ENGINEERING OPERATION STANDARD

EOS 03-0027

LUCY SABRE 'A' RANGE SWITCHGEAR

Network(s): EPN, LPN, SPN

Summary: This standard details the installation, commissioning and operation of Lucy Sabre 'A' Range switchgear.

Author: John Mason Date: 08/05/2018

Approver: Paul Williams Date: 11/06/2018

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**Reason for update:** Updated to illustrate LPN ACB trip connections

**What has changed:** Section 5.4.4 ‘LPN ACB Trip Connections’ added to illustrate the connections

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**Reason for update:** Updated to illustrate customer trip connections

**What has changed:** Section 5.4.3 ‘Customer Trip Connections’ added to illustrate the connections

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**Reason for update:** Updated to include Schneider Air Metering Unit installation information and to update supplier part numbers.

**What has changed:**
- Section 5.1.3 added to highlight the removal of legs that foul rear facing bottom entry cable glands.
- Table A-1 ‘Lucy Electric Switchgear’ supplier part numbers updated for VRN6a, VRN2a and VRE2a units.

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**Reason for update:** Periodic review, to include the new specification of Lucy Electric’s Sabre ‘A’ Range Switchgear.

**What has changed:** Major changes made to the document to incorporate the new specification RMU (2016). Document reclassified from ECS 03-0027 to EOS 03-0027 and appendices ECS 03-0027A & D added to the document. Note: Relay, VPIS and External FPI information for both variants of switchgear is detailed in sections 4.5, 4.6 and Appendix C.

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**Reason for update:** Periodic review

**What has changed:** Document reviewed with no amendments, except Appendix D (ECS 03-0027D) which depicts circuit main earth locking and labelling across all three regions LPN, SPN, EPN due to recently revised DSR 01 002 isolation and earthing.

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Updated and revised. Removed Appendix B as information is referred to in other sources (referenced)

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Updated with reference to entire Sabre ‘A’ range

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1 Introduction
This standard details the installation, commissioning and operation of Lucy Sabre ‘A’ Range switchgear.

2 Scope
This document applies to Lucy Sabre ‘A’ Range switchgear used within UK Power Networks.

3 Glossary and Abbreviations

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<td>CME</td>
<td>Circuit Main Earth</td>
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<td>CT</td>
<td>Current Transformer</td>
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<td>FPI</td>
<td>Fault Passage Indicator</td>
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<td>RMU</td>
<td>Ring Main Unit</td>
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<td>RSW</td>
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<td>SW</td>
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<td>Remote Terminal Unit</td>
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<td>TFL</td>
<td>Time Fuse Link</td>
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<td>Time Limit Fuse</td>
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4 Description

4.1 Overview

The Lucy Sabre ‘A’ range of switchgear consists of non-extensible and extensible ring main units, extensible switches and extensible circuit-breakers. The range utilises TLF or relay protection and remote control. The available units are shown in Figure 4-1.

Figure 4-2 to Figure 4-7 show the differences between the new and old specification of the Sabre ‘A’ Range Switchgear. Note: Old specification switchgear is pre 2016.

A full list of switchgear and associated kits is given in Appendix A. Refer to EAS 03-0030 for full technical details.

The general arrangement drawings are included in Appendix B.

Schematic diagrams are available from: Intranet > Policies, Procedures & Forms > Engineering > Reference Library > Manufacturers > Lucy.

![Sabre VRN2a non-extensible](image1)  ![Sabre VRN6a non-extensible](image2)  ![Sabre VREa extensible](image3)  ![Sabre VCEa extensible](image4)  ![Sabre SSEa extensible](image5)

Figure 4-1 – Sabre ‘A’ Range Switchgear
Figure 4-2 – New Spec RMU

Figure 4-3 – Old Spec RMU

Figure 4-4 – New Spec Facia

Figure 4-5 – Old Spec Facia
4.2 **Remote Control**

Ring switches 1 and 2 are fitted with actuators as standard. Circuit breaker actuator instructions are available from:


The Lucy switchgear can be used with the approved RTUs, refer to EAS 05-9000. Further information is available in ECS 05-9540, ECS 05-9541, ECS 05-9542, EOS 05-9305 and EOS 05-9306.

