

# Tb Plus<sup>®</sup>



**MPPT CONTROLLER**



[www.tbplusenergy.com](http://www.tbplusenergy.com)

## LEGAL GUARANTEES

In accordance with Law 1480 of 2011 Consumer Statute and Decree 735 of 2013 Legal Guarantee:

- To request a guarantee, the customer is obliged to report the damage to the product, make it available to the company at the guarantee service point at AV CL 80 69-70 Unit 1C, and indicate the invoice number to determine your purchase date.
- The delivery of the repaired product will be delivered to the customer at the warranty service point, unless the customer requests to send it to a different destination, in which case the customer must assume the cost of freight.
- In any case, when a product repair guarantee is denied or approved, the respective written report must be issued supporting the evidence that justifies the decision.
- In no case will Tb Plus Energy proceed with the replacement of the product given under warranty since, if the repair does not proceed, a credit note will be issued which covers the acquisition of another new product or service or the return of the money paid.
- If the failure repeats once the product has been repaired, only the credit note applies which covers the acquisition of another new product or service or the return of the money paid.
- When the customer opts for a refund of the money, it will be for the amount of the sale price. For this purpose, they must send a communication signed by the legal representative, which indicates the bank details to make the return, the which will be effective within fifteen (15) business days after receipt of the return request.
- The repair of the product will be carried out within 30 business days following the claim, which is carried out by filling out the GP-F-018 Warranty Form, which is completed in the PQRF Guarantees tab on the WEB page [www.tbplusenergy.com](http://www.tbplusenergy.com) or at the following link:  
  
[https://forms.office.com/Pages/ResponsePage.aspx?id=K987JK0Nuke\\_1n30RF9URwiKWafZovhDrWEVYGmhK95UOVZYUFBWUpaQVZBM0hIS0RKUjdLSkdIWS4u](https://forms.office.com/Pages/ResponsePage.aspx?id=K987JK0Nuke_1n30RF9URwiKWafZovhDrWEVYGmhK95UOVZYUFBWUpaQVZBM0hIS0RKUjdLSkdIWS4u)
- Once the guarantee form has been completed, the client has 15 days to make it available at the guarantee service point.
- The product manuals in which proper use, installation instructions and periods covered by the warranty are reported are found in the PQRF Product Manuals tab on the website [www.tbplusenergy.com](http://www.tbplusenergy.com).

# TECHNICAL SPECIFICATIONS

## Product description

The XTRA series are advanced maximum point tracking charge controllers power (MPPT), for off-grid PV systems, with display units optional (XDB1/XDS1/XDS2).

In order to maximize the energy harvesting of the photovoltaic arrays and, at the same time, minimize energy loss within a wide range of operating conditions operation, the XTRA series applies an advanced intelligent algorithm that results in This results in up to 30% more efficient charging compared to modulation. Conventional pulse width (PWM) charge controller. The Xtra Series Controller It has a limit protection function on charging current and charging power as well such as high temperature automatic reduction power operation; the protection above ensures system stability even under overheating conditions and nominal photovoltaic power exceeded.

## Main properties

- Advanced MPPT technology and ultra-fast tracking speed are guaranteed up to 99.5%.
- The maximum DC/DC transfer efficiency is up to 98%, the efficiency of transfer at full load is up to 97.4%.
- Wide MPP operating voltage range.
- Low temperature protection and self-activation function for charging batteries lithium.
- Limit the charging power and current over the rated range.
- Real-time power statistics function.
- Multiple charging working modes.
- Comprehensive electronic protection.
- Protection against overtemperature and power degradation in temperatures higher.
- High quality components and low failure rate of ST or IR to ensure service life.

