Electronic Signature Information

Name	DOC1948519
Revision	2
Type	Procedure or Process Document
Title	Service Note for Fluke ESA612 Electrical Safety Analyzer Authorization
Reason For Change	Minor grammatical correction. Removed DRAFT watermark. All other content is the same.
Originator	212030917_robert__pominville
Release Date	03/15/2017 05:13:14 PM
Obsolete Date	

File Name	File Description	File Size (Bytes)
SN1948519_Rev2.docx	Revision 2 removed a minor grammatical error, DRAFT watermark. Content unchanged	2917032

Route	Signer	Function	Status	Comments	Completion Date
R-8682535	203007656_richard__tell		Approve	Approved Without Comments	15 Mar 2017 17:13:12 GMT

Periodic Review

There are no signatures or routes related to this business object.

Obsolesence Approval

There are no signatures or routes related to this business object.

* Printed versions are For Reference Only *
+ Indicates a task was reassigned from an original assignee

Released

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TECHNICAL BULLETIN
(Service Note)

Technical Bulletin Unique Identifier	SN1948519
Title	Dale 600/601 Obsolescence and replacement tool.
Subject	Replacement System Leakage tester for Dale 600/601
Applicability (e.g. affected product, process)	This product is approved for all GE CT systems
Date (DD-MMM-YYYY)	28 February 2017
Originating Business (select one)	☒ Healthcare Systems (HCS) ☐ Healthcare Information Technology (HCIT) ☐ Life Sciences (LS) ☐ Other:_____
Originating Modality	CT–MKE
Details	The Dale 600/601 has been deemed obsolete by the manufacturer. MR has validated the Fluke ESA-612 as a suitable replacement and issued a Service Note (DOC1256926), citing Technical Justification contained in DOC1261064. CT measures the same parameters in the same manner, therefore CT will be using the same Technical Justification for all GE CTs.
Tracking Number	NA
Affected Service Publications	All GE CT systems.

Note: This document is identical in scope and actions to MR SN DOC1256926 with the exception that the PAC portion was deleted because CT does not utilize a PAC.

Resolution:
This document serves multiple purposes:

1. Authorize the use of the Fluke ESA612 for all GE global CT leakage and resistance testing. This kit may be used globally when a Dale analyzer is not available.

2. Introduce the Fluke ESA612 Electrical Safety Analyzer Kit ***PN 5453348***.

3. Provide the instructions for performing the following CT system checks with the ESA 612.

    a. Ground Wire Resistance Test - Refer to **Section III A**
    b. Ground Leakage – Refer to **Section III B**
    c. Ground Resistance – Refer to **Section III C**

For all CT products, the Dale and Fluke instructions will be combined in the service procedure releases in 2017. Until those releases are available, follow the instructions in this service note.

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Section I - Kit Contents

Illustration 1. – Kit Contents

Illustration 2. 20A to 15A AC Line cord adaptor

Illustration 3. 20A AC Line cord

Illustration 4. Cable and accessory kit

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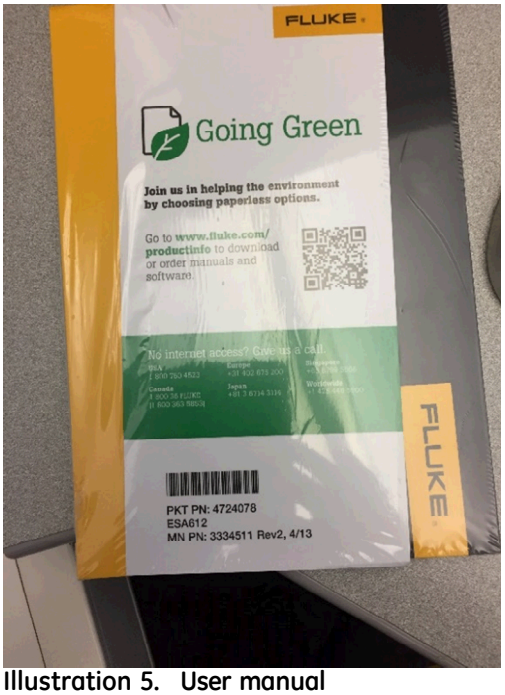

Illustration 5. User manual

Illustration 6. Zeroing out Ground Wire Resistance when using the 15A to 20A Adaptor

Note: The ESA 612 model in this kit has firmware set primarily for use with single phase 230VAC. In countries where the AC line voltage is 100 to 120VAC, the ESA-612 "power on" sequence will have an additional prompt for the line voltage. In these situations, select "F4" or "OK" to continue.

Note: Depending on your installation, you may require a longer lead for the Ground Resistance test. If a longer lead is needed, order Fluke part number 4316223 (50 Feet/15.2 Meters).

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Section II - Supporting Information:

- The Analyzer is intended for use with single-phase, grounded power. It is not intended for dual, split-phase or three-phase power configurations. But it can be used with any power system that supplies the correct voltages for single-phase and is grounded, or is an isolated power system.

