

This document is for internal and contract specific use only.

Disclaimer

NGG and NGET or their agents, servants or contractors do not accept any liability for any losses arising under or in connection with this information. This limit on liability applies to all and any claims in contract, tort (including negligence), misrepresentation (excluding fraudulent misrepresentation), breach of statutory duty or otherwise. This limit on liability does not exclude or restrict liability where prohibited by the law nor does it supersede the express terms of any related agreements."

Copyright © National Grid plc 2011, all rights reserved

All copyright and other intellectual property rights arising in any information contained within this document are, unless otherwise stated, owned by National Grid plc or other companies in the National Grid group of companies. No part of this publication may be reproduced in any material form (including photocopying and restoring in any medium or electronic means and whether or not transiently or incidentally) without the written permission of National Grid plc

This information should not be forwarded to third parties.



Schedule of Site Commissioning Tests
SCT 20.12.13
Issue 1
April 2000

ALSTOM LFZR111
Distance Protection

Contents	Page
General Data	3
Mechanical Inspection	5
Calibrated Test Equipment	5
Wiring.....	6
Initial Checks	6
Required Relay Settings	7
Secondary Injection Tests.....	8
D.C. Operation Tests	19
Results/Settings	19
Off-Load Tests Signatory Sheet.....	20
On-Load Tests	21
Putting Protection into Service	24
On-Load Tests Signatory Sheet.....	25

Authorised by:

David Humphreys
Head of Protection & Measurements
Network Control & Telecommunications
Engineering & Technology

© The National Grid Company plc 2000

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means electronic, mechanical, photocopying, recording or otherwise, without the written permission of the NGC obtained from the issuing location.

The contents of The National Grid Company plc engineering documents are based on the needs of NGC and the conditions under which it operates. It should not therefore be assumed that the specifications and requirements stated therein necessarily meet the particular circumstances and requirements of other organisations. No responsibility can therefore be accepted for any loss or damage sustained as a result of using or relying on the documents

Registered Office
National Grid House
Kirby Corner Road
Coventry
CV4 8JY

Registered in
England and Wales
No. 2366977

Published by:

The National Grid Company plc
Kelvin Avenue
Leatherhead
Surrey KT22 7ST

Contact name: Wen An,
Network Control & telecommunications
Telephone: 01372 383670
CTN 216 3670

THE NATIONAL GRID COMPANY plc

SCHEDULE OF SITE COMMISSIONING TESTS

SCT 20.12.13 ALSTOM LFZR111 DISTANCE PROTECTION

Station:

Circuit:

Contractor:

Contractor's number:

NGC Contract Number:

NOTE: All tests contained with this SCT are to be carried out in accordance the corresponding sections contained within SCT 0.1 - Guidance Notes for Site Commissioning Tests on Protection, Measuring, Control, Alarm and Indication Equipment.

This Page Is Intentionally Left Blank

ALSTOM LFZR111 DISTANCE PROTECTION

1 GENERAL DATA

1.1 Relay Information

Record the following information shown on relay front panel:

Relay Model Number:

Relay Serial Number:

Rated Current I_n :

Rated Voltage V_n :

Auxiliary D.C. Voltage $V_x(1)$:

Auxiliary D.C. Voltage $V_x(2)$ for Digital Inputs:

Confirm that the above data is identical to the ones shown in relay sub-menu: Relay Version within Relay Data

A A.C.
V A.C.
V D.C.
V D.C.

Record the following information shown in relay menu: Relay Data

Host Processor

Host Software

Host PDU

Serial comms

Host PLD A

Host PLD B

Host PLD C

Protection Processor

SLP software

DSP software

Scheme PDU

SLP PLD

Analogue Input

Calibration software

Analogue input PLD

Front Panel

Front panel PLD

--

1.2 Circuit Information

Feeder	
Line Voltage	kV
Length	km
Primary Impedance	
Positive Sequence Z_1	Ω degs
Zero Sequence Z_0	Ω degs
CT Ratio	
VT Ratio	

1.3 Distance Scheme

Basic	PUR	Blocked

2 MECHANICAL INSPECTION

CAUTION: Use electrostatic precautions. The equipment contains components sensitive to electrostatic voltage discharge. To avoid damage, handle modules by the front plate and avoid contact with electrical components and connections. To remove the analogue input module from the relay case, remove the fixing screws on the module, also the fixing screw on the power supply module, and then use the folding handles to free the module. The module must be supported from beneath due to its heavy weight.

- | | | |
|-----|--|--|
| 2.1 | Ensure that all transit packaging etc is removed. | |
| 2.2 | Confirm that relay corresponds to relevant general arrangement drawing and relay case is earthed. | |
| 2.3 | Check fuses, or MCBs, and links for compliance to standard and rating. | |
| 2.4 | Inspect each module for signs of damage and ensure that all units and auxiliary relays are present, fully inserted and correctly located, in accordance with the apparatus list and product specification. | |
| 2.5 | On the test block with CT circuits connected, insert a test plug to isolate the relay from line CTs. Use a multimeter to check on the test plug that the CT shorting contacts on the relay case are closed while pulling the analogue module out from the case and then pushing into the case. | |

3 CALIBRATED TEST EQUIPMENT

Record of Calibrated Test Equipment used during Commissioning

	Manufacturer and Type	Serial No.	Date last calibrated	Date next calibration due
Second. Injection Test Set				
Insulation Resistance Tester				
Ammeter or Multimeter				
Voltmeter or Multimeter				
Timer				
Others (state function)				

4 WIRING

The tests below should be performed on all wiring where the cubicle has been wired on site and on any connections made at the site.

4.1 Insulation Tests on General and Cubicle Wiring

(See SCT 20.4.1)

4.2 Relay Connection and Cubicle Wiring Checked To:

Schematic Diagram No & Rev.....

Wiring Diagram No & Rev.....

5 INITIAL CHECKS

5.1 Check that the A.C. current and voltage ratings are correct.

5.2 Before energisation, check the auxiliary supply voltage is as stated on the rating plate and is connected with the correct polarity.

5.3 Before energisation, check that the relay inoperative alarm (RIA) contact, terminal 29-31, is closed.

5.4 On application of the D.C. to the relay, check that the Power LED will illuminate followed by the relay healthy LED, the display will indicate that a self test is taking place after which the green protection available LED will illuminate and remain on. The ALARM LED may or may not be flashing, this is dependent on the Event trigger settings.

5.5 Check that the relay inoperative alarm (RIA) contact, terminal 29-31, is open.