

# MODEL 451

## Electronic Timer Operating Instructions

764-25 9807



Thank you for purchasing America's premier timing device. Please take a moment to read these instructions and familiarize yourself with your GraLab timer. On page two of this document we have provided a list of basic features and controls as well as illustrated diagrams and three examples on how to use your GraLab timer. Once you are comfortable with the basic features of your timer, we are confident you will enjoy it for years to come.

Before trying these examples, read the precautions, plug the timer into an AC outlet and turn the timer "on".

Please call us at 1-937-433-7600 or e-mail us at [glsupport@gralab.com](mailto:glsupport@gralab.com) if you have any questions or comments.



### Specifications

**Size:**

3.5" x 4" x 8"

**Accuracy:**

± .01% @ 1 second relative to power frequency (20°C ambient, no load)

**Repeatability:**

± .005% @ 1 second relative to power frequency (20°C ambient, no load)

**Temperature Range:**

0°C to 55°C

**Humidity:**

0 to 95% non-condensing

**Voltages:**

As printed on ratings label

**Power Ratings:**

As printed on ratings label

**Timer Range:**

MINS: 1 - 99 minutes

SECS: 1 - 99 seconds

1/10 SECS: 0.1 - 9.9 seconds

### PRECAUTIONS

- Use only at AC voltage printed on ratings label.
- Ensure outlet load does not exceed maximum specified on outlet receptacle.
- Always turn timer OFF before plugging in or removing power and accessory plugs.
- Always protect timer from jars and shocks.
- Avoid spilling liquids on timer.
- Do not spray with or immerse in water.

# MODEL 451

## Electronic Timer/Intervalometer Operating Instructions

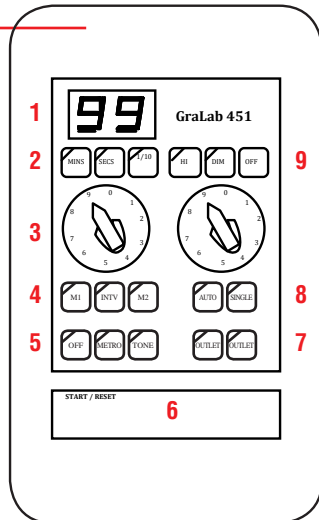
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### Basic Features and Controls

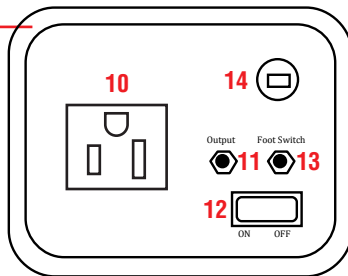
#### Timer Front

1. Two digit display
2. Time range controls (Minutes)
3. Time entry controls
4. Memory mode controls
5. Audio selection
6. START/RESET bar
7. AC outlet controls
8. Mode select
9. Display intensity



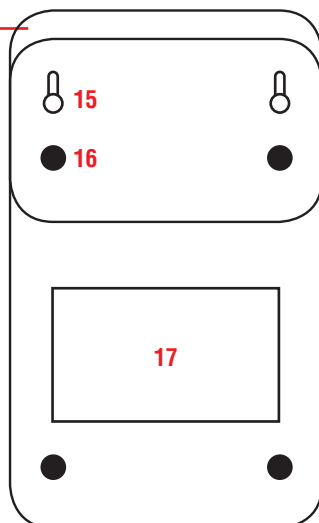
#### Timer End

10. AC outlet
11. Logic level output jack
12. ON/OFF master switch
13. Foot switch jack
14. Power cord



#### Timer Back

15. Keyslots for wall mounting
16. Non-skid feet
17. Ratings label



### MODEL 451 UNSWITCHED TIMER OPERATION

1. Set display intensity level.
  2. Set time range.
  3. Press M1.
  4. Set time.
  5. Set time cycle control to SINGLE START.
  6. Select audio.
  7. Set outlet control to TIME.
  8. Press START/RESET.
- See Note 1.*

### MODEL 451 SINGLE-CYCLE SWITCHING OPERATION

1. Plug controlled device into timer AC outlet.
  2. Set display intensity level.
  3. Set time range.
  4. Press M1.
  5. Set time.
  6. Set time cycle control to SINGLE START.
  7. Select audio.
  8. Set outlet control to TIME.
  9. Press START/RESET.
- See Notes 1-2.*

### MODEL 451 INTERVALOMETER OPERATION

1. Set display intensity (8).
  2. Press M2.
  3. Set time range.
  4. Set time (for the "off" time).
  5. Set audio.
  6. Press M1.
  7. Set time range.
  8. Set time (for the "on" time).
  9. Set audio.
  10. Press INTV.
  11. Press AUTO START.
  12. Set outlet control to TIME.
  13. Press START/RESET.
- See Notes 1-2.*

### Notes:

1. Pushing the START/RESET bar during a cycle stops the timer and automatically resets it to the originally set time.
2. To adjust the controlled device prior to the timing operation: Set the outlet control to "on", make adjustments and then reset the outlet control to "time".
3. Logic level output jack - A logic level compatible signal is accessible through the output jack. An optically coupled transistor provides the signal. Its on/off state parallels that of the AC outlet and provides a maximum voltage of 30VDC with 30mA of current.