



UAN
66-6504-700

PROJECT
HOCL

DOC. NO.
6504-IC-000-EC-00021

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GENERAL SPECIFICATION

JUNCTION BOXES

1.0 GENERAL

This specification covers the general requirements of junction boxes (JBs) for instrumentation. Specific requirements are as per page 4 attached. The schedule of quantities attached gives details like tag number, type, number and size of cable entries, number of terminals required, etc; for each junction box. Cable gland schedule attached gives the type and quantity requirement for cable glands.

2.0 TYPE AND CONSTRUCTION

2.1 Junction Boxes

- 2.1.1 JBs shall be wall mounting type with front openable covers. The covers shall preferably be fixed with hinges to one of the sides of the JB. Covers shall be full opening type so as to have a better access inside the JB. Circular threaded covers are not preferred.
- 2.1.2 All JBs shall be weatherproof to IP55 as per IS 13947 Part 1/IEC 60947-1. Gaskets used for the purpose shall be of neoprene.
- 2.1.3 Flameproof JBs shall fully comply with requirements of IS 2148/EN 50014 and EN 50018. Additionally, these shall be weatherproof as per requirements of 2.1.2 above.
- 2.1.4 All cable entries shall be from bottom for all types of JBs.
- 2.1.5 Sketch attached (ref. page 10) with the specification takes into account minimum dimensions required for drilling the requisite number of entries for cable glands. The vendor shall ensure that sufficient space is available inside the JB to mount the given number of terminals, busbars etc. as well as for termination.
- 2.1.6 Busbars shall be brass-nickel plated with tapped holes and screws/washers of the same material.
- 2.1.7 Busbars provided for cable shields shall be insulated from the body of the JB. The insulation resistance between the busbar and the body of the JB shall be greater than 100 M Ω at 500V DC.
- 2.1.8 Busbars provided for earthing shall be mounted in continuous contact with the body of the JB. The same shall also be connected to the external earthing stud (ref. 2.1.10).
- 2.1.9 Material of fasteners for fixing various components in the JB or cover is as per specific requirements of page 4, clause 1.0, (b). Fasteners used for fixing cover shall be as self locking type to ensure that they do not fall off when cover is opened.
- 2.1.10 1 no. external earthing stud with nut in nickel plated brass or SS material shall be provided in each JB for connecting the earthing cable.
- 2.1.11 Thickness of FRP used in FRP JBs shall be atleast 6 mm. Strips provided for mounting the JB shall also be of FRP material. Use of metal strips is not preferred.

2.2 Push button stations

- 2.2.1 Push button stations shall be wall mounting type with front bolted covers.
- 2.2.2 All push button boxes shall be weatherproof to IP65 as per IEC 529. Gaskets used for the purpose shall be of neoprene and shall be in single piece design. Sketches attached (Page 11) indicate dimensions.



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2.3 Cable Glands

- 2.3.1 Cable glands shall be double compression type with PVC hood. Material shall be as specified in specific requirements 3.0, a. Refer schedule of quantities for further details.
- 2.3.2 A sample of each type of cable ordered shall be given to the vendor to ensure that the rubber seals/cone grip are manufactured to suit cable dimensions.

3.0 PAINTING

- 3.1 Paint shade shall be light admiralty gray as per IS 5, shade 697 for all JB's. JB's with die-cast aluminum as material of construction shall be given 2 coats of epoxy paint.

4.0 IDENTIFICATION

4.1 Junction Box

Each JB shall be provided with the following information inscribed on a metal tag plate (alternatively a rear engraved perspex tag plate) fixed with MS nickel plated/SS screws. Tag plate shall not be rivetted or glued permanently to the JB.

- a. Tag number. This shall be as per the schedule of quantities. The height of lettering shall be 8mm.
- b. Flameproof certification (Applicable for flameproof JB's only).

4.2 Cable Glands

Each cable gland shall be identified with the following details printed on a sticker:

- a. Connection size and type.
- b. Cable type for which the gland is suitable.

5.0 INSPECTION AND TESTING

- 5.1 The vendor shall be responsible for completing all the in-house testing and test reports for the same shall be ready before inspection by the clients/UIPL/IIIRD party.

