



RHS SERIES
RH Set Point Controller/Probe

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This owner's manual was as current as possible when this product was manufactured. However, products are constantly being updated and improved. Because of this, some differences may occur between the description in this manual and the product you received.

TEGAM is a manufacturer of electronic test and measurement equipment for metrology, calibration, and production test. We also provide repair, calibration, and other support services for a wide variety of test and measurement systems, resistance standards, ratio transformers, arbitrary waveform generators, micro-ohmmeters, LCR meters, handheld temperature calibrators, thermometers, humidity and temperature control devices, and more.

TEGAM also repairs and calibrates test and measurement equipment formerly manufactured by Electro-Scientific Industries (ESI), Gertsch, Keithley Instruments, Lucas Weinschel, and Pragmatic Industries. A complete list can be viewed on our Product Service Directory at www.tegam.com.

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RELATIVE HUMIDITY SETPOINT/CONTROLLER RHS-1

GENERAL DESCRIPTION

The model RHS-1 is an economical relative humidity probe and setpoint controller designed for the O.E.M. market. The stainless steel probe uses a thin film polymer capacitor to sense relative humidity. The probe may be mounted up to several thousands of feet from the setpoint controller. The controller includes a bandwidth control and a recorder output of 10 millivolts/%RH. A resistor may be removed to obtain 50 millivolts/%RH output. The controller output is a SPDT relay contact.

OPERATION

See Figure 1 for terminal connections. User can add wire to the five foot cable if required, observing color code as shown. Removing resistor as shown results in 50mV/%RH output and does not affect accuracy. Adjust bandwidth as required. Adjusting to "8" mark means the switching points will be 8%RH above, and 8%RH below the setpoint shown on the "T" box front panel. The bandwidth setting is independent of setpoint setting.

MAINTENANCE

If the probe filter is clogged, unscrew knurled end cap at probe end and carefully pull out the printed circuit board and sensor. Clean filter, reinsert board, and end cap. If necessary use a soft art-size brush to remove lint from sensor.

If sensor is subject to 100% RH condensation, it must be dried to obtain correct reading. No recalibration is required. The probe should not be exposed to high concentrations of ammonia, alcohol vapors, air pollutants, or contaminants.

CALIBRATION

Refer to Figure 1 for the location of trim pots S and Z.

Note: The TEGAM RH-CAL Relative Humidity Calibration Kit is recommended for providing the "low" and "high" RH environments for this procedure. The salt solutions in this kit are prepared according to ASTM standard E104-85 to provide 11.3% and 75.3% relative humidity environments. The containers provided in the kit are designed to fit with these instruments.

1. Turn the span (trim pot S) all the way up (clockwise).

2. Turn the zero (trim pot Z) all the way down (counter-clockwise).
3. Place the sensor in the low (11.3%) RH environment. Allow at least one hour for stabilization or until the output stops changing.
4. Verify the recorder output is 0 +/-1 mV. If it is not, return the unit to TEGAM for evaluation and repair.
5. Adjust the zero (trim pot Z) to the point where it just starts to cause a change in the recorder output.
6. Place the sensor in the high (75.3%) RH environment. Allow at least one hour for stabilization or until the output stops changing.
7. Adjust the span (trim pot S) so the output is equivalent to the difference between low and high RH environments. Example: 75.3% - 11.3% = 64% which is equivalent to 0.64 V.
8. Adjust the zero (trim pot Z) so the output is equivalent to the high RH environment. Example: 75.3% is equivalent to 0.753 V.
9. Place the sensor in the low RH environment and allow at least one hour for stabilization or until the output stops changing. Verify the output is equivalent to the low RH environment. Example: 11.3% is equivalent to 0.113 V.

