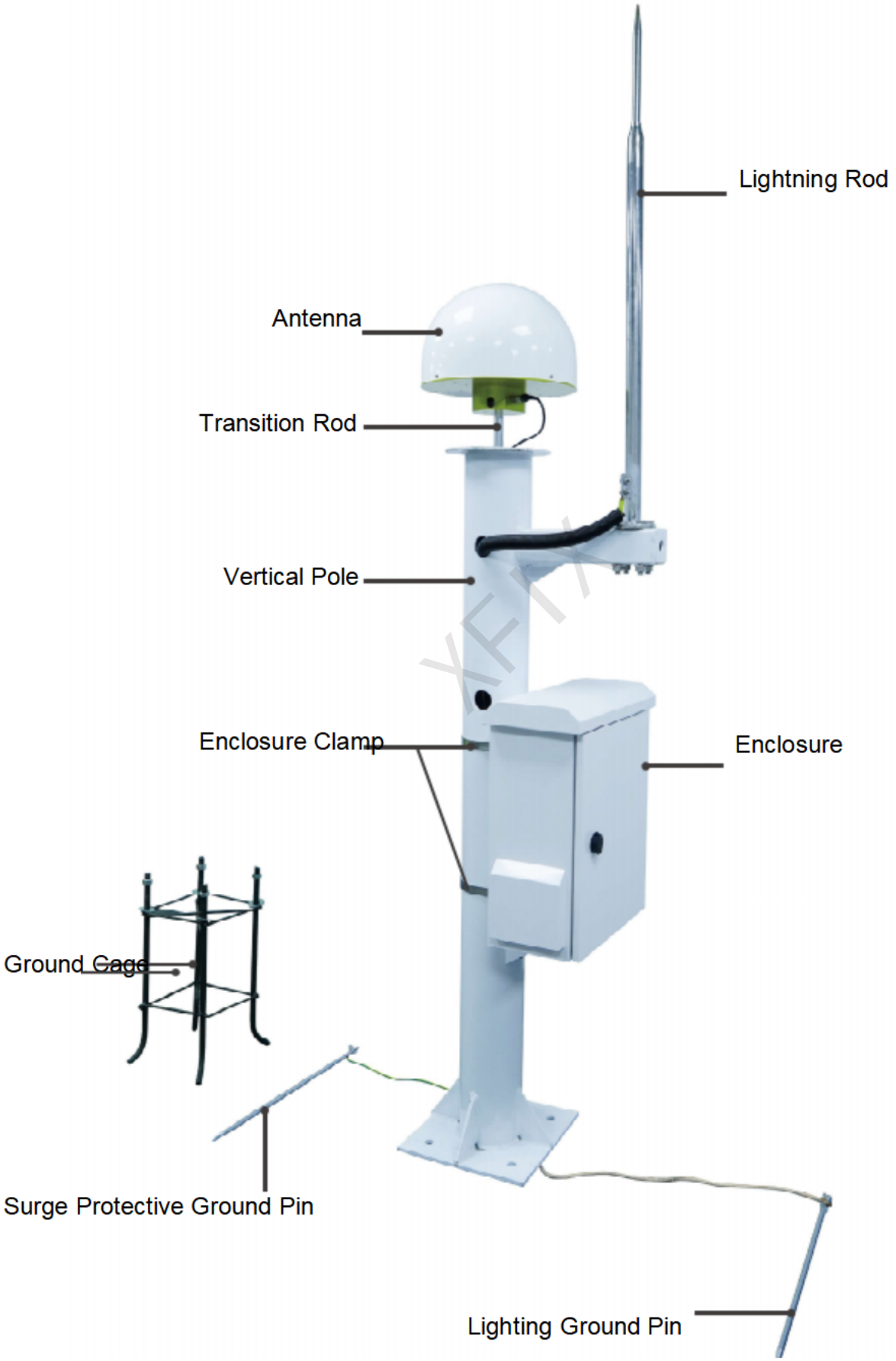
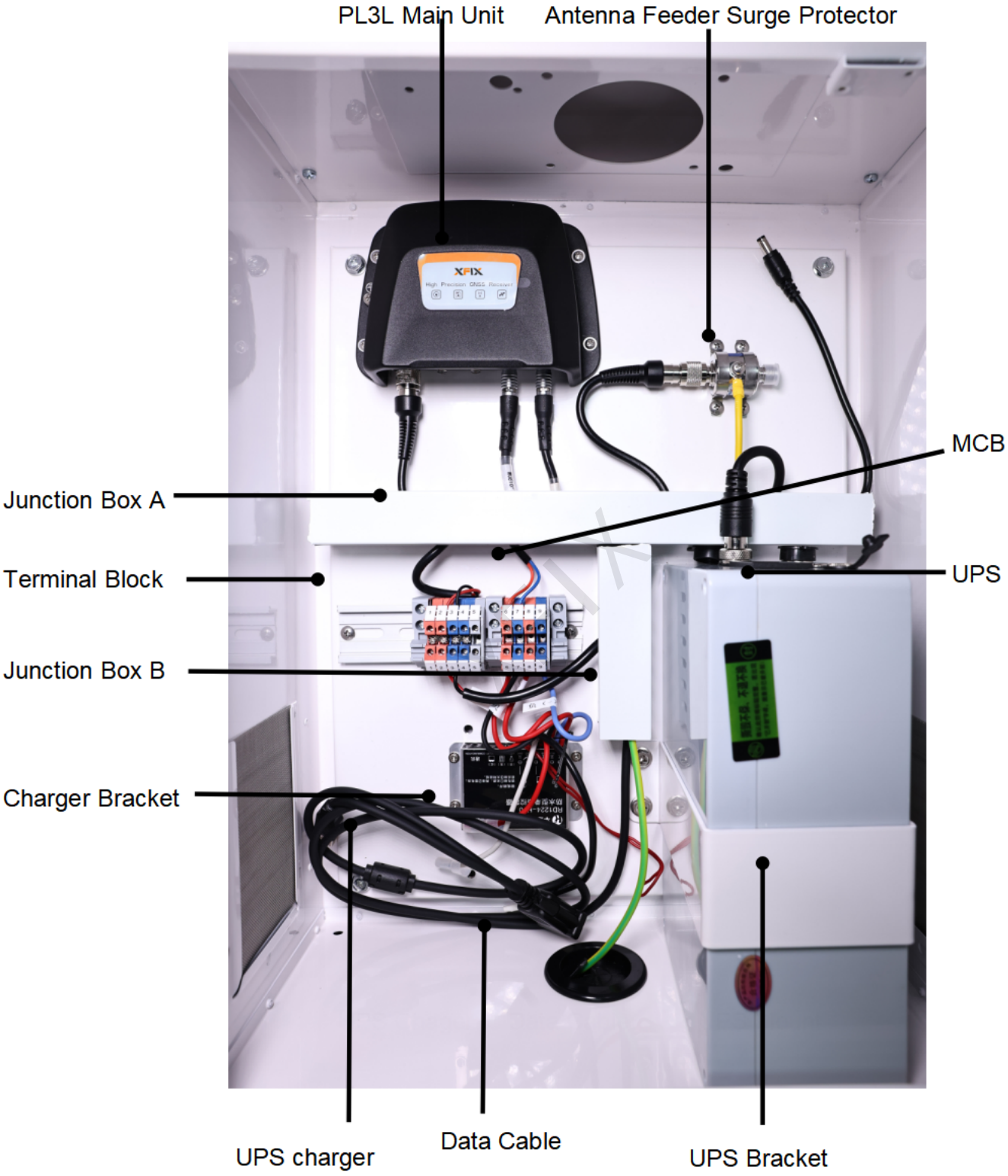
LP3 + Mains Power + UPS

