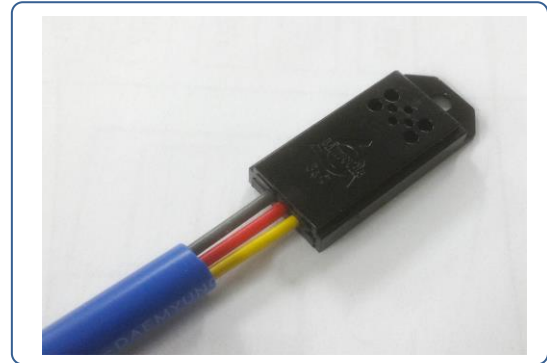


HCPV-200H-10-SS

HumiChip Voltage Output Humidity Sensor

Features

- ◆ Linear & Calibrated RH% Voltage Output.
- ◆ Rigid & Strong Molded Package
 - for Durability and Easy Installation
- ◆ Customized Accuracy
- ◆ Optional PTFE Filter and Temperature Output



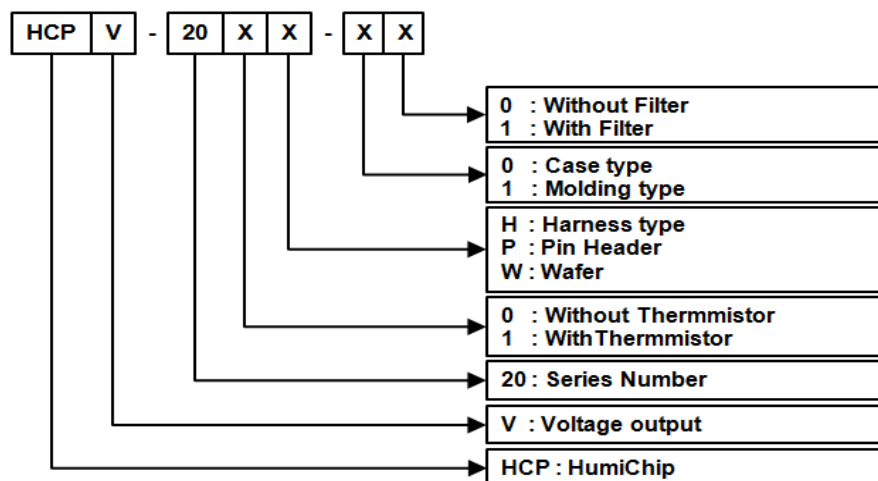
Product Summary

HCPV-200H-10 is an accurate and reliable humidity measuring sensor module based on **HumiChip®**. The humidity output of the sensor is temperature compensated and is in linear voltage which can be directly interfaced with a microcomputer with an ADC input. The molded package and reinforced connection between the sensor and the harness ensures durability and reliability even in harsh environment.

Applications

- ◆ Smart Appliances
- ◆ HVAC Control
- ◆ Industrial Process Control
- ◆ Automotive
- ◆ Environment Monitoring

Part Number



Electrical Specification

Parameter	Symbol	Value	Unit
Supply Voltage	V _{cc}	5.0	V
Supply Current	I _{cc}	1.5	mA

Environmental

Parameter	Symbol	Value	Unit
Storage Temperature Range	T _{stg}	-55~125	°C
Operating Temperature Range	T _s	-40~85	°C
Operating Humidity Range	RH	0~100	%RH

Sensor performance

Relative Humidity (RH%)

Humidity Characteristics	Symbol	Min	Typ	Max	Unit
Supply Voltage	V _{cc}		5.0		V
Nominal Output (23°C@55%RH)	H_V _{OUT}	2304.2	2452.7	2601.2	mV
Humidity Measuring Range	RH	0		100	%RH
Relative Humidity Accuracy 1)		-5.5	±3	5.5	%RH
Humidity Hysteresis		-2		2	%RH
Humidity Average Sensitivity			27.0		mV/%RH
Temperature Coefficient	T _{cc}		-0.05		%RH/°C
Response Time (τ _{63%})			7.0		sec

* Voltage dependence[%RH] = (V-5.0) / 0.05 * (%RH / 100)

