

# YPOWER+

3 Warranty 3 years

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AC-DC BATTERY CHARGERS



### Silent operating

CRISTEC is the only manufacturer offering chargers up to 12V 70A with natural convection (without fan). This advantage gives the YPOWER+ chargers a completely silent operation and an optimized lifespan. It is therefore possible to install them anywhere on board, including under a berth.



### 3 or 4 independent outputs depending of models

The YPOWER+ chargers are the only chargers which have up to 4 independent and non-limited outputs.



### Low energy bluetooth

The YPOWER+ chargers are equipped with a Bluetooth Low Energy (BLE), variant of "classic" Bluetooth. The major advantage of BLE is its low power consumption as it consumes half the power of a classic Bluetooth.



### No derating

Chargers have full charge up to +40°C or +60°C (140°F) with no loss, depending on the model.



### Ignition protected

All models can be installed in the engine room thanks to ISO8846/SAE J1171 compliance which protects against ignition of flammable gases.



### Worldwide use

Automatic detection of the power supply network, from 90 to 265VAC and from 47 to 65Hz. You do not have to care about the AC power grid or genset voltage.



### 5-stage charging profile

- **Boost:** charges batteries to 80% of full charge
- **Absorption:** slowly completes remaining charge to 100%
- **Floating:** maintains battery charge
- **Automatic refresh:** prevents sulphation and revitalizes batteries, selectable by keypad pushbutton
- **Reboost:** new automatic Boost phase if DC consumers and the state of batteries so require.

A regulated DC power-supply mode is also available : YPOWER+ chargers can be used as high-voltage DC-DC converters with input ranging from 121 to 375VDC.



### Easy connection

Plug & Play connection, secure, simple and fast without opening the charger. AC and DC connectors are included.



### Adaptative charging

Custom-made and simultaneous recharge of 3 or 4 battery banks. YPOWER+ chargers can be connected to various types of batteries simultaneously:

- Opened classic lead
- Sealed, gel or AGM
- Spiral sealed



Lithium Iron Phosphate (LiFePO4) with BMS. Selection of your technology of battery is easy thanks to the front keypad.



### Remote control

The chargers are fitted with a CAN-Bus and a Bluetooth interface as standard. Connection to an NMEA network is also available through an optional adaptor, refer to charger's options page (p73).

