



# HS12SP

## Relative Humidity Sensor



Telaire HS12SP is a bulk-resistance type of Relative Humidity (RH) Sensor providing a variable impedance value in response to the adsorbed water within the sensor's proprietary thin-film polymer. Applied to an interdigitated electrode, the polymer's chemical functional groups disassociate into ionic groups in the presence of water, increasing the sensor's electrical conductivity. Excited by a low voltage alternating current, the sensor's resulting impedance is measured via supporting circuitry.

### Features

- Low cost
- Low power
- Inverse exponential humidity response curve
- Fast response time
- Exceptional linearity
- Low hysteresis
- Excellent interchangeability
- Simple signal conditioning circuitry
- Wide operating range
- Small size

### Applications

- HVAC controls
- White goods
- Handheld instruments
- Medical devices
- Wireless transmitters
- Asset monitoring
- Data loggers
- Consumer goods
- Automotive climate control
- Agriculture and horticulture
- Environmental chambers
- Enthalpy measurement

# HS12SP Specifications

Parameter	LIMITS			UNIT	CONDITION
	MIN	TYP	MAX		
Storage Temperature	0		50	°C	
Storage Humidity	20		90	%RH	Without condensation
Operating Humidity	30		90	%RH	Do not allow dewdrops to form.
Operating Temperature	0		50	°C	
Rated Working Voltage	AC 1V			kΩ	50Hz~1KHz
Rated Power	0.3			mW	
Nominal Impedance Value		60			25°C, 50%RH
Tolerance on Impedance Value	42		78	kΩ	