Following inspection shall be carried out as a minimum. Percentages indicated are for each lot offered for inspection. These are indicative only and the quantity of JB's selected as well as the inspection procedure followed, shall be at the sole discretion of inspection engineer of the clients/UIPL/IIIRD party. The inspecting authority may, if desired, request for additional tests over and above those listed below or decide to waive the inspection.

S.NO.	DESCRIPTION	INSPECTION QUANTITY			REMARKS
		VENDOR	CLIENTS/UIPL	IIIRD PARTY	
1.	Physical inspection for quantity, tag number, dimensions, number of entries, number of terminals etc.; general conformity with specifications and general workmanship	100%	100%		



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S.NO.	DESCRIPTION	INSPECTION QUANTITY			REMARKS
		VENDOR	CLIENTS/UIPL	IIIRD PARTY	
2.	Checks for correct entry size (with thread gauge for threaded entries).	100%	10%		
3.	Insulation resistance test for insulated bus-bars	100%	10%		
4.	Correctness of threads on cable glands with a thread gauge	As per vendors standard	10%		
5.	Dimensional checks on cable glands w.r.t. the cable samples provided	As per vendors standard	10%		

5.2 Test Instruments

The vendor shall arrange for all the test and measuring instruments and provide all the facilities/assistance during inspection. All the test/measuring instruments shall be calibrated in a standard laboratory and the vendor shall produce valid calibration documents for the purposes of verification. The calibration shall be traceable to any of the approved national laboratories.

6.0 DOCUMENTATION

6.1 Documentation requirements are as per page 5 attached.

7.0 INFORMATION REQUIRED WITH THE BID

7.1 Vendor shall submit the following with the bid:

- a. Latest literature giving dimensions and specifications of all the model numbers quoted.
- b. Type test reports for weatherproof certification.
- c. Type test reports for flameproof certification (for flameproof JB's and cable glands).
- d. Literature for cable glands.



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SPECIFIC REQUIREMENTS

1.0 JUNCTION BOXES

- a. Material : Die Cast Al. FRP
:
b. Fasteners : GI/MS Zinc passivated
: SS 304

2.0 TERMINALS

- a. Make : Elmex Phoenix
:
b. Material : PVC Melamine
: Polyamide
c. Size : 2.5 mm² 4 mm²

3.0 CABLE GLANDS/PLUGS

- a. Material : SS 304
: Ni-plated extruded brass

4.0 PUSH BUTTON STATIONS

- a. Material : Die Cast Al.
:
b. Fasteners : GI/MS Zinc passivated
: SS 304

5.0 OTHER SPECIAL REQUIREMENTS



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DOCUMENTATION REQUIREMENTS

S.NO.	DOCUMENT	FOR INFORMATION AFTER PO/LOI				FOR APPROVAL AFTER PO/LOI				FINAL COPIES	
		-TIME SCH. WEEK	COPIES (PRINTS)			TIME SCH. WEEK	COPIES (PRINTS)			S	P
			CLIENTS	UIPL			CLIENTS	UIPL			
1.	FLAMEPROOF CERTIFICATION (WHEREVER APPLICABLE).	--	--	--	--	--	--	--	3	8	
2.	WEATHERPROOF (TYPE TEST) CERTIFICATION.	--	--	--	--	--	--	--	3	8	
3.	DIMENSIONAL DRAWINGS FOR STANDARD JBs.	4	1	1	--	--	--	--	3	8	
4.	DIMENSIONAL DRAWINGS FOR SPECIAL JBs, PBs etc.	--	--	--	--	--	--	--	3	8	
5.											
6.											
7.											
8.											
9.											
10.											

1. **ABBREVIATIONS:**

S : SOFT COPIES (.PDF FILES)
P : PRINTS

2. **NOTES:**

A) : FINAL DOCUMENTS SHALL BE SUBMITTED TO UIPL FOR FURTHER COMPILATION AT FOLLOWING ADDRESS. THESE SHALL NOT BE DESPATCHED TO SITE DIRECTLY.

