

Electric Vehicles-Charging Units-Connectors-Cables & Harness

Know Your Right Partner



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Standard	CHAdeMO IEEE 2030.1.1 IEC 62196-3 (Configuration AA)	GB/T GB/T 20234.3 IEC 2196-3 (Configuration BB)	CCS Type 1 SAE J1772 IEC 62196-3 (Configuration EE)	CCS Type 2 IEC 62196-3 (Configuration FF)	Tesla
Coupler Inlet					
Maximum Voltage	1000 V	1000 V	600 V	1000 V	410 V
Maximum Current	400 A	250 A	200 A	200 A	330 A
Available Power	400 kW	120 kW	150 kW	175 kW	135 kW



Shanghai Mida EV Power Co.,Ltd

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MIDA declare association with Link Vue System PVT Ltd India from 1st June 2022 to
30th June 2025

MIDA is confirming Link Vue System Pvt Ltd India is our associate Partner to
Promote, Sales and Marketing product Manufacturer by MIDA.

We have authorized Link Vue System Pvt Ltd India to Sales Product in All India
Customers.

MIDA will undertake and Support all Technical, Datasheet and Product Approvals
International Standard applicable as per Segment.

Shanghai MIDA EV Power Co.,Ltd

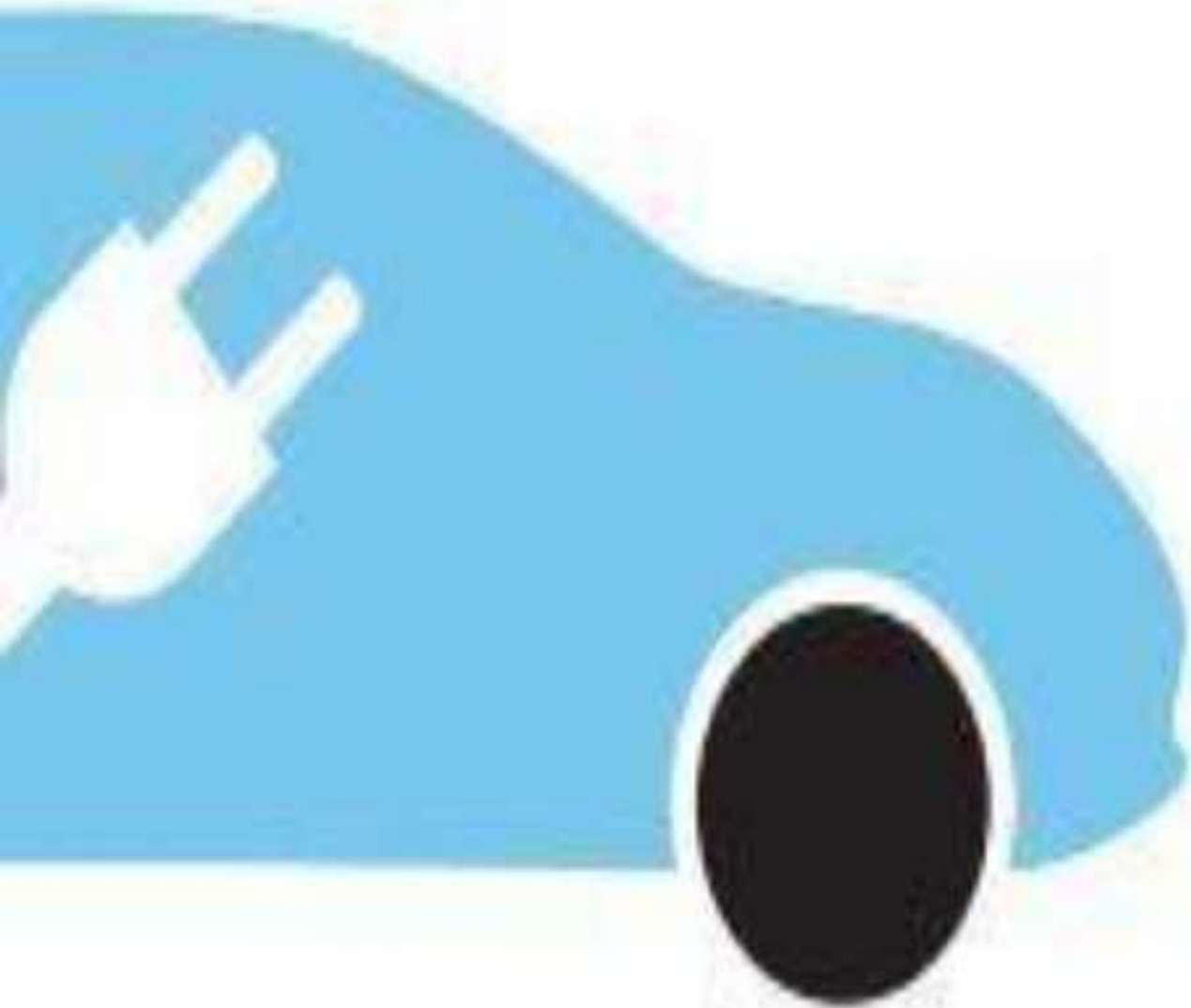
Signature

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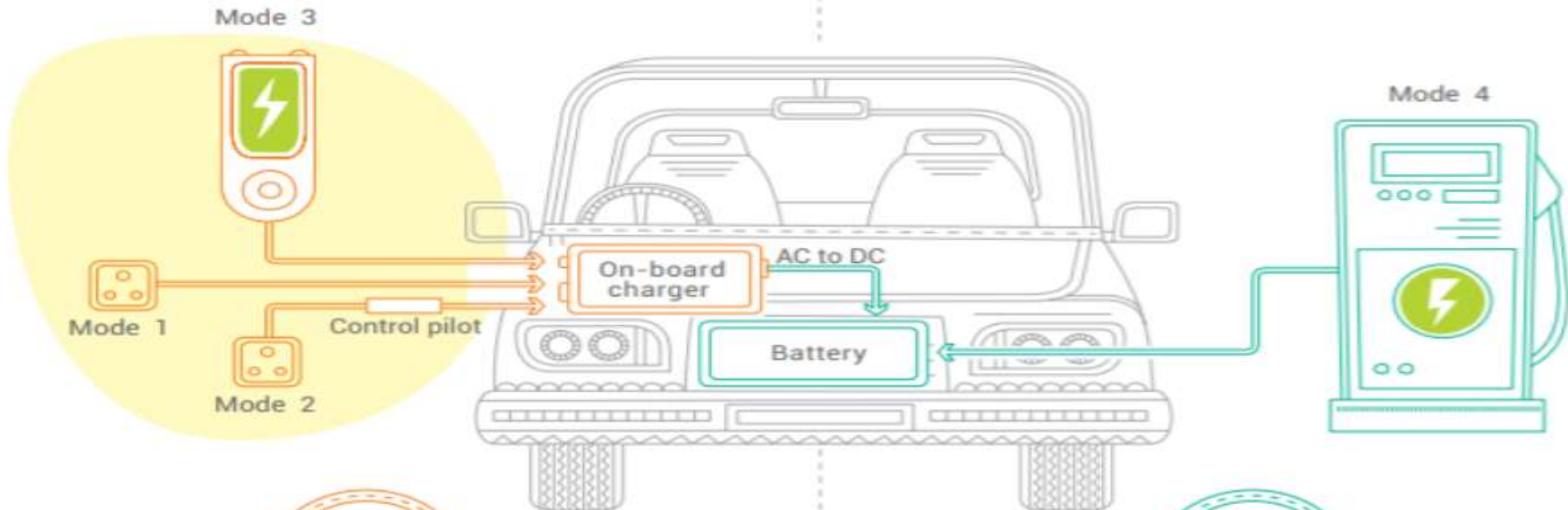
Link Vue System Pvt Ltd India

Signature

India EV on Road hits Plan Year 2030



To advance electric mobility in India, EV sales would need to reach 30% for private cars, 70% for commercial cars, 40% for buses, and 80% for two- and three-wheelers by 2030



AC
(2kW TO 22kW)

DC
(2kW TO 200kW +) DC



3 PIN



Type 1



Type 2



CHAdeMo








Combo 2



Type 2

Electrical Vehicle Connectors for ON Board & Charging Unit

Standard	CHAdeMO IEEE 2030.1.1 IEC 62196-3 (Configuration AA)	GB/T GB/T 20234.3 IEC 2196-3 (Configuration BB)	CCS Type 1 SAE J1772 IEC 62196-3 (Configuration EE)	CCS Type 2 IEC 62196-3 (Configuration FF)	Tesla
