### Drawing Register

<table>
<thead>
<tr>
<th>Number</th>
<th>Revision</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>E</td>
<td>Pole Bolt Details</td>
</tr>
<tr>
<td>R2/1</td>
<td>A</td>
<td>Bonding, Intermediate</td>
</tr>
<tr>
<td>R2/2</td>
<td>A</td>
<td>Bonding, Strain</td>
</tr>
<tr>
<td>R2/3</td>
<td>A</td>
<td>Bonding, Running Disc Angle</td>
</tr>
<tr>
<td>R2/4</td>
<td>D</td>
<td>Bonding, LV Cross-arm</td>
</tr>
<tr>
<td>R2/5</td>
<td>A</td>
<td>Bonding, Retrofit Wood Cross-arm</td>
</tr>
<tr>
<td>R3/1</td>
<td>D</td>
<td>Insulators</td>
</tr>
<tr>
<td>R3/2</td>
<td>A</td>
<td>Insulator Ties</td>
</tr>
<tr>
<td>R3/3</td>
<td>D</td>
<td>Armour Rods and Spiral Vibration Dampers</td>
</tr>
<tr>
<td>R4</td>
<td></td>
<td>Insulator Pin &amp; Pin Details</td>
</tr>
<tr>
<td>R5/1</td>
<td>C</td>
<td>Eyebolt</td>
</tr>
<tr>
<td>R5/2</td>
<td>A</td>
<td>Eyebolt, Conductor Terminations</td>
</tr>
<tr>
<td>R6</td>
<td></td>
<td>Superseded by R6/1 and R6/2</td>
</tr>
<tr>
<td>R6/1</td>
<td>D</td>
<td>Earthing</td>
</tr>
<tr>
<td>R6/2</td>
<td>A</td>
<td>Steel Down Earth Details for Vandalism/Copper Theft Areas</td>
</tr>
<tr>
<td>R7</td>
<td></td>
<td>Superseded by R7/1 and R7/2</td>
</tr>
<tr>
<td>R7/1</td>
<td>C</td>
<td>HV Overhead Mains To Cable, Cable Guard, and Cleat Details</td>
</tr>
<tr>
<td>R7/2</td>
<td>B</td>
<td>10,16 and 25mm Service cable cleat/guard fixing details</td>
</tr>
<tr>
<td>R7/3</td>
<td>A</td>
<td>120 to 240mm sq cables</td>
</tr>
<tr>
<td>R7/4</td>
<td>B</td>
<td>Cable Position Installing Details</td>
</tr>
<tr>
<td>R8/1</td>
<td>D</td>
<td>ABC Taps For Transformer, and Cable Termination</td>
</tr>
<tr>
<td>R8/2</td>
<td>C</td>
<td>Lugs &amp; Connectors, Transformer &amp; Cable</td>
</tr>
<tr>
<td>R8/3</td>
<td>E</td>
<td>Lugs &amp; Connectors, Transformer &amp; Cable</td>
</tr>
<tr>
<td>R8/4</td>
<td>D</td>
<td>Lugs &amp; Connectors, Insulation Piercing Clamp</td>
</tr>
<tr>
<td>R8/5</td>
<td>A</td>
<td>Stirrup Hot Line Clamp Tap - off</td>
</tr>
<tr>
<td>R9</td>
<td>C</td>
<td>Raychem Bracket, 1 ph &amp; 3 ph Earth Fitting</td>
</tr>
<tr>
<td>R10-1</td>
<td>F</td>
<td>Dropout Fuse Mounting, Details</td>
</tr>
<tr>
<td>R10-2</td>
<td></td>
<td>Details incorporated in R10-1</td>
</tr>
<tr>
<td>R11</td>
<td>D</td>
<td>Flowline Fuse Mounting &amp; Service Termination</td>
</tr>
<tr>
<td>R12/1</td>
<td>A</td>
<td>Transformer LV, Isolation Details</td>
</tr>
<tr>
<td>R12/2</td>
<td>C</td>
<td>Transformer LV, Isolation Details</td>
</tr>
<tr>
<td>R12/3</td>
<td>B</td>
<td>Transformer LV, Isolation Details</td>
</tr>
<tr>
<td>R13</td>
<td>C</td>
<td>Pole Embedment Depth, Danger Plate</td>
</tr>
<tr>
<td>Reference</td>
<td>Type</td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>---------------------------------------</td>
<td></td>
</tr>
<tr>
<td>R14/1</td>
<td>Ground Stay</td>
<td></td>
</tr>
<tr>
<td>R14/2</td>
<td>Outrigger Stay, HV &amp; LV Tee Off</td>
<td></td>
</tr>
<tr>
<td>R14/3</td>
<td>Outrigger Stay, HV or LV Termination only, HV and LV Intermediate only</td>
<td></td>
</tr>
<tr>
<td>R14/4</td>
<td>Outrigger Stay, Running Disc Angle, 12.5m pole</td>
<td></td>
</tr>
<tr>
<td>R14/5</td>
<td>Aerial Stay</td>
<td></td>
</tr>
<tr>
<td>R16</td>
<td>Screw In Anchor, Flow Chart</td>
<td></td>
</tr>
<tr>
<td>R17</td>
<td>Transformer Kiosk (Non MPS), 160/315/630/1000kVA, Installation Guide</td>
<td></td>
</tr>
<tr>
<td>R18</td>
<td>Transformer Kiosk (MPS), 160-630kVA, Installation Guide</td>
<td></td>
</tr>
<tr>
<td>R19</td>
<td>Superseded by R19/1 and R19/2</td>
<td></td>
</tr>
<tr>
<td>R19/1</td>
<td>Kiosk, 25kVA/63kVA, Installation Guide</td>
<td></td>
</tr>
<tr>
<td>R19/2</td>
<td>Transformer kiosk (MPS) 63kVA (HU82 on culvert) Installation Guide</td>
<td></td>
</tr>
<tr>
<td>R20</td>
<td>HV Switchgear Kiosk, Installation Guide</td>
<td></td>
</tr>
<tr>
<td>R21</td>
<td>Transformer Kiosk (Non MPS), 160/315/630/1000kVA, Cabling Arrangements</td>
<td></td>
</tr>
<tr>
<td>R22</td>
<td>MPS Substation, Up To 630kVA</td>
<td></td>
</tr>
<tr>
<td>R24</td>
<td>LV Switchgear Kiosk, General Arrangement</td>
<td></td>
</tr>
<tr>
<td>R26</td>
<td>Superseded by R26/1 and R26/2</td>
<td></td>
</tr>
<tr>
<td>R26/1</td>
<td>Street Light Cutout, Single Phase Supply</td>
<td></td>
</tr>
<tr>
<td>R26/2</td>
<td>Street Light Cutout, Single Phase Supply for Class I Luminaries (Single Ins)</td>
<td></td>
</tr>
<tr>
<td>R26/3</td>
<td>Street Light Cutout, Single Phase Supply for Double Insulated Equipment</td>
<td></td>
</tr>
<tr>
<td>R27</td>
<td>Fusing Arrangement for Street Light Columns</td>
<td></td>
</tr>
<tr>
<td>R29</td>
<td>25kVA Padmount Tx LV Distribution Board 240V Terminal Block</td>
<td></td>
</tr>
<tr>
<td>R30</td>
<td>25kVA Padmount Tx LV Distribution Board 480V Terminal Block</td>
<td></td>
</tr>
<tr>
<td>R31</td>
<td>Mini Pillar Neutral (Extra) Fitting Requirement</td>
<td></td>
</tr>
<tr>
<td>R32</td>
<td>Wavecon Mini Pillar Terminal Block Termination Details</td>
<td></td>
</tr>
<tr>
<td>R33</td>
<td>Mini Pillar Wavecon Working End</td>
<td></td>
</tr>
<tr>
<td>R34</td>
<td>Deleted Wavecon Mini Pillar</td>
<td></td>
</tr>
<tr>
<td>R35</td>
<td>Superseded by R35-1</td>
<td></td>
</tr>
<tr>
<td>R35-1</td>
<td>Mini Pillar 240V Supply Arrangement</td>
<td></td>
</tr>
<tr>
<td>R35-2</td>
<td>Mini Pillar 480V Supply Arrangement</td>
<td></td>
</tr>
<tr>
<td>R35-3</td>
<td>Mini Pillar 415V Supply Arrangement</td>
<td></td>
</tr>
<tr>
<td>R36</td>
<td>Nulec Recloser Control Box Connection Detail</td>
<td></td>
</tr>
<tr>
<td>R37</td>
<td>Nulec Recloser Solar Connection</td>
<td></td>
</tr>
<tr>
<td>R38</td>
<td>Overhead Fault Indicator Solar Connection</td>
<td></td>
</tr>
<tr>
<td>R39</td>
<td>Installer Identification Tag</td>
<td></td>
</tr>
</tbody>
</table>
General Notes

