VerdeMobility
CHARGING INTO THE FUTURE

AmpVolts
We make EV Charging easy

INSTALLATION MANUAL

Prepared By:

Operation Team
of
VerdeMobility & AmpVolts

INSTALLATION MANUAL

Author: AmpVolts & VerdeMobility Team

Date: 30 June 2023

Version/Status: 0.1

Document Library Approver

Document classification: Confidential

Distribution and approvals are maintained in:

It is the responsibility of the user of this document to verify that it is the most current edition.

Preface

Privacy information

This document may contain information of a sensitive nature. This information should not be given to any persons outside of the System Level Solutions (I) Pvt. Ltd. without prior consent.

Revision History

Name	Description of Changes	Date	Version
Operation Teams	Initial Draft	30 JUNE 2023	0.1

Approval

Name	Position	Signature	Date
Foram Modi	CTO (VM)		
Priyank Patel	APM (AV)		

Table of Contents

INDEX

Preface

General Information

This manual contains important safety instructions that must be followed during installation and maintenance of the equipment.
This manual must be considered an integral part of the equipment and must be always available to everyone who interacts with the equipment. The manual must always accompany the equipment, even when it is transferred to another user or plant.

Scope

This manual describes the assembly, installation material, electrical connection.

Copyright Statement

VerdeMobility reserves the right to final interpretation. This manual is subject to change based on feedback from installers or customers. Please check our website at https://www.verdemobility.com for latest version.

Technical Support

VerdeMobility offers a support and technical consultancy service accessible by sending a request directly to support@verdemobility.com, operations@verdemobility.com, service@ampvolts.com or

Toll free No: **1800-313-2244**

Recipients

This manual is intended for qualified technical personnel (installers, technicians, electricians, technical support personnel or anyone who is qualified and certified to work on an electrical system), responsible for installing, starting up and operating the charging station.

Symbols

	**Note:** Provides important tips on the correct and optimal operation of the product.
	**Caution:** Indicates a hazardous situation that, if not resolved or avoided, could result in minor or moderate personal injury.
	**Attention:** Indicates a potentially hazardous situation that, if not resolved or avoided, could result in damage to the system or other property.
	**Warning:** Indicates a hazardous situation that, if not resolved or avoided, could result in serious personal injury or death.
	**Danger:** Indicates a potentially hazardous situation that, if not resolved or avoided, could result in serious personal injury or death.

Important Safety Instructions

Safety and Compliance

- Read the manual before installation or usage of device.
- Do not put tools, material or body parts into the Electric Vehicle connector.
- Do not use the Charger if the chassis, power cord or charging cable are frayed, have broken insulation, or any other signs of damaged.
- Do not install or use the Charger if the enclosure is broken, cracked, open or has any other indications of damage.
- The Charger should be installed only by a qualified technician.
- Before installation or use of this product, you should review this manual carefully and consult with a licensed contractor, licensed electrician, or trained installation expert to make sure of compliance with local building codes and safety standards.
- DO NOT carry out repairs yourself, as this may result in injury or damage.
- Make sure that the materials used, and the installation procedures follow local building codes and safety standards.
- Permission must be obtained from your local provider before connecting to the electrical grid.
- The information provided in this manual in no way exempts the user of responsibility to follow all applicable codes or safety standards.
- The manufacturer is not responsible for physical injury, damage to property or equipment caused by the installation of this device.
- This document provides instructions for the VerdeMobility Charger Installation Manual and should not be used for any other product.

Grounding (Discharge) Instructions

- The charging station must be implemented equipment grounding through a permanent wiring system or an equipment grounding conductor.
- Use a wire with a dedicated grounding wire and connected to the equipment ground terminal block for grounding.

Installation Requirements

Install and start the charging station according to the following instructions.

- Place the charging station on suitable load bearing supports with sufficient load capacity (such as metal pole, wall or columns) and make sure it is positioned vertically.
- Choose a suitable location for the installation of the electrical equipment.
- Make sure there is sufficient space for heat dispersion and to accommodate future maintenance.
- Maintain adequate ventilation and ensure that there is enough air circulation for cooling.

	Do not place the charging station near explosive, flammable materials, chemical vapours or potentially hazardous materials.

Electrical connections

Please follow all the electrical regulations for accident prevention.

	Before connecting the electrical cables, make sure to properly disconnect the voltage on the AC connection cables, and do not connect any charging cables with electric vehicles.
	All installation operations must be carried out by a professional electrician, who has carefully read this manual and understands its contents!
	Before connecting the charging station to the grid, make sure that all the necessary permits have been obtained from the local grid operator and that all the electrical connections have been completed by a professional electrician.
	Do not remove the information label or tamper with the charging station. Otherwise, VerdeMobility will not provide any warranty or assistance.

Operation

	Contact with the electrical grid or the terminal of equipment may cause electrocution or fire!! Do not touch the terminal or the conductor connected to the electrical grid. Follow all the instructions and safety requirements relating to grid connection.
	If the charging station is not functioning properly: Disconnect the input and output power supply.
	Take special care when charging in thunderstorms or in rain.

Maintenance and Repair

Keep the charging station clean and dry; if you need to clean it, use a clean dry cloth. It is very dangerous to touch the inside of the charging station, therefore it is strictly forbidden to do so while the system is running. NEVER clean the inside of the charging station with a wet or damp cloth.

	• Before performing any repairs, disconnect the charging station from the power supply (AC side) and from the data connection to the transmission gate. • After switching off the AC switch, wait for 5 minutes before carrying out any repairs or maintenance on the charging station.
	• The charging station should start working again after any faults have been fixed. For repairs, contact your local authorised service centre. • Do not disassemble the internal components of the charging station without permission; this will void warranty.

Installation Tools Required

The following tools are required for the installation of the charging station and electrical connections; therefore, they must be prepared before installation.

Sr No.	Tool Image	Tool Description	Function/Usage
1		Measuring Tape	Measure distance/size
2		Marker Pen	Marking
3		Level	Levelling
4		Drill Machine	Wall Drilling
5		Masonry Drill Bits	Wall Drilling
6		Hammer	Insert Anchor Plug
7		Socket Wrench	Turn a Fasteners
8		Multi Meter	Electrical Parameter Measuring
9		Megger	Electrical Parameter Measuring

Foundation

- Height of the foundation for all types of chargers mentioned in the photos below.

AC chargers:

(1) EV-Pole stands with meter Box Enclosure:

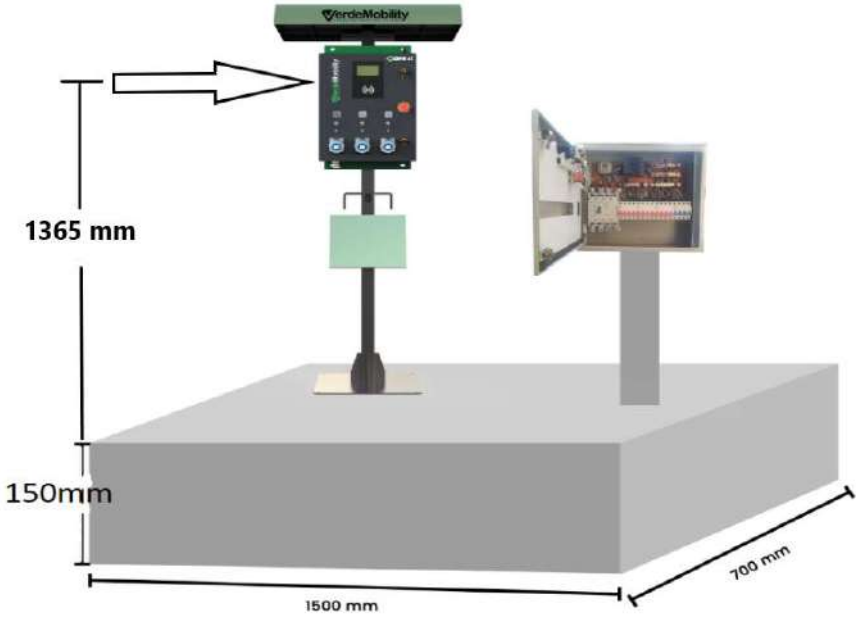


Fig.1.1 Ev- Pole Stand with Meter Box Enclosure

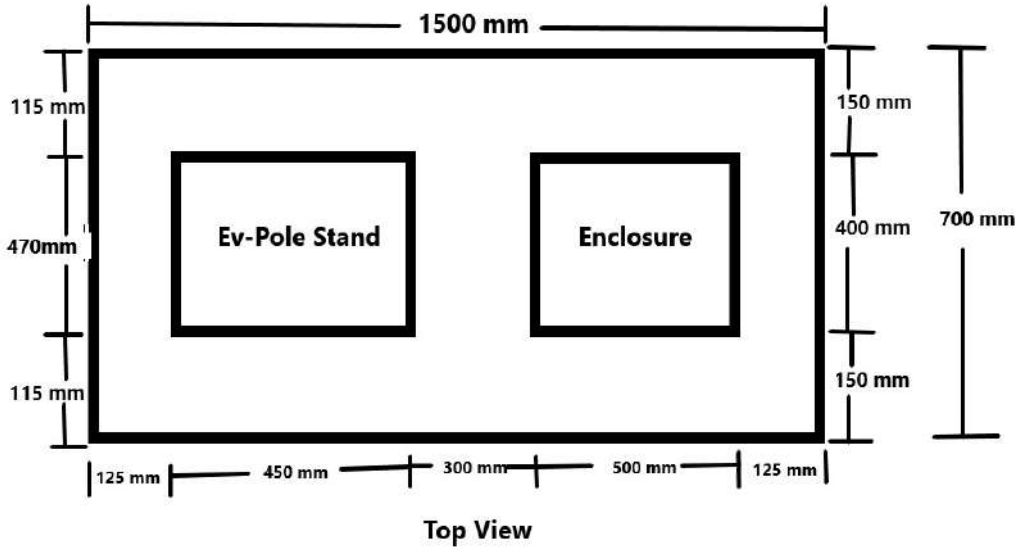


Fig 1.2 Top View of above image

(2) EV-Pole stands without meter Box Enclosure:

