



# Lab-Trax-4/16

*4-channel data acquisition hardware for use with  
Data-Trax™ data recording and analysis software*



## **World Precision Instruments, Inc.**

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www.wpiinc.com

## **HARDWARE MANUAL**

Serial No. \_\_\_\_\_

### **About Your Warranty**

This instrument has a limited warranty. To ensure that you receive all notices regarding hardware changes, improvements or recalls as well as software updates if applicable, please complete the warranty registration for this product.

102407





The **Lab-Trax 4/16** is a low-noise, USB-coupled data acquisition system that provides four channels of isolated analog input, four non-isolated digital inputs and four non-isolated digital outputs. The unit's analog input channels provide 16-bit resolution across a  $\pm 10$  Volt input range while its digital I/O are TTL compliant. The analog inputs couple through standard BNC connectors and the digital I/O utilizes a DB-9 receptacle. The **Lab-Trax 4/16** provides plug and play connectivity to the PC while drawing less than 100mA from the USB port, allowing portability when coupled with a laptop. The device has a small foot print and is light weight.

### Specifications

#### Analog Input:

Number of Inputs	4 BNC Connectors
Input Impedance	1 MOhm
Input Range	$\pm 10$ Volt
Isolation	2.5 kVRMS
CMRR (Min./Typ.)	> 80 dB / 92 dB
Noise (Max./Typ.)	< $\pm 610$ $\mu$ Volt / $\pm 305$ $\mu$ Volt

#### Digital:

Number of Inputs	4 TTL (DB-9 Connector)
Number of Outputs	4 TTL (DB-9 Connector)
Output Impedance	< 200 Ohm
Output Current	< 5mA

<b>Power</b>	5VDC/ <100mA from USB
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## Included Items

The **Lab-Trax 4/16** is shipped with the following:

- USB Cable
- Data-Trax2™ Installation CD  
(Software manual is PDF file on CD, or select "Help" from Data-Trax2 menu)
- Hardware Instruction Sheet

If any items are missing, they should be reported to WPI within 10 days of receipt.

## Setting Up

- 1 Install software first!**
- 2** Connect the **Lab-Trax 4/16** to the PC via the USB cable.
- 3** Install drivers using the Operating System Wizard.
- 4** Launch software.

## Frequency Response

The **Lab-Trax 4/16** contains a single-pole, RC anti-aliasing filter with a fixed cut-off frequency set at 5 kHz  $\pm 5\%$ .

## System Noise

System noise is the noise attributed to the **Lab-Trax 4/16** itself, and is measured by shorting its inputs to ground and then measuring the output. The **Lab-Trax 4/16** is specified to have system noise that does not exceed  $\pm 610$   $\mu$ Volts, though it typically is less than  $\pm 305$   $\mu$ Volts.

## Input Signal

The **Lab-Trax 4/16** has single-ended inputs. The inputs are the four BNC connectors located on the front panel. The input range is  $\pm 10$  Volts. The input impedance of each channel is 1 MOhm  $\pm 5\%$ . The analog inputs have 2.5 kVRMS isolation limiting the noise from the host computer USB power supply.

## WARRANTY REGISTRATION

Please complete this registration form and return it by mail or Fax to receive Technical Support and Customer Services within the terms of our Warranty. If you prefer, you may also fill out the on-line registration form at [www.wpiinc.com/warranty](http://www.wpiinc.com/warranty)

<input type="checkbox"/> DR	<input type="checkbox"/> PROF	<input type="checkbox"/> MR	<input type="checkbox"/> MS
FIRST NAME		LAST NAME	
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## PRODUCT INFORMATION

Product Name or Model \_\_\_\_\_

Invoice Number \_\_\_\_\_

Serial number \_\_\_\_\_ Purchase Date \_\_\_\_\_

What is your primary application or area of research? \_\_\_\_\_

May we add your name to our Users Group List to which we occasionally refer other users or prospective users?

☐ YES ☐ NO

Would you like to receive e-mail updates about this and other WPI products?

☐ YES ☐ NO

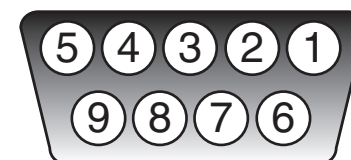
### Privacy Policy

The personal information you provide to WPI is treated with care to ensure safety, security and confidentiality. WPI does not sell, trade, rent, or otherwise provide customer information to third parties. WPI has implemented security features and strict policy guidelines to safeguard the privacy of customer information from unauthorized access or improper use.

