

INSTALLATION GUIDE (Volume 1)

Guideline for New Connection provisioning

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Installation guide

Document Controls



DOCUMENT CONTROL SHEET

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Enforcement/ Revision Table

Issue No. & Date	Revision No. & Date	Revised Page numbers	Prepared / Updated By	Recommended By	Approved By
1 st Edition 01.01.2013	-	All	E/NCPM, E/NCCM	DGM/NC&FSP, GM/ASA&D	CRO
2 nd Edition 16.07.2017	-	All	E/NCPM, E/NCCM	DGM/NC&FSP, GM/OS&R	CRO
3 rd Edition 03.03.2018	-	All	E/NCPM, E/NCCM, E/QA, E/FTTx	DGM/NC&FSP, GM/OS&R	CRO
4 th Edition 22.03.2019	-	Pages 10, 13	E/NCPM, E/NCCM, E/QA, E/FTTx	DGM/NC&FSP DGM/QA	GM/OS
5 th Edition 31.10.2019	-	Page 7	E/FTTx, E/QA, E/NCCM, E/NCPM	DGM/NC&FSP, DGM/QA	GM/OS
6 th Edition 21.04.2020	-	Pages 7, 8, 10	E/FTTx, E/QA, E/NCCM, E/ANP	DGM/NC&FSP, DGM/QA	GM/OS



Installation guide

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Installation guide

Ethics
චර්යා ධර්ම



I respect my Company
My company
serves to SLT.
so I respect values
of SLT

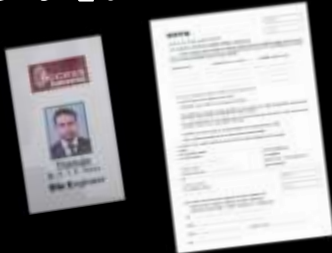
මා ආයතනික අපේක්ෂා වලට
ගරු කරමි. මගේ ආයතනය

SLT ආයතනයට සේවය කරයි.

එහෙයින් මා SLT ආයතනයේ අපේක්ෂා
වලටද එලෙසම ගරු කරමි.

Identity අනන්‍යතාව

- Always wear company identity card and hand over your team staff identification letter to Customer.
- ඔබ නිතරම ආයතනික හැඳුනුම්පත පැළඳිය යුතු අතර සමස්ත කණ්ඩායමේ තොරතුරු ලිපිය පාරිභෝගිකයා වෙත ලබාදිය යුතුය.



Facial Expression යහපත් පෙනුම

- Always try to be pleasant as you are not inhuman or an outlaw.
- ඔබ සතෙකු හෝ මංපතරන්නෙකු නොවන නිසා යක්ෂ හෝ මලද්‍රෝණ ආකාරයෙන් නොසිට සිනාමුසුවන්න.



Foot Wear පාවහන්

- Must use shoes instead of slippers or sandals. It will ensure both quality of appearance and safety.
- ඔබ නිතරම, සපත්තු පැළඳිය යුතුයි. සෙරෙප්පු හාච්චය කිසිසේත් ගැලපෙන්නේ නැත. සපත්තු හාච්චයෙන් ගුණාත්මක බව පමණක් නොව ආරක්ෂාවද තහවුරු කරයි.



Uniform නිල ඇඳුම

- Always wear Co-branded uniform designed by SLT. Uniform includes a T-shirt and a Jacket.
- ඔබ නිතරම SLT සැලසුම් කළ නිලඇඳුම හච්ච කළ යුතුය. නිලඇඳුම T-Shirt එකකින් සහ Jacket එකකින් සමන්විතයි.



Installation guide

Common instructions for all services
සියලුම සේවා සඳහා පොදු උපදේශ

Maintaining a Check sheet

Check Sheet	
Company Identity card	✓
Staff proof letter (to be given to customer)	✓
SLT-Contractor Co-Branded Uniform appearance	✓
SLT Authorized contractor Badge	✓
Tool Bag with required tools	✓
Safety Helmet(where necessary)	✓
Safety Belt (where necessary)	✓
Installation Guide book	✓
Quality check sheet (filled by Contractor and customer)	✓
Free Hand sketch diagram	✓
Other required documents	✓
Use of required chemicals for cleaning Fiber (For FTTH)	✓