CONTENTS

1.Overall Monitoring Solution Assembly Drawing



2.Enclosure Assembly Drawing



3.Enclosure Accessories List

NO.	Item	Specification	QTY	Image
1	UPS Enclosure	White	1	
2	UPS Enclosure Bottom Plate	White	1	
3	Cross Recessed TM Large Flat Head Screw	SS304, Natural Finish, M5×8	4	
	Standard Spring Washer	SS304, Natural Finish, M5	4	
4	PL3L (Single Antenna)	/	1	
5	Cross Recessed TM Large Flat Head Screw	SS304, Natural Finish, M4×8	13	
	Standard Spring Washer	SS304, Natural Finish, M4	6	
6	Antenna Feeder Surge Protector	SS304, Natural Finish	1	
7	UPS Surge Protector Bracket	SS304, Natural Finish	2	
8	UPS Junction Box A	PVC Grayish White, 40×30×300mm	1	
9	UPS Junction Box B	PVC Grayish White, 40×30×110mm	1	
10	UPS Battery (with Charger)	DC5V/12V, 60000mAh, with Male Aviation Connector, Charger Output: 12.6V/5A	1	
11	UPS Battery Bracket	Metal Powder Coated White	1	
12	Cross Recessed External Hexagon Locking Screw	SS304, Natural Finish, M6×8	10	
13	UPS Charger Bracket	Metal Powder Coated White	1	
14	MCB NXB-63	NXB-63, 10A, 2P	1	

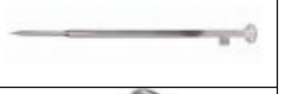
3.Enclosure Accessories List

NO.	Item	Specification	QTY	Image
15	Terminal Block Partition Plate	UK-2.5B, Gray	2	
16	Terminal Block (Orange Red)	UK-2.5B, Nylon, Orange Red	4	
	Terminal Block (Gray)	UK-2.5B, Nylon, Gray	2	
	Terminal Block (Blue)	UK-2.5B, Nylon, Blue	4	
17	Marker Strip (Letter)	UK Series, White, 10 positions/strip, Letters: L N PE L N PE L N PE	1	
	Marker Strip (Number)	UK Series, White, 10 positions/strip, Numbers: 1 2 3 4 5 6 7 8 9 10	2	
18	Terminal Block Connector FBI-3-6	FBI-3-6, Silver, with Cross Recessed Screws	2	
19	Terminal Block EUK Fixing Component	UK-2.5B, Gray	3	
20	C45 U-Type DIN Rail	1.3mm Thickness, Oxidized Round Holes, Hole Pitch 17mm, Length 144.5mm	1	
21	Crimp Terminal E1508	Red, 1.5mm²	11	
22	Self-Adhesive Foam Pad	EVA, Black, T1×W15×L150mm	2	
23	Self-Adhesive Foam Pad	EVA, Black, T1×W15×L40mm	4	
24	18AWG Electronic Wire	Red 1015, Length 200mm	1	
25	18AWG Electronic Wire	Blue 1015, Length 200mm	1	
26	TNC Cable Male to Female	Length 0.3m	1	
27	Corrugated Pipe	d25, PP Black, Slit, 1m	1	
28	O-Type Crimp Insulated Terminal	RV2-3, Black	1	

3.Enclosure Accessories List

NO.	Item	Specification	QTY	Image
29	O-Type Crimp Insulated Terminal	RV5.5-8, Black	1	
30	Wire Marking Tube	White Heat Shrink Tube, 1 strip, 12mm per segment, Markings: L N PE + -	2	
31	4mm² Stranded Electronic Wire	Yellow-Green, 5m	1	
32	1.5mm² Stranded Electronic Wire	Yellow-Green, 0.25m	1	
33	2PIN LEMO Plug Power Cable	0.5m	1	
34	DATA Cable	/	1	
35	TNC Antenna Cable	5m	1	
36	Cross Recessed Pan Head Screw with Insulating Washer M3×8	SS304, Natural Finish	1	

