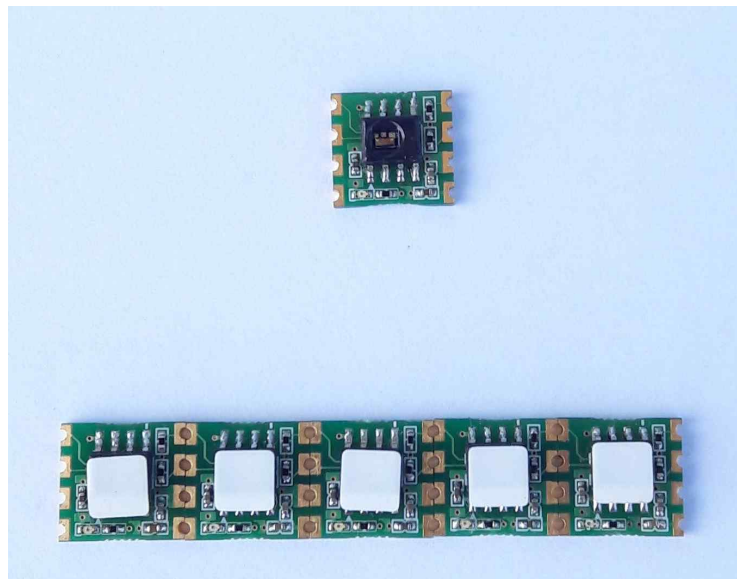# OSTSen-6130　User Guide

Ver 1.0

Onsystech

1. OSTSen-6130   Overview

OSTSen-6130 is a humidity and temperature sensing module, which is based on Honeywell HIH-6130. The HIH-6130 is a digital output-type relative humidity and temperature sensor. These devices offer several competitive advantages, including:

- **Industry-leading Total Error Band(TEB) (±5%RH)**
  Honeywell specifies Total Error Band-the most comprehensive, clear, and meaningful measurement-that provides the sensor's true accuracy of ±5%RH over a compensated range of 5°C to 50°C and 10%RH to 90%RH.
  Honeywell's industry-leading Total Error Band provides the following benefits to the customer:
  - ✓ Eliminates individually testing and calibrating every sensor, which can increase their manufacturing time and process
  - ✓ Supports system accuracy and warranty requirements
  - ✓ Helps to optimize system uptime
  - ✓ Provides excellent sensor interchangeability-the customer can remove one sensor from the tape, remove the next sensor from tape, and there is no part-to-part variation in accuracy

- **Industry-leading long term stability (1.2%RH over five years)**
  Honeywell's sensor experiences an offset after reflow, however, it only requires a five hour rehydration under ambient conditions (>50%RH). Honeywell's industry-leading long term stability provides the following benefits to the customer:
  - ✓ Minimizes system performance issues
  - ✓ Helps support system uptime by eliminating the need to service or replace the sensor during its application life
  - ✓ Eliminates the need to regularly recalibrate the sensor in their application which can be inconvenient and costly

- **Industry-leading reliability**
  Honeywell's new HIH-6130 sensors use a laser trimmed, thermoset polymer capacitive sensing element. The element's multilayer construction provides resistance to most application hazards such as condensation, dust, dirt, oils, and common environmental chemicals which help provide industry-leading stability and reliability

- **Lowest total cost solution**
  Offers customers the lowest total cost solution due to the sensor's industry-leading Total Error Band and its being a combined humidity/temperature sensor.

- **True, temperature-compensated digital I2C output**
  Allows the customer to remove the components associated with signal conditioning from the PCB to free up space and reduce costs associated with those components (e.g., acquisition, inventory, assembly).

- **Energy efficient**
  - ✓ Low supply voltage : Can operate down to 2.3 Vdc, which allows use in low energy and wireless-compatible application to enhance energy savings and prolong system battery life.
  - ✓ Low power consumption: The sensor goes into sleep mode when not taking a measurement within the application, consuming only 1uA of power versus 650uA in full operation in a battery operated system.

- **Ultra-small package**
  SOIC-8 SMD package is ultra small. Allows for flexibility of use within the application, occupies less space on the PCB, and typically simplifies placement on crowded PCBs or in small devices.

