Temperature & Humidity Module RHU217-AT
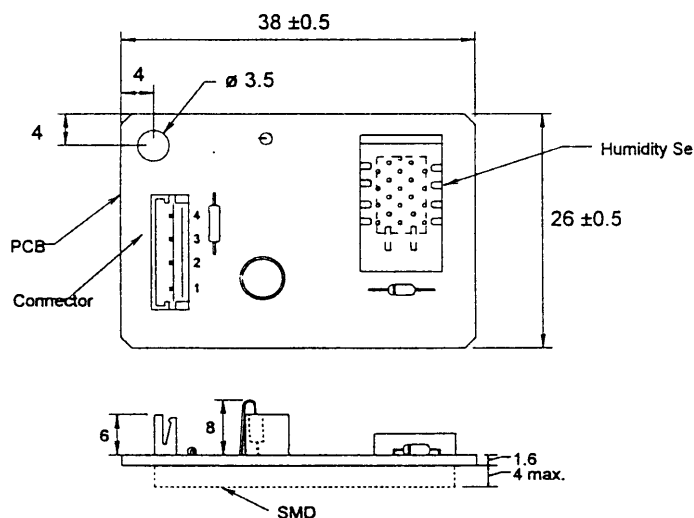
540 997

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
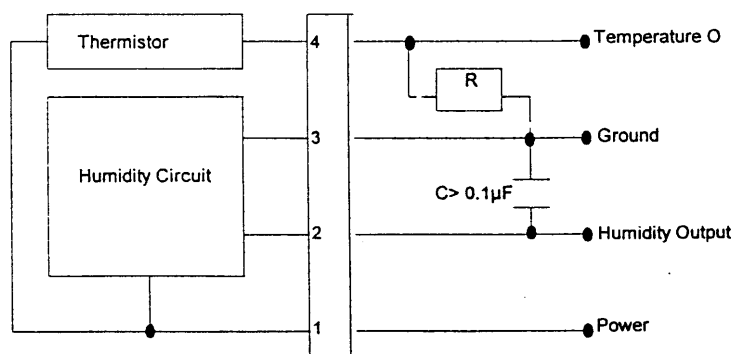
Specifications

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)

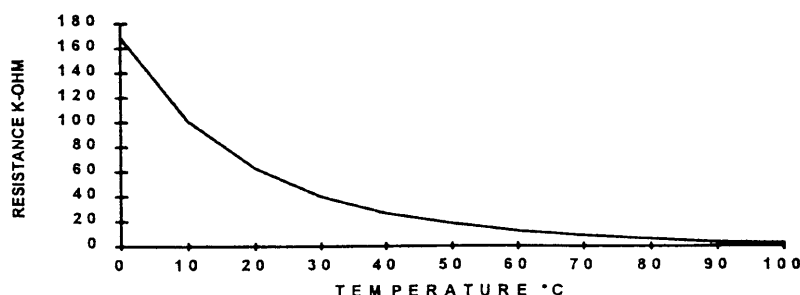* Output signal is Linear and 0 to 100%RH full scale

● Dimensions in mm

● Typical Application

Resistance v Temperature For Thermistor

Temperature & Humidity Module RHU217-AT
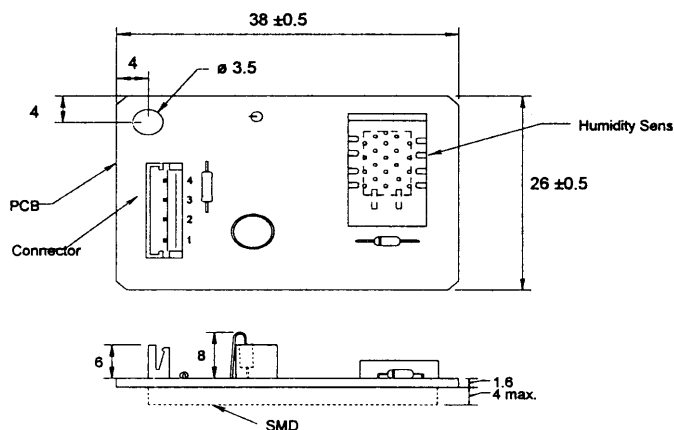
Applications

- 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
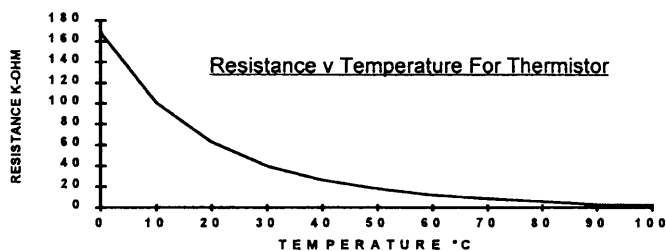
Specifications

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

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.

$\beta = 3970 : R_{REF} = 50K\Omega : T_{REF} = 298.15 \,°K\ (\ 25°C\ )$

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

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

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

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

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

β = Beta Value

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