4.Pole Assembly Accessories List

NO.	Item	Specification	QTY	Image
1	UPS Top Lightning Rod	Stainless Steel, 1m, D32, H1000	1	
2	Hexagon Lock Nut	SS304, Natural Finish, M12	4	
	Hexagon Bolt	SS304, Natural Finish, M12×100	4	
3	UPS Pole	Hot-Dip Galvanized, White, 1 PC	1	
4	UPS Enclosure	Galvanized, White, V4520-V, 1 PC	1	
5	Grounding Flexible Copper Wire	5m, 16mm²	1	
6	Anchor Cage	Steel, customer-supplied M16 nuts and washers	1	
7	UPS Grounding Rod	0.5m, Galvanized	2	
8	Stranded Electronic Wire	4mm² Yellow-Green, 5m, included in internal enclosure wiring	1	
9	U-Bolt	SS304, Hole 8.5, 140mm	2	
	T-Bolt	SS304, M8×25	4	
	Hexagon Lock Nut	SS304, M8	4	
	Washer	SUS304, Size: M8×17×1.5	4	
10	Corrugated Pipe	d25, PP Black, slit, 1m	1	
11	TNC Antenna Cable	5m, included in internal enclosure wiring	1	
12	Antenna Pole Adapter	5/8-11UNC-2A thread at both ends, length 98mm, 6061 Aluminum natural finish	1	
13	Choke Ring Antenna	White	1	

5.Mounting Hole Positions and Corresponding Screw Specifications for the Enclosure

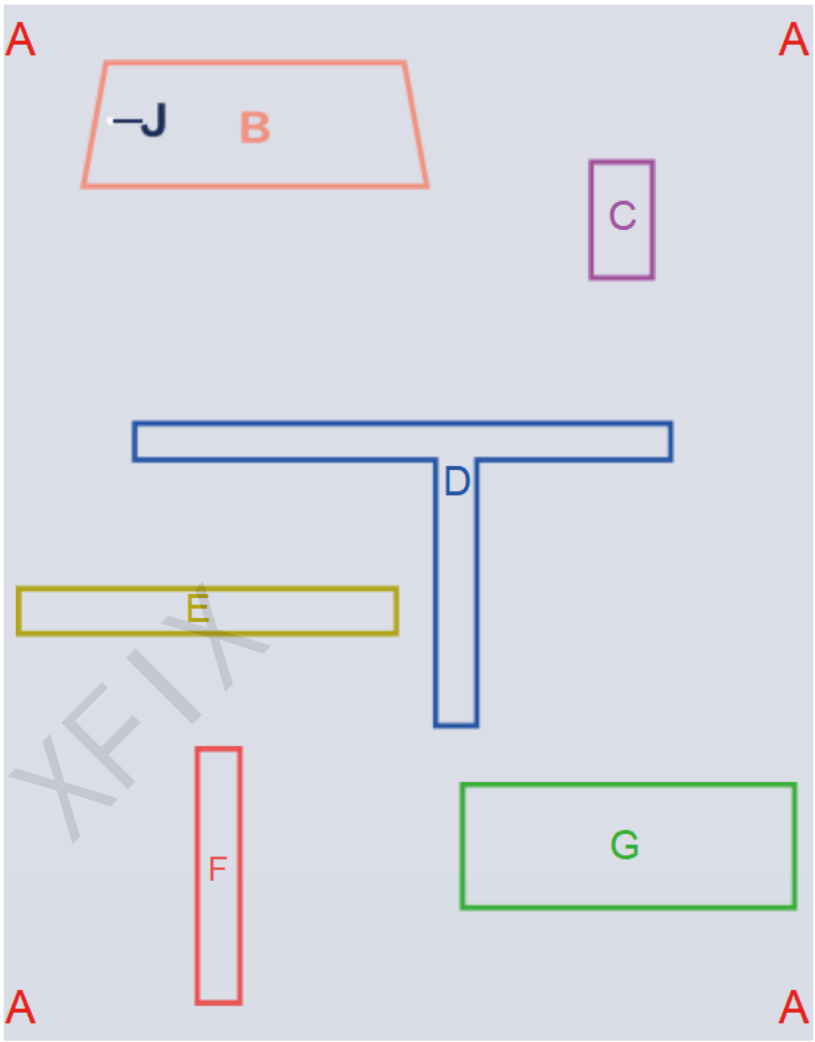
A - 4pcs M6×8 Internal Phillips External Hex Locking Screws
For fixing the base plate

B - 4pcs M5×8 Phillips TM Large Flat Head Screws + Washers
For fixing the PL3L main unit

C - 4pcs M4×8 Phillips TM Large Flat Head Screws + Washers
For fixing the antenna feed surge protector

D - 7pcs M4×8 Phillips TM Large Flat Head Screws + Washers
For fixing the junction boxes

E - 2pcs M4×8 Phillips TM Large Flat Head Screws + Washers
For fixing the terminal block DIN rail



F-2pcs M6×8 Cross Recessed External Hexagon Locking Screws
For fixing the UPS charger bracket

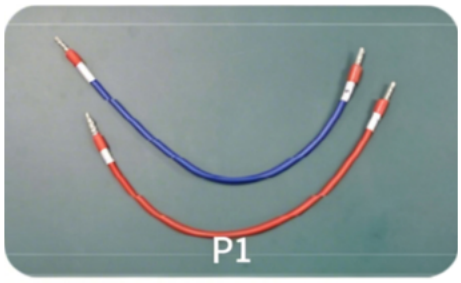
G - 4pcs M6×8 Internal Phillips External Hex Locking Screws
For fixing the UPS power supply

J - 1pc M3×8 Phillips Pan Head Screw with Washer
For grounding the PL3L main unit

6.List of Required Installation Tools

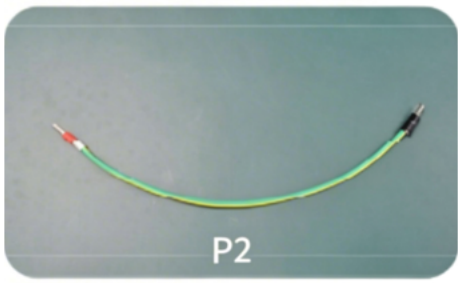
Installation Tools		
Specification	**Corresponding Screws & Terminals**	**Image**
Phillips #0 Screwdriver	M3×8, M4×8, jumper bar screws	
Phillips #1 Screwdriver	M5×8	
Hex Socket Φ11 Screwdriver	M6×8	
Flat #0 Screwdriver	Terminal block screws	
0.25–2.5mm² Ferrule Crimping Tool	Antenna feed surge protector ground wire	
0–25mm Adjustable Wrench	Antenna connector, lightning rod hex screws, enclosure clamps	
0.25–6mm² Tubular Terminal Crimping Tool	All crimp terminals	

