X3 Power Supply and Battery Pack User Guide

X3 Power Supply and Battery Pack User Guide - Revision 3

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Introduction

This document describes how to safely use the X3 Power Supply (Magtech), X3 Battery Pack (HBJ), and associated cables. In certain applications external electronic noise can be an issue when using XSENSOR equipment. This can cause inconsistent and sometimes improper readings as well as flashing or other noise related problems. In order to help with electrical noise issues for certain system configurations, XSENSOR provides a grounding cable. The X3 Battery Pack may also be used to reduce system noise but is primarily provided to support portable applications that require battery power. This document provides instructions and illustrations on for possible configurations for powering the XSENSOR system.

Operating the X3 Power Supply and Battery Pack

The following instructions outline how to test and charge the battery pack as well as how to connect the XSENSOR system using 4 different power supply configurations. Battery pack charging instructions and safety considerations are listed below these configurations.
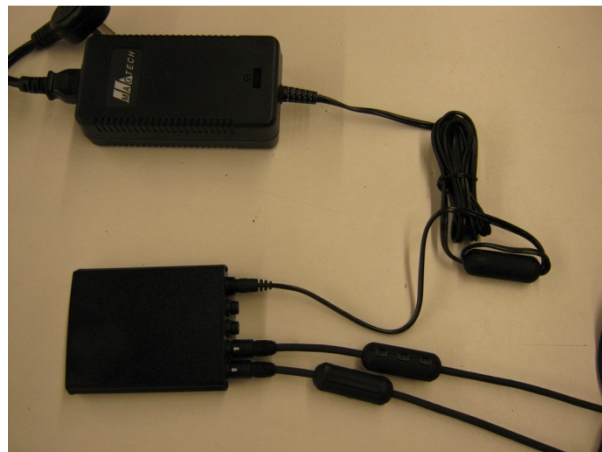
Powering the XSENSOR System

There are 4 different configurations that you can use to power the X3 PRO using the equipment sent with this system:
1. Using the X3 Power Supply to directly power the X3 PRO (to be used in low noise environments)
2. Using the X3 Power Supply and grounding cable to power the X3 PRO (to be used when electrical noise is degrading system performance).
3. Using the X3 Battery Pack to directly power the X3 PRO (to be used in portable applications or when electrical noise is degrading system performance).
4. Using the X3 Battery Pack and grounding cable to power the X3 PRO (to be used when electrical noise is degrading system performance)
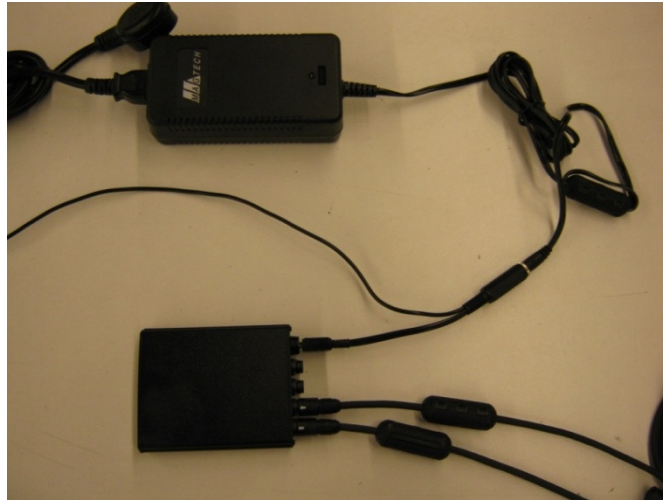
1) Using the X3 Power Supply to Directly Power the X3 PRO

This is the standard system configuration. The following figure illustrates the connections required to use the 12VDC, X3 Power Supply to directly power the hub.

2) Using the X3 Power Supply with Ground Cable

If the system is used in an environment where there is noticeable system noise (pressure map appears noisy and measurements are inaccurate), using the 12VDC, X3 Power Supply with the ground cable may help. In this configuration the ground cable is placed between the power supply and the X3 PRO. The ground clip must be connected to a known earth or chassis ground on nearby equipment or on an AC electrical outlet. The following figure shows how to connect the power to the X3 PRO using the grounding cable in line.

