

DLB Box Manual



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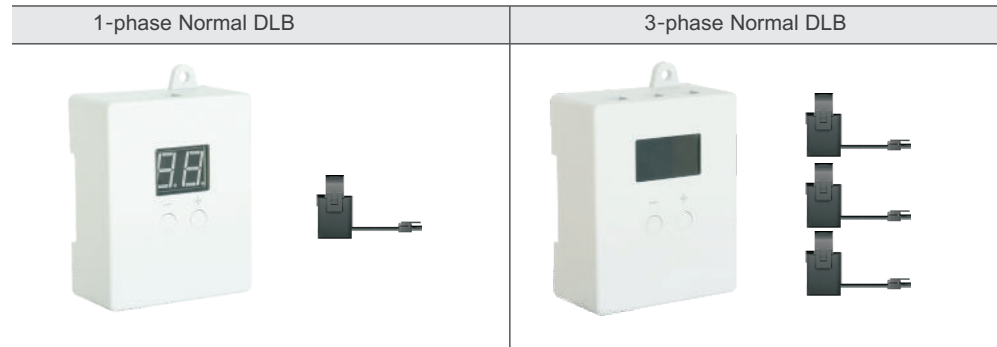
Solar DLB

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DLB

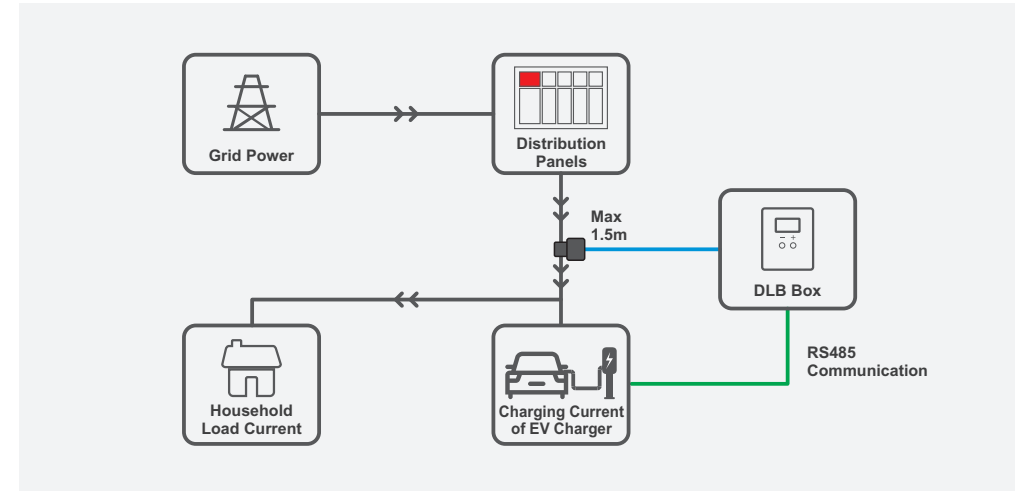
1. Description

DLB (Dynamic Load Balancing) is available in the BCP series AC EV Charger for home use, when the EV charger is working with other household appliances at the same time, the DLB box can maintain the dynamic balance of the total household current and ensure the safety of electricity to avoid home over load.

