

Xantrex Lithium-ion Batteries Quickstart Guide

http://www.xantrex.com



883-0105-12
883-0125-12



DANGER

HAZARD OF FIRE, ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

This Xantrex Lithium-ion Batteries Quickstart Guide is in addition to, and incorporates by reference, the relevant product manuals for each product in the power system. After reviewing this guide you must read the relevant product manuals. Unless specified, information on safety, specifications, installation, and operation is as shown in the primary documentation received with the product. Ensure you are familiar with that information before proceeding.

Failure to follow these instructions will result in death or serious injury.

Exclusion for Documentation

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NOTE: Visit <http://www.xantrex.com>, click Products, select a Product category, select a Product, and search the Product Documents panel for a translation of the English guide, if available.

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Important Safety Information

READ AND SAVE THESE INSTRUCTIONS

Electrical equipment shall be installed, operated, serviced, and maintained only by qualified personnel. Certain configuration tasks shall only be performed by qualified personnel in consultation with your local utility and/or an authorized dealer. Servicing of batteries and the BMS shall only be performed or supervised by qualified personnel with knowledge of lithium-ion batteries and their required precautions. Qualified personnel have training, knowledge, and experience in:

- Installing electrical equipment
- Applying applicable installation codes
- Analyzing and reducing the hazards involved in performing electrical work
- Installing and configuring lithium-ion batteries
- Selecting and using Personal Protective Equipment (PPE)

No responsibility is assumed by Xantrex LLC for any consequences arising out of the use of this material.



An example of an arc flash event could be a direct short circuit caused by a metallic object such as a tool bridging between the positive and negative of an energized circuit.

DANGER

HAZARD OF FIRE, ELECTRIC SHOCK, EXPLOSION, BURN, OR ARC FLASH

- This battery shall be installed and serviced only by qualified personnel.
- Always wear proper PPE (safety glasses and clothing) when working on the Li-ion battery and follow safe electrical work practices according to local codes.
- Do not wear metallic items such as watches or bracelets when working on the battery. Use insulated tools to prevent accidental short circuit.
- Do not install the Li-ion battery module adjacent to any heat source. Keep away from sources of ignition.
- Do not install or operate any of the system devices in a compartment containing flammable materials or in locations that require ignition-protected equipment.
- Do not use in vital, medical, or life-support applications.

Failure to follow these instructions will result in death or serious injury.

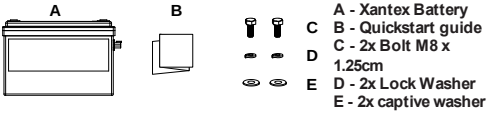
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IMPORTANT

ON FIRST USE: Perform a full charge, discharge, and charge cycle to ensure maximum battery life. For information, see *Battery Storage Guide* on the reverse side of this document.

Introduction

The Xantrex Lithium-ion Batteries are lithium iron phosphate (LiFePO₄) chemistry batteries used in conjunction with the internal Battery Management System (BMS) unit which protects the batteries and monitors state-of-charge (SoC), voltage, current, and temperature.



BATTERY DISPOSAL

At the end of the battery's useful life, proper disposal is required. Do not dispose the battery with ordinary household waste. Refer to your local codes for proper disposal of lithium-ion batteries.

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Installation

NOTE : See the Owner's guide (*document number: 975-1042-01-01*) online for detailed instructions.

1. Check the battery and the battery cable (if included) for visible damage including cracks, dents, chips, and deformations.
2. Select a location for the battery that is stable, clean, cool, dry, and well-ventilated.
3. Mount the battery so that either the top or the side label is pointing up. The battery can be mounted in either orientation. Mount the battery in a location away from heat sources.
4. Orient the devices so that the cables avoid sharp bends. Follow the bending radius recommendation below. This applies to both the communication and battery cables.
5. The battery uses M8 holes and bolts, these should be compatible with either 5/16" (or 3/8") lugs. The terminal should be torqued to 85-95 in-lb or 10-11 N-m.
6. Ensure a disconnect device and/or a protection device is in line with the pos(+) battery cable before connecting the battery to the DC System.

Optional: Connect the 4-pin connector cable and route the remote panel connectors as required.

NOTE: Installation and maintenance shall only be performed by qualified personnel as defined in Important Safety Information above. Contact Xantrex for information resources.

LED Indicators

The battery has four LED indicators and an optional remote summary LED. The LED indicators under normal operating conditions will provide details about the state-of-charge (SOC) of the battery. If an error is detected the LED indicators can be used to determine the error. See the LED Indicator Summary at the last section for simple troubleshooting.