Installation guide

Common instructions for all services

සියලුම සේවා සඳහා පොදු උපදේශන



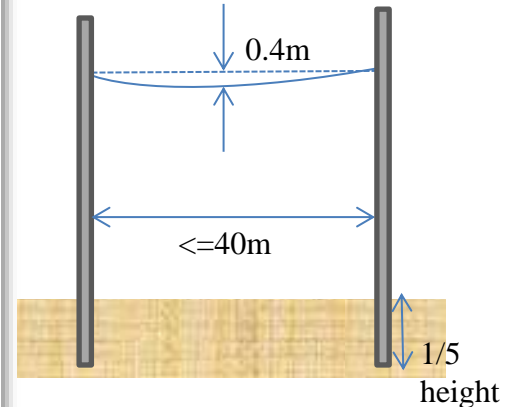
Note: All installation standards mentioned should be strictly adhered. However, due to practical surrounding situations or special customer requests provisioning team can adopt minor changes with the written approval of respective SF Engineer of SLT OPMC.

Drop wire drawing

- 01) Sag of Drop wire not to exceed 0.4m for 40m or less pole span, sag of 0.7m between 40-50m pole span.
- 02) Drop wire connectors
 - * <500m – No Joints
 - * >500m – one Joint with Drop wire Connector
- 03) C-hook to be fixed firmly at suitable place and drop wire to be stapled on the wall by cleats at 1m interval up to discharger.

ඩ්‍රොප් වයර් ඇඳීම

- 01) දුරකථන කණු 2ක් අතර පරාසය මීටර් 40 ට වඩා අඩු අවස්ථා වලදී තිරසර ඒඳිරිව ඩ්‍රොප් වයරයේ නම්‍යතාව මීටර් 0.4 නොඉක්මවිය යුතුය. එම පරාසය මීටර් 40ත් 50ත් අතර නම් එම අගය මීටර් 0.7 නොඉක්මවිය යුතුය.
- 02) ඩ්‍රොප් වයර් සම්බන්ධක (Drop wire Connectors)
 1. දිග මීටර් 500ට අඩුනම් කනෙක්ටර්ස් භාවිතා නොකළ යුතුය.
 2. දිග මීටර් 500ට වැඩිනම් කනෙක්ටර්ස් 1ක් භාවිතා කළ යුතුය.
- 03) සී කොකුව (C Hook) ස්ථිරව සුදුසු ස්ථානයක සවිකළ යුතු අතර බිත්තිය මත ඩ්‍රොප් වයරය, බිස්වාජරය දක්වා ඇඳීමේ දී මීටර් 1 ක පරාසය සහිතව ක්ලීට් (Cleet) සවිකළ යුතුය.



Erecting Poles

- 01) Construction of poles with struts and stays where ever they are needed.
- 02) Buried depth of the pole: 1/5th of the actual height of pole.
- 03) Buried depth to be measured using the pole Height Measuring Instrument.
- 04) Permissible Drop wire Clearance (Along the Road – 4.5m and at Road Crossings – 5.0m & ensure Properly Tensioned Power Crossing as indicated below
<600V – 60cm, 600 – 700V, 120cm & 7000V – 15000V, 200cm
- 05) Installing of top bolt is mandatory.

