



## *im1WP*

### *1-Wire Module with Press-Fit Connectors*

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

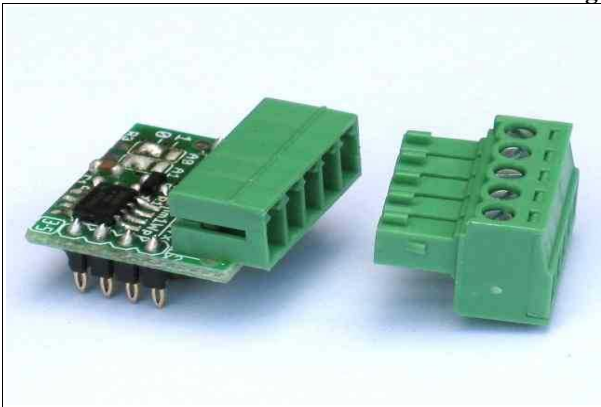
## 1 Introduction

The following documentation is for the im1WP Revision 1. The im1WP is an electronic module with a I<sup>2</sup>C accessible 1-Wire interface, and press-fit connectors. It enables devices on a 1-Wire bus to be read and written to via an I<sup>2</sup>C serial bus. It has special circuitry to enable long distance communication on the 1-Wire bus.

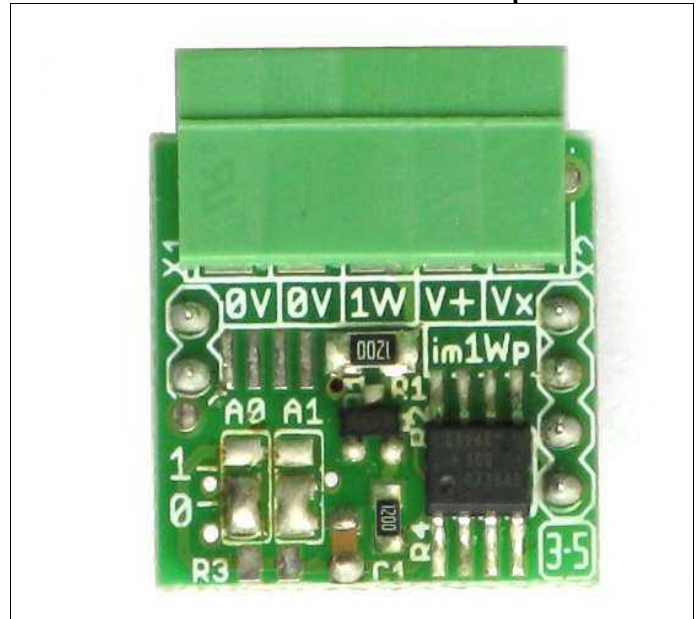
It uses the Dallas DS2482-100 I<sup>2</sup>C to 1-Wire Bridge chip. For details on DS2482-100, download it's datasheet from [www.maxim-ic.com](http://www.maxim-ic.com)

The im1WP is part of the Modtronix *Presto 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 *Presto iMod* product range, can be used together with other Presto products. For details, see [www.modtronix.com/products/presto](http://www.modtronix.com/products/presto)
- High quality assembly, with brand name, quality components. No cheap, “no name brand” components are used!
- Press-Fit connectors are gold plated for best possible contact.
- I<sup>2</sup>C Host Interface, Supports 100kHz and 400kHz I<sup>2</sup>C 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 I<sup>2</sup>C Address Assignment
- Wide Operating Range: 2.9V to 5.5V, -40°C to +85°C

## 3 Connectors

### 3.1 Press-Fit Connector

The im1WP has two rows of press-fit connectors. They can be pressed into 1.00mm holes on a 1.6mm thick (standard PCB thickness) target board. No special tool is required, and they can be inserted by applying firm pressure to the connectors. Once fitted to the target board, the board is very secure, and can not be removed by hand any more. A screwdriver or similar tool can be used to remove the board if required.

