Altivar™ EcoStruxure Drive Simulator Demo

Instruction Bulletin

30072-454-94

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Retain for future use.

Schneider Electric™

Hazard Categories and Special Symbols

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

The addition of either 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 personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

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

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

⚠ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result in** minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

NOTE: Provides additional information to clarify or simplify a procedure.

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.

A qualified person is one who has skills and knowledge related to the construction, installation, and operation of electrical equipment and has received safety training to recognize and avoid the hazards involved.

Introduction

The Altivar EcoStruxure Drive Simulator Demo (DEMOATVSIM) is a tool for demonstrating the functions of Altivar variable frequency drives and how to program them. The case can be connected to the following Altivar demo units:

- DEMOATV320C (ATV320U04M2C)
- DEMOATV340 (ATV340U07N4E)
- DEMOATV630 (ATV630U07M3)
- DEMOATV930 (ATV930U07M3)

Figure 1: Altivar EcoStruxure Drive Simulator Demo

Kit Contents

Simulator Kit (DEMOATVSIM):

- Simulator demo unit
- Custom carrying case
- Power cord
- This instruction bulletin

Drive Demo Kit (DEMOATV320C, DEMOATV340, DEMOATV630, DEMOATV930):

- Drive demo unit
- Custom carrying case

About This Document

This document contains instructions for setting up the demo units, connecting a drive demo unit to the simulator, and configuring the drive for operation. For additional information on programming the drives, refer to the programming manuals in Table 1.

Table 1: Altivar Programming Manuals

Drive	Document Number
Altivar 320	NVE41295
Altivar 340	NVE61643
Altivar 630	EAV64318
Altivar 930	NHA80757

Before You Begin

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- This case contains one or more live circuits. Turn off and disconnect all power to this equipment before working on this device.
- Do not install or remove any Altivar drive while the Altivar EcoStruxure Drive Simulator Demo is powered.
- Allow the drive 15 minutes to discharge after removing power.
- Refer to the appropriate drive manual for DC Bus measurement procedure and follow those instructions.
- Connect and verify that the 3-pin power cord and 4-pin motor plug are secure before applying power.
- Do not operate or install any drive that appears damaged.
- Do not operate the unit if the Altivar EcoStruxure Drive Simulator Demo appears damaged.

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

NOTICE
DAMAGED EQUIPMENT Do not operate or install any Altivar drive that appears damaged. **Failure to follow these instructions can result in equipment damage.**

Setup and Connections

Read the instructions in “Before you Begin” before performing the work in this section.

Setting Up the Simulator

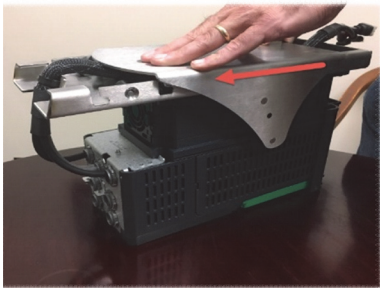
The drive demo units and simulator are designed to be displayed together on a level surface. Setup the simulator from the stored position as follows:

1. Loosen the adjustment lever slightly to allow movement of the simulator’s stability arm.
2. Fully extend the stability arm to ensure that the simulator is sitting back as far as possible.
3. Tighten the adjustment lever snugly to ensure that the simulator stays in place.

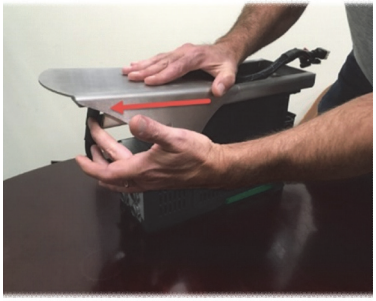
Figure 2: Simulator

Setting Up Drive Units DEMOATV340, DEMOATV630, and DEMOATV930

1. Remove the drive and stand from the case and carefully place the drive face down on a flat surface.

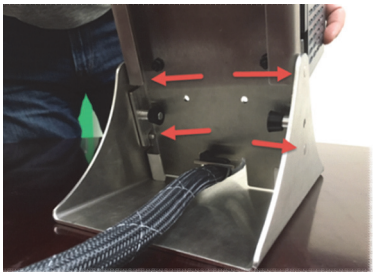


2. Remove the stand from the backplane by sliding it toward the bottom of the drive–the end where the cable attaches to the drive.