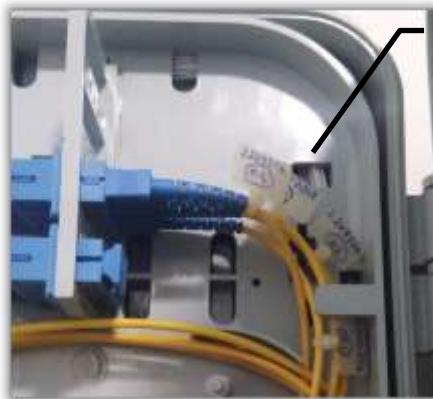
කණු සිටුවීමේ ක්‍රම

- 01) අවශ්‍යතාවයට සරිලන පරිදි කණු සිටුවීමේදී තෙරපුම් ආධාරක (strut- ස්ට්‍රට්) හෝ ආතති ආධාරක (stay – ස්ටේ) භාවිතා කළ යුතුය.
- 02) කණුවක් සිටුවීමේ දී එහි මුළු උසෙන් 1/5 ක් භූගත කළ යුතුය.
- 03) කණු හරහා ඩ්‍රොප් වයර් ඇඳීමට අවසර ලැබෙනුයේ බිම් මට්ටමේ සිට,
 - මාර්ගයක් හරහා නම් මීටර් 5ක් උසින් ද,
 - මාර්ගයට සමාන්තරව නම් මීටර් 4.5ක් උසින් ද වශයෙනි.
- 04) එලෙසම මනා ආතතියෙන් යුතුව ඇඳිය යුතු අතර විදුලි රැහැනක් හරහා ගමන් කරයි නම් පහත සඳහන් පරතර තැබිය යුතුය.
 - විදුලි ධාරිතාව 600V විදුලි රැහැනක් නම් පරතරය සෙන්ටිමීටර් 60ක් ද,
 - විදුලි ධාරිතාව 600V ත් 700V ත් අතර විදුලි රැහැනක් නම් පරතරය සෙන්ටිමීටර් 120ක් ද,
 - විදුලි ධාරිතාව 7000V ත් 15000Vත් අතර විදුලි රැහැනක් නම් පරතරය සෙන්ටිමීටර් 200ක් ද, වශයෙනි.
- 05) කණුවේ ඉහළින්ම බෝල්ට් ඇඳුණය සවිකිරීම අනිවාර්යයි.

Installation guide

SMARTLINE(FTTH)

Note: All installation standards mentioned should be strictly adhered. However, due to practical surrounding situations or special customer requests provisioning team can adopt minor changes with the written approval of respective SF Engineer of SLT OPMC.



Place tie tag about 4 inches away from fiber port

This kind of tie tags are readily available in Hardware or Electrical shops

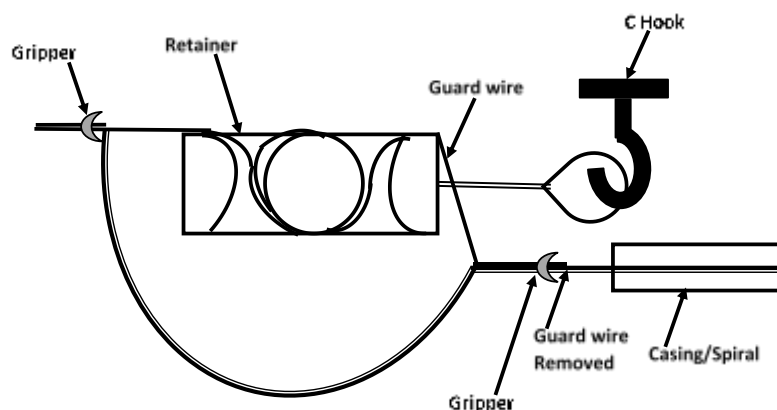
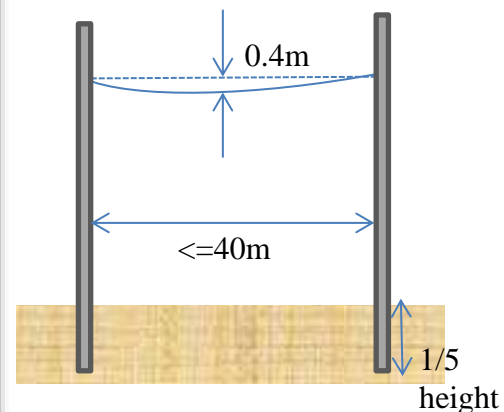


Terminating into FDP

- 01) Fiber Drop Wire must be terminated with FAC connector (SC/UPC).
- 02) Adequate Drop Wire coil must be kept into FDP.
- 03) Customer's phone number must be properly written in FDP card with relevant port number.
- 04) Place a Tie tag which the respective TP number is written on, and locate about 4 inches from port on fiber patch cable inside the FDP. Make sure that not to tighten too hard which may bend the fiber wire but should not be movable as well. (Refer above sample image). Telephone number should be written clearly by using a narrow tip permanent marker pen.