4.3 **Fault Passage Indicators**

At most installations the fault passage indicator functionality is provided by the RTU using the CTs installed in the ring switch cable boxes or the relay installed on the circuit-breaker. However if an additional external FPI is required it shall be installed as detailed in Appendix C.

Refer to EDS 05-6003 for further information on fault passage indicators.

4.4 **Time Limit Fuse-Links (TLFs)**

All units not fitted with a protection relay are fitted with tag-type TLFs. Refer to EDS 05-4001 for further information.
4.5  Relays

The Argus 7SR11 is the approved relay for the new spec equipment (2016 onwards) while the MiCOM P124S remains approved and is used on the old spec switchgear.

![Argus 7SR11 Relay](image1)

![MiCOM P124S Relay](image2)

Figure 4-8 – Argus 7SR11 Relay  
Figure 4-9 – MiCOM P124S Relay

Further details on the relays can be found on the manufacturers websites or from:


Also refer to ECP 11-0511 and ECP 11-0512.

4.6  VPIS

The new specification switchgear utilises the ‘push button’ type VPIS while the old specification utilises the ‘Pfisterer’ type. The differences are shown in Figure 4-10 and Figure 4-11. The push button type neon operation/testing instructions are shown in Figure 4-12.

![Push Button VPIS](image3)

![Pfisterer VPIS](image4)

Figure 4-10 – Push Button VPIS  
Figure 4-11 – Pfisterer VPIS
Figure 4-12 – Push Button VPIS Instructions

4.7 Internal Arc Protection – Cable Boxes

Cable boxes incorporate pressure relief vents in order to provide operator protection in the event of a fault in the cable box. The standard boxes are tested up to 12.5kA.
5 Installation

5.1 Site Preparation

5.1.1 Foundations

Foundation details are given in EDS 07-3102.

5.1.2 Angled Cable Boxes

Angled cable boxes are available for rear facing cables although due to the internal arc vent at the rear these boxes are not reversible.

This applies to bottom entry installations: installers shall ensure that the plinth or cable entry arrangements are suitable for either straight or rear facing angled cable boxes.

5.1.3 Schneider Air Metering Unit

When coupling a Schneider AMU to a RMU with rear facing bottom entry cable glands the AMU legs foul the cable entry (see Figure 5-1). Once the AMU is mounted to the RMU the rear legs, closest to the RMU, can be removed but shall be kept with the installation to enable re-use in the event that the AMU is removed (i.e. strapped to the remaining support legs).

Figure 5-1 – Fouling Legs
5.2 Lifting and Slinging

Lifting eyes are provided on either side of the unit. The unit shall be lifted using all four eyes. Refer to Figure 5-2.

For lifting coupled extensible equipment provided by Lucy (a base frame and bracing will be pre-installed) the outermost four lifting eyes should be used. (Please refer to the Lucy Installation Instructions within Alfresco as mentioned in section 3).

Coupled extensible equipment without a Lucy base frame and bracing present shall not be lifted as this will put mechanical stress on the band joint.

5.3 RMU Bushing Heights

RMUs are supplied with two standard rear tee-off bushing heights. These are the transformer-mounted with a rear bushing height of 1100mm and freestanding with a rear bushing height of 1320mm.

5.4 Cable Terminations

5.4.1 Cable Boxes and Glands

Straight or angled gland cable boxes are supplied for either top or bottom entry.

The pressure-relief vents for the internal arc protection shall be positioned at the rear of the cable boxes and because of this; left hand and right hand cable boxes are now different.

Cable boxes may be fitted for either top or bottom entry. However to keep the vents at the rear, left and right hand boxes shall be swapped over if a bottom entry unit is converted to top entry (or vice versa).

Plain tube type glands are fitted to all cable boxes.

As the cable boxes are required to withstand the effects of internal faults, they are secured with a large number of fastenings. These fastenings shall all be secured again when securing the cable box.
5.4.2 HV Cable End Box Cover

The left cable end box is situated behind the marshalling box vandal guard and in order to access all of the cover screws the vandal guard needs to be removed (see Figure 5-3 and Figure 5-4). The vandal guard shall be re-instated once the cable box has been secured.

![Vandal Guard](image1.png)  ![Vandal Guard Removed](image2.png)

Figure 5-3 – Vandal Guard  Figure 5-4 – Vandal Guard Removed

5.4.3 Customer Trip Connections

Customer trip connections are shown in Figure 5-5 below.

