

# HumiTherm-i Pro

Enhanced  
'Temperature + Humidity' Indicator  
(with Dry/Wet RTD Input Selection)

# Operation Manual

This brief manual is primarily meant for quick reference to wiring connections and parameter searching. For more details on operation and application; please log on to [www.ppiindia.net](http://www.ppiindia.net)

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| PAGE-10 : TEMPERATURE - ALARM PARAMETERS    |                                                                                                               |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Parameters                                  | Settings<br>(Default Value)                                                                                   |
| Temperature Alarm Type<br><b>TYPE</b>       | <b>none</b> None<br><b>P_Lo</b> Process Low<br><b>P_Hi</b> Process High<br>(Default : None)                   |
| Temperature Alarm Setpoint<br><b>ALSP</b>   | -50.0 to 150.0°C or<br>-58.0 to 302.0°F<br>(Default :<br>For Process Low : -50.0<br>For Process High : 150.0) |
| Temperature Alarm Hysteresis<br><b>ALHY</b> | 0.1 to 25.0 °C or °F<br>(Default : 0.2)                                                                       |
| Temperature Alarm Logic<br><b>ALLG</b>      | <b>d.r</b> Direct<br><b>rEv</b> Reverse<br>(Default : Direct)                                                 |
| Temperature Alarm Inhibit<br><b>AL.IH</b>   | <b>no</b> No<br><b>YES</b> Yes<br>(Default : Yes)                                                             |

| PAGE-11 : RELATIVE HUMIDITY - ALARM PARAMETERS |                                                                                             |
|------------------------------------------------|---------------------------------------------------------------------------------------------|
| Parameters                                     | Settings<br>(Default Value)                                                                 |
| %RH Alarm Type<br><b>TYPE</b>                  | <b>none</b> None<br><b>P_Lo</b> Process Low<br><b>P_Hi</b> Process High<br>(Default : None) |
| %RH Alarm Setpoint<br><b>ALSP</b>              | 0.0 to 100.0%<br>(Default :<br>For Process Low : 0.0<br>For Process High : 100.0)           |
| %RH Alarm Hysteresis<br><b>ALHY</b>            | 0.1 to 25.0%<br>(Default : 0.2)                                                             |
| %RH Alarm Logic<br><b>ALLG</b>                 | <b>d.r</b> Direct<br><b>rEv</b> Reverse<br>(Default : Direct)                               |
| %RH Alarm Inhibit<br><b>AL.IH</b>              | <b>no</b> No<br><b>YES</b> Yes<br>(Default : Yes)                                           |