Drop wire drawing

- 01) Sag of Drop wire not to exceed 0.4m for 40m or less pole span, sag of 0.7m between 40-50m pole span.
- 02) There shouldn't be fiber Drop wire joint between FDP & Drop box
- 03) White colored Retainers must be used and properly fixed into L-Hooks
- 04) C-hook to be fixed firmly at suitable place and drop wire to be covered by flexible conduit or spiral. Guard wire to be removed at this point and to draw internal wire without guard wire thereafter. To stop tearing off a gripper to be applied after keeping the fiber drop wire loop at the C hook. Refer sketch below.
- 05) Drop wire clearance from foliage must be not less than 1m
- 06) Drop wire bends should comply with G.657A2 / G.652.D
- 07) If the drop wire length exceeds 500m, 15 m coil should be kept in every 500m



Installation guide

SMARTLINE(FTTH)



Note: All installation standards mentioned should be strictly adhered. However, due to practical surrounding situations or special customer requests provisioning team can adopt minor changes with the written approval of respective SF Engineer of SLT OPMC.

Internal wire

- 01) Fiber wire properly taken from outside to inside of house over the wall within a protective casing/conduit.
- 02) Internal Wiring neatly done inside house within a protective casing/with an appropriate protection/using a Self-adhesive fiber wire, according to the customer awareness/agreement
- 03) Internal wire must comply with G.657.A2 standard
- 04) Appropriate Spiral or flexible conduit must use for cover the bends.
- 05) If customer do not allow to draw the internal wire through casings on outer walls only it is allowed to draw internal wire through conduits above ceilings subjected that they are fully protected appropriately.

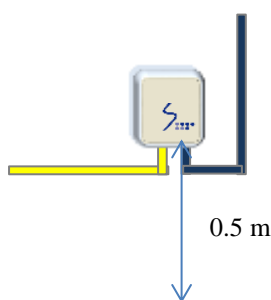
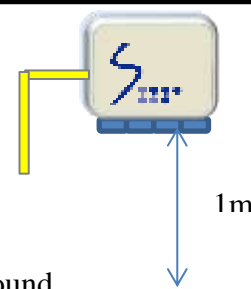


FAC Connector Assembly

- 01) SC/UPC connector must be used.
- 02) Connector /Adapter must be Blue in Color.
- 03) Fiber insertion loss < 0.5dB
- 04) FAC connector used inside the FDP to terminate the Outdoor drop wire
- 05) FAC connector used inside the Rosette to terminate Indoor drop wire
- 06) Should follow the instruction manual, proper tools provided by manufacturer

ONT Placing

- 01) ONT must be placed in a proper location where connectivity for the instruments can obtained easily and less interference from other Wi-Fi signals.
- 02) ONT must be fixed 1m from ground level
- 03) Patch code neatly arranged and protected.
- 04) ONT must be fixed in a way where the ports of the ONT headed downwards.



Rosette Box Placing

- 01) Fiber Rosette properly fixed onto the inner wall at the appropriate place (where sufficient safety available and easily reachable) at 0.5m height from floor level
- 02) FAC properly connected to fiber wire within Fiber Rosette
- 03) Fiber wire properly arranged within Fiber Rosette, Adequate fiber coil kept within Fiber Rosette
- 04) SC/UPC Adaptor must be placed within fiber Rosette
- 05) No splicing to be accommodated inside Rosette

Power Loss Calculation -Theoretical

Fiber attenuation loss - 0.27 dB per km for 1490nm

Splicing - 0.1 dB

SC/UPC adapter - 0.3 dB

Field Assembly connector (FAC) - 0.5 dB

Using these values theoretical loss must be calculated and compare with actual power loss

"Theoretical loss must be approximately equals to Actual loss "



Installation guide

SMARTLINE(FTTH)

Note: All installation standards mentioned should be strictly adhered. However, due to practical surrounding situations or special customer requests provisioning team can adopt minor changes with the written approval of respective SF Engineer of SLT OPMC.