- If parts are missing from the kit, part replacements can be ordered from Fluke at the following link: http://www.flukebiomedical.com/biomedical/usen/Support/techsupport/default.htm

- Meter kit contains a single power cord and adapters to power ESA 612 in most countries. Other power cords are orderable from Fluke:

  *Australia, New Zealand, China Line Cord, rated 10A, 250V
  *Israel Line Cord, 16A, 250V
  *Swiss Line Cord, 10A, 250V

- The ESA 612 can be used with a laptop to record measured information and create printouts. To use this functionality, use the optional CD-ROMs and follow Fluke instructions. The USB cable to join analyzer with laptop is also provided in the kit.
- Depending on your installation, **you may require a longer lead** for the Ground Resistance test. If a longer lead is needed, order Fluke part number 4316223 (50 Feet/15.2 Meters).
- The ESA612 possesses an AC power inlet port on the left side of the unit and an AC Test socket on the right side. See Illustration below for their respective uses.

Illustration 7. AC Input Line cord

Illustration 8. AC Test receptacle

Section III: Procedures

Tools and Equipment Required

- Standard FE Service Tool Kit
- GE LOTO Kit
- Dale 600 or 601 Leakage Current Meter (from tool pool; p/n 46328406G1) or Fluke ESA-612 Electrical Safety Analyzer (p/n 5453348)
- 50 foot Test Lead Fluke part number 4316223
- Documentation: LOTO PPE in the Equipment Service section of the Service Methods manual.

A. Performing a Ground Wire (Protective Earth) Resistance Test –

This test measures the impedance between the Analyzer test receptacle ground wire (PE) terminal and the exposed conductive parts (enclosure, casing, etc) of the DUT that are connected to the DUT's Protective Earth. Prior to conducting any leakage tests with the Analyzer, it is best to test the integrity of the ground connection between the Analyzer's test receptacle ground and the DUT's Protective earth ground or enclosure with this test.

Note: The DUT (Device Under Test) is powered off for this test.

To perform a ground wire resistance test:

1. Plug in and turn on the Analyzer.

   Note: The ESA612 firmware is set for operation with 230 VAC single phase line current. At facilities with 100-120 VAC single phase line current, a fault error *may* appear when you power the meter on. Press F4 [OK] to clear the error, and continue.

2. Ensure the power cord from the DUT is plugged into the Analyzer's test receptacle.
3. Press Ω to reveal the resistance function menu.
4. Connect one end of a test lead to the V/Ω/A jack.
5. If using an accessories probe, connect it to the other end of the test lead and place the probe tip into the Ø / Null jack. If using an alligator clip accessory, connect it to the other end of the test lead, place the null post adapter into the Ø / Null jack, and clamp the alligator clip to the null post adapter.
6. Press the softkey labeled Zero Leads. The Analyzer zeroes out the measurement to cancel the test lead resistance.
7. Remove the test lead from the Ø / Null jack and connect it to the Device Under Test enclosure or protective earth connection.
8. The measured resistance is displayed as shown on the display.

DANGER: To avoid electrocution, remove the null post adapter from the Ø / Null jack after a test lead zero is performed.

The Ø / Null jack becomes potentially hazardous during some of the test conditions if left installed.

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B. Ground Leakage Test using the Fluke ESA-612 Meter

Follow the **Ground Leakage** Check procedure found in appropriate service direction and follow this section for specifics on how to use the Fluke meter.

1. Set up the Fluke Safety analyzer near the front of the PDU.
2. Turn on the Fluke safety analyzer.

Illustration 9

3. Select the [point to point] button.
4. Select the [F3 or Leakage] button
5. Select the [Up Arrow] once so that AC Only displays.
6. Insert the leads into the input jacks.
7. Attach the two test leads with the large alligator clips. The safety analyzer is now set up and ready to be connected to the PDU.

C. Ground Resistance Test using the Fluke ESA-612 Meter

Follow the **Ground Resistance** procedure found in appropriate service direction and follow this section for specifics on how to use the Fluke meter.

ELECTROCUTION HAZARD!

LETHAL VOLTAGES ARE PRESENT WITHIN THE PDU EVEN WHEN THE PDU BREAKERS ARE OFF.

CHECK THAT PROPER LOTO PRECAUTIONS ARE ADHERED TO AT ALL TIMES! PERFORM LOTO AT THE A1 PANEL.

1. Notify all Field Service Engineers working at the site that the Main Disconnect is being shut off, locked out, and tagged out.
2. Perform proper LOTO on the A1 breaker. Use separate meter to insure no power is applied to the PDU.
3. Check that the Main Disconnect and PDU indicator lights are off and the power switches are inactive.
4. Turn on the Fluke meter and select the [point to point] option on the meter.
5. Select [resistance or F2].
6. Attach the leads into the red and black input jackets and short the leads together.
7. Select [zero leads or F4].
8. Connect the 2 test leads per the Ground Resistance Test service method found in the service directions listed under affected service publications.
9. Verify that the measured resistance is less than 100 milliohms.
10. Perform finalization steps per the Ground Resistance Test service method found in the service directions listed under affected service publications.
    a. Turn off the Fluke safety analyzer.
    b. Remove the leads from the analyzer.
    c. Repack Analyzer leads and accessories.

Finalization

1. Remove LOTO from A1 panel and power on system.
2. Insure that the system under test powers up and scans properly.
3. Replace all covers and secure room.

Bob Pominville – Lead Service System Designer