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Electric Vehicle ,Charging Unit and Energy Storage Battery Standard

A. SOCIETY FOR AUTOMOBILE ENGINEERS (SAE)

- J1772: EV conductive connector/charging method.
- J2894: Issues of power quality.
- J2836/2847/2931: Communication purposes.
- J1773: Inductive coupled charging.
- J2293: For energy transfer systems to find the requirements for EVs.

B. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

- NFPA 70: Safety management.
- NEC 625/626: Charging systems for EVs.
- NFPA 70E: For safety.
- NFPA 70B: Maintenance of electrical equipment.

C. INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

- IEEE 2030.1.1: Quick DC charging for EVs.
- IEEE P2690: Charging network management, Vehicle authorization.
- IEEE P1809: Electric transportation guide.
- IEEE 1547: Interconnecting electric system with distributed resources/Tie Grid.
- IEEE 1901: Provide data rate while vehicles are charged overnight.
- IEEE P2030: Interoperability of smart grid.
- IEEE 519-2014: Power quality standards.

D. INTERNATIONAL ELECTROMECHANICAL COMMISSION (IEC)

- IEC-1000-3-6: Issues of power quality.
- IEC TC 69: Regarding infrastructure of charging and safety requirements.
- IEC TC 64: Electrical installation, electric shock protection.
- IEC TC 21: Regarding battery management.

E. UNDERWRITERS LABORATORIES (UL) INC

- UL 2231: Safety Purposes.
- UL 2594/2251,2201: EVSE.

F. INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

- ISO 6469-1:2009: Used for on-board rechargeable energy storage systems.
- ISO/CD 6469-3.3: Safety specifications.

G. JAPAN ELECTRIC VEHICLE ASSOCIATION

- JEVS C601: EVs charging plugs.
- JEVS D701: Batteries.
- JEVS G101-109: Fast Charging.