1. Overhead Hardware - Bolt Selection

All bolt holes must be drilled to size for the bolt being fitted as over size bolt holes allow excess plant/equipment movement which may result in the plant/equipment being damaged.

Pole bolt length selected to avoid excessive thread protrusion, maximum 50mm. Bolt packing (multiple washers/springs etc) must not be used as a permanent fixing.

Pole bolt excess thread may be flat trimmed and sharp edges must be removed to suit the fitting of washers and coil springs as per standard bolt selection. This is to prevent overlength bolts and/or sharp edges presenting a hazard to public and personnel safety (eg. pole top switch handle bolts). Cold galv or galmet should be applied to exposed metal.

2. Overhead Hardware – Sleeve/Splice Clearances

Fargo and crimp type compression sleeves must have a 100mm minimum clearance from all other line hardware such as insulators, conductor ties, armor rods, pg clamps and deadends etc.

3. Overhead Hardware – North Country Extreme Pollution Areas

In North Country (from Ledge Point to Kalbarri inclusively), all areas within five kilometres of the coast are considered to be in extremely corrosive environments. In such areas, grease and Denso tape must be appropriately applied to all new lugs and connectors (as described in drawing R8/2) to prevent moisture ingress.

4. Overhead Hardware – Steel Strap (Band-It Strap) use on wood poles

Steel straps are not to be used on wood poles as the prime fixing method for equipment due to possible wood shrinkage causing the equipment to become loose and unstable. It may be used in conjunction with other fixing methods (eg. Bolts, coach screws, TEK screws, etc) but not as the sole support method.
TYPICAL APPLICATIONS:
- CROSS-ARMS

POLE SIDE
76 x 76 x 5 SQUARE WASHER

TYPICAL APPLICATIONS:
- TRANSFORMERS
- RECLOSERS

POLE SIDE
ROUND WASHER

A

200

COIL SPRING M14 TO M24

51 x 51 x 3 SQUARE WASHER
ROUND WASHER

NOTE:
- 76x76 square washer always in direct contact with the pole
- pole diameters vary, select bolt for max. 50mm thread protrusion
- see General Notes - Overhead Hardware Bolt Selection

DIMENSION A
DIAMETER OF POLE BOLTS
PB1 = 300mm 12mm 16mm 20mm
PB2 = 400mm 12mm 16mm 20mm
PB3 = 550mm 12mm 16mm 20mm
NOTES:
INSTALL A DISPERSION PLATE TO ALL BOLTS WHICH PASS THROUGH A WOOD SECTION OF A POLE INCLUDING STAYS & STREET LIGHTS. MUST BE SECURED DIRECTLY OVER THE HOLE, IN DIRECT CONTACT WITH A SQUARE WASHER OR METAL CROSS-ARM. SECURE BOTH ENDS OF DISPERSION PLATE WITH A ROOF NAIL AS SHOWN STOCK CODE: A01837 – FOR 5KG
NOTES:
INSTALL A DISPERSION PLATE TO ALL BOLTS WHICH PASS THROUGH A WOOD SECTION OF A POLE INCLUDING STAYS & STREET LIGHTS, MUST BE SECURED DIRECTLY OVER THE HOLE, IN DIRECT CONTACT WITH A SQUARE WASHER OR METAL CROSS-ARM.
SECURE BOTH ENDS OF DISPERSION PLATE WITH A ROOF NAIL AS SHOWN STOCK CODE: AD1837 - FOR 5KG
NOTES:
INSTALL A DISPERSION PLATE TO ALL BOLTS WHICH PASS THROUGH A WOOD SECTION OF A POLE INCLUDING STAYS & STREET LIGHTS. MUST BE SECURED DIRECTLY OVER THE HOLE, IN DIRECT CONTACT WITH A SQUARE WASHER OR METAL CROSS-ARM. SECURE BOTH ENDS OF DISPERSION PLATE WITH A ROOF NAIL AS SHOWN STOCK CODE: AD1837 – FOR SKG
NO LV BONDING WIRE OR DISPERSION PLATES ON LV REQUIRED IF:
- ONLY LV ON STRUCTURE
- HV WITH R/E PRESENT

NOTES:
INSTALL A DISPERSION PLATE TO ALL BOLTS WHICH PASS THROUGH A WOOD SECTION OF A POLE INCLUDING STAYS & STREET LIGHTS. MUST BE SECURED DIRECTLY OVER THE HOLE, IN DIRECT CONTACT WITH A SQUARE WASHER OR METAL CROSS-ARM. SECURE BOTH ENDS OF DISPERSION PLATE WITH A ROOF NAIL AS SHOWN STOCK CODE: A01837 - FOR 5KG
NOTE:
INSTALL A DISPERSSION PLATE TO ALL BOLTS AND EYEBOLTS WHICH PASS THROUGH A WOOD SECTION OF A POLE.
MUST BE SECURED DIRECTLY OVER THE MIDDLE, IN DIRECT CONTACT WITH A SQUARE WASHER OR METAL CROSS-ARM.
SECURE BOTH ENDS OF DISPERSION PLATE WITH A ROOF NAIL
STOCK CODE: AO1837 - FOR 5KG
HIGH VOLTAGE [33, 22, 11, 6.6kV]

NORMAL POLLUTION POST INSULATOR

HIGH POLLUTION POST INSULATOR

STRAIN INSULATOR

RUNNING DISC ANGLE

LOW VOLTAGE

INTERMEDIATE

ANGLE UP TO 20°

INLINE STRAIN OR ANGLE 20°-45°

TERMINATION

RUNNING EARTH

INTERMEDIATE ANGLE < 2°

INTERMEDIATE ANGLE 2° TO 10°

ANGLE >10° USE R/E TERMINATION OR ANGLE ASSEMBLY.
### TOP TIE

**SEQUENCE OF OPERATIONS FOR HV & LV**

HALVE TIE, START WITH MIDDLE OF TIE AT BACK OF INSULATOR.

