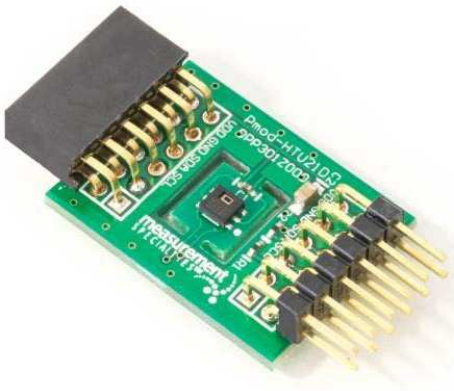


RoHS

HTU21D
PERIPHERAL MODULE

Digital humidity and Temperature Sensor

General Description

The HTU21D peripheral module provides the necessary hardware to interface the HTU21D digital relative humidity and temperature sensor to any system that utilizes Pmod compatible expansion ports configurable for I^2C communication. The HTU21D sensor is a self-contained humidity and temperature sensor that is fully calibrated during manufacture. The sensor can operate from 1.5V to 3.6V, has selectable resolution, low battery detect, and checksum capability. The HTU21D has a low power stand-by mode for power-sensitive applications.

Specifications

- Measures relative humidity from 0% to 100%
- Measures temperature from -40°C to 125°C
- I^2C communication
- Fully calibrated
- Fast response time
- Selectable resolution
- Very low power consumption

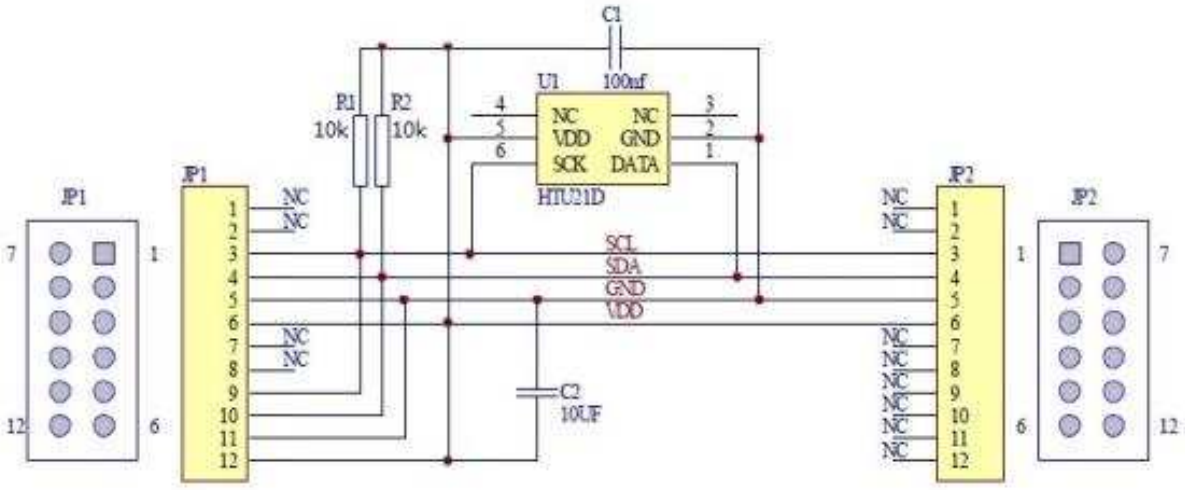
Features

- 12-pin Pmod compatible connector
- I^2C interface
- Secondary 12-pin connector allows daisy chain
- FPGA fabric available for download
- µC C code available for download
- Selectable 8-12 bit resolution for humidity
- Selectable 11-14 bit resolution for temperature
- Electronic ID code stored on chip

Performance

- 0% to 100% relative humidity range
- -40°C to 125°C temperature range
- Very low power consumption
- Operates from 1.5V to 3.6V
- Fast response time – 5 seconds typical
- Built-in heater for fast recovery from saturation
- Recovers fully from condensation
- Fast conversion time – 14 mS typical

Schematic



Connector Pin Assignments (1^2C Communications)

