



im1WP

1-Wire Module with Pin Header Connectors

----- Part of Modtronix *iMod* product range -----

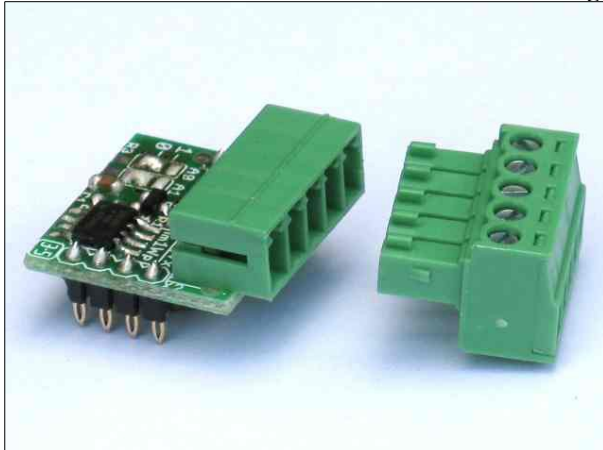
1 Introduction

The following documentation is for the im1WP Revision 1. The im1WP is an electronic module with an I²C accessible 1-Wire interface, and pin header connectors. It enables devices on a 1-Wire bus to be read and written to via an I²C serial bus. It has special circuitry to enable long distance communication on the 1-Wire bus.

It uses the Dallas DS2482-100 I²C to 1-Wire Bridge chip. For details on DS2482-100, download it's datasheet from www.maxim-ic.com

The im1WP is part of the Modtronix *iMod* product range.

Picture 1: im1WP Board With Terminal Block Plug



Picture 2: im1WP Board as seen from the top



2 Features

- Is part of our *iMod* product range. For details, see <http://www.modtronix.com/info/imod>
- High quality assembly, with brand name, quality components. No cheap, “no name brand” components are used!
- I²C Host Interface, Supports 100kHz and 400kHz I²C Communication Speeds
- 1-Wire Master IO with Selectable Active or Passive 1-Wire Pullup
- Provides Reset/Presence, 8-Bit, Single-Bit, and Three-Bit 1-Wire IO Sequences
- Standard and Overdrive 1-Wire Communication Speeds
- Slew Controlled 1-Wire Edges
- Selectable 1-Wire Slave Presence-Pulse Falling
- Edge Masking to Control Fast Edges on the 1-Wire Line
- Supports Low-Impedance 1-Wire Strong Pullup for EEPROMs, Temp Sensors, or Other 1-Wire Slaves that have Momentary High Current Modes
- 2 Address Inputs for I²C Address Assignment
- Wide Operating Range: 2.9V to 5.5V, -40°C to +85°C

3 Connectors

3.1 Pin Header Connector

The im1WP has two rows of pin header connectors. Different types of pin headers can be assembled. Standard options are 3.0mm pin headers, round swiss pin headers or press-fit pin headers.

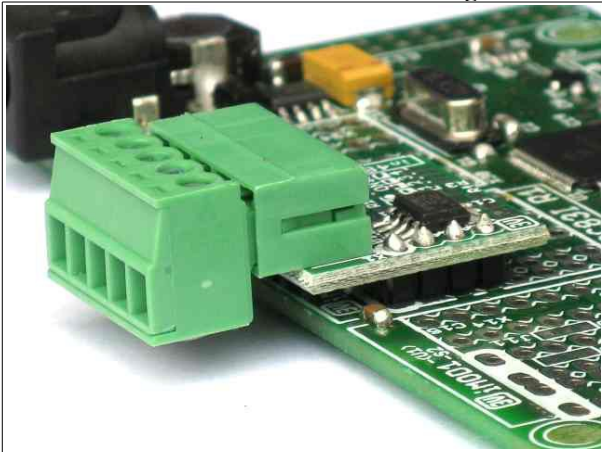
Table 2 shows the pin-outs of the X1 and X2 connectors (iMod left and right connectors). For the location of these connectors and pin-outs, see [5 Dimensions](#).