H. ISOLATION AND TECHNICAL SAFETY STANDARDS

- SAE J-2929: This standard is related to the safety of the propulsion battery system.
- SAE J-2910: This standard deals with the electrical safety of buses and test for hybrid electric trucks.
- SAE J-2344: Defines rules for EV's safety.
- SAE J-2464: Standard defines the safety rules for recharge energy storage systems (RESS).
- ISO 6469-1:2009 (IEC): Standard is related to electrically road vehicles, on-board RESS, inside and outside protection of a person.
- ISO 6469-2:2009 (IEC): Safe operation of EVs, protect against inside failure.
- ISO 6469-2:2001 (IEC): Electrical hazard protection.
- IEC TC 69/64: EVs infrastructure safety, electrical installation, electric shock protection.
- NFPA 70/70 E: Standards related to workplace safety, charging system safety, branch circuit protection.
- UL 2202: Standard is related to the protection of the charging system.
- UL 2231: This standard deals with the protection of the supply circuits.
- UL 225a: It provides rules of protection regarding couplers, plugs, and receptacles.
- DIN V VDE 0510-11: Provides safety regulations for battery installation and secondary batteries.

Setting up a Charging Station

Location of PCS

Priority Rollout of Charging Infra.

Other Key Features

- Setting up and operation of **Public Charging Stations (PCS)** was made a deregulated activity
- PCS to be provided connections on a priority basis by distribution companies
- Charging stations/group of charging stations can procure electricity directly from generators through open access

- A PCS is required in every 3 km X 3 km grid and every 25 km on roads
- A fast charging station every 100 km on both sides of highways/roads
- Additional EV charging stations to be set up only after meeting initial requirements
- Governments may give priority to existing Retail Outlet of Oil Marketing Companies

- **Phase I (2019-2021):** Targeting all cities with more than 4 million population and major roads connecting these cities
- **Phase II (2021-2024):** Big cities such as State Capitals, Union Territory headquarters and all major road/highways connecting these cities
- A Central Nodal Agency will coordinate with all governments and other such stakeholders to roll out charging infra

- **e-Database:** CEA will maintain online database of all PCS through distribution companies
- **Tariff for PCS:** Appropriate commissions will determine tariffs not more than 15% of average supply cost
- **Service Charges for PCS:** Service Charges for PCS will be in accordance to Ministry of Power guidelines

Electric Vehicle Charging Home , Public Place ,Parking Infra & Highways

Home charging (3-15 KW AC chargers)

- Dedicated (to an individual owner)
- Shared (across a few vehicle owners; for example, in a condominium managed by an RWA)

Kerb-side (7-15 KW AC Chargers)

- For people who don't have dedicated parking. They park on streets⁶.
- For 3 WH owners who are not part of fleets and must fend their own solutions. Around their normal stands (Mohalla corners, DMRC stations, bus stations etc.)

Commercial Space Parking (15-22 KW AC Chargers)

- Commercial establishments such as offices, shops, malls, hotels, hospitals, educational institutes, RWAs etc.
- Can be creatively used by commercial vehicle owners/fleets during off peak hours such as night.

Group Charging

Owned and operated by commercial entities such as Fleet Operators to charge their 2/3/4 WH vehicles

Off-street public parking lots - 15-22 KW AC Chargers

- Used for shop-owners, residents in congested areas
- Delhi parking policy puts emphasis on developing off-street parking lots
- Can meet the needs of those who don't own their own parking

Swap Stations

Likely to be used by 3 WH Fleets. In some limited cases 2 WH Fleets.

Public Fast Charging Stations (PFCS: 15-350 KW DC)

- These provide fast charging; parking is not the primary need in these cases
- Can be located within city (e.g. around petrol pumps), edge of the city (to cater to intra city traffic or suburban traffic, and highways).

India Electrical Vehicles Latest Policy 2022

Charger Type	S. No.	Charger Connectors*	Rated Output Voltage(V)	No. of No. of Connector guns (CG)	Charging vehicle type(W=wheeler)
Fast	1	Combined Charging System(CCS) (min 50 kW)	200-750 or higher	1 CG	4W
	2	CHArgedeMOve (CHAdEMO) (min 50 kW)	200-500 or higher	1 CG	4W
	3	Type-2 AC (min 22 kW)	380- 415	1 CG	4W, 3W, 2W
Slow/ Moderate	4	Bharat DC-001 (15 kW)	48	1 CG	4W, 3W, 2W
	5.	Bharat DC-001 (15 kW)	72 or higher	1 CG	4W
	6.	Bharat AC-001 (10 kW)	230	3 CG of 3.3 kW each	4W, 3W, 2W

AIM TO REGISTER 5 LAKH NEW EVs IN 5 YEARS

25% of all new vehicle registrations by 2024 to be EVs

0.1% Share of electric cars in annual car sales at present

0.2% Share of electric two-wheelers in annual two-wheeler sales at present

35,000 Electric vehicles planned to be brought by Delhi government in next one year, including 1,000 EVs for last-mile connect

250 Public charging/ swapping stations to come up in Delhi

5 lakh new EVs targeted to be registered in Delhi in the next 5 years



PURCHASE INCENTIVES TO USE E-VEHICLES



₹10,000 for an average electric two-wheeler with 2 kWh battery

₹30,000 For electric autos (e-autos)/ e-rickshaws/ e-carriers

100% Subsidy for purchase of charging equipment up to ₹6,000 per charging point

FEATURES OF POLICY

► Focus on electric two-wheelers, auto-rickshaws, buses and goods vehicles, since they contribute to chunk of vehicular pollution

► Ride-hailing service

providers to be allowed to operate electric two-wheeler taxis

► Open permit system for e-autos

► All vehicles used by Delhi government officials to shift to electric within a year

► Road tax and registration fees to be waived for all battery electric vehicles during the period of this policy

► All new home and workplace parking will need to be 'EV ready'

with 20% of all vehicle holding capacity/parking required to be EV ready

► A dedicated EV cell within transport department for effective day-to-day implementation of policy





