

HARYANA VIDYUT PRASARAN NIGAM LIMITED

**TECHNICAL SPECIFICATION FOR
OUTDOOR
MARSHALLING KIOSKS**

SPECIFICATION NO. S-112 / HCSD-14 (OCTOBER, 2017)

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1.0 SCOPE :

1.1 This specification covers the manufacture and supply of 200 Terminals, 250 Terminals and 300 Terminals Marshalling Kiosks complete with all fittings for out door installations in Haryana State as per schedule of requirement and generally conforming to the Specifications laid down in the following pages..

1.2 It is not the intent to specify herein complete / all details of the design and construction of equipment. However, the equipment shall conform in all respects to high standards of engineering, design and workmanship and shall be capable of performing in continuous commercial operation up to the suppliers guarantee acceptable to the purchaser. The equipment offered shall be complete in all aspects necessary for its effective and trouble free operation. All similar parts particularly movable ones shall be interchangeable.

1.3 Standards:

The stainless steel Marshalling Kiosks shall conform in all respects to the requirements of the latest edition of IS-6911:1992, ASTM A240 and ASTM A666 and subsequent amendment (s), if any.

2.0 WORKMANSHIP AND MATERIAL :

All materials used in the construction of marshalling kiosks, terminal connector blocks & other accessories/fitments shall be of the best quality obtainable of their respective kind and the whole work shall be of highest class and well finished.

3.0 CLIMATE CONDITIONS :

All Sub-Stations where these Marshalling Kiosks are to be used are located in the plains of Haryana where the climatic conditions are as under:-

a)	Maximum temperature of air in shade	50°C
b)	Minimum temperature outside in sun	60°C
c)	Minimum ambient air temperature	-2.5°C
d)	Maximum relative humidity	100%
e)	Minimum relative humidity	26%
f)	Isoceraunic level	45
g)	No. of rainy days per year	120
h)	Average rainfall per year	900 mm
i)	Altitude	Below 1000 meters above main sea level.
j)	Maximum Wind Pressure	195Kg/Sq.mm
k)	Seismic Level (Horizontal acceleration)	0.3g
l)	Daily average air temperature	35°C
m)	Average no. of Thunder storm days/annum	45

NOTE:- Moderately hot and humid tropical climate conducive to rust and fungus growth. Climate conditions are also prone to wide variations in ambient condition. Smoke is also present. Heavy lightening also occurs during June to October.

4.0 PRINCIPAL PARAMETERS :

The Marshalling Kiosks covered in this Specification shall meet the Technical requirements listed hereunder: -

4.1 DESCRIPTION OF MARSHALLING KIOSK :

The marshalling kiosk to be suitable for pedestal mounting shall be made of **stainless** steel of Grade 304. The side panels and rear panels constituting three sides for the kiosk and its internal equipment mounting panel shall be fabricated with at least **14** SWG **stainless** steel whereas the doors and the roof in the form of a detachable canopy 1250 * 675 mm shall be made of **14** SWG **stainless** steel. The canopy shall be suitably fixed with the main cubicle with nut & bolts packed with gasket so as to provide no opening to inside and shall be sufficiently projected in all sides to prevent splash of rainwater to the inside of the marshalling kiosk.

