

Quality Assurance Test Procedures for Enclosed AC Drive Controllers

Retain for future use.

Introduction

This document describes the testing conducted for enclosed drive controllers.

Quality assurance tests for enclosed AC drive controllers are performed in the Schneider Electric manufacturing facilities located in Monterrey, Mexico, and Seneca, USA.

Qualified test technicians and automated test stands are used to verify the integrity of the assembled enclosed drive controllers. The power converters are tested and shipped to the Monterrey, Mexico and Seneca, USA facilities as components to be placed in an enclosure.

Terminology

The following terminology is used in this document:

Power converter refers to the open style controller used as a component in an enclosed drive controller.

Enclosed drive controller or controller refers to the combination of the power converter, enclosure, and the power and control circuits that constitute an enclosed drive controller.

Visual Inspections

Using a checklist, a visual quality inspection is performed on equipment, wiring, nameplates, components, and door-mounted devices to verify compliance to factory engineering documents.

Mechanical Inspections

Fasteners, hardware, and disconnect switches are inspected for mechanical integrity.

Electrical Tests

A qualified test technician performs the following tests:

Test Preparation

1. Prior to electrical testing, the test technician performs the following preparation work:
 - a. Reviews the setup documents, testing equipment, and product
 - b. Studies and evaluates the engineering documents

Continuity Measurement

2. The test technician performs the following continuity checks:
 - a. Verifies that phase-to-phase (both line and load) is properly connected
 - b. Verifies that phase-to-ground (both line and load) is **not** connected
 - c. Verifies proper connection and phasing of the control power transformer(s)

Dielectric Test

3. When cUL listings are specified, the test technician performs the following steps for the high potential dielectric tests:
 - a. Isolates the power converter from potential high voltages
 - b. Performs a high potential dielectric test on power connections only. Test voltage varies by product nominal voltage, according to the requirements of CSA 22.2 No. 14, Standard for Industrial Control Equipment.
 - c. Performs high potential tests on phase-to-ground (both line and load)

Connection to the Test Panel

4. The test technician connects the enclosed drive controller to a motor test stand and performs the following steps:
 - a. Ensures that the control options are connected according to engineering records
 - b. Applies power to verify that the fans operate with proper air flow direction

Software Setup

5. The test technician performs software setup and factory settings of the enclosed drive controller based on engineering documents, and verifies that the settings are correct for the power and control configurations.

Troubleshooting

6. The test technician tests each function of the door-mounted devices and remote control.

Removal from the Panel

7. If the enclosed drive controller does not pass a test, the test technician troubleshoots, identifies repairs, confirms that repairs are complete, and re-tests the controller.
8. Prior to shipping, the test technician:
 - a. Disconnects all power and control test cables from the enclosed drive controller
 - b. Verifies that the DC bus voltage discharged to a specified level
 - c. Installs all shields and barriers

Setup for Shipping

To prepare the product for shipping, the test technician:

1. Verifies that there is no debris in the enclosed drive controller
2. Packages applicable instruction bulletins and wiring diagrams inside the enclosed drive controller
3. Checks the enclosed drive controller against a certified products listing for UL and cUL and applies the applicable markings
4. Marks the enclosed drive controller with the qualified test technician's stamp
5. Sends the enclosed drive controller to the shipping department for proper packaging and shipment

Certificate of Conformance

Upon request to the field sales office, Schneider Electric's Monterrey, Mexico, or Seneca, USA plant will issue a Certificate of Conformance (see facing page), which adheres to the guidelines of ANSI N45.2.10, 1973 and certifies that the enclosed drive controller was manufactured and tested under NEMA Standards ICS 1, 2015, Section 8.10.1, Production Tests, and Section 8.10.2, Performance Testing, General.



by Schneider Electric



Certificate of Conformance (Definition per ANSI N45.2.10, 1973)

Purchased By: _____ P.O. Number: _____

Job Name: _____ F.O. Number: _____

Unit Description: _____

I certify that this equipment was manufactured and tested under applicable NEMA Standards and meets the acceptance criteria listed under NEMA ICS 1, 2015, sections 8.10.1, Production Tests, and 8.10.2, Performance Testing, General.

Product Line Engineer

Date

Respectfully submitted,

Quality Manager

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