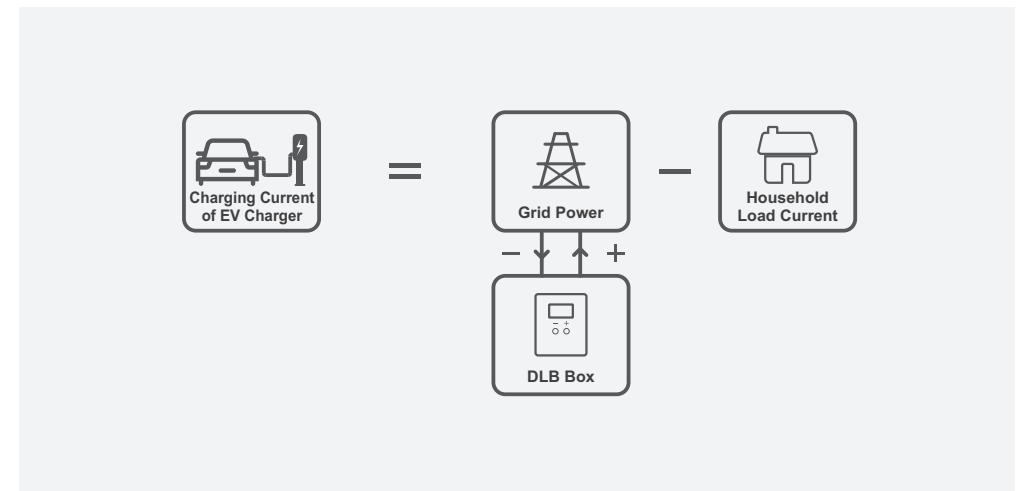


2. How DLB box works?

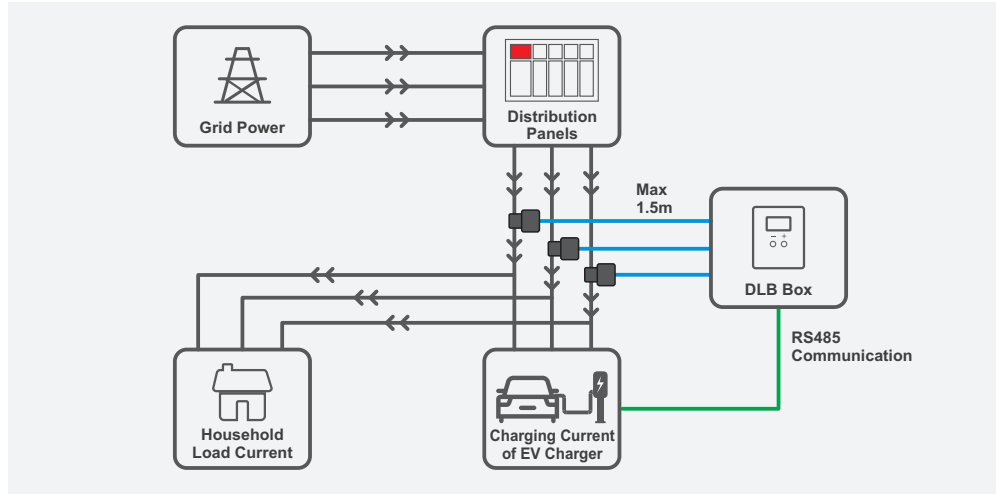
• 1-Phase Working Principle



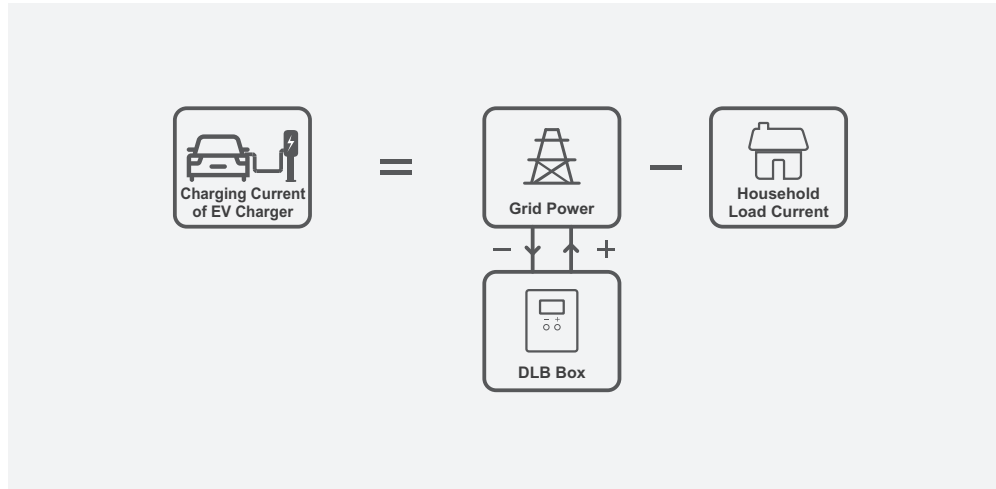
“The allowable current of EVC” = “Max grid current (set via DLB Box)” – “Household load current”