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## Digital I/O

Digital I/O is connected via a DB-9 receptacle on the rear panel and provides four inputs, four outputs, and a ground connection. The digital outputs provide 5 Volts and up to 5mA. The digital inputs are high if D\_IN is between 2 and 5 VDC. The digital inputs are low if D\_IN is between 0 and 0.8 VDC.



DB9.1 = D_IN1	DB9.9 = D_OUT1
DB9.2 = D_IN2	DB9.8 = D_OUT2
DB9.3 = D_IN3	DB9.7 = D_OUT3
DB9.4 = D_IN4	DB9.6 = D_OUT4
DB9.5 = Gnd	


**WORLD PRECISION INSTRUMENTS, INC.**

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**DECLARATION OF CONFORMITY**

We: World Precision Instruments, Inc.  
 175 Sarasota Center Boulevard  
 Sarasota FL 34240-9258  
 USA

as the distributor of the apparatus listed, declare that the product:

<b>Title: LAB-TRAX-4/16</b>
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to which this declaration relates is in conformity with the following standards or other normative documents:

**Safety:** Exempt


**EMC:** Emissions: EN55022:1998/A1:2000/A2:2003 Class A  
 Immunity: EN61326:1997/A1:1998/A2:2001

and therefore conform(s) with the protection requirements of Council Directive 89/336/EEC relating to electromagnetic compatibility.

<b>Issued on: November 2, 2006</b>
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 Mr. Cliff Bredenberg  
 General Manager

 World Precision Instruments, Inc.  
 175 Sarasota Center Boulevard  
 Sarasota, FL 34240-9258 USA

  
 Mr. Glen Carlquist  
 Vice President of Manufacturing

 World Precision Instruments, Inc.  
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## Warranty

WPI (World Precision Instruments, Inc.) warrants to the original purchaser that this equipment, including its components and parts, shall be free from defects in material and workmanship for a period of one year\* from the date of receipt. WPI's obligation under this warranty shall be limited to repair or replacement, at WPI's option, of the equipment or defective components or parts upon receipt thereof f.o.b. WPI, Sarasota, Florida U.S.A. Return of a repaired instrument shall be f.o.b. Sarasota.

The above warranty is contingent upon normal usage and does not cover products which have been modified without WPI's approval or which have been subjected to unusual physical or electrical stress or on which the original identification marks have been removed or altered. The above warranty will not apply if adjustment, repair or parts replacement is required because of accident, neglect, misuse, failure of electric power, air conditioning, humidity control, or causes other than normal and ordinary usage.

To the extent that any of its equipment is furnished by a manufacturer other than WPI, the foregoing warranty shall be applicable only to the extent of the warranty furnished by such other manufacturer. This warranty will not apply to appearance terms, such as knobs, handles, dials or the like.

WPI makes no warranty of any kind, express or implied or statutory, including without limitation any warranties of merchantability and/or fitness for a particular purpose. WPI shall not be liable for any damages, whether direct, indirect, special or consequential arising from a failure of this product to operate in the manner desired by the user. WPI shall not be liable for any damage to data or property that may be caused directly or indirectly by use of this product.

## Claims and Returns

- Inspect all shipments upon receipt. Missing cartons or obvious damage to cartons should be noted on the delivery receipt before signing. Concealed loss or damage should be reported at once to the carrier and an inspection requested. All claims for shortage or damage must be made within 10 days after receipt of shipment. Claims for lost shipments must be made within 30 days of invoice or other notification of shipment. Please save damaged or pilfered cartons until claim settles. In some instances, photographic documentation may be required. Some items are time sensitive; WPI assumes no extended warranty or any liability for use beyond the date specified on the container.

- WPI cannot be held responsible for items damaged in shipment en route to us. Please enclose merchandise in its original shipping container to avoid damage from handling. We recommend that you insure merchandise when shipping. The customer is responsible for paying shipping expenses including adequate insurance on all items returned.

- Do not return any goods to WPI without obtaining prior approval and instructions (RMA#) from our returns department. Goods returned unauthorized or by collect freight may be refused. The RMA# must be clearly displayed on the outside of the box, or the package will not be accepted. Please contact the RMA department for a request form.

- Goods returned for repair must be reasonably clean and free of hazardous materials.

- A handling fee is charged for goods returned for exchange or credit. This fee may add up to 25% of the sale price depending on the condition of the item. Goods ordered in error are also subject to the handling fee.

- Equipment which was built as a special order cannot be returned.

- Always refer to the RMA# when contacting WPI to obtain a status of your returned item.

- For any other issues regarding a claim or return, please contact the RMA department.

**Warning: This equipment is not designed or intended for use on humans.**

*\* Electrodes, batteries and other consumable parts are warranted for 30 days only from the date on which the customer receives these items.*