# Temperature & Humidity Module RHU217-AT

540 997

## Applications

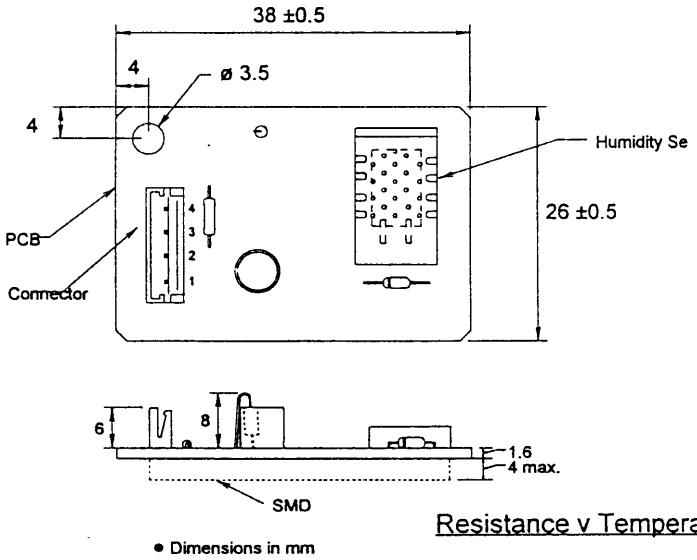
- Air Conditioners
- Room Humidifiers / Dehumidifiers
- Ventilation Systems

The RHU-217-AT is able to measure humidity and temperature without the need for any external electronics. A linear 0 to 3.3VDC output corresponds to 0 to 100% full scale relative humidity. Temperature is monitored by a thermister and connection is made via a JST connector

## Specifications

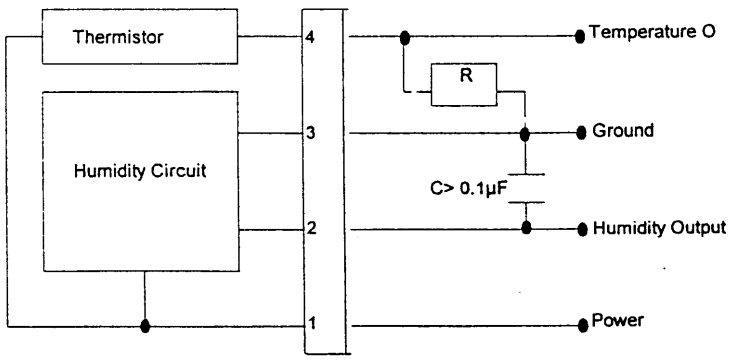
| | |
|---|---|
| Supply Voltage | 5VDC ±5% |
| Current Consumption | >5mA (typically 2mA) |
| Temperature Output Signal ( Resistance Output ) | R(25°C)=50KΩ±3%, β(100 / 0°C ) = 3970±2% |
| Humidity Output Signal * | 0 - 3.3VDC ( output impedance is approx. 5KΩ ) |
| Storage | -20°C to +85°C, <95% RH |
| Operating Range | 0 to 60°C, <90% RH |
| Measurement Range | Temperature : 0 to 60°C |
| | Humidity : 30 to 90% RH |
| Accuracy | Temperature : ± 0.7°C ( at 25°C ) |
| | Humidity : ± 5% RH ( at 25°C, 60% RH, Vin =5VDC ) |

* Output signal is Linear and 0 to 100%RH full scale

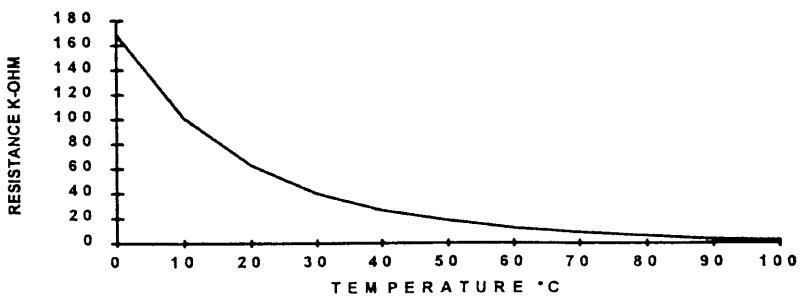



• Dimensions in mm

• Typical Application




Resistance v Temperature For Thermistor




For further assistance please contact FARNELL MERCATOR TEL : 01493 334029 FAX : 01493 334050