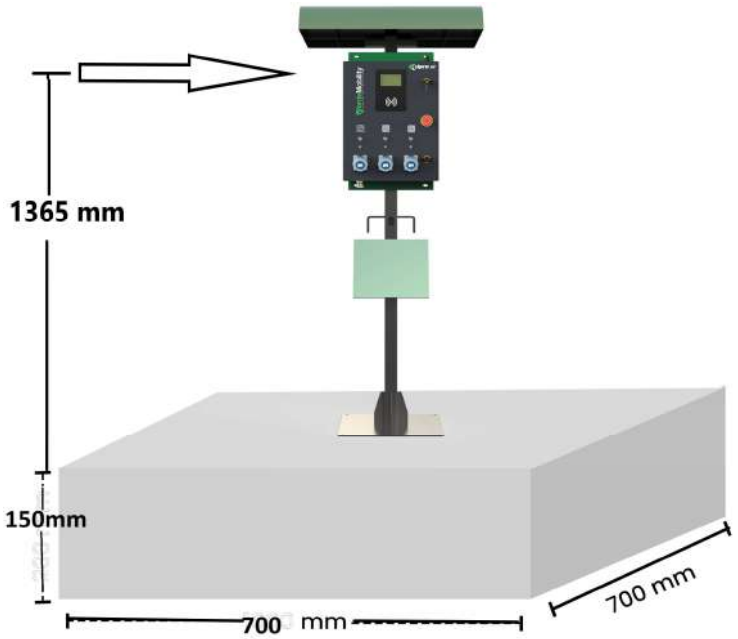


Fig. 1.3 Ev- Pole without Meter Box Enclosure

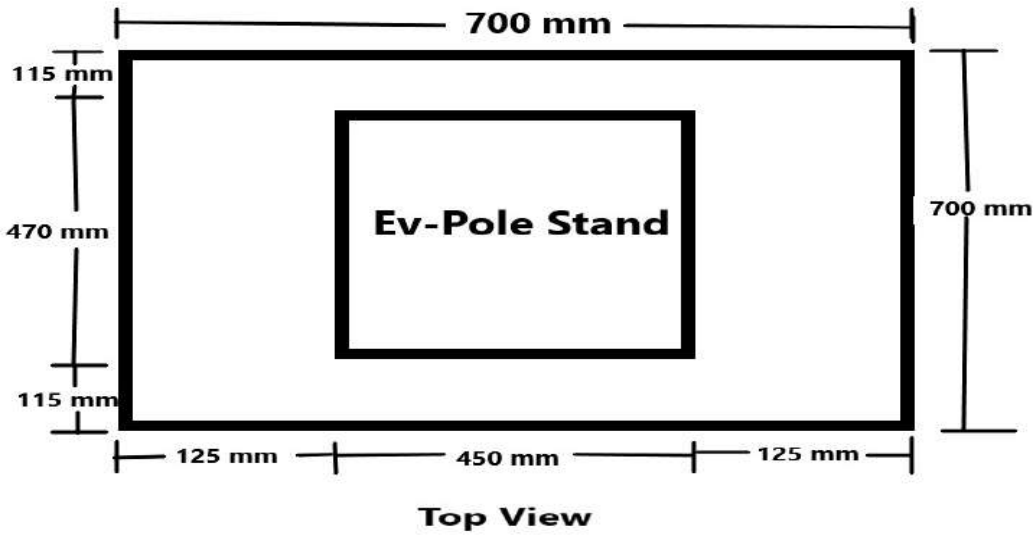


Fig. 1.4 Ev- Pole without Meter Box Top View

(3) EV Pole Base Plate Dimension

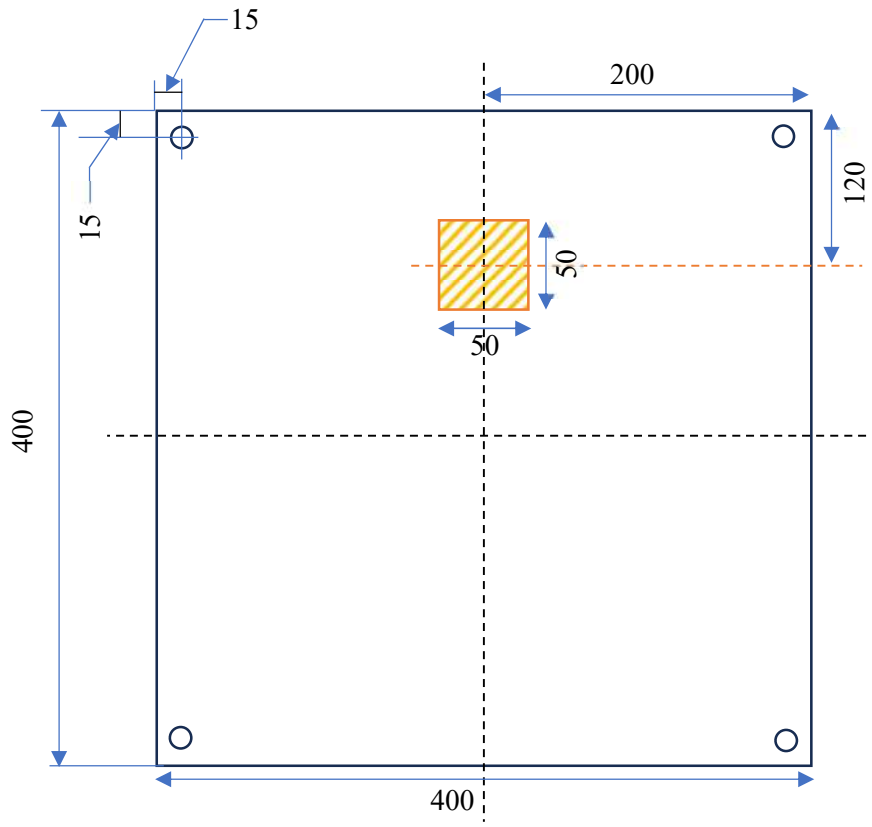


Fig 1.5 EV-Pole hole Dimensions

Note: All Dimensions are in **mm**.

Hole Size: M8

: Hole for Pipe

: Stand Plate

(4) Meter Box Enclosure:

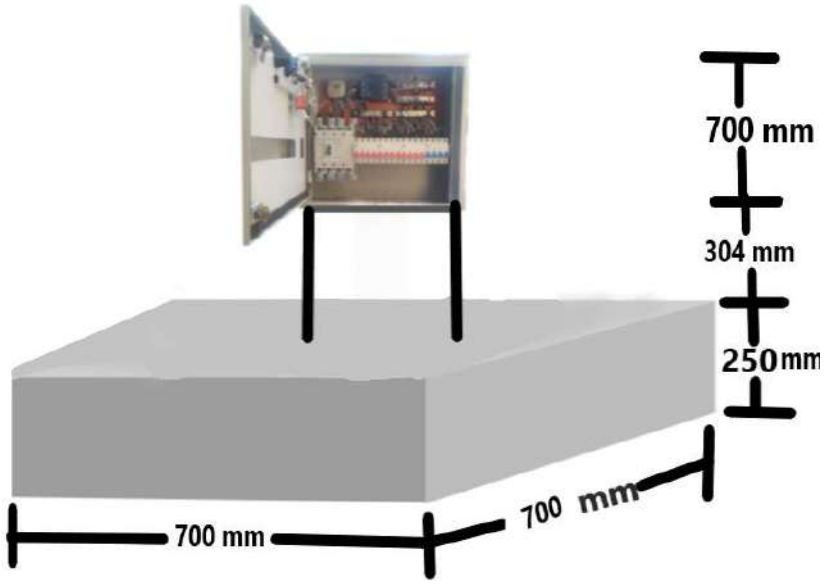


Fig. 1.6 Meter Box Enclosure

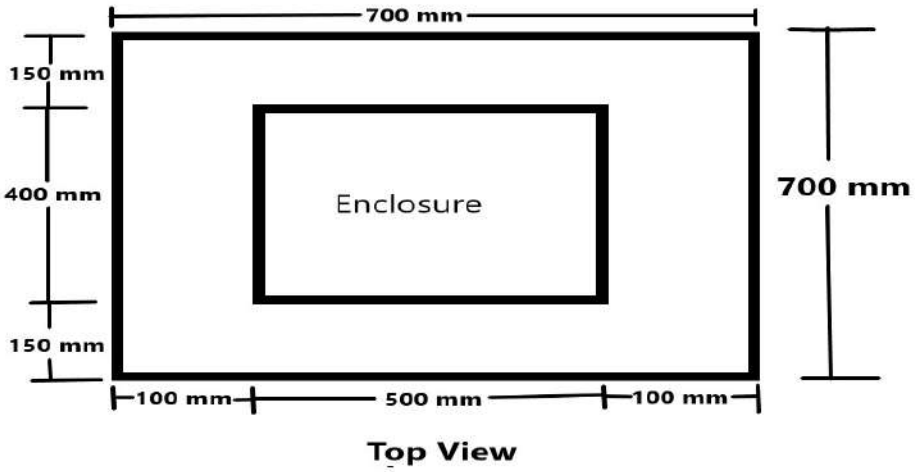


Fig. 1.7 Top View of the Meter Box Enclosure

(5) The Pillar charger with meter Box Enclosure:

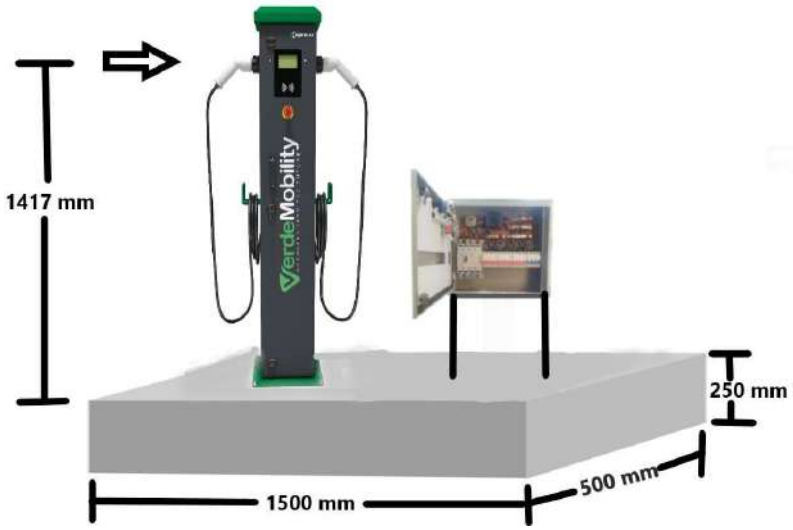


Fig. 1.8 Pillar Type Charger with Meter Box Enclosure

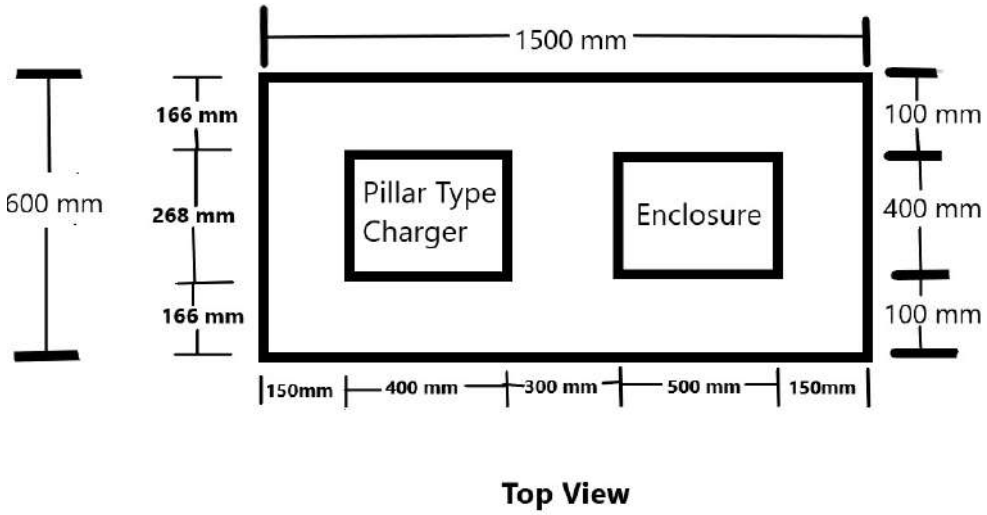


Fig 1.9 Top View of the Pillar with the Meter Box Enclosure

Fig 1.10 Reference Image of Pillar with the Meter Box Enclosure

(6) The Pillar charger:

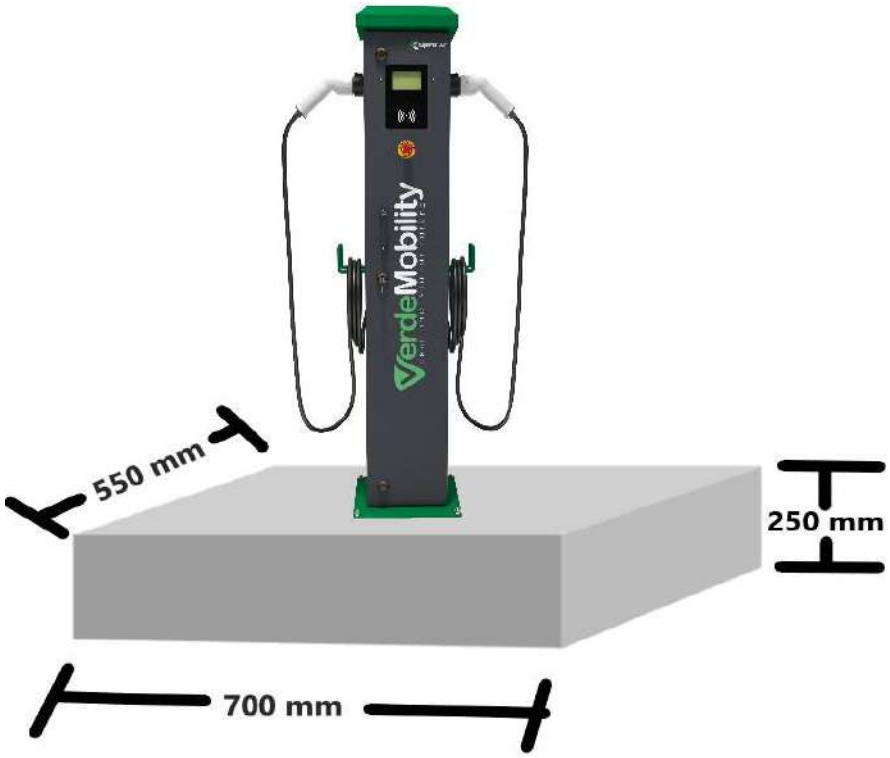
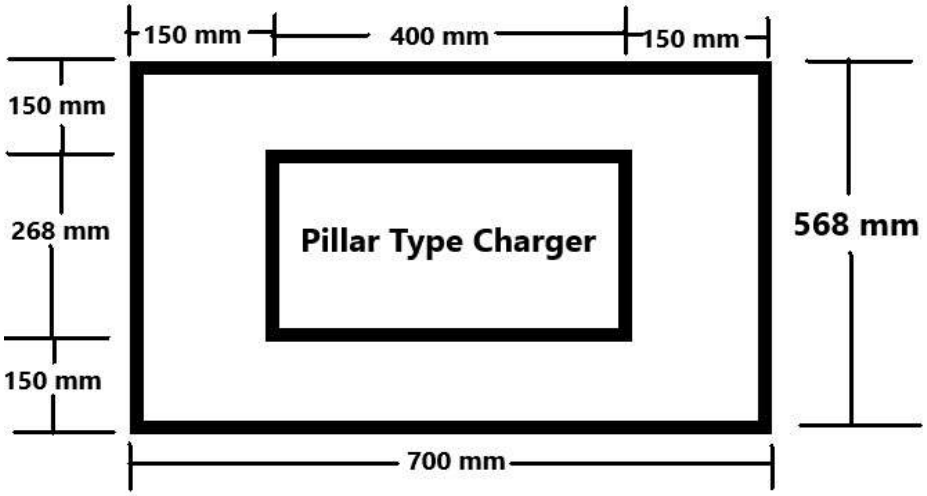


Fig. 1.11 Pillar Type Charger without Meter Box Enclosure



Top View

Fig. 1.12 Top View Pillar Type Charger without Meter Box Enclosure

Base Plate Dimensions

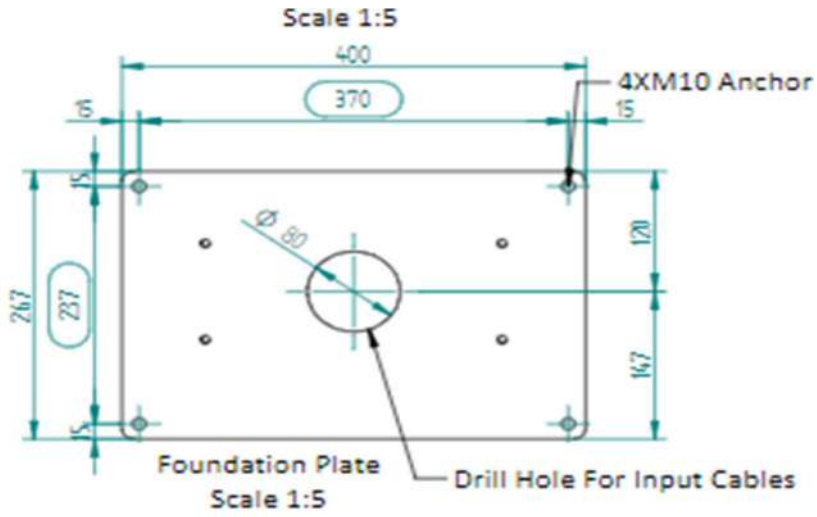


Fig. 1.13 Hole Dimensions of the Pillar Type Charger

Reference Image

Fig. 1.14- Reference image of the Pillar Type Charger Foundation

DC Chargers

60KW DC Charger Foundation.