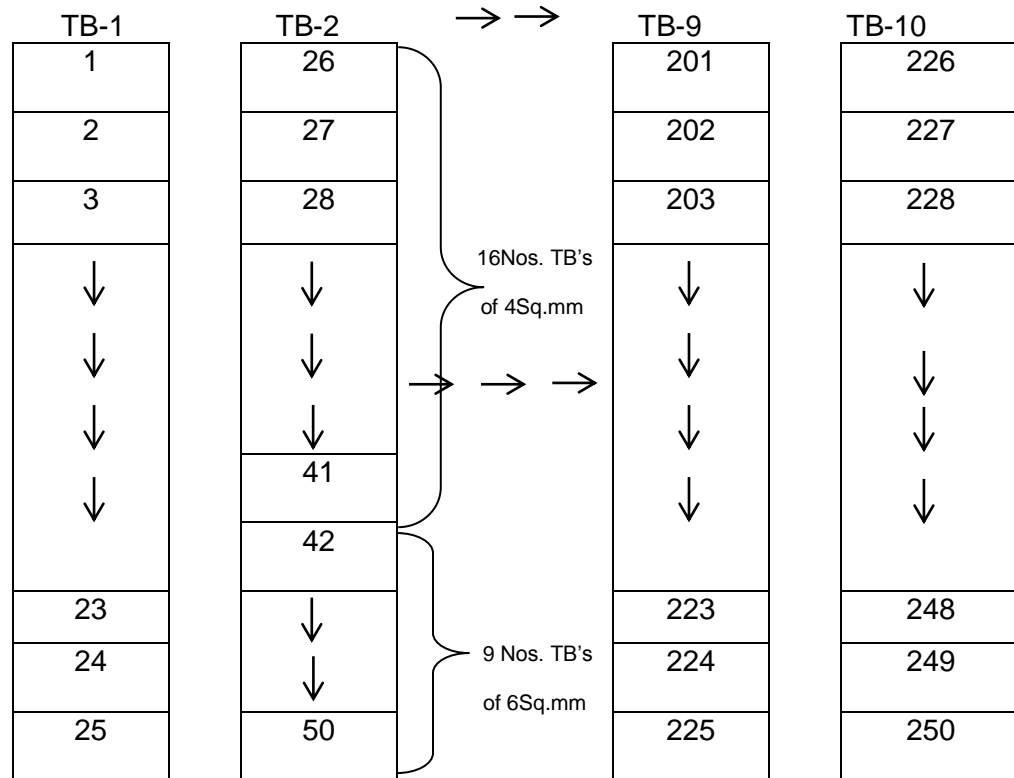
The Marshalling Kiosk excluding canopy will be 1400mm (height) * 1200mm (width) * 550mm (depth) complete with double door in front provided with pad-locking facility in the door handle. The doors of the Marshalling Kiosk will be hinged by means of die-cast hinges, each of which is split into two identical members, one fixed to the doorframe and the other to the door. A minimum of two sets of hinges will be provided on each side of the door. The hinge assembly shall be smoothly finished without any sharp corner and should be small and compact yet with sufficient rigidity to withstand the weight of the door and to withstand the shocks due to swings of the door. The hinges should comprise of a locating pin on one die-cast body and a free hole on the other die-cast member. The inside edge of the doors shall be provided with 10mm thick synthetic rubber gasket. Further stiffener should be provided suitably in order to provide sufficient structural rigidity to the doors. One of the doors shall carry danger plate and other shall carry the label indicating the number of terminals provided, make and HVPNL PO reference for easy identification of equipment in our stores/field. The Marshalling Kiosk shall be bolted on the 550 mm high angle-iron frame work made of 40x40x5 mm MS angle braced (length-wise) by 40x5 mm MS flat (depth-wise). The bottom of the kiosk will be fitted with 1000mm*225mm removable blank cable glands supporting plate to be drilled at site for fixing cable gland. The inside edges of Gland Plate shall be provided with 10 mm thick one side adhesive Synthetic Rubber Gasket with Nuts & Bolts. The Overall Tolerance for

- ii) Capacity Up to three ring-tongue crimped copper wires of 6mm² cross-sectional area.
- iii) Material for:
 - a) Body Cells of moulded dielectric virtually unbreakable (Malemine).
 - b) The channel on which terminal blocks are to be fixed. MS dully hot dip galvanised.
 - c) Terminal studs and nuts Tin coated Brass.
 - d) Connecting Link Tin plated copper to IS-1897.
 - e) Washer Brass plain nickel plated washer (1 No. per stud).
 - f) Spring Washer Spring steel (1 No. per stud) – Electroplated.
 - g) Star washer/teeth washer MS plated (1 No. per stud)