➤ UHDE INDIA PRIVATE LIMITED. UHDE HOUSE, LBS MARG, VIKHROLI(W),
MUMBAI 400083, INDIA
Attention: Ms. Sumita Tilak (Telephone:91-22-67968108)

B) : DRAWINGS SUBMITTED FOR INFORMATION SHALL NOT BE APPROVED BY UIPL. VENDOR TO NOTE THAT DOCUMENTS PREPARED FOR THE PURPOSE OF MANUFACTURING SHALL NOT BE SENT TO UIPL FOR APPROVAL. UIPL SHALL NOT BE RESPONSIBLE FOR ANY MISTAKES/OMISSIONS IN THESE DOCUMENTS AS WELL AS ANY DELAYS DUE TO THE SAME. SPECIFICATIONS OF INSTRUMENTS ORDERED SHALL BE STRICTLY AS PER UIPL DATA SHEETS WHICH SHALL ALSO FORM THE BASIS FOR INSPECTION.



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SUMMARY OF JUNCTION BOX QUANTITIES
(SKETCH ON PAGE 10)

TYPE : WEATHERPROOF

S.NO.	JB TYPE	QTY.	NO. OF TERMINALS	DIMENSIONS	SIGNAL TYPE	REMARKS
1.	IM	16	30	250mm(H) x 400mm(W) x 120mm(D)	4 to 20mA	SKETCH ON PAGE 10
2.	IA	10	30	250mm(H) x 400mm(W) x 120mm(D)	Digital input	SKETCH ON PAGE 10
3.	IS	12	30	250mm(H) x 400mm(W) x 120mm(D)	Solenoid valve O/Ps	SKETCH ON PAGE 10
4.	IE	1	30	250mm(H) x 400mm(W) x 120mm(D)	Power supply	SKETCH ON PAGE 10

SUMMARY OF PANEL QUANTITIES

TYPE : WEATHERPROOF

S.NO.	JB TYPE	QTY.	NO. OF TERMINALS	DIMENSIONS	SIGNAL TYPE	TAG NO.
1.	IA	1	100	*mm(H) x *mm(W) x *mm(D)	Digital input from MCC	CNA MCC-DI
2.	IS	1	100	*mm(H) x *mm(W) x *mm(D)	Digital output to MCC	CNA MCC-DO

These panels will be used for connection of DI and DO signals from/to MCC. These will be wall mounted type and will be mounted in CNA MCC. Vendor shall provide sufficient space for 50 nos. 3/4" ET and 6 nos. 1 1/4" ET cable glands at bottom for each panel. Vendor shall size these panels accordingly.

SUMMARY OF PUSH BUTTON STATION QUANTITIES
(SKETCH ON PAGE 11)

TYPE : WEATHERPROOF

S.NO.	PB STN TYPE	QTY.	NO. OF PUSH BUTTONS	DIMENSIONS	REMARKS
1.	TYPE B	2 nos.	1 NO. STANDARD, COLOUR RED	160mm(H) x 160mm(W) x 90mm(D)	2 NOS. OF 3/4" ET CABLE ENTRIES AT BOTTOM.



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JUNCTION BOX SCHEDULE

TYPE : WEATHERPROOF , MATERIAL : DIE CAST ALUMINIUM

S.NO.	TAG NO.	NO. OF TERMINALS	NO. OF ENTRIES		BUSBAR	REMARKS
			BR. CABLES	MAIN CABLE (ET)		
			3/4" ET	1 1/4" ET	EARTH / SHIELD	
1.	IA-4003	30	12	1	1	
2.	IA-4004	30	12	1	1	
3.	IA-4005	30	12	1	1	
4.	IA-4006	30	12	1	1	
5.	IA-MCC01	30	12	1	1	
6.	IA-MCC02	30	12	1	1	
7.	IA-MCC03	30	12	1	1	
8.	IA-MCC04	30	12	1	1	
9.	IE-4001	30	12	1	1	
10.	IM-4017	30	12	1	1	
11.	IM-4018	30	12	1	1	
12.	IM-4019	30	12	1	1	
13.	IM-4020	30	12	1	1	
14.	IM-4021	30	12	1	1	
15.	IM-4022	30	12	1	1	
16.	IM-4023	30	12	1	1	
17.	IM-4024	30	12	1	1	
18.	IM-4025	30	12	1	1	
19.	IM-4026	30	12	1	1	
20.	IM-MCCUR1	30	12	1	1	
21.	IM-MCCUR2	30	12	1	1	
22.	IM-MCCUR3	30	12	1	1	
23.	IM-MCCUR4	30	12	1	1	
24.	IS-4001	30	12	1	1	
25.	IS-4002	30	12	1	1	
26.	IS-4004	30	12	1	1	
27.	IS-4005	30	12	1	1	
28.	IS-4006	30	12	1	1	
29.	IS-4007	30	12	1	1	
30.	IS-4008	30	12	1	1	