EV CHARGING Unit and Connector use for Vehicle Charging

Indian Standards EV Charging notified by BIS of 01.11.2021

1. Light EV AC Charge Point

Power Level 1	Charging Device	EV-EVSE Communication	Charge Point Plug/ Socket	Vehicle Inlet/ Connector
Up to 7 kW	IS-17017-22-1	Bluetooth Low Energy	IS-60309	As per EV manufacturer

2. Light EV DC Charge Point

Power Level 1	Charging Device	EV-EVSE Communication	Charge Point Plug/ Socket	Vehicle Inlet/ Connector
Up to 7 kW	IS-17017-25 [CAN]		Combined Socket under development	IS-17017-2-6

3. Parkbay AC Charge Point

Power Level-2	Device/ Protocol	EV-EVSE Communications	Infrastructure Socket	Vehicle Connector
Normal Power ~11kW/ 22 kW	IS-17017-1	IS-15118 [PLC] for Smart Charging	IS-17017-2-2	IS-17017-2-2

4. Parkbay DC Charge Point

Power Level-2	Device/ Protocol	EV-EVSE Communications	Infrastructure Socket	Vehicle Connector
Normal Power ~11kW/ 22 kW	IS-17017-23	IS-17017-24 [CAN] IS-15118 [PLC]	IS-17017-22-2	IS-17017-2-3

5. DC Charging Protocol

Power Level 3	Charging Device	EV-EVSE Communication	Connector
DC 50 kW to 250 kW	IS-17017-23	IS-17017-24 [CAN] IS-15118 [PLC]	IS-17017-2-3

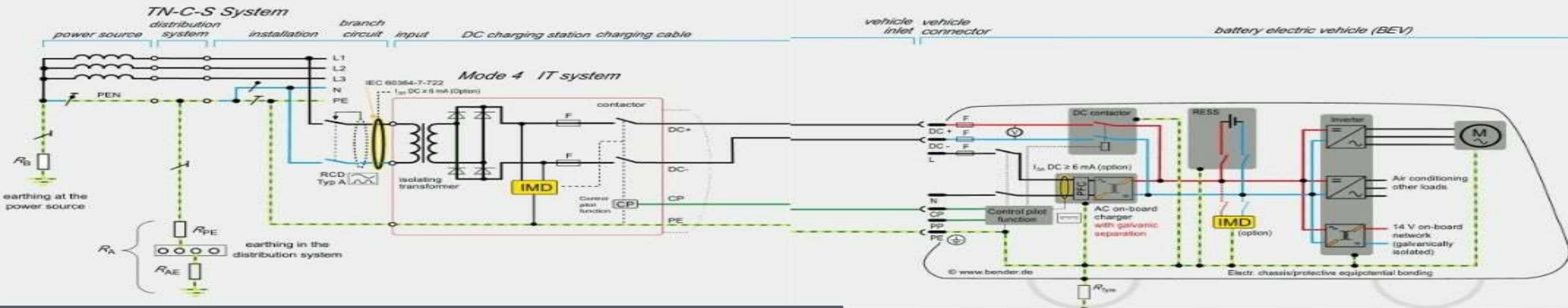
6. eBus Charging Station (Level-4: 250 to 500 kW)

Power Level 4	Charging Device	EV-EVSE Communication	Connector
DC High Power (250 kW --> 500 kW)			
Dual Gun Charging Station	IS-17017-23-2	IS-15118 [PLC]	IS-17017-2-3
Automated Pantograph Charging Station	IS-17017-3-1		IS-17017-3-2

EV Charging India Government Infrastructure Plan Year 2022

<p>Charging infrastructure</p>	<p>Cities: By 2025, city-wise targets of public and semi-public charging stations are, as listed below-</p> <ul style="list-style-type: none">Greater Mumbai UA – 1500Pune UA – 500Nagpur UA – 150Nashik UA – 100Aurangabad UA – 75Amravati – 30Solapur – 20 <p>Highways: Make following four highways/ expressways fully EV ready by 2025</p>	<ol style="list-style-type: none">1) Setup at-least one public charging station in a 3 km x 3 km grid, or2) A minimum of 50 charging stations per million population, whichever is higher.3) Setup public charging stations on highways at
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Safety in Electric Vehicle and Charging Stations