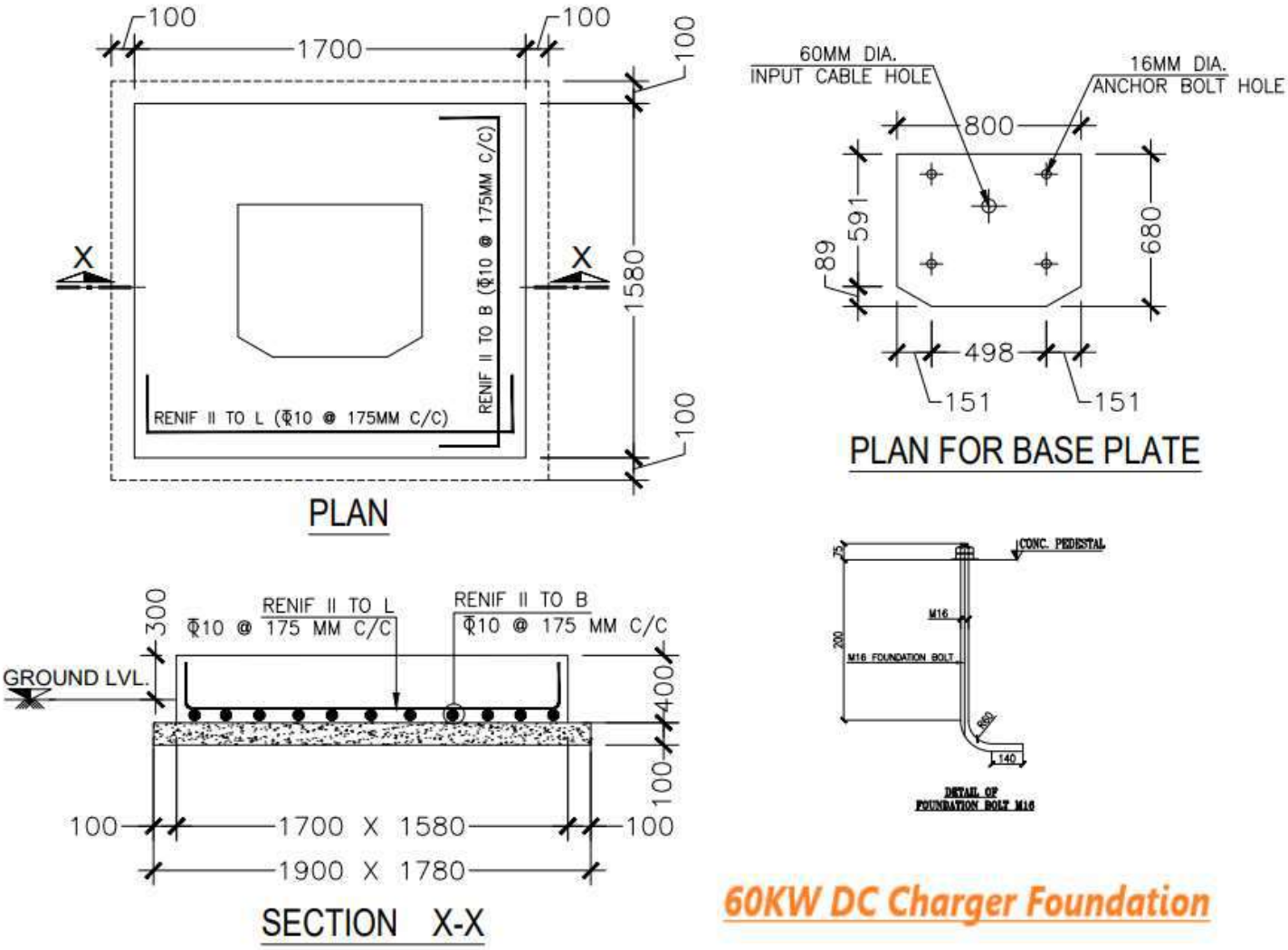


Fig: 1.15 60KW DC Charger dimensions

120KW DC Charger Foundation.

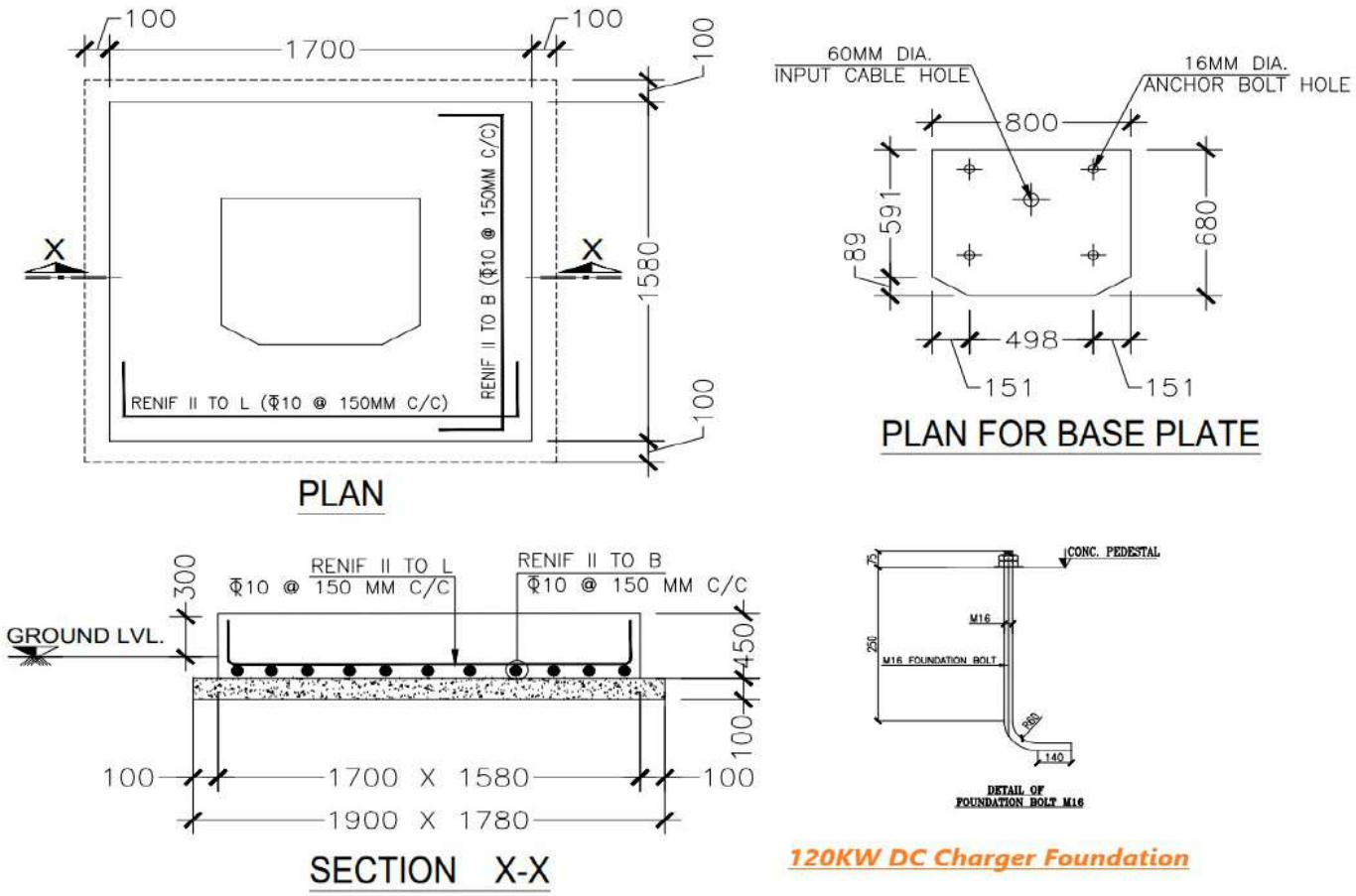


Fig 1.16 120KW DC Charger dimensions

240KW DC Charger Foundation.