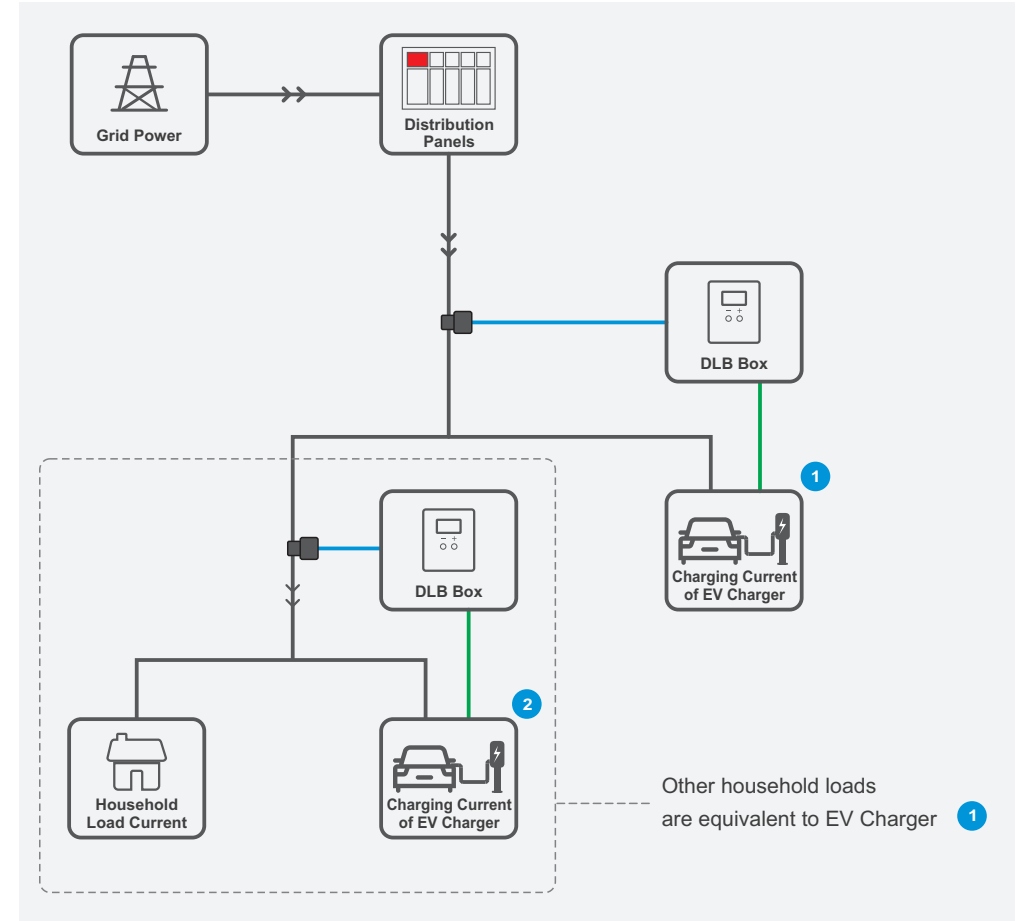
• 3-Phase Working Principle



EV charger charging current = min (A phase DLB setting current - A phase home load, B phase DLB setting current - B phase home load, C phase DLB setting current - C phase home load)



• Multiple EV charger



Working Principle

EV Charger ② : Maximum Current = "Max grid current (set via DLB Box)" - "Household load current"

EV Charger ① : Maximum Current = "Max grid current (set via DLB Box)" - "Household load current" - "EV Charger ②"

3. How to install the DLB box?

- Please double check your accessories



Din rail 105mm

X1



Din rail fixing parts

X2



M4*30 expansion screw kit

X2



Current Transformer
(1-phase Normal DLB)

X1



Current Transformer
(3-phase Normal DLB)



X3



Network cable - 5m
(RJ45 TIA/EIA-568B
8-core cat5 twisted pair cables)

X1

4. DLB Model Selection

		
Model	BCP-DLB-01	BCP-DLB-03
Extreme Mode	√	√
Number of Current Transformers	1	3
Display	Digital Tube	OLED
Distance between DLB box and EV charger support	More than 300M (Optional 5M network cable)	
Current Transformer Default Length	1.5m (Can be customized up to 15 meters)	
Installation	Rail installation/screw fixing	
Communication	RS485 (Use RJ45 interface to connect with network)	

- **What is extreme mode?**

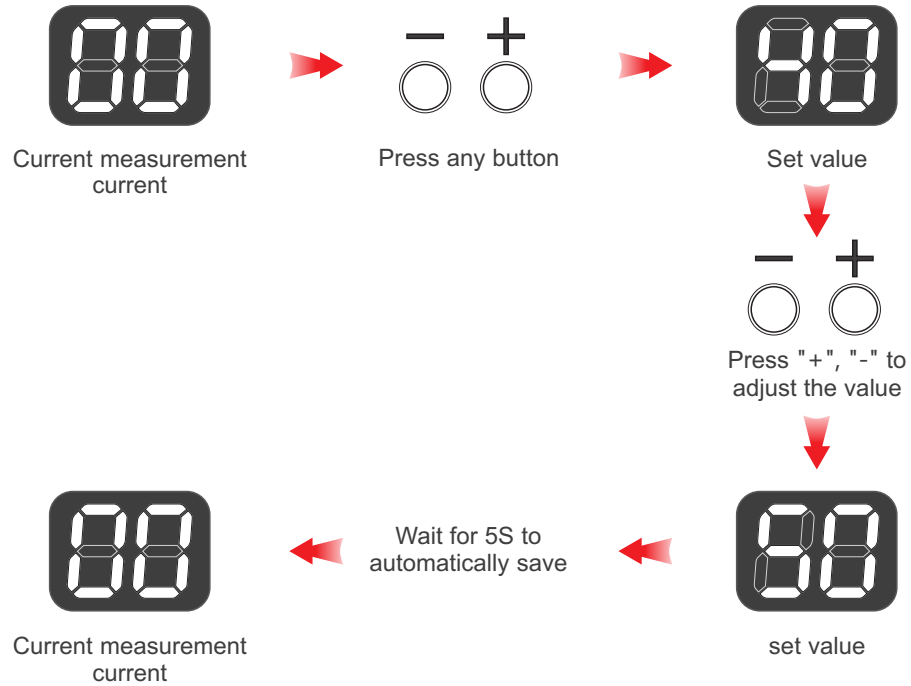
In this mode, charging will be stopped once the home loads keep increasing to avoid home over load. Restart to charging once there is enough current like 10A for charger.