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TYPE : WEATHERPROOF , MATERIAL : DIE CAST ALUMINIUM

S.NO.	TAG NO.	NO. OF TERMINALS	NO. OF ENTRIES		BUSBAR	REMARKS
			BR. CABLES	MAIN CABLE (ET)		
			3/4" ET	1 1/4" ET	EARTH / SHIELD	
31.	IS-MCC01	30	12	1	1	
32.	IS-MCC02	30	12	1	1	
33.	IS-MCC03	30	12	1	1	
34.	IA-SPARE1	30	12	1	1	
35.	IA-SPARE2	30	12	1	1	
36.	IM-SPARE1	30	12	1	1	
37.	IM-SPARE2	30	12	1	1	
38.	IS-SPARE1	30	12	1	1	
39.	IS-SPARE2	30	12	1	1	

IA-4006 shall be supplied with EEx-d certification.

SCHEDULE OF PUSH BUTTON STATIONS:

TYPE : WEATHERPROOF						
SR. NO.	TAG NO.	TYPE	NO. OF PUSH BUTTONS	TYPE OF PUSH BUTTONS	CABLE ENTRIES 3/4" ET	TAG PLATE DESCRIPTION
1.	HS-4612	B	1	EMERGENCY STOP (LATCHING TYPE)	1	ESD BURNER FROM FIELD - GROUND FLOOR
2.	HS-4613	B	1	EMERGENCY STOP (LATCHING TYPE)	1	ESD BURNER FROM FIELD - FIRST FLOOR

SCHEDULE OF CABLE GLANDS:

TYPE : Ni plated brass		
SR. NO.	Size of gland	Quantity
1.	1/2" NPT	550
2.	1/2" NPT EEx-d	10
3.	3/4" ET	710
4.	3/4" ET EEx-d	10
5.	1 1/4" ET	200
6.	1 1/4" ET EEx-d	10



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SCHEDULE OF PLUGS:

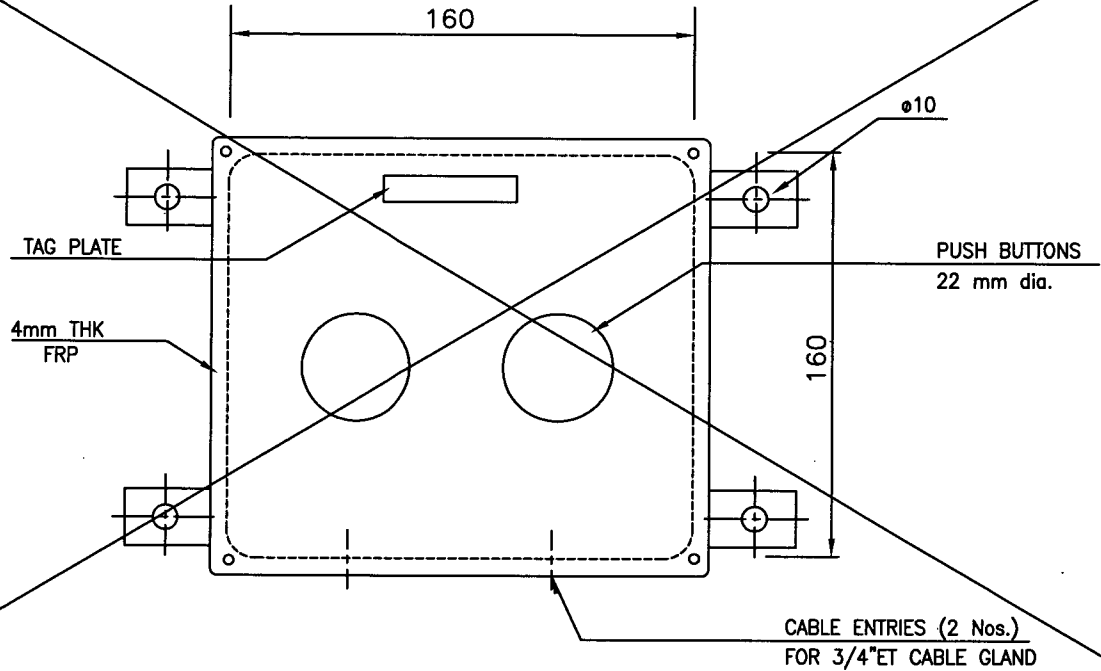
TYPE : Ni plated brass		
SR. NO.	Size of gland	Quantity
1.	¾" ET	530