Note: The ground cable is coming off of the left of this picture. The ground cable should be connected using the alligator clip to exposed metal on nearby equipment, or to a known earth ground. For best results, test different grounding locations.
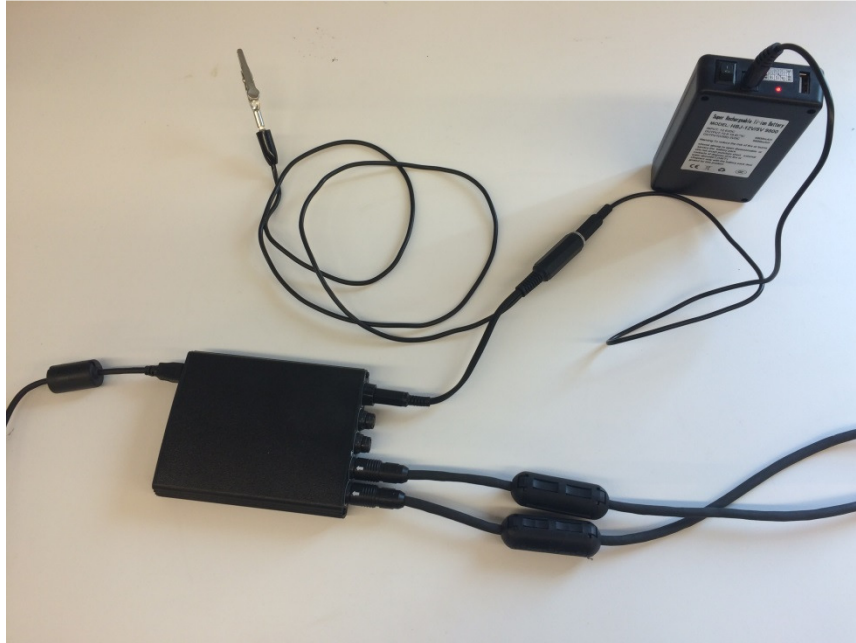
3) Using the X3 Battery Pack

The X3 Battery Pack is required for portable applications or when there is noticeable system noise (pressure map appears noisy and measurements are inaccurate).   The following figure illustrates how to connect the X3 battery pack to an X3 PRO.

4) Using the X3 Battery Pack with Ground Cable

This configuration is generally not required as noise problems can typically be resolved by using the ground cable or the X3 Battery Pack on its own. However, if noise problems still persist then the X3 Battery Pack can be used with the ground cable. The following figure illustrates how to connect the X3 X3 Battery Pack and ground cable to an X3 PRO.

The ground cable should be connected using the alligator clip to exposed metal on nearby equipment, or to a known earth ground. For best results, try different grounding locations.

X3 Battery Pack System Components

The X3 Battery Pack system contains the following components:

1. X3 Battery Pack
2. X3 Battery Pack Interface Cable
3. AC Charger
4. Country specific AC plug adapter (if required)

Battery Pack Operation

WARNING!   Safety First

The following safety warnings must be observed at all times
1. To prevent fire or shock hazard, do not expose the unit to rain or moisture.
2. DO NOT charge the battery when ambient temperature is below 0 Celcius (32F).
3. CAUTION Do not open the battery pack. There are no user serviceable parts inside. Refer servicing to qualified service personnel.
4. <u>Only charge the battery pack with the supplied battery charger</u>. DO NOT plug the X3 Power Supply (Magtech) into the battery pack.

Operation

1. Set the switch on the battery pack to "0" (off)
2. Connect the battery pack to the X3 PRO as described in section 3 or 4 above.
   Note that the supplied power cable has 2 similar but different connectors . It can only be connected to the battery pack and the X3 PRO one way.
3. Connect the X3 PRO to the computer using the supplied USB cable
4. Connect the X3 PRO to the sensor packs
5. Set the switch on the battery pack to "1" (on) and confirm the red LED turns on.
6. Turn on the X3 PRO

Recharge the battery pack when the battery pack red LED becomes dim or turns off, or when the X3 PRO LED turns off.

The battery pack has built in overload/over voltage/short circuit protection that will disconnect the battery if a fault is detected. Recharge the battery pack to reset the protection circuit.

CAUTION: when using the battery pack, always connect the USB cable between the X3 PRO and the computer <u>before</u> turning ON the X3 PRO. Failure to connect the USB cable first can result in excessive surge current that may damage the X3 PRO electronics.

Charging The Battery Pack

1. Set the switch on the battery pack to "0" (off)
2. Connect the supplied charger to the battery pack
3. Plug the charger into an AC supply.
   The LED on the charger will show green and the LED on the battery pack will show red.
4. Set the switch on the battery pack to "1" (on).
   The LED on the charger will show red (fast charge) and the LED on the battery pack will continue to show red. Charging is in progress. <u>The battery pack must be switched on to charge</u>.

5. Wait for the LED on the charger to change to green (trickle charge) indicating that the battery pack is charged. This may take up to 5 hours.

6. Set the switch on the battery pack to "0" (off)
7. Disconnect the charger.

X3 Battery Pack Specifications

Battery Capacity	80Wh, 6800mAh
Battery Voltage	10.8-12.6V
Output Current	4000mA maximum
Charging Temperature	0C to 40C
Operating Temperature	-10 to 40C
Storage Temperature	-20 to 50C
Charging Time	3-5Hrs
Battery Protection	Overload Over voltage Short circuit
Cycle Life	>500 Cycles @ 20C
Battery Size	10.3cm x 6.1cm x 2.3cm
Battery Weight	280g