NMEA



Part Number*	YPO12-20STPL	YPO12-30STPL	YPO12-50STPL	YPO12-70STPL
<b>Model</b>	12V/20A	12V/30A	12V-50A	12V-70A
<b>Recommended lead-type battery bank</b>	100-200Ah	200-300Ah	300-500Ah	500-700Ah
<b>Recommended lithium batteries (LIPOWER+)</b>	LIP12-100-BMS		LIP12-200-BMS	
<b>Input</b>				
<b>AC Voltage</b>	From 90 to 265VAC single-phase automatic			
<b>DC Voltage</b>	From 121 to 375VDC			
<b>Frequency</b>	From 47 to 65Hz automatic			
<b>Current consumed 230/115VAC</b>	1.3/2.6A	2/4A	2.7/5.6A	4.4/8.7A
<b>Recommended power for a generator</b>	450W	650W	700W	1050W
<b>Power factor</b>	1			
<b>Efficiency</b>	92.8% in 230VAC & 91% in 115VAC			
<b>Input fuse</b>	T6.3A/250V		T15A/250V	
<b>Output</b>				
<b>Number of battery banks</b>	3 separate positive terminals: +BAT E, +BAT 1 and +BAT 2 (integrated MOSFET splitter) 1 negative terminal: -BAT Each bank can be used individually and delivers the rated current		4 separate positive terminals: +BAT E, +BAT 1, +BAT 2 and +BAT 3 (integrated MOSFET splitter) 1 negative terminal: -BAT Each bank can be used individually and delivers the rated current	
<b>Nominal current (+/-7%) @ rated power</b>	20A/276W	30A/356W	50A/570W	70A/855W
<b>Charging curve</b>	Charging curve selection by push-button, Bluetooth or CAN-Bus (Boost, Absorption, Floating and Refresh)			
<b>Battery type</b>	Sealed lead, Gel, AGM as factory setting - calcium lead, LiFePO4, DC power-supply mode, etc. Specific request on demand			
<b>Boost voltage</b> for sealed lead battery (factory setting)	14.4VDC			
<b>Floating voltage</b> for sealed lead battery (factory setting)	13.8VDC			
<b>Peak to peak ripple and noise</b>	< 2% (at rated conditions)			
<b>Automotive fuses mounted in series in minus pole -BAT</b>	1 x 30A/32V	2 x 30A/32V	3 x 30A/32V	4 x 30A/32V
<b>Environment</b>				
<b>Cooling</b>	Natural (fanless)			
<b>Sound level</b>	0 dB			
<b>Operating T° at 230VAC</b>	From -20°C to +60°C (-4°F to +140°F)			
<b>Derating (rated charge)</b>	from 40°C (104°F)		from 60°C (140°F)	from 40°C (104°F)
<b>Performance at 60°C (140°F)</b>	16A (230VAC)	25A (230VAC)	40A (230VAC)	60A (230VAC)
<b>Storage T°</b>	From -20°C to +70°C (-4°F to +158°F)			
<b>Relative humidity</b>	up to 70% (95% without condensation)			
<b>Bluetooth</b>	Low energy bluetooth (BLE) - Power: +9dBm (frequency: 2412-2484MHz)			
<b>Casing</b>				
<b>Material</b>	Aluminium sink frame and clasp / Thermoplastic body			
<b>Dimensions (length, height, depth)</b>	238 x 181 x 81mm (9.4 x 7.1 x 3.2 in)		289 x 197 x 105mm (11.4 x 7.8 x 4.1 in)	
<b>Weight</b>	2kg (4.4 lb)		3.5kg (6.6 lb)	3.7kg (6.7 lb)
<b>Fixing center distance</b>	219 x 155mm (8.6 x 6.1 in)		272 x 170mm (10.7 x 6.7 in)	
<b>Fixing screw (wall)</b>	4 M5 round head screws			
<b>Protection factor</b>	IP34 (electronic) & IP22 (connections)		IP22	IP34 (electronic) & IP22 (connections)
<b>Electronic card protection</b>	Sealed casing		Water-repellent varnish (marine environment)	
<b>Standards</b>				
<b>CE declaration of conformity</b>	Available on request			
<b>CE / EMC</b>	EN61204-3			
<b>CE / Security</b>	EN60335-2-29, ISO8846/SAE J1171			
<b>Protections</b>				
Against transient input overvoltage by varistor (Not covered by warranty) / Against output polarity reversal by removable fuses / Against short-circuits and output overloads / Against abnormal overheating				
<b>Communication</b>				
CAN-Bus (NMEA on option) / Bluetooth				
<b>Options</b>				
Temperature probe & OTD probe (Over Temperature Device) ref: 2.8m: STP-UNI-2.8 / 5m: STP-UNI-5.0, remote control G-ON/OFF-R-PL				

\*Included AC and DC connectors for item codes containing «ST» = Standard (except item codes containing «OE» – Original Equipment)