![Customer Trip Connections](image3.png)

Figure 5-5 – Customer Trip Connections

Connections 41 & 42 provide the customer trip function for 24-110V DC to 110-240V AC.
5.4.4 LPN ACB Trip Connections

LPN ACB trip connections are shown in Figure 5-6 below:

Contacts 36 & 37 are where the wires from the LV ACB should be connected for inter-tripping.

The auxiliary terminals are to be shrouded and labelled ‘Danger 250V AC’ with black writing on a yellow background.

5.4.5 Earth Connections (Old Specification RMUs)

Earth braids should be insulated from the steelwork within the cable box and terminated on the insulated earth stud. No other external connection should be made to the earth stud on the cable box. Note that there is no earth connection to the gland.

If a core balance current transformer (CT) is fitted, the earth braids shall return through the core balance CT (where fitted) before terminating on the insulated earth stud. In this way any cable sheath currents will cancel out, such that the CT measures only the imbalance in phase currents.

The diagram shown in Figure 5-7 demonstrates the arrangement of earth braids to be used for triplex or single core polymeric cables.
Figure 5-7 – Arrangement of Earthing for Polymeric Cables Using Earth Stud Insulated from Steelwork and Plain Tube Type Gland

**Note:** There are circumstances associated with hot sites where the cable sheaths should not be bonded to steelwork earth. Note that segregated earthing is a special case and the advice of the UK Power Networks designer or earthing specialist should be sought.

Where a core balance CT is used the earth stud will need to be adjusted to minimise the height of the shear bolt connector.

The external portion of the insulated earth stud will be connected to steelwork earth. If this is disconnected during installation it shall be reconnected before the equipment is put into service.

5.4.6 Bushings

Ring switch bushings are round, with an M16 hole in the end of the bushing stem (type C1 as defined in EN 50181). They are be provided with 16mm bolts and washers which fit the lugs in the termination kit for Triplex cables.

Tee-off bushings have an M12 hole, fitted with 12mm bolts and washers. The reducing washers supplied with the termination kits shall be used to adapt the lugs to the bolts.

Shear-off bolts for both ring-switch and tee-off bushings are supplied with the switchgear.
5.4.7 Bushing End Caps

When CTs are fitted on the bushings heat resistant Bakelite sealing washers are provided at the base of the bushings. This is to protect the CT wiring from the effect of heat if heat-shrink boots are being fitted.

5.4.8 Anti-vandal Fastenings (Old Specification RMUs)

5.4.8.1 Installation

All units are supplied with a kit of anti-vandal fastenings. These shall be fitted to the cable boxes as shown in Figure 5-8.

5.4.8.2 Removal

To remove the anti-vandal fastenings drill out the pin.
Figure 5-8 – Anti-vandal Fastenings
6 Commissioning

Commissioning instructions are listed below:

- ECP 11-0501 – Secondary Substation Commissioning Procedure
- ECP 11-0511 – Ground-mounted Switchgear Commissioning Procedure
- ECP 11-0512 – Ground-mounted Switchgear with Relays Commissioning Procedure

7 Operational Padlocking

Padlocking positions and the positioning of notices are shown with reference to Figure 7-1. **Note:** The locks and notices used are not necessarily the correct ones for each of the UK Power Networks licensed areas.

![Figure 7-1 – VRN2a Front Facia Layout](image-url)
7.1 Access

In SPN Zeni locks cannot be used on RMUs built before 2010. In these cases, switchgear locks shall be used. In 2010 the door handles were changed to allow Zeni locks to be used on the door handles.

7.2 Normal Service (Switches and Circuit Breaker Closed)

7.2.1 Left Hand Ring Switch (SW1)
7.2.2 Right Hand Ring Switch (SW2)

Figure 7-7 – RHRSW SW2 (EPN & LPN)

Figure 7-8 – RHRSW SW2 (SPN)

7.2.3 Tee Off Circuit Breaker

Figure 7-9 – Tee Off CB (EPN & LPN)

Figure 7-10 – Tee Off CB (SPN)
7.3 Circuit Locked Open (Safety Lock and Caution Notice)

7.3.1 Left Hand Ring Switch (SW1)

Figure 7-11 – LHRSW SW1 (EPN, LPN & SPN)

