ETEC

PRODUCT SELECTION GUIDE

Always for your safety

ZHEJIANG ETEK ELECTRICAL TECHNOLOGY CO.,LTD.
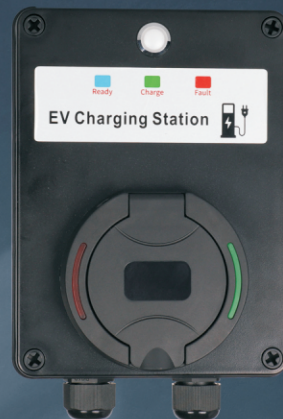
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EKEC1 series AC EV Charging Station
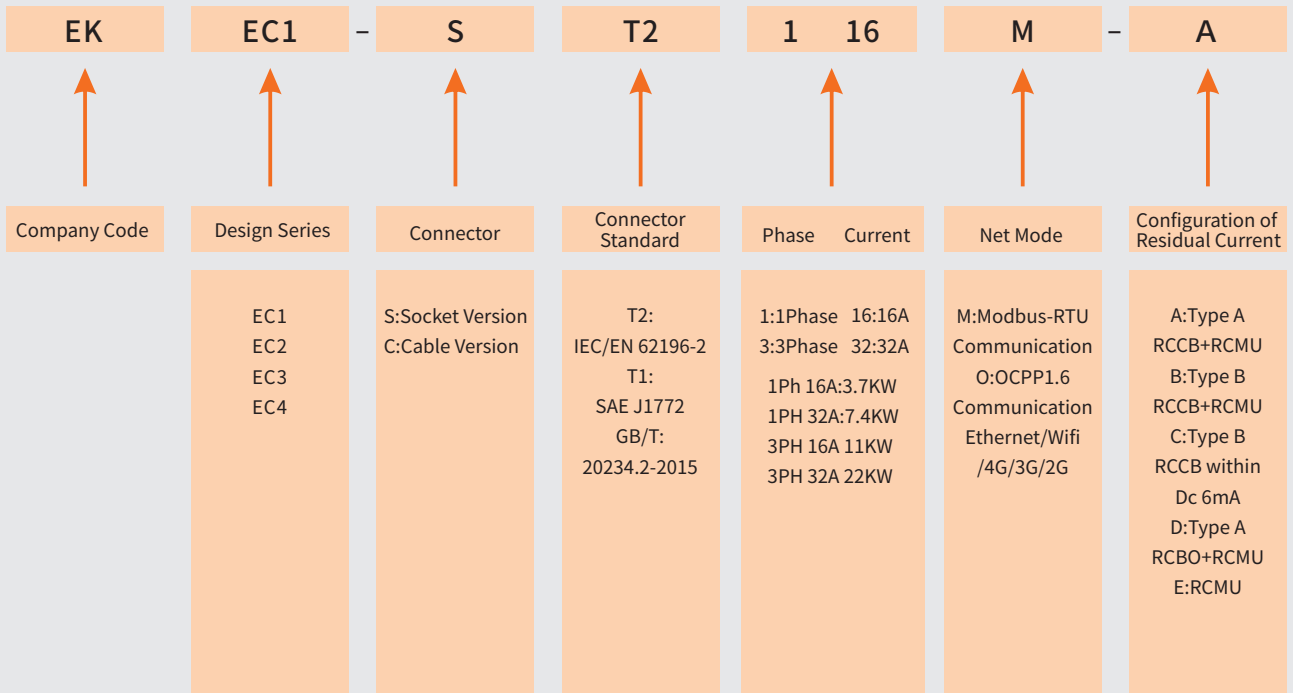
OPEN THE GREEN ENERGY ERA

EKEC4 series AC EV Charging Station

Ready Charge Fault

EV Charging Station

Naming Rules

EK	EC1	– S	T2	1 16	M	– A
Company Code	Design Series	Connector	Connector Standard	Phase Current	Net Mode	Configuration of Residual Current
	EC1 EC2 EC3 EC4	S:Socket Version C:Cable Version	T2: IEC/EN 62196-2 T1: SAE J1772 GB/T: 20234.2-2015	1:1Phase 16:16A 3:3Phase 32:32A 1Ph 16A:3.7KW 1PH 32A:7.4KW 3PH 16A 11KW 3PH 32A 22KW	M:Modbus-RTU Communication O:OCPP1.6 Communication Ethernet/Wifi /4G/3G/2G	A:Type A RCCB+RCMU B:Type B RCCB+RCMU C:Type B RCCB within Dc 6mA D:Type A RCBO+RCMU E:RCMU

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Configuration of Functions

0:no,1: have
No.1:PEN Fault protection
No.2:RFID
No.3:Electronic Lock
No.4:DLB
No.5:LCD
No.6:kWH Meter
No.7:Surge Protection
No.8:Emergency Stop

EKEC1 Series AC EV Charging Station

Technical Date

Items	Model	Cable Version		Socket Version	
		EKEC1-C-1	EKEC1-C-3	EKEC1-S-1	EKEC1-S-3
Voltage& Power	Power Supply	1P+N+PE	3P+N+PE	1P+N+PE	3P+N+PE
	Rated Voltage	AC230V±10% 50Hz	AC400V±10% 50Hz	AC230V±10% 50Hz	AC400V±10% 50Hz
	Output Current	16A(10A adjustable) or 32A (10A/16A/20A/25A adjustable)			
	Output Voltage	AC230V±10% 50Hz	AC400V±10% 50Hz	AC230V±10% 50Hz	AC400V±10% 50Hz
	Rated Power	3.7KW/7.3KW	11KW/22KW	3.7KW/7.3KW	11KW/22KW
Connector	Charger Connector	Plug+Cable	Plug+Cable	Socket	Socket
	Connector Standard	T2:IEC/EN 62196-2, T1:SAE J1772 ,GB/T:20234.2-2015 Optional			
	Cable Length	5M (Length can customized)		/	
	Electronic Lock	/		Optional	
	Fixed Socket	•	•	/	/
	Connector Material	Flame retardant, RoHS, wear resistance, rolling pressure resistance, high and low temperature resistance, stamping resistance, high oil resistance, ultraviolet rays resistance			
	Connector IP Degree	IP67			
Net mode	Modbus-RTU	Optional			
	Ocpp1.6 (Ethernet/Wifi/4G/3G/2G)				
	APP	/	/	/	/
Protection	Over Temperature	•	•	•	•
	Over/Under Voltage Protection	Optional			
	Over Current Protection	Optional			
	Red/Green/Blue LED Light	•	•	•	•
	Surge Protection	Optional			
	Residual Current Protection(AC30mA,DC6mA)	•	•	•	•
	Inner kWH Meter	Optional			
	Inner RCCB	Type A RCCB or Type B RCCB Optional			
	PEN Fault Protection	Optional			
	Emergency Stop Pushbutton Switch	Optional			
	RFID	Optional			
	DLB	Connect to current transfer or Connect to kWH Meter(RS485) Optional			
	LCD	Optional			
Working Environment	Working Temperature	-25℃~50℃			
	Working Humidity	3%~95%			
	Working Altitude	<2000m			
Installation	Installation	Wall Mounted or Post Mounted			
	Installation Dimension(mm)	180*280	180*280	180*280	180*280
	Product Dimension(mm)	357*245*123	357*245*123	357*245*123	357*245*123
Other	Product IP Degree	IP54	IP54	IP54	IP54
	Certificate	BV CB+CE Certification			
	Standard	IEC/EN 61851 ,GB/T 18487.1-2015			

Remark： ● means have ， / means haven't

Technical Date

Items	Model	Cable Version		Socket Version	
		EKEC4-C-1	EKEC4-C-3	EKEC4-S-1	EKEC4-S-3
Voltage& Power	Power Supply	1P+N+PE	3P+N+PE	1P+N+PE	3P+N+PE
	Rated Voltage	AC230V±10% 50Hz	AC400V±10% 50Hz	AC230V±10% 50Hz	AC400V±10% 50Hz
	Output Current	16A(10A adjustable) or 32A (10A/16A/20A/25A adjustable)			
	Output Voltage	AC230V±10% 50Hz	AC400V±10% 50Hz	AC230V±10% 50Hz	AC400V±10% 50Hz
	Rated Power	3.7KW/7.3KW	11KW/22KW	3.7KW/7.3KW	11KW/22KW
Connector	Charger Connector	Plug+Cable	Plug+Cable	Socket	Socket
	Connector Standard	T2:IEC/EN 62196-2, T1:SAE J1772 ,GB/T:20234.2-2015 Optional			
	Cable Length	5M (Length can customized)		/	
	Electronic Lock	/		Optional	
	Fixed Socket	•	•	/	/
	Connector Material	Flame retardant, RoHS, wear resistance, rolling pressure resistance, high and low temperature resistance, stamping resistance, high oil resistance, ultraviolet rays resistance			
	Connector IP Degree	IP67			
Net mode	Modbus-RTU	Optional			
	Ocpp1.6 (Ethernet/Wifi/4G/3G/2G)				
	APP	/	/	/	/
Protection	Over Temperature	•	•	•	•
	Over/Under Voltage Protection	Optional			
	Over Current Protection	Optional			
	Residual Current Protection （AC30mA,DC6mA)	•	•	•	•
	Red/Green/Blue LED Light				
	Surge Protection	Optional	/	Optional	/
	Inner kWH Meter	Optional	/	Optional	/
	PEN Fault Protection	Optional			
	Emergency Stop Pushbutton Switch	Optional			
	RFID	Optional			
	DLB	Optional			
Working Environment	Working Temperature	-25°C~50°C			
	Working Humidity	3%~95%			
	Working Altitude	<2000m			
Installation	Installation	Wall Mounted /Post Mounted			
	Installation Dimension(mm)	180*280	180*280	180*280	180*280
	Product Dimension(mm)	357*245*123	357*245*123	357*245*123	357*245*123
Other	Product IP Degree	IP54	IP54	IP54	IP54
	Certificate	BV CB+CE Certification			
	Standard	IEC/EN 61851 ,GB/T 18487.1-2015			

Remark：● means have，/ means haven't

EKEC1 Overall Installation Drawing
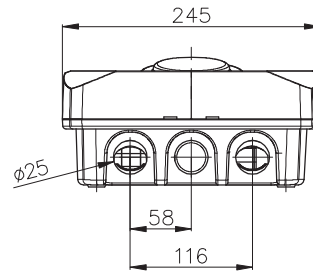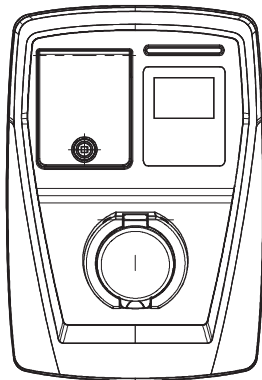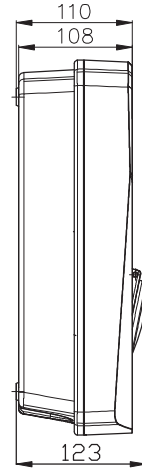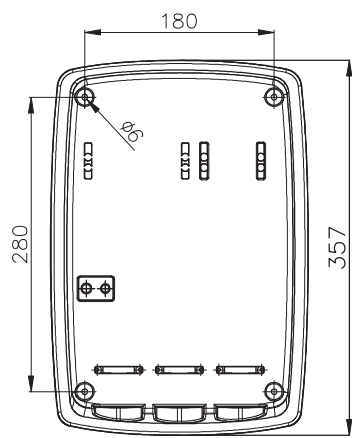
EKEC4 Overall Installation Drawing
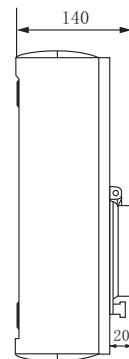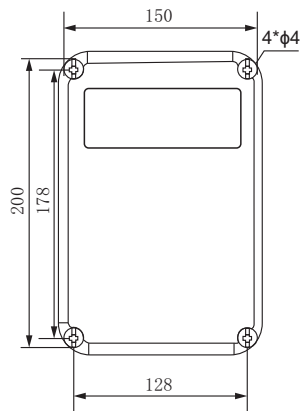
Technical Date

Items	Model	Portable Charger(Model 2)
		EKEC2
Voltage& Power	Power Supply	1P+N+PE
	Rated Voltage	AC230V±10% 50Hz
	Output Current	6-16A、6-32A （adjustable）
	Output Voltage	AC230V±10% 50Hz
	Rated Power	Max:3.7KW、7.3KW
Connector	Charger Connector	Plug+cable
	Connector Standard	T2:IEC/EN 62196-2, T1:SAE J1772 ,GB/T:GB/T20234.2-2015 Optional
	Charging Cable Length	4M (Length can customized)
	Power Plug	GB、UK，Schuko，CEE，NEMA 6-20，NZ，AU Optional
	Connector Material	Flame retardant, RoHS, wear resistance, rolling pressure resistance, high and low temperature resistance, stamping resistance, high oil resistance, ultraviolet rays resistance
	Connector IP Degree	IP65
Protection	Over Temperature	•
	Over/Under Voltage Protection	•
	Over Current Protection	•
	Residual Current Protection(AC30mA,DC6mA)	•
	Red/Green/Blue LED Light	•
	LCD Screen	•
	Current Selection	•
Working Environment	Working Temperature	-25℃~50℃
	Working Humidity	3%~95%
	Working Altitude	<2000m
Other	Product IP Degree	IP65
	Certificate	CE
	Standard	IEC/EN 61851 ,GB/T 18487.1-2015

