Touch International

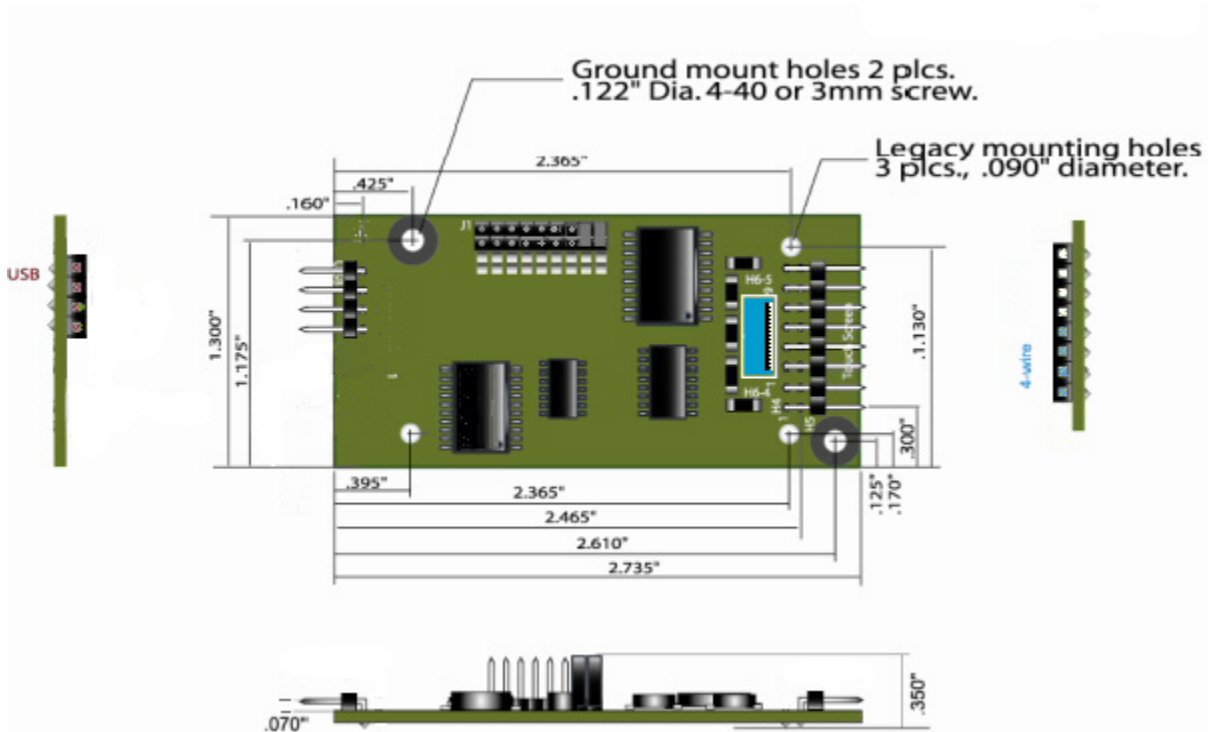# Setup and Users Manual

4-wire USB
Resistive Touch Screen Controller Board
48-B-4-02

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Mechanical Specification

Note: Use jumper setting diagrams and connection diagrams for identifying correct jumper and connection settings.

NOTE: The board revision and firmware release can be found directly on your touch screen controller board. Please contact Touch International if you have any questions regarding your hardware revision.

Warning:
Although, Touch International has taken steps to protect your touch screen controller from transient voltage, it is important to make all grounding, communication and touch screen connections to the controller and touch screen before powering on your computer, video monitor or touch screen controller. Failure to follow this procedure may result in damage to your controller and/or communication port**.**

General Information

User Information:
Those responsible for the application and use of Touch International products and documentation are assumed to have taken all necessary steps to ensure that the application of Touch International products meet safety and performance requirements including any laws, regulations, codes and standards associated with user application.

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A note about drivers

Please review the driver and users manuals for instructions for installing the drivers. Touch International drivers may be found at the Touch International Web site: www.touchinternational.com

Introduction:

This manual has been written for users of the Touch International controller boards, which are used in combination with the Touch International device drivers. Touch International device drivers are designed to integrate smoothly with PC based operating systems.

The controller and software described within this document are assumed to be used with four wire analog resistive touch screen products manufactured by Touch International. Touch screens vary with regards to light transmission, sensitivity and electrical characteristics. Because touch screen quality and resistance varies depending on technology and customer requirements, overall resolution may vary (slightly) between touch screen overlay products. The Touch International controller allows for 12-bit (4,096 x 4,096) resolution of an analog resistive touch screen. Points in a field are: 16,556,761.

Features of Touch International touch screen controller

Software and Device Drivers:

All Touch International products are designed to be used with Touch International device drivers. Touch International supports and maintains all products sold with the Touch International™ trademark.

Typically, there is no additional charge for Touch International device drivers. Drivers are available for Windows™9x, 2000, ME, Windows NT™, DOS™.