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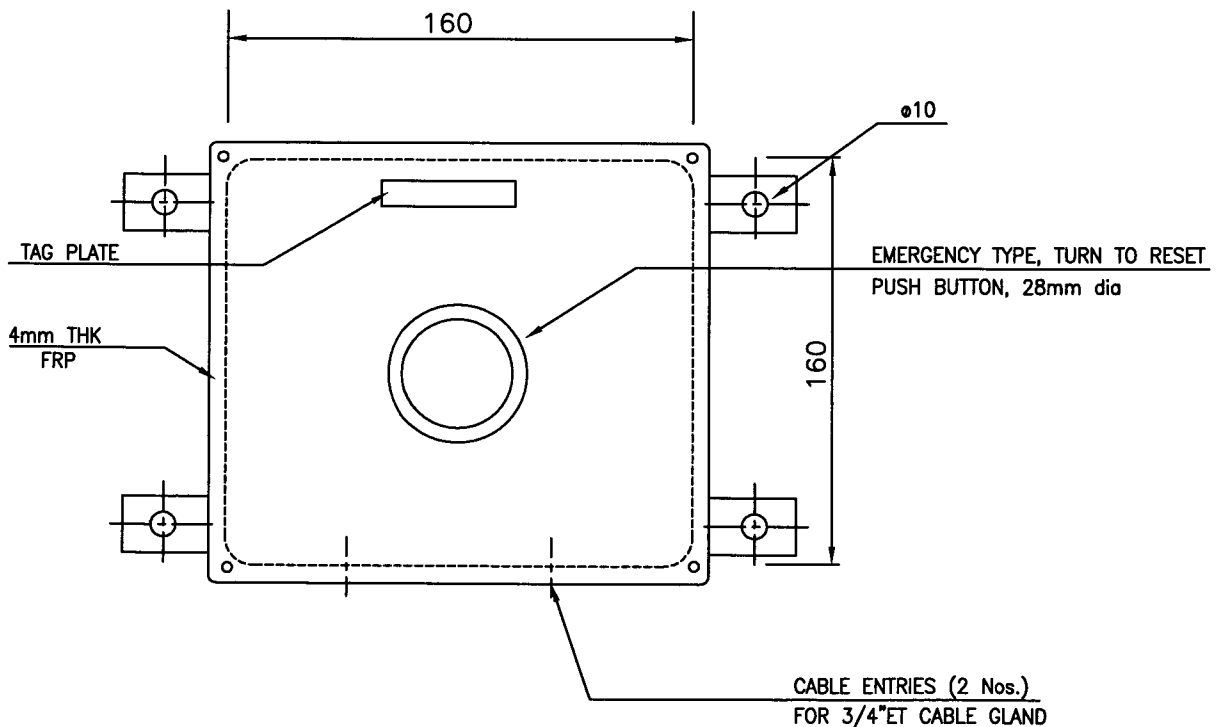
TYPE A (DEPTH = 90mm)



NOTES:

- 1) ALL DIMENSIONS ARE IN mm.
- 2) PUSH BUTTON STATION MATERIAL SHALL BE OF DIE CAST ALUMINIUM AND ENCLOSURE SHALL BE IP65 AS PER IEC 529.