- **How to active extreme mode?**

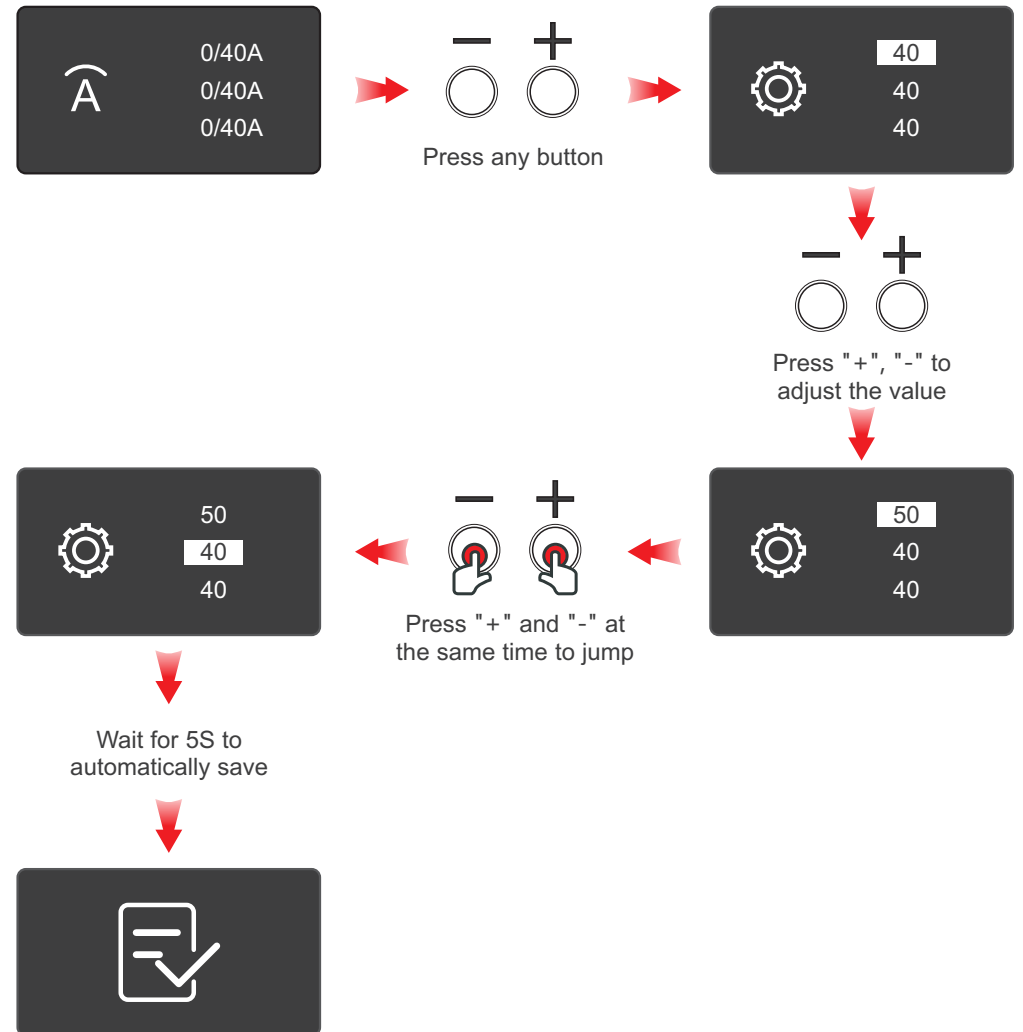
The DLB Extreme Mode for a unsmart ev charger can be activated via DIP switch (the third one); For a smart ev charger the mode can be activated via APP setting.

5. Instructions for using DLB




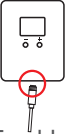

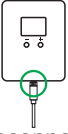


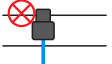
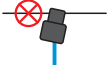
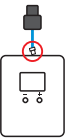
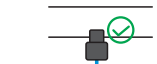
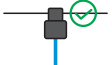
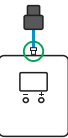
- How to set the load maximum value



- How to set the load maximum value



6. DLB Troubleshooting

LED light status	Fault type	Potential Cause	Action
 Yellow light on for 1s  Red light flashes 1 time The yellow light of the charger light board lights for 1s, then the red light flashes for one time, and this happened in turn.	DLB offline	 RS485 cable is damaged  RS485 cable is not connected firmly	 Replace RS485 cable  Reconnect
 Yellow light on for 1s  The red light flashes twice in a row The yellow light of the charger light board lights on for 1s, and then the red light flashes twice in succession. This happens in turn.	DLB current abnormal	 CT is clamped on the wrong power cord  CT open coil is not connected firmly  The connection between the CT cable and the DLB is loose	 Check if the CT position is correct  Reconnect  Reconnect The DLB box doesn't measure the charging current of EV charger, check whether the cable is connected.