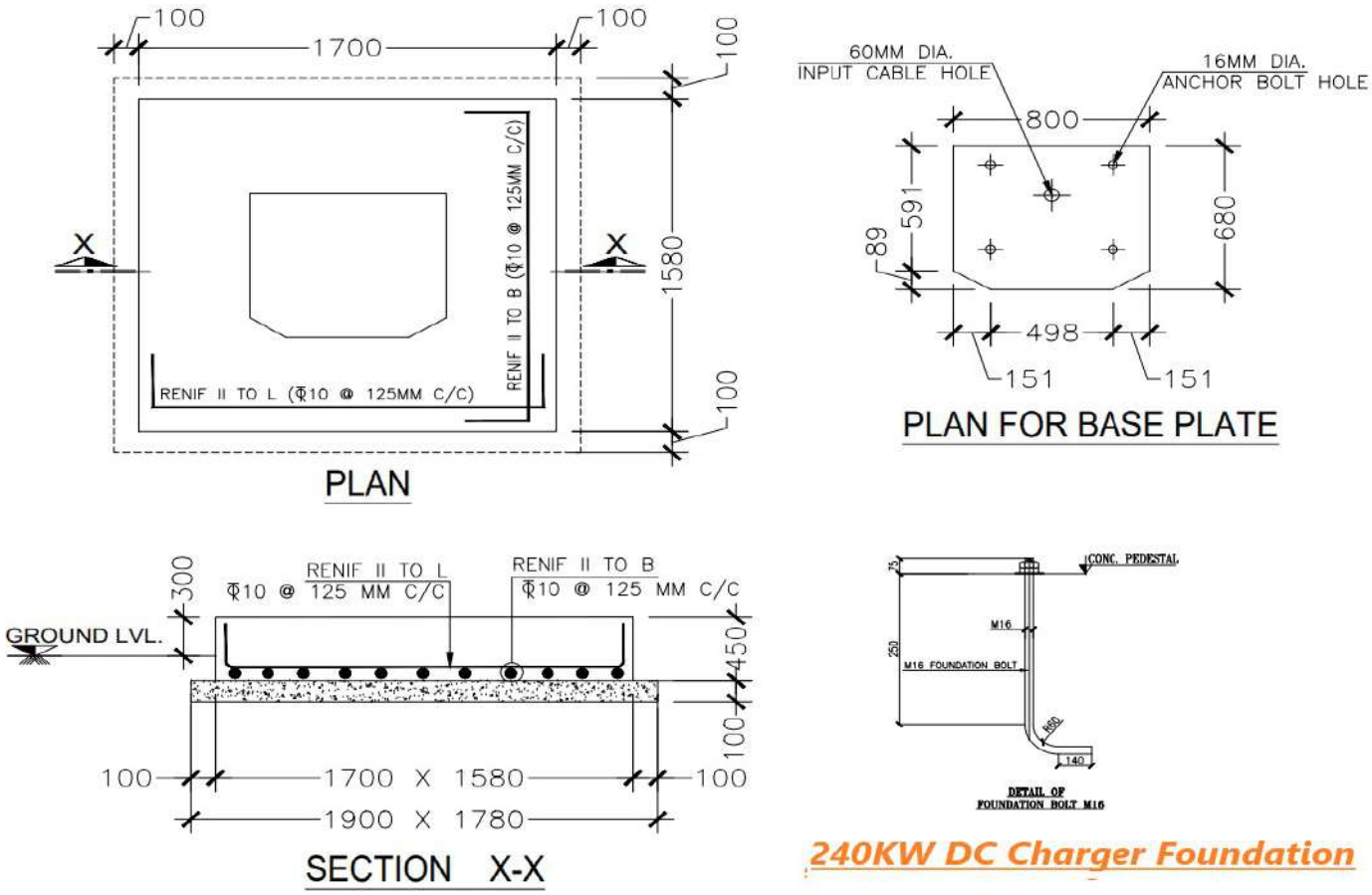
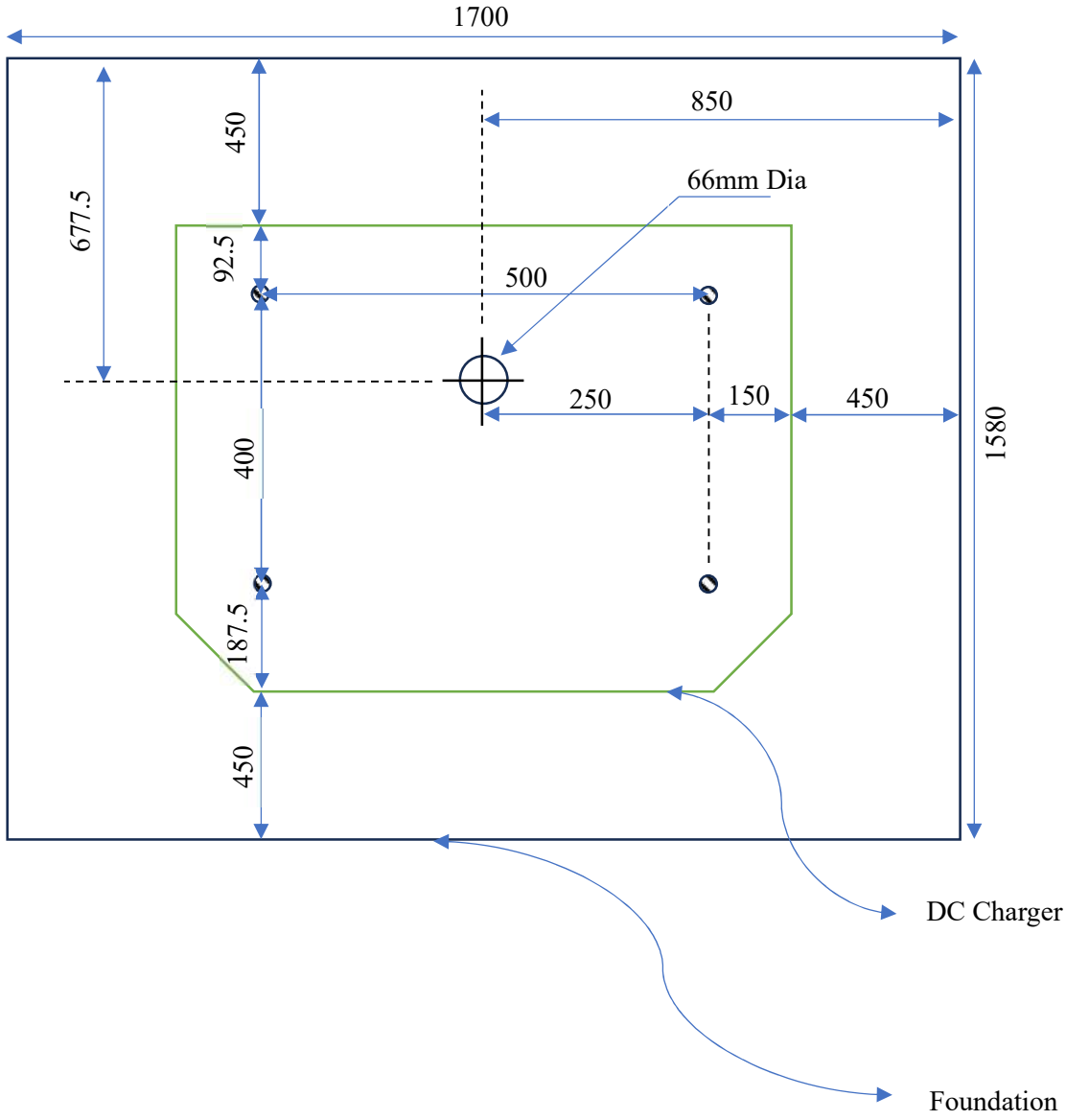


Fig 1.17 240KW DC Charger dimensions

- Polish-type plastering required
- If the site was proper for branding, then use marble on the foundation
- if the site was proper for branding, then use a steel parking stopper, a rubber parking stopper, or a car parking safety bar.

Dimensions for Cable Hole & J-Bolt Mount for DC Foundation



Note: All Dimensions are in **mm**.

DC Charger

Foundation

Hole for Cable Insertion (66 mm Dia)

J-Bolt Hole (16 mm Dia)

ELCB/MCB/MCCB Selection:

Selection of ELCB, MCB, and MCCB for 10kW loads to 240kW loads.

Sr.No	*Load(kW)*	*Amp*	*ELCB/MCB Size (3 Phase Supply)*	*MCCB Size (3 Phase Supply)*
1	10 KW	17.41	4 Core 20 A	NA
2	20 KW	34.82	4 Core 40 A	NA
3	30 KW	52.23	4 Core 63 A	NA
4	40 KW	69.64	4 Core 80 A	NA
5	50 KW	87.05	4 Core 100 A	NA
6	60 KW	104.46	NA	4 Core 125 A
7	70 KW	121.87	NA	4 Core 125 A
8	80 KW	139.28	NA	4 Core 150 A
9	90 KW	156.69	NA	4 Core 160 A
10	100 KW	174.10	NA	4 Core 200 A
11	110 KW	191.51	NA	4 Core 200 A
12	120 KW	208.92	NA	4 Core 225 A
13	130 KW	226.33	NA	4 Core 250 A
14	140 KW	243.74	NA	4 Core 250 A
15	150 KW	261.16	NA	4 Core 300 A
16	160 KW	278.57	NA	4 Core 300 A
17	170 KW	295.98	NA	4 Core 300 A
18	180 KW	313.39	NA	4 Core 350 A
19	190 KW	330.80	NA	4 Core 350 A
20	200 KW	348.21	NA	4 Core 350 A
21	210 KW	365.62	NA	4 Core 400 A
22	220 KW	383.03	NA	4 Core 400 A
23	230 KW	400.44	NA	4 Core 500 A
24	240 KW	417.85	NA	4 Core 500 A

Fig. 1.18 ELCB/MCB/MCCB Rating List

AC Chargers and DC Chargers ELCB/MCB/MCCB

For all **AC Chargers and DC Chargers** Size of the ELCB/MCB/MCCB mentioned in the below table.