A) TAKE HALF TURN AROUND INSULATOR, UNDER AND AROUND CONDUCTOR FOR ONE TURN.
B) CROSS TIE AT THE FRONT OF INSULATOR AND CONTINUE UNDER AND AROUND CONDUCTOR FOR ONE TURN.
C) CROSS TIE AT THE BACK OF INSULATOR AND CONTINUE UNDER AND AROUND CONDUCTOR FOR SIX TURNS.
D) ONE OPEN TURN.
E) FIVE TURNS.
F) ONE OPEN TURN.
G) THREE TURNS.
H) TURN ENDS OF TIE DOWN AGAINST THE CONDUCTOR.

### SIDE TIE

**SEQUENCE OF OPERATIONS**

HALVE TIE, START WITH MIDDLE OF TIE AT BACK OF INSULATOR.

A) TAKE HALF TURN AROUND INSULATOR AND UNDER CONDUCTOR ON EACH SIDE.
B) TAKE ONE AND HALF TURNS AROUND CONDUCTOR ON EACH SIDE OF INSULATOR.
C) CROSS ENDS AROUND BACK OF INSULATOR AND RETURN TO BOTTOM OF CONDUCTOR ON EACH SIDE.
D) TAKE ONE TURN AROUND CONDUCTOR ON EACH SIDE OF INSULATOR.
E) PASS ENDS OVER AND ACROSS IN FRONT OF INSULATOR CARRYING EACH END TO BOTTOM OF CONDUCTOR.
F) TAKE FIVE TURNS AROUND CONDUCTOR.
G) ONE OPEN TURN.
H) FIVE TURNS.
J) ONE OPEN TURN.
K) THREE TURNS.
L) TURN ENDS OF TIE DOWN AGAINST CONDUCTOR.
ARMOUR RODS TO BE USED ON ALL BAYS TENSIONED AT 18% CBL OR GREATER.

INSTALLED ON ALL BAYS OF 3/2.75 SCAC CONDUCTOR

BOTH SIDES OF A POST INSULATOR

GRIFFING SECTION BETWEEN 100 AND 150MM FROM ARMOUR ROD

FOR BAYS >250M, A SECOND SVD IS REQUIRED AT

EITHER END OF THE SPAN, NO MORE THAN 150MM APART

SVD'S NOT REQUIRED ON STRAIN SIDE OF SPAN
**HV Insulator Bolt**

- Spring Washer
- 75 x 75 x 5 Washer

**LV Insulator Pin**

- 40 mm Square Washer Welded to Spindle
- 'B' Head, Lead
- 75 mm Square Washer
- Coiled Spring
- 50 mm Square Washer
- M16 Hex. Nut
- M16 Thread
- 100, 160, 50, 3
16mm EYE BOLT FOR CENTRE PHASE AND RUNNING DISC ANGLE

16mm EYE BOLT FOR CROSS ARM

ROPE THIMBLE

EYE RETURN TO BE HARD AGAINST POLE

20mm EYE BOLT FOR STAY - STANDARD

HELICAL TERMINATION
NOTES:
1. Where copper conductors/braids are joined to steel they must be tinned, coated with conductive compound then clamped to the steel with 3 rope grips (2 for handle bond) then sealed with dense tape or similar.
2. All joints to pole top cu earth to be 760mm below the lv or at s/l wire height and secured with a saddle on either side close to joint.
3. One length of conduit fitted over steel earth to be cut at handle earth height to allow bonding to the handle. 4 conduit saddles equal spaced on each section of conduit.
4. All remaining copper earthing to be as per standard construction requirements.
**PART 2 – REFERENCE**

**REFERENCE DRAWING**

**HV CABLE CLEAT / CABLE GUARD AND POLE TOP SWITCH ANTI CLIMB DETAIL**

**DRAWING NO.** R7/1

---

**POLE**

**50x4mm LG galv. Tech Screws with galv. or plated steel washer**

**16mm BANDIT STRAP (CONCRETE POLES)**

**SURGE ARRESTER**

**BI-LUG PLATE**

**EARTH SCREEN**

**CABLE CLEAT SPACING**

**CLEAT**

**EQUALLY SPACED**

**MOUNTING HOLES**

**2400mm (HT6321) OR 2000mm (HT6320)**

---

**DISTRIBUTION CONSTRUCTION STANDARDS**

**DM #4411789**
A minimum of 3 cleats equi-spaced with 1000mm max spacing.

150mm

1ST CLEAT

3 CONDUIT SADDLES

150mm 150mm 150mm

EQUI-SPACED

50mm x 4mm GALVANISED TECH SCREWS WITH GALVANISED OR PLATED STEEL WASHERS (WOOD POLES)

16mm BANDIT STRAP (CONCRETE POLES)

CABLE GUARD 2000mm [HT6320]

SERVICE CABLE INSTALLED UP POLE

150mm CONDUIT

TOP CLEAT

SHRINK GLOVE
NOTES for R7/1, R7/2 & R7/3

In all sections where poles are drawn with URD cables on them the following will apply for the cable installation:

1. All cables shall be installed on the opposite side of the pole to on-coming traffic.

2. Should point "1" be impractical, then the cables may be installed on the footpath side (between pole & property boundary). This location also applies to a second cable installation.

3. If the connection point at the pole top is on the opposite side of the installed cable, then the cable must be rolled around the pole on the footpath side (between pole & property boundary) up to the connection.

4. For pole top switch poles the cable must be installed on the footpath side (between pole & property boundary) then rolled as high up as possible to the side of connection.
A. LINE TAPS TO DROPOUT FUSE or CABLE TERMINATION SURGE ARRESTER

CONNECT COPPER OR ALUMINUM SPLICE TO SUIT MAINS USING PG CLAMPS

INSULATED LUG WITH 12mm HOLE

INSULATED SPLICE CRIMP

WHERE THE INSULATED SPLICE CRIMP IS NOT USED FOR TRANSFORMER OR LINE TAPS A 20mm LENGTH OF INSULATION MUST BE REMOVED BEHIND THE INSULATED LUG TO ALLOW MOISTURE TO DRAIN. SEE R8/2 FOR PG CLAMP APPLICATION

B. DROPOUT FUSE TO TRANSFORMER WITH SURGE ARRESTER

INSULATED LUG WITH 12mm HOLE

REMOVE INSULATION FOR BRASS HALF CLAMP AND MOISTURE DRAIN (25mm)

TINNED BRASS HALF CLAMP TO BUSHING

PAINT CLEANED OFF TO ENSURE GOOD ELECTRICAL CONTACT AFTER APPLY CONDUCTIVE GREASE

TO SURGE ARRESTER

SEE DETAIL A

DETAIL A

C. DROPOUT FUSE TO CABLE TERMINATION SURGE ARRESTER

INSULATED LUG WITH 12mm HOLE TO SURGE ARRESTER

ALTERNATIVELY USE 10m FROM D.O.F. TO TRANSFORMER OR TRANSFORMER TO SURGE ARRESTER

INSULATED LUG WITH 12mm HOLE TO DROPOUT FUSE

NOTE: FOR MOISTURE DRAIN DETAILS ON POLE TOP SWITCH TAPS, SEE DWG. H12.
Part 2 – Reference

CABLE CRIMP

FOR THE CORRECT APPLICATION OF CABLE CRIMP, REFER TO CN17 OF DISTRIBUTION DESIGN CATALOGUE.