If the im1WP is to be soldered onto the target board, 1.10mm holes can be used. This will allow it to be inserted much easier than with 1.00mm holes. When using 1.10mm holes, the board can be removed by hand.

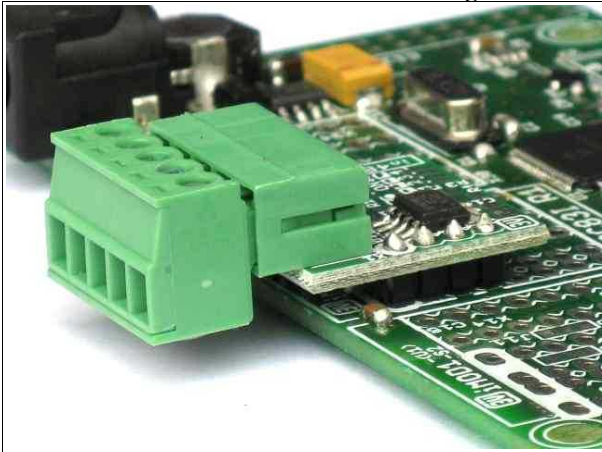
Table 2 shows the pin-outs of the X1 and X2 connectors (iMod left and right connectors). For the location of these connectors and pin-outs, see [6 Dimensions](#).

**Table 1: Press-Fit Connector**

<i>Left Press-Fit Connector (X1)</i>			<i>Right Press-Fit Connector (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 Press-Fit 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 <sup>2</sup> C Clock signal
			4	SDA	I <sup>2</sup> C Data signal

Picture 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 [6 Dimensions](#).

**Table 2: Terminal Block Connector**

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

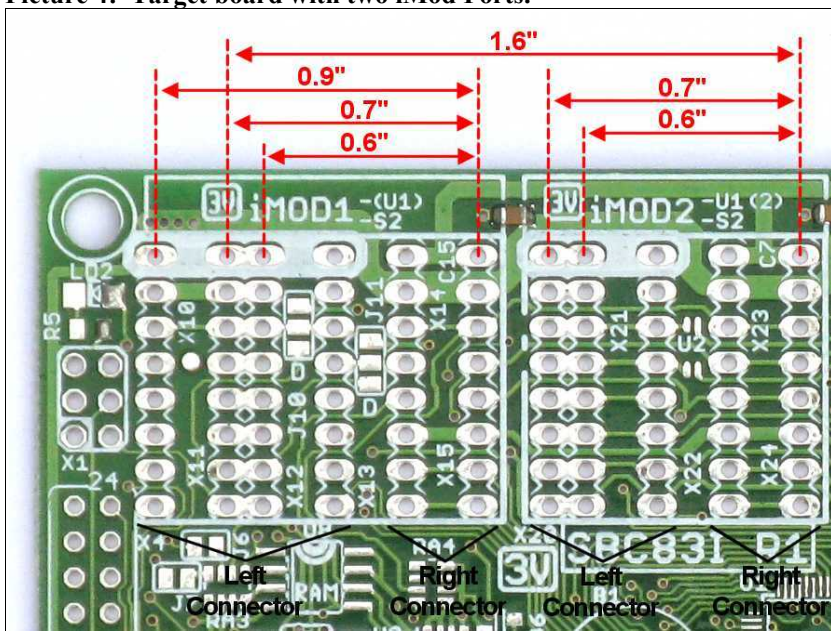
## 4 Presto iMod Modules

The im1WP is part of the Modtronix *Presto iMod* product range. All iMod boards have two rows of press-fit connectors, a left and a right row. The signals on these connectors are pre-defined, allowing modules to be interchangeable.