7.Enclosure Installation Diagram



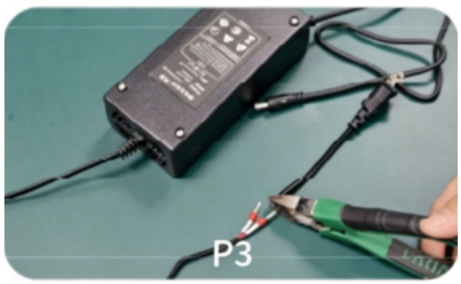
1.Fabrication of L/N Connection Wires

As shown in Figure 1, cut the 18AWG red and blue wires to 200mm in length, strip 8mm of insulation from both ends. Slide the "L" and "N" wire markers onto the red and blue wires respectively (at both ends), then heat-shrink them with a heat gun. Next, crimp red E1508 crimp terminals onto both ends using a crimping tool.



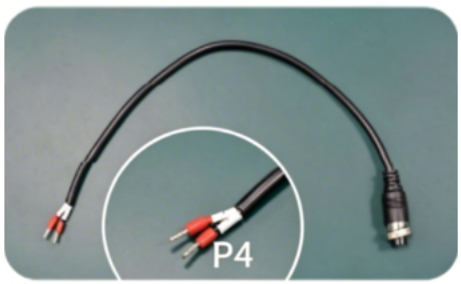
2.Fabrication of PE Connection Wire

As shown in Figure 2, cut the 1.5mm² green-yellow wire to 200mm in length, strip 8mm of insulation from both ends. Slide the "PE" wire marker onto one end and heat-shrink it with a heat gun, then crimp a red E1508 crimp terminal onto this end using a crimping tool. Crimp an RV2-3 ring terminal onto the other end.



3.Modification of Charger Power Input Cable

As shown in Figure 3, cut off the plug while retaining 450mm of cable length. Strip 30mm of outer insulation and 8mm of conductor insulation. Slide the "L" and "N" wire markers onto the red (L) and blue (N) wires respectively, then crimp red E1508 crimp terminals onto both ends using a crimping tool.

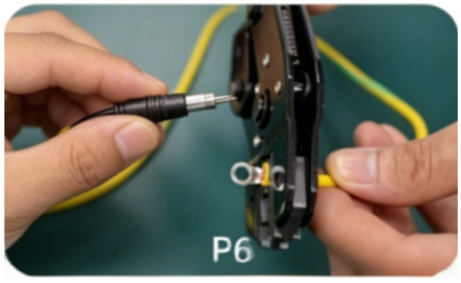


4.Modification of Battery Output Cable

As shown in Figure 4, slide the "+" and "-" wire markers onto the red (+) and black (-) wires respectively, then crimp red E1508 crimp terminals onto both ends using a crimping tool.

5.Modification of PW Power Supply Cable

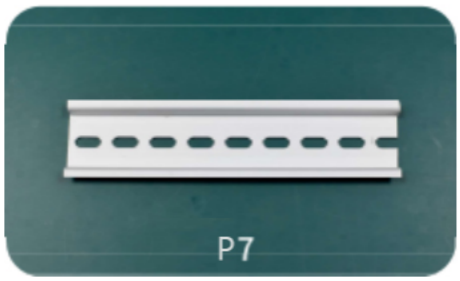
As shown in Figure 5, slide the "+" and "-" wire markers onto the red (+) and black (-) wires respectively, then crimp red E1508 crimp terminals onto both ends using a crimping tool.



6.Modification of Surge Protector Ground Wire

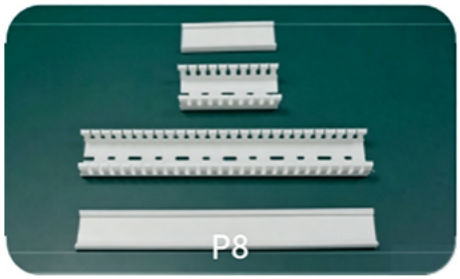
As shown in Figure 6, remove the factory-fitted ring terminal from the surge protector. Cut the 4mm² green-yellow wire to 5 meters in length, strip 8mm of insulation from both ends. Crimp one end to the factory ring terminal, and crimp an RV5.5-8 ring terminal onto the other end using a crimping tool.

7.Enclosure Installation Diagram



7. Cutting of Terminal Block DIN Rail

Cut the C45 U-type DIN rail into 144.5mm sections, as shown in Figure 7.

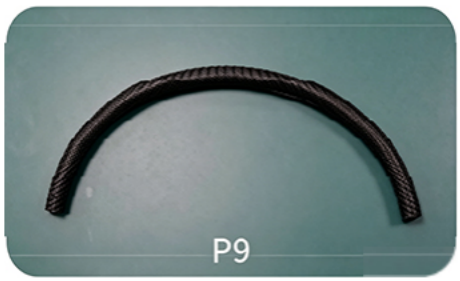


8. Cutting of Junction Boxes

As shown in Figure 8:

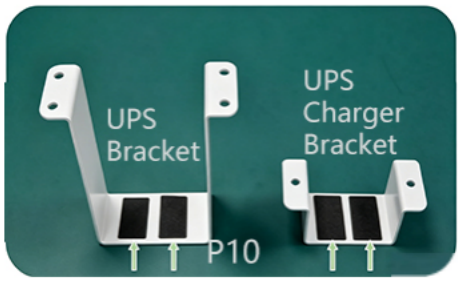
Cut the UPS Junction Box A to 300mm in length.

Cut the UPS Junction Box B to 110mm in length.



