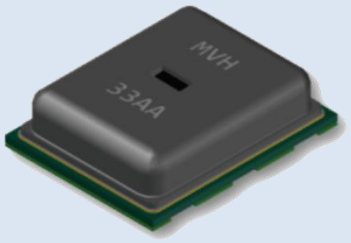
ETH-01S-A

Temperature & Humidity Sensor
Digital(I²C) output module (DFN-6)



Features

- Fully calibrated, Linearized Temp compensated sensor
- Wide input : 1.8~5.5V
- Low power consumption (24.4μA)
- Digital I²C interface
- Small foot print 3 x 2.41 x 0.8㎜ (6pins)

Application

- HVAC
- Automotive
- Humidifiers
- Medical
- Automation
- Measurement
- Weather station
- Data Logger
- White Goods
- Consumer Goods

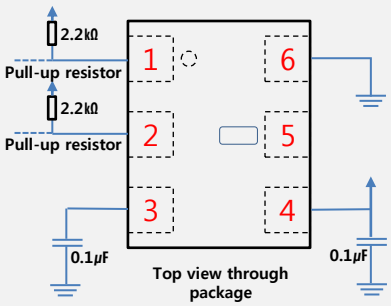
Humi Specifications

Range	0~100%RH
Accuracy (@ 25℃)	±1.5%RH(10 to 90%RH)
	±1.8%RH(Other Range)
Hysteresis	±1.0%RH @ 25℃
Resolution	14bit
Response time	time < 6s

Temp Specifications

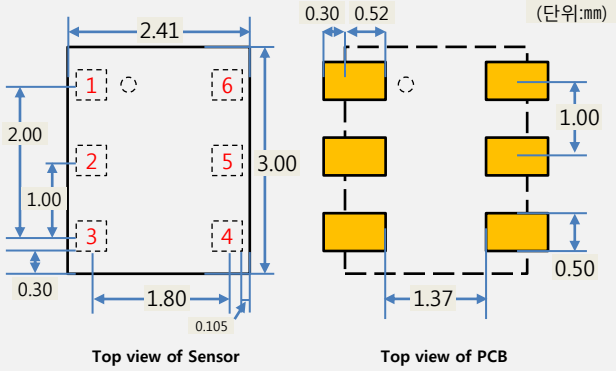
Range	-40~125℃
Accuracy	±0.2℃ (-10 to 80℃)
	±0.3℃(Other Range)
Resolution	14bit
Response time	>5s (τ63)

Pin layout



PIN	FUNC
1	SCL
2	SDA
3	VC
4	VDD(V+)
5	NC
6	VSS(GND)

Dimensions & Solder pattern

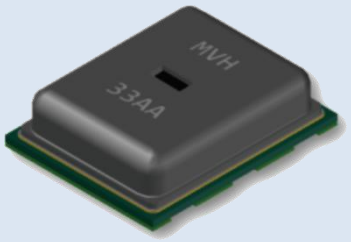


ECONARAE
www.econarae.co.kr

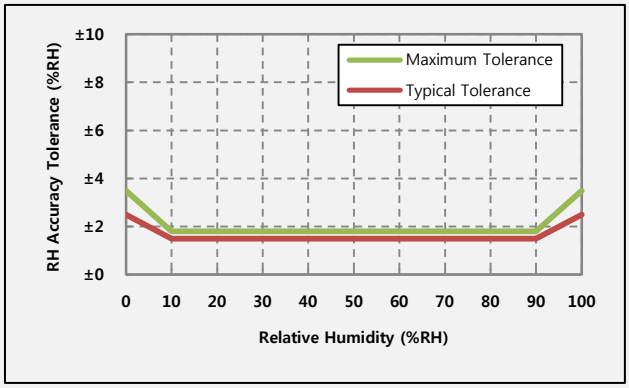
202 Jagok-ro, Gangnam-Gu, Seoul Korea
Tel: +82-70-8807-4209 Fax: +82-2-6280-7851
E-mail: econarae@gmail.com

ETH-01S-A

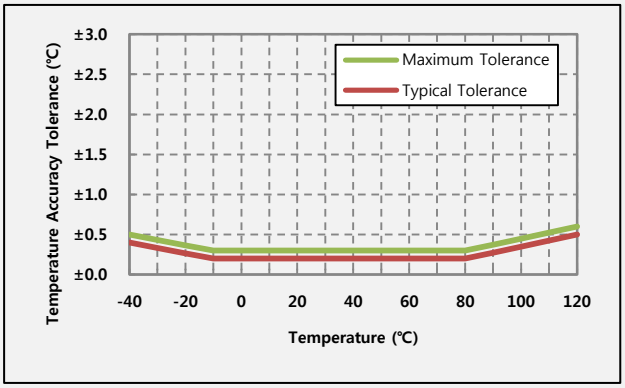
Temperature & Humidity Sensor
Digital(I^2C) output module (DFN-6)



Tolerance



Tolerance of Relative Humidity @ 25℃



Tolerance of Temperature

Electrical Specifications

Parameters	Units	Min	Typ	Max
Supply Voltage	V	1.8	3.3	5.5
Supply Current (14bit)	μA(Avr.)	20.1	24.4	24.4
Sleep Current	μA		0.6	

Environmental conditions

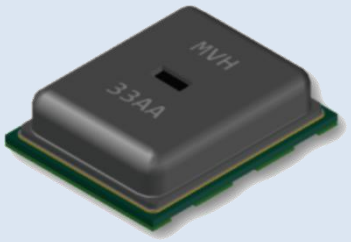
Parameters	Units	Ratings
Operating Temperature range	℃	-40 ~ 125
Storage Temperature range	℃	-55 ~ 150

ECONARAE
www.econarae.co.kr

202 Jagok-ro, Gangnam-Gu, Seoul Korea
Tel: +82-70-8807-4209 Fax: +82-2-6280-7851
E-mail: econarae@gmail.com

ETH-01S-A

Temperature & Humidity Sensor
Digital(I²C) output module (DFN-6)



I²C Protocol

Step 1

Initiation of measurement sequence

I2C slave address 0x44 (7bit)
Data Rate upto 400kHz

S	1	0	0	0	1	0	0	0	ACK	P

Measurement time (ms) : ~35ms

I2C Address 0x44 = 1000100, Write = 0

Step 2

Request for measurement data transfer

S	1	0	0	0	1	0	0	1	ACK

I2C Address 0x44 = 1000100, Read = 1

S Start bit from the master
P Stop bit from the master

Bits generated by Master
Bits generated by Sensor

Relative Humidity data transfer

15	14	13	12	11	10	9	8	ACK	7	6	5	4	3	2	1	0	ACK
Don't care		Humidity bits [13:8]							Humidity bits [7:0]								
Data Byte 1									Data Byte 2								

Temperature data transfer

15	14	13	12	11	10	9	8	ACK	7	6	5	4	3	2	1	0	NACK	P
Temperature bits [15:8]									Temperature bits [7:2]						Don't care			
Data Byte 3									Data Byte 4									

RH and Temp formula :

○ Humidity [%RH] = Humidity[13:0] ÷ (2^{14}-1) × 100

○ Temperature [℃] = (Temperature [15:2] ÷ 4) ÷ (2^{14}-1) × 165 - 40

ECONARAE
www.econarae.co.kr

202 Jagok-ro, Gangnam-Gu, Seoul Korea
Tel: +82-70-8807-4209 Fax: +82-2-6280-7851
E-mail: econarae@gmail.com