AC Chargers		
Sr.No	***Charger Name***	***Which ELCB/MCB Use***
1	Ksipra AC 7S	2 pole 40 Amp MCB/ELCB with Cover Box
2	Ksipra AC 15D	4 pole 40 Amp MCB/ELCB with Cover Box
3	Ksipra Bharat AC 001	4 pole 20 Amp MCB/ELCB with Cover Box
4	Ksipra AC Hybrid Charger	4 pole 40 Amp MCB/ELCB with Cover Box
5	Ksipra AC 15D (Pillar)	4 pole 40 Amp MCB/ELCB with Cover Box
DC Chargers		
Sr.No	***Charger Name***	***Which ELCB/MCCB Use***
1	Ksipra DC 30KW Charger	4 pole 63 Amp MCB/ELCB with Cover Box
1	Ksipra DC 60KW Charger	4 pole 125 Amp MCCB/ELCB with Cover Box
2	Ksipra DC 90KW Charger	4 pole 160 Amp MCCB with Cover Box
3	Ksipra DC 120KW Charger	4 pole 225 Amp MCCB with Cover Box
4	Ksipra DC 240KW Charger	4 pole 500 Amp MCCB with Cover Box

Fig 1.19 ELCB/MCB/MCCB Rating AC and DC Charger

- Used only following make brands of ELCB/MCB/MCCB.
- L&T
- Schneider Electrics
- Wipro
- orient Electrics
- ABB
- When you purchase materials, please take a warranty certificate for that and also make a spread sheet of that and mention the site name, company, material, purchase details, date, and the warranty certificate.
- Cover box used for MCB/ELCB/MCCB
- Earthing is always connected to ELCB/MCB/MCCB cover box for safety purposes.

Power cable Selection & laid up:

For cable size selection, 10 kilowatts to 240 kilowatts are mentioned in the below table.

Sr.No	*Load (kW)*	*Aluminium Cable Size* (XLPE) *4 Core (Sq. mm)*	*Copper Cable Size* (XLPE) *4 Core (Sq. mm)*	*Aluminium Cable Size* (PVC) *4 Core (Sq. mm)*	*Copper Cable Size* (PVC) *4 Core (Sq. mm)*	*Current (Amp.)*
1	10 KW	4 SQ.MM	4 SQ.MM	4 SQ.MM	4 SQ.MM	13.91
2	20 KW	4 SQ.MM	4 SQ.MM	4 SQ.MM	4 SQ.MM	27.82
3	30 KW	10 SQ.MM	6 SQ.MM	10 SQ.MM	10 SQ.MM	41.73
4	40 KW	16 SQ.MM	10 SQ.MM	16 SQ.MM	16 SQ.MM	55.64
5	50 KW	16 SQ.MM	10 SQ.MM	25 SQ.MM	16 SQ.MM	69.56
6	60 KW	25 SQ.MM	25 SQ.MM	35 SQ.MM	25 SQ.MM	83.47
7	70 KW	35 SQ.MM	25 SQ.MM	50 SQ.MM	35 SQ.MM	97.38
8	80 KW	35 SQ.MM	25 SQ.MM	70 SQ.MM	35 SQ.MM	111.3
9	90 KW	50 SQ.MM	35 SQ.MM	70 SQ.MM	50 SQ.MM	125.21
10	100 KW	70 SQ.MM	35 SQ.MM	95 SQ.MM	70 SQ.MM	139.12
11	110 KW	70 SQ.MM	50 SQ.MM	95 SQ.MM	70 SQ.MM	153.03
12	120 KW	95 SQ.MM	70 SQ.MM	120 SQ.MM	95 SQ.MM	166.94
13	130 KW	95 SQ.MM	70 SQ.MM	120 SQ.MM	95 SQ.MM	180.86
14	140 KW	95 SQ.MM	70 SQ.MM	150 SQ.MM	95 SQ.MM	194.77
15	150 KW	120 SQ.MM	95 SQ.MM	150 SQ.MM	120 SQ.MM	208.68
16	160 KW	120 SQ.MM	95 SQ.MM	185 SQ.MM	120 SQ.MM	222.59
17	170 KW	150 SQ.MM	95 SQ.MM	240 SQ.MM	185 SQ.MM	236.5
18	180 KW	185 SQ.MM	120 SQ.MM	240 SQ.MM	185 SQ.MM	250.42
19	190 KW	185 SQ.MM	120 SQ.MM	240 SQ.MM	185 SQ.MM	264.33
20	200 KW	185 SQ.MM	150 SQ.MM	300 SQ.MM	185 SQ.MM	278.24
21	210 KW	240 SQ.MM	150 SQ.MM	300 SQ.MM	240 SQ.MM	292.15
22	220 KW	240 SQ.MM	150 SQ.MM	400 SQ.MM	240 SQ.MM	306.07
23	230 KW	240 SQ.MM	185 SQ.MM	400 SQ.MM	240 SQ.MM	319.98
24	240 KW	300 SQ.MM	185 SQ.MM	400 SQ.MM	240 SQ.MM	333.89

Fig 1.20 Cable size from 10 to 240 kilowatts

Cable size for the AC and DC Charger

All types of AC and DC Chargers Cables size mentioned in the below table:

In Table Mentioned Cable is Upto 50 Meters Length,

If more than 50 Meter Length use one higher size for upto 100 Meters.

AC Chargers					
Sr.No	**Charger Name**	**Copper cable (XLPE)**	**Copper cable (PVC)**	**Aluminium cable (XLPE)**	**Aluminium cable (PVC)**
1	Ksipra AC 7S	2C x 6 SQ.MM (2XFY)-1.1KV	2C x 6 SQ.MM (2XFY)-1.1KV	2C x 6 SQ.MM (A2XFY)-1.1KV	2C x 6 SQ.MM (A2XFY)-1.1KV
2	Ksipra Bharat AC 001	4C x 6 SQ.MM (2XFY)-1.1KV	4C x 6 SQ.MM (2XFY)-1.1KV	4C x 10 SQ.MM (A2XFY)-1.1KV	4C x 10 SQ.MM (A2XFY)-1.1KV
3	Ksipra AC Hybrid Charger	4C x 6 SQ.MM (2XFY)-1.1KV	4C x 6 SQ.MM (2XFY)-1.1KV	4C x 10 SQ.MM (A2XFY)-1.1KV	4C x 10 SQ.MM (A2XFY)-1.1KV
4	Ksipra AC 15D (Box Type)	4C x 6 SQ.MM (2XFY)-1.1KV	4C x 6 SQ.MM (2XFY)-1.1KV	4C x 10 SQ.MM (A2XFY)-1.1KV	4C x 10 SQ.MM (A2XFY)-1.1KV
5	Ksipra AC 15D (Pillar Type)	4C x 6 SQ.MM (2XFY)-1.1KV	4C x 6 SQ.MM (2XFY)-1.1KV	4C x 10 SQ.MM (A2XFY)-1.1KV	4C x 10 SQ.MM (A2XFY)-1.1KV
DC Chargers					
Sr.No	**Charger Name**	**Copper cable(XLPE)**	**Copper cable (PVC)**	**Aluminium cable (XLPE)**	**Aluminium cable (PVC)**
1	Ksipra DC 30KW Charger	4C x 6 SQ.MM (2XFY)-1.1KV	4C x 10 SQ.MM (2XFY)-1.1KV	4C x 10 SQ.MM (A2XFY)-1.1KV	4C x 10 SQ.MM (A2XFY)-1.1KV
2	Ksipra DC 60KW Charger	4C x 25 SQ.MM (2XFY)-1.1KV	4C x 25 SQ.MM (2XFY)-1.1KV	4C x 25 SQ.MM (A2XFY)-1.1KV	4C x 35 SQ.MM (A2XFY)-1.1KV
3	Ksipra DC 90KW Charger	4C x 35 SQ,MM (2XFY)-1.1KV	4C x 50 SQ.MM (2XFY)-1.1KV	4C x 50 SQ.MM (A2XFY)-1.1KV	4C x 70 SQ.MM (A2XFY)-1.1KV
4	Ksipra DC 120KWCharger	4C x 70 SQ.MM (2XFY)-1.1KV	4C x 95 SQ.MM (2XFY)-1.1KV	4C x 95 SQ.MM (A2XFY)-1.1KV	4C x 120 SQ.MM (A2XFY)-1.1KV
5	Ksipra DC 240KWCharger	4C x 185 SQ.MM (2XFY)-1.1KV	4C x 240 SQ.MM (2XFY)-1.1KV	4C x 300 SQ.MM (A2XFY)-1.1KV	4C x 400 SQ.MM (A2XFY)-1.1KV

Fig. 1.21 Cable size mentioned for the AC and DC

Used only following make brand of cables.

- Ploycab
- RR Kabel
- KEC
- KEI
- TCL Cables

Cables Laid up/wiring:

- Use PVC pipe for conduit wiring on wall.
- Use HDPE pipe for underground cable laid up.
- Use polyamide flexible conduit wiring on wall
- Use cable gland for Enclosure inlet/outlet side.
- Use proper terminal lugs for cable fitment.
- The cable should not be bent 90 degrees.

Calculation of Cable Bending Radius

- To setup and configure these electrical cables to ensure safety without impacting their electrical and physical properties,
- Cable Bending Radius is given by
- **Cable Bending Radius (R) = 4* Diameter.**
- **For a cable with a diameter D= 21.4 mm**
- **Bending Radius of cable (R) = 4*D = 4 x 21.4 mm = 85.6 mm**
- The below three tables represent the minimum bending radius required for various cable types.