# TECHNICAL VARIABLES

Serie	XTRA 1206N	XTRA 2206N	XTRA 1210N	XTRA 2210N	XTRA 3210N	XTRA 4210N	XTRA 3215N	XTRA 4215N	XTRA 3415N	XTRA 4415N
<b>Electric</b>										
Nominal System Voltage	12/24VDC <sup>①</sup> Auto								12/24/36/48VDC <sup>①</sup> Auto	
Rated Load Current	10A	20A	10A	20A	30A	40A	30A	40A	30A	40A
Nominal Discharge Current	10A	20A	10A	20A	30A	40A	30A	40A	30A	40A
Battery Voltage Range	8~32V								8~68V	
Max. Open Circuit Voltage Photovoltaic	60V <sup>②</sup> 46V <sup>③</sup>		100V <sup>②</sup> 92V <sup>③</sup>				150V <sup>②</sup> 138V <sup>③</sup>			
MPPT Voltage Range	(Battery voltage +2V)~36V			(Battery voltage +2V)~72V			(Battery voltage +2V)~108V			
Max. Input Power Photovoltaic (W/V)	130/12 260/24	260/12 520/24	130/12 260/24	260/12 520/24	390/12 780/24	520/12 1040/24	390/12 780/24	520/12 1040/24	390/12 780/24 1170/36 1560/48	520/12 1040/24 1560/36 2080/48
Equalization Voltage <sup>④</sup>	Sealed: 14.6 V; Flooded: 14.8V; User: 17~V9									
Impulse Voltage <sup>④</sup>	Gel:14.2V; Sealed:14.4V; Flooded: 14.6V; User:17-9V									
Floating Voltage <sup>④</sup>	Gel /Sealed /Flooded: 13.8V; User: 17~9V									
Low Reconnect Voltage <sup>④</sup> Voltage	Gel /Sealed /Flooded: 12.6V; User: 17~9V									
Disconnection Voltage <sup>④</sup> Low voltage	Gel /Sealed /Flooded: 11.1 V; User: 17~9V									
Self-consumption	≤14mA(12V) ≤15mA(24V)		≤35mA(12V) ≤22mA(24V)				≤35mA(12V) ≤16mA(36V) ≤22mA(24V) ≤16mA(48V)			
Circuit Voltage Drop Download	≤0.23V									
Compensation Coefficient Of temperature <sup>⑤</sup>	-3mV/°C/2V (Default)									
Grounding	Common Negative Grounding									
RS485 interface	5VDC/200mA (RJ45)									
LCD Backlight Time	60S (Default)									
<b>Environmental</b>										
Ambient working temperature <sup>⑥</sup> (full rated power without power reduction)	-25°C~+50°C(LCD) ; -30°C~+50°C(No LCD)									
Storage temperature. range	-20°C~+70°C									
RH	≤ 95% , N.C.									
Enclosure	IP33 <sup>⑦</sup>									
Pollution degree	PD2									

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<b>Certification</b>										
Security	EN/IEC62109-1									
EMC (immunity to emissions)	EN61000-6-3/EN61000-6-1									
FCC	47 CFR Part 15, Subpart B									
Performance and function	IEC62509									
ROHS	IEC62321-3-1									

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<b>Mechanics</b>						
Dimension(mm)	175×143×48	217×158×56.5	230×165×63	255×185×67.8	255×187×75.7	255×189×83.2
Mounting dimension(mm)	120×134	160×149	173×156	200×176	200×178	200×180
Hole size mounting	Φ5mm					
Terminal	12AWG(4mm <sup>2</sup> )	6AWG(16mm <sup>2</sup> )	6AWG(16mm <sup>2</sup> )	6AWG(16mm <sup>2</sup> )	6AWG(16mm <sup>2</sup> )	6AWG(16mm <sup>2</sup> )
Recommended cable	12AWG(4mm <sup>2</sup> )	10AWG(6mm <sup>2</sup> )	8AWG(10mm <sup>2</sup> )	6AWG(16mm <sup>2</sup> )	8AWG(16mm <sup>2</sup> )	6AWG(16mm <sup>2</sup> )
Weight	0.57kg	0.96kg	1.31kg	1.70kg	2.07kg	2.47kg

- ① When selecting the lithium battery type, the system voltage cannot be automatically identified.
- ② At the minimum ambient operating temperature.
- ③ At 25°C ambient temperature.
- ④ When selecting the lithium battery type, the temperature compensation coefficient is 0, and cannot be set.
- ⑤ The parameters are 12V system at 25°C,x2 in 24V system at 25°C,x4 in 48V system at 25°C.
- ⑥ The controller can fully charge work in the working environment temperature. range, when the temperature internal reaches 81°C, step-down charging power mode is turned on.
- ⑦ 3 - Protection against solid objects: protected against solid objects larger than 2.5 mm.  
2 - Protection against solid objects: protected against solid objects larger than 2.5 mm.

## WARRANTY CONDITIONS


Tb Plus Energy warrants that each product is free from defects in materials and workmanship manufacturing, and offers a guarantee for a period of **24 months** from the acquisition of the product.


## RECOMMENDATION


- Check input voltage to connect.
- Check the connections.
- Install in a place where there are no environmental factors that can short out the equipment (Humidity, direct sun, fauna).
- Perform preventive maintenance.
- Avoid blows.
- Install under certified professional recommendation.


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