Remark：● means have，/ means haven't

EKEPC Series Charging Station Controller

EKEPC2

EKEPC3

Naming Rules

```
EK   EPC  □ - □ □
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Blank: No additional function
Additional function（mutiple choice）
1：RCMU DC6mA leakage monitoring mode
2：Non-contact ic card
3：DLB（DLM）Management and connected external device
3.1：CT   3.2：KWH Meter with RS485 comunication(EKEPC3 can only using meter)
4：With LCD display
5: With electronic lock(should together using with charging socket)
6: With external emergency stop button
C：Cable type   S：Socket type
Design Version No.：Modbus-RTU ,RS485 Communication 3:OCPP1.6 ,
                    WIFI 4G/3G/2G Ethernet Communication
EV charging controller
Company code

Brief Description

EKEPC2 and EKEPC3 control the communication of the electric vehicle AC charging process complies with IEC 61851 or SAEJ1772 standards and DIN EN60715 installation requirements.
The output of the relay is used to connect the AC contactor that switches on/off the load.
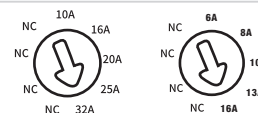The operating status of the EV interface is indicated by three-color LED lights.
The EKEPC2 is Modbus-RTU RS485 communication,cannout connect to the internet,we can via RS485 communication with controller read or write commands for charger ,EKEPC3 is OCPP1.6 protocal ,we can LAN or WLAN(WIFI,4G/3G/2G,Ethernet commnunication with controller read or write commands for charger.The controller additional functions include: non-contact IC card connection module, DC leakage detection module (RCMU), DLB management, plug lock device, external emergency stop button, etc. These functions must be NOTED when ordering.

EKEPC2-C/S AC charging station controller

ETEC

Standard: IEC61851、SAEJ1772

Function Specification

Model SpecifICation / TechnICal Date	EKEPC2-C/S
Operating Voltage	AC230V±10% 50Hz
Output The PWM Signal	Common:10A、16A、20A、25A、32A Customized:6A、8A、10A、13A、16A / 63A
Output Control AC Contactor	Passive Contacts
Additional Connection Function (optional)	1：RCMU DC6mA leakage monitoring mode 2：Non-contact IC card 3：With LCD display 4：DLB（DLM）Management and connected external device(CT or KWH Meter) 5：With electronIC lock 6：With external emergency stop button
Protocal(Communication)	1 way RS485(Modebus-RTU)/RS232
Output Auxiliary Voltage	DC12V/100mA、DC5V/100mA
Ambient Temperature	-40℃-+50℃
Humidity	≤85%
IP Degree	IP22
Cooling Method	Natural Cooling
Installation Method	DIN Rail Standard

(1) Maximum charging capacity indICation 10A, 16A, 20A, 25A, 32A or 6A, 8A, 10A, 13A, 16A Through the dial switch (The factory default setting is 32A).

(2) "C" for the cable version and" S" for the socket (without cable) version
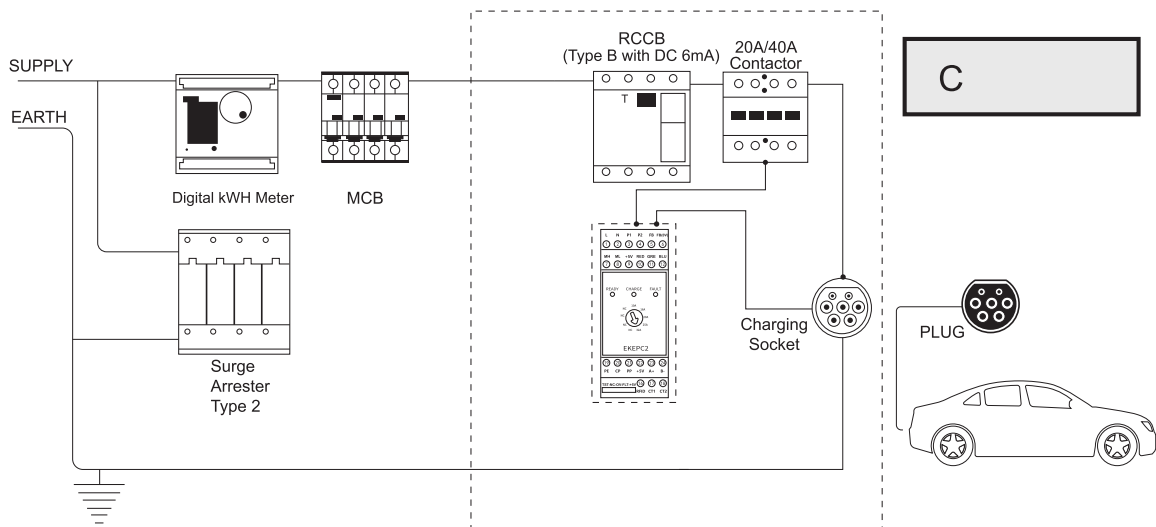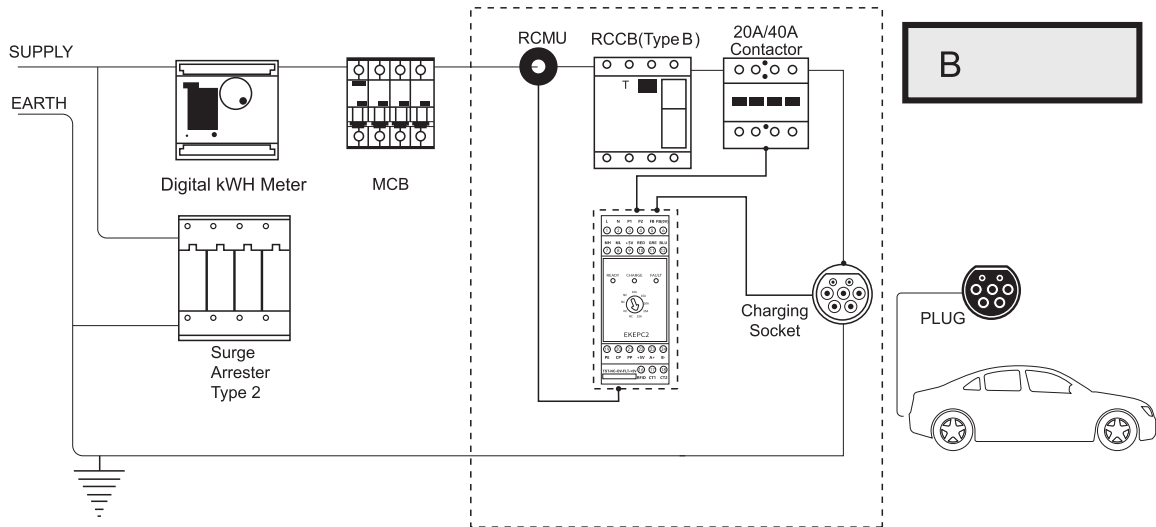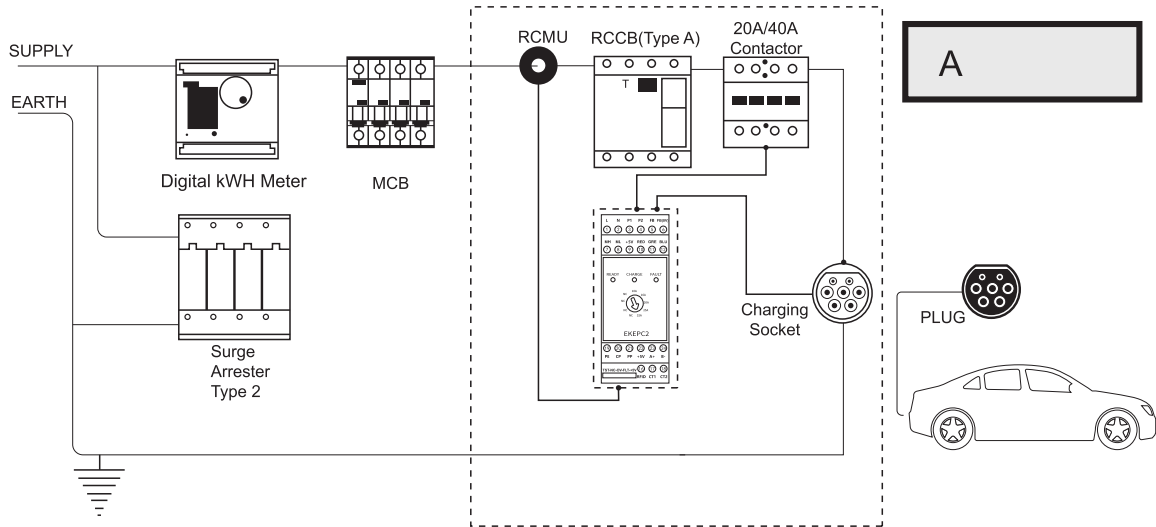
Controller Connection Status

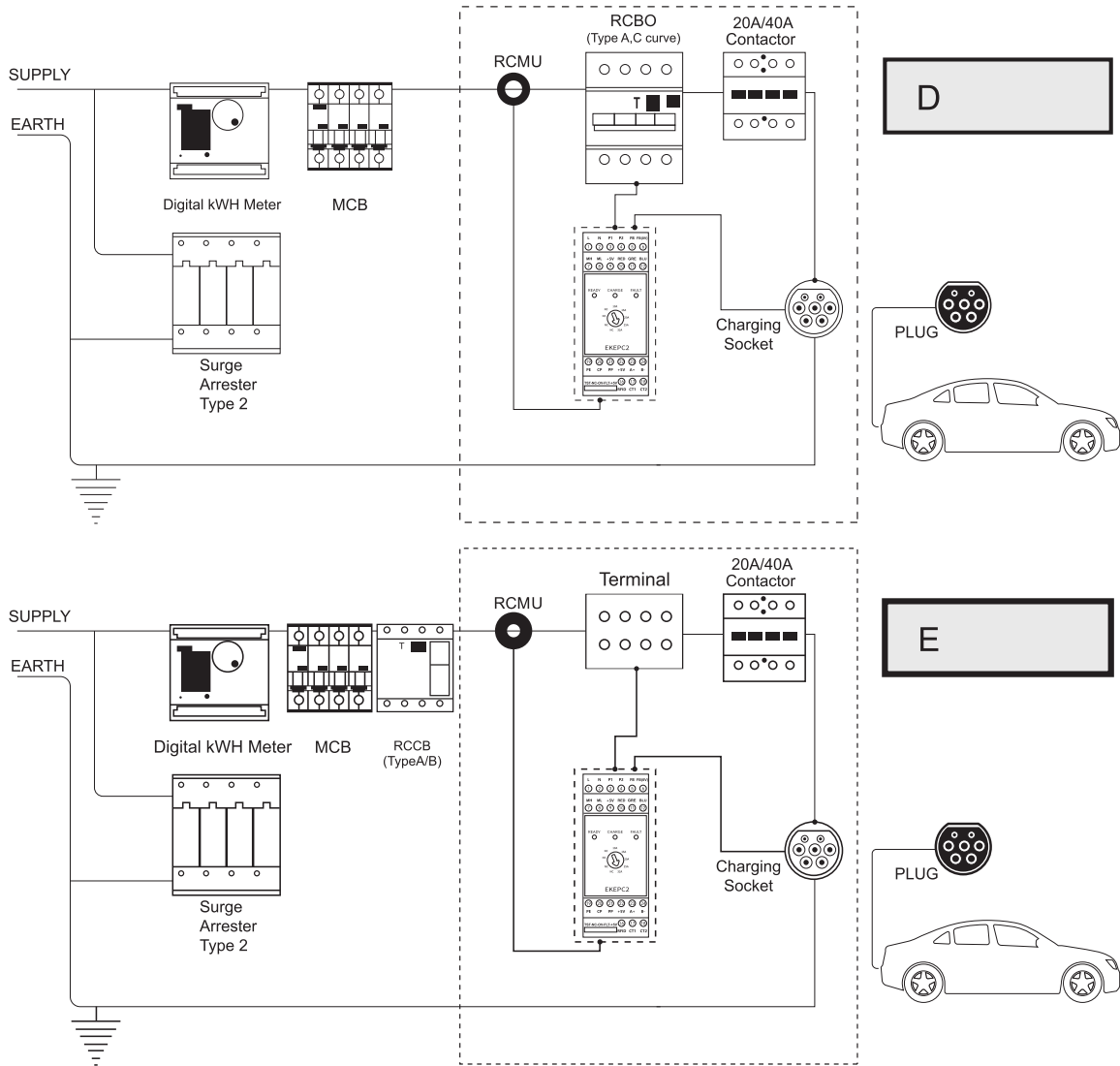| No.	State Code	LED Color	LED State	PE、CP、PP State	Controller State	Remark
0	K	Red	5Hz flashing	Power self detect failed	Fault--1#	Power self-check failed! Please turn the power back on!
1	A	Blue	1Hz flashing	CP disconnection	Ready	
2	I	Blue	2Hz flashing	Waiting for ic card	RFID Waiting	
3	B	Blue	Stabilization	CP connect to diode+2.7KΩ	Connected	
4	B	Blue	Stabilization	CP connect to diode+1.3KΩ	Connected	
5	C	Green	Green brightening	CP connect to diode+2.7KΩ parallelconnect1.3KΩ	Charging	
6	D	Red	Stabilization	CP connect to diode+2.7KΩparallelconnect1.3KΩ parallel connect 270R Or CP connect to diode+270R Or CP connect to diode+270R parallel connect 2.7KΩ Or CP connect to diode+270R parallel connect 1.3KΩ	Fault--2#	Need Ventilation!
7	F	Red	1Hz flashing	CP line short circuit with PE line	Fault--3#	CP- PE short circuit! Please check the CP line
8	H	Red	5 Hz flashing	RCMU occurs residual current or self detect failed	Fault--4#	RCMU leakage or self-inspection failure
9	E	Red	2Hz flashing	Diode short circuit (Requirement waiting the CP disconnected)	Fault--5#	EV-Charing Socket Fault
10	G	Blue+Red	2Hz flashing	PP line disconnection	Fault--6#	SPLIT PP wire，Please check the PP line
11	J	Red+Green+Blue	2Hz flashing	Electromagnetic Lock failed	Fault--7#	Electronic Lock Disabled
12	L	Blue	5Hz flashing	IC card failed	Fault--8#	RFID card is not valid
13	M	Red+Green	1Hz flashing	Circuit overload，DLB Mode activated	Fault--9#	Circuit overload, DLB Mode activated

Controller Charging Procedure

After connected on the working voltage, the controller starts to initialize (self - detection procedure on the RCMU module) and conduct self - detection function (LED cycle flashing), waiting for the car to connect. The controller waits for the charging cable and the vehicle connection (status A), and the LED keeps flashing blue light, and this process requires about 6s waiting. If this controller connected the matched cable (status B), LED becomes stable blue light (and opens the electromagnetic lock switch).

After the charging plug linkage, and if the vehicle is in state C, the controller keeps the P1/P2 closed (charger connected), the LED becomes stable green, and the EV starts into charging mode. If the display status D(requires ventilation), because the controller does not have the heat dissipation function, the controller puts the P1/P2 on (charger off) simultaneously (close the electromagnetic lock switch), the head interlock fails and the controller turns off the charging program, the LED becomes stable red.
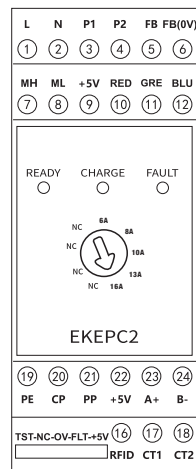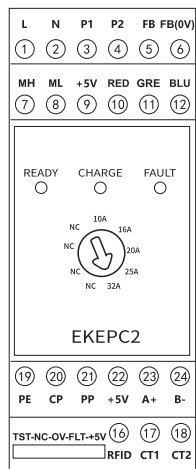
Function Application

SUPPLY

EARTH

Digital kWH Meter

MCB

Surge
Arrester
Type 2

RCMU

RCCB(Type A)

20A/40A
Contactor

EKEPC2

Charging
Socket

PLUG

A

SUPPLY

EARTH

Digital kWH Meter

MCB

Surge
Arrester
Type 2

RCMU

RCCB(Type B)

20A/40A
Contactor

EKEPC2

Charging
Socket

PLUG

B

SUPPLY

EARTH

Digital kWH Meter

MCB

Surge
Arrester
Type 2

RCCB
(Type B with DC 6mA)

20A/40A
Contactor

EKEPC2

Charging
Socket

PLUG

C

ETEC

Standard: IEC61851、SAEJ1772

Function Application

SUPPLY

EARTH

Digital kWH Meter

MCB

Surge
Arrester
Type 2

RCMU

RCBO
(Type A,C curve)

T

20A/40A
Contactor

D

EKEPC2

Charging
Socket

PLUG

SUPPLY

EARTH

Digital kWH Meter

MCB

RCCB
(TypeA/B)

Surge
Arrester
Type 2

RCMU

Terminal

20A/40A
Contactor

E

EKEPC2

Charging
Socket

PLUG

Terminal Description of The Controller

L	N	P1	P2	FB	FB(0V)
①	②	③	④	⑤	⑥

MH	ML	+5V	RED	GRE	BLU
⑦	⑧	⑨	⑩	⑪	⑫

READY   CHARGE   FAULT

NC   10A
NC   16A
NC   20A
NC   25A
NC   32A

EKEPC2

⑲	⑳	㉑	㉒	㉓	㉔
PE	CP	PP	+5V	A+	B-

TST-NC-OV-FLT-+5V ⑯ ⑰ ⑱
RFID CT1 CT2

L	N	P1	P2	FB	FB(0V)
①	②	③	④	⑤	⑥

MH	ML	+5V	RED	GRE	BLU
⑦	⑧	⑨	⑩	⑪	⑫

READY   CHARGE   FAULT

NC   6A
NC   8A
NC   10A
NC   13A
NC   16A

EKEPC2

⑲	⑳	㉑	㉒	㉓	㉔
PE	CP	PP	+5V	A+	B-

TST-NC-OV-FLT-+5V ⑯ ⑰ ⑱
RFID CT1 CT2

(Can Customized)

Terminal Function Description

Serial Number	Mark	Function	Specification
1	L	Live Line	Product working power supply:AC230V±10% 50Hz