REFERENCE DRAWING

LUGS & CONNECTORS
TRANSFORMER & CABLE
PARALLEL GROOVE CLAMPS

FOR NEW INSTALLATIONS/APPLICATIONS

STEP 1
WIRE BRUSH SURFACE OF CONDUCTORS, THEN IMMEDIATELY APPLY ALUMINIUM JOINTING COMPOUND TO ALUMINIUM CONDUCTOR (STOCK No. PG 0002)

STEP 2
FIT CLAMP AND TIGHTEN BOLTS ACCORDING TO MANUFACTURER'S SPECIFIED TORQUE (Nm) SHOWN ON THE CLAMP.
IF COPPER TO ALUMINIUM THEN ALUMINIUM CONDUCTOR TO BE ABOVE THE COPPER.
IF GALVANIZED STEEL TO ALUMINIUM THEN STEEL CONDUCTOR TO BE ABOVE.

STEP 3
APPLY GREASE TO COVER ALL PARTS OF JOINT.
USE SHELL HDX2 - STOCK CODE: PG0125.

IN EXTREMELY CORROSIVE ENVIRONMENTS WHERE THIS HAS PROVEN INADEQUATE, THEN APPLY 510 DENSO TAPE OVER GREASE AND JOINT TO EXCLUDE ALL MOISTURE - STOCK CODE: KT0020

REUSE OF PG CLAMPS

DO NOT REUSE PG CLAMPS WHICH HAVE BEEN SUBJECTED TO HEAVY FAULT CONDITIONS AND EXCESSIVE CORROSION.
CONTACT GROOVES OF THE PG CONDUCTOR INTERFACES MUST BE THOROUGHLY CLEANED TO BRING THE SURFACE BACK TO “AS NEW” CONDITION.
APPLY CONTACT PROTECTION GREASE TO REINSTATE THE ENVIRONMENTAL PROTECTION AT THE INTERFACE.
DISTRIBUTION CONSTRUCTION STANDARDS

REFERENCE DRAWING
RAYCHEM TYPE BRACKET
1 PH & 3 PH EARTH FITTING

REVISION C
DATE 09-10-10
DRAWING No. R9
Part 2 – Reference

**POLE MOUNTED**

**CROSSARM MOUNTED**

**EXTENSION ARM MOUNTED**

**STANDARD 170kV "V" SERIES DOF - UP TO 33kV**

**FAULT TAMER FUSE - UP TO 22kV**

**FAULT TAMER FUSE BARREL SWING DIMENSIONS**

**PARKING BAR**

**GF2113 ILL CLAMP ON PARKING BAR**

**K-MATE (GF2112)**

**TYPICAL K-MATE INSTALLATION WITH DOF**

**MOUNTING VARIATIONS ON EXISTING STRUCTURES FOR FITTING & BARREL SWING CLEARANCE**

**REFERENCE DRAWING**

**DROPOUT FUSE MOUNTING DETAILS**

**REVISION F**

**DATE 03-01-2013**

**DRAWING No. R10-1**
Part 2 – Reference

Distribution Construction Standards Handbook – Technical Requirements DM #4411789

UP TO 2009

Length
Batch Number
Month

2009 TO 2013

Charge Number
Treatment Plant Number
Preservative Type
Length
Species

2013 ......

Length
Pole Type

DETAIL A

- UNIQUE POLE BARCODE DISC
- POLE IDENTIFICATION DISC (SEE DETAIL A)
- POLE MOUNTED EQUIPMENT LABEL INCL. PICKID
- DANGER PLATE LOCATION WHEN SUPPLIED FOR FITTING
- FIRE RETARDANT PAINT

G.L.

STANDARD POLE EMBEDMENT

<table>
<thead>
<tr>
<th>POLE LENGTH (PL) m</th>
<th>EMBEDMENT DEPTH (E) m</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.5</td>
<td>1.55</td>
</tr>
<tr>
<td>11.0</td>
<td>1.70</td>
</tr>
<tr>
<td>12.5</td>
<td>1.85</td>
</tr>
<tr>
<td>14.0</td>
<td>2.00</td>
</tr>
<tr>
<td>15.5</td>
<td>2.15</td>
</tr>
<tr>
<td>17.0</td>
<td>2.30*</td>
</tr>
<tr>
<td>18.5</td>
<td>2.95*</td>
</tr>
<tr>
<td>20.0</td>
<td>3.05*</td>
</tr>
<tr>
<td>21.5</td>
<td>3.20*</td>
</tr>
</tbody>
</table>

EXAMPLE 9.5m POLE

\[ E = PL \times 0.1 + 0.6m \]

\[ = 9.5 \times 0.1 + 0.6 = 1.55m \]

SELF SUPPORTING STRUCTURES ARE BURIED ACCORDING TO DESIGN.

*TRANSMISSION POLES - EMBEDMENT DEPTH (E=PL/12+1.4m).*

REFERENCE DRAWING

POLE EMBEDMENT DEPTH
DANGER PLATE & EQUIPMENT LABELS

REVISION C DATE 12.08.2013
DRAWING No. R13

Distribution Construction Standards Handbook – Technical Requirements DM #4411789
LENGTH
A = B \times 1.73
C = B \times 2

TENSION IN STAY WIRE
C = \text{THE SUM OF THE LINE LOAD} \times 1.15

A = B \times 0.57
C = B \times 1.15

C = \text{THE SUM OF THE LINE LOAD} \times 2

1. IF THE STAY WIRE PASSES THROUGH L.V. MAINS
   THEN THE L.V. MAINS MUST BE CONSTRUCTED
   ON A 2100mm CROSSARM
2. ON 33kV & 19.1kV LINES THE SECTION
   OF THE STAY ABOVE THE STAY INSULATOR
   MUST BE EARTHED USING P.G. CLAMP TO SUIT CONDUCTOR
1. IF THE STAY WIRE PASSES THROUGH L.V. MAINS THEN THE L.V. MAINS MUST BE CONSTRUCTED ON A 2100mm CROSSARM
2. ON 33kV & 19.1kV LINES THE SECTION OF THE STAY ABOVE THE STAY INSULATOR MUST BE EARTHED USING P.G. CLAMP TO SUIT CONDUCTOR
1. IF THE STAY WIRE PASSES THROUGH L.V. MAINS THEN THE L.V. MAINS MUST BE CONSTRUCTED ON A 2100mm CROSSARM
2. ON 33KV & 19.1KV LINES THE SECTION OF THE STAY ABOVE THE STAY INSULATOR MUST BE EARTHED USING P.G. CLAMP TO SUIT CONDUCTOR

REFERENCE DRAWING

OUTRIGGER STAY HV OR LV INTERMEDIATE ONLY WITH DEVIATION ≤ 20°

DRAWING No. R14/3
1. If the stay wire passes through L.V. mains then the L.V. mains must be constructed on a 2100mm crossarm.