TYPE B (DEPTH = 90mm)



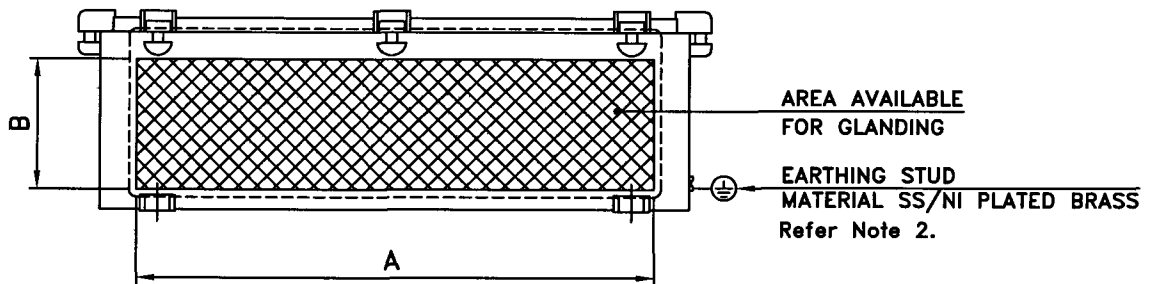
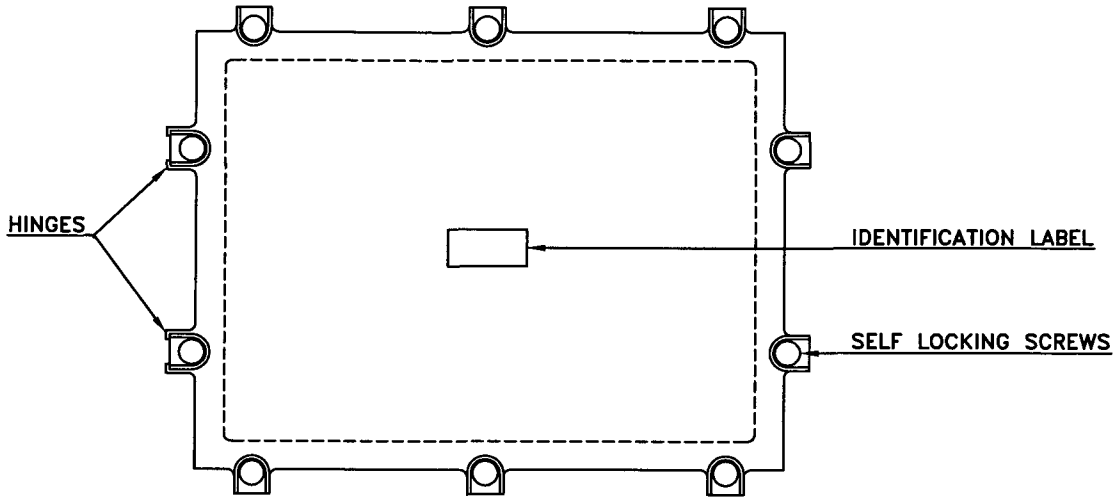
NOTES:

- 1) ALL DIMENSIONS ARE IN mm.
- 2) PUSH BUTTON STATION MATERIAL SHALL BE OF DIE CAST AL AND ENCLOSURE SHALL BE IP65 AS PER IEC 529.



**WEATHER PROOF/FLAME PROOF
JUNCTION BOX**
(SKETCH SHOWING MINIMUM REQUIREMENTS)

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No. OF MAIN CABLE ENTRIES ≥ 1"ET/NPT	No. OF BRANCH CABLE ENTRIES 1/2"NPT, 3/4"ET	MINIMUM DIMENSIONS mm	
		A	B
1	12	300	150
1	6/7/8	i) 250 ii) 300	150 110

NOTES:

- 1) ALL DIMENSIONS ARE IN mm.
- 2) a) Busbars provided for cable shields shall be insulated from the body of the JB.
 b) Busbars provided for earthing shall be mounted in continuous contact with the body of the JB. The same shall also be connected to the external earthing stud.
 c) Refer "Summary of junction boxes quantities" for the details.