

A1H
Portable Humidity Temperature Indicator
Instruction Manual



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PLEASE, READ THIS FIRST

- Check the product for any physical damage that may have occurred during shipment. We carefully pack and routinely insure all shipments. If any damage has occurred, it is your responsibility to file a claim with the carrier, **prior to returning the damaged product**. Please note that our warranty does not cover damage during shipment.
- Get fully familiarized with the operating limits of the probe and instrument.
- Do not unnecessarily remove the sensor protection (dust filter) from the probe. Both sensors (humidity and temperature) can be mechanically damaged by careless removal of the protection. The ROTRONIC HYGROMER™ humidity sensor looks like a small white paper tag. Do not remove from the probe!

Each ROTRONIC instrument is carefully calibrated before shipment. No further adjustments should be required before use. If you have any question or problem, please call our service department at 631/427-3898 and press 5 (or ask for extension 21).

Description

The ROTRONIC HYGROMER™ A1H indicator is a battery operated portable instrument designed to work with the HygroClip® S probe.



The HygroClip S plug-in humidity temperature probe has both digital and analog output signals. Advanced ASIC* technology, combined with the well proven Hygromer C94 sensor, results in long term reliability, high accuracy and 100%

interchangeability. With the HygroClip, costly maintenance / repairs and extensive downtime a thing of the past: should the HygroClip require a replacement for any reason, fully calibrated and inexpensive HygroClip-R probes are available under our fast response service program.

[*ASIC: *Application Specific Integrated Circuit*]

The A1H displays relative humidity and temperature simultaneously on an easy to read LC display. The swivel probe base provides for optimal viewing angle of the LC display. The HOLD function facilitates measurements in hard to reach locations or in poor lighting conditions. Battery status is provided on the display with a bar indicator. Automatic instrument shut-off after about 2.5 minutes conserves the battery.

The A1H has two analog outputs (humidity and temperature) and one RS232 digital output. The digital output can be connected to a PC or laptop for calibrating the HygroClip S probe or for recording and graphing the humidity and temperature data. This requires the optional connecting cable HYGRODATA-A1H and the ROTRONIC HW3 software. Instructions for using the HW3 software together with the A1H indicator are provided on the HW3 CD ROM.

Operation

The A1H indicator is shipped ready for use with the battery and the HygroClip S probe already installed. The temperature unit of the display (°C or °F) is set at the factory as specified at the time of the order.

Turn the A1H on by pressing on the **blue button** and check the status of the 9V battery (all 4 segments of the battery indicator should be on at the bottom of the LC display).

Normal Mode: The display shows the current humidity and temperature. This is the default mode when the A1H is powered up.

Hold Mode: The display freezes and the HOLD indicator at the bottom left corner of the display. This mode is activated and de-activated by pressing on the **red button**. Use this mode to read values measured in poorly lit or hard to reach areas.

Measurement

Please observe the humidity and temperature limits given under Specifications. To use the full operating temperature range of the HygroClip S probe, separate the probe from the A1H indicator with a cable (see Accessories & Spare Parts).

The most common source of error when measuring relative humidity is a difference between the temperature of the probe and the temperature of the environment. At a humidity condition of 50 %RH, a temperature difference of 1°C (1.8 °F) typically results in an error of 3 %RH on relative humidity.

When using a humidity probe with a portable indicator, it is good practice to monitor the display for temperature stability. The probe should be given sufficient time to equilibrate with the environment to be measured. The larger the initial temperature difference between the probe and the environment to be measured, the more time temperature equilibration requires.

In extreme situations, condensation may occur on the sensors when the probe is colder than the environment. As long as the humidity / temperature limits of the humidity sensor are not exceeded, condensation does not alter the calibration of the sensor. However, the sensor has to dry out before it can provide a valid measurement.

Non-moving air is an excellent insulator. When there is no air movement, surprising differences in temperature and humidity can be noted over short distances. Air movement at the probe generally results in measurements that are both faster and more accurate.

Maintenance

1) Battery Replacement

The A1H uses one 9V battery. The battery should be replaced whenever the 4 segment located to the left of the BAT indicator do not show anymore. To change the battery, slide open the cover of the battery compartment located at the back of the A1H.

Important: Always use an alkaline battery

2) Cleaning or Replacing the Probe Dust Filter:

The HygroClip S probe is equipped with a wire mesh dust filter. Should the filter become dirty, cleaning should be done without removing the filter from the probe. Gently wipe the filter with a solution of water and mild detergent.

If cleaning does not remove most of the stains, the filter should be replaced. To do this, unscrew the filter from the probe. When removing the filter, make sure that the sensors do not get caught. The humidity sensor is sometimes mistaken for a "white paper tag". Do not remove from the probe!

Before putting on a new dust filter, check the alignment of both sensors with the probe. The wires that connect the sensors to the probe are very thin and bend easily. If this happens, correct the alignment by holding the sensor very gently with a pair of small flat nosed pliers. Do not use sharp pliers or tweezers as this could puncture the sensor and do not pull hard on the sensor.

3) Periodic Calibration Check:

Long term stability of the humidity sensor is typically better than 1 %RH per year. For maximum accuracy, calibration of the probe should be verified every 6 to 12 months. Applications where the probe is exposed to significant pollution may require more frequent verifications.

