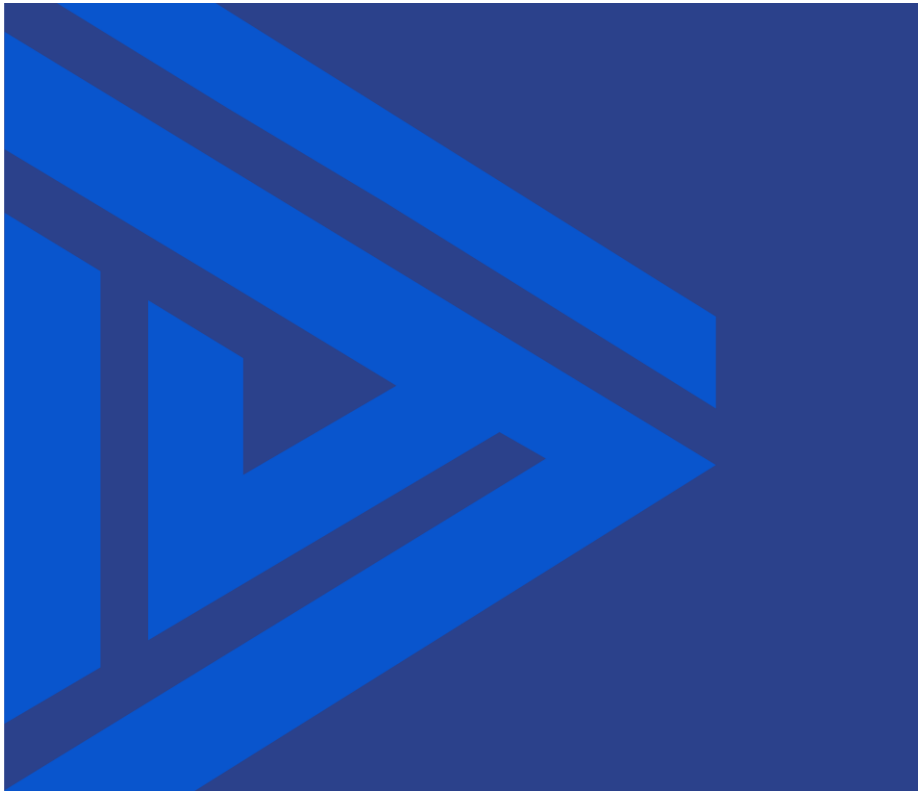
Model HIP

Installation, Operation and Maintenance Manual



Delta Controls
CORPORATION

00-HIP03 rev C
08 Aug. 2020

The HIP pyrometer is designed to read the temperature of a Claus thermal reaction furnace. It is useful for calibrating process pyrometers and troubleshooting temperature measurement problems.

OPERATION

Buttons:

Power – Press to turn pyrometer on and off. Note: The pyrometer automatically turns off after 10 minutes to preserve battery life.

°F – Press to select measurement in °F. After releasing the button, current measurement will be displayed for 10 seconds, even when HIP is removed from HIR port.

°C – Press to select measurement in °C. After releasing the button, current measurement will be displayed for 10 seconds, even when HIP is removed from HIR port.

Backlight – Toggle to turn on and off. Note: Backlight automatically turns off after one minute.

Battery Status Indicator – Shown in lower left corner. "Low Battery" text will appear under temperature; accuracy may fluctuate with low battery power.

Measuring Through a Sight Port

The HIP pyrometer measures temperature through sight ports used by process pyrometers and ports viewing the reaction furnace. The HIP flange is held against sight port glass to aim pyrometer down the bore hole. If sight port glass is clean and not discolored, glass optical characteristic variances will not affect accuracy.

Measuring Though a Delta Controls Model HIR's Port

HIP's flange is removable so the lens tube is insertable to Model HIR's sight port to calibrate or troubleshoot issues.

1. Unscrew the lens body cover without twisting or kinking the fiber optic cable. (Figure 1)
2. Slide lens body cover and fiber optic cable away from the main body of the unit. Note: A low temperature reading will occur on the HIR output. (Figure 1)

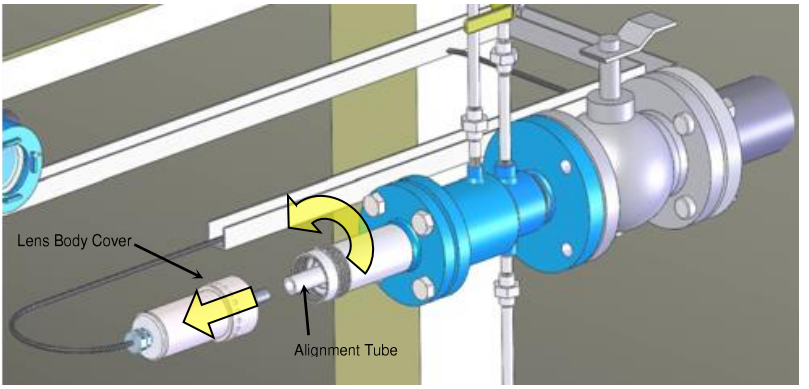


Figure 1

3. Secure lens body cover; do not suspended it by the fiber optic cable.
4. Inspect optical path in alignment tube ensuring there is no material build-up and tube is properly aimed down the borehole. Build-up may cause inaccurate readings.
5. Turn on HIP and select desired unit of measure. Insert lens probe into the alignment tube. (Figure 2)

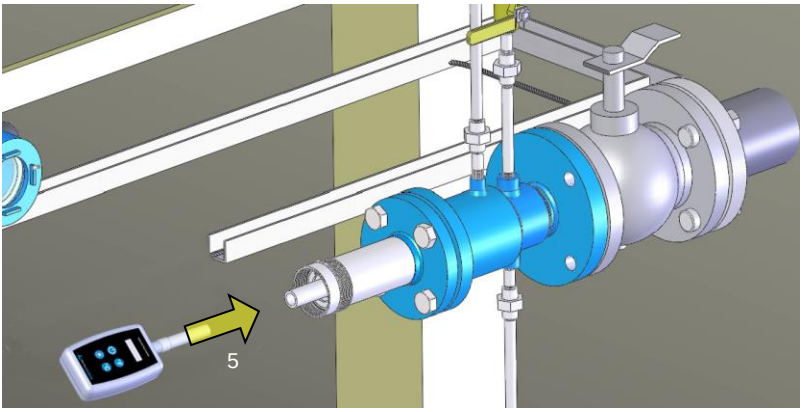


Figure 2

6. Wait 5 seconds before recording the temperature.

Changing Batteries

Remove the two screws from back cover back to access battery compartment. Replace with three AA batteries.

TRANSMISSIVITY MEASUREMENT

Transmissivity measurement (Trans=X.XX) is located beneath the temperature measurement and should read between 0 and 1.00. This value indicates the amount of light reaching the sensor relative to an unobstructed sight path. A value of ≥ 0.95 is normal. Values below 0.95 may indicate the occurrence of sight path attenuation, possibly due to material build-up on window or inside the nozzle.

Note: HIP uses a two-wavelength ratiometric measurement above 1292 °F (700 °C). Below 1292 °F HIP reverts to a single wavelength measurement. The two-wavelength measurement mode is accurate with transmissivities below 0.05. The single wavelength mode measurement is affected by sight path occlusions and will read incorrectly if any obstructions are present.

If the transmissivity is below 0.95:

1. Investigate the cause of obstruction. Take corrective action (i.e., improve insulation, align sight tube) or schedule maintenance activities (i.e., clean window, clean the nozzle).
2. Calibrate HIR to Model HIP's temperature measurement.

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