- **Combined humidity and temperature sensor**
  The humidity and temperature sensors are co-located in the same package. This allows the RH measurement to be temperature compensated and provides a second, standalone temperature sensor output.
- **High resolution**
  High 14-bit humidity sensor resolution and 14-bit temperature sensor resolution within the application help the users system detect the smallest relative humidity or temperature change.

2. Application
- HVAC/R
- Respiratory therapy
- Incubators/microenvironments
- Air Compressors
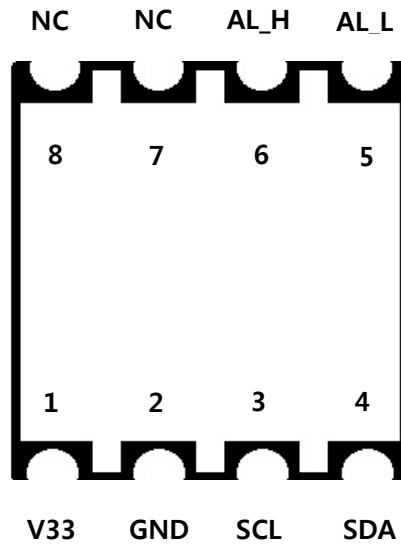- Weather stations
- Telecom cabinets

3. Features of HIH-6130
- Wide operating temperature range of -25 °C to 85 °C allows for use in many applications
- Optional one or two %RH level alarm outputs provide the user the ability to monitor whether the RH level has exceeded or fallen below pre-determined and critical levels within the application
- Multi-function ASIC provides flexibility within the application by lowering or eliminating the risk and cost of OEM calibration
- Industry-standard package provides easy design-in
- RoHS and WEEE compliant; halogen-free

4. Application Information

4.1 Module Pin Out and Signal Description

Pin Number	Pin Name	Pin Description
1	VCC	Power supply voltage (2.3V ~ 5.5V)
2	GND	Power supply ground
3	SCL	I2C serial clock (SCL) I2C address : 0x27
4	SDA	I2C serial data (SDA)
5	AL_L	Alarm output low
6	AL_H	Alarm output high
7, 8	NC	Not Connect

```
        NC      NC     AL_H    AL_L

         8       7       6       5



         1       2       3       4

        V33     GND     SCL     SDA
```

< Top View >

4.2 HIH-6130 Pin out and Signal Description
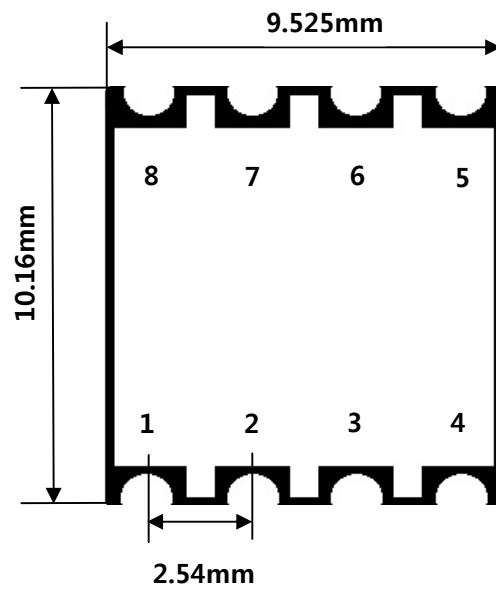
Pin Number	Pin Name	Pin Description
1	VCORE	Connect via 0.1uF to ground
2	VSS	Power supply ground
3	SCL	I2C serial clock
4	SDA	I2C serial data
5	AL_H	Alarm output high
6	AL_L	Alarm output low
7	NC	Not connect
8	VDD	Power supply (2.3V ~ 5.5V)