2. On 33kV & 19.1kV lines the section of the stay above the stay insulator must be earthed using P.G. clamp to suit conductor.

---

**REFERENCE DRAWING**

**OUTRIGGER STAY**

**RUNNING DISC ANGLE** 12.5M POLE

**DEVIATION** <= 10°

**DRAWING No.** R14/4

---

**Distribution Construction Standards Handbook – Technical Requirements**

DM #4411789
STAY INSULATOR/S MUST BE FITTED 3.0M FROM POLE IF THE STAY PASSES THROUGH OR OVER MAINS CONDUCTORS. STAYS MAY REQUIRE 2 INSULATORS IF OVER CONDUCTOR AT BOTH ENDS.

THE STAY INSULATOR MAY BE LEFT OUT IF THE STAY DOES NOT PASS THROUGH OR OVER ANY MAINS AND DOES NOT GET CLOSER TO THE GROUND THAN 2.4 METRES.
START
USE 200mm DIAM, SCREW ANCHOR

ATTEMPT TO DRIVE ANCHOR UNTIL 300mm OF ROD (LENGTH 2.3m) REMAINS EXPOSED

HAS 300mm BEEN ACHIEVED

NO

SOIL CONDITIONS TOO HARD OPTIONS:
CONCRETE CONE ANCHOR
CONCRETE BLOCK ANCHOR
ROCK ANCHOR

YES

WAS 6kNm REACHED OR 8 PINS

NO

HAS AN EXTENSION ROD ALREADY BEEN FITTED

YES

HAS A 300mm DIAM, SCREW ANCHOR ALREADY BEEN USED

NO

SOIL CONDITIONS TOO SOFT CONCRETE CONE ANCHOR
CONCRETE BLOCK ANCHOR

YES

FIT EXTENSION ROD

FINISH SATISFACTORY ANCHOR INSTALLATION ACHIEVED
NOTES:

1. LIFTING POINT.

2. CABLE GUARD 'SKIRT'. TO BE FITTED AFTER INSTALLATION OF HV/LV CABLES.

3. TRANSFORMER TO BE INSTALLED DIRECTLY ONTO CULVERT.

4. COMPACTION OF SUBGRADE TO BE A MINIMUM MODIFIED DENSITY RATIO OF 92 % TO - AS 1289.5.2.1

5. VOID TO BE FILLED WITH SAND, COMPACtion NOT NECESSARY.

6. COMPACTED BACKFILL MATERIAL IS TO BE SAND, COMPACtion OF THE SAND IS TO BE CARRIED OUT IN LAYERS NOT EXCEEDING 300 mm. COMPACtion LEVEL TO ACHIEVE A MINIMUM MODIFIED DENSITY RATIO OF 92 % TO - AS 1289.5.2.1. THIS MAY BE MEASURED AS 8 BLOWS / 300 mm WITH A STANDARD PENETROMETER

7. PRECAST REINFORCED BOX CULVERT AND BASE TO AS 1597 (90KN), NOMINAL SIZE OF CULVERT 1200 wide x 900 high x 1220 long.

8. THE BASE OF THE EXCAVATION IS TO BE A MINIMUM OF 500 mm LARGER THAN THE BASE OF THE CULVERT ON ALL SIDES, THE SIDES OF EXCAVATION ARE TO HAVE A SLOPE OF NOT LESS THAN 30 DEG.

EQUIPMENT WEIGHT

BOX CULVERT - CROWN = 948 kg
BASE = 384 kg

TRANSFORMERS, WITH CUBICLE - 315 kVA = 2180 kg
630 kVA = 3720 kg
1000 kVA = 4520 kg

---

THIS DRAWING TO BE READ IN CONJUNCTION WITH THE SUBSTATION INSTALLATION REQUIREMENTS - DS8 95/6
NOTES:

**EQUIPMENT WEIGHT**

- **BOX CULVERT** - CROWN = 948 kg
  BASE = 384 kg
- **LV CUBICLE AND PLINTH (FITTED WITH LV SWITCHGEAR)** = 900 kg
- **TRANSFORMERS** - 315 kVA = 2160 kg
  630 kVA = 3700 kg

*THIS DRAWING TO BE READ IN CONJUNCTION WITH THE SUBSTATION INSTALLATION REQUIREMENTS - DSB 95/6*

<table>
<thead>
<tr>
<th>Western Power</th>
<th>SUBSTATION REFERENCE</th>
<th>REVISION</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DISTRIBUTION CONSTRUCTION STANDARDS</td>
<td>TRANSFORMER KIOSK (MPS) 160 - 630kVA</td>
<td>24.5.2000</td>
<td>DRAWING No. R18</td>
</tr>
</tbody>
</table>
LV DISTRIBUTION BOARD SEE R29 & R30  
SPUDS MINI PILLAR SEE R 35

NOTES:
1. LIFTING POINT
2. PIPE TO BE FILLED WITH SAND, COMPACTED (SEE NOTE 3) TO UNDERSIDE OF CABLE ENTRIES BEYOND CABLE ENTRIES LOOSE SAND ONLY.
3. COMPACTED BACKFILL MATERIAL TO CABLE TRENCHES IS TO BE SAND. COMPACTION OF THE SAND IS TO BE CARRIED OUT IN LAYERS NOT EXCEEDING 300mm. COMPACTION LEVEL TO ACHIEVE A MINIMUM MODIFIED DENSITY RATIO OF 92 % TO AS 1289:5:2:1.
   THIS MAY BE MEASURED AS 8 BLOWS / 300mm WITH A STANDARD PENETROMETER.
4. CONCRETE PIPE CULVERT CLASS 2 600 I/D x 1220 LONG, HUME PART No. 100151 WITH CORED HOLES TO WESTERN POWER DRAWING No. L98-1586.
5. 63kVA TRANSFORMER INCLUDES BASE GUIDES FOR LOCATION OF WEIGHT OVER PIPE
6. FOR 25kVA, CABLES TO BE INSTALLED INSIDE PIPE
   FOR 63kVA, CABLES TO BE INSTALLED OUTSIDE PIPE

EQUIPMENT WEIGHT
CONCRETE PIPE -  282 kg

THIS DRAWING TO BE READ IN CONJUNCTION WITH THE SUBSTATION INSTALLATION REQUIREMENTS - DSB 95/6

SUBSTATION REFERENCE
KJ05K
25kVA/63kVA
INSTALLATION GUIDE

REVISION B
DATE 09-03-02
DRAWING No. R19/1
NOTES:
FOR OTHER INFORMATION ON
SITE DESIGN & INSTALLATION DETAILS ETC, REFER TO
DSM - 3 - 01 SHEETS 1 & 2
DSM - 3 - 26
DSM - 4 - 02