2	N	Neutral Line	
3	P1	Relay / Contactor A1 connect to N P1 connect to N	AC contactor connected to the connection load of charging station
4	P2	Relay / Contactor A2 connect to L P2 connect to L	
5	FB	Reflect Signal of The Electronic Lock	This is the feeback signal on the electronic lock directly to the passive contact output terminal of the electronic lock
6	FB0V		
7	MH	ElectronIC Lock Positive Voltage	Provide positive and negative pulse voltage of electronic lock , duty cycle of output pulse (1: 3) and total pulse output maximum driving capacity of 500ms
8	ML	ElectronIC Lock Negative Voltage	
9	+5V	DC +5V	External indicator light, DC5V/10mA drive capability
10	RED	Red LED	
11	GRE	Blue LED	
12	BLU	Green LED	
13	TST	RCMU Fault Signal(DC5V), Output Terminal	When the controller detects this end signal, means this line occur fault (including≥DC6mA leakage signal), the controller will cut off the charging power, untill this fault signal is solved , the controller will automatic resumes the charging state.
14	NC OV FLT	RCMU Test Signal(DC5V), The Input Terminal	The controller outputs the test signal before each charging, using to check that the working of the RCMU whether normal
15	+5V		
16	RFID	RFID-Controlied Input Signal	The signal of external non-contact IC card reading module,input is TTL voltage signal,DC 3.3V/5V
17	CT1	Current Transformer	When the controller requires DLB function, it requires connect to current transformer signal, the signal is: AC0-5A. This function can dynamically balance the power load, adjust the output in time, control the charging current, and protect the safety of the power supply line.
18	CT2		
19	PE	Power Supply	Earth terminal
20	CP	Connect To The VehICle CP	Communication connection with electric vehicle, output PWM wave
21	PP	Charging Cable Cuurent IdentifICation	When this end is a socket type charging station, it identify the current specification of charging cable
22	+5V	+5VPower Supply	Supply DC 5V/100mA power output
23	A+	A +for RS485 Communications	It can communicate with RS485 equipment. The communication standard conforms to Modbus-RTU slave mode. Baud rate: 38400, N, 8, 1 address number default: 255(Broadcast address) See Table A for details
24	B-	B-for RS485 Communications	

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Communication Function

Modbus communication protocol, baud rate: 9600, 8, n, 1 Address: 1-255 Default: 255 (broadcast address)

Register Address	Data Description (power Failure Protection)	Read and write	Type of data	Defaults
86	Over-voltage Protection Value (0.01v)	Read and write	16-bit integer	26500
87	Under-voltage Protection (0.01v)	Read and write	16-bit integer	16500
88	Over-current Protection Value (xx%)	Read and write	16-bit integer	120
89	Remote Start And Stop (0 Invalid, 1 Start, 2 Stop)	Read and write	16-bit integer	0
90	1# Meter A-phase Voltage Address Number (65535 Is An Invalid Address)	Read and write	16-bit integer	65535
91	1# Meter B-phase Voltage Address Number (65535 Is An Invalid Address)	Read and write	16-bit integer	65535
92	1# Meter C-phase Voltage Address Number (65535 Is An Invalid Address)	Read and write	16-bit integer	65535
93	1# Total Current Address Number (65535 Is An Invalid Address)	Read and write	16-bit integer	65535
94	1# Total Power Address Number (65535 Is An Invalid Address)	Read and write	16-bit integer	65535
95	1# Total Power Address Number (65535 Is An Invalid Address)	Read and write	16-bit integer	65535
96	2# Dlb Current Address Of The Meter (65535 Is An Invalid Address)	Read and write	16-bit integer	65535
97-99	Spare	Read and write	16-bit integer	0
100	DevICe Address Number	Read and write	16-bit integer	255
101	Dlb Maximum Startup Current (0.01a)	Read and write	16-bit integer	9000
102	Dlb Maximum Protection Current (0.01a)	Read and write	16-bit integer	10000
103	Maximum Current Of Dlb Current Transformer (0.01a)	Read and write	16-bit integer	10000
104	Dlb Current Sampling Calibration CoefflCient	Read and write	16-bit integer	1270
105-108	Spare	Read and write	16-bit integer	
109	Maximum Output Pwm Duty Cycle Of Charging Pile (90%)	Read and write	16-bit integer	9000
110	Rcmu Function Selection 0 Disable 1 Enable, Other Values Are Selected By Dip Switch	Read and write	16-bit integer	3
111	Rfid Function Selection 0 Disable 1 Enable, Other Values Are Selected By Dip Switch	Read and write	16-bit integer	3
112	ElectromagnetIC Lock Function Selection 0 Disable 1 Enable, Other Values Are Selected By Dip Switch	Read and write	16-bit integer	3
113	Cable Function Selection 0,scoket Function Selection 1 By Dip Switch	Read and write	16-bit integer	3
114	DLB function selection 0 disable 1 enable, other values are selected by DIP switch	Read and write	16-bit integer	3
115	Pid Control Parameter P Of Dlb	Read and write	16-bit integer	100
116	Pid Control Parameter I Of Dlb	Read and write	16-bit integer	1
117	Pid Control Parameter D Of Dlb	Read and write	16-bit integer	100
118-119	Controller Id Number Up To 9 Digits	Read and write	32-bit integer	0
120	Temperature Correction (input How Much Differencet) H	Read and write	16-bit integer	1024
121	Temperature Correction (input How Much Difference) L	Read and write	16-bit integer	0
122	Release Temperature Protection Value	Read and write	16-bit integer	600
123	Maximum Temperature Protection Value	Read and write	16-bit integer	700
124	Frequency Correction (input How Much Difference)	Read and write	16-bit integer	0
125	Duty Cycle Correction (input How Much Difference)	Read and write	16-bit integer	0
126	Trademark Selection 0 None 1watt 2volu	Read and write	16-bit integer	1
127	Pole Selection: 1p 3p Default: 1	Read and write	16-bit integer	1
128	The First Gear Current Setting Value Pwm	Read and write	16-bit integer	1667
129	The Second Gear Current Setting Value Pwm	Read and write	16-bit integer	2167
130	The Third Gear Current Setting Value Pwm	Read and write	16-bit integer	3333
131	Fourth Gear Current Setting Value Pwm	Read and write	16-bit integer	4167
132	Fifth Gear Current Setting Value Pwm	Read and write	16-bit integer	5333
133	The Sixth Gear Current Setting Value Pwm	Read and write	16-bit integer	5333
134-139	Spare	Read and write		
140	Software Version Number	read only	16-bit integer	1002
141	Current Working Status: Corresponding Status 0-11	read only	16-bit integer	
142	Pwm Value For Cable Gauge	read only	16-bit integer	
143	Rcmu Status 00 Is Not Selected 01 Works Normally 02 Self-test Failed 03 Charging Circuit Has Leakage	read only	16-bit integer	
144	Rfid Status 00 Not Selected 01 IC Card Not Operating 02 IC Card Closed 03 IC Card Open	read only	16-bit integer	
145	Rfid Status 00 Not Selected 01 IC Card Not Operating 02 IC Card Closed 03 IC Card Open	read only	16-bit integer	
146	Current Current Value Of Dlb Function	read only	16-bit integer	
147	Current Value Of Charging Pile 0-200.0a	read only	16-bit integer	temporarily invalid