Minimum Cable Bending Radius for Fire Resistant Cable.
(As shown below image)

Description	Volts	Cable Diameter	
		Installation	Constant
Single Core	0.6/1kV	10D	6D
Multi Core		10D	6D
Armored		12D	8D

Fire Resistant Cable

Minimum Cable Bending Radius for PVC Insulated Power Cables.
(As shown below image)

Description		Volts	Cable Diameter	
			Installation	Constant
Single Core	D< 25mm	0.6/1kV	6D	4D
	D> 25mm		10D	6D
Multi Core	D< 25mm		10D	4D
	D> 25mm		10D	6D
Multi-Core (Shaped Conductor)			12D	10D
Armored (Circular Conductor)			10D	6D
Armored (Shaped Conductor)			12D	8D

PVC Insulated Power Cables

Minimum Cable Bending Radius for XLPE Insulated Power Cables.
(As shown below image)

Description		Volts	Cable Diameter	
			Installation	Constant
Single Core	D< 25mm	0.6/1kV	6D	4D
	D> 25mm		10D	6D
Multi Core	D< 25mm		10D	4D
	D> 25mm		10D	6D
Multi-Core (Shaped Conductor)			12D	8D
Armored (Circular Conductor)			10D	6D
Armored (Shaped Conductor)			12D	8D

XLPE Insulated Power Cables

Saddle Selection Chart for Cable:

Saddle selection for Cable				
Sr no.	Core	Cable Size	OD of Cable	Saddle for cable
		sq.mm	mm	mm
1	2	4	14	15
2		6	17	20
1	3.5	25/16	25.4	25
2		35/16	26.4	32
3		50/25	30	
4		70/35	34.9	40
5		95/50	38.9	
6		120/70	42.1	50
7		150/70	46.4	
8		185/95	52.2	
9		240/120	58.9	65
10		300/150	64.7	
11		400/185	73.3	80
12	4	4	17	20
13		6	19	
14		10	21	
15		16	23	25
16		25	25	
17		35	28	32
18		50	32	
19		70	35	40
20		95	40	
21		120	44	50
22		150	49	
23		185	54	65
24		240	58	
25		300	66	
26		400	73	80

Fig. 1.22 Saddle Selection Table

PVC Pipe & Saddle Selection

Pipe & Saddle Selection						
Sr no.	Core	Cable Size	Pipe Size		saddle size	
		sq.mm	mm	Inch	mm	Inch
1	2	4	25	1	25	1
2		6				
1	3.5	25/16	40	1.5	40	1.5
2		35/16				
3		50/25				
4		70/35	65	2.5	65	2.5
5		95/50				
6		120/70	80	3	80	3
7		150/70				
8		185/95	100	4	100	4
9		240/120				
10		300/150	125	5	125	5
11		400/185				
12	4	4	25	1	25	1
13		6	32	1.25	32	1.25
14		10				
15		16	40	1.5	40	1.5
16		25				
17		35				
18		50	65	2.5	65	2.5
19		70				
20		95				
21		120	80	3	80	3
22		150				
23		185	100	4	100	4
24		240				
25		300	125	5	125	5
26		400				

Fig.1.23 PVC Pipe & Saddle Selection

Gland selection Table for Cable

Gland Selection Chart for Cable				
Sr no.	Core	Cable Size	OD of Cable	Gland Size
		sq.mm	mm	mm
1	3.5	25/16	25.4	25
2		35/16	26.4	
3		50/25	30	32
4		70/35	34.9	
5		95/50	38.9	40
6		120/70	42.1	50
7		150/70	46.4	
8		185/95	52.2	63S
9		240/120	58.9	
10		300/150	64.7	63
11		400/185	73.3	75
12	4	4	17	20
13		6	19	
14		10	21	
15		16	23	25
16		25	25	
17		35	28	
18		50	32	32
19		70	35	
20		95	40	40
21		120	44	50
22		150	49	
23		185	54	63S
24		240	58	
25		300	66	63
26		400	73	75

Fig. 1.24 Gland Selection Table

Lug Size Selection

Lug Size Selection				
Sr no.	Core	Cable Size	Ring Type	Pin Type
		sq.mm	Lug Hole size	As per cable size
1	2	4	M8	4
2		6	M10	6
1	3.5	25/16	M10	25/16
2		35/16		35/16
3		50/25		50/25
4		70/35		70/35
5		95/50	M12	95/50
6		120/70		120/70
7		150/70		150/70
8		185/95		185/95
9		240/120		240/120
10		300/150		300/150
11		400/185		400/185
12	4	4	M8	4
13		6	M10	6
14		10		10
15		16		16
16		25		25
17		35		35
18		50	M12	50
19		70		70
20		95		95
21		120		120
22		150		150
23		185		185
24		240		240
25		300		300
26		400		400

Fig. 1.25 Lug Size Selection Table

Earthing:

Earthing Rod size selection for AC & DC Charger

Charger	Earthing Type	Chemical Bags	Earthing Cable
Ksipra AC 7S	Electrode Cu Coated, 48 mm, 1 mtr	15 kg	6 SQ.MM
Ksipra Bharat AC 001	Electrode Cu Coated, 48 mm, 1 mtr	15 kg	6 SQ.MM
Ksipra AC Hybrid Charger	Electrode Cu Coated, 48 mm, 1 mtr	15 kg	6 SQ.MM
Ksipra AC 15D (Box Type)	Electrode Cu Coated, 48 mm, 1 mtr	15 kg	6 SQ.MM
Ksipra AC 15D (Pillar Type)	Electrode Cu Coated, 48 mm, 1 mtr	15 kg	6 SQ.MM
Ksipra DC 30KW Charger	Electrode Cu Coated, 3 mtr (2 nos)	15 + 15 kg (2 nos)	Prefer Strip
Ksipra DC 60KW Charger	Electrode Cu Coated, 3 mtr (2 nos)	15 + 15 kg (2 nos)	Prefer Strip
Ksipra DC 90KW Charger	Electrode Cu Coated, 3 mtr (2 nos)	15 + 15 kg (2 nos)	Prefer Strip
Ksipra DC 120KWCharger	Electrode Cu Coated, 3 mtr (2 nos)	15 + 15 kg (2 nos)	Prefer Strip
Ksipra DC 240KWCharger	Electrode Cu Coated, 3 mtr (2 nos)	15 + 15 kg (2 nos)	Prefer Strip

Fig. 1.26 Earthing Rod Size Table

How to check Earthing with Multimeter?

Set the Voltage:

For checking to earth what you all have to do is set the voltage to 500V AC. We always have to set the voltage greater than the measured voltage.

Connect the Probes

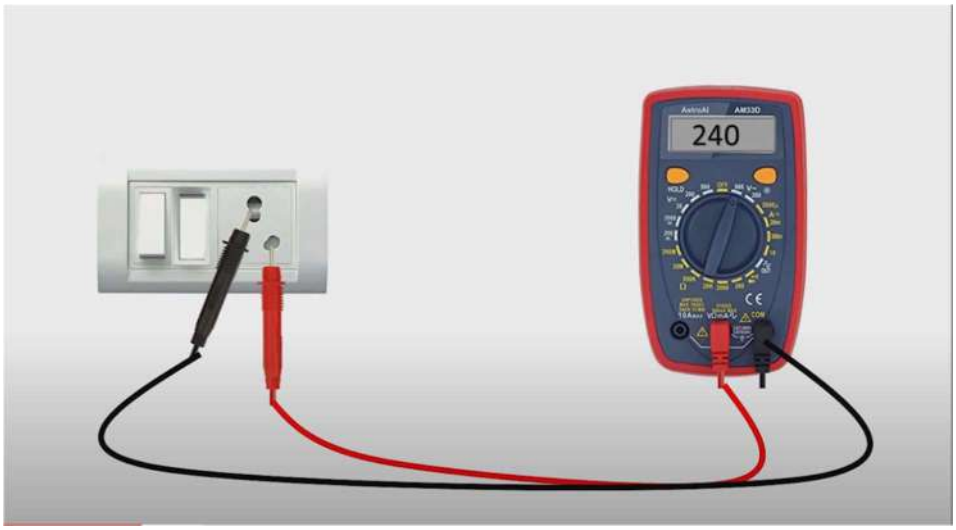
There are two probes in multimeter red and black. we have to connect the red probes at the terminal that is labeled with Ω, V, or +, and the black probe has to connect at port labeled – or COM. Keep in mind never connect the probes to the wrong terminal because it can damage your meter.

Check reading

For checking, reading ensure the following things

1. Take reading while the leads are in a live port and a neutral port of an appliance.
2. Make sure to hold the leads from insulation otherwise there are chances of electric shock.
3. Take the end of the red probe and put it in the live port. This port will be in a small size.
4. Likewise, Take the black probe and put it in the neutral port. This is large.
5. Check the voltage reading on your multimeter.
6. Now note down the reading. it will be up to 230V.

The size of the port can be varied for different boards. some boards have the same size for neutral and live while others have different.



Check to earth with a multimeter

After connecting probes at the required terminal now it's time to check to earth.