EQUIPMENT WEIGHT
BOX CULVERT - CROWN = 948 kg
BASE = 384 kg
TRANSFORMERS - 63 kVA = 720 kg

NOTE:
CABLE LENGTH AND ALIGNMENT TO
ALLOW FOR FUTURE MPS INSTALLATION
WHEN CONNECTION IS MADE TO 63kVA TX

THIS DRAWING TO BE READ IN CONJUNCTION WITH THE SUBSTATION INSTALLATION REQUIREMENTS - DSB 95/6

Distribution Construction Standards Handbook – Technical Requirements   DM #4411789
NOTES:
1. GALVANISED STEEL FRAME BURIED INTO GROUND 75mm ABOVE FINISHED GROUND LEVEL.
2. SWITCHGEAR BOLTED TO FRAME AND FITTED WITH DUST COVER.
3. ALUMINIUM CABINET FITTED OVER SWITCHGEAR AND BOLTED TO FRAME
4. COMPACTION OF SUBGRADE TO BE A MINIMUM MODIFIED DENSITY RATIO OF 92 % TO AS 1289.5.2.1
   FOR A DEPTH OF 600mm BELOW FRAME. IN CLEAN SAND THIS MAY BE MEASURED AS 8 BLOWS / 300mm
   WITH A STANDARD PENETROMETER.
5. VOID TO BE FILLED WITH SAND, COMPACTION NOT NECESSARY.
6. COMPACTED BACKFILL MATERIAL IS TO BE SAND, COMPACTION OF THE SAND IS TO BE CARRIED OUT IN LAYERS
   NOT EXCEEDING 300mm, COMPACTION LEVEL TO ACHIEVE A MINIMUM MODIFIED DENSITY RATIO
   OF 92 % TO AS 1289.5.2.1. THIS MAY BE MEASURED AS 8 BLOWS / 300mm WITH A STANDARD PENETROMETER
7. THE BASE OF THE EXCAVATION IS TO BE A MINIMUM OF 300 mm LARGER THAN THE BASE OF THE STEEL FRAME.
   ON ALL SIDES. THE SIDES OF THE EXCAVATION ARE TO HAVE A SLOPE OF NOT LESS THAN 30 DEGREES.
8. CONCRETE SLABS UNDER FRAME FEET. SLABS TYPICALLY 500 x 200 x 25 THICK.

THIS DRAWING TO BE READ IN CONJUNCTION WITH THE SUBSTATION INSTALLATION REQUIREMENTS - DSB 95/6

<table>
<thead>
<tr>
<th>SUBSTATION REFERENCE</th>
<th>REVISION A</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>HV SWITCHGEAR KIOSK</td>
<td>R20</td>
<td>16-05-06</td>
</tr>
</tbody>
</table>
Part 2 – Reference

315 AND 630kVA TRANSFORMER LV

1000 kVA TRANSFORMER LV

315 AND 630kVA TRANSFORMER

1000 kVA TRANSFORMER

NOTES:
1. HV AND LV CABLES INSTALLED FOR 315 AND 630 kVA NON MPS TRANSFORMERS MUST ALLOW 500 mm SLACK FOR POSSIBLE FUTURE 1000 kVA TRANSFORMER UPGRADE SEE ABOVE FOR HEIGHTS OF LV AND HV BUSHINGS
2. ALL LV CABLES INSTALLED FOR NON MPS DISTRICT SUBSTATION ARRANGEMENTS TO BE 630 sq mm AL, 2 PER PHASE AND 1 PER NEUTRAL
3. CUSTOMER LV CABLES CONNECTED TO A SOLE USE 1000 kVA TRANSFORMER CAN BE A MAXIMUM SIZE AND NUMBER OF 3 X 630 sq mm PER PHASE.
4. CUSTOMER LV CABLES CONNECTED TO A SOLE USE 315 AND 630 kVA TRANSFORMER CAN BE A MAXIMUM SIZE AND NUMBER OF 2 X 630 sq mm PER PHASE.
5. CUSTOMER LV CABLES CONNECTED TO A SOLE USE 160 kVA TRANSFORMER CAN BE A MAXIMUM SIZE AND NUMBER OF 1 X 630 sq mm PER PHASE.

westernpower
DISTRIBUTION CONSTRUCTION STANDARDS
Customer Services Division

SUBSTATION REFERENCE
TRANSFORMER KIOSK (NON MPS) 160/315/630/1000kVA CABLING ARRANGEMENTS

REVISION | DATE
--- | ---
R21 | 25.5.2000

Distribution Construction Standards Handbook – Technical Requirements DM #4411789
MPS comes complete with transformer and 5 x LV switches.

5 x 630 AMP BASES SUPPLIED WITH MPS

HEATSHRINK

CABLE TO FUSE SWITCH (REF R25)

5 x 400 AMP COVERS SUPPLIED WITH MPS

630 AMP COVER WITH 600 AMP LINKS - OPTIONAL

2 x 630 COVERS FIXED TOGETHER WITH

600 AMP LINKS

1200 AMP ARRANGEMENT - OPTIONAL

CABLE SUPPLIED WITH
MPS TRANSFORMER RANGE - 160, 315 AND 630 kVA
Part 2 – Reference

LV Kiosk Type 1 - Feeder Pillar

Recessed in Wall

RECESS BUILT TO
DIMENSIONS SHOWN

THIS AREA TO BE FREE
OF FOOTINGS

CONCRETE SLABS
(500 x 200 x 25 THICK)

FREESTANDING

APPROX MAX. WEIGHT WITH
6 FUSEWAYS = 160kg

NOTE:-
THE CUSTOMER IS RESPONSIBLE FOR THE INSTALLATION OF THE
WPC SUPPLIED FEEDER PILLAR, TO BE RECESS IN THE WALL.

LV Kiosk Type 2 - District Substation

Drill 4 Holes 12Dia, Thru Reinforced Sections;

400 DEEP

FLOOR OF
SUBSTATION

IN 2HR FIRE RATED SUBSTATION

CONCRETE SLABS
(500 x 200 x 25 THICK)

FREESTANDING

APPROX MAX. WEIGHT WITH
5 FUSEWAYS & 2 DISCONNECTORS = 240kg

NOTE:-
KIOSK BOLTED TO SUBSTATION WALL ABOVE THE TRENCH WITH
4 x 10mm RAWL NUTS + 4 x 10mm BOLTS x 75 LONG.

LV Kiosk Type 3 - District Substation

Drill 6 Holes 12Dia, Thru Reinforced Points as Shown;

400 DEEP

FLOOR OF
SUBSTATION

IN 2HR FIRE RATED SUBSTATION

CONCRETE SLABS = 500 x 200 x 25 THICK

FREESTANDING

APPROX MAX. WEIGHT WITH
5 FUSEWAYS & 2 DISCONNECTORS = 350kg

NOTE:-
KIOSK BOLTED TO SUBSTATION WALL ABOVE THE TRENCH WITH
6 x 10mm RAWL NUTS + 6 x 10mm BOLTS x 75 LONG.

THIS DRAWING TO BE READ IN CONJUNCTION WITH THE SUBSTATION INSTALLATION REQUIREMENTS - DS8 95/6

---

Western Power
DISTRIBUTION CONSTRUCTION STANDARDS
Customer Services Division

SUBSTATION REFERENCE
LV SWITCHGEAR KIOSK
GENERAL ARRANGEMENT

REVISION
A

DATE
01-08-01

DRAWING No.
R24

---

DM #4411789
SUPERCEDED TYPE 1 REQUIREMENTS

NOTE:
THIS CUTOUT, WITH SEPARATE EARTH/NEUTRAL TERMINALS, WAS SUPERCEDED BY THE TYPE 2 CUTOUT WITH A COMMON EARTH/NEUTRAL TERMINAL. HOWEVER, DUE TO THE NUMBER OF THIS TYPE STILL IN USE TYPE 1 MUST BE CONNECTED AS SHOWN WITH THE M6 LOOP INSTALLED & EARTH LEAD TO MOUNTING BRACKET.