Part Number*	YPO24-15STPL	YPO24-25STPL	YPO24-35STPL
<b>Model</b>	24V/15A	24V-25A	24V-35A
<b>Recommended lead-type battery bank</b>	100-200Ah	200-300Ah	300-500Ah
<b>Recommended lithium batteries (LIPOWER+)</b>	LIP24-100-BMS		LIP24-200-BMS
<b>Input</b>			
<b>AC Voltage</b>	From 90 to 265VAC single-phase automatic		
<b>DC Voltage</b>	From 121 to 375VDC		
<b>Frequency</b>	From 47 to 65Hz automatic		
<b>Current consumed 230/115VAC</b>	1,7/3,4A	2,9/5,9A	4,5/8,8A
<b>Recommended power for a generator</b>	420W	700W	1050W
<b>Power factor</b>	1		
<b>Efficiency</b>	92.8% in 230VAC & 91% in 115VAC		
<b>Input fuse</b>	T6.3A/250V	T15A/250V	
<b>Output</b>			
<b>Number of battery banks</b>	3 (including one for the engine battery) : +BAT E, +BAT 1 et +BAT 2	4 (including one for the engine battery) : +BAT E, +BAT 1 et +BAT 2 (integrated Mosfet splitter) +BAT3 (integrated Mosfet splitter). Each bank can be used individually and deliver the rated current	
<b>Nominal current (+/-7%) @ rated power</b>	15A/342W	25A/570W	35A/855W
<b>Charging curve</b>	IU or IUoU through internal dip switches (Boost, Absorption and Floating – factory setting) - Selectable automatic Refresh		
<b>Battery type</b>	Sealed lead as factory setting - Gel, AGM, calcium lead, LiFePO4, DC power-supply mode, etc. Specific request on demand		
<b>Boost voltage</b> for sealed lead battery (factory setting)	28.8VDC		
<b>Floating voltage</b> for sealed lead battery (factory setting)	27.6VDC		
<b>Peak to peak ripple and noise</b>	< 2% (at rated conditions)		
<b>Automotive fuses mounted in series in minus pole -BAT</b>	1 x 30A/32V	2 x 30A/32V	3 x 30A/32V
<b>Environment</b>			
<b>Cooling</b>	Natural (fanless)		
<b>Sound level</b>	0 dB		
<b>Operating T° at 230VAC</b>	From -20°C to +60°C (-4°F to +140°F)		
<b>Derating</b>	from 40°C (104°F)	from 60°C (140°F)	
<b>Performance at 60°C (140°F)</b>	12A (230VAC)	20A (230VAC)	30A (230VAC)
<b>Storage T°</b>	From -20°C to +70°C (-4°F to +158°F)		
<b>Relative humidity</b>	up to 70% (95% without condensation)		
<b>Casing</b>			
<b>Material</b>	Casing comprises 3 parts : Aluminium sink frame / Thermoplastic body / Aluminium clasp		
<b>Dimensions (length, height, depth)</b>	238 x 181 x 81mm (9.4 x 7.1 x 3.2 in)	289 x 197 x 105mm (11.4 x 7.8 x 4.1 in)	
<b>Weight</b>	2kg (4.4 lb)	3.7kg (6.7 lb)	
<b>Fixing center distance</b>	219 x 155mm (8.6 x 6.1 in)	272 x 170mm (10.7 x 6.7 in)	
<b>Fixing screw (wall)</b>	4 M5 round head screws		
<b>Protection factor</b>	IP34 (electronic) & IP22 (connections)		
<b>Standards</b>			
<b>CE / EMC</b>	EN61204-3		
<b>CE / Security</b>	EN60335-2-29 - ISO8846/SAE J1171		
<b>Protections</b>			
Against transient input overvoltage by varistor (Not covered by warranty) / Against output polarity reversal by fuses / Against short-circuits and output overloads / Against abnormal overheating			
<b>Communication</b>			
CAN-Bus (NMEA on option) / Bluetooth			
<b>Options</b>			
Temperature probe & OTD probe (Over Temperature Device) ref: 2.8m: STP-UNI-2.8 / 5m: STP-UNI-5.0, remote control G-ON/OFF-R-PL			



# 36V

# 48V

Part Number*	YPO36-20STPL	YPO48-15STPL
Model	36V/20A	48V-15A
Recommended lead-type battery bank	100-200Ah	
Recommended lithium batteries (LiPOWER+)	LIP36-100-BMS	LIP48-100-BMS
<b>Input</b>		
AC Voltage	From 90 to 265VAC single-phase automatic	
DC Voltage	From 121 to 375VDC	
Frequency	From 47 to 65Hz automatic	
Current consumed 230/115VAC	4,4/8,7A	
Recommended power for a generator	650W	
Power factor	1	
Efficiency	92.8% in 230VAC & 91% in 115VAC	
Input fuse	T15A/250V	
<b>Output</b>		
Number of battery banks	4 (including one for the engine battery) : +BAT E, +BAT 1 et +BAT 2 (integrated Mosfet splitter) +BAT3 Each bank can be used individually and deliver the rated current	
Nominal current (+/-7%) @ rated power	20A/855W	15A/855W
Charging curve	IU or IUoU through internal dip switches (Boost, Absorption and Floating – factory setting) - Selectable automatic Refresh	
Battery type	Sealed lead as factory setting - Gel, AGM, calcium lead, LiFePO4, DC power-supply mode, etc. Specific request on demand	
Boost voltage for sealed lead battery (factory setting)	43,2VDC	57,6VDC
Floating voltage for sealed lead battery (factory setting)	41,4VDC	55,2VDC
Peak to peak ripple and noise	< 2% (at rated conditions)	
Automotive fuses mounted in series in minus pole -BAT	1 x 30A/80V	
<b>Environment</b>		
Cooling	Natural (fanless)	
Sound level	0 dB	
Operating T° at 230VAC	From -20°C to +60°C (-4°F to +140°F)	
Derating	from 40°C (104°F)	
Performance at 60°C (140°F)	15A (230VAC)	12A (230VAC)
Storage T°	From -20°C to +70°C (-4°F to +158°F)	
Relative humidity	up to 70% (95% without condensation)	
<b>Casing</b>		
Material	Casing comprises 3 parts : Aluminium sink frame / Thermoplastic body / Aluminium clasp	
Dimensions (length, height, depth)	289 x 197 x 105mm (11.4 x 7.8 x 4.1 in)	
Weight	3.7kg (6.7 lb)	
Fixing center distance	272 x 170mm (10.7 x 6.7 in)	
Fixing screw (wall)	4 M5 round head screws	
Protection factor	IP34 (electronic) & IP22 (connections)	
<b>Standards</b>		
CE / EMC	EN61204-3	
CE / Security	EN60335-2-29 - ISO8846/SAE J1171	
<b>Protections</b>		
Against transient input overvoltage by varistor (Not covered by warranty) / Against output polarity reversal by fuses / Against short-circuits and output overloads / Against abnormal overheating		
<b>Communication</b>		
CAN-Bus (NMEA on option) / Bluetooth		
<b>Options</b>		
Temperature probe & OTD probe (Over Temperature Device) ref: 2.8m: STP-UNI-2.8 / 5m: STP-UNI-5.0, remote control G-ON/OFF-R-PL		