Power Testing – Actual (Using Power Meter)

1. Get the reading (R1) from the proper port at FDP – Set Power Meter to 1490nm
2. Get the reading(R2) from the Rosette - Set Power Meter to 1490nm
3. Different between the readings(R1- R2) will be the Actual power loss

ONT Configuration –ZTE F660

- 01) Login as Administration to bind the ONT with network
 - a. Connect to ONT to laptop
 - b. Type 192.168.1.1 in browser
 - c. Enter administrator password→Login
 - d. Network→PON→SN
 - e. 10 digit phone number entered as password
- 02) Login as user - Username: user , Password: user IP: 192.168.1.1
 - a. Configure internet using BB Username & Password
 - i. Goto 'quick Setup'
 - ii. Add PPPoE username and password
 - b. Configure Wi-Fi SSID and Password
 - i. Go to 'Next'
 - ii. Enable SSID→Enter SSID (Wi-Fi U/N)
 - iii. Enter pre shared key (Wi-Fi P/W)→save→Detail Setup
 - c. Set the proper Wi-Fi channel to reduce the interference
 - i. WiFi Channel Monitoring - using "InSSIDer Home"
 - ii. Network→WLAN→Basic
 - iii. Channel→Select Channel manually→Submit
 - d. Check the ONT power receiving level and make sure > -28dB
 - i. Status Network Interface→PON information

ONT Configuration –HUAWEI HG8254H

- 01) Login as Administration to bind the ONT with network
 - a. Connect to ONT to laptop
 - b. Type 192.168.1.1 in browser
 - c. Enter administrator password→Login
 - d. System tools → ONT authentication →password (use 10 digit telephone number of the user) and click <Apply>
- 02) Login as user - Username: user , Password: user IP: 192.168.1.1
 - a. Quick Setup → Type internet user name and password and click <Next>
 - b. Quick Setup → Configure WiFi SSID and WiFi password and click <Next>
 - c. WiFi Channel Monitoring
 - i. using "InSSIDer Home"
 - d. To change WiFi Channel manually
 - i. Go to: WLAN→WLAN Advance Configuration→Channel
Select channel Manually
 - e. Check the ONT power receiving level and make sure > -28dB
 - i. Go to:Status→Optical Information

