CHARGEO
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INTRODUCTION

- Experience the future of EV charging with our state-of-the-art DC fast charger.
- With a powerful 120
- KW charging output, our charger can charge your electric four-wheeler up to 80% in just 45 minutes, drastically reducing charging time.
- Not only does this save you time, but it also helps you attract more customers.
- By offering our market-tested fast charger as part of your EV charging infrastructure, you can increase your customer base by up to 50%. Additionally, our fast charger promotes sustainable adaptation by eliminating range anxiety among EV owners.
- Upgrade your charging station today and be a leader in the green mobility

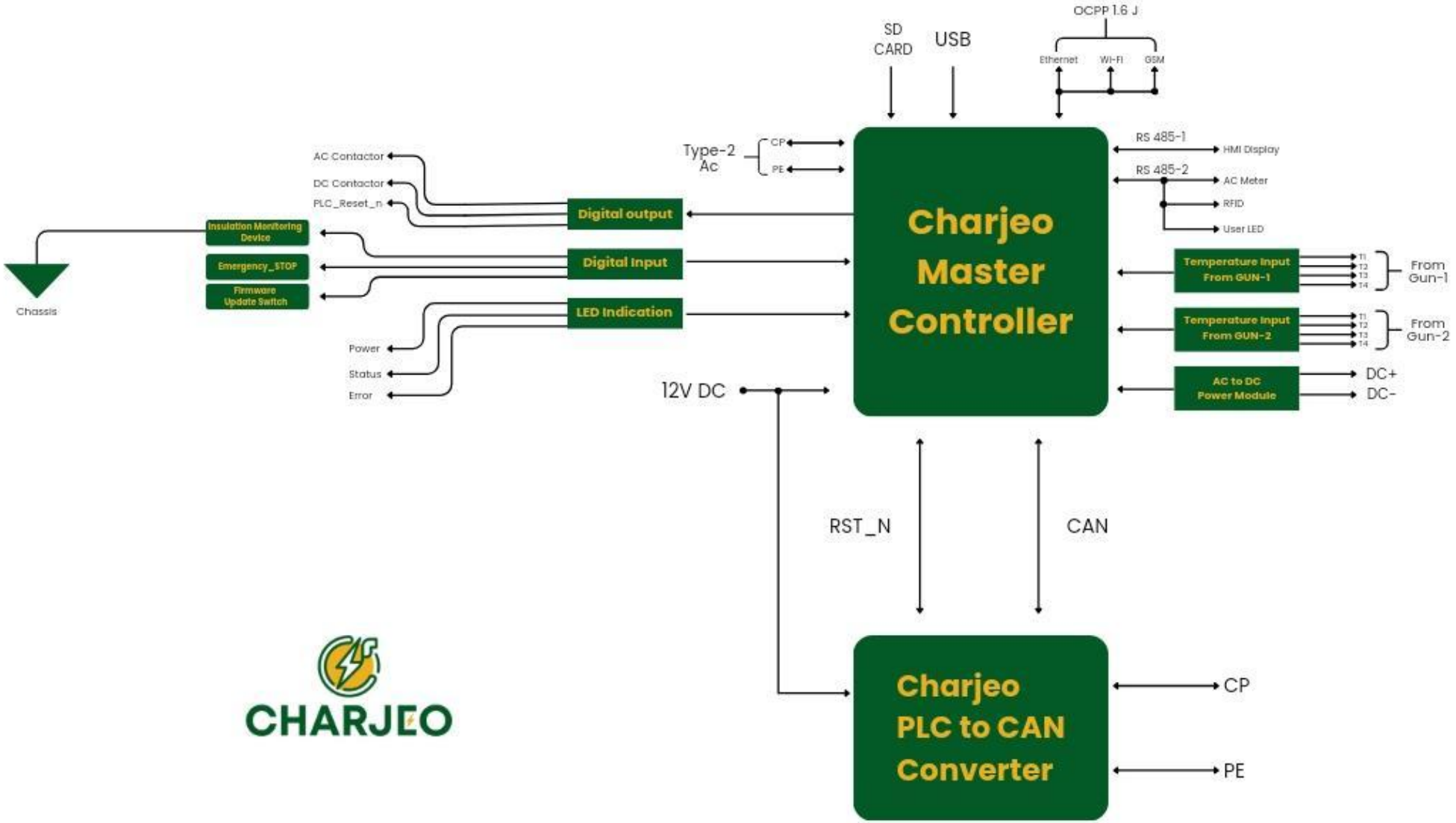
KEY FEATURES

- IOS/IEC 15118 and DIN 70121 compliant
- Powered with OCPP1.6 for communication
- Single/ Dual/ Custom Gun (CCS2) compliant
- CAN interface enabled for PMI (Power Module Integration)
- Human Machine Interface (HMI) friendly
- Suitable for 30kW / 60kW / 120kW rating
- RFID / NFC supportive for authentication
- Equipped with 4G, Ethernet-10/100, Wi-Fi for network connectivity