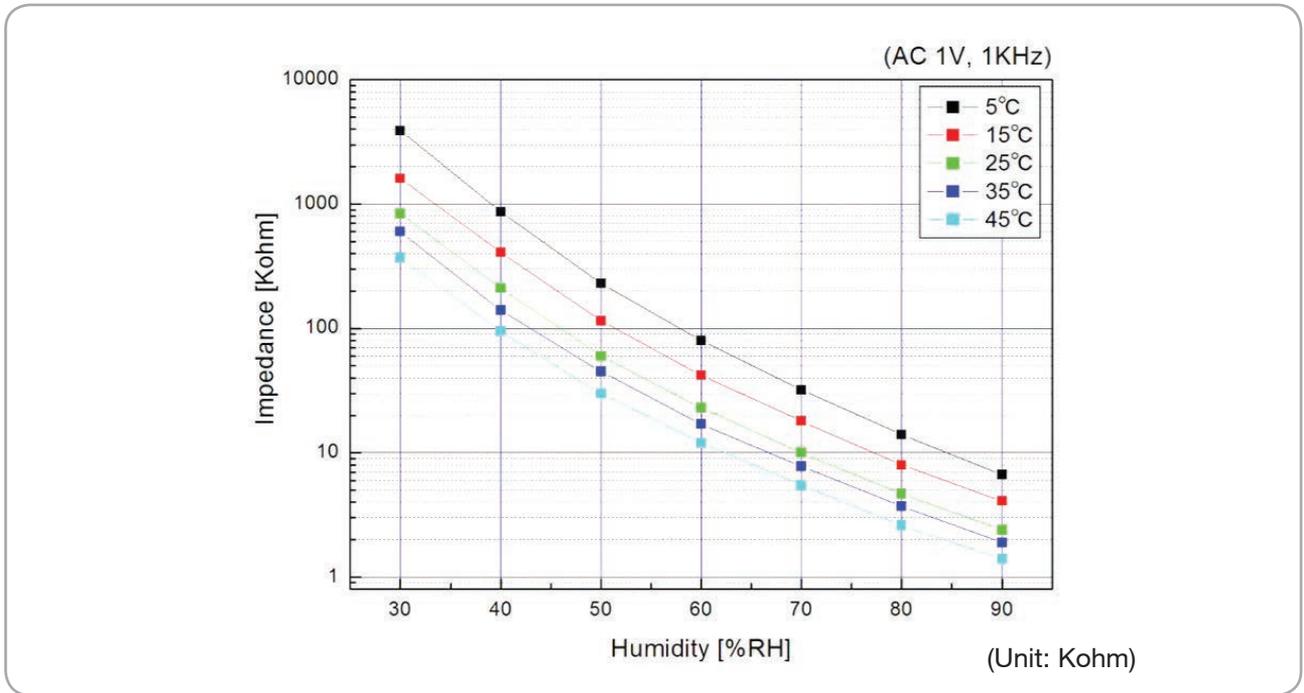
## Reliability

Parameter	CRITERIA	CONDITION
Dry Heat Storage	<±5 %RH	85°C, 1000 hours
Cold Storage	<±5 %RH	-40°C, 1000 hours
Damp Heat Storage	<±5 %RH	65°C ±5°C, 90%RH, 1000 hours
Heat Cycle Test	<±5 %RH	-40°C~85°C, 100 cycles
Low Humidity Storage	<±5 %RH	20°C, 20%RH, 1000 hours

### Notes

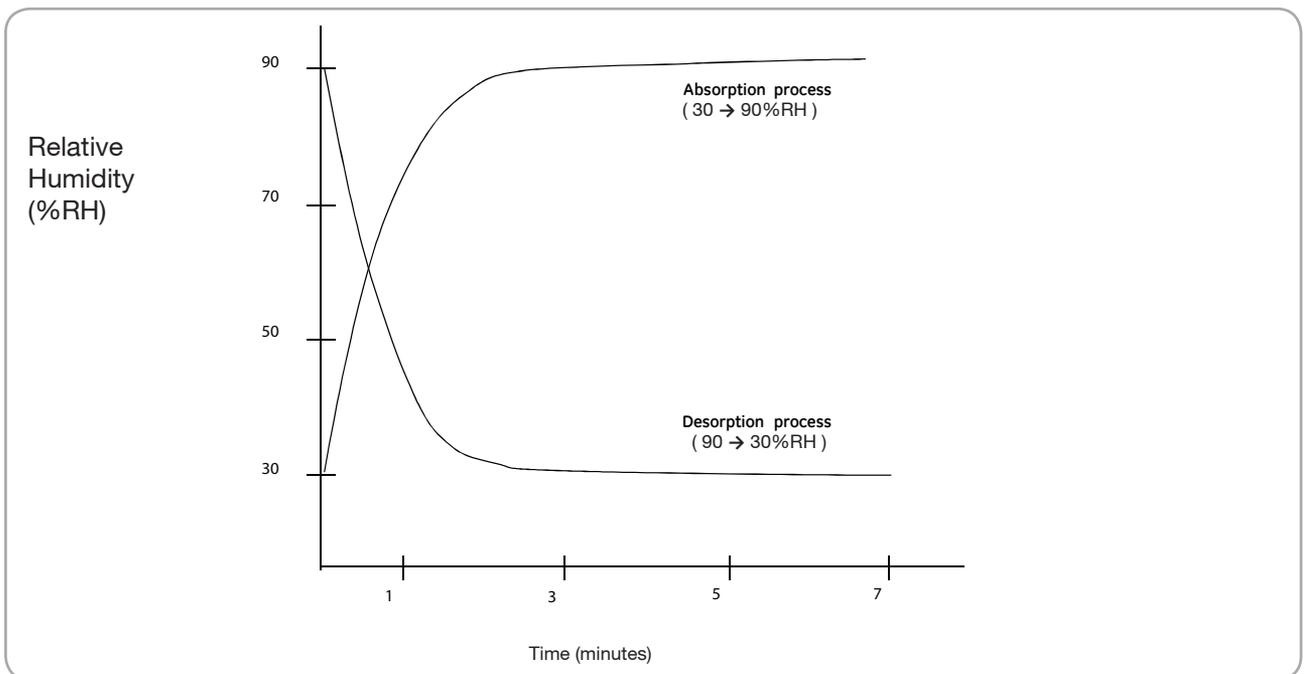
1. Do not apply direct current to the sensor.
2. Do not touch the film or the surface of the sensor.
3. In use and stock, freezing, dust, mist, oil, alcohol, corrosive gases or any other dirty/anomalous ambient may cause degradation of the sensor's characteristics.
4. Protect the sensor film from flux/fume and high temperature during soldering.
5. Do not immerse sensor in water.