\* Included AC and DC connectors for item codes containing «ST» = Standard (except item codes containing «OE» – Original Equipment)

# IP65 POWER+

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Keypad  
To select battery technology

IP65

AC & DC cables included (1.8 m length)



Bluetooth



## Silent operating

CRISTEC is the only manufacturer offering 12V 70A chargers with natural convection (without fan) and waterproof. This advantage gives the YPOWER+ chargers a completely silent operation and an optimized lifespan. It is therefore possible to install them anywhere on board, including severe environment.



## 2 or 3 independent outputs

The YPOWER+ chargers have 2 or 3 independent outputs.



## Low energy bluetooth

YPOWER+ chargers are equipped with a Bluetooth Low Energy (BLE), variant of "classic" Bluetooth. The major advantage of BLE is its low power consumption as it consumes half of a classic Bluetooth.



## No derating

Chargers have full charge up to +40°C



## Ignition protected

They can be installed in the engine room thanks to ISO8846/SAE J1171 compliance which protects against ignition of flammable gases.



## Worldwide use

Automatic detection of power supply network, from 90 to 265VAC and from 47 to 65Hz. You do not have to care about AC grid voltage.



## 5-stage charging profile

- **Boost:** charges batteries to 80% of full charge
- **Absorption:** slowly completes remaining charge to 100%
- **Floating:** maintains battery charge
- **Automatic refresh:** prevents sulphation and revitalizes batteries, selectable by internal pushbutton
- **Reboost:** new automatic Boost phase if DC consumers and the state of batteries so require.

A regulated DC power-supply mode is also available : IP65 POWER+ chargers can be used as high-voltage DC-DC converters with input ranging from 121 to 375VDC.



## Adaptative charging

Custom-made and simultaneous recharge of 3 independant battery banks. YPOWER+ chargers can be used with various types of batteries simultaneously:

- Opened classic lead
- Sealed, gel or AGM
- Spiral sealed



Lithium Iron Phosphate (LiFePO4) with BMS Selection of your technology of battery thanks to the front keypad.



## Remote control

The chargers are fitted with a Bluetooth interface as standard. Can-Bus interface can be provided as option (please contact us). Connection to an NMEA network is also available through an optional adaptor, refer to charger's options page (p73).