| PAGE-12 : INPUT CHANNEL CONFIGURATION PARAMETERS   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------|---------|------------|---------------------|-------|------------|---------------------|-------|-------------|----------------------|-------|----------|----------------------|-------|-----------|---------------------|-------|----------|----------------------|-------|--|--|
| Parameters                                         | Settings<br>(Default Value)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |            |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| Input Type For Temp Sensor<br><div>db.In</div>     | Refer Table 1<br>(Default : RTD)                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |            |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| Signal Low For Temp Sensor<br><div>dbSL</div>      | <table><tr><th>Input Type</th><th>Settings</th><th>Default</th></tr><tr><td>0 to 20 mA</td><td>0.00 to Signal High</td><td>0.00</td></tr><tr><td>4 to 20 mA</td><td>4.00 to Signal High</td><td>4.00</td></tr><tr><td>0 to 1.25 V</td><td>0.000 to Signal High</td><td>0.000</td></tr><tr><td>0 to 5 V</td><td>0.000 to Signal High</td><td>0.000</td></tr><tr><td>0 to 10 V</td><td>0.00 to Signal High</td><td>0.00</td></tr><tr><td>1 to 5 V</td><td>1.000 to Signal High</td><td>1.000</td></tr></table> | Input Type | Settings | Default | 0 to 20 mA | 0.00 to Signal High | 0.00  | 4 to 20 mA | 4.00 to Signal High | 4.00  | 0 to 1.25 V | 0.000 to Signal High | 0.000 | 0 to 5 V | 0.000 to Signal High | 0.000 | 0 to 10 V | 0.00 to Signal High | 0.00  | 1 to 5 V | 1.000 to Signal High | 1.000 |  |  |
| Input Type                                         | Settings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Default    |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| 0 to 20 mA                                         | 0.00 to Signal High                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.00       |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| 4 to 20 mA                                         | 4.00 to Signal High                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4.00       |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| 0 to 1.25 V                                        | 0.000 to Signal High                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.000      |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| 0 to 5 V                                           | 0.000 to Signal High                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.000      |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| 0 to 10 V                                          | 0.00 to Signal High                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.00       |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| 1 to 5 V                                           | 1.000 to Signal High                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.000      |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| Signal High For Temp Sensor<br><div>dbSh</div>     | <table><tr><th>Input Type</th><th>Settings</th><th>Default</th></tr><tr><td>0 to 20 mA</td><td>Signal Low to 20.00</td><td>20.00</td></tr><tr><td>4 to 20 mA</td><td>Signal Low to 20.00</td><td>20.00</td></tr><tr><td>0 to 1.25 V</td><td>Signal Low to 1.250</td><td>1.250</td></tr><tr><td>0 to 5 V</td><td>Signal Low to 5.000</td><td>5.000</td></tr><tr><td>0 to 10 V</td><td>Signal Low to 10.00</td><td>10.00</td></tr><tr><td>1 to 5 V</td><td>Signal Low to 5.000</td><td>5.000</td></tr></table> | Input Type | Settings | Default | 0 to 20 mA | Signal Low to 20.00 | 20.00 | 4 to 20 mA | Signal Low to 20.00 | 20.00 | 0 to 1.25 V | Signal Low to 1.250  | 1.250 | 0 to 5 V | Signal Low to 5.000  | 5.000 | 0 to 10 V | Signal Low to 10.00 | 10.00 | 1 to 5 V | Signal Low to 5.000  | 5.000 |  |  |
| Input Type                                         | Settings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Default    |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| 0 to 20 mA                                         | Signal Low to 20.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 20.00      |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| 4 to 20 mA                                         | Signal Low to 20.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 20.00      |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| 0 to 1.25 V                                        | Signal Low to 1.250                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1.250      |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| 0 to 5 V                                           | Signal Low to 5.000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 5.000      |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| 0 to 10 V                                          | Signal Low to 10.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 10.00      |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| 1 to 5 V                                           | Signal Low to 5.000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 5.000      |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| Temperature Range Low<br><div>dbLo</div>           | -199.9 to 999.9<br>(Default : 0.0)                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |            |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| Temperature Range High<br><div>dbHi</div>          | -199.9 to 999.9<br>(Default : 100.0)                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |            |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| Zero Offset For Temp Value<br><div>dbOF</div>      | -25.0 to 25.0<br>(Default : 0.0)                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |            |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| Input Type For Humidity Sensor<br><div>HU.In</div> | Refer Table 1<br>(Default : 0 to 5 V)                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| Signal Low For Humidity Sensor<br><div>rhSL</div>  | <table><tr><th>Input Type</th><th>Settings</th><th>Default</th></tr><tr><td>0 to 20 mA</td><td>0.00 to Signal High</td><td>0.00</td></tr><tr><td>4 to 20 mA</td><td>4.00 to Signal High</td><td>4.00</td></tr><tr><td>0 to 1.25 V</td><td>0.000 to Signal High</td><td>0.000</td></tr><tr><td>0 to 5 V</td><td>0.000 to Signal High</td><td>0.000</td></tr><tr><td>0 to 10 V</td><td>0.00 to Signal High</td><td>0.00</td></tr><tr><td>1 to 5 V</td><td>1.000 to Signal High</td><td>1.000</td></tr></table> | Input Type | Settings | Default | 0 to 20 mA | 0.00 to Signal High | 0.00  | 4 to 20 mA | 4.00 to Signal High | 4.00  | 0 to 1.25 V | 0.000 to Signal High | 0.000 | 0 to 5 V | 0.000 to Signal High | 0.000 | 0 to 10 V | 0.00 to Signal High | 0.00  | 1 to 5 V | 1.000 to Signal High | 1.000 |  |  |
| Input Type                                         | Settings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Default    |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| 0 to 20 mA                                         | 0.00 to Signal High                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.00       |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| 4 to 20 mA                                         | 4.00 to Signal High                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4.00       |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| 0 to 1.25 V                                        | 0.000 to Signal High                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.000      |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| 0 to 5 V                                           | 0.000 to Signal High                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.000      |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| 0 to 10 V                                          | 0.00 to Signal High                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.00       |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| 1 to 5 V                                           | 1.000 to Signal High                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.000      |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| Signal High For Humidity Sensor<br><div>rhSh</div> | <table><tr><th>Input Type</th><th>Settings</th><th>Default</th></tr><tr><td>0 to 20 mA</td><td>Signal Low to 20.00</td><td>20.00</td></tr><tr><td>4 to 20 mA</td><td>Signal Low to 20.00</td><td>20.00</td></tr><tr><td>0 to 1.25 V</td><td>Signal Low to 1.250</td><td>1.250</td></tr><tr><td>0 to 5 V</td><td>Signal Low to 5.000</td><td>5.000</td></tr><tr><td>0 to 10 V</td><td>Signal Low to 10.00</td><td>10.00</td></tr><tr><td>1 to 5 V</td><td>Signal Low to 5.000</td><td>5.000</td></tr></table> | Input Type | Settings | Default | 0 to 20 mA | Signal Low to 20.00 | 20.00 | 4 to 20 mA | Signal Low to 20.00 | 20.00 | 0 to 1.25 V | Signal Low to 1.250  | 1.250 | 0 to 5 V | Signal Low to 5.000  | 5.000 | 0 to 10 V | Signal Low to 10.00 | 10.00 | 1 to 5 V | Signal Low to 5.000  | 5.000 |  |  |
| Input Type                                         | Settings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Default    |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| 0 to 20 mA                                         | Signal Low to 20.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 20.00      |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| 4 to 20 mA                                         | Signal Low to 20.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 20.00      |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| 0 to 1.25 V                                        | Signal Low to 1.250                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1.250      |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| 0 to 5 V                                           | Signal Low to 5.000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 5.000      |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| 0 to 10 V                                          | Signal Low to 10.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 10.00      |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| 1 to 5 V                                           | Signal Low to 5.000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 5.000      |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| %RH Range Low<br><div>rhLo</div>                   | -199.9 to 999.9<br>(Default : 0.0)                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |            |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |
| %RH Range High<br><div>rhHi</div>                  | -199.9 to 999.9<br>(Default : 100.0)                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |            |          |         |            |                     |       |            |                     |       |             |                      |       |          |                      |       |           |                     |       |          |                      |       |  |  |