SYSTEM OVERVIEW

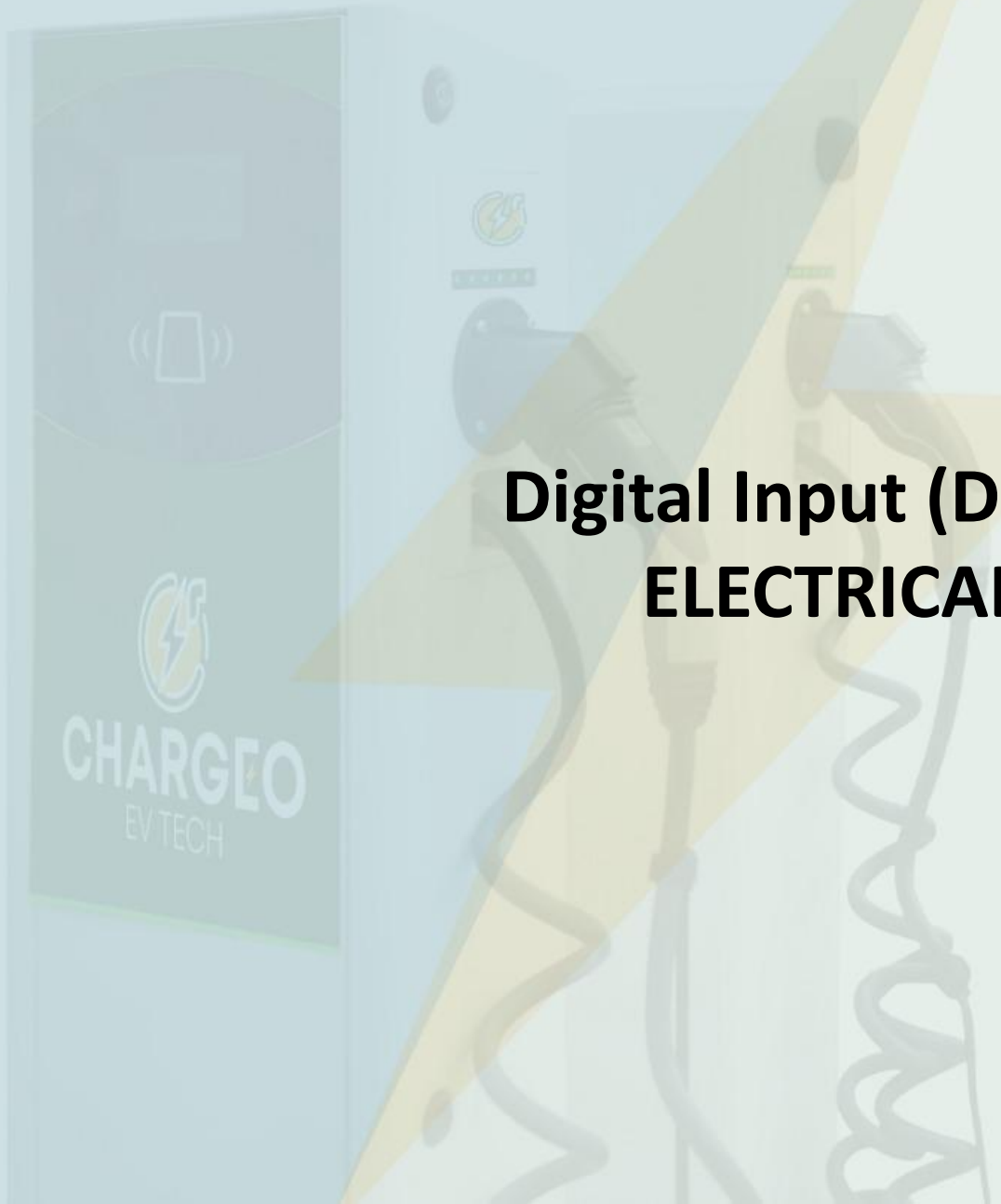
- The CCS2 controller is developed to function as a Supply Equipment Communication Controller (SECC) between the communication medium for electric vehicles (EVs) and electric vehicle supply equipment (EVSE).
- It is an integral component of a charging station, and it offers a configuration that incorporates the standards specified by DIN 7012, ISO 15118, plug and charge (PnC) and Plug and Play (PnP), particularly for a fast DC charger.
- Moreover, the CCS2 controller allows the user to integrate additional components with DC chargers, such as
    - **Power Modules, Insulation Monitoring Device, AC / DC Energy Meter**
    - **RFID Module, LED Module**

