

# BOMBAY ENGINEERING COMPANY

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We would like to introduce ourselves as one of the leading manufacturers of instruments for the process industry. Our latest introduction of relative humidity cum temperature meter offers one the best value for money buys.

The indicator has bicolour dual display for humidity & temperature and is housed in a specially designed cabinet to minimise entry of dust & moisture. External sensors are provided with 5 mtrs. of cable to enable spot measurements. The instrument is designed for continuous 24 hrs. on line operation and is ideal for use in floor fermenting rooms (Tea Industry), food processing industry, clean rooms, laboratories, printing & film processing, storage rooms, climate control - HVAC & meteorological applications.

## PERFORMANCE SPECIFICATON :

R.H. Measuring Range :	0 - 100% Non Condensing
R.H. Accuracy :	± 2% R.H.
R.H. Repeatability :	± 1% R.H.
R.H. Response Time :	30 Seconds in slow moving Air.
Temp. Indication :	0 - 99°C.
Temp. Resolution :	0.1°C.
Temp. Accuracy :	± 0.5°C.
Power Requirement :	230 Volt AC ± 10%, 50 Hz.

In case you require any clarification or demonstration of the meter please feel free to contact us.

**Tested & Certified by ERTL**  
**Govt. of India**

## INTRODUCTION :

Of all the common environmental parameters, humidity is perhaps the least understood and most difficult to measure with accuracy.

Humidity is mostly measured by dry & wet bulb thermometers, which have inherent errors. Fractional readings are not possible and parallax error causes faulty measurements. Dial type R.H. meters are not accurate and meters of foreign make has virtually no after sales service.

## IMPORTANCE OF RH IN FERMENTATION :

Out of the many stages of tea processing, fermentation plays a vital role in determining the quality of tea produced. Fermentation is basically a natural oxidation reaction which starts as the green tea leaves are broken up (by Rotorvane, CTC cut). For optimum fermentation to take place, relative humidity (R.H.) and temperature are to be maintained within very narrow tolerance limits. **R.H. of 85% to 95% and temperature of 27°C to 32°C provide the best conditions for fermentation.**

Higher or lower levels of temperature slows down the process significantly. At relative humidity below 85% surface drying takes place which means loss of polyphenols and enzymes which will lower the quality of tea produced.

## PRODUCT PROFILE :

Keeping the above requirements in view, we at BEC have developed a R.H. cum temperature meter to withstand continuous exposure to very high levels of R.H. over long periods without degradation in accuracy. The laser trimmed thermoset polymer capacitive sensing element used is imported from world leaders in this field. The instrument is ruggedly designed and will provide accurate and reliable measurement of R.H. and temperature in the fermenting room for production of quality tea.





**INTRODUCING**

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Dear Sir,

**INTRODUCING : RELATIVE HUMIDITY CUM AMBIENT TEMPERATURE INDICATOR**

**Tea - Present Scenario :**

Tea industry is passing through a grave phase. With increasing production cost and decreasing price realisation. Demands are for only premium quality tea. Medium and low grade tea is to be sold at a cheaper rate even if production cost is not realised.

**Beckon :**

Quality is to be achieved at all levels of production for survival.

**Importance of Fermentation :**

Out of the many stages of tea processing, fermentation plays a vital role in determining the quality of tea produced. Fermentation is basically a natural oxidation reaction which starts as the green tea leaves are broken up (by rotorvane / CTC cut). For optimum fermentation to take place relative humidity (R.H.) and temperature are to be maintained within very narrow tolerance limits. R.H. of 85% to 95% and temperature of 27°C to 32°C provide the best conditions for fermentation.

Higher or lower levels of temperature slows down the process significantly. At relative humidity below 85% surface drying takes place which means loss of polyphenols and enzymes which will lower the quality of tea produced.

**Product Profile :**

Of all common environmental parameters, humidity is perhaps the least understood and most difficult to measure with accuracy. Presently wet and dry bulb thermometers are used which has got inherent error. Fractional readings are not possible and parallax error occurs while reading. Kind of water used in the wet bulb end etc also affects accuracy. Dial type R. H. meters are not accurate at all. Other moisture meters of foreign makes has virtually no after sales service.

Keeping the above requirement in view, we have developed a relative humidity cum ambient temperature indicator using a laser trimmed thermoset polymer capacitive sensing element with on chip integrated signal conditioning.

The instrument has the following measuring range.

- a) 0 – 100% R.H. with accuracy of  $\pm 2\%$
- b) 0 – 100°C with accuracy of 0.5% and resolution of 0.1°C

The instrument will provide accurate and reliable measurement of R.H. in the fermenting room for production of quality tea.

Please feel free to contact us for further details.

Regards

**BOMBAY ENGINEERING COMPANY**



# **OPERATING MANUAL FOR RELATIVE HUMIDITY CUM TEMPERATURE INDICATOR MODEL: RH-100C.**

## **INTRODUCTION:**

Relative Humidity cum Temperature Indicator, Model RH-100C is a precision digital instrument designed for accurate 24 hrs. on line monitoring of R.H & ambient temperature. The instrument has been ruggedly designed and is housed in a shockproof cabinet made from engineering plastic.

The sensor is housed in a cast aluminium housing to protect the delicate sensing element from mechanical damage. The sensor is provided with 10 mtrs of shielded cable with polarity protected terminating connectors.

## **INSTALLATION:**

For optimum performance the sensor should be positioned in such an area of the room so that there is always a slow movement of air around the sensor. This will help the sensor to sense minute changes in R.H. & Temperature.

After unpacking the instrument and the sensor or if the unit is shifted from one place to another place/room, at least 15 – 20 minutes should be allowed for the system to stabilize before accurate reading can be taken.

Attachments for mounting the sensor on the wall are provided and it is recommended to use it.

## **BACK PANEL:**

1) The instrument is powered by 230V AC mains and the same should be connected to terminals marked L.N.

2) The sensor cable has a polarity protected connector. Notches are provided on both the male & female pair and the notches should be aligned for proper fitting.

## **TECHNICAL SPECIFICATION:**

R.H.Measuring Range:	0 – 100% Non Condensing.
R.H.Accuracy	: ± 2% R.H.
R.H.Repeatability	: ± 1% R.H.
R.H.Response Time	: 30 seconds in slow moving air.
Temp.Indication	: 0 - 75°C.
Temp.Resolution	: 0.1°C.
Temp.Accuracy	: ± 0.5°C
Power Requirement	: 230 Volt AC ± 10%, 50 Hz.

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**DO's & DON'Ts:**

- 1) The instrument should be protected from heat, dust & moisture as far as possible.
- 2) For greater accuracy the sensor should be placed so that there is a slow movement of air around the sensor.
- 3) The sensor cable should not be run parallel to AC mains cable.
- 4) The sponge dust cover on the sensor should be periodically removed and washed under cold running water to remove dust. It should be dried properly before refitting.
- 5) The sensor should not be dipped into any liquid. The sensor should not be placed in hot air where temperature exceeds 75°C. This may cause permanent damage to the sensor.

**CAUTION:**

There are no user serviceable parts inside the instrument or the sensor. Guarantee will be void if any attempt is made to open the instrument or sensor for repair or calibration.