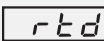
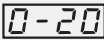
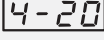
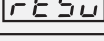
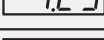
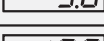
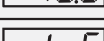
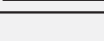
| Parameters                                      | Settings<br>(Default Value)      |
|-------------------------------------------------|----------------------------------|
| Wet-bulb Temperature Zero Offset<br><b>wbOF</b> | -25.0 to 25.0<br>(Default : 0.0) |
| %RH Zero Offset<br><b>rhOF</b>                  | -99.0 to 99.0<br>(Default : 0.0) |

| PAGE-13 : SUPERVISORY PARAMETERS                                   |                                                                            |
|--------------------------------------------------------------------|----------------------------------------------------------------------------|
| Parameters                                                         | Settings<br>(Default Value)                                                |
| Unit Selection for Temperature<br><b>Unit</b>                      | <b>°C</b> °C<br><b>°F</b> °F<br>(Default : °C)                             |
| Dry-Bulb Temperature and % RH Min / Max Monitoring<br><b>Hi.Lo</b> | <b>no</b> No<br><b>YES</b> Yes<br>(Default : No)                           |
| Password For Resetting PV High - Low<br><b>CODE</b>                | 0 to 250<br>(Default : 0)                                                  |
| Slave Id<br><b>Id</b>                                              | 1 to 127<br>(Default : 1)                                                  |
| Baud Rate<br><b>BAUD</b>                                           | <b>48</b> 4800<br><b>96</b> 9600<br><b>192</b> 19200<br>(Default : 9600)   |
| Parity<br><b>PARi</b>                                              | <b>none</b> None<br><b>Even</b> Even<br><b>Odd</b> Odd<br>(Default : Even) |
| Communication Write Enable<br><b>ConE</b>                          | <b>no</b> No<br><b>YES</b> Yes<br>(Default : Yes)                          |

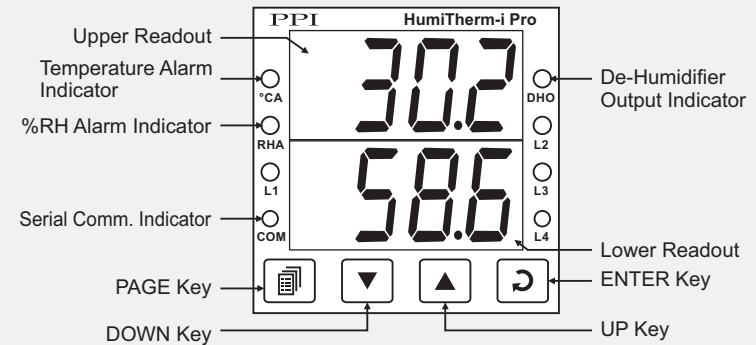
| PAGE-14 : DE-HUMIDIFIER CONTROL PARAMETERS |                                                                  |
|--------------------------------------------|------------------------------------------------------------------|
| Parameters                                 | Settings<br>(Default Value)                                      |
| De-humidifier Control<br><b>dHUa</b>       | <b>dSbL</b> Disable<br><b>EnbL</b> Enable<br>(Default : Disable) |
| De-humidifier Setpoint<br><b>dHSP</b>      | 0.0 to 100.0<br>(Default : 0)                                    |
| De-humidifier Hysteresis<br><b>dHHY</b>    | 0.1 to 99.9<br>(Default : 2.0)                                   |

| PAGE - 0 : OPERATOR PAGE AND PARAMETERS             |                                                  |
|-----------------------------------------------------|--------------------------------------------------|
| Parameters                                          | Settings<br>(Default Value)                      |
| Maximum Dry Bulb Temperature Value<br><b>dbHi</b>   | View Only                                        |
| Minimum Dry - Bulb Temperature Value<br><b>dbLo</b> | View Only                                        |
| Maximum %RH Value<br><b>rhHi</b>                    | View Only                                        |
| Minimum Peak of RH<br><b>rhLo</b>                   | View Only                                        |
| Reset Command<br><b>rSt</b>                         | <b>no</b> No<br><b>YES</b> Yes<br>(Default : No) |
| Reset Pass - Code<br><b>CODE</b>                    | 0 to 250<br>(Default : 0)                        |