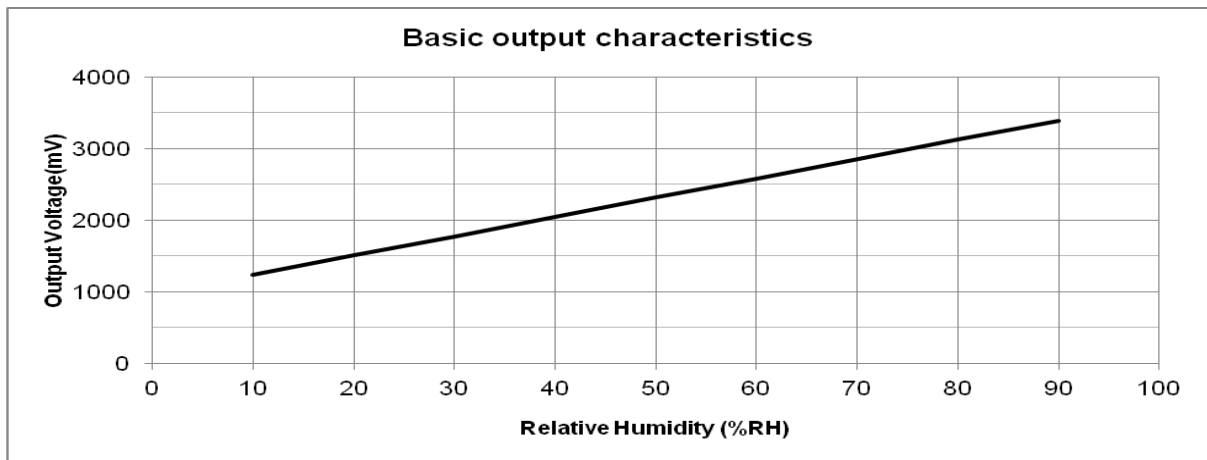
1) Typical accuracy: humidity accuracy tolerances within the normal range

(Refer to figure 1.1 operating conditions on HumiChip datasheet, page 7)

Total accuracy(Min/Max): humidity accuracy tolerances beyond the normal range or after the reliability tests.

Humidity Look-up Table (@23°C)

- Reference Output Values (Vcc=5V)



(Vcc=5V)

%RH	10	20	30	40	50	55	60	70	80	90
Max (+5.5%RH)	1386.2	1656.2	1926.2	2196.2	2466.2	2601.2	2736.2	3006.2	3276.2	3546.2
Typ (+3.0%RH)	1318.7	1588.7	1858.7	2128.7	2398.7	2533.7	2668.7	2938.7	3208.7	3478.7
Vout(mV)	1237.7	1507.7	1777.7	2047.7	2317.7	2452.7	2587.7	2857.7	3127.7	3397.7
Typ (-3.0%RH)	1156.7	1426.7	1696.7	1966.7	2236.7	2371.7	2506.7	2776.7	3046.7	3316.7
Max (-5.5%RH)	1089.2	1359.2	1629.2	1899.2	2169.2	2304.2	2439.2	2709.2	2979.2	3249.2

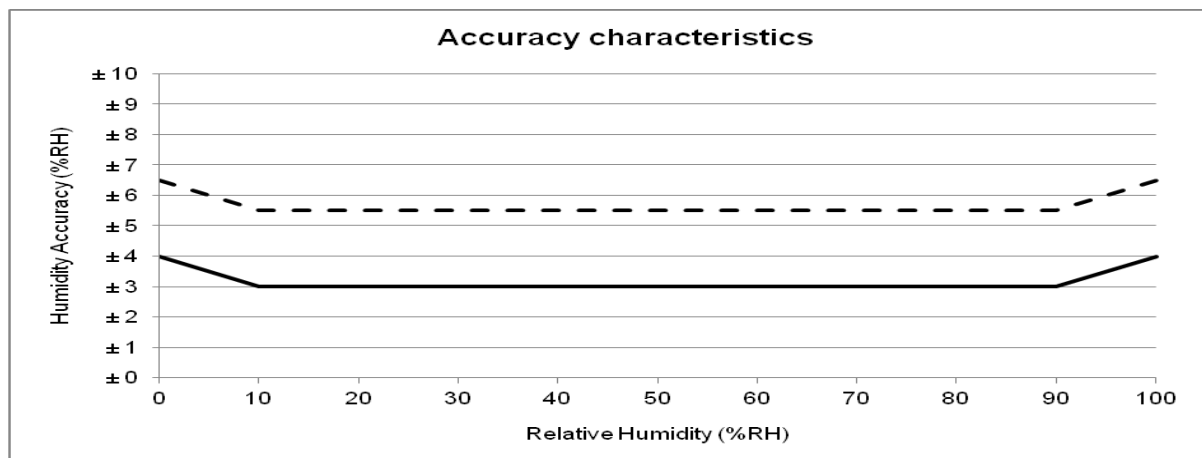
- Linear Equations :

$$H_V_{out} = 27.0 \times \%RH + 967.7$$

$$\%RH = 0.0370 \times H_V_{out} [mV] - 35.8407$$

H_V_{out} : Voltage Output [mV], %RH : Relative Humidity(%RH)

