

RoHS

# MEAS TEMPERATURE SYSTEM SENSOR (TSYS01) PERIPHERAL MODULE

## Digital Temperature Digital Component Sensor (DCS) Development Tools

The Temperature System Sensor (TSYS) series, TSYS01 peripheral module provides the necessary hardware to interface the TSYS01 digital temperature sensor to any system that utilizes a Digilent Pmod<sup>™</sup> compatible expansion ports configurable for I<sup>2</sup>C communication. The TSYS01 sensor is a self-contained temperature sensor that is fully calibrated during manufacture. The sensor can operate from 2.2V to 3.6V. The TSYS01 has a low power stand-by mode for power-sensitive applications.

## Performance

- -5°C to 50°C accuracy: 0.1°C
- -40°C to 125°C accuracy: 0.5°C
- Very low power consumption
- Operates from 2.2V to 3.6V
- Time constant -4 second typical in air
- Fast conversion time 8.22 mS typical

## Specifications

- Measures temperature from -40°C to 125°C
- I<sup>2</sup>C communication
- Fully calibrated
- Fast response time
- Very low power consumption

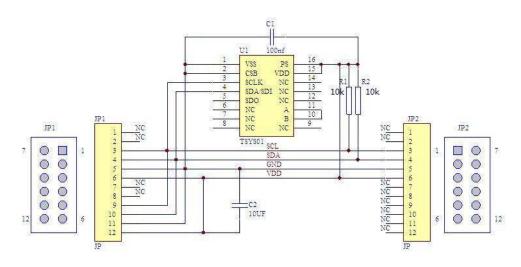
## Features

- 12-pin connector compatible with Digilent Pmod™
- I<sup>2</sup>C interface
- Secondary 12-pin connector allows daisy chain
- FPGA bare metal drivers available for download
- µC C code drivers available for download
- 24/16 bit resolution for temperature
- Parameters stored on chip

## MEAS TSYS01 PERIPHERAL MODULE

Digital Temperature DCS Development Tools

### Schematic



## Connector Pin Assignments (I<sup>2</sup>C Communications)

System Plug (Table 1)			
Connector J1			
Pin No.	Signal	Description	
1	N/C	Not Connected	
2	N/C	Not Connected	
3	SCL	I <sup>2</sup> C Serial Clock	
4	SDA	I <sup>2</sup> C Serial Data	
5	GND	Ground	
6	Vdd	Power Supply	
7	N/C	Not Connected	
8	N/C	Not Connected	
9	SCL	I <sup>2</sup> C Serial Clock	
10	SDA	I <sup>2</sup> C Serial Data	
11	GND	Ground	
12	Vdd	Power Supply	

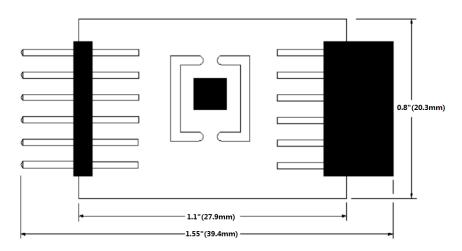
#### **Expansion Socket (Table 2)**

Connector J2			
Signal	Description		
N/C	Not Connected		
N/C	Not Connected		
SCL	I <sup>2</sup> C Serial Clock		
SDA	I <sup>2</sup> C Serial Data		
GND	Ground		
Vdd	Power Supply		
N/C	Not Connected		
	Signal   N/C   N/C   SCL   SDA   GND   Vdd   N/C   N/C   N/C   N/C   N/C   N/C   N/C   N/C   N/C		

### MEAS TSYS01 PERIPHERAL MODULE

Digital Temperature DCS Development Tools

### Dimensions



### **Detailed Description**

#### I<sup>2</sup>C Interface

The peripheral module can interface to the host in one of two ways. It can plug directly into a Digilent Pmod<sup>™</sup> compatible port (configured for I<sup>2</sup>C) through connector J1, or to other I<sup>2</sup>C boards that have a Digilent Pmod<sup>™</sup> compatible expansion connector.

#### I<sup>2</sup>C Interface (Daisy Chaining Modules)

Connector J1 provides connection of the module to the Digilent Pmod<sup>™</sup> host. The pin assignments and functions adhere to the Digilent Pmod<sup>™</sup> standard as shown in Table 1. The J2 connector allows additional Digilent Pmod<sup>™</sup> modules to be connected in a daisy-chain fashion. See Table 2.

#### **External Control Signals**

The module operates as an I<sup>2</sup>C slave using the standard 2 wire I<sup>2</sup>C connection scheme. The module is controlled by the host (through the Digilent Pmod<sup>TM</sup> connector). In cases where one or more of the SCL and SDA signals are driven from an external source, resistors R1, R2 provide pull-up. However, this also increases the apparent load to the external driving source. If the external source is incapable of driving these loads, they could be removed from the board.

Digital Temperature DCS Development Tools

### Ordering Information

Description	Part Number
MEAS TSYS01 PERIPHERAL MODULE	DPP201Z000

### **Reference Material**

- Detailed information regarding operation of the IC: MEAS TSYS01 Datasheet
- Detailed information regarding the single port mother board driver: MEAS TSYS01 for MicroZed Driver
- Complete software sensor evaluation kit for the single port mother board: MEAS TSYS01 for MicroZed Software
- Detailed information regarding the multiple port mother board driver: MEAS TSYS01 for ZedBoard Driver
- Complete software sensor evaluation kit for multiple port mother board: MEAS TSYS01 for ZedBoard Software

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE

#### te.com/sensorsolutions

Digilent Pmod<sup>™</sup> is a trademark of Digilent Inc. MicroZed and ZedBoard are trademarks.

Measurement Specialties, Inc., a TE Connectivity company.

MEAS, TE Connectivity and TE connectivity (logo) are trademarks. All other logos, products and/or company names referred to herein might be trademarks of their respective owners.

The information given herein, including drawings, illustrations and schematics which are intended for illustration purposes only, is believed to be reliable. However, TE Connectivity makes no warranties as to its accuracy or completeness and disclaims any liability in connection with its use. TE Connectivity's obligations shall only be as set forth in TE Connectivity's Standard Terms and Conditions of Sale for this product and in no case will TE Connectivity be liable for any incidental, indirect or consequential damages arising out of the sale, resale, use or misuse of the product. Users of TE Connectivity products should make their own evaluation to determine the suitability of each such product for the specific application.

© 2016 TE Connectivity Ltd. family of companies All Rights Reserved.

#### **PRODUCT SHEET**

MEAS France SAS, a TE Connectivity company. Impasse Jeanne Benozzi CS 83 163 31027 Toulouse Cedex 3, FRANCE Tel:+33 (0) 5 820 822 02 Fax: +33 (0) 5 820 821 51 customercare.tlse@te.com