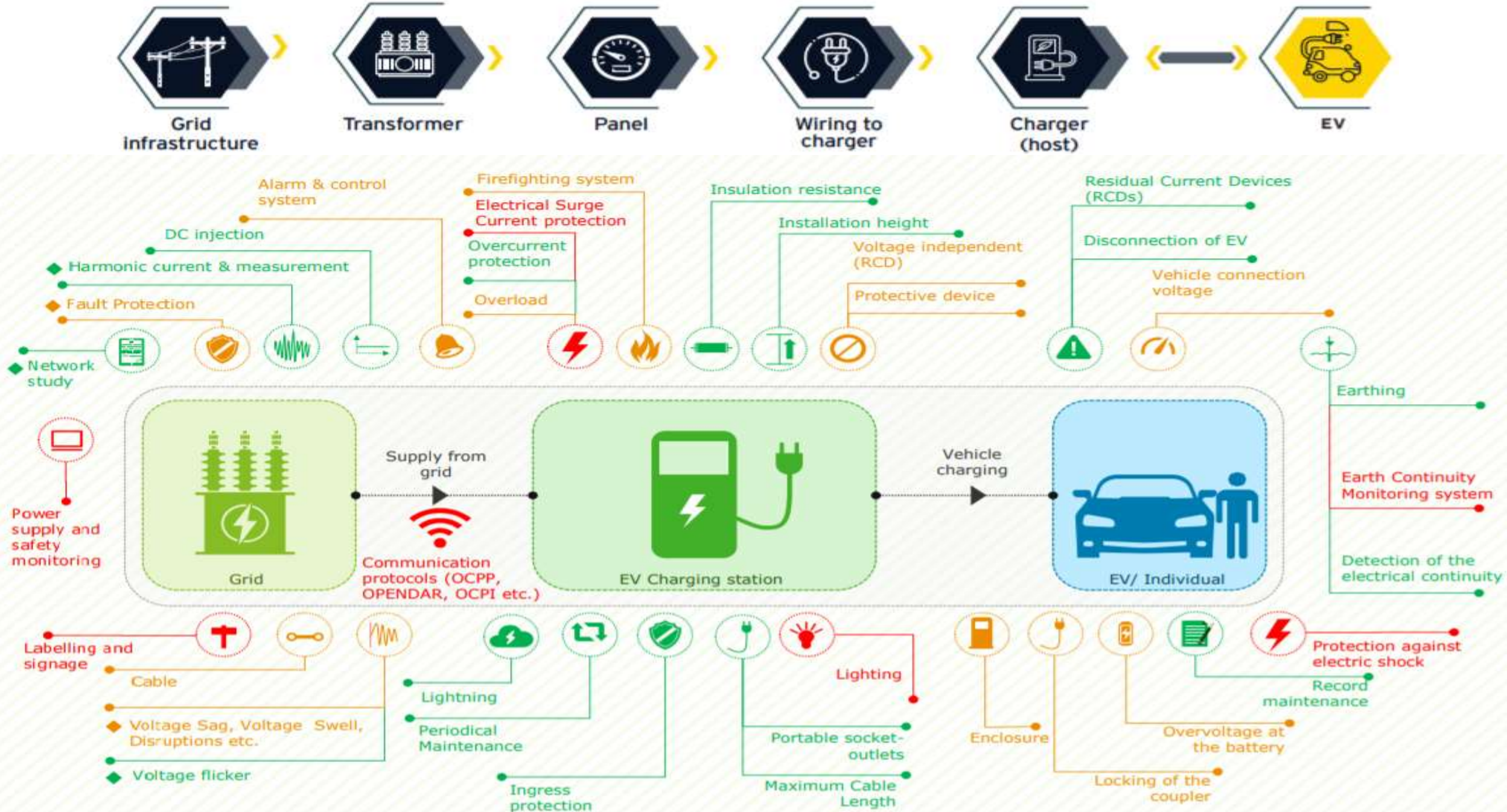


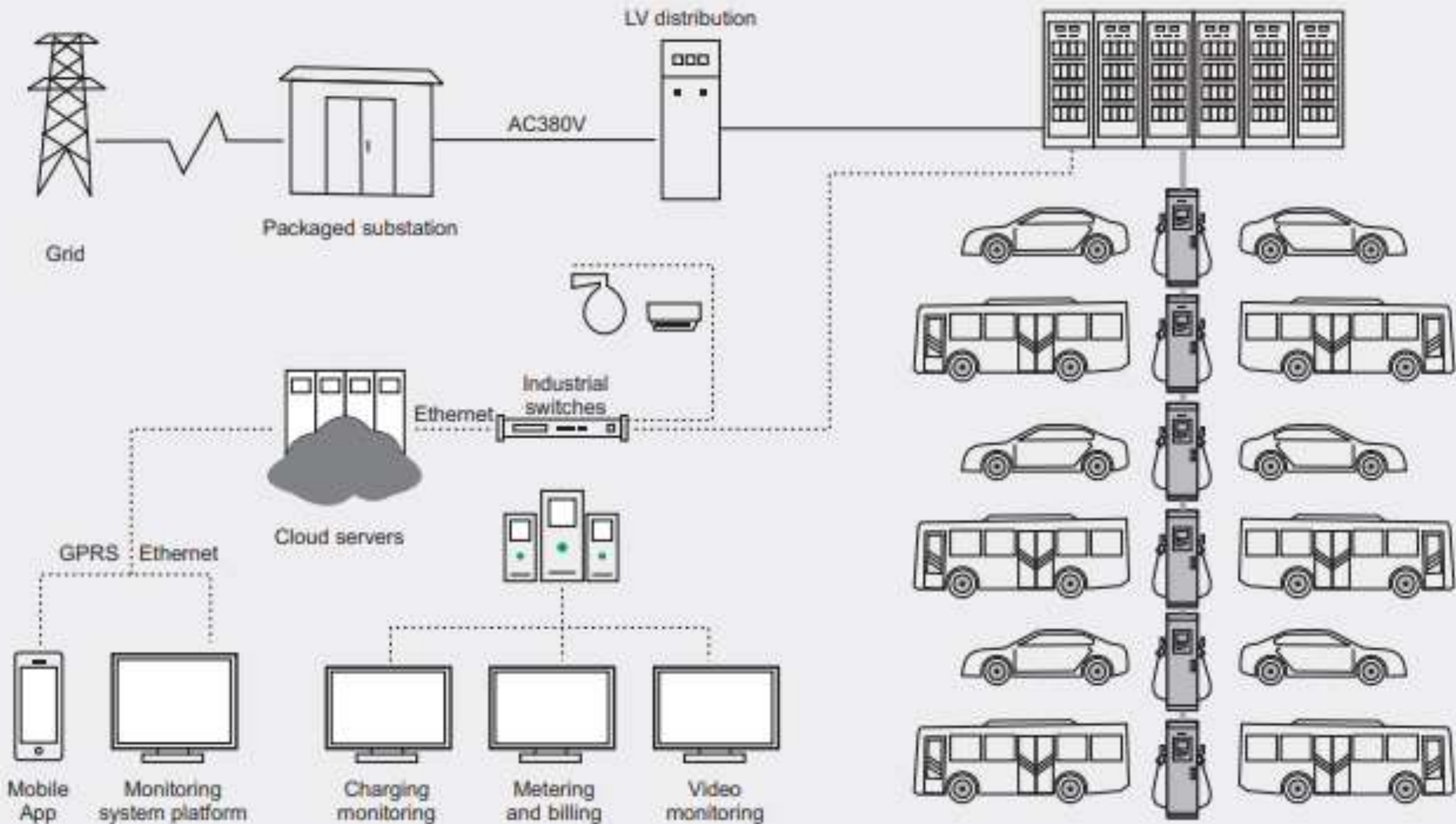
Overview of important standards:

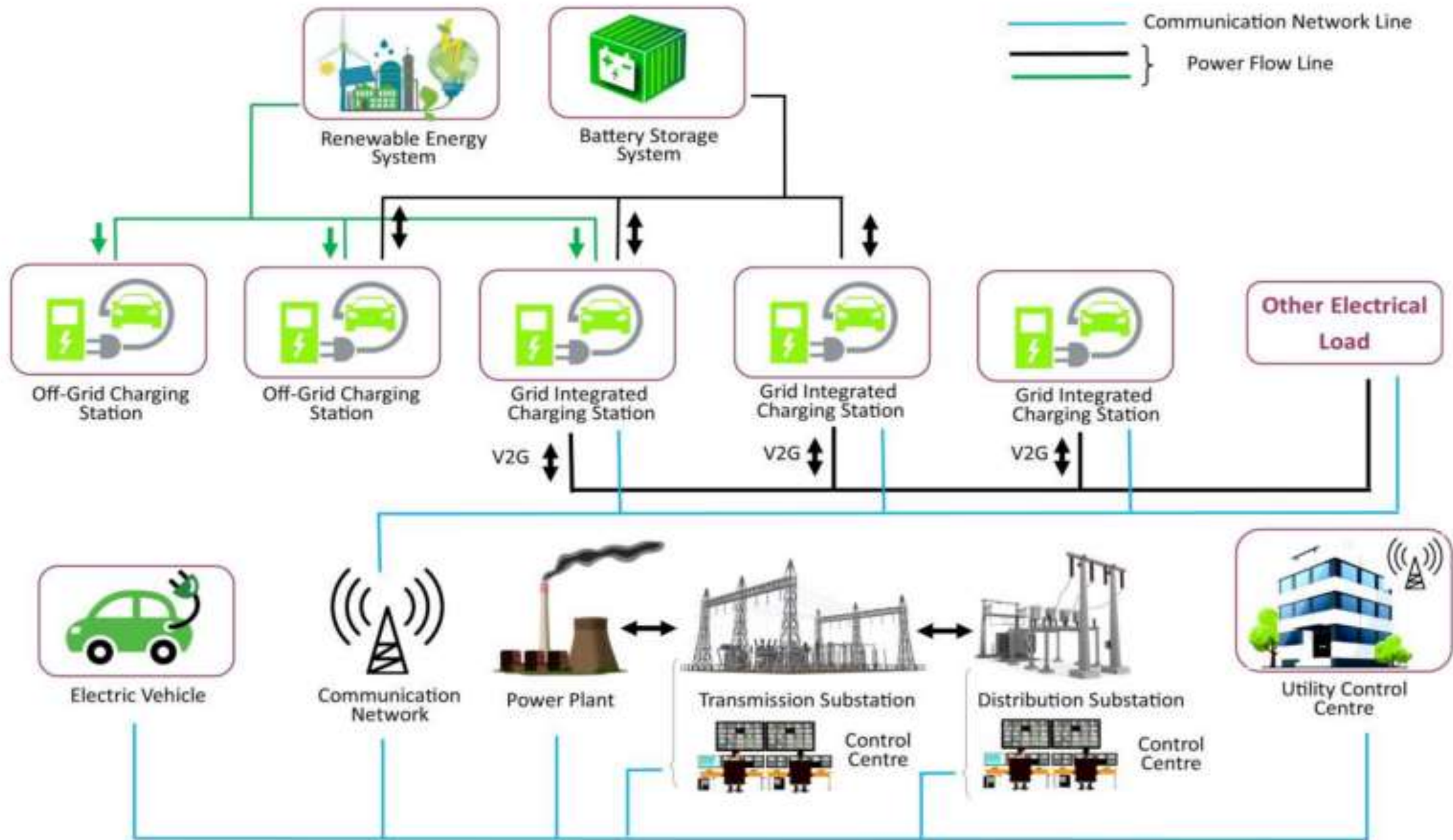
- **ISO 6469-3:2011-12**
Electric propelled road vehicles – Safety inspections – Part 3: Protection of persons against electric shock
- **ISO 23273-3:2006-11**
Fuel cell road vehicles – Safety inspections – Part 3 – Protection of persons against electric shock
- **UL 2231-1:2002-05**
Personnel Protection Systems for Electric Vehicle (EV) Supply Circuits: General requirements
- **IEC 61557-8:2007-01**
Electrical safety in low voltage distribution systems up to 1000 V a.c. and 1500 V d.c. – Equipment for testing measuring or monitoring protective measures – Part 8: Insulation monitoring devices for IT systems