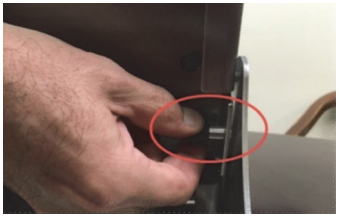


3. Pull the spring plungers on the backplane and twist them ½ turn to hold the fastening pins in a retracted position.

4. Lift the drive and backplane and align the slots in the backplane with the pins on the stand.



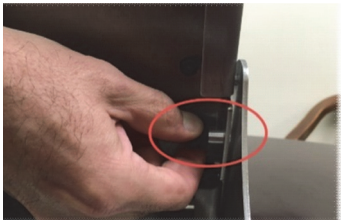
5. Once the backplane is in place, turn the knobs on the spring plungers ½ turn in either direction. This will release the retainer pins into the retainer holes in the stand.



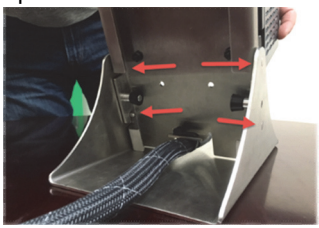
6. Once the retainer pins are in place, place the drive on the stand.

Breaking Down and Storing Drive Units DEMOATV340, DEMOATV630, and DEMOATV930

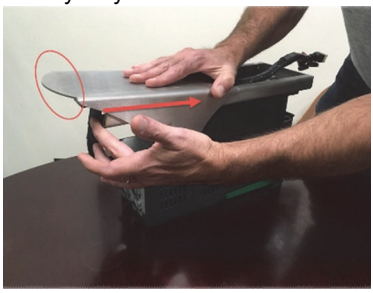
1. Pull the spring plungers on the backplane and twist them ½ turn to hold the fastening pins in a retracted position.



2. Lift the drive and backplane off the alignment pegs to separate the backplane from the stand.



3. Carefully place the drive face down on a flat surface and slide the stand onto the bottom of the backplane, with the flat end of the stand first. Note that the rounded end of the stand is last. This is the only way the stand will slide on.

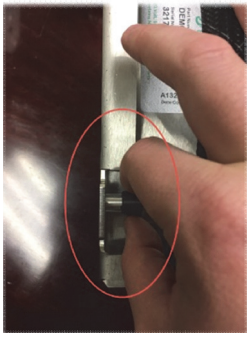


4. Once the stand is on the backplane, set the demo unit into its carrying case face-up and secure the lid.

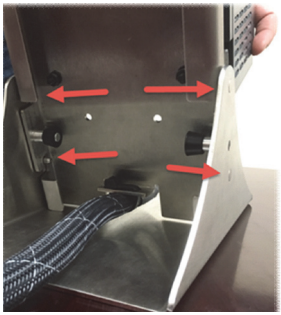
Setting up Drive Unit DEMOATV320

1. Remove the drive and stand from the case and carefully place the drive face-down on a flat surface.

2. Pull the spring plungers on the backplane and twist them ½ turn to hold the fastening pins in a retracted position.



3. Lift the drive and backplane and align the slots in the backplane with the pins on the stand.

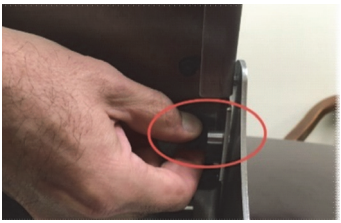


4. Once the backplane is in place, turn the knobs on the spring plungers ½ turn in either direction which will release the retainer pins into the retainer holes in the stand.

5. Once the retainer pins are in place, place the drive on the stand.

Breaking Down and Storing Drive Unit DEMOATV320

1. Pull the spring plungers on the backplane and twist them ½ turn to hold the fastening pins in a retracted position.



2. Lift the drive and backplane off the alignment pegs to separate the backplane from the stand.

3. Place the drive and backplane face up in the carrying case. Then insert the stand with the rounded end facing up. Close and secure the lid.

Connections

After setting up the simulator and drive demo unit, ensure that the Main Power switch of the simulator is in the off position and that the following connectors are correctly connected to the matching connectors in the case:

- 3-pin power connector
- 4-pin motor lead connector

- One or two 12-pin I/O connectors (match by color and tag).
- RJ45 connector (DEMOATV320C only). Connect the gray RJ45 cable from the simulator to the RJ45 port on the ATV320 drive.

After these connections are made, connect the AC power cord to the simulator and plug the simulator into an AC wall outlet.