148	Current Voltage Value Of Charging Pile 0-500.0v	read only	16-bit integer	temporarily invalid
149	Current Power Value Of Charging Pile 0-22000w	read only	16-bit integer	temporarily invalid
150	Calibration Value Ad Value Of Reference Current	read only	16-bit integer	temporarily invalid
151	Pwm Duty Cycle Corresponding To The Current Set By The Dip Switch	read only	16-bit integer	
152	Current Output Pwm Duty Cycle	read only	16-bit integer	

Standard: IEC61851、SAEJ1772

Communication Function

Modbus communication protocol, baud rate: 9600, 8, n, 1 Address: 1-255 Default: 255 (broadcast address)

Register address	Data Description (power Failure Protection)	Read and write	Type of data	Defaults
153	Cp Positive Voltage	read only	16-bit integer	temporarily invalid
154	Cp Negative Voltage	read only	16-bit integer	temporarily invalid
155	Overcurrent Count	read only	16-bit integer	temporarily invalid
156	Small Current Count	read only	16-bit integer	temporarily invalid
157	Current Temperature	read only	16-bit integer	
158	Temperature Ad	read only	16-bit integer	temporarily invalid
159	1# Meter A Phase Voltage	read only	16-bit integer	
160	1# Meter B Phase Voltage	read only	16-bit integer	
161	1# Meter C Phase Voltage	read only	16-bit integer	
162	1# Meter Current	read only	16-bit integer	
163	1# Total Power Of The Meter	read only	16-bit integer	
164-165	1# The Total ElectrICity Of The Meter	read only	32-bit integer	
166	2# The Current On The Dlb Meter	read only	16-bit integer	

Note: 1) The register address is: 90-95 When the register value is: a)=65535, the address at this time is invalid, and all data will be displayed and judged according to the value set by the controller. b) = When the external communication address is the corresponding value register number in the electric meter, the controller will read the corresponding value in the electric meter.

2) If the DLB function has been enabled, and the data of the 96 register is: a) = 65535, the controller will read the current value of the external current transformer. b) = When the external communication address is the current value register number in the meter, the controller will read the current value in the meter.

Controller Connection Status

No.	State Code	Led Color	Led State	PE、CP、PP State	Controller State	Remark
0	K	Red	5hz Flashing	Power Self Detect Failed	Fault--1#	Power Self-check Failed! Please Turn The Power Back On!
1	A	Blue	1hz Flashing	CP Disconnection	Ready	
2	I	Blue	2hz Flashing	Waiting For ic Card	Rfid Waiting	
3	B	Blue	Stabilization	CP Connect To Diode+2.7kω	Connected	
4	B	Blue	Stabilization	CP Connect To Diode+1.3kω	Connected	
5	C	Green	Green Brightening	CP Connect To Diode+2.7kΩ Parallelconnect1.3kΩ	Charging	
6	D	Red	Stabilization	CP connect to diode+2.7kΩparallelconnect1.3kΩ Parallel connect 270r Or cp connect to diode+270r Or cp connect to diode+270r parallel connect 2.7kΩ Or cp connect to diode+270r parallel connect 1.3kΩ	Fault--2#	Need Ventilation!
7	F	Red	1hz Flashing	CP Line Short Circuit With Pe Line	Fault--3#	Cp- Pe Short Circuit! Please Check The CP Line
8	H	Red	5 Hz Flashing	Rcmu Occurs Residual Current Or Self Detect Failed	Fault--4#	Rcmu Leakage or Self-inspection Failure
9	E	Red	2hz Flashing	Diode Short Circuit (requirement Waiting The Cp Disconnected)	Fault--5#	Ev-charing Socket Fault
10	G	Blue+red	2hz Flashing	PP Line Disconnection	Fault--6#	Split PP Wire，please Check The PP Line
11	J	Red+green+blue	2hz Flashing	Electromagnetic Lock Failed	Fault--7#	Electronic Lock Disabled
12	L	Blue	5hz Flashing	IC Card Failed	Fault--8#	Rfid Card Is Not Valid
13	M	Red+green	1hz Flashing	Circuit Overload，dlb Mode Activated	Fault--9#	Circuit Overload, Dlb Mode Activated

Single Phase

Wiring example 230V AC
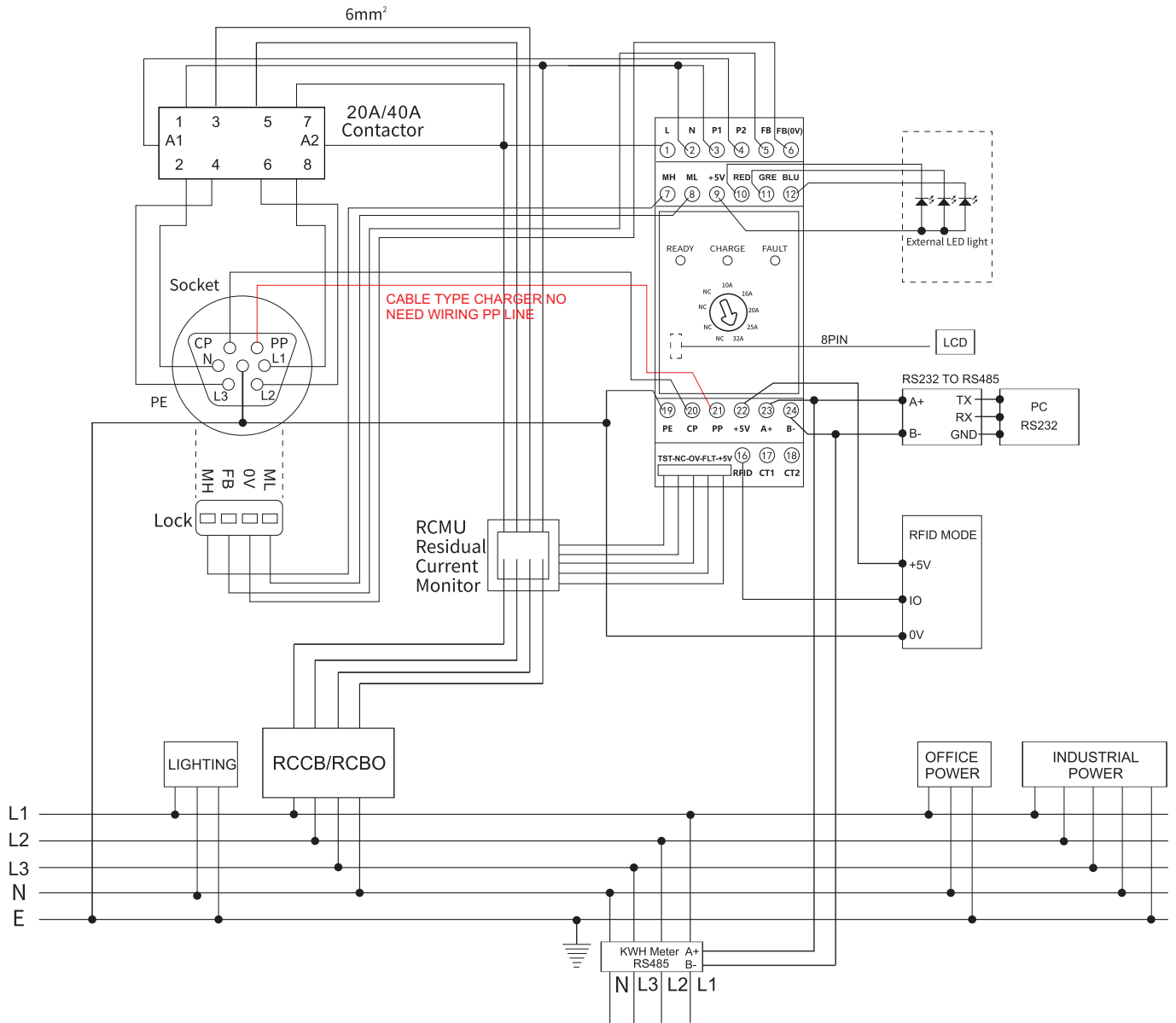
Application Circuit Diagram

Three Phase
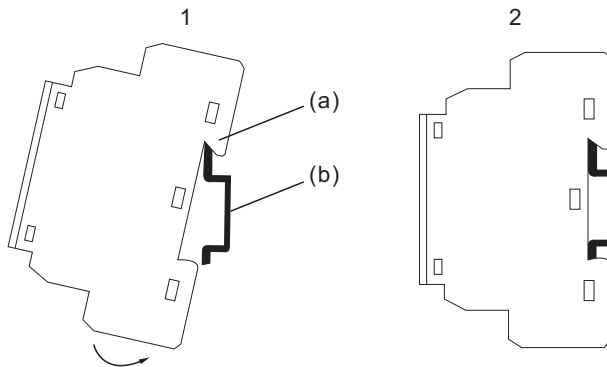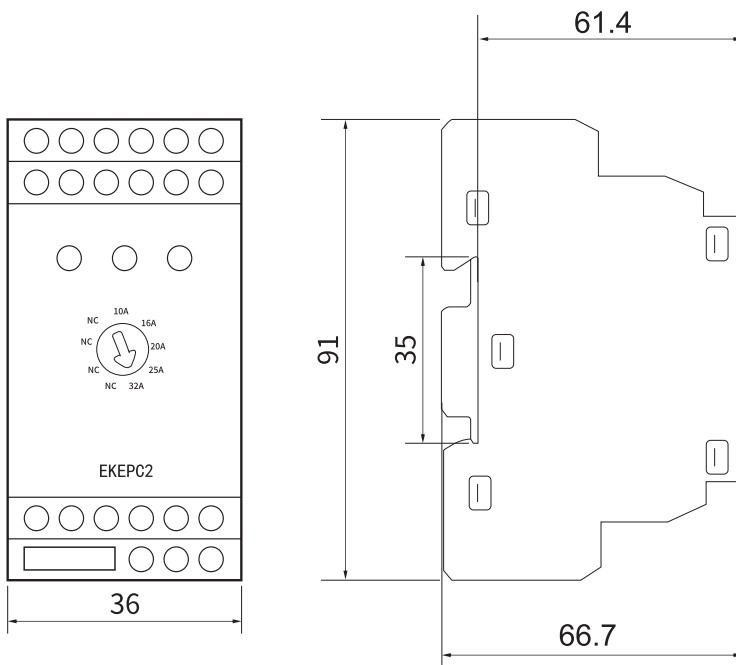
Wiring example 400V AC

6mm²

20A/40A Contactor

| 1 A1 | 3 | 5 | 7 A2 |
| 2 | 4 | 6 | 8 |

Socket

CABLE TYPE CHARGER NO NEED WIRING PP LINE

| L | N | P1 | P2 | FB | FB(0V) |
| ① | ② | ③ | ④ | ⑤ | ⑥ |

| MH | ML | +5V | RED | GRE | BLU |
| ⑦ | ⑧ | ⑨ | ⑩ | ⑪ | ⑫ |

READY CHARGE FAULT

External LED light

10A
NC   16A
NC   20A
NC
NC 25A
NC 32A

8PIN   LCD

RS232 TO RS485

| ⑲ | ⑳ | ㉑ | ㉒ | ㉓ | ㉔ |
| PE | CP | PP | +5V | A+ | B- |

A+   TX
      RX   PC
B-   GND   RS232

TST-NC-OV-FLT-+5V ⑯ ⑰ ⑱
RFID CT1 CT2

RFID MODE
+5V
IO
0V

RCMU Residual Current Monitor

Lock

| MH | FB | 0V | ML |

LIGHTING   RCCB/RCBO

OFFICE POWER   INDUSTRIAL POWER

L1
L2
L3
N
E

KWH Meter A+
RS485   B-

N L3 L2 L1

Easy Installation

1、Install the controller (a) vertICally onto the horizontal DIN rail (b).
2、Rotate the controller down until the clip into the Din
 （Note: DIN rail accordance with German industrial standards)

1   2

(a)
(b)

Overall Dimension(mm)

61.4

91

35

66.7

36

NC   10A   16A
NC   20A
NC   25A
NC   32A

EKEPC2

Standard: IEC61851、SAEJ1772

Function Specification

Model SpecifICation / TechnICal Date	EKEPC3-C/S
Operating Voltage	AC230V±10% 50Hz
Output The PWM Signal	Common:10A、16A、20A、25A、32A Customized:6A、8A、10A、13A、16A / 63A
Output Control AC Contactor	Passive contacts
Additional Connection Function (optional)	1：RCMU DC6mA leakage monitoring mode 2：Non-contact IC card 3：With LCD display 4：DLB（DLM）Management and connected external device(CT or KWH Meter) 5：With electronic lock 6：With external emergency stop button
Protocal(communication)	OCPP1.6(WIFI,4G/3G/2G,Ethernet)
Output Auxiliary Voltage	DC12V/100mA、DC5V/100mA
Ambient Temperature	-40℃-+50℃
Humidity	≤85%
Ip Degree	IP22
Cooling Method	Natural Cooling
Installation Method	DIN rail Standard

Controller Connection Status

No.	State Code	LED Color	LED State	PE、CP、PP State	Controller state	Remark
0	K	Red	5Hz flashing	Power Self Detect Failed	Fault--1#	Power self-check failed! Please turn the power back on!
1	A	Blue	1Hz flashing	CP Disconnection	Ready	
2	I	Blue	2Hz flashing	Waiting For IC Card	RFID Waiting	
3	B	Blue	Stabilization	CP Connect to Diode+2.7KΩ	Connected	
4	B	Blue	Stabilization	CP Connect to Diode+1.3KΩ	Connected	
5	C	Green	Green brightening	CP connect to diode+2.7KΩ Parallelconnect1.3KΩ	Charging	
6	D	Red	Stabilization	CP connect to diode+2.7KΩparallelconnect1.3KΩ Parallel connect 270R Or CP connect to diode+270R Or CP connect to diode+270R parallel connect 2.7KΩ Or CP connect to diode+270R parallel connect 1.3KΩ	Fault--2#	Need Ventilation!
7	F	Red	1Hz flashing	CP Line Short Circuit With PE Line	Fault--3#	CP- PE Short Circuit! Please Check The CP Line
8	H	Red	5 Hz flashing	RCMU Occurs Residual Current or Self Detect Failed	Fault--4#	RCMU Leakage or Self-Inspection Failure
9	E	Red	2Hz flashing	Diode Short Circuit (Requirement Waiting The CP Disconnected)	Fault--5#	EV-Charing Socket Fault
10	G	Blue+Red	2Hz flashing	PP Line Disconnection	Fault--6#	SPLIT PP Wire，Please Check The PP Line