Know Electric Vehicle Charging and Infrastructure Electrical Safety & Wiring Guide Line







Out Door IP 68 CEE Compliance Plug & Socket for Special Electrical Equipment's

2.7 CEE Plug, Socket & Coupler

2.7.1 Panel Mounted CEE Socket



3 pole



4 pole



5 pole

Ampere		3 pole	4 pole	5 pole
16A	IP44	SF1331	SF1431	SF1531
	IP67	SF1332	SF1432	SF1532
32A	IP44	SF3331	SF3431	SF3531
	IP67	SF3332	SF3432	SF3532
63A	IP44	SF6331	SF6431	SF6531
	IP67	SF6332	SF6432	SF6532
125A	IP67	SF5332	SF5432	SF5532

2.7.2 Panel side-mounted CEE Socket



3 pole



4 pole



5 pole

Ampere		3 pole	4 pole	5 pole
16A	IP44	SF1341	SF1441	SF1541
	IP67	SF1342	SF1442	SF1542
32A	IP44	SF3341	SF3441	SF3541
	IP67	SF3342	SF3442	SF3542
63A	IP44	SF6341	SF6441	SF6541
	IP67	SF6342	SF6442	SF6542
125A	IP67	SF5342	SF5442	SF5542

2.7.3 Wall mounted CEE Socket



3 pole



4 pole



5 pole

Ampere		3 pole	4 pole	5 pole
16A	IP44	SF1311	SF1411	SF1511
	IP67	SF1312	SF1412	SF1512
32A	IP44	SF3311	SF3411	SF3511
	IP67	SF3312	SF3412	SF3512
63A	IP44	SF6311	SF6411	SF6511
	IP67	SF6312	SF6412	SF6512
125A	IP67	SF5312	SF5412	SF5512

2.7.4 CEE Interlock Switch Socket



3 pole



4 pole



5 pole

Ampere		3 pole	4 pole	5 pole
16A	IP67	SF1372	SF1472	SF1572
32A	IP67	SF3372	SF3472	SF3572
63A	IP67	SF6372	SF6472	SF6572

Out Door IP 68 CEE Compliance Plug &Socket for Special Electrical Equipment's

Cable 2 Cable Plug &Sockets

2.7.5 CEE Coupler



3 pole



4 pole



5 pole

Ampere		3 pole	4 pole	5 pole
16A	IP44	SF1321	SF1421	SF1521
	IP67	SF1322	SF1422	SF1522
32A	IP44	SF3321	SF3421	SF3521
	IP67	SF3322	SF3422	SF3522
63A	IP44	SF6321	SF6421	SF6521
	IP67	SF6322	SF6422	SF6522
125A	IP67	SF5322	SF5422	SF5522

2.7.6 CEE plug



3 pole



4 pole



5 pole

Ampere		3 pole	4 pole	5 pole
16A	IP44	SF1301	SF1401	SF1501
	IP67	SF1302	SF1402	SF1502
32A	IP44	SF3301	SF3401	SF3501
	IP67	SF3302	SF3402	SF3502
63A	IP44	SF6301	SF6401	SF6501
	IP67	SF6302	SF6402	SF6502
125A	IP67	SF5302	SF5402	SF5502

2.7.7 CEE Concealed plug



3 pole



4 pole



5 pole

Ampere		3 pole	4 pole	5 pole
16A	IP44	SF1351	SF1451	SF1551
	IP67	SF1352	SF1452	SF1552
32A	IP44	SF3351	SF3451	SF3551
	IP67	SF3352	SF3452	SF3552
63A	IP44	SF6351	SF6451	SF6551
	IP67	SF6352	SF6452	SF6552
125A	IP67	SF5352	SF5452	SF5552

2.7.8 CEE Wall mounted plug



3 pole



4 pole



5 pole

Ampere		3 pole	4 pole	5 pole
16A	IP44	SF1361	SF1461	SF1561
	IP67	SF1362	SF1462	SF1562
32A	IP44	SF3361	SF3461	SF3561
	IP67	SF3362	SF3462	SF3562
63A	IP44	SF6361	SF6461	SF6561
	IP67	SF6362	SF6462	SF6562

IP 68 Out door Plug&Sockets/Building Internal Electrical Cable Freedom Connectors