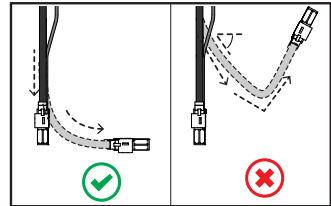
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Specifications

NOTE: Specifications are subject to change without prior notice.

Feature	883-0105-12	883-0125-12
Nominal Capacity	105Ah	125Ah
Nominal Voltage	12.8V	12.8V
Nominal Energy	1344Wh	1600Wh
Charging Voltage (max)	14.6V	14.6V
Float Voltage	13.4V	13.4V
Low Battery Cutoff Voltage	10.0V	10.0V
Recommended Charge Current	50A	62.5A
Max Charge Current (continuous)	100A	100A
Recommended Discharge Current	50A	62.5A
Max Discharge Current (continuous)	100A	100A
Max Pulse Discharge Current	200A (3 sec)	200A (3 sec)
Internal Impedance	3-4mΩ	3-4mΩ
Weight	26.5lbs (12kg)	28lbs (12.7kg)
Charging Temperature	32 – 131 °F (0 – 55 °C)	32 – 140 °F (0 – 60 °C)
Discharging Temperature	-4 – 131 °F (-20 – 55 °C)	-4 – 140 °F (-20 – 60 °C)
L x W x H	10.24 x 6.6 x 8.23 in (260 x 168 x 209 mm)	13.1 x 6.8 x 8.7 in (332 x 172 x 220 mm)
Cycle Life at 25°C to 80% Capacity	2800 (0.5C, 100% DOD)	2500 (0.5C, 80% DOD)

Figure 1 Avoiding sharp bends



A

Battery Storage Guidelines

In order to keep your Xantrex Lithium-ion Batteries at peak performance and at its healthiest state, you have to store it according to proper storage conditions and also maintain it with proper care.

Storage can be short term, such as less than one month or long term, such as more than three months.

Storage Specifications

Table 1 For batteries with 883-prefix product numbers

Term	Temperature	Humidity	Duration
< one week	−4 to 113°F (−20 to 45°C)	< 85%RH	Short
< one month	14 to 113°F (−10 to 45°C)	< 85%RH	Short
< three months	50 to 77°F (10 to 25°C)	< 85%RH	Short
> three months*	50 to 77°F (10 to 25°C)	< 85%RH	Long

* For long term duration storage the battery should be kept in a particular charged state such as, 13.2V, ~50% SoC, and stored at the recommended storage specifications shown above.

Storage Instructions for Short Durations

- Fully charge the battery.
- Turn off the battery using the ON/OFF button.
- Keep the battery in an environment according to *Storage Specifications*.

Storage and Maintenance Instructions for Long Durations

- Reduce the battery state-of-charge (SoC) to 50% ±10% which is approximately 13.2V for a 12V battery.
- Turn off the battery using the ON/OFF button.
- Keep the battery in an environment according to *Storage Specifications*.
- Every three months maintain the battery by charging it to 100% SoC, then discharging the battery to low voltage cutoff (LVC) level, then charging it back to 50% ±10% SoC.

NOTICE

RISK OF BATTERY DAMAGE
Do not charge the battery in ambient temperature below freezing.
Failure to follow these instructions can result in damage to the battery and may void the warranty.

B

Battery Maintenance Guideline

The Xantrex Lithium-ion Batteries system is designed to require the least amount of maintenance as possible. The battery and internal BMS are contained in a sealed device and do not require disassembly for maintenance reasons.

In general, to properly maintain the battery, follow the storage guidelines in the previous sections.

If the battery/ies are in regular use, then it is recommended that the battery/ies be fully charged a minimum of once per two weeks in order for the BMS to recalibrate its State of Charge (SoC) setting. This process also ensures that the SoC meter maintains its accuracy.

C

LED Indicator Summary

SOC % (charging)	LED 1 2 3 Error	Remote	Discharge %	LED 1 2 3 Error	Remote
100%	   		100%	   	
67-99%	   		67-99%	   	
33-66%	   		33-66%	   	
0-33%	   		0-33%	   	
Error Type	LED 1 2 3 Error		Remote		
Discharge Shutdown	   				
Internal battery error	   				
Charging over current protection Overload protection Short circuit protection	   				
Over temperature protection Temperature Differential Low temperature protection	   				

NOTE: For more information, scan and follow the links below.



Xantrex Lithium Ion Batteries website



Xantrex Lithium Ion Batteries
User and Installation Guides