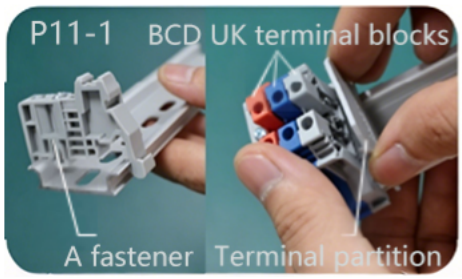
9. Corrugated Pipe Preparation

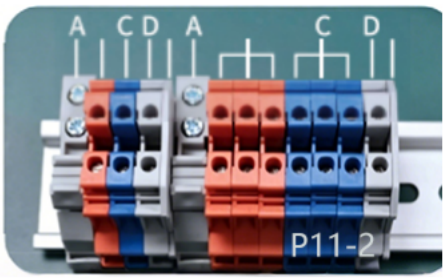
Cut the d25 corrugated pipe into 700mm sections, as shown in Figure 9.



1 0.UPS Charger Bracket / UPS Bracket Assembly

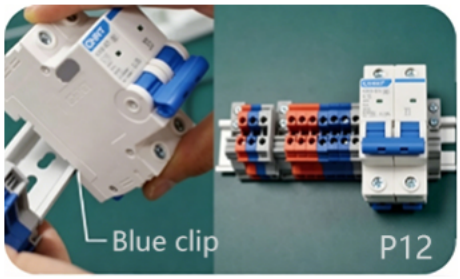
As shown in Figure 10, apply two strips of T1×W15×L40 self-adhesive foam pads to the back of the UPS Charger Bracket and UPS Bracket respectively.





11.Terminal Block Installation

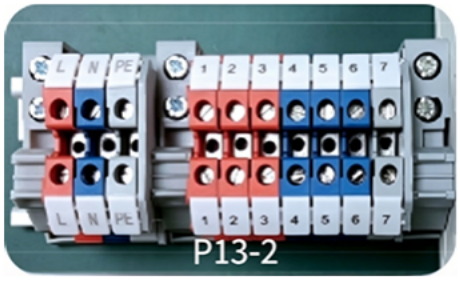
As shown in Fig. 11-1: Attach end stops, UK terminal blocks, and partition plates. Press the partition plates firmly onto the blocks.Qty: A-2 pcs, B-4 pcs, C-4 pcs, D-2 pcs, E-2 pcs (see Fig. 11-2).



12. MCB Installation

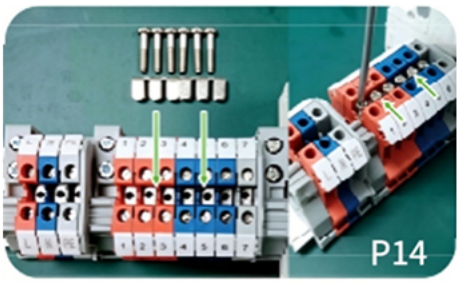
As shown in Fig. 12: Attach the miniature circuit breaker (MCB). Hook its blue clip onto the DIN rail first, then push firmly upward to lock it in place.

7.Enclosure Installation Diagram



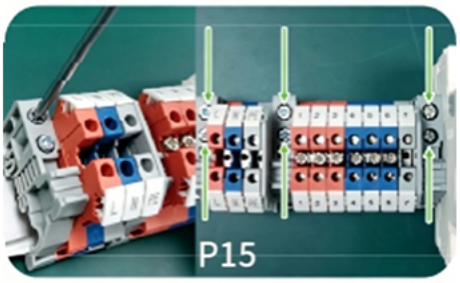
13.Marker Installation

Snap markers onto the terminal blocks as shown in Fig.13-1, order (left to right): L, N, PE, 1–7. See Fig.13-2.



14.Jumper Bar Installation

Insert two sets of FBI-3-6 jumpers into terminals 1-2-3 and 4-5-6, then tighten the 6 screws (Fig.14).

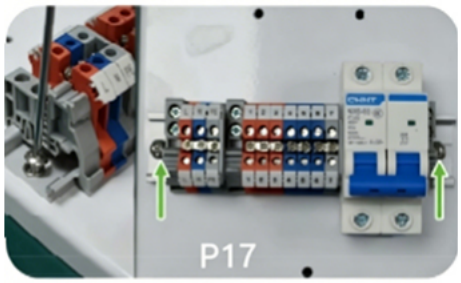


15.End Stop Tightening

Hold all UK-2.5B terminal blocks firmly, then tighten the 6 screws on the EUK end stops to eliminate gaps (Fig.15).

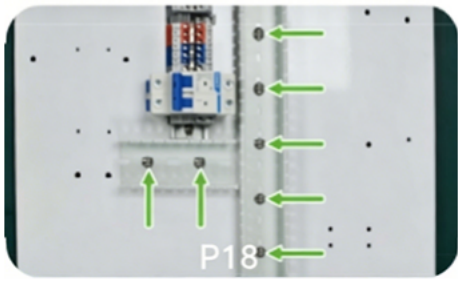
16.Remove Base Plate from Enclosure

Remove the 4 cross-recessed hex lock screws, then take out the base plate (Fig.16).



17. Mount Terminal Block Assembly to Base Plate

Align the terminal block assembly to the marked position on the base plate, then tighten with 2×M4 cross-head screws + M4 spring washers (Fig.17).



18.Mount Junction Boxes

Secure Junction Box A and B to their positions on the base plate with M4 cross-head screws (Fig.18, refer to the enclosure assembly drawing).

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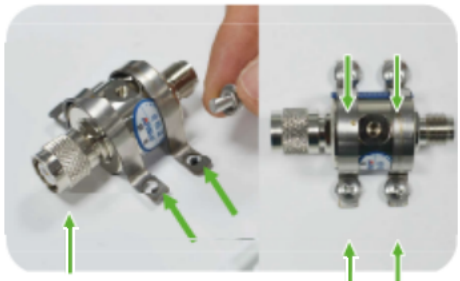
7.Enclosure Installation Diagram

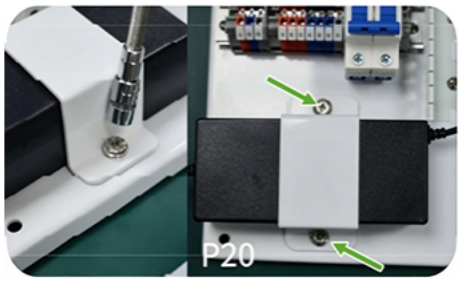


19.Surge Protector Mounting

Align the surge protector on the base plate (nut end toward the PL3L side), fit the two brackets, then tighten with 4×M4 cross-head screws + M4 spring washers (Fig.19).