11	J	Red+Green+Blue	2Hz flashing	Electromagnetic Lock Failed	Fault--7#	Electronic Lock Disabled
12	L	Blue	5Hz flashing	IC Card Failed	Fault--8#	RFID Card Is Not Valid
13	M	Red+Green	1Hz flashing	Circuit Overload，DLB Mode Activated	Fault--9#	Circuit Overload, DLB Mode Activated

Controller Charging Procedure

After connected on the working voltage, the controller starts to initialize (self - detection procedure on the RCMU module) and conduct self - detection function (LED cycle flashing), waiting for the car to connect. The controller waits for the charging cable and the vehicle connection (status A), and the LED keeps flashing blue light, and this process requires about 6s waiting. If this controller connected the matched cable (status B), LED becomes stable blue light (and opens the electromagnetic lock switch).

After the charging plug linkage, and if the vehicle is in state C, the controller keeps the P1/P2 closed (charger connected), the LED becomes stable green, and the EV starts into charging mode. If the display status D(requires ventilation), because the controller does not have the heat dissipation function, the controller puts the P1/P2 on (charger off) simultaneously (close the electromagnetic lock switch), the head interlock fails and the controller turns off the charging program, the LED becomes stable red.
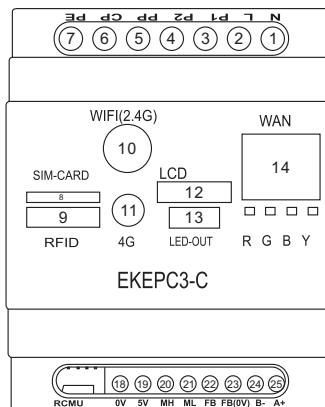
Function Application

SUPPLY

EARTH

Digital kWH Meter

MCB

Surge
Arrester
Type 2

RCMU

RCCB(Type A)

20A/40A
Contactor

T

EKEPC3-C

WIFI(2.4G)

SIM-CARD

RFID   4G   LED-OUT   R G B Y

WAN

LCD

Charging
Socket

PLUG

A

SUPPLY

EARTH

Digital kWH Meter

MCB

Surge
Arrester
Type 2

RCMU

RCCB(Type B)

20A/40A
Contactor

T

EKEPC3-C

WIFI(2.4G)

SIM-CARD

RFID   4G   LED-OUT   R G B Y

WAN

LCD

Charging
Socket

PLUG

B

SUPPLY

EARTH

Digital kWH Meter

MCB

Surge
Arrester
Type 2

RCCB
(Type B with DC 6mA)

20A/40A
Contactor

T

EKEPC3-C

WIFI(2.4G)

SIM-CARD

RFID   4G   LED-OUT   R G B Y

WAN

LCD

Charging
Socket

PLUG

C

Function Application

SUPPLY
EARTH

Digital kWH Meter
MCB
Surge Arrester Type 2

RCMU
RCBO (Type A,C curve)
20A/40A Contactor
T

WIFI(2.4G)
SIM-CARD
RFID 4G LCD LED-OUT WAN R G B Y
EKEPC3-C
Charging Socket

D

PLUG

SUPPLY
EARTH

Digital kWH Meter
MCB
RCCB (TypeA/B)
T
Surge Arrester Type 2

RCMU
Terminal
20A/40A Contactor

WIFI(2.4G)
SIM-CARD
RFID 4G LCD LED-OUT WAN R G B Y
EKEPC3-C
Charging Socket

E

PLUG

Terminal Description Of The Controller

N L P1 P2 CP PP PE
7 6 5 4 3 2 1

WIFI(2.4G)
10

WAN
14

SIM-CARD
8
9
RFID

LCD
12
13
LED-OUT

11
4G

R G B Y

EKEPC3-C

RCMU 18 19 20 21 22 23 24 25
0V 5V MH ML FB FB(0V) B- A+

Terminal Function Description

Serial number	Mark	Function	Specification
1	N	Neutral Line	Product working power supply:AC230V±10% 50Hz
2	L	Live Line	
3	P1	Relay / Contactor A1 connect to N P1 connect to N	AC contactor connected to the connection load of charging station
4	P2	Relay / Contactor A2 connect to L P2 connect to L	
5	PP	Charging cable current identification	When this end is a socket type charging station, it identify the current specification of charging cable
6	CP	Connect to the vehicle CP	Communication connection with electric vehicle, output PWM wave
7	PE	Power supply	Earth terminal
8	SIM CARD	4G/3G/2G SIM Card	For 4G/3G/2G net
9	RFID	RFID-controlied input signal	The signal of external non-contact IC card reading module,input is TTL voltage signal,DC 3.3V/5V
10	WIFI	WIFI(2.4G) antenna	For wifi net
11	4G	4G antenna	For 4G net
12	LCD	LCD Screen	2.8Inch LCD screen
13	LED	LED Light	External indicator light, Red/Green/Blue/Yellow,DC5V/10mA drive capability
14	WAN	RJ45 PORT	For ethernet communication
15 16 17	TST NC OV FLT +5V	RCMU fault signal(DC5V), output terminal RCMU test signal(DC5V), the input terminal	When the controller detects this end signal, means this line occur fault (including≥DC6mA leakage signal), the controller will cut off the charging power, untill this fault signal is solved , the controller will automatic resumes the charging state. The controller outputs the test signal before each charging, using to check that the working of the RCMU whether normal
18	0V	0VPower Supply	Supply DC 0V/100mA power output
19	+5V	+5VPower Supply	Supply DC 5V/100mA power output
20	MH	Electronic Lock Positive Voltage	Provide positive a d negative pulse voltage of electronic lock , duty cycle of output pulse (1: 3) and total pulse output maximum driving capacity of 500ms
21	ML	Electronic Lock Negative Voltage	
22	FB	Reflect Signal of The Electronic Lock	This is the feeback signal on the electronic lock directly to the passive contact outp t terminal of the electronic lock
23	FB0V		
24	A+	A +for RS485 Communications	It can communicate with RS485 equipment. The communication standard conforms to Modbus-RTU slave mode. Baud rate: 38400, N, 8, 1 address number default: 255(Broadcast address) See Table A for details
25	B-	B-for RS485 Communications	

Single Phase

Wiring example 230V AC

CABLE TYPE CHARGER NO NEED WIRING PP LINE

Application Circuit Diagram

Three Phase

Wiring example 400V AC

6mm²

20A/40A Contactor

1 3 5 7
A1 A2
2 4 6 8

CABLE TYPE CHARGER NO NEED WIRING PP LINE

Socket

CP PP
N L1
L3 L2

PE

Lock

MH FB ML
FB0V

RCMU Residual Current Monitor

EKEPC3-C

WIFI(2.4G) WAN
SIM-CARD LCD
RFID 4G LED-OUT R G B Y

LCD

External LED light

RFID MODE

KWH Meter A+
RS485 B-

LIGHTING

RCCB/RCBO

OFFICE POWER

INDUSTRIAL POWER

L1
L2
L3
N
E

KWH Meter A+
RS485 B-

N L3 L2 L1

Main switch

Application Circuit Diagram

Single Phase PEN Fault Protection
Wiring example
230V AC

6mm²

20A/40A Contactor

1 A2 A1 2

1 A1 2

3 A2 4

CABLE TYPE CHARGER NO NEED WIRING PP LINE

Socket

CP   PP
N   L

PE

LCD

External LED light

WIFI(2.4G)   WAN
SIM-CARD   LCD
RFID   4G   LED-OUT   R G B Y

EKEPC3-C

RFID MODE

Lock
MH FB FB0V ML

RCMU Residual Current Monitor

KWH Meter   A+
RS485   B-

LIGHTING

RCCB/RCBO

HOME APPARATUS

OTHER EQUIPMENT

L
N
E

KWH Meter   A+
RS485   B-

N   L

Main Switch
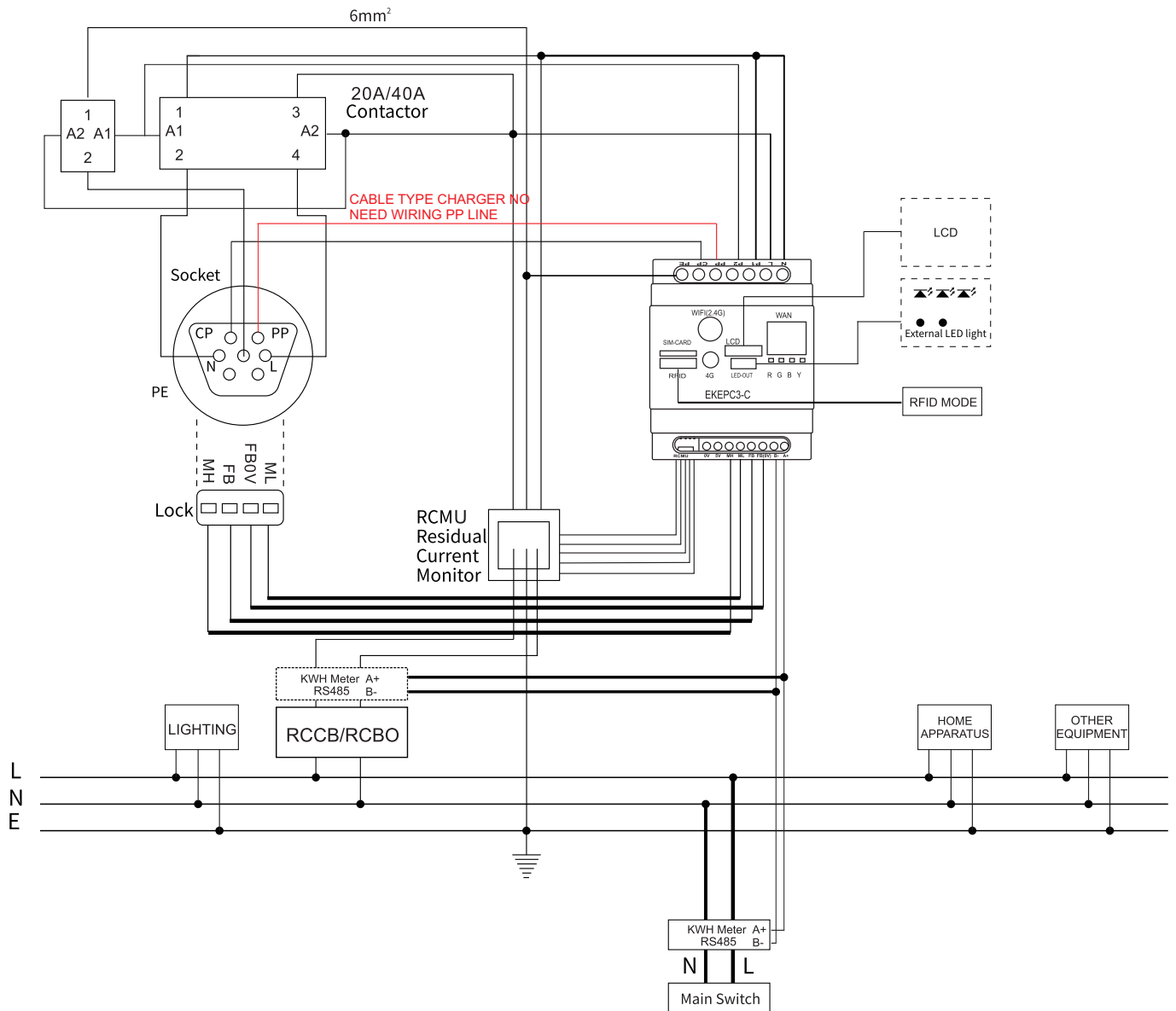
Fast Debugging

3.1 Inspect before operation

Before operation, please check carefully and make sure the following items :

The installation position of the AC charging station must convenient for operation and maintenance.

The AC charging station and its accessories must be correctly connected and installed firmly.

Reasonable selection of the protection switch for the AC input end.

Don't left external objects or components on the top of the AC charging station.

3.2 Controller Setting(OCPP1.6 Version)

3.2.1 Network Setting

Local Direct Access (without net connect)

Power on for 10 seconds, insert the gun, then pull out the gun, activate the controller to generate a local hotspot, search for the OCPP-XXXX device in the WLAN settings of the mobile phone or laptop, enter the password (88888888 cannot be modified), after logging in, open the devICe IP http://192.168.4.1/, mobile or laptop setting step.
