

Altivar 31[®] Supplementary Short Circuit Protection Information

Retain for future use.

Introduction

This document provides short circuit current rating (SCCR) and overcurrent protection device (OCPD) information for the Altivar[®] 31 (ATV31) drives¹. Use this information as a supplement to the recommendations that are listed on the drive nameplate and provided in the installation manual. This information may be useful where specific applications require the devices and SCCR values as shown. Please refer to the installation manual for additional information regarding proper installation of the ATV31 drives.

Before You Begin

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Read and understand this document and the installation manuals before installing or operating the Altivar 31 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 the equipment.
- Many parts in 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 before servicing the drive.
 - Place a “DO NOT TURN ON” label on the drive disconnect.
 - Lock disconnect in the open position.
 - **WAIT 15 MINUTES** for the DC bus capacitors to discharge. Then follow the “DC Bus Voltage Measurement Procedure” on page 2 to verify that the DC voltage is less than 42 V. The drive LEDs are not indicators of the absence of DC bus voltage.
- 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.

¹ The word “drive” as used in this bulletin refers to the controller portion of the adjustable speed drive according to the NEC (NFPA 70).

Circuit Breakers

The circuit breakers specified in Table 2 on page 3 are suitable for branch short circuit protection. Minimum enclosure volume allows the specified SCCR for the drive only and does not account for the circuit breaker or line reactor. Application specific thermal requirements may require a larger enclosure.

Type E Self-Protected Manual Combination Motor Starter

The GV2P and GV3P Type E Self-Protected Manual Combination Motor Starter specified in Table 3 on page 4 are suitable for branch short circuit protection. Minimum enclosure volume allows the specified SCCR for the drive only and does not account for GV•P or Line Reactor. Application specific thermal requirements may require a larger enclosure.

DC Bus Voltage Measurement Procedure

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Read and understand the precautions in “Before You Begin” on page 1 before performing this procedure.

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

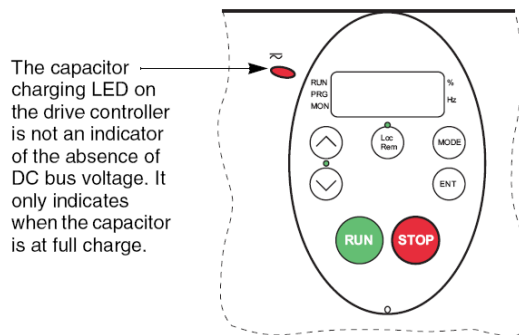
Measuring the DC Bus Voltage

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.

Figure 1: Capacitor Charging LED



The capacitor charging LED on the drive controller is not an indicator of the absence of DC bus voltage. It only indicates when the capacitor is at full charge.

Altivar 31 208/240 V and 480 V Ratings

Circuit Breakers

There are four possible short circuit current ratings that correspond to the specific breaker. In Table 2, the “•” in the circuit breaker number represents a D, G, J, or L interrupt rating.

Table 1: Circuit Breaker Substitution and Corresponding Short Circuit Current Ratings

Voltage	Circuit Breaker			
	D	G	J	L
208/240	25 kA	65 kA	65 kA	65 kA
480	18 kA	35 kA	65 kA	65 kA