Solar DLB

1. Description

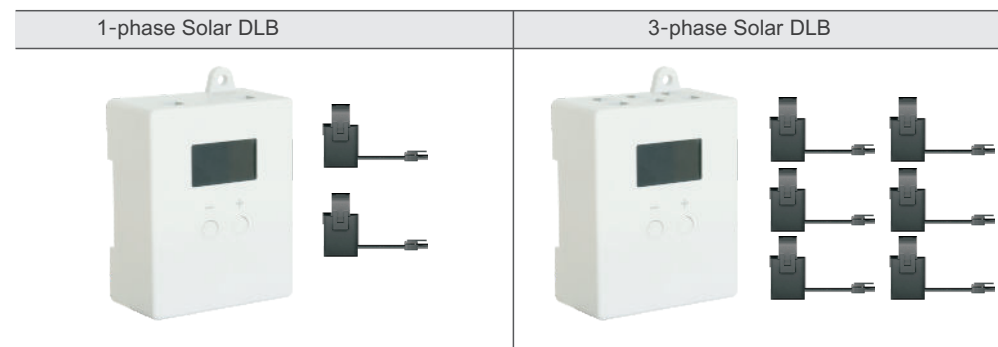
Solar DLB (Dynamic Load Balancing) is available in the BCP series AC EV Charger for home and solar home use, controlling and monitoring the different powers from PV to make different modes come true.

*Full Speed Mode (As faster charging as possible)

*Pure PV Mode (Almost 0 power from grid)

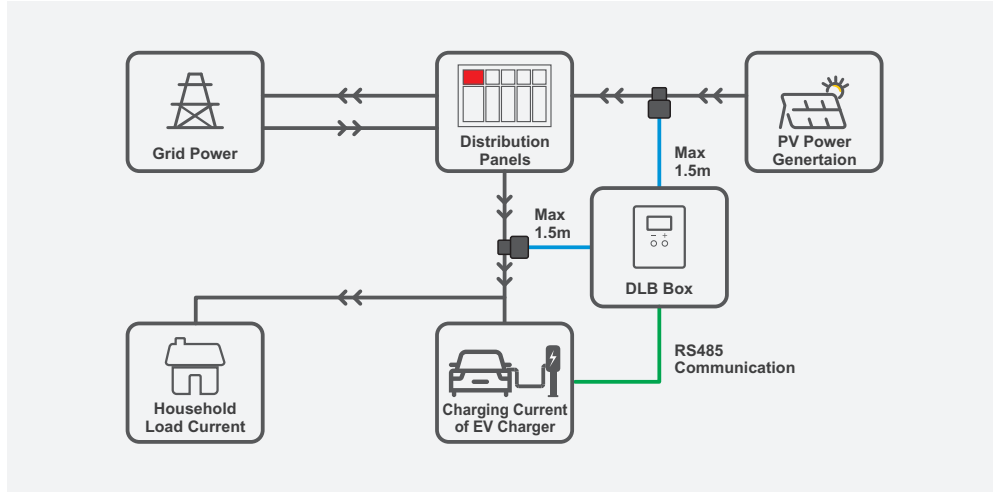
*Hybrid Mode

Solar DLB box can be used for the home without solar power as normal DLB box.

