



Paul N. Gardner Company

ULTRACYCLE RHT DRYING TIME RECORDER DRYING TIME AND UV CURING

Instructions for using the
GARDCO Ultracycle RHT
Drying Time Recorder.



Ultracycle RHT Drying Time Recorder



The GARDCO Ultracycle RHT Drying Time Recorder measures and records the drying behavior of coatings applied to flat substrates, including wood, glass, plastic, metal, and drawdown charts. A motor-driven 3/8 in. nylon ball stylus travels through the wet coating and creates a circular track that is evaluated after the test using the supplied Time Template.

The programmable cycle range is 1 minute to 99 hours, 59 minutes. The recorder includes built-in temperature and relative-humidity measurement, helping the operator document environmental conditions that can affect coating drying time.

The Ultracycle RHT is used for drying-time evaluation in accordance with ASTM D5895. The product is also associated with ASTM D1640/D1640M and ISO 9117-4 drying time testing applications.

Operating Controls

On/Off Button - Turns the instrument on or off.



When turned on, the display shows the temperature or "Press Start," and the **green power** indicator illuminates. Turning the unit off interrupts an active test and cancels any configuration changes that have not been stored.

Menu Button - Enters and exits configuration mode when the unit is on and no test is running.



Pressing Menu after the final setting stores the configuration and returns the display to the start-test screen.

Start Button - Starts the programmed test cycle.



The motor operates, elapsed time is displayed, and the red motor-run indicator illuminates.

Scroll Button - Advances through available configuration values.



During operation, displays the relative-humidity reading and the current test's minimum and maximum values.

Stop Button - Stops the test.



Turns off the motor-run indicator, and resets the elapsed time.

Prepare the Recorder

1. Place the recorder at the center of the test panel.
2. Counter-rotate the stylus arm to remove any play from its clockwise movement.
3. Adjust the rear counterweight until the 3/8 in. nylon ball stylus just contacts the coated test surface.
4. Mount the 12 g weight on the stylus spindle above the rotating arm to apply the calibrated load.
5. Attach the arm-and-ball assembly to the motor shaft with the hex screw. Do not force the arm to a new position after tightening the screw; loosen the screw first to avoid damaging the gearbox assembly.

Program the Cycle

1. Press **On**. The green LED illuminates.
2. Press **Menu** to enter configuration mode.
3. Use **Scroll** to set the desired hours.
4. Press **Menu** to confirm the hour setting.
5. Use **Scroll** to set the desired minutes.
6. Press **Menu** to confirm the minute setting.
7. Use **Scroll** to select °F or °C.
8. Press **Menu** to save the configuration and return to the start screen.
9. Press **Start** to begin the programmed cycle.
10. The recorder stops automatically when the selected cycle is complete.



Operating Conditions

Condition	Specification
Ambient operating conditions	32 °F to 120 °F (0–50 °C)
Relative humidity	5–95% relative humidity, non-condensing
Programmable test cycle	1 minute to 99 hours, 59 minutes
Temperature display	°F or °C
Stylus	3/8 in. nylon ball stylus

Instructions for Use

1. Apply the coating to a flat test panel using an appropriate film applicator, such as a GARDCO Microm Film Applicator, Mayer rod, or a bar-type applicator.
2. Immediately place the prepared Ultracycle RHT on the coated test panel.
3. Gently lower the clean, weighted 3/8 in. nylon ball stylus into the wet coating.
4. Confirm the programmed cycle and press Start.
5. The stylus moves through the coating as the arm rotates, creating a circular track. The recorder stops automatically after the programmed cycle is complete.
6. Remove the recorder carefully after the test is complete.
7. Evaluate the stylus track with the supplied Time Template to determine the coating drying stages.
8. Record the calculated drying time along with the coating temperature, relative humidity, and wet film thickness, as applicable.



Relative Humidity and Temperature Probe

Ultracycle RHT Drying Time Recorder



Determine Drying Time

After the test is complete, place the supplied clear Time Template over the circular stylus track. Identify the degree mark associated with the film's hard dry condition, then calculate drying time using:

$$DT = (T_c \div 360) \times D$$

DT = Drying time in minutes
T _c = Programmed time cycle in minutes
D = Degree reading from the Time Template