● **HIH-6130   I2C 7bit device address : 0x27**

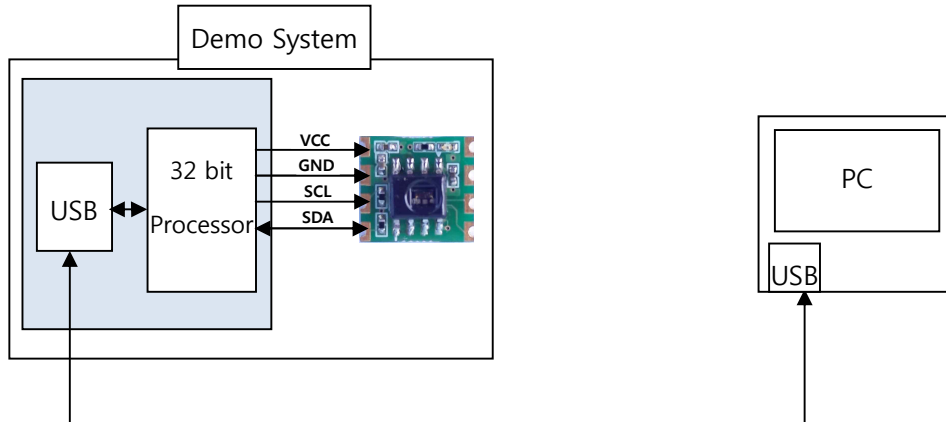| MSB							LSB
0	1	0	0	1	1	1	R/W
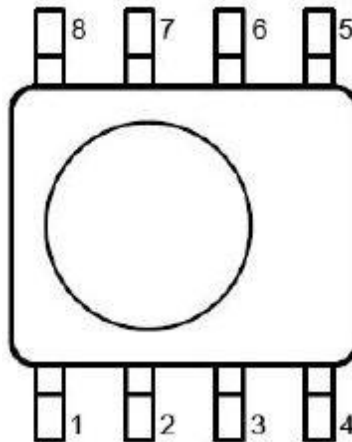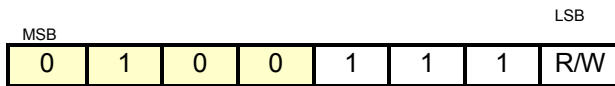
HIH-6130 Pinout <Top View >

5. Module Dimension
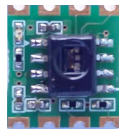
< OSTSen-6130 module >

6. Demo System

OSTSen-6130 Data Display on PC

7. Reference

1) https://sensing.honeywell.com/HIH6130-021-001-humidity-sensors
2) https://sensing.honeywell.com/honeywell-sensing-humidicon-hih6100-series-product-sheet-009059-6-en.pdf
3) https://github.com/dhhagan/HIH6130
4) https://github.com/stevemarple/HIH61xx
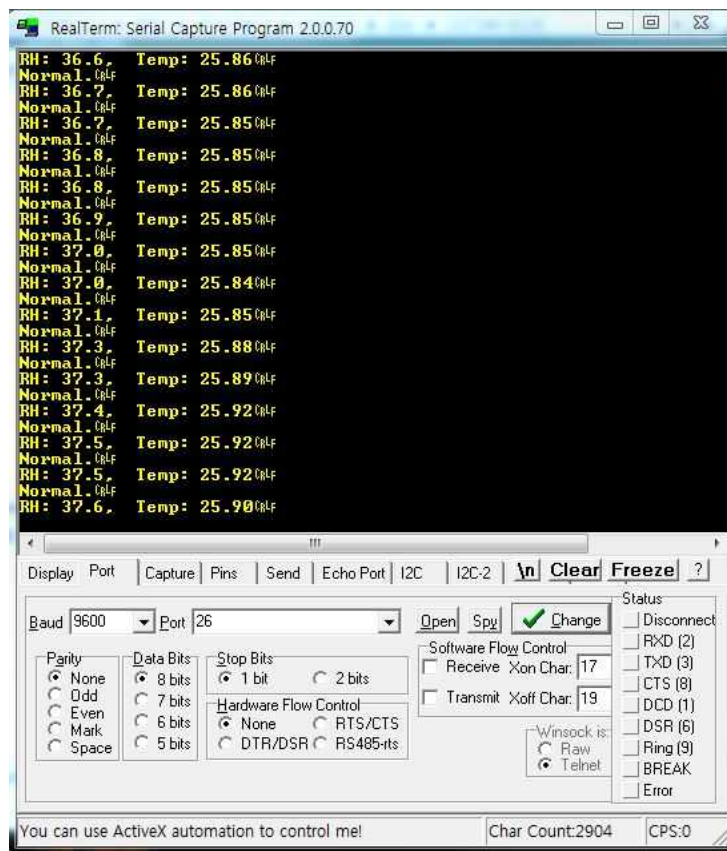
● If you need more information or have some questions about OSTSen-6130, contact ostsen@naver.com.