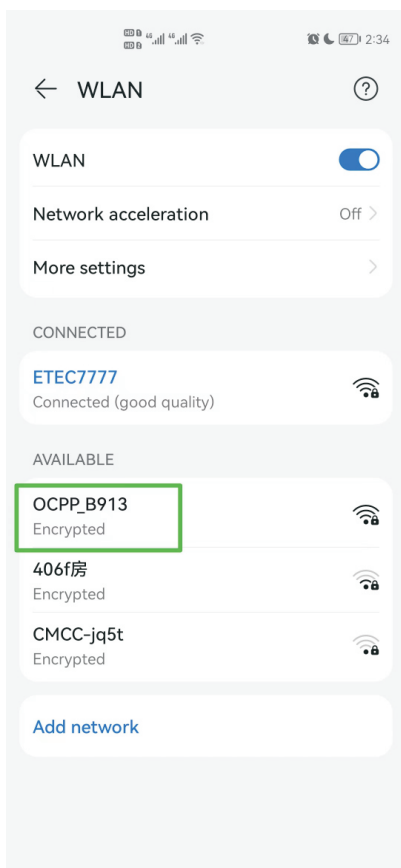
Step1 WLAN setting searching OCPP-XXXX controller,
log in with password 8888888
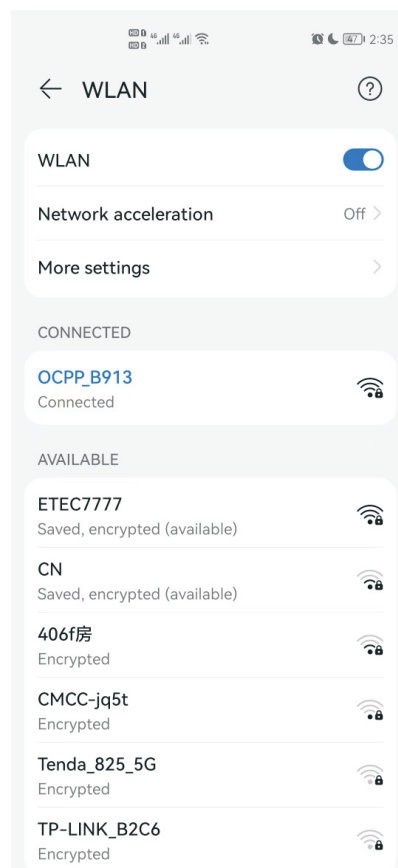
Step 2 connected success means

Fast Debugging
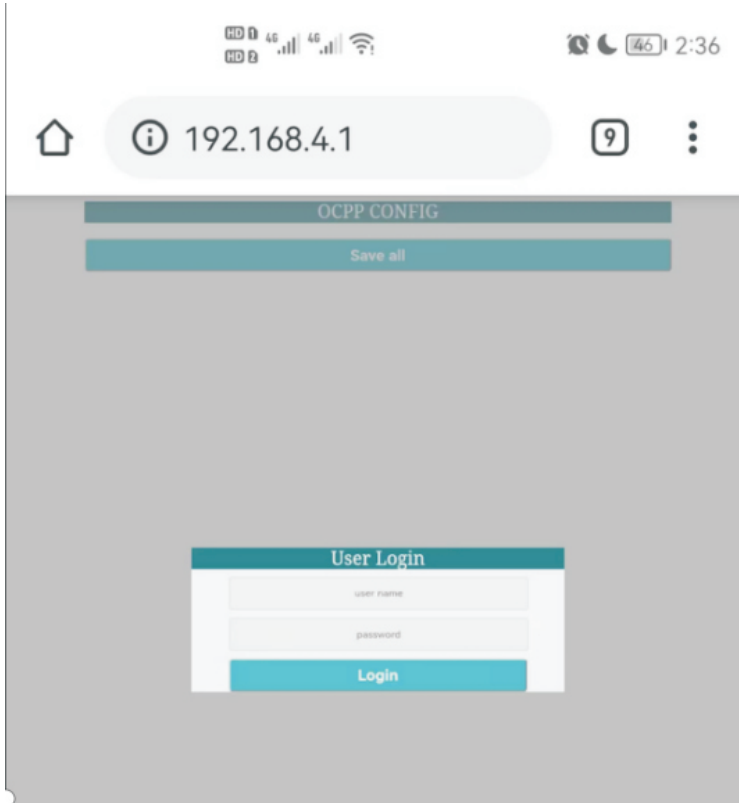
Step 3 http://192.168.4.1, log in User name:ETEC-00001 Password:88888888 (User name and password can modified) Router Access(can work with or without net connect) Connect the controller and the computer or laptop network cable to the same router, log in to the router to view the IP address assigned to the limited connection of the controller, and enter the controller IP address http://192.168.1.xxx Mobile or laptop setting step.

Step 1 First time should using net cable connect the controller via RJ45 port to the router,after we setting the SSID ID in parameter setting ,future we can using controller WLAN connect to the router, Mobile or Laptop visit router and find out the controller name: espressif.

Fast Debugging
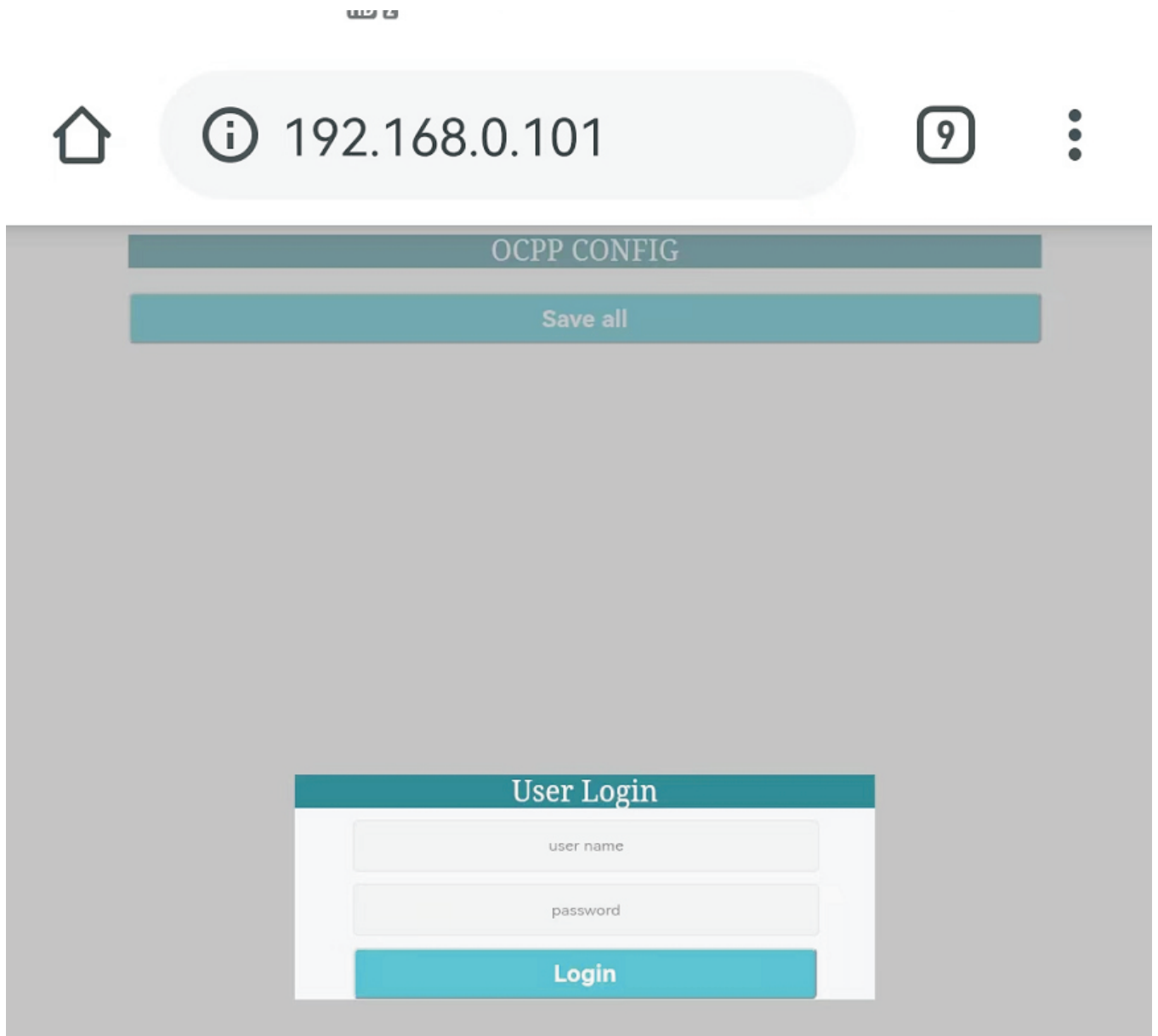
Step 2 Open the controller IP http://192.168.0.xxx log in User name:ETEC-00001 Password:88888888 (User name and password can modified)

3.2.2 Parameter Setting

Log in to the OCPP local webpage and enter the graded account password.

Dealer ETEC-001, password: 88888888 (can only be modified by the dealer).

End user OCPP-00001, password: 888888888 (can be modified by dealer or user).

Setting refer to the following description of the setting items,pls save after completed the stetting.

After the setting is completed, restart the device (switch off and on the electricity).

Fast Debugging

3.3 Power on the device

a. Make sure that the above inspection items meet the requirements before operation.

b. Switch on the power input end residual current circuit breaker.

c. After the AC charging station is connected to the power supply: there is about 7 seconds power-on self-test time, and the indicator lights will display red, blue, and green alternately.

d. After the power on self-test is completed, the blue indicator flashes at 1Hz.

3.4 Get started

a. Remove the charging gun head cable from the charging pile and correctly insert it into the AC charging terminal block (cable version) on the vehicle end. Or plug one end of the charging gun cord into the socket of the charging pile, and plug the other end into the AC charging terminal block on the vehicle end (socket version).

b. At this time, the AC charging pile will automatically exchange data with the vehicle and automatically start the charging process. For the status indication status during the operation of the AC charging pile, please refer to the next 3.4 indicator and working status description.

c. If the AC charging pile fails, please refer to the next 3.4 indicator and working status description for its failure status.

Easy Installation

1、Install the controller (a) vertically onto the horizontal DIN rail (b).
2、Rotate the controller down until the clip into the Din
　(Note: DIN rail accordance with German industrial standards)

1　　　　　　　　2
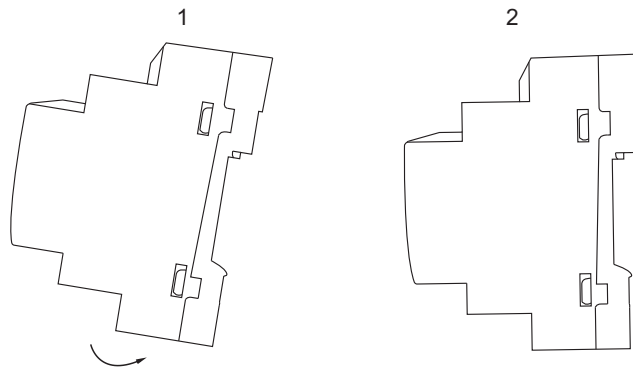
Overall Dimension(mm)
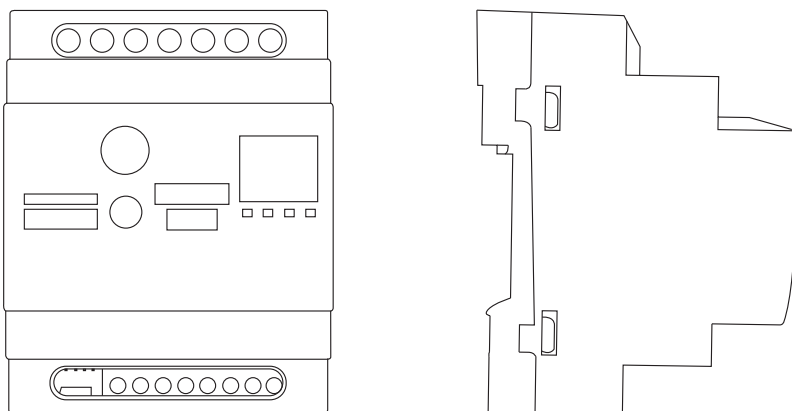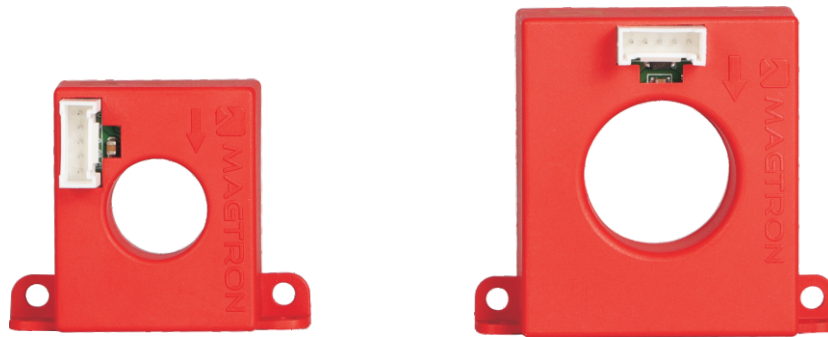
RCMU Function

RCMU Function Brief Outline

When the charging station is working , if there is a DC leakage current signal, the RCMU will immediately output a fault signal and cut off the output power within 300ms, ensuring the safety and reliability of personal and property. If the fault is eliminated, the charging station will automatically restart charging according to the program within 3S. Before charging, the RCMU module of the device will automatically carry out the accuracy and detection of the DC leakage current to ensure the safe and reliable operation of the device.

RCMU Use

CHK(TEST)　　+5V　　　GND　　OUT(FAIL)

RCMU101SM

VCC	GND	VO	CHK	TC	TR
1	2	3 FAIL	4 TEST	5 NC	6 NC

+5V

C1

D1

R1
470R

D2

I/O   High Level/Low Level

CHK

Additional functional modules of charging station-RCMU

ETEC

.... Standard:IEC61851、IEC62752、UL2231、IEC62955
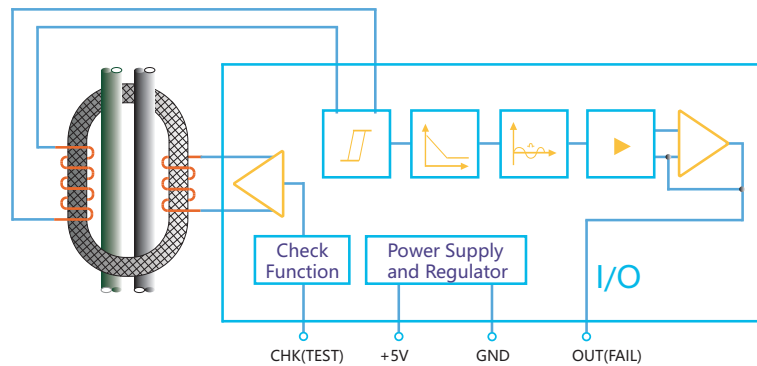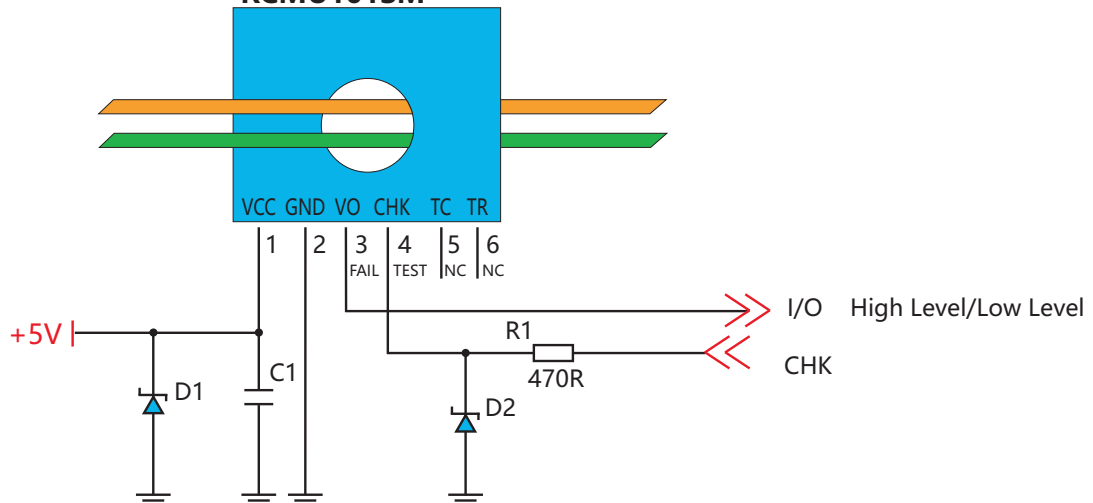
RCMU Function

RCMU Self-Check Function

When the main circuit is not working, the leakage current is 0, and Vout is at low level (0V) at this time .
(a)When the CHK PIN pin is set to high level (3.3-5V), Vout rises from low level to high voltage (Vcc) at this time.
(b) When the CHK PIN pin is set to low level (0.2v), the Vout generated at this time drops to low level (0V);
When the above (a) and (b) are completed, it is judged that the residual current sensor is functioning normally.
When the readme function is not working , you can add a 0 ohm resistor to the CHK PIN pin and ground it.

Self test sequence diagram
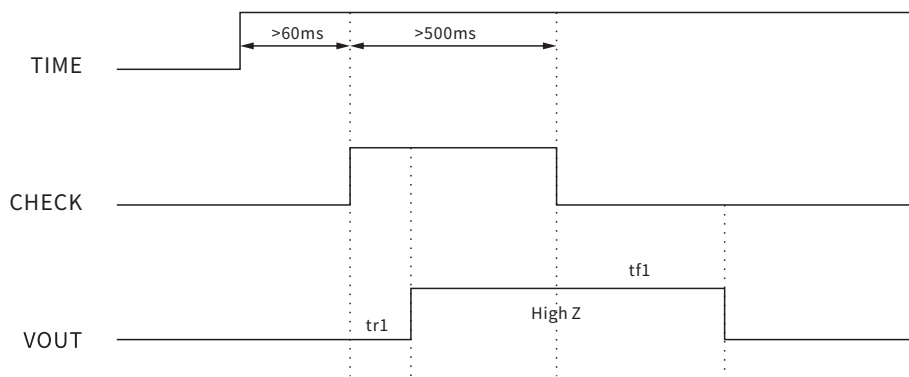
Interrupt time according to IEC62752 & IEC 62955
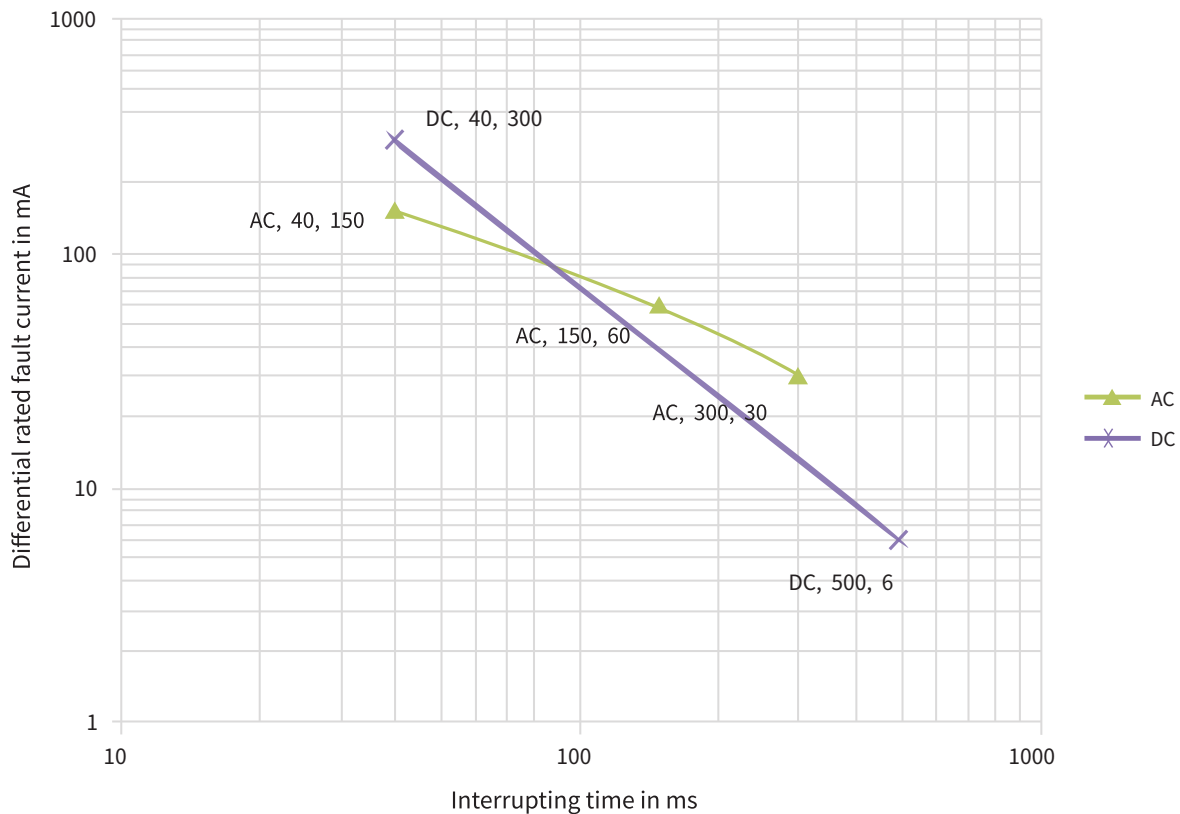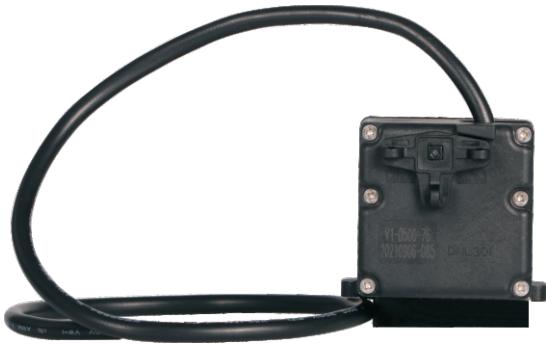
Impluse electronic Lock Technical Parameters

Working power supply	DC12V/500mA
Max. working current	≤500mA
No-load current	<50mA
Locking mechanism retention force	<80N
Locking mechanism breaking force	≥200N
Angle of rotation	≤90°
Response time	<50ms
Maximum power-on time	3.5s
Complete lock time	<300ms
Ambient humidity	-40℃-+80℃
Electrical life	≥3,0000 cycles
Insulation resistance	500MΩ
Power-on action time	0.2s<t<1.0s
Pulse duty factor	35%
Protection degree	IP55
Manual unlocking pull	≤5N
Manual unlock life	≥3,0000 cycles

Function Description

Red line(+12V)	Black line(0V)	Status	Feedback signal
+12V	0V	lock condition	Switch connected
0V	+12V	unlock condition	Switch disconnected

Electrical Wiring Principle

Motor

Feedback switch

24AWG(Red)   Positive power supply for electronic lock of 24 AWG(Red)

24AWG(Black)   Negative power supply for electronic lock of 24 AWG(Black)

24AWG(Write)   Feedback line 1 of electronic lock of 24 AWG(White)

24AWG(Blue)   Feedback line 2 of electronic lock of 24 AWG(Blue)

Working voltage

+12V Lock

-12V

200   200 Unlock

Power-on time /ms

Feed back switch

Initial condition   Trigger   Reset

Power-on time /ms

ETEC

RFID Function

Function Brief Introduction

The charging station can be configured with contactless IC card swiping function, and charging can only be carried out through authorized IC card. If the IC card is lost, the internal dip switch can be used to set the IC card losing module. There are 2 IC cards which are authorized by the factory , unless specify that we can provide more IC cards.

DLB Function

Function Brief Introduction

This function is the automatic distribution of charging current, through an external current transformer (the output current is AC5A), the longest wiring length of the transformer is 100mm (2.5 square).

During the charging process, the charging station will monitor the online charging current in real time and make corresponding adjustments.