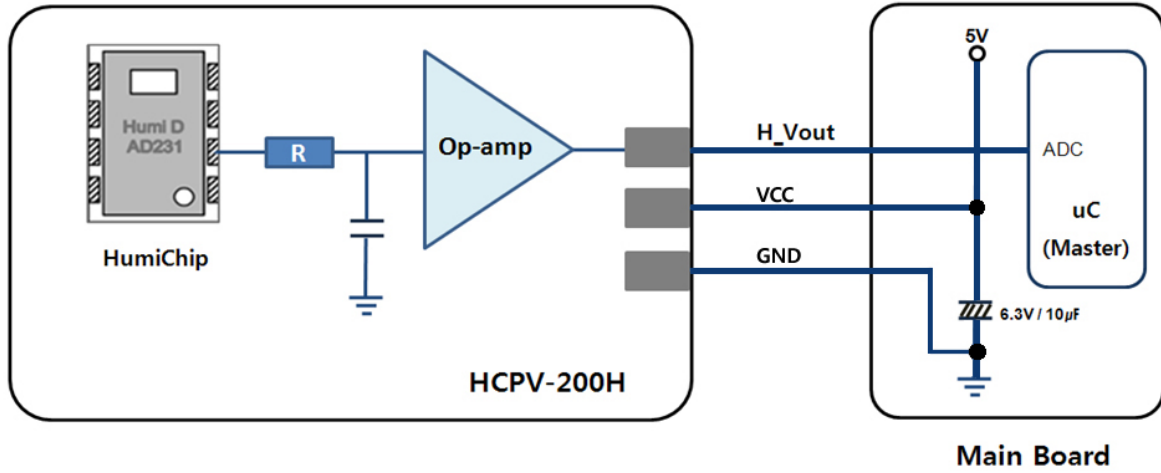
- Relative Humidity Accuracy



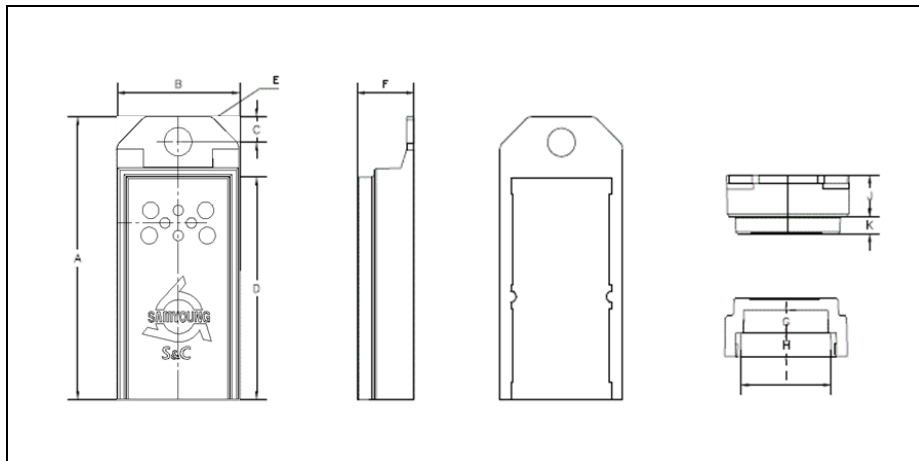
Accuracy Tolerance of HCPV-200H series can be customized to user requirements.

The total accuracy tolerance is $\pm 5.5\%RH$ for 10%~90%RH.

Basic Circuits (Application Circuit)

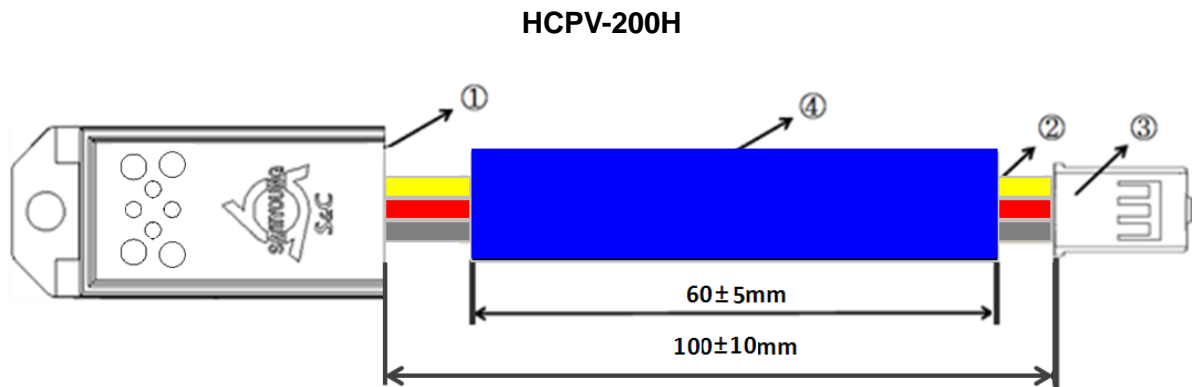


Dimensions



Type	Dimension(mm)
A	27±0.30
B	12±0.30
C	2.50±0.25
D	19.99±0.30
E	5±0.25
F	5.60±0.25
G	2.15±0.25
H	2.25±0.25
I	9.48±0.25
J	4.1±0.25
K	1.5±0.25