NMEA

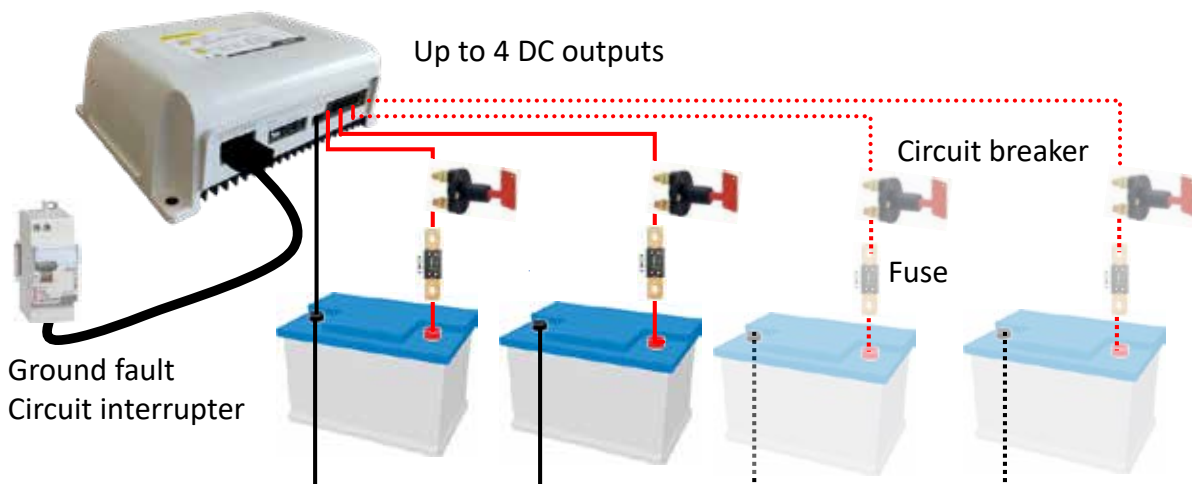
# AC-DC BATTERY CHARGERS IP65 POWER+



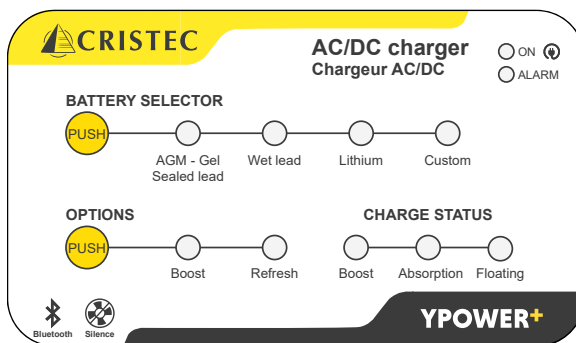
Part Number	YPO12-20STPL-IP	YPO12-30STPL-IP	YPO24-15STPL-IP
<b>Model</b>	12V/20A	12V/30A	24V/15A
<b>Recommended lead-type battery bank</b>	100-200Ah	200-300Ah	100-200Ah
<b>Recommended lithium batteries (LiPOWER+)</b>	LIP12-100-BMS		LIP24-100-BMS
<b>Input</b>			
<b>AC Voltage</b>	From 90 to 265VAC single-phase automatic		
<b>DC Voltage</b>	From 121 to 375VDC		
<b>Frequency</b>	From 47 to 65Hz automatic		
<b>Current consumed 230/115VAC</b>	1.3/2.6A	2/4A	2/4A
<b>Recommended power for a generator</b>	450W	650W	650W
<b>Power factor</b>	1		
<b>Efficiency</b>	92.8% in 230VAC & 91% in 115VAC		
<b>Input fuse</b>	T6.3A/250V		T6.3A/250V
<b>Output</b>			
<b>Number of battery banks</b>	2	3	2
	Each bank can be used individually and delivers the rated current		
<b>Nominal current (+/-7%) @ rated power</b>	20A/276W	30A/414W	15A/414W
<b>Charging curve</b>	Charging curve selection by push-button, Bluetooth or CAN-Bus (Boost, Absorption, Floating and Refresh)		
<b>Battery type</b>	Sealed lead as factory setting - Gel, AGM, calcium lead, LiFePO4, DC power-supply mode, etc. Specific request on demand		
<b>Boost voltage</b> for sealed lead battery (factory setting)	14.4VDC		28.8VDC
<b>Floating voltage</b> for sealed lead battery (factory setting)	13.8VDC		27.6VDC
<b>Peak to peak ripple and noise</b>	< 2% (at rated conditions)		
<b>Automotive fuses mounted in series in minus pole -BAT</b>	1 x 30A/32V	2 x 30A/32V	1 x 30A/32V
<b>Environment</b>			
<b>Cooling</b>	Natural (fanless)		
<b>Sound level</b>	0 dB		
<b>Operating T° at 230VAC</b>	From -20°C to +60°C (-4°F to +140°F)		
<b>Derating</b>	from 60°C (140°F)	from 40°C (104°F)	from 40°C (104°F)
<b>Storage T°</b>	From -20°C to +70°C (-4°F to +158°F)		
<b>Bluetooth</b>	Low energy bluetooth (BLE) - Power: +9dBm (frequency: 2412-2484MHz)		
<b>Casing</b>			
<b>Material</b>	Aluminium sink frame and clasp / Thermoplastic body		
<b>Dimensions (length, height, depth)</b>	238 x 181 x 81mm (9.4 x 7.1 x 3.2 in) (without cables)		
<b>Weight</b>	2kg (4.4 lb)		
<b>Fixing center distance</b>	219 x 155mm (8.6 x 6.1 in)		
<b>Fixing screw (wall)</b>	4 M5 round head screws		
<b>Protection factor</b>	IP65		
<b>Electronic card protection</b>	IP65 waterproof sealed casing		
<b>Standards</b>			
<b>CE declaration of conformity</b>	Available on request		
<b>CE / EMC</b>	EN61204-3		
<b>CE / Security</b>	EN60335-2-29 - ISO8846/SAE J1171		
<b>Protections</b>			
	Against transient input overvoltage by varistor (Not covered by warranty) / Against output polarity reversal by fuses / Against short-circuits and output overloads / Against abnormal overheating		
<b>Communication</b>			
	Bluetooth (CAN-Bus on option)		
<b>Options</b>			
	Temperature probe & OTD probe (Over Temperature Device) ref: 2.8m: STP-UNI-2.8 / 5m: STP-UNI-5.0, BUS-CAN		