CONNECT 6mm EARTH WIRE (EE1420) TO MOUNTING BRACKET FROM EARTH BLOCKS.

NOTE: THESE LINKS MUST BE INSTALLED.

LOOP BETWEEN NEUTRAL AND EARTH BLOCKS TO BE 6mm Cu PVC INSULATED.

VIEW ON INSIDE OF FRONT COVER TYPE 2

A DOUBLE INSULATED CABLE TO EACH LUMINAIRE
DOUBLE INSULATION (SHEATHING) TO ENTER UNIT
CONNECT EARTH WIRE TO MOUNTING BRACKET USING TERMINAL LUG AND M6 SCREW.

FIX TO MOUNTING BRACKET USING M4 SCREW
EARTH/NEUTRAL TO BE INSULATED WITH HEAT SHRINK OR TAPE

SINGLE SERVICE SUPPLY
10mm (EE1420) OR 16mm (EE1421) XLPE INSULATED RED CORE INSULATION, HELICAL WOUND NEUTRAL SCREEN Cable

LOOVED SERVICE SUPPLY

SUPERCEDED TYPE 2 UNIT
SEE R26/2 FOR REPLACEMENT

Part 2 – Reference

REFERENCE DRAWING

STREET LIGHT CUTOUT
SINGLE PHASE SUPPLY

DRAWING No. R26/1

Customer Services Division

DISTRIBUTION CONSTRUCTION STANDARDS

DISTRIBUTION CONSTRUCTION STANDARDS

REG HENLEY
STREET LIGHTING SERVICE
CAT No. 806 54715-04
TYPE 2

DATE 25-01-05

REVISION C
FOR SINGLE INSULATED CLASS I EQUIPMENT ONLY

NOTE:
1. EARTH LINK BETWEEN EARTH TERMINAL AND MOUNTING BRACKET REQUIRED.
2. NEUTRAL TO EARTH LINK REQUIRED.
3. INSERT FUSE OR CONNECTION TO SECOND LUMINAIRE REQUIRED.

VIEW ON INSIDE OF FUSE LINK HOLDER

NOTE 1

A DOUBLE INSULATED CABLE TO EACH LUMINAIRE

NOTE 2

BLACK PVC TAPE ON NEUTRAL SCREEN WIRES

NOTE 3

LINK OR FUSE (REFER TO R27)

STOCK No: HZ0128

REFERENCE DRAWING

STREET LIGHT CUTOUT
SINGLE PHASE SUPPLY FOR SINGLE INSULATED (CLASS I) LUMINAires

DISTRIBUTION CONSTRUCTION STANDARDS
Customer Services Division
NOTE:
1. NO EARTH LINK BETWEEN EARTH TERMINAL AND MOUNTING BRACKET.
2. NO NEUTRAL TO EARTH LINK REQUIRED.
3. INSERT FUSE IN CONNECTION TO SECOND LUMINAIRE.

VIEW ON INSIDE OF FUSE LINK COVER

A DOUBLE INSULATED CABLE TO EACH LUMINAIRE
A DOUBLE INSULATED CABLE TO ELECTRICAL ATTACHMENT
CABLE ENTRY MAY BE LEFT OR RIGHT

NOTE 1

BLACK PVC TAPE; NEUTRAL SCREEN WIRES

MOUNTING BRACKET NOT TO SCALE

10mm £1420) OR 16mm £1421) XLPE INSULATED, RED CORE INSULATION, HELICAL WOUND Neutral Screen Cable

SINGLE OR LOOPED SERVICE - SINGLE PHASE

STOCK No.: HZ0128

FIX TO MOUNTING BRACKET USING PLATE AND SCREWS
INSTALLATION INSTRUCTIONS ARE INCLUDED WITH EACH AVENUE LUMINAIRE

CONNECT DOUBLE INSULATED PRE-FITTED CABLE TO "BILL" CONNECTION BLOCK

VIEW ON INSIDE OF FRONT COVER

10mm (EE1420) OR 16mm (EE1421) XLPE INSULATED RED CORE INSULATION HELICAL WOUND NEUTRAL SCREEN CABLE

SINGLE PHASE SERVICE

DISTRIBUTION CONSTRUCTION STANDARDS
Customer Services Division

STRUCTURE

AVENUE STREET LIGHTS LUMINAIRE INSTALLATION

REVISION

DATE

DRAWING No.

R26-4

DM #4411789
FROM A LOOPED SERVICE

STREET LIGHT FUSE HOLDER (SEE NOTE 2) FITTED ON OPPOSITE SIDE OF TERMINALS BY FITTING TERMINAL FIXING SCREW AS SHOWN.

TERMINATING BLOCKS

MOUNTING BOARD

MINI PILLAR

1-CORE 10sqmm CABLE (EE1420)

FROM A PILLAR

NOTES FOR PILLAR CONNECTIONS,
1. DISTRIBUTE LIGHTING LOAD ACROSS THE PHASES WITHIN THE DEVELOPMENT.
2. GEC REDSPOT TYPE RS20H FUSE HOLDER (GF0171), USE WITH 10A FUSE SINGLE LIGHTS
   USE WITH 32A FUSE MULTIPLE LIGHTS

ALSO REFER TO DETAILS IN R26/1, R26/2 & R26/3

REFERENCE DRAWING
FUSING ARRANGEMENT FOR STREET LIGHT COLUMNS

REVISION D
DATE 16-05-06
ORG No. R27
240V CONFIGURATION

12.7kV OR 22kV 25kVA/240 - 480V TRANSFORMER
**480V Configuration**

12.7kV or 22kV 25kVA/240 - 480V Transformer
NOTE: THIS STANDARD IS NOT TO BE USED FOR NEW DESIGNS AND IS INTENDED AS A FIX FOR EXISTING INSTALLATIONS THAT HAVE NOT BEEN DESIGNED TO MEET THE CABLE CAPACITY LIMITS OF THE PILLAR

1. FIX EXTRA NEUTRAL LINK TO BACK OF PANEL BEHIND EXISTING M.E.N LINK

2. USING INSULATED GLOVES AND TOOLS REMOVE EARTH STAKE CONDUCTOR FROM M.E.N LINK AND TEST BETWEEN EXISTING M.E.N LINK AND REMOVED CABLE END TO CONFIRM NO POTENTIAL DIFFERENCE. NOTIFY WESTERN POWER IF POTENTIAL EXISTS

3. CONNECT REMOVED EARTH CABLE END TO BOTTOM MIDDLE TERMINAL OF NEW LINK

4. CONNECT A 25/35MM NEUTRAL CONDUCTOR (BLACK) BETWEEN OLD EARTH TERMINAL IN EXISTING LINK AND BOTTOM RIGHT TERMINAL IN NEW M.E.N LINK

5. THEN CONNECT EXTRA NEUTRALS TO THE NEW LINK
Part 2 – Reference


---

**NOTES:**
1. All MP 25mm sq service cables to enter bottom of terminal blocks.
2. Source of supply to the pillar on the right side of the terminal block.
3. Feed to another pillar to be on the left side of the terminal block.
4. Consumers and street light to be connected to the top of the terminal block (left of block for customer on the left, right of block for customer on the right, street light center).