When it is detected that the current of the main circuit is greater than the set current, the charging station will reduce the charging current until the charging is stopped.

When it is detected that the current of the main circuit is less than the set current, the charging station will continue to increase the charging current until 32A or 63A.

In this state, the maximum charging current of the charging station is 32A and 63A.

While the charging current is uncertain, the current setting switch of the charging station becomes the transformation ratio setting switch of the current transformer. The transformation ratio of the external current transformer is set by software or factory setting. The factory default current transformer transformation ratio is 100A/5A.

DLB Function

DLB Function Application Legend

N   L

Current Transformer AC50A/5A

Charging station

Household appliances
Air conditioning

Office equipment, etc.
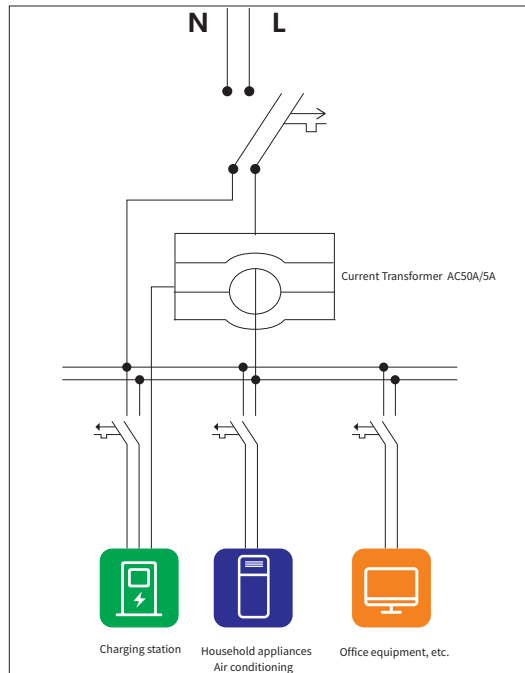
Current Transformer Access Function

The charging station can provide an analog input function, the input analog is AC0-5A, which is used to display the current working current. When the detected working current is greater than the set current value, the charging station will reduce the charging current to the set current value.

Thereby ensuring the safe and reliable operation of the charging station.

LCD Display Function

The charging station can provide an analog input function, the input analog is AC0-1.0V, which is used to display the current working current. When the detected working current is greater than the set current value, the charging station will reduce the charging current to the set current value.

Thereby ensuring the safe and reliable operation of the charging station.
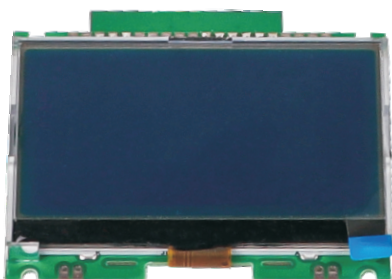
Display Content

EKEC Series Charging Station
Operation voltage: 220V   Set current: 32.0A   Output Current: 32.0A
Electricity consumption: 15.8KWH
Charging time: 1 h 01 min 01 s
Operation status:Charging
Device status:Normal
Communication status : Connecting

The charging station with a LCD to display which can show the working status and charging related data , it is convenient and intuitive.
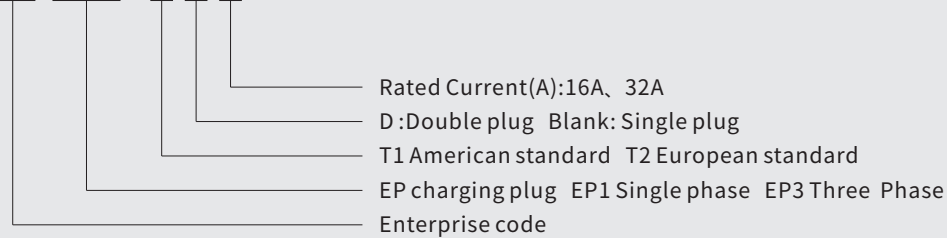
EKEP Series AC Charging Station Plug

ETEC

.... Standard:IEC62196-1、IEC62196-2

Naming Rule

EK EP□ - □ □ □

Rated Current(A):16A、32A
D :Double plug   Blank: Single plug
T1 American standard   T2 European standard
EP charging plug   EP1 Single phase   EP3 Three Phase
Enterprise code

Brief Description

Human appearance design, beautiful and fashionable, in line with the modern aesthetics and ergonomic design concept, easy to use.
The product conform to IEC62196-1, IEC62196-2 European standard and SAEJ1772-2010 American standard.
Protection degree: IP65

Product Selection

Model	Specification	Cable
EKEP1-T2	Single phase：16A	$3*2.5mm^2+0.5mm^2$
	Single phase：32A	$3*6mm^2+0.5mm^2$
EKEP3-T2	Three phase：16A	$5*2.5mm^2+0.5mm^2$
	Three phase：32A	$5*6mm^2+0.5mm^2$

Main Parameter

Electrical Performance

Operation Voltage	230V±10% 50Hz/400V±10%50Hz
Operation Current	16A、32A
Continuously Using Time	Continuously working 24h
Conductive Terminal Temperature Rise	≤50K
Insulation Resistance	≥500MΩ、DC500V
Withstand Voltage	2500V/min
Contact Resistance	≤0.3Ω

Mechanical Features

Mechainical Life	5,0000 times or more
Insertion / Pulling Force During Connection	45N~80N
Withstanding Impact	Tolerable to 2 ton car rolling or 1m height drop without damage

Major Material

Conductor Material	Copper alloy + silver plating
Enclosure Material	Thermoplastic flame retardant plastic, flame retardant grade UL94V-0

Ambient Condition

Ambient Temperature	-40℃-+50℃
Humidity	<85%

EKEP Series AC Charging Station Plug

Product Dimension

UNIT : MM
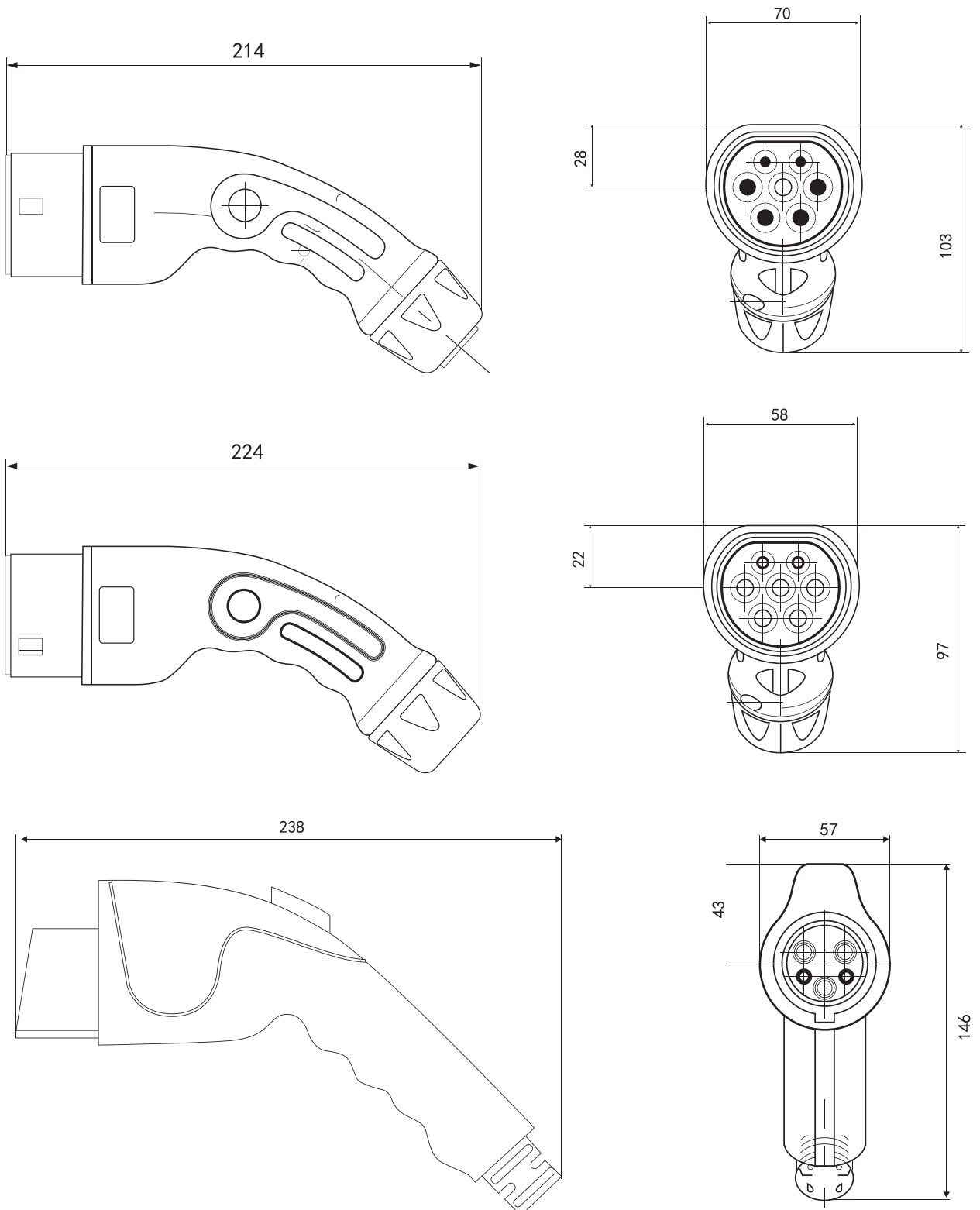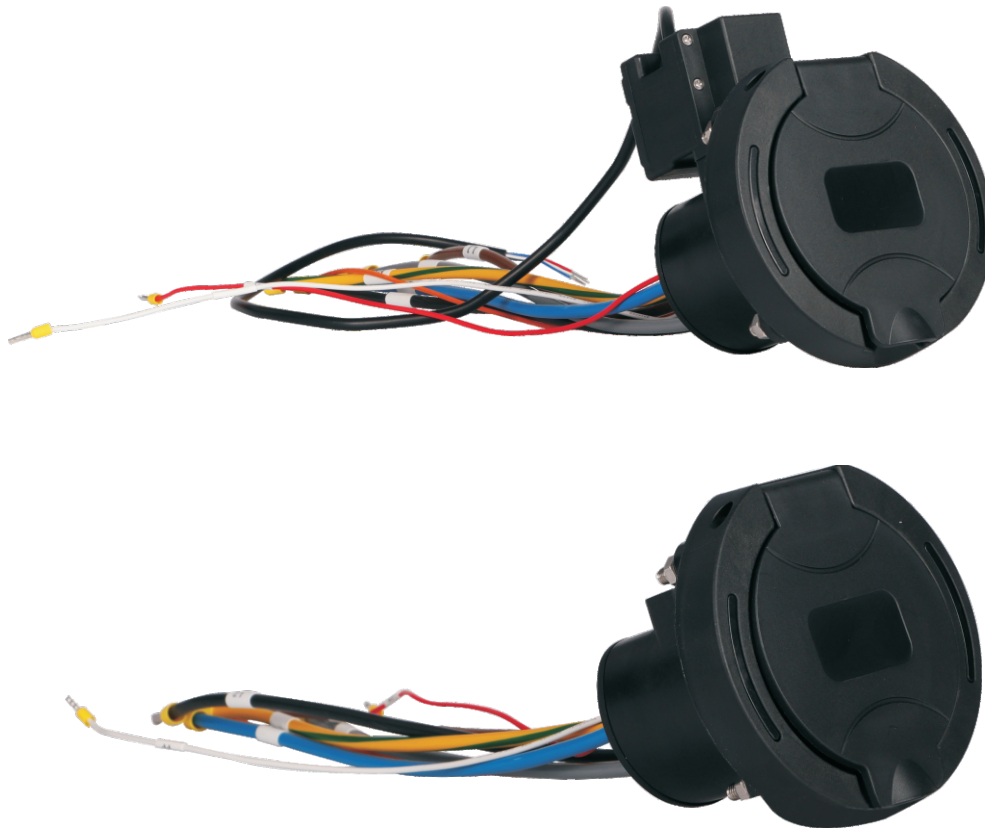
Naming Rules
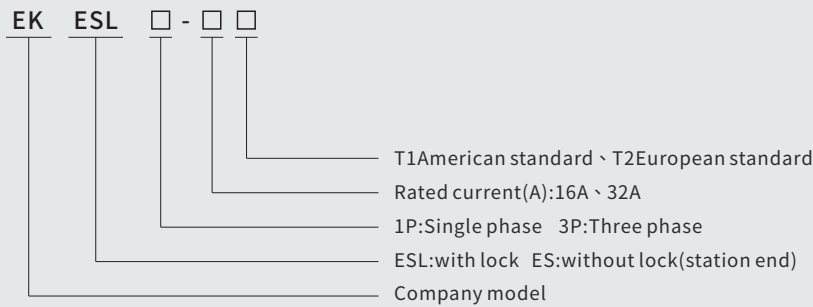
EK　ESL　□ - □ □

T1American standard、T2European standard
Rated current(A):16A、32A
1P:Single phase　3P:Three phase
ESL:with lock　ES:without lock(station end)
Company model

Brief Description

Human appearance design, beautiful and fashionable, in line with the modern aesthetics and economic design concept, easy to use.
The product conform to IEC62196-2 and SAE J1772 standard standard.
Protection degree: IP65
Mainly used in the charging mode 3 of the IEC61851 standard

Product Selection

Model	Specification	Cable
EKES-1-16-T2	Single phase：16A/230V	$3*2.5mm^2+2*0.5mm^2$
EKES-1-32-T2	Single phase：32A/230V	$3*6mm^2+2*0.5mm^2$
EKESL-1-16-T2	Single phase：16A/230V	$3*2.5mm^2+2*0.5mm^2$
EKESL-1-32-T2	Single phase：32A/230V	$3*6mm^2+2*0.5mm^2$
EKES-3-16-T2	Three phases：16A/400V	$5*2.5mm^2+2*0.5mm^2$
EKES-3-32-T2	Three phases：32A/400V	$5*6mm^2+2*0.5mm^2$
EKESL-3-16-T2	Three phases：16A/400V	$5*2.5mm^2+2*0.5mm^2$
EKESL-3-32-T2	Three phases：32A/400V	$5*6mm^2+2*0.5mm^2$

Main Parameter

Electrical Performance

Rated Voltage	230V±10% 50Hz/400V±10% 50Hz
Rated Current	16A、32A
Usage Time	Continuously working 24h
Conductive Terminal Temperature Rise	≤50K
Insulation Resistance	≥500MΩ、DC500V
Withstand Voltage	2500V/min
Contact Resistance	≤0.3Ω

Mechanical Performance

Mechainical Life	5,0000 times or more
Insertion / Pulling Force During Connection	<100N(P)，<75N(V)
Withstanding Impact	Tolerable to 2 ton car rolling or 1m height drop without damage

Major Material

Conductor Material	Copper alloy+ Ag plated
Enclosure Material	Thermoplastic flame retardant material, flame retardant grade UL94V-0

Ambient Condition

Ambient Temperature	-40℃-+50℃
Humidity	<85%

Product Dimension
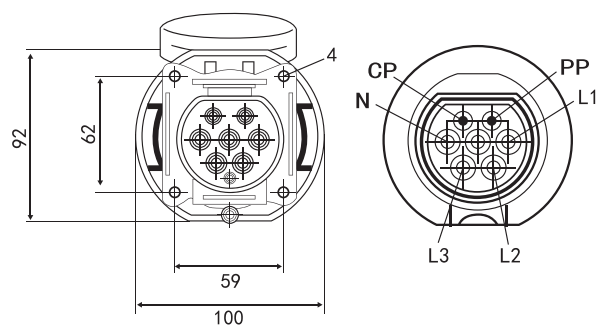
Appearance And Installation Dimension
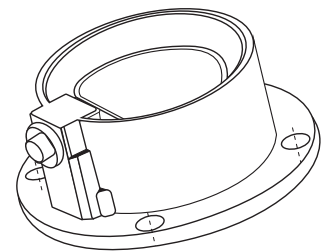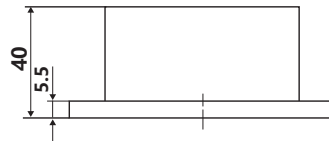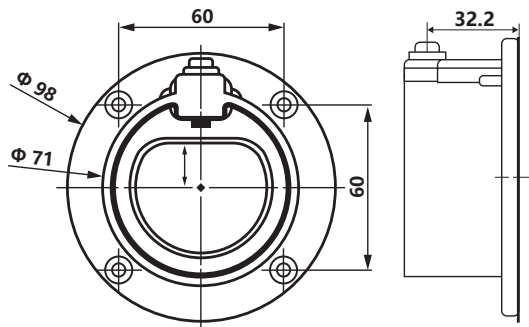
UNIT:MM
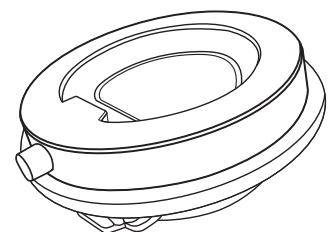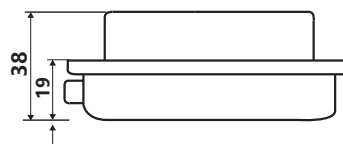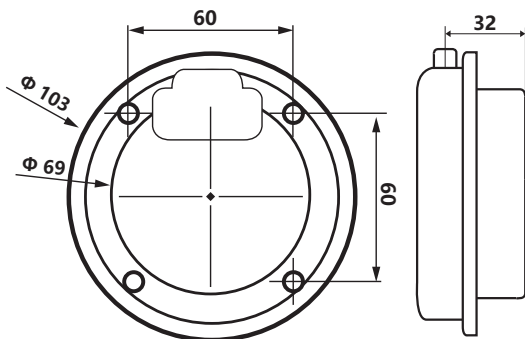
UNIT:MM

EKL1-63B 10KA B Type RCCB

Residual Current Circuit Breaker ·· **Standard**_IEC61008-1
IEC62423

Technical Data

◆ Electrical Features

Mode	Electromagnetic
Type(wave form of the earth leakage sensed)	B
Rated Current In	25,40,63A
Poles	4P
Rated Voltage Ue	4P 415V~
Insulation Voltage Ui	500V
Rated Frequency	50/60Hz
Rated Residual Operation Current(I△n)	30, 100, 300mA
Rated Residual Making And Breaking Capacity(I△m)	500A(In≤40A), 10In(In＞40A)
Short-Circuit Current Inc=I△c	10,000A
SCPD Fuse	▭▭▭ 10000
Break Time Under I△n	≤0.1s
Rated Impulse With Stand Voltage(1.5/50) Uimp	4000V
Dielectric Test Voltage At ind.Freq.for 1min	2.5kV
Electrical Life	2,000 Cycles
Mechanical Life	4,000 Cycles

◆ Installation

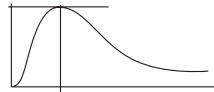|	
Contact Position Indicator	YES
Protection Degree	IP20
Ambient Temperature(with daily average≤35℃)	-5℃~+40℃
Storage Temperature	-25℃~+70℃
Terminal Connection Type	Cable/Pin-typebusbar/U-typebusbar
