✓RoHS

# MEAS PI WEATHER SHIELD

Digital Humidity Sensor
Digital Pressure Sensor
Digital Temperature Sensor
Digital Thermopile Sensor

## General Description

The MEAS Pi weather shield provides the necessary hardware to interface the HTU21D digital relative humidity sensor; MS5637 digital barometric pressure sensor; temperature system sensor (TSYS)01 digital temperature sensor; TSD305-1C55 digital thermopile sensor to any system that utilizes Raspberry Pi compatible expansion ports configurable for I$^2$C 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 power stand-by mode for power-sensitive applications.

The MS5637 sensor is a self-contained pressure and temperature sensor that is fully calibrated during manufacturing. The sensor can operate from 1.5V to 3.6V. The sensor module includes a high-linearity pressure sensor and an ultra-low power 24-bits ΔΣ ADC with internal factory-calibrated coefficients.

The temperature system sensor -TSYS-01 series is a self-contained temperature sensor that is fully calibrated during manufacturing. The sensor can operate from 2.2V to 3.6V.  The TSYS01 has a low power stand-by mode for power-sensitive applications.

The TSD305-1C55 is a contactless temperature measurement system located in a TO5 package. The TSD includes an infrared sensor (thermopile) and a sensor signal conditioner.

## Specifications

### HTU21D
- Measures relative humidity from 0% to 100%
- Measures temperature from -40°C to 125°C
- I²C communication
- Fully calibrated
- Fast response time
- Selectable resolution 8/12-bits resolution for humidity; 11/14-bits resolution for temperature)
- Very low power consumption

### MS5637
- Measures pressure from 300 mbar to 1200 mbar
- Measures temperature from -40°C to 125°C
- I²C communication
- Fully calibrated
- Fast response time
- Very low power consumption

### TSYS01
- Measures temperature from -40°C to 125°C
- I²C communication
- Fully calibrated
- Fast response time
- Very low power consumption
- 24/16-bits resolution for temperature

### TSD305-1C55
- Measures temperature from 0°C to 100°C
- I²C communication
- Contactless temperature measurement
- Fully calibrated
- Up to ±1°C accuracy
- Operating Temperature Range: -10°C … +85°C
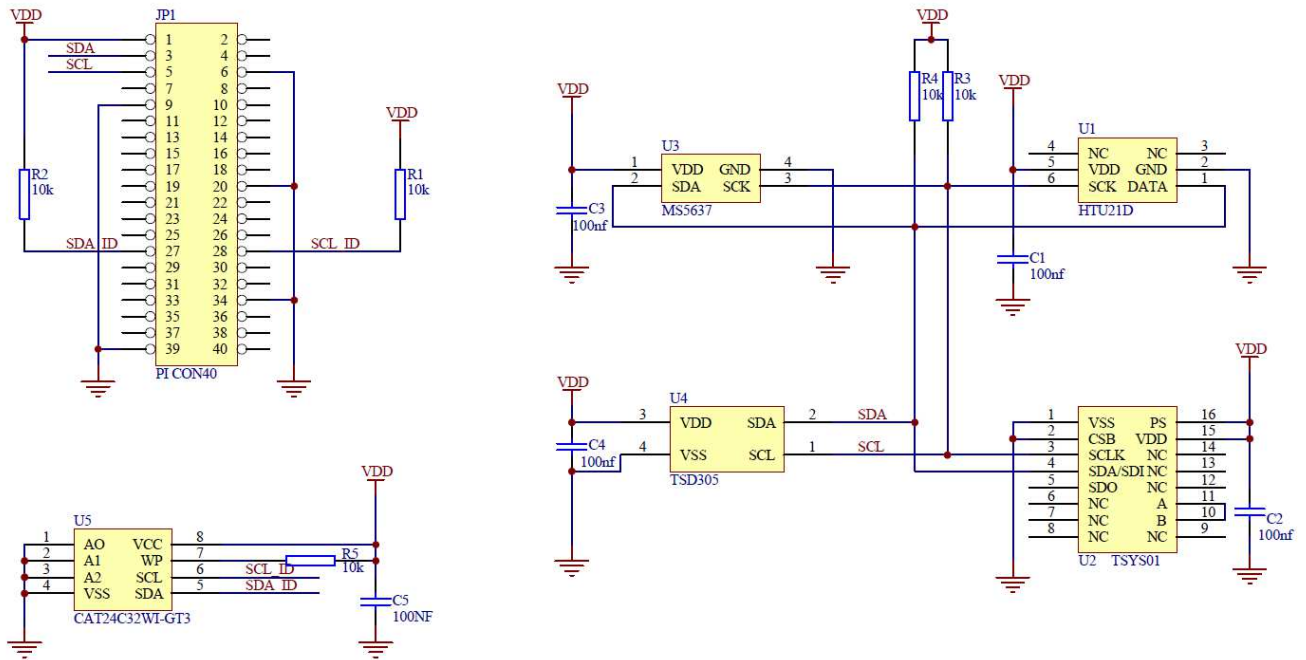- Low current consumption

## Performance

- 0% to 100% relative humidity range (HTU21D sensor)
- Operating pressure range: 300 to 1200 mbar (MS5637 sensor)
- Measures temperature from -40°C to 125°C, accuracy from 0.1°C to 0.5°C (TSYS0101 sensor)
- Contactless temperature measurement from 0°C to 100°C (TSD305-1C55)

## Schematic



## Dimensions (mm)