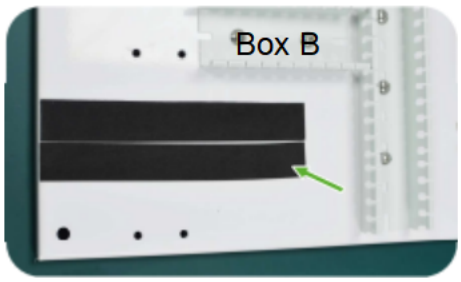
20.PL3L Main Unit Mounting

Position the PL3L on the base plate, then secure with 4×M5 cross-head screws + M5 spring washers (Fig.20).



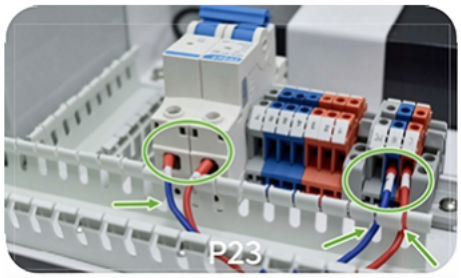
21.Charger Mounting

Align the charger input with the base plate, fit the charger bracket, then tighten with 2×M6 hex bolts (Fig.21).UPS Mounting



22.Fig.22-1: Apply two strips of T1×W15×L150 foam to the right of Junction Box B.

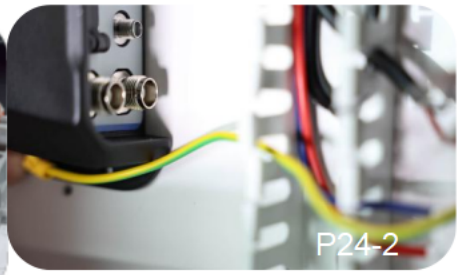
Fig.22-2: Place the UPS on the base plate, fit the bracket, then tighten with 4×M6 hex bolts.



23. Input Wiring

Connect one end of the L (red) and N (blue) wires to the L/N terminals, and the other end to the top of the MCB (N on left, L on right). Route the wires into the junction box (Fig.23).

7.Enclosure Installation Diagram

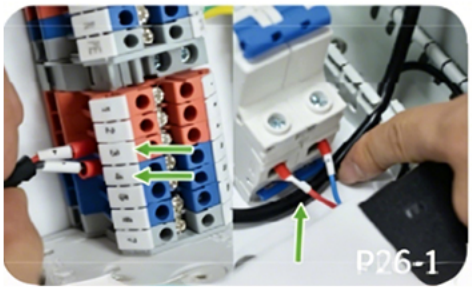


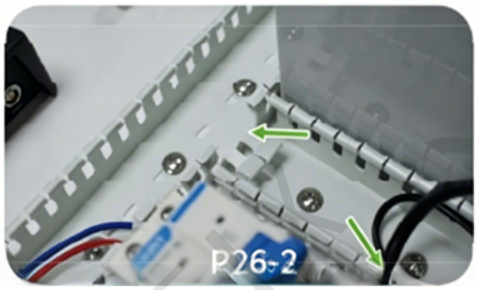
24.Ground Wire Connection

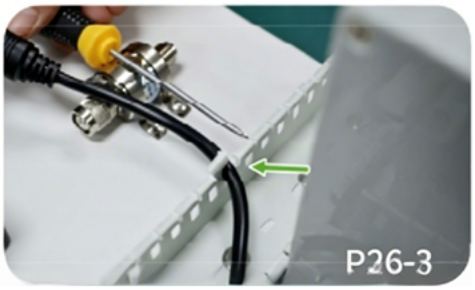
Connect green-yellow ground wire to PE terminal and PL3L grounding hole, tighten screws. Route as Fig.24-2.

25.Charger Input Wiring

Connect charger input L (red) and N (blue) to MCB L/N holes, tighten screws (Fig.25).

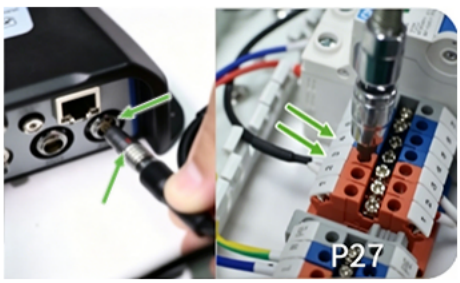






26.Output Wiring

Connect one end of battery output wires to terminals 3 and 4 (route under charger input wires), pass through Junction Box B (Fig.26-2) and A (Fig.3), connect the other end to battery output 1 (after closing Junction Box A cover). Route strictly as Fig.26-2, 26-3.



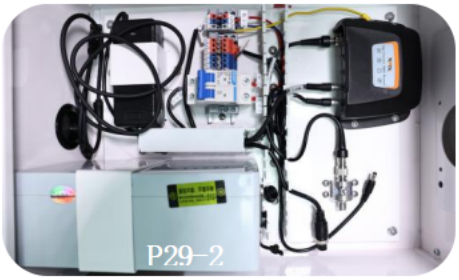
27. 2PIN LEMO Plug Power Cable Wiring

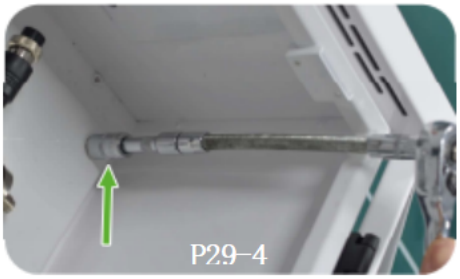
Insert LEMO plug into PL3L (red dot aligned with red dot), connect the other end to the top of terminals 3 (L) and 4 (N) (Fig.27).

7.Enclosure Installation Diagram

28.0.3m TNC Cable Connection

Connect one end to PL3L, route inside Junction Box A as shown in Fig.28-2/28-3, then connect the other end to the nut end of the surge protector (Fig.28-4).