Terminal Size Top/Bottom For Cable	25mm² 18-3AWG
Terminal Size Top/Bottom For Busbar	25mm² 18-3AWG
Tightening Torque	2.5Nm 22In-lbs
Mounting	On DIN rail EN60715(35mm) by means of fast clip device
Connection	Power supply in both directions

EKL1-63B 10KA B Type RCCB
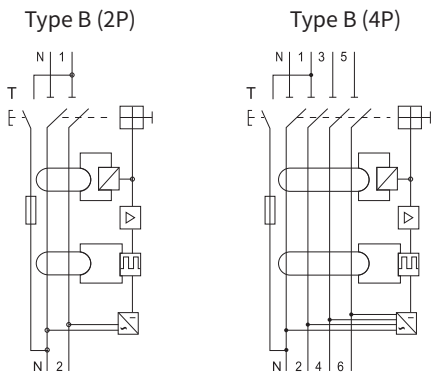
Residual Current Circuit Breaker ··· *Standard*_IEC61008-1
IEC62423

ETEC

Tripping Current Range

Type	Tripping Current I△/A		
	0.5I△n<I△<I△n		
A	Lagging Angle	I△n>0.01A	I△n≤0.01A
	0°	0.35I△n≤I△≤1.4I△n	0.35I△n≤I△≤2I△n
	90°	0.25I△n≤I△≤1.4I△n	0.25I△n≤I△≤2I△n
	135°	0.11I△n≤I△≤1.4I△n	0.11I△n≤I△≤2I△n

Detectable Waveform	Pulsating Direct Current Sensitive	Surge Current Proof
B class Tripping is ensured for sinusoidal AC residual currents pulsed DC residual currents,alternating residual sinusoidal currents up to 1000Hz, pulsating direct residual currents and for smooth direct residual currents, whether applied suddenly or increasing slowly.	They react to AC and pulsating DC fault current whICh reach 0 or almost 0 within one time period of the mains frequency.	RCCB's surge capacity. Not tripping at standardized 8/20 μs surge-current waves acc.to VDE 0432 Part2 with surge current values of up to 250A.

Circuit Diagram

Type B

1 3 5 N

T

2 4 6 N

Overall and Installation Dimension(mm)

81
35.5
72
50
66
78
45

Technical Data

◆ Electrical Features

Mode	Electromagnetic
Type(wave form of the earth leakage sensed)	B
Rated Current In	25,40,63,80,100A
Poles	
Rated Voltage Ue	
Insulation Voltage Ui	500V
Rated Frequency	50/60Hz
Rated Residual Operation Current (I△n)	30mA
Rated Residual Making and Breaking Capacity(I△m)	500A(In≤40A), 10In(In>40A)
Short-Circuit Current Inc=I△c	10,000A
SCPD Fuse	☐━━━☐ 10000
Break Time UnderI△n	≤0.1s
Rated Impulse With Stand Voltage(1.5/50)Uimp	4000V
DielectrIC Test Voltage At ind.Freq. for 1min	2.5kV
Electrical Life	2,000 Cycles
Mechanical Life	4,000 Cycles

◆ Installation

Contact Position Indicator	YES
Protection Degree	IP20
Ambient Temperature(withdailyaverage≤35℃)	-5℃~+40℃
Storage Temperature	-25℃~+70℃
Terminal Connection Type	Cable/Pin-typebusbar/U-typebusbar
Terminal Size Top/Bottom For Cable	35mm² 18-3AWG
Terminal Size Top/Bottom For Busbar	35mm² 18-3AWG
Tightening Torque	2.5Nm 22In-lbs
Mounting	On DINrail EN60715(35mm)by means of fast clip device
Connection	Power supply in both directions

Tripping Current Range

Type	Tripping Current I△/A		
	0.5I△n＜I△＜I△n		
A	Lagging Angle	I△n＞0.01A	I△n≤0.01A
	0°	0.35I△n≤I△≤1.4I△n	0.35I△n≤I△≤2I△n
	90°	0.25I△n≤I△≤1.4I△n	0.25I△n≤I△≤2I△n
	135°	0.11I△n≤I△≤1.4I△n	0.11I△n≤I△≤2I△n

Detectable Waveform	Pulsating Direct Current Sensitive	Surge Current Proof
B class Tripping is ensured for sinusoidal AC residual currents pulsed DC residual currents,alternating residual sinusoidal currents up to 1000Hz, pulsating direct residual currents and for smooth direct residual currents, whether applied suddenly or increasing slowly.	They react to AC and pulsating DC fault current whICh reach 0 or almost 0 within one time period of the mains frequency.	RCCB's surge capacity. Not tripping at standardized 8/20 μs surge-current waves acc.to VDE 0432 Part2 with surge current values of up to 250A.

Circuit Diagram

Type B (2P)   Type B (4P)

Overall and Installation Dimension(mm)

54   72   73.1   35.5   45   83   35.5   21.3

EKMF

Modular Contactor ·· *Standard*_IEC61095
IEC60947-4-1

Automatic Type

2P/25A	4P/25A	2P/40、63A	4P/40、63A	Aux.

Manual Type

2P/25A	4P/25A	2P/40、63A	4P/40、63A

Technical Data

◆ **Electrical Features**

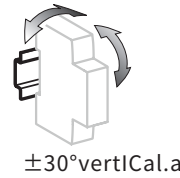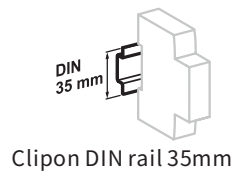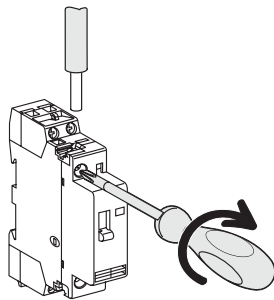| Voltagerating(Ue)	1P,2P	
	3P,4P	
Frequency		50/60Hz
Endurance(O-C)		1,000,000
Electrical Life		100,000
Maximum Number of Switching Operation a Day		100
Additional Characteristics		
Insulation Voltage(Ui)		
Pollution Degree		2
Rated Impulse With Stand Voltage(Uimp)		
Degreeofprotection(IEC 60529)		IP20
		IP40
Operating Temperature		-5°C~+60°C[1]
Storage Temperature		-40°C~+70°C
Tropicalization(IEC 60068-1)		Treatment 2(relative humidity 95% at 55°C)
ELSV Compliance(Extra Low Safety Voltage)for 12/24/48VAC Versions		
The Product Control Conforms To The SELV(safety extra low voltage) Requirements		

(1)In the case of contactor mounting in a enclosure for whICh the interior temperature is in range between 50°Cand60°C,it is necessary to use a spacer,between each contactor.

Connection

Type	Rating(In)	Spacer cat	Circuit	Tightening Torque	Copper Cables	
					Rigid	Flexible or Ferrule
EKMF	PZ1:4MM	16-100A	9mm	Control	0.8N.m	$1.5{\sim}2.5mm^2$ $2{\times}1.5mm^2$	$1.5{\sim}2.5mm^2$ $2{\times}2.5mm^2$
		16~25A		Power		$1.5{\sim}6mm^2$	$1{\sim}4mm^2$
	PZ2:6MM	40A-63A	14mm		3.5N.m	$6{\sim}25mm^2$	$6{\sim}16mm^2$
		100A				$6{\times}3.5mm^2$	$6{\sim}35mm^2$

Clipon DIN rail 35mm

±30°vertICal.a

IP20

IP40

Spacer cat
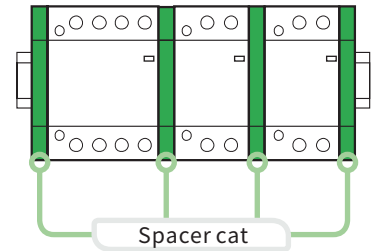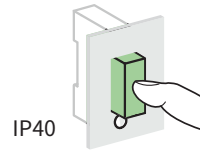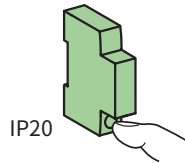
EKMF Contactors-50Hz

	Rating(In)		Control Voltage (VAC)(50/60Hz)	Consumption		Max.Power
				Holding	Inrush	
2P	16A	6A	220...240			1.2W
	20A	7A	220...240			1.2W
	25A	9A	220...240			1.2W
	40A	18A	220...240			1.6W
	63A	25A	220...240			1.6W
	100A	-	220...240			2.1W
4P	16A	6A	220...240			1.6W
	25A	9A	220...240			1.6W
	32A	12A	220...240			2.1W
	40A	18A	220...240			2.1W
	63A	25A	220...240			2.1W
	100A	-	220...240			4.2W

EKMF

Modular Contactor

*Standard*_IEC61095
IEC60947-4-1

EKMF Manual Control Contactor-50Hz

	Rating(In)		Control Voltage (VAC)(50/60Hz)	Consumption		Max.Power
				Holding	Inrush	
2P	25A	9A	220...240			1.2W
	40A	18A	220...240			1.6W
	63A	25A	220...240			1.6W
4P	25A	9A	220...240			1.6W
	40A	18A	220...240			2.1W
	63A	25A	220...240			2.1W

Circuit Diagram

2NC 1NC+1NO 2NO

4NO 4NC 2NO+2NC 3NO+1NC

Overall and Installation Dimension(mm)

EKMF-16/20/25A

EKMF-32/40/63A

EKMF manual control contactor 16/25A

EKMF manual control contactor 40/63A

ETEC
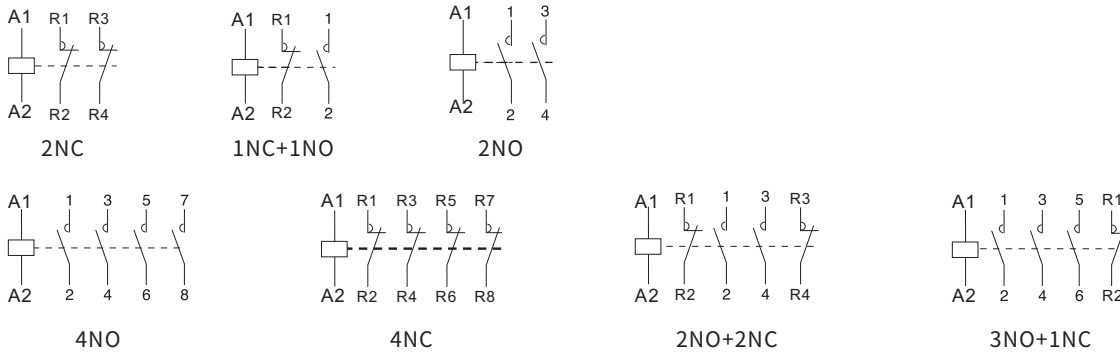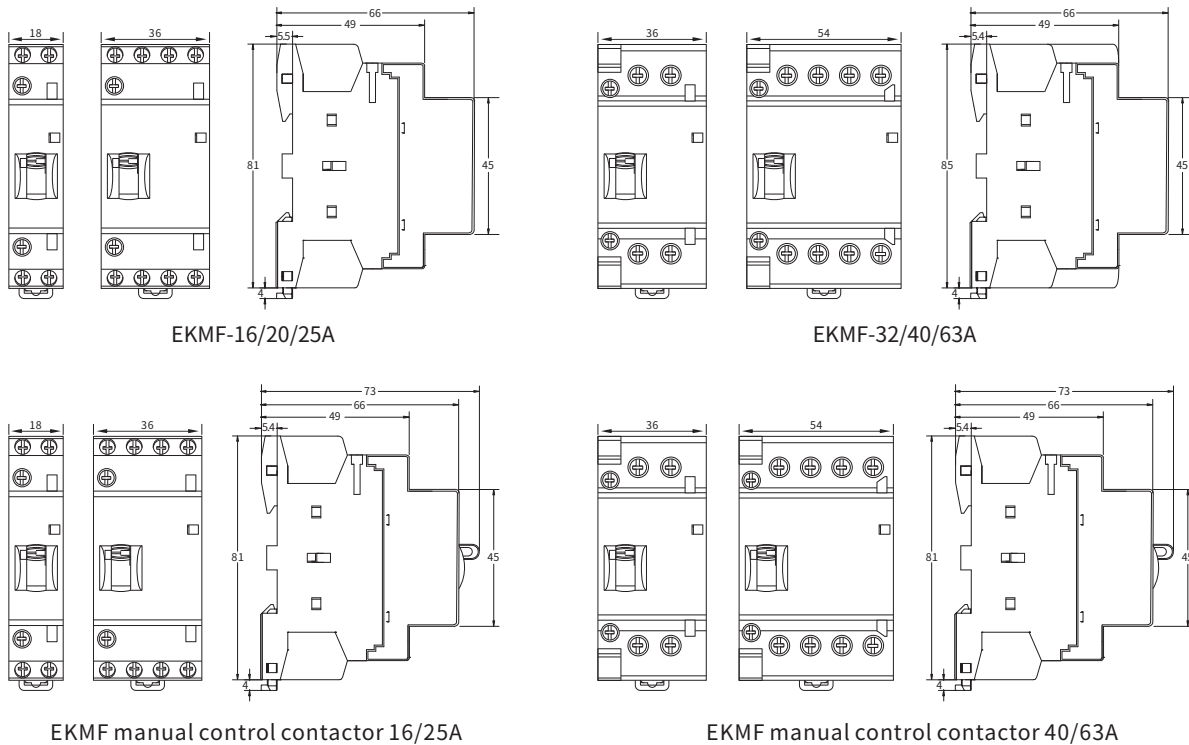
EV Charger Selection and Configuration Table

Item	Configuration	
Model	EKEC1 ☐	EKEC4 ☐
Standard	GB/T ☐ T1 ☐ T2 ☐	
Power	1PH 3.7KW ☐ 7.4KW ☐ 3PH 11KW ☐ 22KW ☐	
Charger Connector	Socket Type ☐ Cable Type ☐	
Cable Length	_____ Meter(Cable type)	
Net Mode	Modbus-RTU ☐ OCPP1.6 ☐	
Within RCCB	Type A RCCB ☐ Type B RCCB ☐ NO RCCB ☐	NO RCCB
	Emergency Stop Button ☐	
Additional Functions Multiple Option	RFID ☐	
	Electronic Lock ☐	Without Electronic Lock
	LCD Display Screen ☐	No Display Screen
	CT Using For DLB Working(Only for 1PH) ☐ kWH Meter Using for DLB Working ☐	Choose 1 of the 2
	kWH Meter ☐	kWH Meter(Only for 1PH) ☐
	PEN Fault Protection ☐	
Brand	Customized ☐ ETEC ☐	

ZHEJIANG ETEK ELECTRICAL TECHNOLOGY CO..LTD.

🌐 Http://www.etek-electric.com

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   Qiantang New Zone,Hangzhou City Zhejiang China.