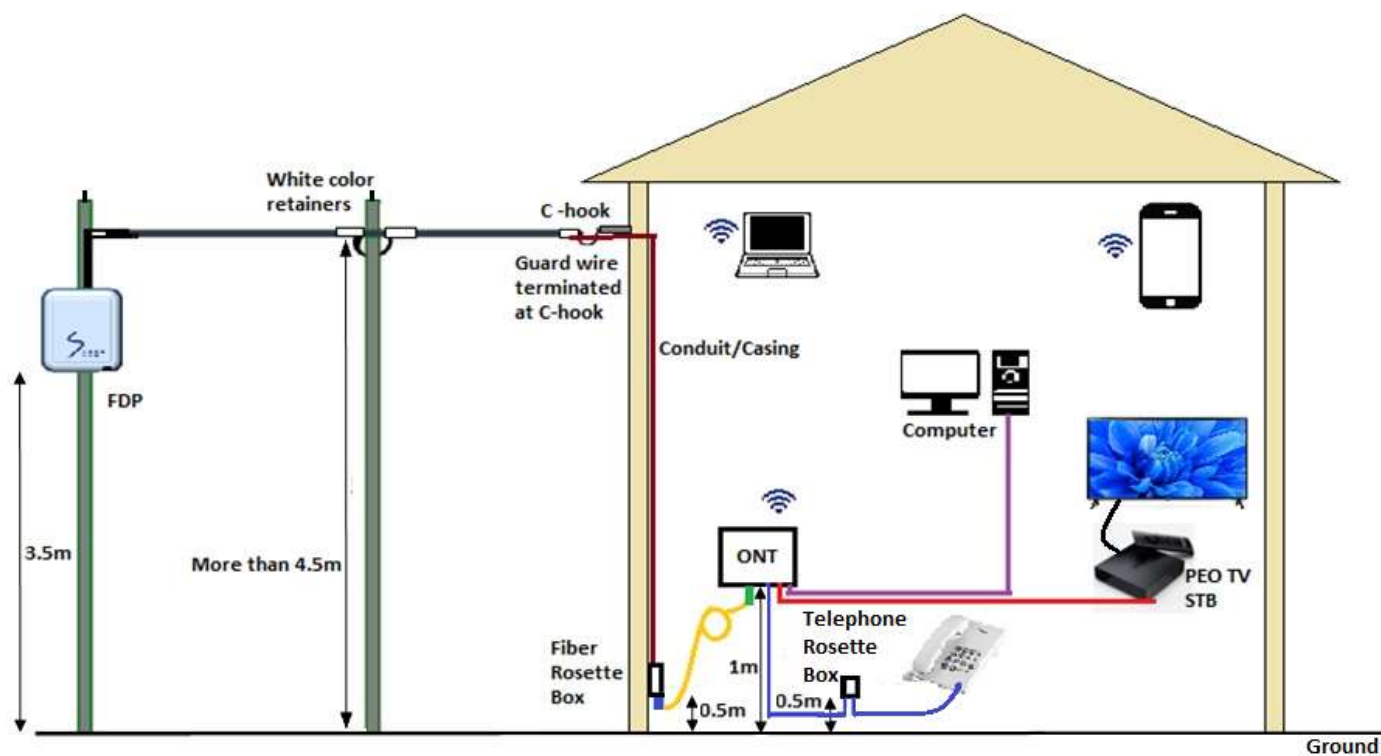
Installation guide

SMARTLINE(FTTH)



Note: All installation standards mentioned should be strictly adhered. However, due to practical surrounding situations or special customer requests provisioning team can adopt minor changes with the written approval of respective SF Engineer of SLT OPMC.