Both the Pt 100 RTD temperature sensor and associated electronics are very stable and should not require any calibration after the initial factory adjustment. Calibration of the HygroClip S probe requires a PC or laptop with the ROTRONIC HW3 software installed. Part number HYGRODATA-A1H includes both HW3 on a CD ROM and a connecting cable. When no humidity generator is available, calibration can be done using calibration device mod. ER15 and humidity standards.

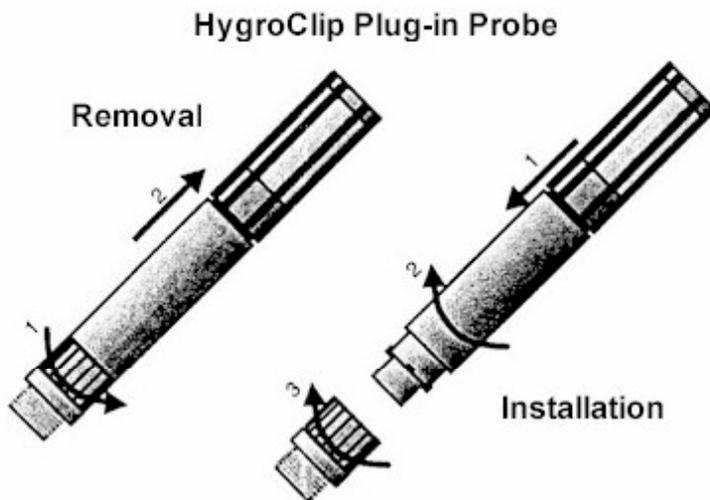
The calibration device is a small airtight container that fits on the HygroClip S probe and seals around the humidity sensor. During calibration, a known reference humidity is produced inside the calibration device by means of a humidity standard (usually an aqueous salt solution). ROTRONIC offers a large choice of humidity standards that generate values between 0 and 95%RH.

Instructions for calibrating the HygroClip S probe are provided in a separate manual located on the HW3 CD ROM.

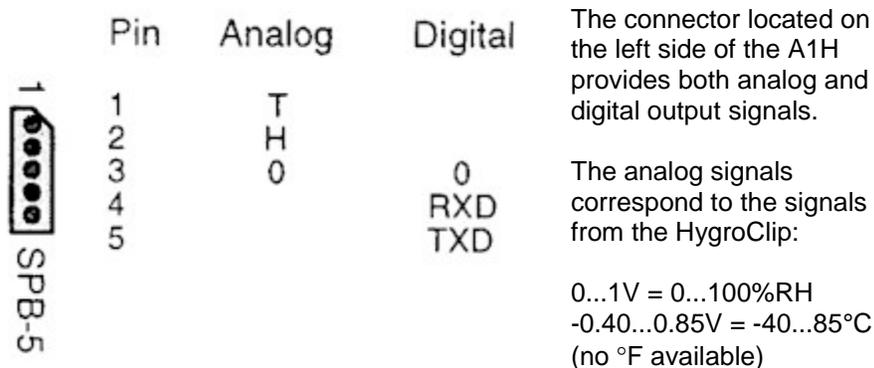
As an alternative to in-house calibration, you may want to return your probe and make use of the HygroClip exchange program. Fully calibrated and inexpensive HygroClip-R (rehabilitated) probes are available for immediate shipment.

Probe Installation and Removal

To install or remove the HygroClip S probe, please follow the instructions provided in the drawing.



Output Connector



Accessories & Spare Parts

HygroClip - S	Spare Humidity Temperature probe
MOK-xx-DAT05	Extension cable to remote the HygroClip probe from the A1H xx : cable length (1, 2 or 5 meter)
HPH-xx-DAT05	Extension cable with built in amplifier to remote the HygroClip probe from the A1H. This cable ends with a 180 mm (7 In.) barrel for holding the probe without affecting the measurements. xx : cable length (from 0 to 99 meter)
HYGRODATA-A1H	HW3 Software and PC connecting cable
MOK-xx-WIN	Calibration cable for the HygroClip (when not plugged into the A1H) terminated with a 25-pin SUB D connector. Converter 25-pin to 9-pin is supplied xx : cable length (1, 2 or 5 meter)
HygroClip - R	Replacement probe, fully calibrated, 100% interchangeability
ER-15	Calibration device for the HygroClip S
EAx	Certified humidity standard (pack of 5 vials) xx : value of the standard 00, 05, 10, 20, 35, 50, 65, 80 or 95 %RH

Specifications

Probe	HygroClip-S humidity temperature plug-in probe
Sensors	ROTRONIC Hygromer® C94
	Pt100 RTD (1/3 DIN)
Probe Measuring Range	0 to 100 %RH
	-40 to 85°C (-40 to 185°F) <i>see also Operating Range of the A1H</i>
A1H Operating Range	0...100 %RH (non condensing)
	-10° to 60°C (14 to 140°F)
Accuracy at 23°C	±1.5 %RH ±1 Digit
	±0.3°C ±1 Digit
Repeatability	<0.5 %RH
	0.1°C
Functions	. Hold . Automatic Power off (after about 2.5 min.)
Communication	. RS232 (requires HW3 software and connecting cable) . Analog direct from HygroClip
Battery	One 9V Alkaline Battery Battery status indicated by 4 segment bar display
External Power	9V AC adapter (optional)
Case material	ABS
Dimensions	191x62.8x40 mm (probe folded) 362x62.8x40 mm (probe deployed with HygroClip-S)
Weight	ca. 180g