1.4.1 IP66 Waterproof Box for 45*45mm modules

2) B Verison



1.4.2 IP55 Waterproof Box

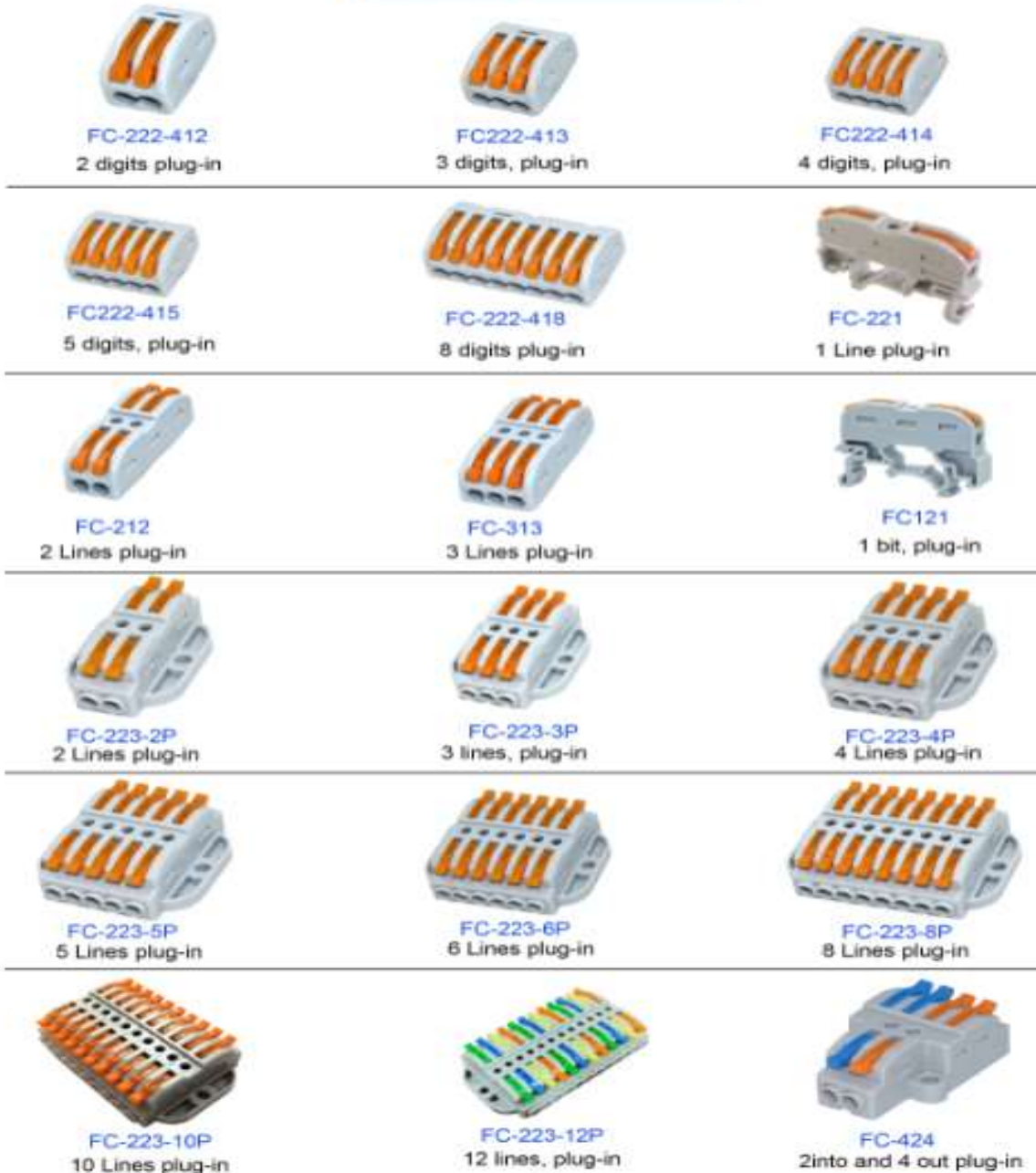
S/N	Picture	Item & Feature	S/N	Picture	Item & Feature
1		SF-QB-200 IP55 1 way 45*45mm modules switch control IP55 waterproof box, dimension of 85*70mm;	2		SF-QB-201 IP55 3 way 45*45mm modules one switch and one socket outlet IP55 waterproof box, dimension of 85*95mm;
3		SF-QB-202 IP55 4 way 45*45mm modules of 2* socket outlet IP55 waterproof box, dimension of 85*120mm;	4		SF-QB-41 3 ways VIMAR modules flush-mounting IP55 waterproof box
5		SF-QB-42 4 ways VIMAR modules flush-mounting IP55 waterproof box			

1.4.3 BS standard one gang/two gang waterproof box

S/N	Picture	Item & Feature	S/N	Picture	Item & Feature
1		913SPF 1 Gang 13A waterproof switch socket	2		923SPF 2 Gang 13A waterproof switch socket
3		901ALF 1 gang switch waterproof box	4		902ALF 2 gang switch waterproof box
5		WP14 BS EN 60669-1 single pole 20A, 250V			

2.4 Wiring Connectors

2.4.1 Quick Wire Connectors



Special Connectors for Low Voltage Electrical Cable FreeDOM Connection



FC426
2 into 6 out, plug-in



FC436
3 into 6 out, plug-in



FC439
3 into 9 out, plug-in



FC-224-101
plug-in



FC773-102
2 Lines Direct insertion



FC-773-104
4 Lines Direct insert



FC773-106
6 Lines Direct insert



FC773-108
8 Lines Direct insert



FC-773-173
3 Lines Direct insert



FC-773-174
4 digits insert directly



FC-773-252
2 lines pluggable



FC773-253
3 Lines, pluggable



FC773-254
4 Lines, pluggable



FC773-255
5 Lines, pluggable



FC773-202
2 digits, insert directly



FC-773-203
3 digits insert directly



FC-773-204
4 digits, insert directly



FC-773-205
5 digits insert directly



FC773-208
6 digits, insert directly



FC-773-208
8 digits insert directly



FC-221-412
2 Lines plug-in



FC-221-413
3 Lines plug-in



FC-221-414
4 Lines plug-in



FC-221-415
5 Lines plug-in

IP68 Waterproof connector

2.4.2 IP68 connector & block



SF-XY22-W01
No.:3P; OD6.5mm,OD9mm,OD11mm

Wire to Wire: No.2P & 3P; OD<=7 & OD<=8; Wire dia:0.5-1.5mm²



SF-XY12-W01

Wire to wire; wire dia:0.5-1.5mm; current:16/24A



SF-XY16-W01
OD<=9 & OD<=11



SF-XYT21-W01
OD<=9 & OD<=11