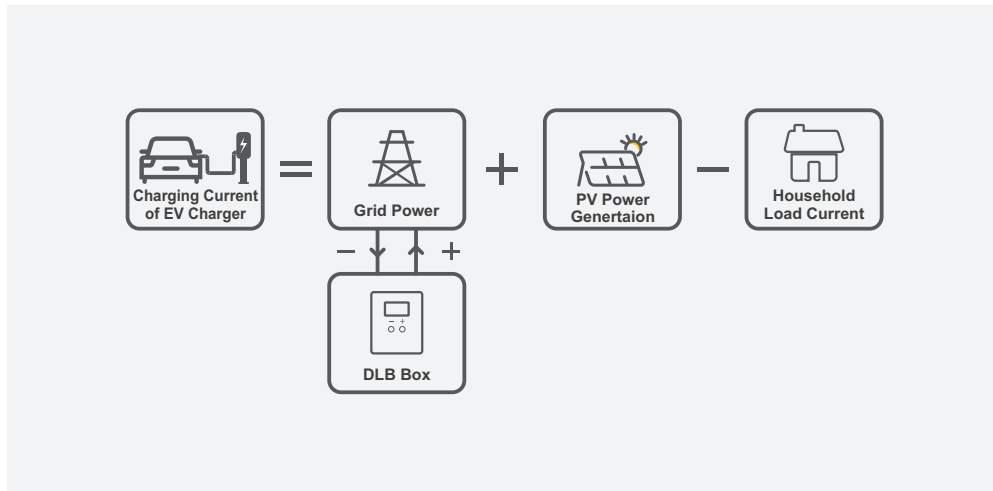


2. How the solar DLB box works?

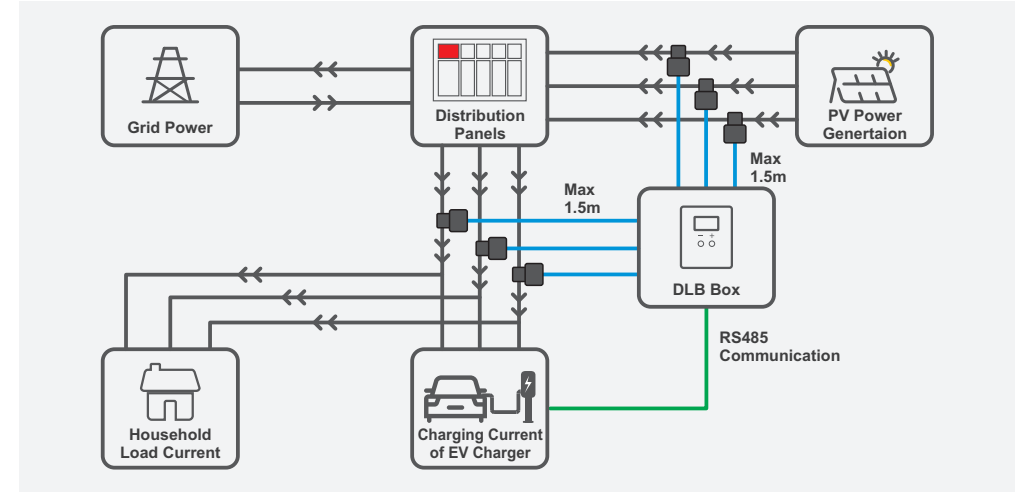
• 1-Phase Working Principle



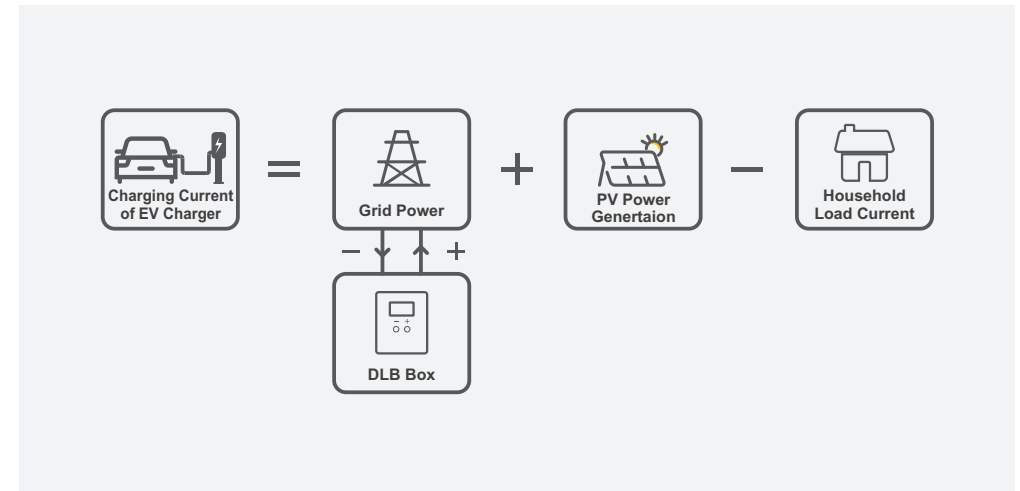
“The allowable current of EVC”=
 “Max grid current”+ “PV power current”- “household load current”
 (set via DLB)



• 3-Phase Working Principle



“The allowable current of EVC”=
 { “Max grid current (set via DLB)”+“The sum of the three phase current of PV power” -
 “The sum of the three phase current of household load” } / 3



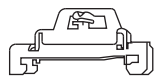
3. How to install the DLB box?