---

**REFERENCE DRAWING**

MINI PILLAR TERMINAL BLOCK TERMINATION DETAILS

---

REVISION B
DATE 12-07-13
DRAWING No. R 32
MINI - PILLAR ENCLOSED WAVECON
WORKING END. (LID OF PILLAR PAINTED WHITE)
MINI PILLAR TO BE INSTALLED AS SHOWN ON DRAWING U8

NOTE: MAXIMUM CABLE SIZE 35mm²

SEE R 29 or U19/3

1 PHASE CUSTOMER

ACTIVE

NEUTRAL

EARTH ROD

GLOVE

MINI PILLAR 240V SUPPLY FROM SPUDS OR POLE

DISTRIBUTION CONSTRUCTION STANDARDS

REFERENCE DRAWING

R 35-1

NOTES:
1. ALL WP 25mm sq SERVICE CABLES TO ENTER BOTTOM OF TERMINAL BLOCKS
2. SOURCE OF SUPPLY TO THE PILLAR ON THE RIGHT SIDE OF THE TERMINAL BLOCK
3. FEED TO ANOTHER PILLAR TO BE ON THE LEFT SIDE OF THE TERMINAL BLOCK
4. CONSUMERS AND STREET LIGHT TO BE CONNECTED TO THE TOP OF THE TERMINAL BLOCK (LEFT OF BLOCK
   FOR CUSTOMER ON THE LEFT, RIGHT OF BLOCK FOR CUSTOMER ON THE RIGHT. STREET LIGHT CENTER), SEE: R32
5. WHITE PHASE TO BE CAPPED ON BOTH ENDS FOR POLE TO PILLAR APPLICATIONS WITH SINGLE TX (U19/3)
6. NEUTRAL SCREEN AND BLUE PHASE TO BE COVERED IN BLACK HEAT SHRINK
NOTE: MAXIMUM CABLE SIZE 35mm²

NOTES:
1. ALL WP 25mm sq SERVICE CABLES TO ENTER BOTTOM OF TERMINAL BLOCKS
2. SOURCE OF SUPPLY TO THE PILLAR ON THE RIGHT SIDE OF THE TERMINAL BLOCK
3. FEED TO ANOTHER PILLAR TO BE ON THE LEFT SIDE OF THE TERMINAL BLOCK
4. CONSUMERS AND STREET LIGHT TO BE CONNECTED TO THE TOP OF THE TERMINAL BLOCK (LEFT OF BLOCK FOR CUSTOMER ON THE LEFT, RIGHT OF BLOCK FOR CUSTOMER ON THE RIGHT, STREET LIGHT CENTERED); SEE R32
5. NEUTRAL SCREEN AND BLUE PHASE TO BE COVERED IN BLACK HEAT SHRINK

REFERENCE DRAWING: MINI PILLAR 480V SUPPLY ARRANGEMENT

DATE: 12.07.2013

DRAWING No.: R 35-2
MINI PILLAR TO BE INSTALLED AS SHOWN ON DRAWING U8

NOTE: MAXIMUM CABLE SIZE 35mm²

3 PHASE CUSTOMER

ACTIVE (B)
ACTIVE (W)
ACTIVE (R)

MINI PILLAR

NOTE:

1. ALL WP 25mm sq SERVICE CABLES TO ENTER BOTTOM OF TERMINAL BLOCKS
2. SOURCE OF SUPPLY TO THE PILLAR ON THE RIGHT SIDE OF THE TERMINAL BLOCK
3. FEED TO ANOTHER PILLAR TO BE ON THE LEFT SIDE OF THE TERMINAL BLOCK
4. CONSUMERS AND STREET LIGHT TO BE CONNECTED TO THE TOP OF THE TERMINAL BLOCK (LEFT OF BLOCK FOR CUSTOMER ON THE LEFT, RIGHT OF BLOCK FOR CUSTOMER ON THE RIGHT, STREET LIGHT CENTER) SEE: R32
5. NEUTRAL SCREEN TO BE COVERED IN BLACK HEAT SHRINK

REFERENCE DRAWING

MINI PILLAR
3 PHASE SUPPLY ARRANGEMENT

REV P A 12.07.2013

DRAWING No. R 35-3
**NOTE:**
For doubleskin or painted enclosures an earth lead is required for the surge arrester.

**SDI**: Single Double Insulated

---

### Reference Drawing

**NULEC RECLOSER CONTROL BOX CONNECTION DETAIL**

- **Revision A**: 10/12/05
- **DRG No.**: R36
NOTE:
1. Solar panel may be provided with flexible cable tail.
2. For 2 x 20W panels, provide series connection at solar panel or regulator.
3. Remove existing spade connectors from battery leads in reclosure control box and replace with M/F bullet connectors.
4. Remove regulator cover and change blue jumper from terminals 4/6 to 3/4.
NOTE:
1. REMOVE BATTERY AND TAILS. (ALLOW FOR RETERMINATING)
2. REMOVE TRANSFORMER CONNECTION.
3. PROVIDE LOOP AT BATTERY AND SOLAR TERMINALS.
4. SOLAR PANEL MAY BE PROVIDED WITH FLEXIBLE CABLE TAIL.
5. FOR 2 X 10W SOLAR PANELS, SERIES CONNECTION REQUIRED AT SOLAR PANEL OR REGULATOR.
6. DO NOT USE LOAD TERMINALS FOR CONTROLLERS WITH LOAD DISCONNECT.
7. LINK REQUIRED FOR SEALED LEAD ACID BATTERY.
8. CONSTRUCTION USING 2 X 7Ah BATTERIES REQUIRES LARGER VERSION OF ENCLOSURE.
NOTE:
1. INSTALLER TO MARK TAG AS DETAILED WITH SUITABLE PUNCH SET
2. ONE TAG ONLY IS REQUIRED WHERE A 3 PHASE CABLE IS INSTALLED
3. TAG SHALL BE EASILY AND DIRECTLY VISIBLE FOR INSPECTION

USE CABLE TIE TO FIX TAG TO CABLE ADJACENT THE JOINTTERMINATION

STAINLESS STEEL TAG
80 x 20 x 0.5

PAY OR CONTRACTOR NUMBER

DATE OF INSTALLATION (MONTH YEAR)
eg. 10.03

REFERENCE DRAWING

INSTALLER IDENTIFICATION TAG

REVISION c
14-08-13

DM #4411789

NOTE
REMOVAL TOOL TO BE ORDERED FROM SUPPLIER AS NEEDED

FRONT VIEW  BACK VIEW
STOCK CODE: CR0327

INSTALLATION TOOL
STOCK CODE: CR0328

REFERENCE DRAWING
INSTALLATION OF ABOVE GROUND CABLE MARKER

REV\ION A   DATE 30-07-09
DRAWING No. R40

DM #4411789