Parts

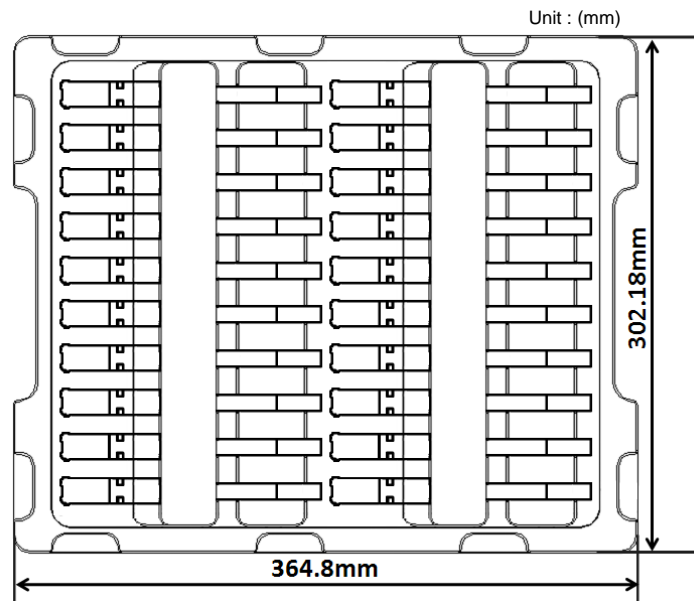


NO.	Component parts	Spec.	Qty.	color	Maker.	Remarks
1	Case	PC (Polycarbonate)	1	BLACK		
	PCB	FR4	1			
	Sensor	HumiChip	1		SAMYOUNG S&C	
2	Harness	UL 1007-AWG#24	1	YELLOW		Pin3 H_Vout
		UL 1007-AWG#24	1	RED		Pin2 Vcc
		UL 1007-AWG#24	1	GRAY		Pin1 GND
3	Housing	XMP-03V	1	WHITE	JST	
	Contact	SXA – 01T – P0.6	3		JST	
	Retainer	XMS-03V	1	WHITE	JST	
4	Tube	5mm*60mm -PVC-4AWG	1	BLACK		

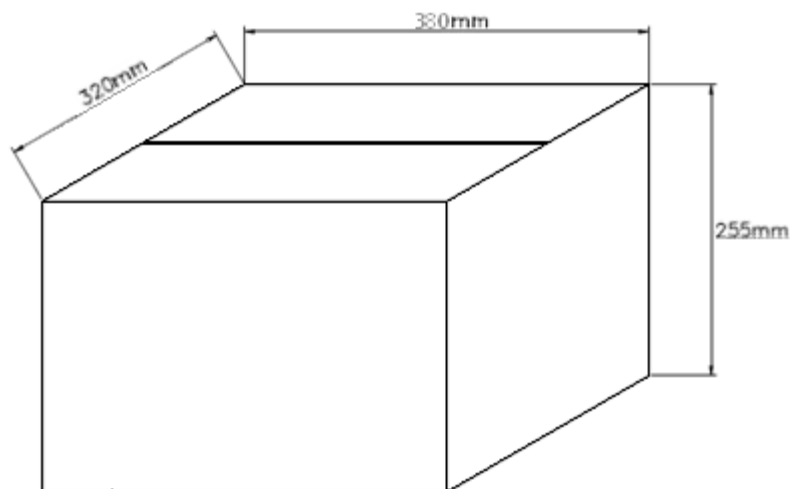
Packaging

Type	Quantity(pcs.)		Size (W × L × H mm)	
	Tray	Out box	Tray	Out box
HCPV-200H	15	600	364.8×302.18×17	380×320×255

Tray : 40pcs / 1 Tray(제전 PS, 364.8×302.18×17 mm)



Outlet box(380×320×255 mm): 15 Trays (600pcs)



Revision History

Date	Version	Page(s)	Changes
	2.0		First Release
21 NOV 2014	2.1	3	Humidity Accuracy Tolerance modified: ±5.5%RH(Min/Max), ±3%RH(Typical range)
26 FEB 2015	2.2	5	Molding case design and dimensions modified (harness length, tube color)
06 MAR 2015	2.3	8	Packing tray design modified
24 MAR 2015	2.4	4	Humidity Output Voltage Specifications modified: Standard 23°C, 55%(Critical To Function)
22 JULY 2015	2.5	ALL	Reviewed, Company Logo on the header changed



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This Application Guide should be used only for intended and authorized application of **HumiChip®**. Please consult with **SAMYOUNG S&C** for any specific application requirements and for detailed datasheet.

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