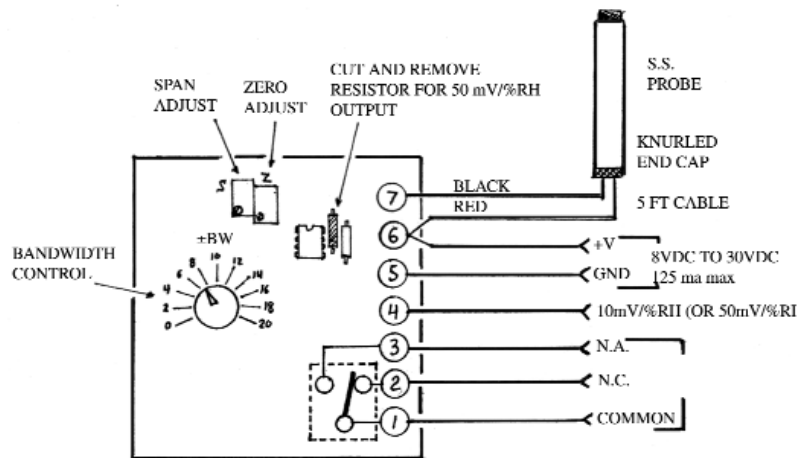


FIGURE 1

SPECIFICATIONS

ACCURACY: $\pm 3\%RH$, from 3% to 95%RH

OPERATION TEMPERATURE RANGE: Probe $-20^{\circ}C$ to $85^{\circ}C$,
Controller $0^{\circ}C$ to $75^{\circ}C$.

RECORDER OUTPUT: 10mV/%RH (50mV/%RH with resistor removed, See Figure 1).

CONTROLLER OUTPUT: SPDT (Form "C") relay; 5AMPS, 250VAC or 30VDC.

BANDWIDTH CONTROL: 0 to $\pm 20\%RH$, independent of Setpoint setting.

POWER: 8VDC to 30VDC at 125 milliamps maximum.

PROBE: Stainless steel .75" dia., 4.7" long, 5 foot 2-wire cable with bracket for wall mounting.

ENCLOSURE: Controller mounted in standard metal "T" box (4 1/2" x 2 3/4" x 2" deep), screw terminal connections.

ENVIRONMENTAL SPECIFICATIONS

TEMPERATURE, OPERATING: PROBE; $-20^{\circ}C$ to $85^{\circ}C$ ($-4^{\circ}F$ to $185^{\circ}F$)
CONTROLLER; $0^{\circ}C$ to $75^{\circ}C$ (32° to $167^{\circ}F$)

TEMPERATURE, STORAGE: PROBE; $-40^{\circ}C$ to $85^{\circ}C$ ($-40^{\circ}F$ to $185^{\circ}F$)
CONTROLLER; $-10^{\circ}C$ to $80^{\circ}C$ ($14^{\circ}F$ to $176^{\circ}F$)

HUMIDITY, OPERATING: PROBE; 0 to 99%RH non-condensing
CONTROLLER; 10% to 90%RH non-condensing

HUMIDITY, STORAGE: PROBE; 0 to 100%RH
CONTROLLER; 0 to 90%RH non-condensing

PRESSURE, OPERATING AND STORAGE: PROBE; 30PSI CONTROLLER;
ambient pressure

The controller will be earth grounded using the grounding terminal

inside the enclosure marked



The 8-30VDC supply shall originate from a source complying with the Low Voltage Directive. The controller conforms to the following directive under the above conditions. Low Voltage Directive REN61010-1 (1993) 73/23/EEC

WARRANTY

TEGAM, Inc. warrants this product to be free from defects in material and workmanship for a period of one year from date of shipment. During the warranty period, we will at our option, either repair or replace any product that proves to be defective.

To exercise this warranty, contact TEGAM, Inc., Ten Tegam Way, Geneva, Ohio 44041/FAX (440) 466-6110/Phone (440) 466-6100, M-F, 8 a.m.-5 p.m. ET. You will be given prompt assistance and return instructions. Send the instrument, transportation prepaid, to the indicated service facility. Repairs will be made and the instrument returned, transportation prepaid. Repaired products are warranted for the balance of the original warranty, or at least 90 days, whichever is longer.

LIMITATION OF WARRANTY

TEGAM, Inc. warranty does not apply to defects resulting from unauthorized modification or misuse of any product or part. This warranty also does not apply to fuses, batteries, or damage from battery leakage.

This warranty is in lieu of all other warranties, expressed or implied, including any implied warranty of merchantability or fitness for a particular use. TEGAM Inc. shall not be liable for any indirect, special or consequential damages.

STATEMENT OF CALIBRATION

This instrument has been inspected and tested in accordance with specifications published by TEGAM, Inc.

The accuracy and calibration of this instrument are traceable to the National Institute of Standards and Technology through equipment which is calibrated at planned intervals by comparison to certified standards maintained in the Laboratories of TEGAM, Inc.



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