# AC-DC BATTERY CHARGERS YPOWER+

## Typical installation

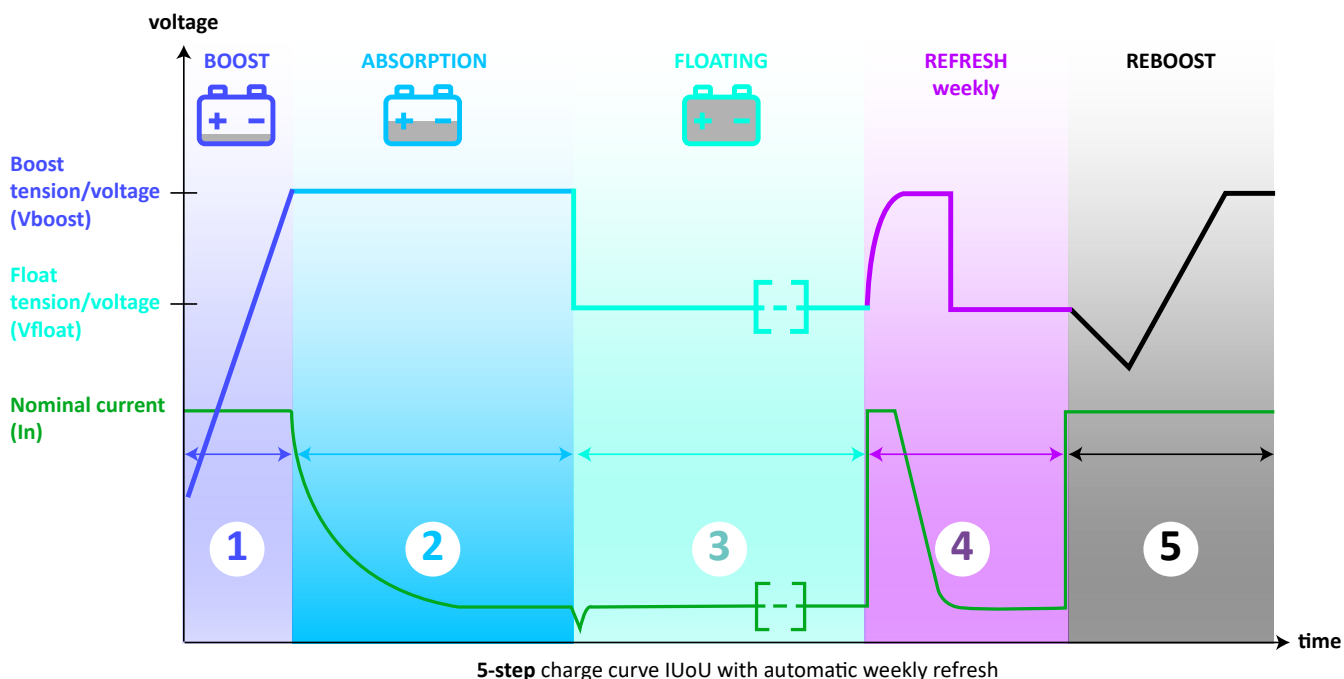


## Choosing a charging curve



With the PUSH button of the BATTERY SELECTOR you can choose the battery technology and its associated charging curve. If you use the Bluetooth Cristec Connect application on your mobile phone or tablet and choose a different charging curve the CUSTOM led switches on.

When choosing any battery technology above, the BOOST charging curve from the OPTIONS menu is selected by default. When the PUSH button is pressed again, you select the **5-step charging curve** with BOOST and REFRESH as follows :



If no OPTIONS are selected (no green led is lit on the OPTIONS menu) the charging curve starts with the Float voltage.