A single iMod module is defined to have a maximum row spacing of 0.7", referred to as one module width. Modules can however be wider than one module width, other common module widths are 0.9", 1.1" and 1.6". Target boards can provide iMod Ports for fitting iMod modules. An iMod port is very simple and cheap to implement, and just two rows of 1.00mm holes 0.7" apart. Modules wider than 0.7" will normally take up two iMod Ports on the target board. It is recommended that multiple iMod Ports be spaced 0.2" apart. To help inserting the iMod module correctly into the iMod Port, pin 1 of the left connector is marked (white band around pad) on the iMod Module and iMod Port, and should always be aligned!

Picture 4 shows a target board with two iMod Ports. The left iMod Port is 0.9" wide, which is wider than a standard iMod module. This is so that a 0.9" iMod module can also be fitted to it (like the im28J60 Ethernet Module). Also note that the iMod Ports are spaced 0.2" apart, and that iMod modules wider than one module width can be fitted using both iMod Ports. Provision is also made for possible narrower iMod modules of 0.6" wide.

**Picture 4: Target board with two iMod Ports.**



## 5 Specifications

### 5.1 Absolute Maximum Ratings

Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	Top	-40		85	°C

## 5.2 Electrical Characteristics

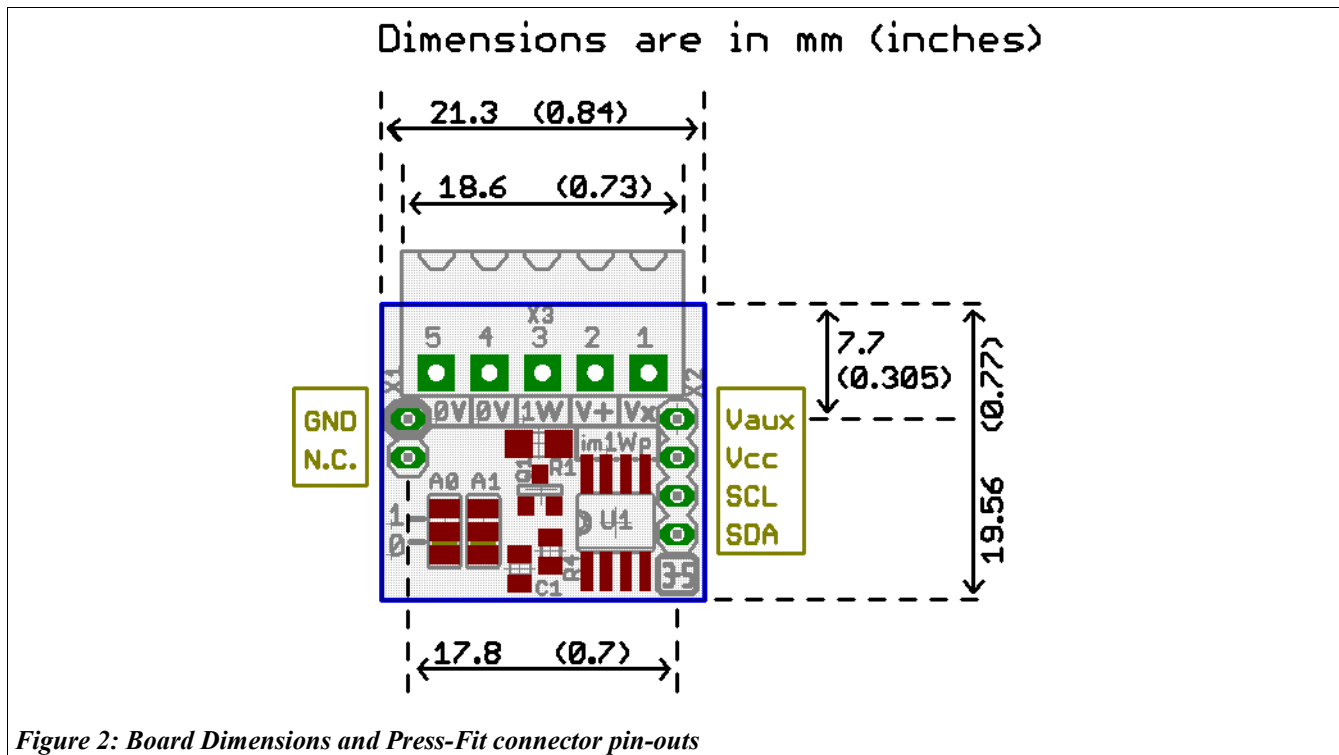
For more detailed Electrical Characteristics, see DS2482-100 datasheet. It can be downloaded from [www.maxim-ic.com](http://www.maxim-ic.com) This includes characteristics for **I<sup>2</sup>C** bus and **1-Wire** pins.