**Table 1**

| Option                                                                            | What it means              | Range (Min. to Max.)                     | Resolution  |
|-----------------------------------------------------------------------------------|----------------------------|------------------------------------------|-------------|
|  | 3-wire, RTD Pt100          | -199.9 to +600.0 °C / -199.9 to 999.9 °F | 0.1 °C / °F |
|  | 0 to 20mA DC current       | -199.9 to 999.9 units                    | 0.1 units   |
|  | 4 to 20mA DC current       |                                          |             |
|  | Reserved<br>(Don't Select) |                                          |             |
|  |                            |                                          |             |
|  | 0 to 1.25V DC voltage      |                                          |             |
|  | 0 to 5.0V DC voltage       |                                          |             |
|  | 0 to 10.0V DC voltage      |                                          |             |
|  | 1 to 5.0V DC voltage       |                                          |             |

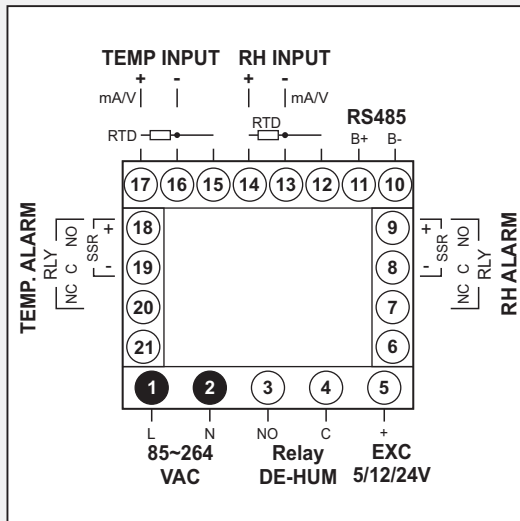
## FRONT PANEL LAYOUT



### Keys Operation

| Symbol | Key   | Function                                                                                                                     |
|--------|-------|------------------------------------------------------------------------------------------------------------------------------|
|        | PAGE  | Press to enter or exit set-up mode.                                                                                          |
|        | DOWN  | Press to decrease the parameter value. Pressing once decreases the value by one count; keeping pressed speeds up the change. |
|        | UP    | Press to increase the parameter value. Pressing once increases the value by one count; keeping pressed speeds up the change. |
|        | ENTER | Press to store the set parameter value and to scroll to the next parameter on the PAGE.                                      |

## ELECTRICAL CONNECTIONS



### PV Error Indications for Dry Bulb Temperature

| Message | Error Type                                         |
|---------|----------------------------------------------------|
|         | Over-range<br>Dry Bulb Temp. above Max. Range      |
|         | Under-range<br>Dry Bulb Temp. below Min. Range     |
|         | Sensor Open<br>Dry Bulb Sensor (RTD) Broken / Open |

### PV Error Indications for Relative Humidity (RH)

| Message | Error Type                | Cause                                                                                                                                                                                                                                                                                                                    |
|---------|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         | Over-range                | Wet Bulb Temperature above Max. Range                                                                                                                                                                                                                                                                                    |
|         | Under-range               | Wet Bulb Temperature below Min. Range                                                                                                                                                                                                                                                                                    |
|         | Sensor Open               | Wet Bulb Sensor (RTD) Broken / Open                                                                                                                                                                                                                                                                                      |
|         | RH Error                  | This error is indicated in the following cases :<br><ul style="list-style-type: none"> <li>Dry Bulb Temperature above 102.0°C.</li> <li>Dry Bulb Temperature below -20.0°C.</li> <li>Wet Bulb depression beyond:<br/> 50.0°C for Dry Bulb Temperature above 0°C<br/> 5.6°C for Dry Bulb Temperature below 0°C</li> </ul> |
|         | Display Freezes To 100.0% | This error is indicated in the following cases :<br><ul style="list-style-type: none"> <li>Wet-Bulb Temperature exceeds Dry-Bulb Temperature.</li> <li>Computed % RH above 100.0%.</li> </ul>                                                                                                                            |
|         | Display Freezes To 0.0%   | Computed % RH is below 0.0%.                                                                                                                                                                                                                                                                                             |