BLOCK DIAGRAM



CONTROLLER OPERATION

- **OCPP Server Configuration:**
  - ❑ Refer to the commissioning process document.
- **Charging Cycle Procedure:**
  - ❑ Refer to the procedure flow as shown in the below



Digital Input (DI) & Digital Output (DO)
ELECTRICAL CHARACTERISTICS

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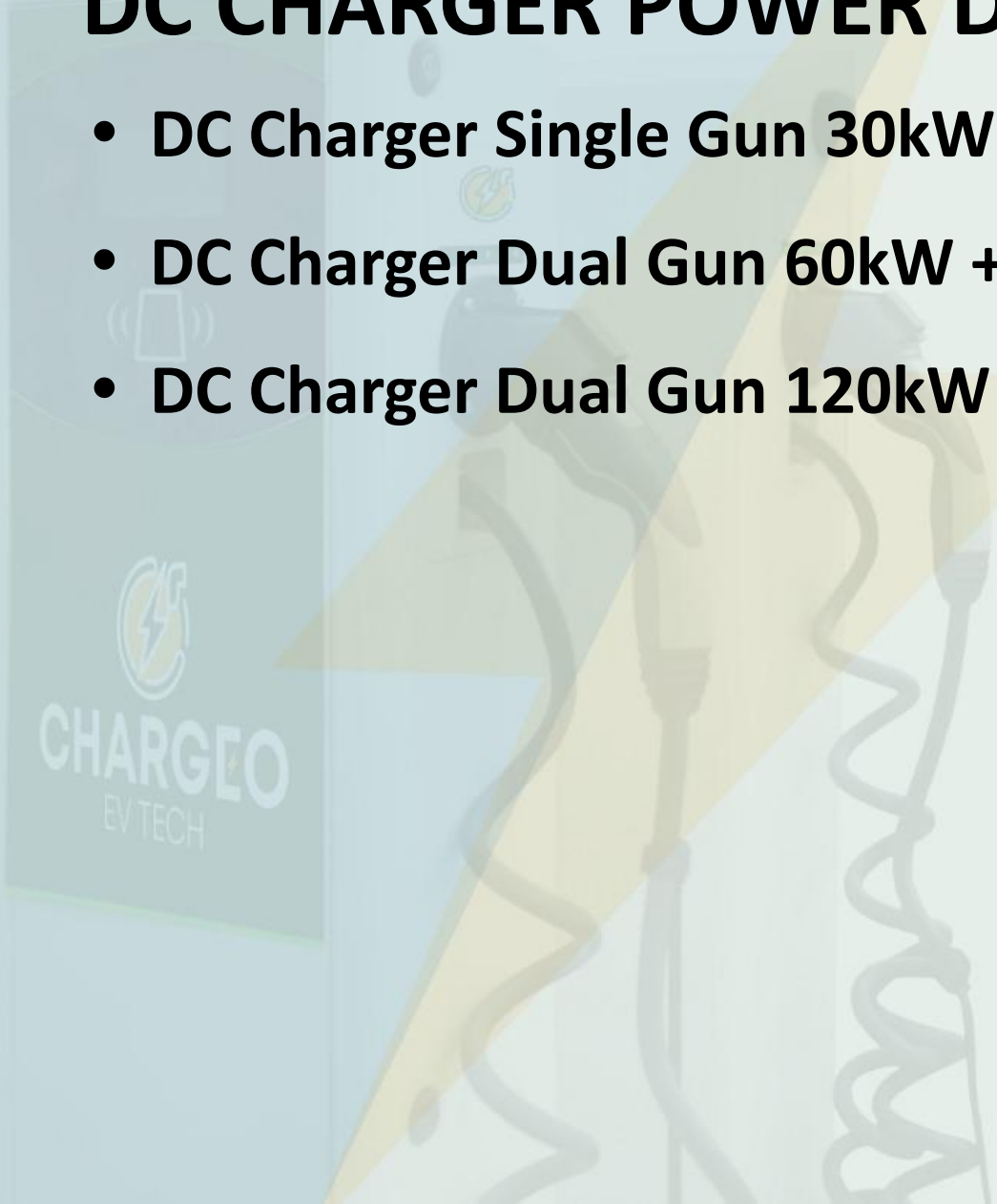
Digital Input									
	Voltage				Logic			Functional States	
Pin	State	Min	Type	Max	Default	Operating State	High	Low	Floating
Input 1 (Emergency Stop)	High	10.7	12V	18V	High	Active Low	Emergency Stop Detected	Emergency Not Stop Detected	Emergency Stop Detected
	Low	0V	0V	10.6V					
Input 2 (Firmware update)	High	10.7	12V	18V	High	Active Low	User Input Not Detected	FW Update Trigger	User Input Not Detected
	Low	0V	0V	10.6					
Input 3 (IMD update 1)	High	10.7	12V	18V	High	Active Low	IMD Module 1 Detected	IMD Module 1 Not Detected	IMD Module 1 Not Detected
	Low	0V	0V	10.6					
Input 4 (IMD update 2)	High	10.7	12V	18V	High	Active Low	IMD Module 2 Detected	IMD Module 2 Not Detected	IMD Module 2 Not Detected
	Low	0V	0V	10.6					
Forward Current	50mA (Max)								

