasses under severe overload conditions caused by a shorted brake control transistor or equivalent. It is required that a current limiting protective device (a fuse, an overload trip mechanism or equivalent) be installed to protect the drive and the resistor in the case of an overload.

|  DANGER |
|---|
| <p>FIRE HAZARD</p> <ul style="list-style-type: none">• Connect the resistor to a current limiting protective device (a fuse, an overload trip mechanism or equivalent). See the Lexium manual for recommended protective devices.• Place the current limiting protective device between the resistor and the PA/+ terminal of the controller.• See the Lexium manual for additional details including product selection assistance. <p>Failure to follow these instructions will result in death or serious injury.</p> |

1. During braking conditions, the dynamic braking resistor enclosure temperature may exceed 250°C (482°F).
2. Generation of braking torque throughout the operating speed range of the drive controller requires that dynamic braking be present and operating. A dynamic braking resistor must be selected to generate the required torque for the entire operating speed range of the drive controller. Insufficient capacity of a dynamic braking resistor can result in overheating, a detected fault trip condition of the drive controller and loss of control.
3. The dynamic braking function does not provide holding torque at zero speed.
4. Dynamic braking does not function during a power loss or a drive controller detected fault condition. In these situations, a motor will freewheel to a stop.

Please refer to the warnings below for using the dynamic braking feature of the Lexium drive controller.

⚠ WARNING

THERMAL HAZARD - HEAT AND BURNS

- Mount the braking resistor enclosure where physical contact by personnel is prevented.
- Mount the braking resistor enclosure only near material and equipment that can withstand the 250°C (482°F) surface temperatures of the braking resistor enclosure.

LOSS OF CONTROL

- Select and install a dynamic braking resistor which will generate the required torque over the full operating speed range of the drive controller.
- For holding torque at zero speed, use a separate braking function.
- Where dynamic braking is required during a power loss or a drive controller detected fault condition, design alternative braking functions which do not use the drive controller.
- In safety critical applications, provide alternative braking means which do not require the drive controller.

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

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