Table 1: Pin Header Connector

<i>Left Pin Header (X1)</i>			<i>Right Pin Header (X2)</i>		
<i>Pin</i>	<i>Signal</i>	<i>Description</i>	<i>Pin</i>	<i>Signal</i>	<i>Description</i>
1	Gnd	0V Supply Voltage	1	Vaux	Auxiliary Voltage. Can be used to make the Auxiliary voltage obtained via the Pin Header connector available on the Terminal Block connector.
2	N.C.	No Connection	2	Vcc	Positive Supply Voltage. Normally 3.3V or 5.0V, depending on voltage of target board.
			3	SCL	I ² C Clock signal
			4	SDA	I ² C Data signal

3 Shows the im1WP board fitted to a target board.

Picture 3: im1WP Board inserted on target board



3.2 Terminal Block Connector

The im1WP has a 5 pin, 3.5mm Terminal Block connector. For the location and pin numbering of this connector, see [5 Dimensions](#).

Table 2: Terminal Block Connector

<i>Connector Pin</i>	<i>Description</i>
1	Vaux – Marked as Vx on board. Auxiliary Voltage obtained via Pin Header connector. This pin is connected to the Vaux pin on the pin header connector. Can be used to access auxiliary voltage of target board that im1WP is mounted to.
2	V+ - Positive supply voltage of target board im1WP is mounted to, obtained via Pin Header.
3	1W - 1-Wire signal
4	Gnd - 0V
5	Gnd - 0V

4 Specifications

4.1 Absolute Maximum Ratings

<i>Item</i>	<i>Symbol</i>	<i>Min</i>	<i>Typ</i>	<i>Max</i>	<i>Unit</i>
Operating Temperature	Top	-40		85	°C

4.2 Electrical Characteristics

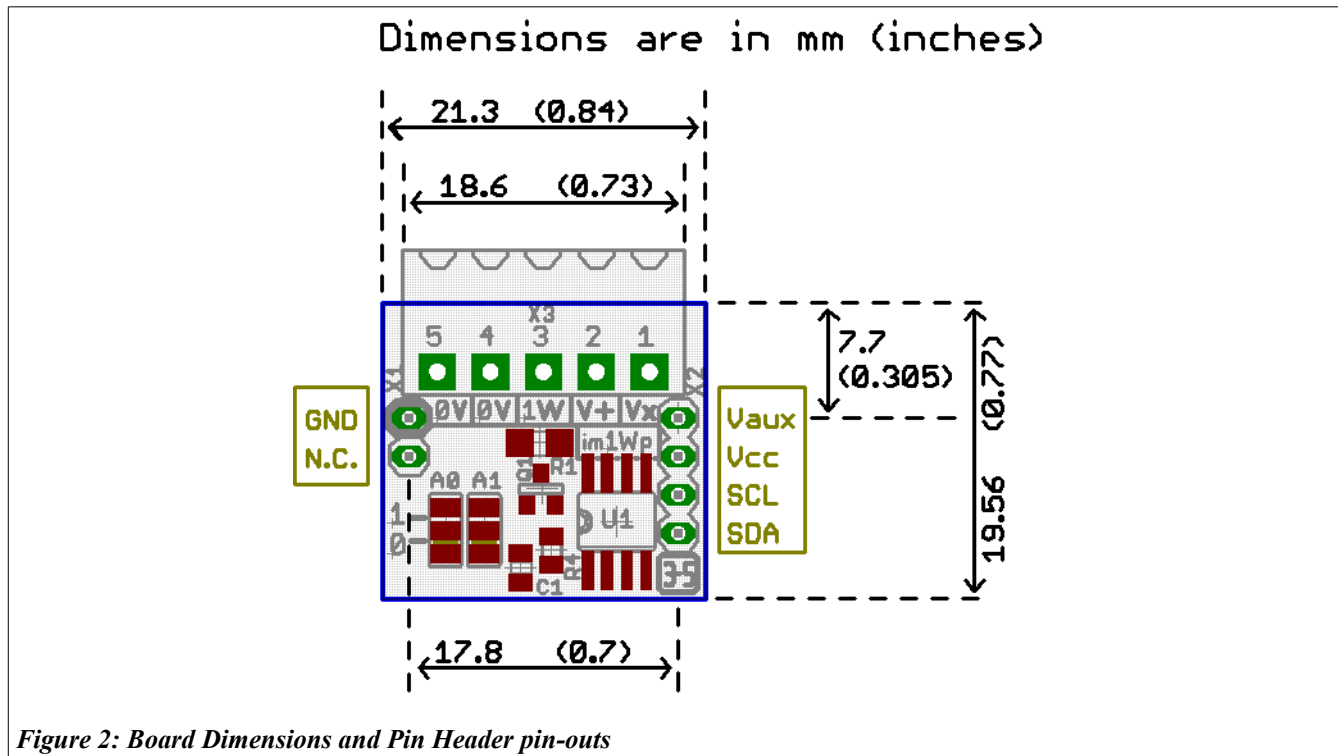
For more detailed Electrical Characteristics, see DS2482-100 datasheet. It can be downloaded from www.maxim-ic.com This includes characteristics for **I²C** bus and **1-Wire** pins.