Digital Output (Open Collector)									
	Voltage			Max Current		Logic		Functional States	
Pin	Min	Type	Max	Source	Sink	Default	Operating State	High	Low
Output 1 (AC Contactor 1)	0V	-	12V	1.2mA	600 mA	High	Active Low	AC Contactor 1 ON	AC Contactor 1 OFF
Output 2 (Reserved) Contactor 2	0V	-	12V	1.2mA	600 mA	High	Active Low	Reserved DC	Reserved DC
	0V	-	12V	1.2mA	600 mA	High	Active Low	DC Contactor 1 ON	Contactor 2 OFF
Output 4 (DC Contactor 2)	0V	-	12V	1.2mA	600 mA	High	Active Low	DC Contactor 2 ON DC	DC Contactor 2 OFF
Output 4 (DC Contactor 2)	0V	-	12V	1.2mA	600 mA	High	Active Low	DC Contactor 3 ON	DC Contactor 3 OFF
Output 5 (PLC Reset 1)	0V	-	12V	1.2mA	600 mA	High	Active Low	-	PLC Reset 1
Output 6 (PLC Reset 2)	0V	-	12V	0.33mA	600 mA	High	Active Low	-	PLC Reset 2
Collector Current	600mA (Max)								

DC CHARGER POWER DETAILS

- DC Charger Single Gun 30kW + Type-2 AC
- DC Charger Dual Gun 60kW + Type-2 AC
- DC Charger Dual Gun 120kW + Type-2 AC



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DC CHARGER SPECIFICATION

INPUT POWER	
Input Voltage (AC)	3 Phase, 415 Vac (360 ~ 440 Vac), 50Hz
Power Factor	>0.99
Nominal Efficiency	>94%
Wires	5 Wire, L1, L2, L3, N, PE
CURRENT THD	<=5% (50% TO 100%) LOAD
OUTPUTS	
Number of Outputs	Single / Dual
Output Power	30kw / 60kw / 120kw
Connectors & Cables	CCS Type-2 Gun As per AIS Standard
Output Voltage	200-1000 VDC
Output Current	0A ~ 400A
ENVIRONMENT	
Ambient Temperature	Full Power: 0°C to 50°C De-rated: 50°C to 55°C
Storage Temperature	0°C to 70°C
Altitude	<2000 Mtr.
Humidity	<95%, non-condensing

BACKUP POWER (OPTIONAL)	
BACKUP POWER	BATTERY BACKUP FOR MIN. 15 MIN. FOR THE CONTROL SYSTEMS AND BILLING UNIT
USER INTERFACE	
Display	7” TFT LCD with Touch Control / Android
Language	English
Key/Switch	Start/Stop, Emergency Stop
User Authentication	OTP/RFID based/Mobile App/Local Authorization
Visual Indication	Mains, Charging Status, System error
COMMUNICATION	
Charger & CMS	Protocol: OCPP 1.6J (Open Charge Point Protocol) Interface : Ethernet, GSM - 3G/4G, Wi-Fi
PROTECTION	
Protection	Over Voltage, Under Voltage, Over Current, Short Circuit, Surge Protection, Over Temperature, Ground Fault, Residual Current

HMI DISPLAY		
MEMORY STORAGE		TO STORE LAST 50 EVENT LOGS
		TO STORE LAST 50 CHARGING TRANSACTION
		TO HAVE MEMORY OF STORING PRICE OF CHARGING PER UNIT WITH IN THE UNIT
		TO STORE TOTAL CHARING UNITS
		CHARGING UNIT SHALL BE ABLE TO TAKE PRICE PER UNIT AND BILLING INFORMATON INPUTS THRU KEY PAD AND STORE FOR CALCULATION OF AMOUNT.
KEYPAD		ALPHA NUMERIC KEYPAD WITH MIN. 12 KEYS
DISPLAY		4.3 INCH / 7 INCH / BIGGER