7.3.2 Right Hand Ring Switch (SW2)

Figure 7-12 – RHRSW SW2 (EPN, LPN & SPN)
7.3.3 Tee Off Circuit Breaker

![Figure 7-13 – Tee Off CB (EPN, LPN & SPN)](image)

7.4 Circuit Main Earth (CME) Locked

7.4.1 Left Hand Ring Switch (SW1)

![Figure 7-14 – LHRSW SW1 CME (EPN, LPN & SPN)](image)
7.4.2 Right Hand Ring Switch (SW2)

Figure 7-15 – RHRSW SW2 CME (EPN, LPN & SPN)

7.4.3 Tee Off Circuit Breaker

Figure 7-16 – Tee Off CB CME (EPN, LPN & SPN)
8  Further Information

8.1  Installation, Operation and Maintenance Manual

The manufacturer’s Installation, Operation and Maintenance manual is available from:

Intranet > Policies, Procedures & Forms > Engineering > Reference Library > Manufacturers > Lucy > HV Switchgear


8.2  General Arrangement Drawings

General Arrangement (GA) drawings are included in Appendix A.

8.3  Schematic Diagrams

Schematic diagrams are available from:

Intranet > Policies, Procedures & Forms > Engineering > Reference Library > Manufacturers > Lucy > HV Switchgear

9 References

EAS 03-0030  12kV Ring Main Switchgear
EDS 05-4001  Ratings at Distributed Substations
EOS 05-6003  Fault Passage Indicators
EAS 05-9000  Approved Equipment List - RTU and Control Equipment
EOS 05-9305  Lucy Gemini 3.0 Control Unit and RTU
EOS 05-9306  Remsdaq Callisto NX Control Unit and RTU
ECS 05-9540  Type E RTU and Ancillary Items Installation Procedure
ECS 05-9541  Lucy Gemini 3 Configuration Procedure
ECS 05-9542  Remsdaq Callisto NX Configuration Procedure
EDS 07-3102  Secondary Substation Civil Designs
ECP 11-0501  Secondary Substation Commissioning Procedure
ECP 11-0511  Ground-mounted Switchgear Commissioning Procedure
ECP 11-0512  Ground-mounted Switchgear with Relays Commissioning Procedure
ECP 11-0521  Nortroll Cabletroll 2350 FPI Installation and Commissioning Procedure

10 Dependant Documents

The documents below are dependent on the content of this document and may be affected by the changes.

