

# SKOLNIK

Technical Training Institute

AccuHume™

*Relative Humidity (RH) Monitor*

Model Number 74-283



Operator's Manual

## **INTRODUCTION**

Congratulations on your purchase order of Skolnik AccuHume Relative Humidity (RH) Monitor!

Our easy-to-use indoor hygrometer offers accurate, fail-safe humidity monitor solutions, providing early-warning notification for out-of-spec humidity conditions (high or low), using large, colorful, easy-to-see light display RH alerts. The RH Monitor can be a table-top unit or wall-mounted with simple installation.

With appropriate care, this well-engineered, USA-made device will offer many years of reliable, high-quality service.

## **DESCRIPTION**

The control of electrostatic discharge (ESD) can be easily implemented by an ESD Control Program. What are frequently overlooked are the inherent environmental conditions and their control, such as the humidity. The most significant environmental factor in ESD Control is the relative humidity (RH). Humidity control limits the triboelectric charging process, and humidification of over 30% RH is recommended in electrostatic-protected areas (EPA). Skolnik AccuHume™ Relative Humidity (RH) Monitor is designed to ensure the desirable RH levels.

The AccuHume™ will display the current RH state, for your RH monitoring:

- Normal (Green Light)
- Caution (Yellow Light)
- Unacceptable (Red Light)

Skolnik AccuHume™ offers fail-safe humidity monitoring solutions that are easy to install and use. To program your desired RH value, simply press the appropriate button.

When the RH value increases or decreases outside the desired limits, the “Caution (Yellow)” or “Unacceptable (Red)” light will illuminate accordingly, alerting you for any necessary corrective action. As an additional warning, an audible alarm is also available, which can be activated or deactivated. For applications that require complete, accurate humidity records, the RS-232 output can also be connected to a PC for data collection, logging, graphing and documentation.

## FEATURES

- Indoor hygrometer - Accurate, fail-safe humidity monitor solutions
- Provides early-warning notification for out-of-spec humidity conditions (high or low)
- Easy-to-use with programmable Normal, Caution & Unacceptable RH alerts
- Large, colorful, easy-to-see light display RH alerts
- Audible alarm with adjustable set points
- RS-232 output, CSV, ASCII for data collection
- Table top or wall mount with easy installation
- Clean room compatible
- NIST calibrateable

## SPECIFICATIONS

RH Range:	5% - 90%
Accuracy:	± 5%
Temperature:	32 - 122°F (0 - 50°C )
Power Input:	12VDC at 0.5A
Dimensions:	3"(L)x 4"(W)x 6"(H) (7.5cm x 10cm x 15cm)
Weight:	15 oz. (415 g)
Beeper:	Piezoelectric
Display:	LED, Green
Sensor:	Resistance Polymer
Response Time:	5 seconds

## LOCATING THE MONITOR

Choose a suitable location for the RH monitor away from direct sunlight or sources of heat or air conditioning to ensure accurate readings. It can be mounted on a table/bench or mounted to the wall.

## OPERATION

Plug in 12VDC from the power supply (provided with the unit) into the RH power input.

The unit will perform an initial cursory test:

- LED display test {00 – 99}
- GREEN – YELLOW – RED lights
- Beeper test

The current RH value will be shown on the LED display.

## BEEPER ENABLE OR DISABLE

Press the Yellow Light (button).

The display should show a “91” to indicate the Beeper Enable/Disable function.

TO **ENABLE** THE BEEPER: Press the Green Light (button). The display will show a “01” to indicate that the Beeper is enabled.

TO **DISABLE** THE BEEPER: Press the Red Light (button). The display will show a “00” to indicate that the Beeper is disabled.

Repeatedly press the Yellow Button to scroll through modes 92-95. One more press and the unit will return to its normal mode and should show the current RH on the display.

The beeper will beep only if it is enabled. Whenever the RH crosses a light-change boundary (based on the alert levels that are in the nonvolatile memory), the beeper will sound 5 times to alert the personnel in the area.