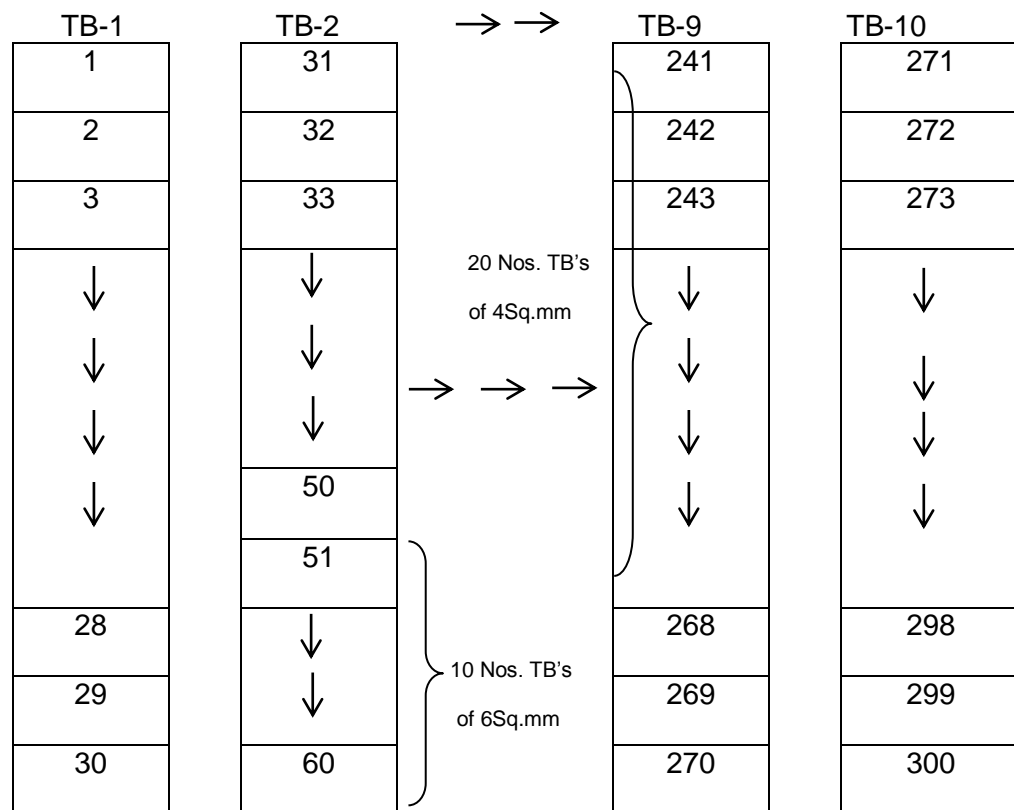
iv) a) Terminal connectors should be Type Tested. Terminal Connectors for CT, PT & CVT shall have provision of splitting facilities and shorting links for measurement of CT currents without opening the CT and isolation of PT & CVT circuits. Terminal connectors used for CT, PT, CVT and AC Supply shall be suitable for Copper Control Cables having cross sectional area 4Sq.mm. For DC Supply, the terminal connectors shall be suitable for Copper Control Cables having cross sectional area 6Sq.mm. For control and interlocking circuits, the terminal connectors shall be suitable for Copper Control Cables having cross sectional area 2.5Sq.mm. Further, fuses & links of suitable rating shall be provided for 3 Phase 4 Wire AC Supply & 220 V DC Supply at TB-2.

Out of total nos. of given terminals of the Marshalling Kiosks, terminal blocks for the 1st row TB-1 and 10th row TB-10 as per sketch shown at page 7 & 8 under clause 4.4 will be of splitting type 1st row TB-1 for measuring the CT current (without opening the CT secondary) and 10th row TB-10 PT/CVT circuits for providing isolation. 2nd row TB-2 to 9th row TB-9 will be of stud type. In 2nd row TB-2, Stud Type Terminal Connectors suitable for Copper Control Cables of 4Sq.mm & 6Sq.mm are to be provided as shown at page 7 & 8 under Cl. 4.4. In 3rd row TB-3 to 9th row TB-9 Terminal Connectors suitable for Copper Control Cables of 2.5Sq.mm cross sectional area.

b) 250 Terminals Marshalling Kiosk (For 132kV Sub-Station):



c) For 300 Terminals Marshalling Kiosk (For 220kV Sub-Station):



5.0 TEST

5.1 Following tests shall be carried out at the manufacturers works after complete assembly of marshalling kiosks and the test reports of such tests supplied in quadruplicate for approval of the CE/MM, HVPNL, Panchkula before effecting despatch of the equipment:-

- i) Checking and verification of the dimensions, gauge of the **stainless** steel, angle-iron frame work, terminal block connector and its components etc. viz-a-viz the respective approved drawings(s).
- ii) Checking wiring of circuits and their continuity.
- iii) One minute applied voltage tests for illumination/heater wiring in the marshalling kiosks.
- iv) Insulation resistance of complete wiring, circuit by circuit, with the lamp/heater mounted in the marshalling kiosks.

6.0 INSPECTION :

- i) The Purchaser shall have access at all times to the works and all other places of manufacture, where the marshalling kiosks are being manufactured and the supplier shall provide Purchaser representative all facilities for unrestricted inspection of the works, raw materials, manufacture of all the accessories and for conducting necessary tests as detailed therein.
- ii) The successful supplier shall keep the purchaser informed in advance of the time starting and of the progress of manufacture of equipment in its various stages and shall give prior notice of at least 15 days for inspection of material, so that arrangements could be made for inspection.
- iii) No. material shall be despatched from its point of manufacture unless the material has been satisfactorily inspected and tested.
- iv) The acceptance of any quality of the equipment shall in no way relieve the successful supplier of his responsibility for meeting all the requirements of this Specification and shall not prevent subsequent rejection if such material is later found to be defective.