<i>Item</i>	<i>Symbol</i>	<i>Condition</i>	<i>Min</i>	<i>Typ</i>	<i>Max</i>	<i>Unit</i>
DC Supply Voltage	Vdd	5V	4.5	5.0	5.5	V
		3.3V	2.9	3.3	3.7	V
Typical Operating Current (Note 1)	Icc			0.75		mA

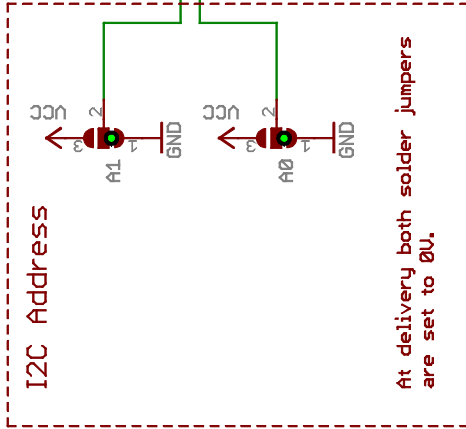
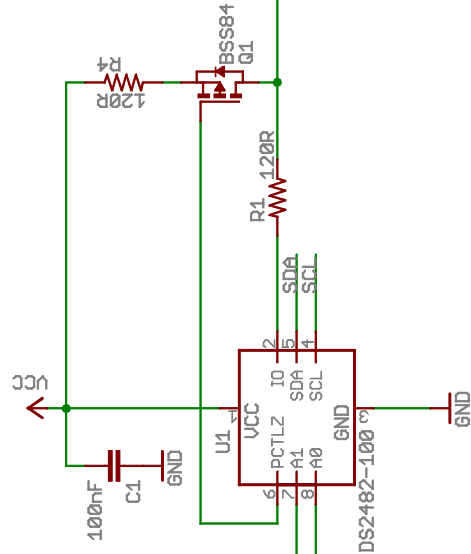
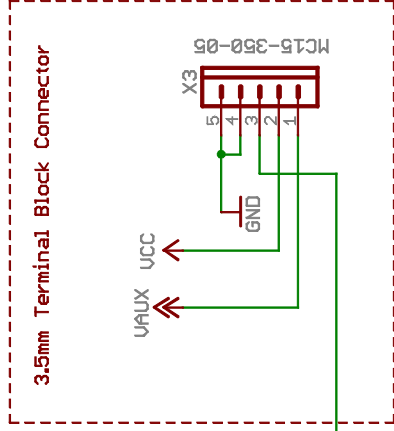
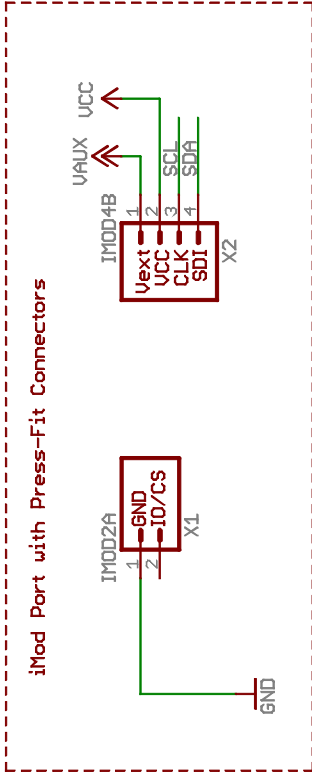
- Note 1: Operating current with 1-Wire write byte sequence followed by continuous Read of Status register at 400kHz in Overdrive.

5 Dimensions

The im1WP Dimensions are shown in Figure 2.



6 Schematics



* ● Indicates default solder jumper that is made at delivery

im1W 1-Wire Board - Modtronix Engineering

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Document Number:

REV: 1

Date: 2/21/2008 11:56:42a

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