- Please double check your accessories



Din rail 105mm

X1



Din rail fixing parts

X2



M4*30 expansion screw kit

X2



Current Transformer
(1-phase Solar DLB)

X2



Current Transformer
(3-phase Solar DLB)



X6



Network cable - 5m
(RJ45 TIA/EIA-568B
8-core cat5 twisted pair cables)

X1

4. Solar DLB Model Selection

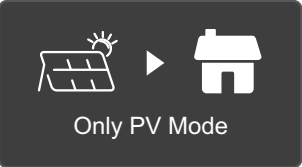
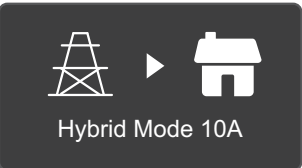
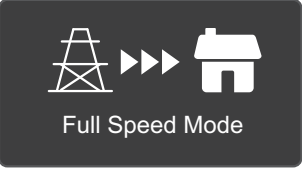
		
Model	BCP-DLB-11	BCP-DLB-13
Operating Mode	PV	PV
Night automatic full speed mode	✓	✓
PV to normal /normal to PV	✓	✓
Number of Current transformers	2	6
Display	OLED	OLED
Distance between DLB box and EV charger support	More than 300M (Optional 5M network cable)	
Current Transformer Default Length	1.5m(Can be customized up to 15 meters)	
Installation	Rail installation/screw fixing	
Communication	RS485(Use RJ45 interface to connect with network)	

- **What is night automatic full speed mode?**

In this mode, EV Charger will keep charging at full speed.(Pm20 00- AM6:00) Note: Without a button battery build in the charger, the EV Charger will lose this configuration after restart, reconnect APP to configure it.

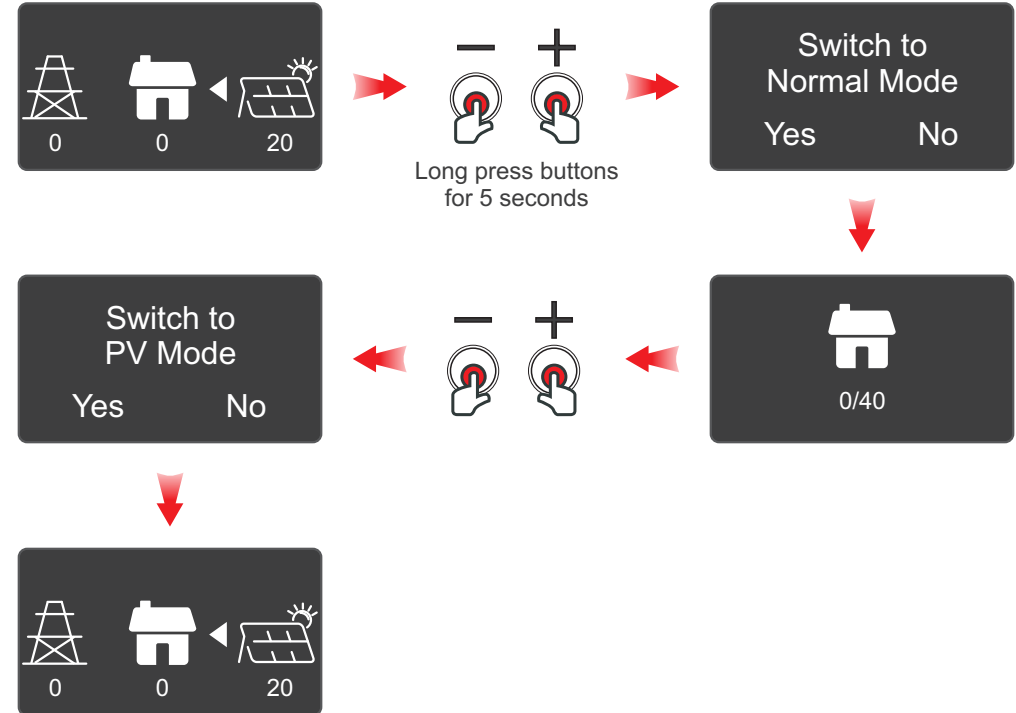
- **How to active night automatic full speed mode?**

We can set the Night Automatic Mode through APP.