Configuration

The Altivar EcoStruxure Drive Simulator Demo contains a 1/32 hp, 3-phase motor to demonstrate how a motor operates under drive control. For proper operation, set standard motor frequency, motor current, input phase loss warning, and output phase loss warning as follows for each connected drive:

- Standard motor frequency: 60 Hz
- Motor current: 1.0 A or lower
- Output phase loss warning: deactivate
- Input phase loss warning: deactivate

Tables 2–5 on pages 12–14 provide additional drive settings that can be used with the case. Refer to the drive programming manual for more configuration information. See Table 1 on page 1.

Table 2: ATV320 Configuration Settings

Menu	Code	Name/Description	Factory Setting	ATV320 Setting
CONF > FULL > SIM- [SIMPLY START]	bFr	[Standard mot freq] Standard motor frequency Setting bFr to 60 Hz automatically adjusts several other parameters for operation at 60 Hz.	50 Hz	60 Hz
	nPr	[Rated motor power] Nominal motor power on the motor nameplate	Drive rating	0.3 hp
	cFr	[Rated motor current] Nominal motor current on the motor nameplate	Drive rating	1.0 A
CONF > FULL > Fault Management	IPL	[Input phase loss]	YES	nO
	OPL	[Output phase loss]	YES	nO

Table 3: ATV340 Configuration Settings[1]

Menu	Name/Description	Factory Setting	ATV340 Setting
Menu 5.1	[Standard mot freq] Standard motor frequency Setting bFr to 60 automatically adjusts several other parameters for operation at 60 Hz.	50 Hz	60 Hz
	[Rated motor power] Nominal motor power on the motor nameplate	Drive rating	Nominal motor power 0.30 hp
	[Rated motor current] Nominal motor current on the motor nameplate	Drive rating	Nominal motor current 1.15 A
Menu 5.10	[AI1 Type] AiIt	[Voltage] 10 V	[Current] 0 A
Menu 5.13	[Input phase loss]	YES	Ignore
	[Output phase loss]	YES	Function inactive

1 On the ATV340 Demo, the analog voltage control is connected to AI2, and the analog current control is connected to AI1.

Table 4: ATV630 Configuration Settings

Menu	Name/Description	Factory Setting	ATV630 Setting
Menu 5.2	[Standard mot freq] Standard motor frequency Setting bFr to 60 automatically adjusts several other parameters for operation at 60 Hz.	50 Hz	60 Hz
	[Rated motor power] Nominal motor power on the motor nameplate	Drive rating	Nominal motor power 0.30 hp
	[Rated motor current] Nominal motor current on the motor nameplate	Drive rating	Nominal motor current 1.15 A
Menu 5.12	[Input phase loss]	YES	Ignore
	[Output phase loss]	YES	Function inactive

Table 5: ATV930 Configuration Settings

Menu	Name/Description	Factory Setting	ATV930 Setting
Menu 5.2	[Standard mot freq] Standard motor frequency Setting bFr to 60 automatically adjusts several other parameters for operation at 60 Hz.	50 Hz	60 Hz
	[Rated motor power] Nominal motor power on the motor nameplate	Drive rating	Nominal motor power 0.30 hp
	[Rated motor current] Nominal motor current on the motor nameplate	Drive rating	Nominal motor current 1.15 A
Menu 5.16	[Input phase loss]	YES	Ignore
	[Output phase loss]	YES	Function inactive

I/O Connections

The Altivar EcoStruxure Drive Simulator Demo allows multiple I/O connections to the mounted drive. Refer to Tables 6 and 7 for the available I/O combinations. The drive can be programmed to operate from these controls. It can also be programmed to activate and use the output options. **NOTE**: Refer to the programming manual for your drive for information on programming these functions. See Table 1 on page 6.

Table 6: Drive Connections to Logic Inputs

Drive	DI1	DI2	DI3	DI4	DI5	DI6
ATV320	√	√	√	√	√	√
ATV340	√	√	√	√	√	√
ATV630	√	√	√	√	√	√
ATV930	√	√	√	√	√	√

Table 7: Drive Connections to Other I/O

Drive	R1	R2	R3	DQ	Analog Input Voltage	Analog Input Current	AQ1	Graphic Keypad
ATV320	√	√	√	√	√	√	√	√
ATV340	√	√	√	√	√	√	√	√
ATV630	√	√	√	√	√	√	√	√
ATV930	√	√	√	√	√	√	√	√

NOTE: AI1 and AI3 are 0–10 V inputs. AI2 is a 4–20 mA input. For ATV340, AI1 is a 4–20 mA input and AI2 is 0–10 V.

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