

User's Manual



SAFETY INSTRUCTIONS

1. **Make sure your battery has enough voltage** for the controller to recognize the battery type before first installation.
2. The battery cable should be as short as possible to minimize loss.
3. The regulator is only suitable for lead acid batteries: OPEN, AGM, GEL. **It is not suited for nickel metal hydride, lithium ions or other batteries.**
4. The charge regulator is only suitable for regulating solar modules. **Never connect another charging source to the charge regulator.**

PRODUCT FEATURES

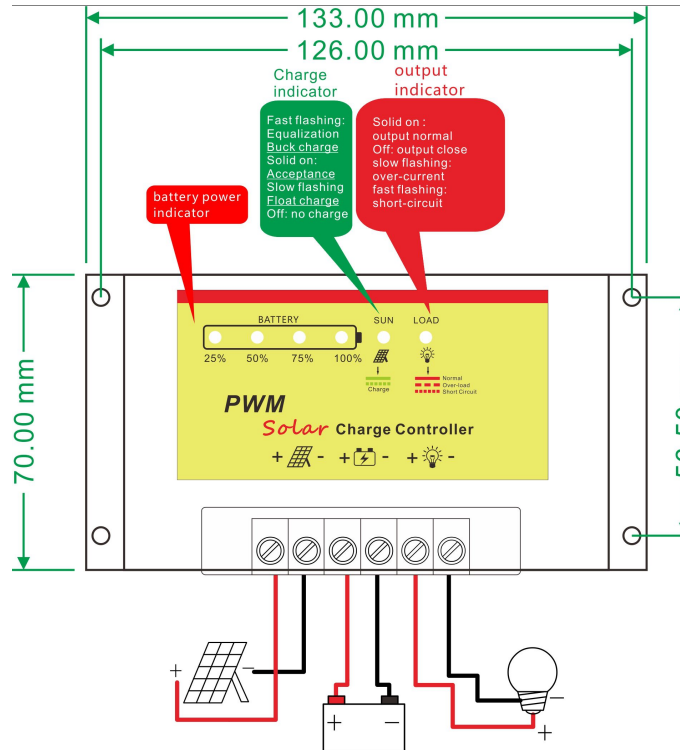
1. Build-in industrial micro controller.
2. Input and output LED display, a simple 4-stage battery capacity indicator.
3. Fully 4-stage PWM charge management.
4. Build-in short-circuit protection, open-circuit protection, reverse protection, over-load protection.
5. Dual mosfet Reverse current protection, low heat production.

SYSTEM CONNECTION

1. Connect the battery to the charge regulator - plus and minus. It will detect the battery voltage and go to charging progress.
2. Connect the photovoltaic module to the regulator - plus and minus.
3. Connect the consumer to the charge regulator - plus and minus.

The reverse order applies when deinstalling!

An improper sequence order can damage the controller!



TROUBLE SHOOTING

| Situation | Probable cause | Solution |
|------------------------------|--------------------------------|--------------------------|
| Charge LED not on when sunny | Solar panel opened or reversed | Reconnect |
| Load LED off | Battery low | recharge |
| Load LED slow flashing | Over load | Reduce load watt |
| Load LED slow flashing | Short circuit protection | Auto reconnect |
| Power off | Battery too low/reverse | Check battery/connection |

TECHNICAL PARAMETER

| MODEL | XTD110 | XTD120 | XTD210 | XTD220 |
|--------------------------|-------------------|--------|---------|--------|
| Batt voltage | 12V | | 12V/24V | |
| Charge current | 10A | 20A | 10A | 20A |
| Discharge current | 10A | 20A | 10A | 20A |
| Max Solar input | 42V | | | |
| Charge drop | <0.2V | | | |
| Discharge drop | <0.25V | | | |
| Equalization | 14.8V | | | |
| Bulk | 14.5V | | | |
| Acceptance | 14.2V PWM | | | |
| Float | 13.8V | | | |
| Charge reconnect | 13.0V | | | |
| Discharge stop | 11.2V | | | |
| Discharge reconnect | 12.6V | | | |
| Self-consume | <10mA | | | |
| Temperature compensation | N/C | | | |
| USB output | N/C | | N/C | |
| Operating temperature | -35~+60 °C | | | |
| Size/Weight | 133*70*35mm /150g | | | |

*all red color voltage X2 while using 24V system

*Product specifications are subject to change without prior notice