# Sensitivity Characteristics



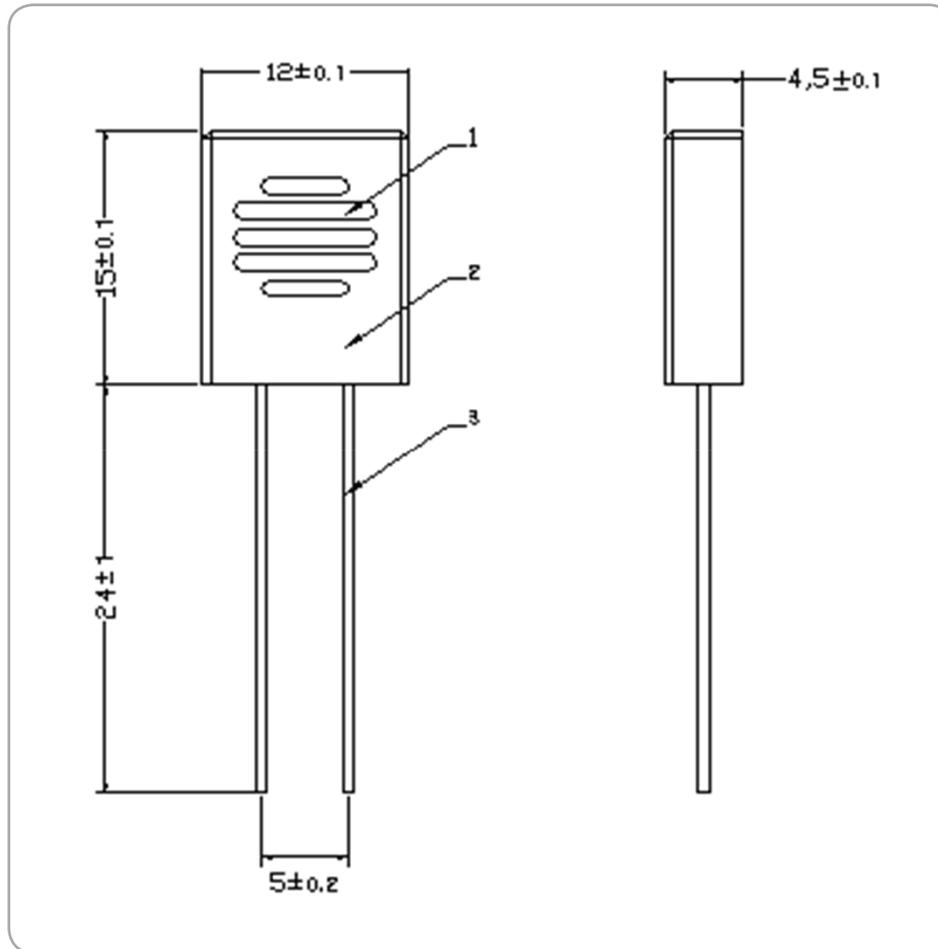
°C	Relative Humidity (%RH)						
	30	40	50	60	70	80	90
5	3900	870	230	80	32	14	6.7
15	1610	410	115	42	18	8.0	4.1
25	840	210	60	23	10	4.7	2.4
35	600	140	45	17	7.8	3.7	1.9
45	370	95	30	12	5.5	2.6	1.4

# Typical Response Characteristics



# Dimensions

(Unit: mm)



No	Part Name	Material
1	Filter	
2	Lead	ABS (Color: Black)
3	Case	Sn plated Cu wire, 0.6 mm (Cu: Sn = 99.97:0.03)

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Advanced Sensors

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