FTTH New Connection Installation Diagram



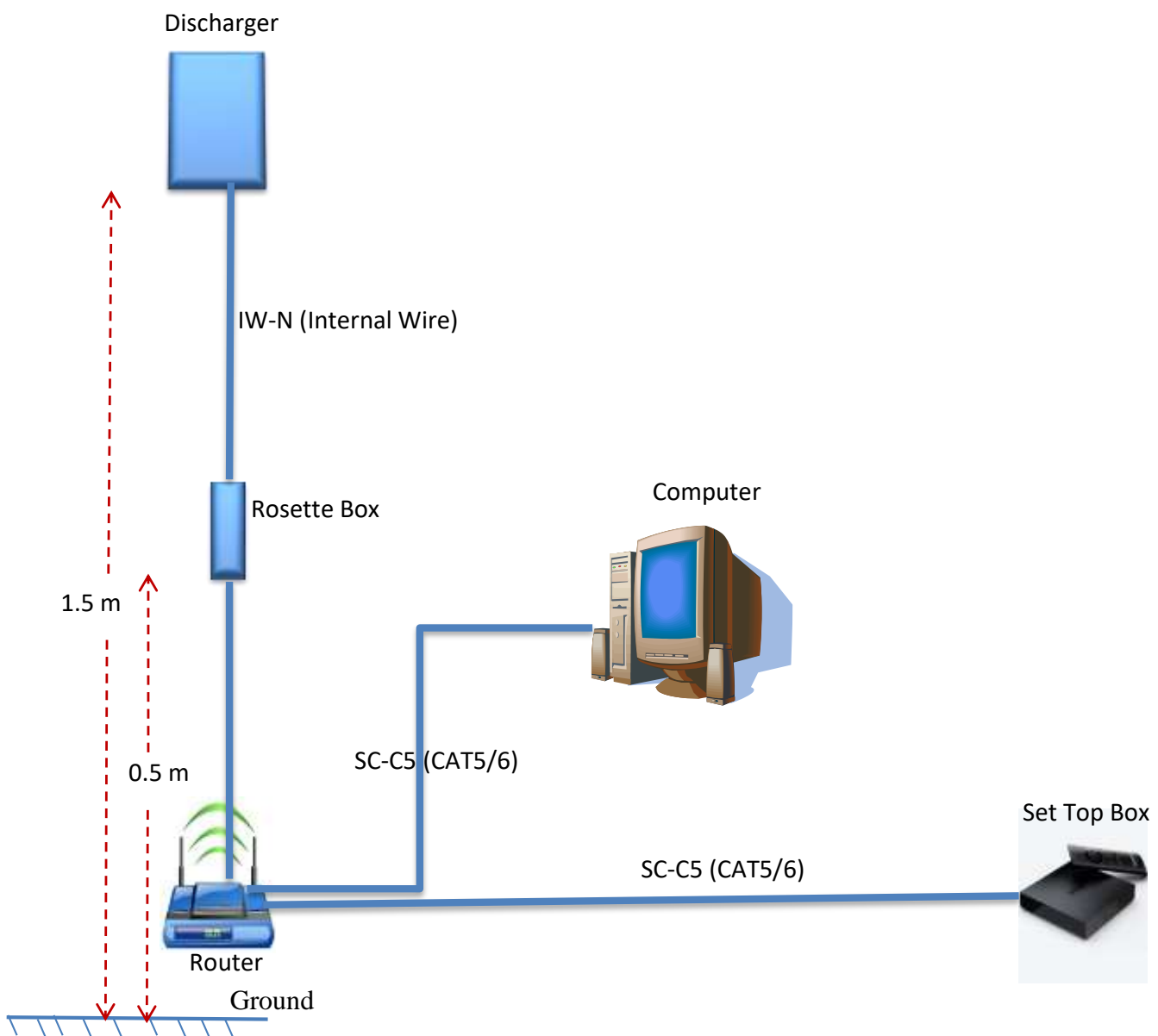


Installation guide

PEO TV

Note: All installation standards mentioned should be strictly adhered. However, due to practical surrounding situations or special customer requests provisioning team can adopt minor changes with the written approval of respective SF Engineer of SLT OPMC.

PEO TV New Connection Installation Diagram



- Cat 5e cables need to be clipped within 30 cm intervals horizontally & 40 cm vertically.
- Need to be filled Supplementary form through customers for more than 20 m cat 5e cable usages & hand over to relevant OPMC.
- Correct any quality issues observed during installation of Peo TV connection.
Eg-Discharger/Rosette not working properly-replace faulty discharger/Rosette
Problem in the Eathing System-Correct the Eathing system

Installation guide

MEGALINE (PSTN)



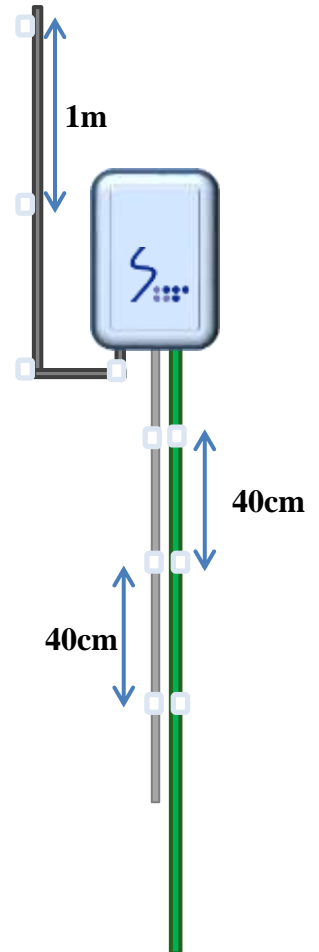
Note: All installation standards mentioned should be strictly adhered. However, due to practical surrounding situations or special customer requests provisioning team can adopt minor changes with the written approval of respective SF Engineer of SLT OPMC.

Discharger Unit Placing

- 01) Should be fixed firmly at a reasonably reachable height (more than 5ft).
- 02) Wires to be without spirals.
- 03) Drop wire and internal wire connected in clockwise sense at the discharger and insulation is not to be excessively removed. Ensure the availability of the Protectors.
- 04) Should be fixed outside customer premises in a suitable place without exposing for hazardous weather conditions such as heavy raining.

බිස්වාජරය ස්ථානගත කිරීම

- 01) පහසුවෙන් ළඟා විය හැකි උසකින් මනා ලෙස සහ ස්ථිර ලෙස සවි කළ යුතුය. අඩි 5 කට වඩා උසින් පිහිටුවිය යුතුය.
- 02) බිස්වාජරය ආශ්‍රිත වයර් ස්ථාපනයේ දී දැගර වලින් තොරව සකස් කළ යුතුය.
- 03) බ්‍රොජ් වයරය සහ ඉන්ටර්නල් වයරය දක්ෂිණාවර්තව පිහිටින අයුරින් ස්ථාපනය කළ යුතු අතර ඒවායේ පරිවාරක උවමනා ප්‍රමාණයට වැඩියෙන් ඉවත් නොකළ යුතුය. බිස්වාජරය තුළ විලාසකය අන්තර්ගත බව තහවුරු කළ යුතුය.
- 04) පාරිභෝගික නිවසට පිටතින් අධික වැසි ආදී අයහපත් කාලගුණ අවස්ථා වලට හසුනොවන තැනක ස්ථාපිත කළ යුතුය.