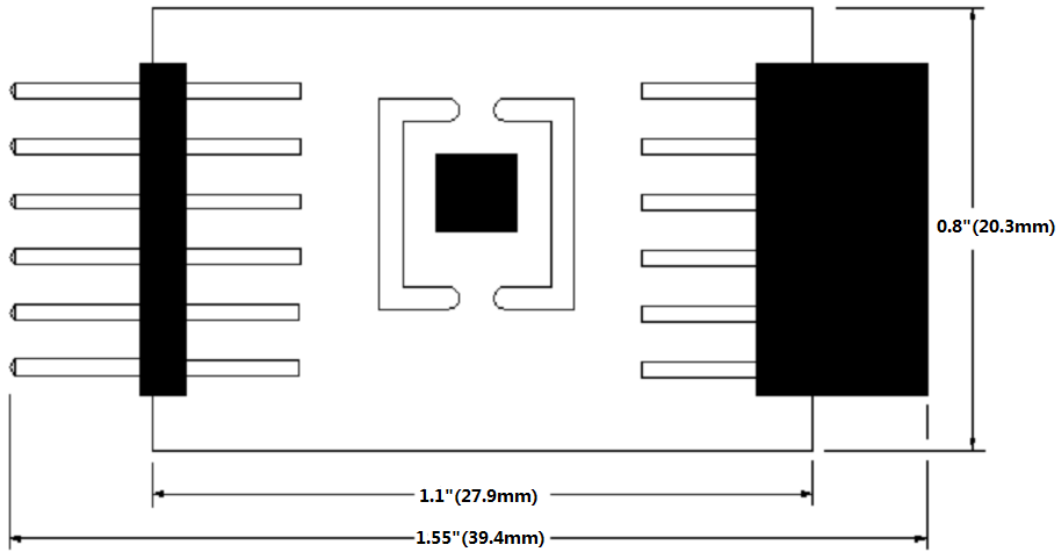
System Plug (Table 1)

Connector J1		
Pin No.	**Signal**	**Description**
1	N/C	Not Connected
2	N/C	Not Connected
3	SCL	I^2C Serial Clock
4	SDA	I^2C Serial Data
5	GND	Ground
6	Vdd	Power Supply
7	N/C	Not Connected
8	N/C	Not Connected
9	SCL	I^2C Serial Clock
10	SDA	I^2C Serial Data
11	GND	Ground
12	Vdd	Power Supply

Expansion Socket (Table 2)

Connector J2		
Pin No.	**Signal**	**Description**
1	N/C	Not Connected
2	N/C	Not Connected
3	SCL	I^2C Serial Clock
4	SDA	I^2C Serial Data
5	GND	Ground
6	Vdd	Power Supply
7	N/C	Not Connected
8	N/C	Not Connected
9	N/C	Not Connected
10	N/C	Not Connected
11	N/C	Not Connected
12	N/C	Not Connected

Dimensions(mm)



Detailed Description

I²C Interface

The peripheral module can interface to the host in one of two ways. It can plug directly into a Pmod-compatible port (configured for I²C) through connector J1, or in this case, other I²C boards can attach to the same I²C bus through connector J2.

I²C Interface (Daisy Chaining Modules)

Alternatively, the peripheral module can connect to other I²C-based Pmod modules through the expansion J2 connector. Connector J1 provides connection of the module to the Pmod host. The pin assignments and functions adhere to the Pmod standard as shown in Table 1. The J2 connector allows the module to be connected through a daisy-chain from another I²C module and/or provide I²C and power connections to other I²C modules on the same bus. See Table 2.

External Control Signals

The IC operates as an I²C slave using the standard 2 wire I²C connection scheme. The IC is controlled either by the host (through the Pmod 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 *in*capable of driving these loads, they should be removed.

Reference Material

- Detailed information regarding operation of the IC:
  HTU21D Datasheet
- Detailed information regarding the MicroZed Driver:
  HTU21D MicroZed Driver
- Complete software sensor evaluation kit for MicroZed:
  HTU21D MicroZed Software
- Detailed information regarding the ZedBoard Driver:
  HTU21D ZedBoard Driver
- Complete software sensor evaluation kit for ZedBoard:
  HTU21D ZedBoard Software

Ordering Information

Description	Part Number
HTU21D PERIPHERAL MODULE	DPP301Z000

te.com/en/products/sensors.html

000000XX 03/15 Original

PRODUCT SHEET

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