If the RH value is hovering around a light change level such that the lights switch back and forth frequently, an automatic 5-minute beeper cut-out timer will prevent the beeper from beeping during that time. This will allow the user sufficient time to address the RH issue.

## **RH ALERTS**

When the RH is within the normal range, the green light (Normal) will illuminate.

If the RH is outside of the normal range, the yellow (Caution) or red (Unacceptable) light will illuminate.

<b>STATUS</b>	<b>FACTORY DEFAULT LIMIT SETTING</b>
UNACCEPTABLY HIGH: (RED light will turn on when value is higher than 50%)	50%
NORMAL HIGH: (YELLOW light will turn on when value is higher than 45%)	45%
NORMAL LOW: (YELLOW light will turn on when value is lower than 30%)	30%
UNACCEPTABLY LOW: (RED light will turn on when value is lower than 25%)	25%

The above factory default limit settings can be adjusted accordingly by the user, in order to meet his specific application, although there are the following requirements

to the settings, to ensure valid conditional lights/beeper action:

- UNACCEPTABLY HIGH must be set to a value higher than NORMAL HIGH
- NORMAL HIGH must be set to a value higher than NORMAL LOW
- NORMAL LOW must be set to a value higher than UNACCEPTABLY LOW

To change the RH alert values, start with the normal mode where the RH is displayed on the RH monitor.

Press the Yellow Light (button) two (2) times to obtain mode 92. This is the mode to establish the UNACCEPTABLY LOW Alert Level.

Use the RED (for UP) and GREEN (for DOWN) to adjust the level.

Press the Yellow Light (button) again to advance to mode 93. This is the mode to establish the NORMAL LOW Alert Level.

Repeat above for mode 94 (UNACCEPTABLY HIGH) and mode 95 (NORMAL HIGH).

When the above settings are complete, press the Yellow Button one more time to return the RH monitor to its normal monitoring mode.

## CALIBRATION

The calibration procedure may be performed to meet NIST standard.

1. Plug in an RS-232 serial cable from the PC to the RH Monitor Serial Port.
  - a. Use a straight-through serial cable, i.e. DCE-DTE cable (No NULL modem cable)
  - b. Set the UART to:
    - 9600 baud rate
    - 8-data bits
    - no parity
    - 1 stop bit
    - no flow control
2. On the PC, invoke a Serial Port Software, such as *HyperTerminal*
3. Install the RH Monitor into a calibrated humidity chamber and set the chamber to 60% RH.
4. Allow the humidity chamber to stabilize for at least 2 minutes.
5. Use the “A” key on the PC to increase the RH reading to match the chamber’s 60% RH value
6. Use the “Z” key to decrease the RH reading
7. When the RH Monitor’s display shows an RH value that matches that of the chamber’s value, turn off the RH Monitor. Calibration is now completed.

## PRODUCT WARRANTY

We warranty our products to be free from material defects in workmanship or materials for one (1) year from the date of shipment. If at any time within one (1) year after shipment, the product does not function as warranted, return it and we will repair or replace it without charge. This repair or replacement service does not include repair of failures caused by misuse, neglect, accident, modification, operation outside the specified operating environment, improper maintenance by the customer, failure caused by service of the product by non-authorized servicers, or failure caused by a product, including supply products, for which Skolnik Technical is not responsible.

If within thirty (30) days after shipment, the product does not function as warranted, Skolnik Technical will pay shipping charges to return the product to us for repair or replacement. After thirty (30) days, the customer pays shipping costs to return the equipment to Skolnik Technical. Product returned to customer after warranty repair will be shipped via UPS Ground, with shipping costs paid by Skolnik Technical.

If any product is subject to federal or state consumer warranty laws, our statement of limited warranty included with the product applies in place of these warranties. Misuse, accident, modification, neglect, unsuitable physical or operating environment, improper maintenance by the customer or failure caused by service of product by non-authorized servicers or by an item, including supply items for which Skolnik Technical is not responsible shall void these warranties. This warranty replaces any other warranty, express or implied, including the implied warranties of merchantability and fitness for a particular purpose, and it is limited in duration to the 1-year coverage period. No other warranties, expressed or implied, will apply after this period.

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