7.0 DOCUMENTATION :

7.1 All drawings shall conform to international standards organisation (ISO) 'A' series of drawing sheet/Indian Standards Specification IS:11065. All drawings shall be in ink and suitable for microfilming / digitization / scanning, etc for archive purposes. If drawings are computerized than all drawings shall be nicely printed. All dimensions and data shall be in S.I. Units.

7.2 LIST OF DRAWINGS AND DOCUMENTS :

In addition to any other drawings which the bidder may like to enclose to explain the merits of his proposal. The following drawing shall be enclosed with the bid: -

- i) Dimensional drawing of the kiosk highlighting constructional features of the hinges and the junction of canopy with the cubical.
- ii) Dimensional drawing of the terminal connector block highlighting the material of various components forming it the label carrier and details of its arrangement in 10 rows.
- iii) Dimensional drawing showing the disposition of terminals in 10 rows as viewed from the front of the Marshalling Kiosk with its doors open and terminal identification numerals assigned to them.
- iv) Dimensional drawing showing top view with gland plate & side view of cubical.
- v) Bill of material for all accessories mounted in MK.
 - a) Description of Item, Make, Type & QTY. of material provided.
 - b) Voltage & current rating
- vi) Catalogue of terminal connectors installed in Marshalling Kiosks for reference.

NOTE:- All above drawings should bear a minimum space (14X10cm) for stamping the approval of drawings by the purchaser.

7.3 The bidder/supplier shall submit four sets of final versions of complete and correct equipment drawings for purchaser's approval alongwith bid in a sealed envelope. The purchaser shall communicate his comments/approval on the drawings to the bidder/supplier within 21 days from the date of issue of LOI. The submission of complete and correct readable drawings for approval is the responsibility of the bidder/supplier. The bidder/supplier shall, if so required by the purchaser, modify the drawings and resubmit four copies of the modified drawings for purchaser's approval within two weeks from the date of purchaser's comments. Then, the purchaser shall approve the revised drawings within two weeks from the date of its receipt.

7.4 The manufacturing of the equipment shall be strictly in accordance with the approved drawings and no deviation shall be permitted without the written approval of the purchaser. All manufacturing and fabrication work in connection with the equipment prior to the approval of the drawing shall be at the supplier's risk.

7.5 The successful bidder/supplier shall also supply one set of nicely bound documents comprising all the approved drawings & instruction manual containing handling, installation, testing and commissioning of equipment at the time of despatch of material to the consignee with each equipment for our field staff **without which the supply will not**

be considered as complete supply. In addition, 1 sets of such bound manuals and final approved drawings shall be supplied for reference & record in design office alongwith one good quality soft copy on a suitable media of approved drawings and instruction manuals, if computerized.

- 7.6** Approval of drawings / work by Purchaser shall not relieve the bidder/supplier of his responsibility and liability for ensuring correctness and correct interpretation of the latest revision of applicable standards, rules and codes of practices. The equipment shall conform in all respects to high standards of engineering, design, workmanship and latest revisions of relevant standards at the time of ordering and purchaser shall have the power to reject any work or material which in his judgement is not in full accordance therewith.

8.0 PACKING AND FORWARDING :

- 8.1** The marshalling kiosks shall be securely packed to avoid scratches on the **stainless** steel & transit damage to various components constituting the marshalling kiosks. The bidder/supplier shall be responsible for any damage to the equipment during transit due to improper & inadequate packing. The easily damageable material shall be carefully packed & marked with the appropriate symbols.

GURANTEED TECHNICAL PARTICULARS FOR MARSHALLING KIOSKS

1. Manufacturer's Name & Address:
2. Grade of steel offered:
3. Make of steel:
4. MK dimension \pm Tolerance (mm)
5. Canopy Dimension (mm)
6. Gland Plate Dimension (mm)
7. Thickness of stainless Steel(mm)
8. MK Mounting Stand details as:-
 - a) Angle Dimension (mm)
 - b) Flat Dimension (mm)
 - c) Height (mm)
9. Gasket Type & Thickness
10. Degree of Protection
11. Bill of Material for all accessories Mounted in Marshalling Kiosks giving following details:-
 - a) Make and Type
 - b) Applicable Standard
 - c) Voltage Rating
 - d) Current Rating
 - e) Duty class, if applicable
 - f) Manufacturers catalogue No.
 - g) Total heat load (For purpose of Ventilation requirement)
12. Material & Size of conductor (mm²)
 - a) For Control Circuits
 - b) For other Circuits (Power)
 - c) Conductor (Solid/Stranded)

Note:- If there is any error or omission in the above GTP's the same shall confirm to Technical Specification/relevant ISS. If there is any change in GTP's so warranted by specific make of equipment, the same shall be taken care at the time of approval of drawings.