

MEAS HTU21D PERIPHERAL MODULE

Digital Humidity and Temperature Digital Component Sensor (DCS) Development Tools

The HTU21D peripheral module provides the necessary hardware to interface the HTU21D digital relative humidity and temperature sensor to any system that utilizes a Digilent Pmod™ compatible expansion ports configurable for I²C communication. The HTU21D sensor is a self-contained humidity and temperature sensor that is fully calibrated during manufacturing. The sensor can operate from 1.5V to 3.6V, has selectable resolution, low battery detection, and checksum capability. The HTU21D has a low current stand-by mode for power-sensitive applications.

Performance

- Covers full humidity range of 0 to 100% RH
- Broad temperature range of -40°C to 125°C
- Use output data to calculate absolute humidity and dew point
- Quick recovery from condensation: 10 seconds
- Fast response time to humidity changes: 5 seconds typical
- Fully calibrated and interchangeable
- Recovers fully from condensation
- Fast digital conversion time: 14 mS typical

Specifications

- Measures relative humidity from 0% to 100%
- Measures temperature from -40°C to 125°C
- Humidity resolution selectable from 8 to 12 bits
- Temperature resolution selectable from 11 to 14 bits
- 0.14 μ A sleep current
- 500 μ A operating current (during measurement only)
- \pm 3% accuracy

Features

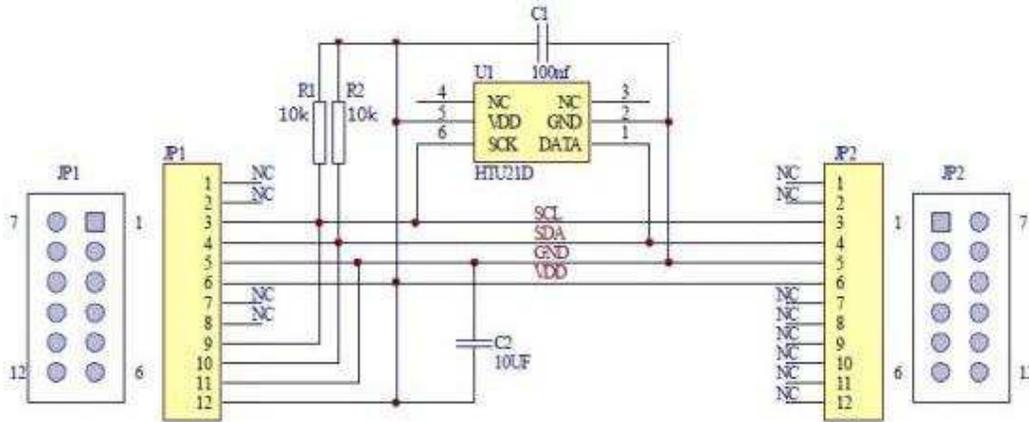
- 12-pin connector compatible with Digilent Pmod™
- I²C interface
- Secondary 12-pin connector allows daisy chain
- FPGA bare metal drivers available for download
- μ C C code drivers available for download
- Built-in heater to remove condensation
- Available with PTFE environmental filter over the sensor

Digilent Pmod™ is a trademark.

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Humidity and Temperature DCS Development Tools

Schematic



Connector Pin Assignments (I²C Communications)

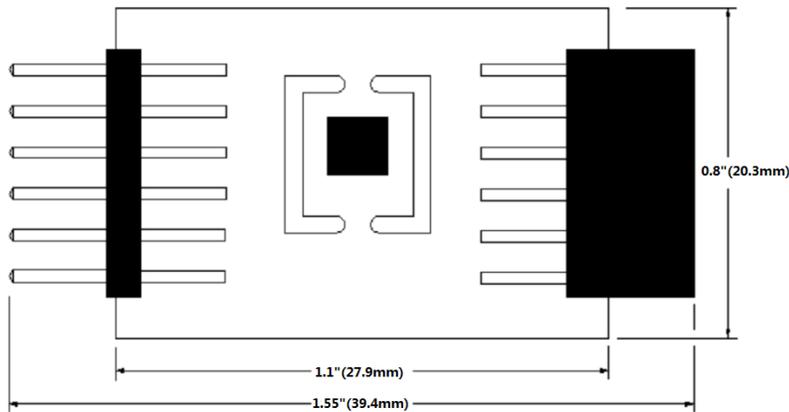
System Plug (Table 1)

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



Detailed Description

I²C Interface

The peripheral module can interface to the host in one of two ways. It can plug directly into a Digilent Pmod™ compatible port (configured for I²C) through connector J1, or to other I²C boards that have a Digilent Pmod™ compatible expansion connector.

I²C Interface (Daisy Chaining Modules)

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

External Control Signals

The module operates as an I²C slave using the standard 2 wire I²C connection scheme. The module is controlled by the host (through the Digilent 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 incapable of driving these loads, they could be removed from the board.

Ordering Information

Description	Part Number
MEAS HTU21D PERIPHERAL MODULE	DPP301Z000

Reference Material

- Detailed information regarding operation of the IC:
MEAS HTU21D Datasheet
- Detailed information regarding the single port mother board driver:
MEAS HTU21D for MicroZed Driver
- Complete software sensor evaluation kit for the single port mother board:
MEAS HTU21D for MicroZed Software
- Detailed information regarding the multiple port mother board driver:
MEAS HTU21D for ZedBoard Driver
- Complete software sensor evaluation kit for multiple port mother board:
MEAS HTU21D for ZedBoard Software

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