Item	Symbol	Condition	Min	Typ	Max	Unit
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

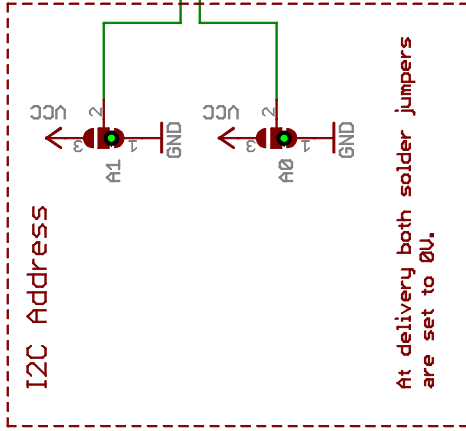
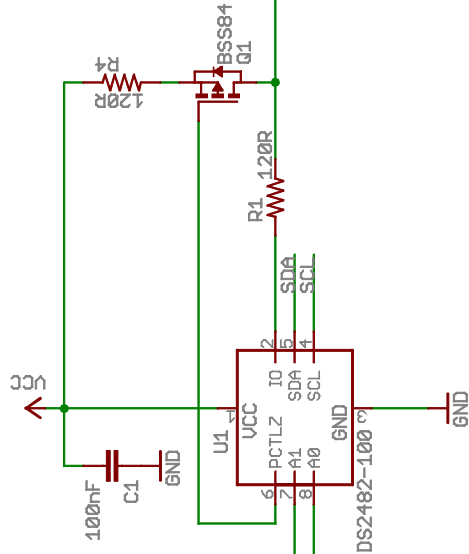
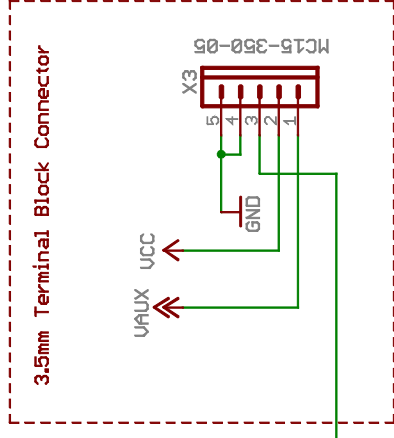
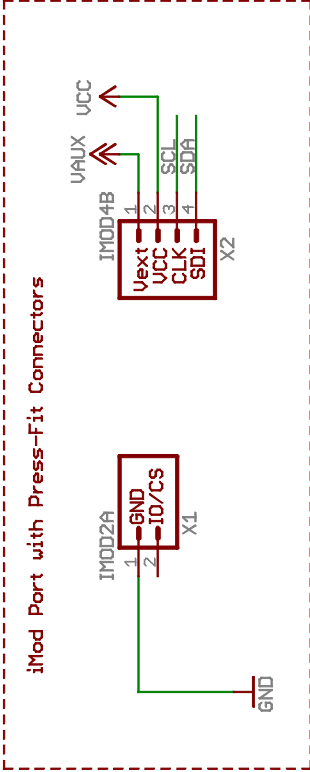
- Note 1: Operating current with 1-Wire write byte sequence followed by continuous Read of Status register at 400kHz in Overdrive.

## 6 Dimensions

The im1WP Dimensions are shown in Figure 2.



## 7 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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