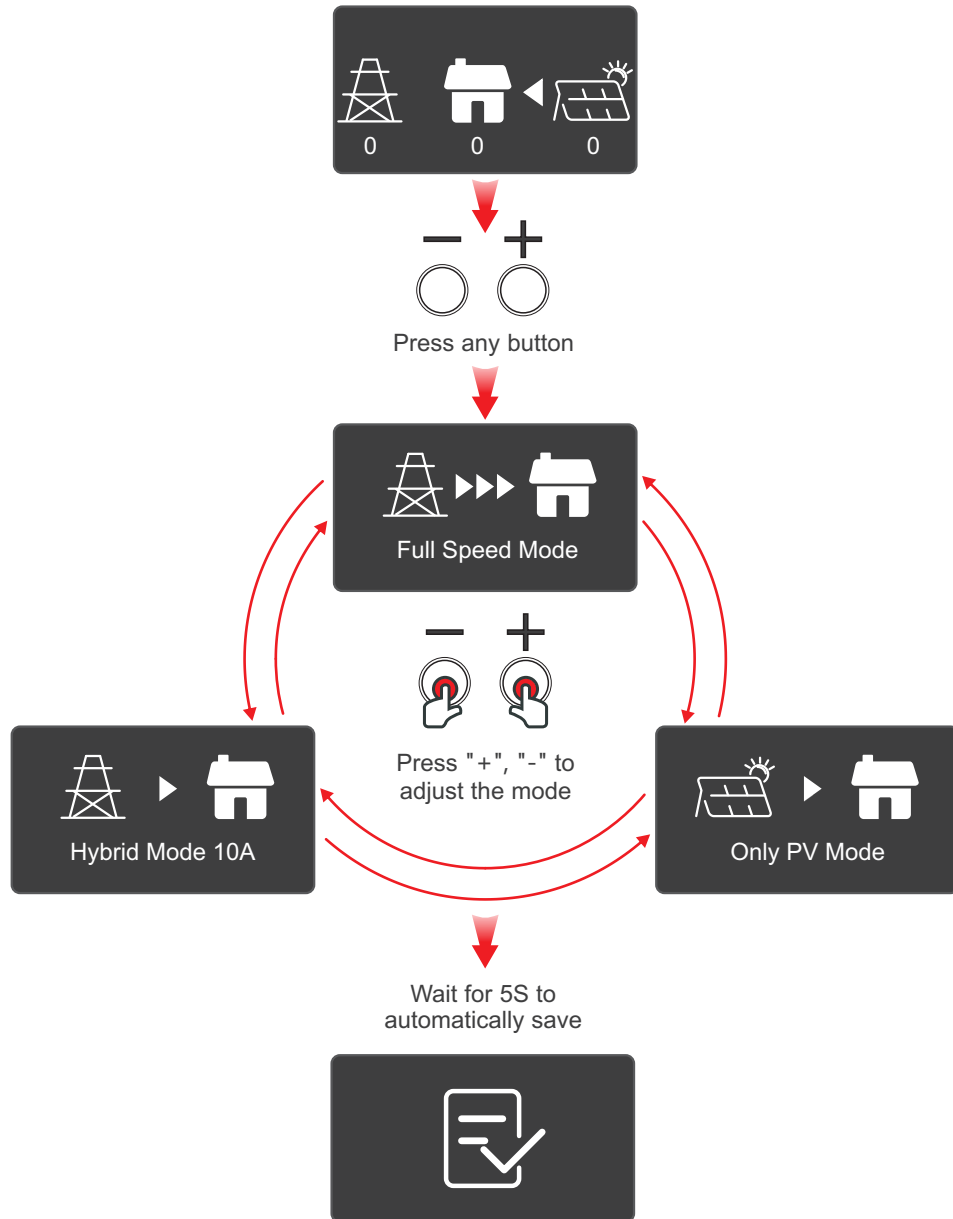
<p>Only PV Mode</p>  <p>Only PV Mode</p>	<p>The EV charger in the pure PV mode will control its own charging current as much as possible, so that the actual input value of the grid current is as close as possible to 0A.</p>
<p>Hybrid Mode</p>  <p>Hybrid Mode 10A</p>	<p>The EV charger in the hybrid mode will control its own charging current as much as possible in the range of DLB setting value.</p>
<p>Full Speed Mode</p>  <p>Full Speed Mode</p>	<p>When the EV charger is working in full speed mode, the DLB will no longer limit the charging current of the EV charger, and the charging pile will use the maximum current supported for charging.</p>

5. Instructions for using solar DLB





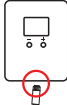
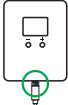


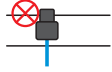
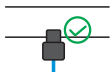
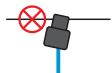
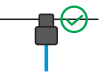
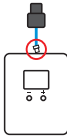

- How to switchover between solar DLB and normal DLB?



• How to switchover between different Modes of solar DLB?



6. Solar DLB Troubleshooting

LED light status	Fault type	Potential Cause	Action
 Yellow light on for 1s  Red light flashes 1 time	DLB offline	 RS485 cable is damaged	 Replace RS485 cable
The yellow light of the charger light board lights for 1s, then the red light flashes for one time, and this happened in turn.		 RS485 cable is not connected firmly	 Reconnect
 Yellow light on for 1s  The red light flashes twice in a row	DLB current abnormal	 CT is clamped on the wrong power cord	 Check if the CT position is correct
The yellow light of the charger light board lights on for 1s, and then the red light flashes twice in succession. This happens in turn.		 CT open coil is not connected firmly	 Reconnect
		 The connection between the CT cable and the DLB is loose	 Reconnect
		The DLB box doesn't measure the charging current of EV charger, check whether the cable is connected.	Check if the CT position is correct