Table 2: Altivar® 31 Circuit Breaker Selection for with a 3% Line Reactor

Input Line Voltage	hp	Drive Part Number	H• Circuit Breaker ¹	Min. Type 12 Metallic Enclosure Volume (cu in)
208/240 Vac Three Phase	0.25	ATV31H018M3X	H•L36015	480
	0.5	ATV31H037M3X	H•L36015	480
	0.75	ATV31H055M3X	H•L36015	480
	1	ATV31H075M3X	H•L36015	480
	1.5	ATV31HU11M3X	H•L36015	784
	2	ATV31HU15M3X	H•L36015	784
	3	ATV31HU22M3X	H•L36020	784
	—	ATV31HU30M3X	H•L36020	1344
	5	ATV31HU40M3X	H•L36030	1344
	7.5	ATV31HU55M3X	H•L36040	2880
	10	ATV31HU75M3X	H•L36060	2880
	15	ATV31HD11M3X	H•L36070	4896
20	ATV31HD15M3X	H•L36090	4896	
480 Vac Three Phase	0.5	ATV31H037N4	H•L36015	784
	0.75	ATV31H055N4	H•L36015	784
	1	ATV31H075N4	H•L36015	784
	1.5	ATV31HU11N4	H•L36015	784
	2	ATV31HU15N4	H•L36015	784
	3	ATV31HU22N4	H•L36015	1344
	—	ATV31HU30N4	H•L36015	1344
	5	ATV31HU40N4	H•L36015	1344
	7.5	ATV31HU55N4	H•L36020	2880
	10	ATV31HU75N4	H•L36030	2880
	15	ATV31HD11N4	H•L36035	4896
	20	ATV31HD15N4	H•L36050	4896

¹ When sizing the circuit breaker at 208 V or 220 V, if the required current exceeds the circuit breaker current rating, use the next higher approved combination.

Table 3: Type E Self-Protected Manual Combination Motor Starter Selection for 65 kA SCCR with a 3% Line Reactor

Input Line Voltage	hp	Drive Part Number	Self-Protected Control Devices ¹	Min. Type 12 Metallic Enclosure Volume (cu in)
208/240 Vac Three Phase	0.25	ATV31H018M3X	GV2P07H7 with GV2GH7	480
	0.5	ATV31H037M3X	GV2P08H7 with GV2GH7	480
	0.75	ATV31H055M3X	GV2P10H7 with GV2GH7	480
	1	ATV31H075M3X	GV2P10H7 with GV2GH7 ²	480
	1.5	ATV31HU11M3X	GV2P14H7 with GV2GH7	784
	2	ATV31HU15M3X	GV2P14H7 with GV2GH7 ²	784
	3	ATV31HU22M3X	GV3P18 with GV3G66 & GVAM11 GV3P13 with GV3G66 & GVAM11 ²	784
	—	ATV31HU30M3X	GV3P18 with GV3G66 & GVAM11 ²	1344
	5	ATV31HU40M3X	GV3P25 with GV3G66 & GVAM11	1344
	7.5	ATV31HU55M3X	GV3P40 with GV3G66 & GVAM11 GV3P32 with GV3G66 & GVAM11 ²	2880
	10	ATV31HU75M3X	GV3P50 with GV3G66 & GVAM11	2880
	15	ATV31HD11M3X	GV3P65 with GV3G66 & GVAM11	4896
480 Y/277 Vac Three Phase	0.5	ATV31H037N4	GV2P07H7 with GV2GH7	784
	0.75	ATV31H055N4	GV2P07H7 with GV2GH7 ²	784
	1	ATV31H075N4	GV2P08H7 with GV2GH7	784
	1.5	ATV31HU11N4	GV2P08H7 with GV2GH7 ²	784
	2	ATV31HU15N4	GV2P10H7 with GV2GH7 ²	784
	3	ATV31HU22N4	GV2P14H7 with GV2GH7	1344
	—	ATV31HU30N4	GV2P14H7 with GV2GH7 ²	1344
	5	ATV31HU40N4	GV3P13 with GV3G66 & GVAM11 ²	1344
	7.5	ATV31HU55N4	GV3P18 with GV3G66 & GVAM11 ²	2880
	10	ATV31HU75N4	GV3P25 with GV3G66 & GVAM11 ²	2880
	15	ATV31HD11N4	GV3P32 with GV3G66 & GVAM11 ²	4896
20	ATV31HD15N4	GV3P40 with GV3G66 & GVAM11 ²	4896	

¹ All specified GV accessories must accompany the GV motor control device to retain the Type E rating and to meet the specified SCCR.

² When sizing the GV at 208 V or 220 V, if the required current exceeds the GV current rating, use the next higher approved combination.

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