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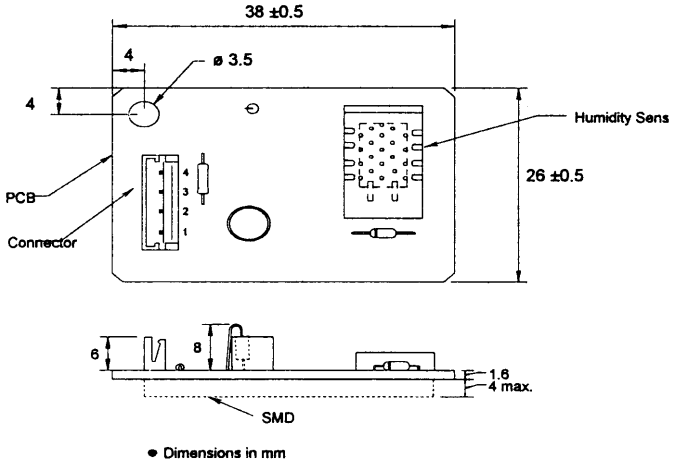
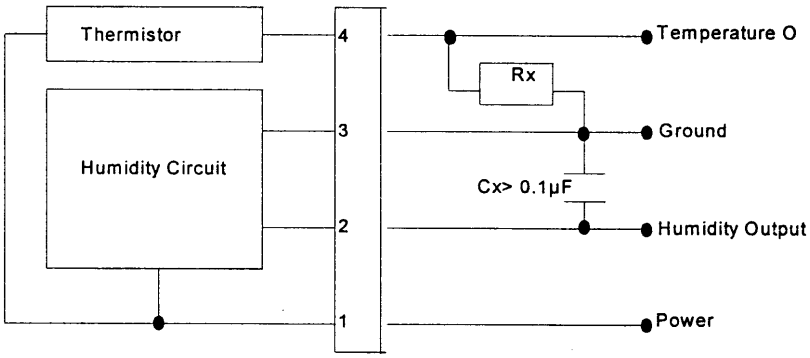
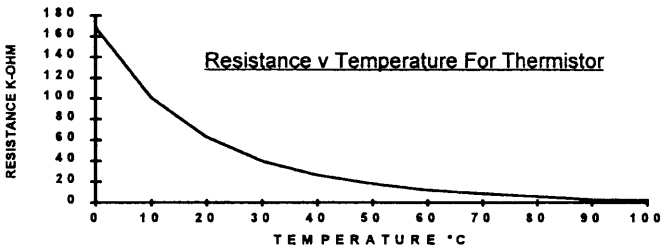



● Dimensions in mm

● Typical Application




Rx and Cx are both external components, Cx provides smoothing on the humidity output. Temperature measurement can be acheived either by using the resistance of the thermistor and measuring between pins 1 and 4 ( see below for formulae) or by connecting a resistor ' Rx ' as shown, thereby obtaining a voltage output. ie if Rx=50KΩ then at 25°C the voltage on pin 4 would be 1/2 of the supply ; 2.5V.

β = 3970 : $R_{REF}$ = 50KΩ : $T_{REF}$ =298.15 °K ( 25°C )

To find the resistance of the thermistor at a given temperature ( T ) :

$$R = R_{REF}\, e^{\left(\frac{\beta}{T} - \frac{\beta}{T_{REF}}\right)}$$

To find the temperature that gives a thermistor resistance ( R ) :

$$T = \frac{\beta}{\ln\left(\frac{R}{R_{REF}}\right) + \frac{\beta}{T_{REF}}}$$

$R_{REF}$ = Thermistor Resistance @ Reference temp of 25°C ( $T_{REF}$ )

β= Beta Value

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