Communication Type

USB, Universal Serial Bus

Touch Screen Interface:

Analog Resistive 4 wire

Resolution:

12 bit (4,096 x 4,096) 16,556,761 points in the field

Transmission Speed:

~40 – 100 dynamic points / second

Static Protection:

400 watts static protection

Calibration:

Software (driver) calibration for all PC and Mac configurations.
Touch International drivers include 4 point and 20 point calibration to compensate for non-linear or non-square linearization patterns.
3 and 7point standard touch screen calibration algorithms.

Power Options:

Power from port: 5 Vdc +/- 10%

Note about software calibration:

The touch screen connector may be <u>can be</u> connected upside down. The calibration routine will identify the correct position of the touch screen overlay.

Communication Format

USB Protocol

Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
1	0	0	0	0	0	0	0	P
2	X7	X6	X5	X4	X3	X2	X1	X0
3	0	0	0	0	X11	X10	X9	X8
4	Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0
5	0	0	0	0	Y11	Y10	Y9	Y8

Where:

$$\begin{array}{ll} P & \text{- 0 Pen-Up, 1 Pen-Down} \\ X11\text{-}X0 & \text{- 12 bit X position data} \\ Y11\text{-}Y0 & \text{- 12 bit Y position data} \\ PU & \text{- 0 no Pen-Up, 1 Pen-Up} \\ PD & \text{- 0 no Pen-Down, 1 Pen-Down} \end{array}$$

CK7-CK0 - AAH + 55H + Sum of Bytes 2 through 9

USB Communication w/ Power from Port Connection Diagram
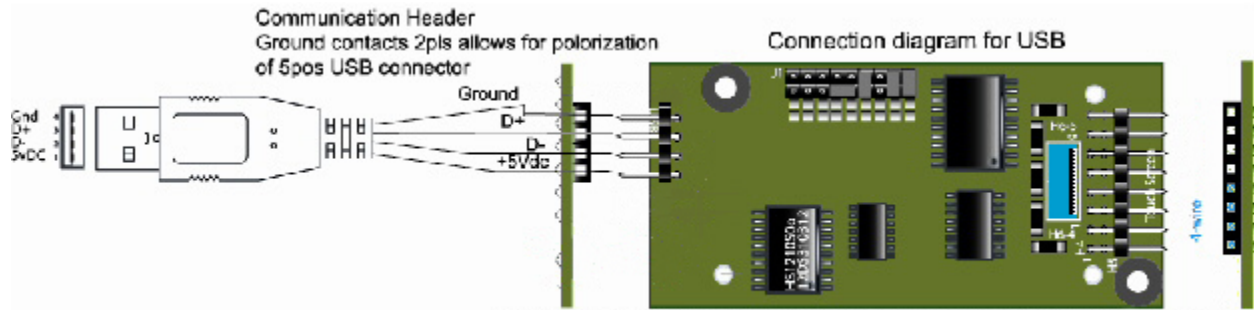
Touch Screen Connection Diagrams

If your sensor has a flex tail, use the FFC type connector to plug your sensor to the controller.
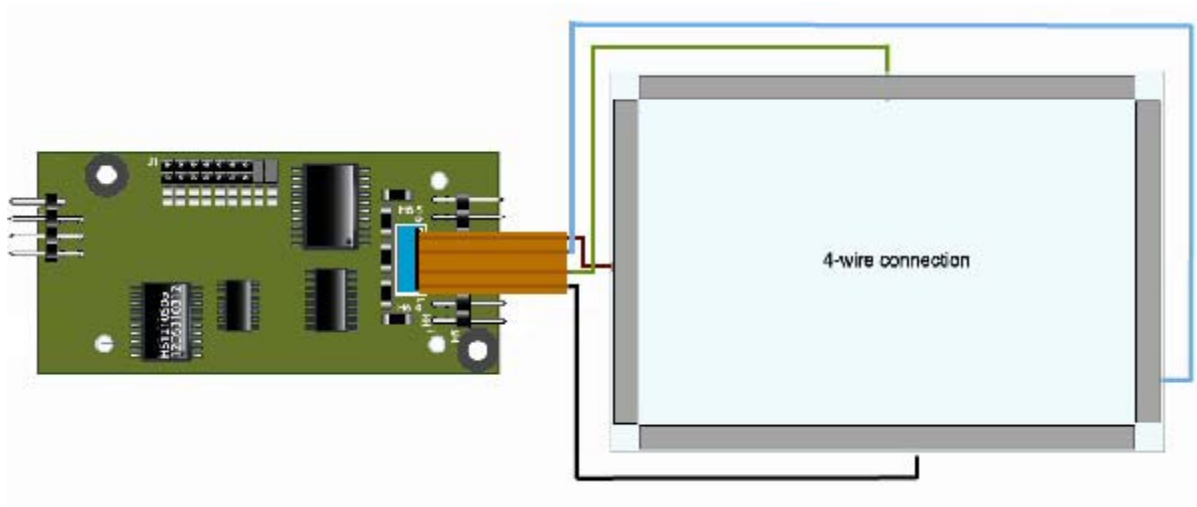
If your sensor has a amp style connector, use the bottom four pins on the header to connect the sensor to the controller.

4-wire connection