Internal wire

- 01) Internal wire to be stapled at every 40 cm point and PVC Protection is to be used where ever it becomes necessary to protect the wire.

අභ්‍යන්තර රැහැන් ස්ථාපනය කිරීම

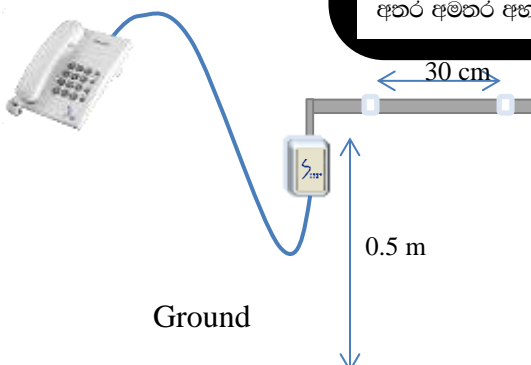
- 01) අභ්‍යන්තර රැහැන් (ඉන්ටර්නල් වයර්) ස්ථාපනයේදී සිරස් අතට සෙන්ටිමීටර් 40ක පරතරයෙන් ද තිරස් අතට සෙන්ටිමීටර් 30ක පරතරයෙන් ද සම්බන්ධිත (කනෙක්ටර්) යොදා ස්ථාපනය කළ යුතුය.
- 02) රැහැන ආරක්ෂා කිරීමට අත්‍යවශ්‍ය ස්ථානවලදී සුදුසු පරිදි පී.වී.සී ආවරණ යොදාගත යුතුය.

Rosette Box Placing

- 01) For Screw type terminal, wire to be terminated in clock wise manner.
- 02) Rosette to be fixed on the wall vertically and at a minimum of 0.5m above the ground level and no excess internal wire should be allowed.

රොසට්ටුව ස්ථාපනය කිරීම

- 01) ඉස්කුරුප්පු වර්ගයේ උපාංගයක් නම් රැහැන් දක්ෂිණාවර්ත ආකාරයට සවිකළ යුතුය.
- 02) රොසට්ටුව බිත්තිය මත සිරස් අතට පොළවෙහි සිට අවම වශයෙන් මීටර් 0.5ක් උසින් සවිකළ යුතු අතර අමතර අභ්‍යන්තර රැහැන් (ඉන්ටර්නල් වයර්) ඉතිරි නොකොට සවිකළ යුතුය.





Installation guide

MEGALINE (PSTN)

Note: All installation standards mentioned should be strictly adhered. However, due to practical surrounding situations or special customer requests provisioning team can adopt minor changes with the written approval of respective SF Engineer of SLT OPMC.

Earthing

01) Earth rod to be completely buried 50cm below the ground and earth wire to be connected to the discharger straight without allowing any excess spiral wire. (Earth Resistance <100 ohm)

02) Also earth wire should be joint free.

භූගත කිරීම

01) භූගත කුර පොළව මතුපිට සිට සෙන්ටිමීටර් 50ක් යටට වනසේ සහමුලින්ම වළලා දැමිය යුතු අතර භූගත රැහැන (අර්න් වයරය) විස්වාජරය දක්වා සෘජුව තනි කෙලින් ගමන් කොට දැමූ සහ සන්ධි රහිතව විස්වාජරයට සම්බන්ධ යුතුය. නිසි පරිදි කළ භූගත කිරීමක දී භූගත ප්‍රතිරෝධය ඕම් 100 ට අඩු අගයක (<100 ohm) තිබිය යුතුය.

Earthing for multiple lines

01) Only one earth rod should be there for all SLT PSTN lines (Single earth point)

02) Separate earth wires to be drawn from each discharger to the earth rod.

03) If it installed more than one earth rods for SLT connections, all should be properly coupled as a ring.

Installation guide

MEGALINE (PSTN)



Note: All installation standards mentioned should be strictly adhered. However, due to practical surrounding situations or special customer requests provisioning team can adopt minor changes with the written approval of respective SF Engineer of SLT OPMC.

PSTN New Connection Installation Diagram