EAS 03-0030  12kV Ring Main Switchgear
## Appendix A – Lucy Switchgear Range

### Table A-1 – Lucy Switchgear Variants

<table>
<thead>
<tr>
<th>Type</th>
<th>Model</th>
<th>CB Rating</th>
<th>CB Protection</th>
<th>Mounting</th>
<th>Cable Entry</th>
<th>Actuator Fitted</th>
<th>FPI CTs Fitted</th>
<th>Material Code</th>
<th>Supplier Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMU</td>
<td>VRN2A</td>
<td>200A</td>
<td>TFL</td>
<td>Transformer</td>
<td>Bottom</td>
<td>RSW1 + 2</td>
<td>RSW1 + 2</td>
<td>14950F</td>
<td>THM0083393</td>
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<tr>
<td></td>
<td>VRN2A</td>
<td>200A</td>
<td>TFL</td>
<td>Transformer</td>
<td>Top</td>
<td>RSW1 + 2</td>
<td>RSW1 + 2</td>
<td>14951Q</td>
<td>THM0083395</td>
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<tr>
<td></td>
<td>VRN6A</td>
<td>630A</td>
<td>Argus 7SR11</td>
<td>Transformer</td>
<td>Bottom</td>
<td>RSW1 + 2</td>
<td>RSW1 + 2</td>
<td>14952A</td>
<td>THM0083396</td>
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<tr>
<td></td>
<td>VRN6A</td>
<td>630A</td>
<td>Argus 7SR11</td>
<td>Transformer</td>
<td>Top</td>
<td>RSW1 + 2</td>
<td>RSW1 + 2</td>
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<td>THM0083399</td>
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<td></td>
<td>VRN2A</td>
<td>200A</td>
<td>TFL</td>
<td>Freestanding</td>
<td>Bottom</td>
<td>RSW1 + 2</td>
<td>RSW1 + 2</td>
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<td>THM0083400</td>
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<td>VRN2A</td>
<td>200A</td>
<td>TFL</td>
<td>Freestanding</td>
<td>Top</td>
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<td>RSW1 + 2</td>
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<td>VRN6A</td>
<td>630A</td>
<td>Argus 7SR11</td>
<td>Freestanding</td>
<td>Bottom</td>
<td>RSW1 + 2</td>
<td>RSW1 + 2</td>
<td>14956P</td>
<td>THM0083402</td>
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<tr>
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<td>VRN6A</td>
<td>630A</td>
<td>Argus 7SR11</td>
<td>Freestanding</td>
<td>Top</td>
<td>RSW1 + 2</td>
<td>RSW1 + 2</td>
<td>14957Y</td>
<td>THM0083403</td>
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<td></td>
<td>VRE2A</td>
<td>200A</td>
<td>TFL</td>
<td>Freestanding</td>
<td>Bottom</td>
<td>RSW1 + 2</td>
<td>RSW1 + 2</td>
<td>14958J</td>
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<tr>
<td>CB</td>
<td>VCE2A</td>
<td>200A</td>
<td>TFL</td>
<td>Transformer</td>
<td>Bottom</td>
<td>-</td>
<td>-</td>
<td>14959T</td>
<td>THM0042224</td>
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<td>VCE2A</td>
<td>200A</td>
<td>TFL</td>
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<td>Bottom</td>
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<td>200A</td>
<td>TFL</td>
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<td>Bottom</td>
<td>-</td>
<td>-</td>
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<td>VCE6A</td>
<td>630A</td>
<td>Argus 7SR11</td>
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<td>Bottom</td>
<td>-</td>
<td>-</td>
<td>14961Y</td>
<td>THM0042816</td>
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<td>SW</td>
<td>SSE6A</td>
<td>630A</td>
<td>n/a</td>
<td>Freestanding</td>
<td>Bottom</td>
<td>-</td>
<td>SW</td>
<td>14963T</td>
<td>THM0042736</td>
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<td>Ext</td>
<td>VRE2A</td>
<td>200A</td>
<td>TFL</td>
<td>Freestanding</td>
<td>Bottom</td>
<td>RSW1</td>
<td>RSW1 + 2</td>
<td>14964D</td>
<td>THM0042809</td>
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</table>

### Table A-2 – Lucy Switchgear Kits

<table>
<thead>
<tr>
<th>Kit</th>
<th>Description</th>
<th>Material Code</th>
<th>Supplier Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Circuit-breaker Actuator</td>
<td>14965N</td>
<td>THM0041844</td>
</tr>
<tr>
<td>2</td>
<td>Ring Switch Actuator</td>
<td>13941C</td>
<td>THM0033016</td>
</tr>
<tr>
<td>3</td>
<td>T-Off Cable Box</td>
<td>14031E</td>
<td>THM0007417</td>
</tr>
<tr>
<td>4</td>
<td>Angled Cable Gland</td>
<td>14030U</td>
<td>THM0012864</td>
</tr>
<tr>
<td>5</td>
<td>Coupling Kit for Extensible Switchgear</td>
<td>14969C</td>
<td>THM0008206</td>
</tr>
<tr>
<td>6</td>
<td>Skid for Extensible Equipment</td>
<td>14970X</td>
<td>THM0012577</td>
</tr>
</tbody>
</table>
Appendix B – General Arrangement Drawings

B.1 VRN2a – Non-extensible RMU with TFL Protection
B.2 VRE2a – Extensible RMU with TFL Protection
B.3 VCE2a – Extensible CB with TFL Protection
B.4 VCN2a – Non-extensible CB with TFL Protection
B.5  SSE6a – Extensible Switch
B.6 VRN6a – Non-extensible RMU with Argus 7SR11 Relay Protection
B.7 VCE6a – Extensible circuit breaker with Argus 7SR11 Relay Protection
Appendix C – Installation of External Nortroll Cabletroll 2350 FPI on VRN2a/6a

C.1 Overview

This installation instruction takes into account the requirement for an extra external FPI on the new specification Lucy RMU, especially where it may be required in situations where two RMUs are installed within a substation and only one RTU has been installed which does not have the capacity to accommodate the extra FPI function.