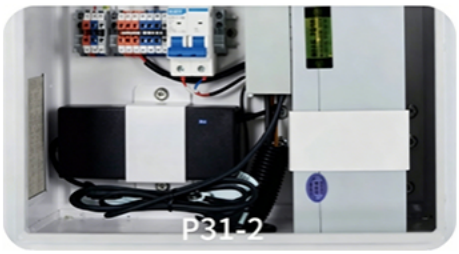
29.Base Plate Installation

Tilt the assembled base plate into the enclosure as shown in Fig.29-1 (Fig.29-2).Install the hex lock screws into the bottom-right hole in advance, then tighten 4 M6 hex lock screws (Fig.29-3, 29-4).

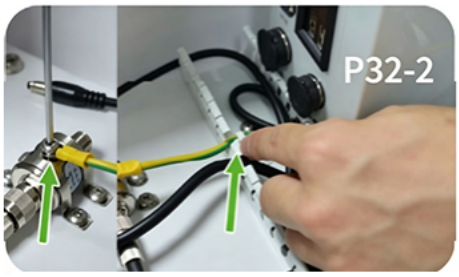
30.Enclosure Rubber Gland Installation

Cut the rubber gland with scissors as shown in Fig.30-1.Feed the surge protector ground wire, data cable and 5m antenna cable through the gland into the enclosure (Fig.30-2).Insert the cables into the corrugated pipe, then fit the rubber gland (Fig.30-3, 30-4).

7.Enclosure Installation Diagram

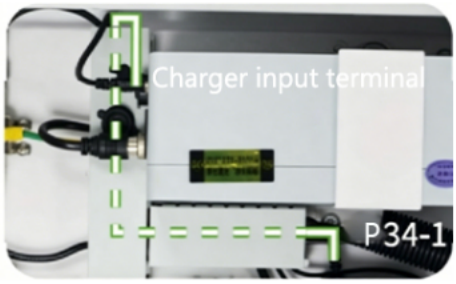


31. Data Cable Connection
Insert LEMO plug into PL3L DATA port (red dot to red dot) along Box A (Fig.31-1).Route cable as shown in Fig.31-2.



32. Surge Protector Ground Wire
Route ground wire through enclosure hole, Box B and A (Fig.32-1).Fasten ring terminal to surge protector top and tighten (Fig.32-2).

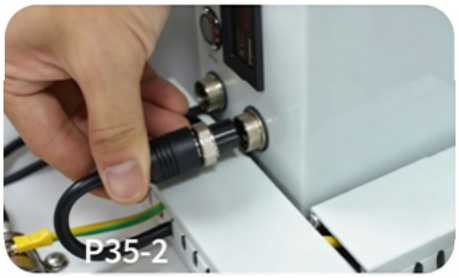
33.5m TNC Cable Connection
Connect one end to the right side of the surge protector (Fig.33).Cable can bypass the junction box; route through the pole first before installation.



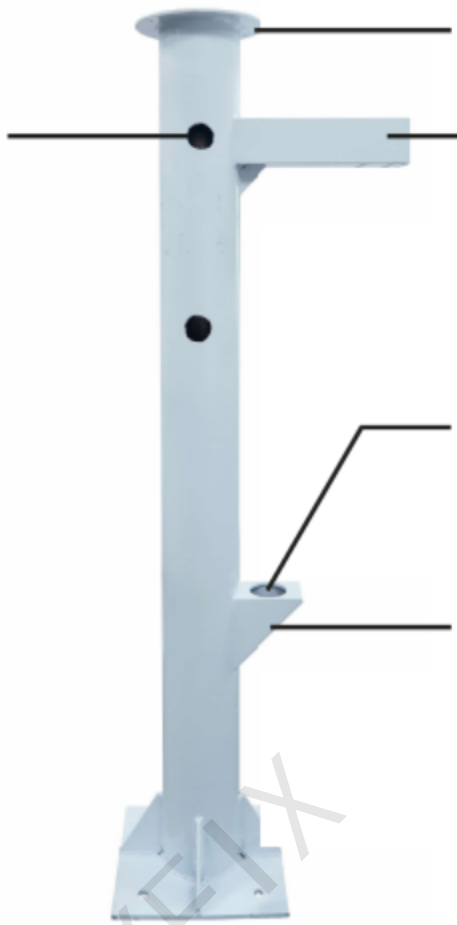
34.Install Junction Box Covers
Route the charger output wire to the far right of the long box (Fig.34-1).Fit covers on Box A and Box B as shown in Fig.34-2.

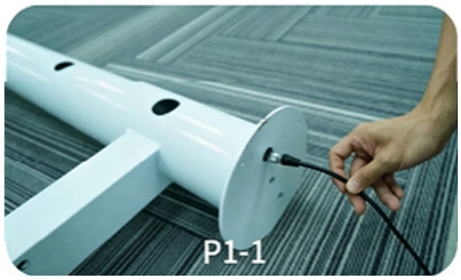
35.UPS Charging & Output Connection

Connect charger output to UPS input (Fig.35-1), and output connector to Output 1 (Fig.35-2). Tighten nut clockwise as shown in Fig.35-3.



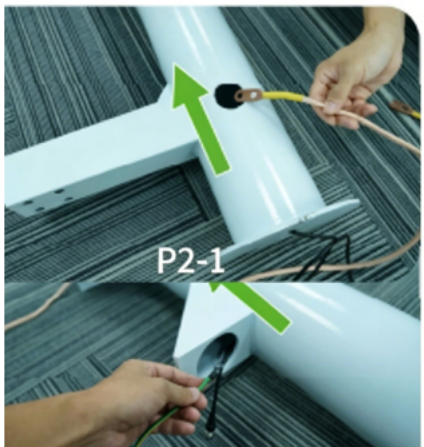
8.Pole Installation Diagram

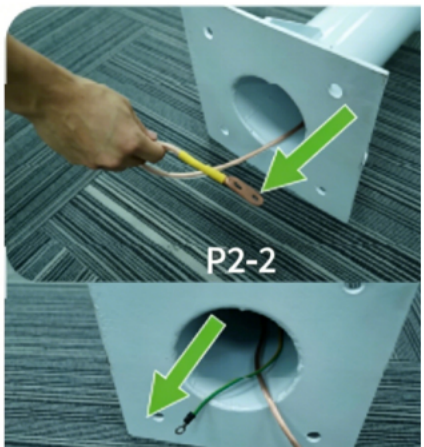




1.TNC cable feedthrough

Route the TNC cable down through the choke ring antenna tray at the pole top (easier with the pole upright), then out through the enclosure bracket hole as shown in Figures 1-1 & 2.