MECHANICAL	
Ingress protection	IP54 || Better
Enclosure protection	IK10
Cooling	Natural Air cooled
Wire length	5mtr. Standard
Dimensions (HxWxD)	680mm x 440mm x 280mm
Weight	30Kg to 500Kg
Certificate / Compliance	CE, IEC 61851-1, IEC 61851-2
ALTITUDE	<2000 MTR

APPENDIX

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NO	LED COLOUR	LED Status	ACTION
01	BLUE	BLINK	POWER ON AND EVSE DISCONNECTED FROM THE SERVER
	BLUE	STEADY	POWER ON AND EVSE CONNECTED TO THE SERVER
02	GREEN	BLINK	EV CHARING
	GREEN	STEADY	GUN CONNECTED TO VEHICLE BUT NOT CHARGING
03	RED	STEADY	ERROR OF FAULT

ABBREVIATIONS AND GLOSSARY

AC	**Alternating current, a type of electrical current in which the current repeatedly changes direction.**
CAN	A controller area network (CAN) bus is a high-integrity serial bus system for networking intelligent devices. CAN busses and devices are common components in automotive and industrial systems.
CCS2	The Combined Charging System (CCS) is a standard for charging electric vehicles.
CON	CONNECTOR
CP	Control Pilot is a communication line used to negotiate charging level between the car and the EVSE, and it can be manipulated by the vehicle to initiate charging and can carry other information
DC	Direct current (DC) is one-directional flow of electric charge
DIN 70121	Digital communication between a DC EV charging station and an electric vehicle for control of DC charging in the Combined Charging System (CCS)
EV	An EV is defined as a vehicle that can be powered by an electric motor that draws electricity from a battery and is capable of being charged from an external source
EVSE	Electric vehicle supply equipment (EVSE) supplies electricity to an electric vehicle (EV). Commonly called charging stations or charging docks, they provide electric power to the vehicle and use that to recharge the vehicle's batteries.
FAT32	The term FAT32 is an acronym for File Allocation Table 32. It is basically an extension to the file systems used previously that stores kits data in 32bit chunks.
FOTA	Firmware over-the-air update is a updated that is downloaded by the device over the internet.
GSM	GSM stands for Global System for Mobile Communications. It's a standard that specifies how 2G (second generation) cellular networks operate.
I2C	I2C stands for Inter-Integrated Circuit. It is a bus interface connection protocol incorporated into devices for serial communication.
PWM	Pulse-width modulation (PWM), also known as pulse-duration modulation (PDM) or pulse-length modulation (PLM) is any method of representing a signal as a rectangular wave with a varying duty cycle.

PE	**A Protective Earth connection, earth ground or safety ground uses a protective conductor to direct a fault current safely into the earth and away from a human being in contact.**
PLC	Programmable Logic Controllers (PLCs) are industrial computers, with various inputs and outputs, used to control and monitor industrial equipment based on custom programming.
RFID	Radio-frequency identification (RFID) uses electromagnetic fields to automatically identify, and track tags attached to objects.
RS-232	RS-232 stands for "Recommended Standard 232" and it is a type of serial communication used for transmission of data normally in medium distances.
RS-485	RS-485 is an industrial specification that defines the electrical interface and physical layer for point-to-point communication of electrical devices. The RS-485 standard allows for long cabling distances in electrically noisy environments and can support multiple devices on the same bus.
SD CARD	Secure Digital, officially abbreviated as SD, is a proprietary, non-volatile, flash memory card format the SD Association (SDA) developed for use in portable devices.
SPD	The Surge Protection Device (SPD) is a component of the electrical installation protection system.
TYPE -2 CONNECTOR	The IEC 62196 Type 2 connector is used for charging electric vehicles, mainly within Europe, as it was declared standard by the EU.
USB	Universal Serial Bus (USB) is an industry standard that allows data exchange and delivery of power between many various types of electronics.
WI-FI	Wi-Fi is a family of wireless network protocols based on the IEEE 802.11 family of standards, which are commonly used for local area networking of devices and Internet access, allowing nearby digital devices to exchange data by radio waves.
IP	Ingress protection (IP) ratings, which grade the resistance of an enclosure against the intrusion of dust or liquids.
ISO	The International Organization for Standardization
KW	Kilowatt (symbol: kW) is a unit of electric power
LCD	A light-emitting diode (LED) is a semiconductor device that emits light when current flows through it.

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thank you