C.2 Materials Required

Table C-1 – Nortroll Cabletroll 2350 Installation Materials

<table>
<thead>
<tr>
<th>Description</th>
<th>Material Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 core 2.5mm² SWA Cable</td>
<td>05972V</td>
</tr>
<tr>
<td>CW20 Outdoor Gland</td>
<td>03598H</td>
</tr>
<tr>
<td>Nortroll Cabletroll 2350 FPI</td>
<td>14731H</td>
</tr>
</tbody>
</table>
C.3 Installation

This instruction should be read in conjunction with ECP 11-0521 (the FPI installation and commissioning procedure) and especially section 10, which details the installation with ring switch phase CTs already installed within the RMU, as is the case with the new specification Lucy RMUs.

1. Discard any cable supplied with the FPI (14731H).

2. Connect two lengths of SWA cable (05972V) via the glands provided to the FPI using the relevant connections from Table C-2.

3. Mount the FPI on the RMU supporting leg, left leg for ring switch 1 or right leg for ring switch 2.

4. Enter the SWA cables into the RMU marshalling box using outdoor glands (03598H).

5. Connect the cables in the marshalling box using the relevant connections from Table C-2.

Table C-2 – External FPI Connections

<table>
<thead>
<tr>
<th>FPI SW1 Reset &amp; Indication</th>
<th>Marshalling Box Terminals</th>
<th>2350 FPI Cable Terminations</th>
<th>7 Core Cable No.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPI Reset</td>
<td>K51/1</td>
<td>62 ← J8(1) FPI Reset</td>
<td>Core 1</td>
</tr>
<tr>
<td>FPI Reset Common</td>
<td>K52/1</td>
<td>63 ← J8(2) FPI Reset</td>
<td>Core 2</td>
</tr>
<tr>
<td>FPI Indication Common</td>
<td>L61/1</td>
<td>64 ← J6(2) FPI Indication</td>
<td>Core 3</td>
</tr>
<tr>
<td>FPI Indication O/P</td>
<td>L62/1</td>
<td>65 ← J6(3) FPI Indication</td>
<td>Core 4</td>
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</table>

<table>
<thead>
<tr>
<th>FPI SW2 Reset &amp; Indication</th>
<th>Marshalling Box Terminals</th>
<th>7 Core Cable No.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>FPI Reset</td>
<td>K51/2</td>
<td>76 ← J8(1) FPI Reset</td>
</tr>
<tr>
<td>FPI Reset Common</td>
<td>K52/2</td>
<td>77 ← J8(2) FPI Reset</td>
</tr>
<tr>
<td>FPI Indication Common</td>
<td>L61/2</td>
<td>78 ← J6(2) FPI Indication</td>
</tr>
<tr>
<td>FPI Indication O/P</td>
<td>L62/2</td>
<td>79 ← J6(3) FPI Indication</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RSW1 RTU/CT Shorting Block</th>
<th>Marshalling Box Terminals</th>
<th>7 Core Cable No.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT Input L1 (Red) Phase (Interface Block)</td>
<td>C410/1</td>
<td>L1 ← J3(S1) 500/1 CT</td>
</tr>
<tr>
<td>CT Input L2 (Yellow) Phase (Interface Block)</td>
<td>C430/1</td>
<td>L2 ← J4(S1) 500/1 CT</td>
</tr>
<tr>
<td>CT Input L3 (Blue) Phase (Interface Block)</td>
<td>C450/1</td>
<td>L3 ← J5(S1) 500/1 CT</td>
</tr>
<tr>
<td>CT Input Common Neutral - 60 (Interface Block)</td>
<td>C76/1</td>
<td>N ← J5(S2) 500/1 CT</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RSW2 RTU/CT Shorting Block</th>
<th>Marshalling Box Terminals</th>
<th>7 Core Cable No.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT Input L1 (Red) Phase (Interface Block)</td>
<td>C410/2</td>
<td>L1 ← J3(S1) 500/1 CT</td>
</tr>
<tr>
<td>CT Input L2 (Yellow) Phase (Interface Block)</td>
<td>C430/2</td>
<td>L2 ← J4(S1) 500/1 CT</td>
</tr>
<tr>
<td>CT Input L3 (Blue) Phase (Interface Block)</td>
<td>C450/2</td>
<td>L3 ← J5(S1) 500/1 CT</td>
</tr>
<tr>
<td>CT Input Common Neutral - 60 (Interface Block)</td>
<td>C76/2</td>
<td>N ← J5(S2) 500/1 CT</td>
</tr>
</tbody>
</table>