2.Feed lightning rod ground wire

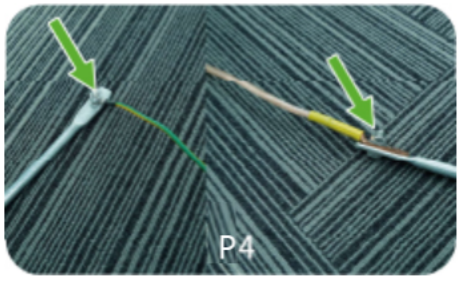
Pass it down through the ground wire hole (easier with pole upright) and out the pole bottom as shown.

3.Feed the surge protector ground wire

Pass it down through the enclosure bracket hole and out from the pole bottom

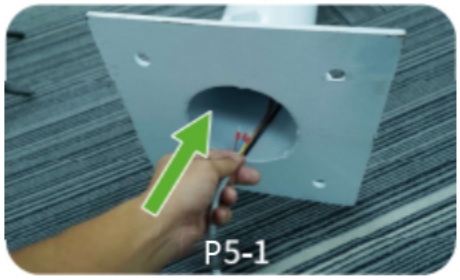
. 如左P3-1将天馈防雷器地线从机箱支架孔位向下穿,从立柱底 部孔位穿出如P3-2 。

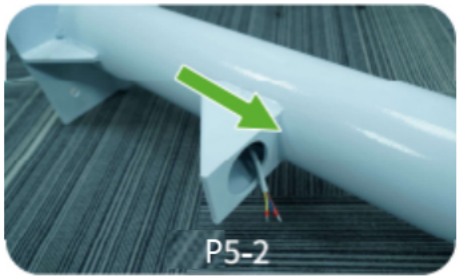
8.Pole Installation Diagram



4.Ground Rod Connection

Secure the surge protector ground wire and lightning arrester ground wire to the two ground rods using the supplied screws (Fig.4).



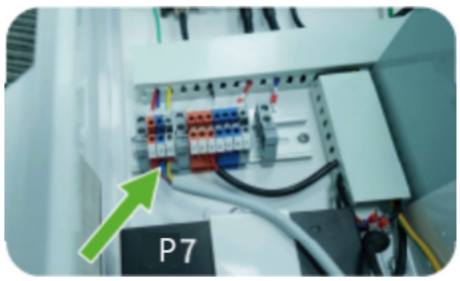


5.Route Power Cable

Feed power cable upward from the pole bottom, then out through the enclosure bracket hole (Fig.5-1, 5-2).

6. Route Power & TNC Cables into Enclosure

Feed power and TNC cables through the rubber gasket into the enclosure. Cover the external cables with corrugated tubing (Fig.6).

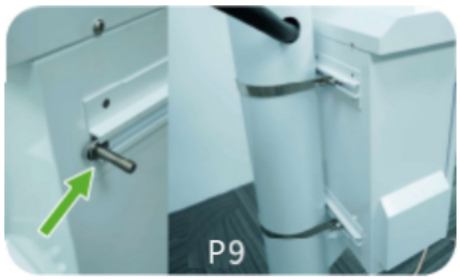


7. Power Cable Connection

Connect power wires to input terminals in order: L (brown), N (blue), PE (green-yellow) (Fig.7).

8.TNC Cable Connection

Route TNC cable through the gap between UPS battery bottom and enclosure, then connect to surge protector (Fig.8).



9. Mount Enclosure

Install 4 M8 T-bolts with washers into the enclosure slots. Fit the clamp and secure the enclosure to the pole with M8 lock nuts (Fig.9).

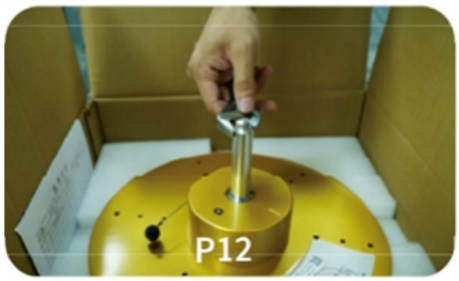
8.Pole Installation Diagram

10. Mount Enclosure

Secure the lightning arrester to the pole arm with 4 M12 screws (Fig.10).

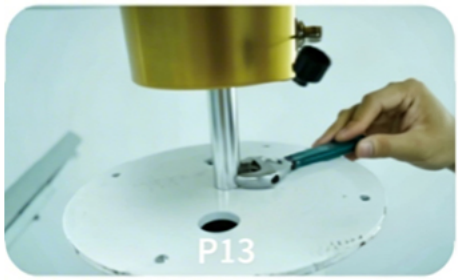
11.Secure Copper Wire

Fasten the copper lug to the arrester with its 2 screws, then cover the wire with corrugated tubing (Fig.11).



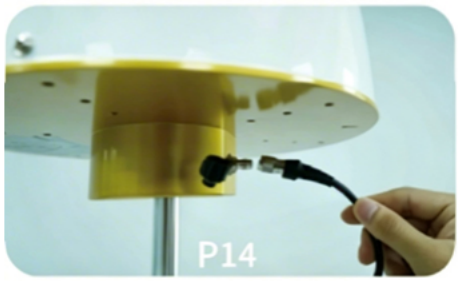
12. Install Adapter to Antenna

Screw the adapter clockwise into the antenna base and tighten with a wrench (Fig.12).



13.Mount Antenna to Pole

Align the adapter with the pole thread, install the antenna clockwise and tighten with a wrench (Fig.13).



14.Connect TNC Cable

Plug the TNC male connector into the antenna TNC female, tighten the nut clockwise (Fig.14).

15.Fix Pole

Stand the pole onto the foundation bolts and secure with nuts (Fig.15).Seal the cable hole with foam to block foreign objects.