1. Take the red probe and insert it in the phase slot.
2. Likewise, take the black probe and insert it in earthing.
3. Always, the size of the earthing slot will be large as compared to live and neutral.
4. Note down the reading.
5. If this voltage will be nearly equal to the phase to neutral voltage then our appliance is properly earth.
6. Moreover, if the reading between the live port and earthing port is close to 0, your appliance does not have any earthing.

EARTH RESISTANCE TEST REPORT			
Project Name: Tech.Name: Company Name:			
MAKE/MODEL:	**SERIAL NO:**	**CALIBRATION DATE:** **CAL,DUE DATE:**	**DATE & TIME:**

SR NO.	**EARTH POINT NO.**	**LOCATION**	**ELECTRODE**				**EARTH RESISTANCE (Ω)**
			NOS.	**SIZE**	**TYPE**	**DEPTH**	

COMMENTS:

COMPANY	**PERFORMED BY:**	**WITNESS BY:**
NAME: **SIGNATURE:** **DATE:**		

Panel Box Wiring Diagram for DC Charger

1) DC & AC Charger Panel box

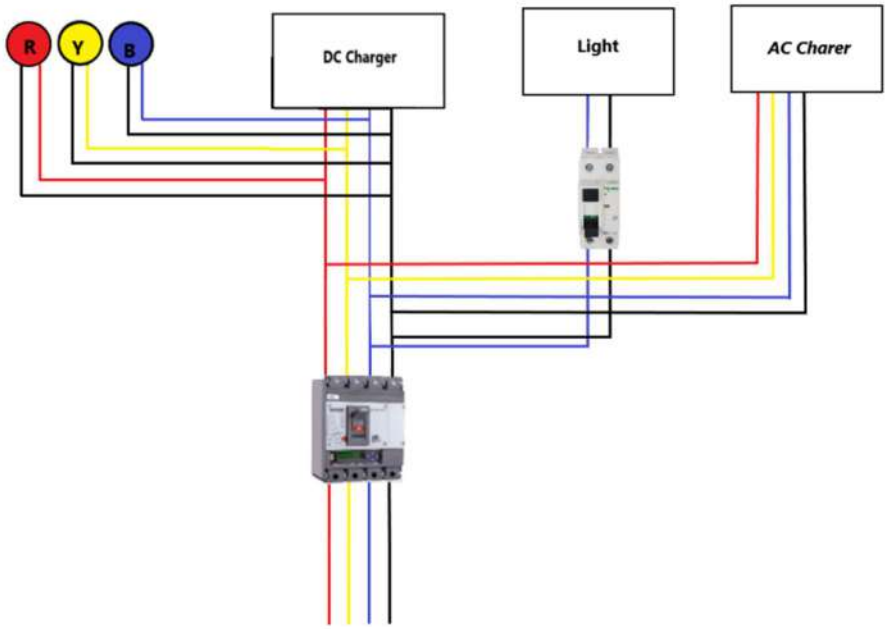


Fig. 1.27 DC & AC Charger Panel Wiring Diagram

2) DC & AC Charger with Energy Meter

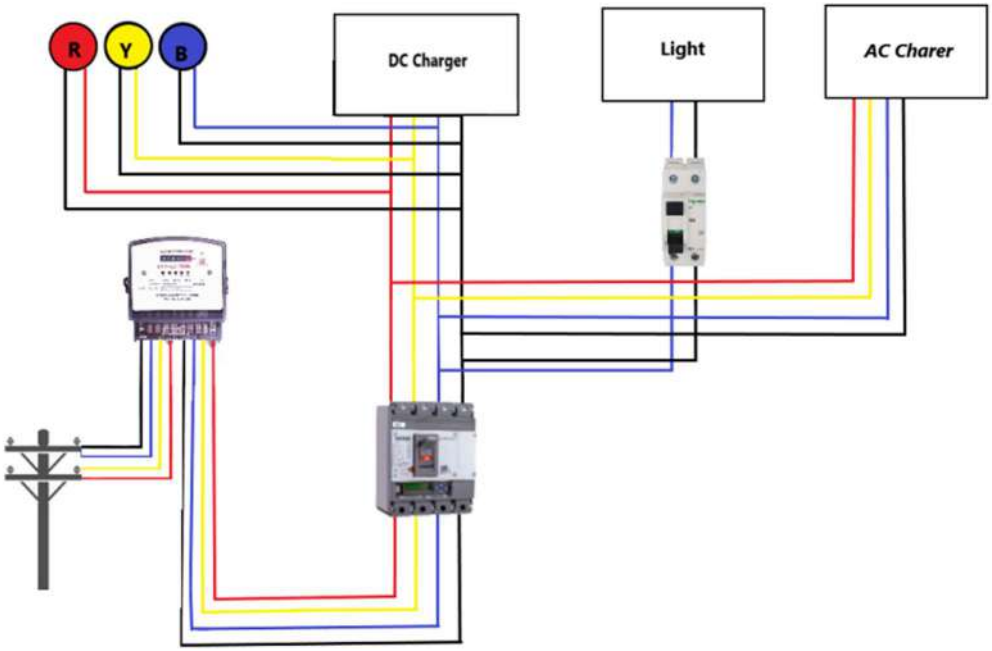


Fig. 1.28 DC & AC Charger with Energy Meter Panel Wiring Diagram

3) DC Charger Panel Box

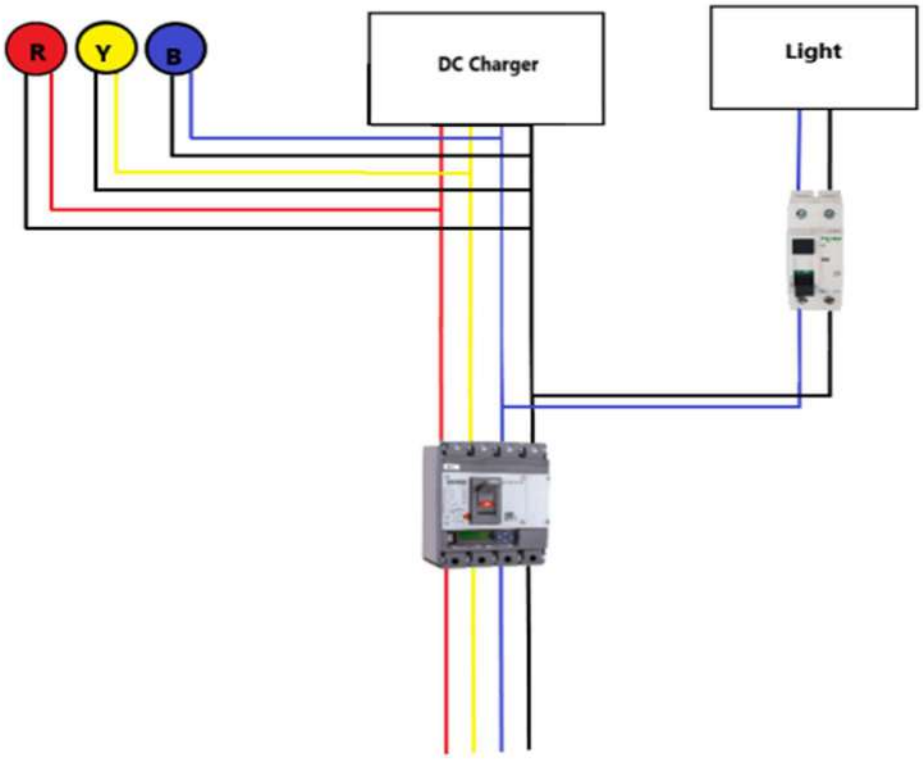


Fig. 1.29 DC Charger Panel Wiring Diagram

4) DC Charger with Energy Meter

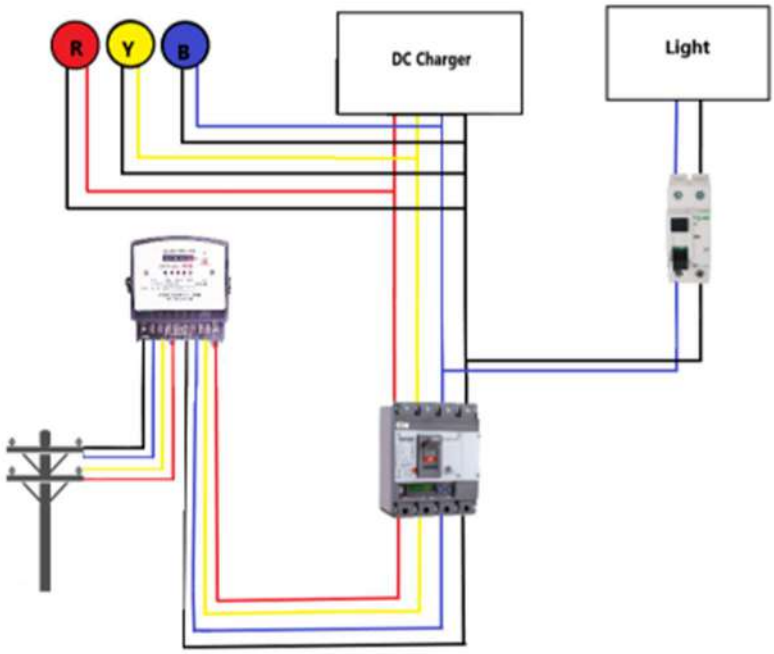


Fig. 1.30 DC Charger with Energy Meter Panel Wiring Diagram