

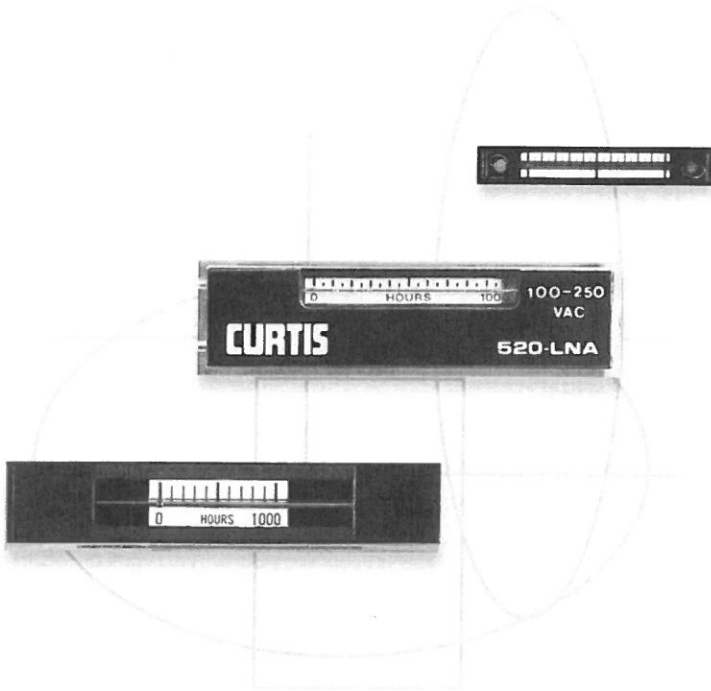
MTR-620PC

# ELECTRO-CHEMICAL ELAPSED TIME INDICATORS



CURTIS

## COULOMETER



### FEATURES

- The extremely small size and low weight provides flexibility in application without adding weight to the system.
- Panel, PC board or adhesive-back mounting allows quick and easy installation.
- Operation from continuous or pulsed DC (regulated or unregulated), AC or a current source ensures that these units will match your power supply.
- Versatility of display scales (hours, percentage) allows the user to optimize the timer for the scheduled maintenance cycle or warranty period of their particular equipment.
- Availability in both non-reset and resettable configurations allows for tamper-proof or field resettable designs.
- Wire leads, PC board pins, threaded studs and solderable turret terminals are available on various models which provides flexibility in termination choices.
- The coulometer will withstand a higher level of shock or vibration than that of the host equipment.
- No failure mode will affect the function of the parent equipment.

### DESCRIPTION

Curtis coulometers are analog Elapsed Time Indicators (ETIs) which use an electro-chemical plating process to integrate current over time.

### APPLICATION

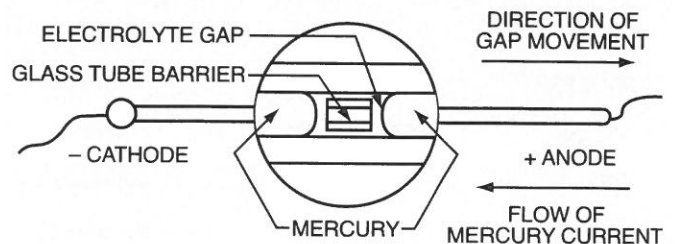
Curtis coulometers are used to measure use time/counts for preventive maintenance scheduling, warranty witness and MTBF measurement on medical and scientific lamps, power supplies and telecommunication equipment. These devices can also be used to integrate current for solar cells and portable, battery-powered equipment.



*Curtis hour meters were used by NASA in the Apollo project to monitor all major electronic systems. More than 40 Curtis hour meters were installed in the space vehicles and over 20 are still on the moon today, left behind on the moon with the descent module.*

### HOW THEY WORK

The integral is achieved by passing current through a precision-bore glass capillary tube. The glass tube is filled with two columns of mercury, which are separated by an electrolyte gap. Application of current causes the mercury at the anode to be electrochemically transferred across the gap to the cathode at a rate which is proportional to the current. Thus the gap moves along the capillary tube and provides a visual indication of the current/time integral.



# COULOMETER

## SPECIFICATIONS

### OPERATING TEMPERATURE RANGE

0°C to 50°C (120PC, LNA, LC, CP3 Series)

-20°C to 85°C (620 Series)

### STORAGE TEMPERATURE RANGE

0°C to 50°C (120PC, LNA, LC, CP3 Series)

-35°C to 85°C (620 Series)

### SHOCK

150 g, 6 msec. (120PC, LNA, LC, CP3 Series)

50 g, 11 msec. (620 Series)

### VIBRATION

10 g, 20-2000 Hz (120PC, LNA, LC, CP3 Series)

20 g, 10-2000 Hz (620 Series)

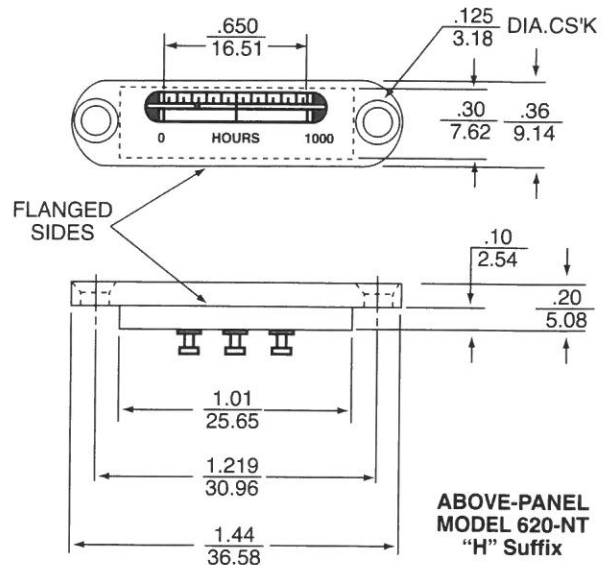
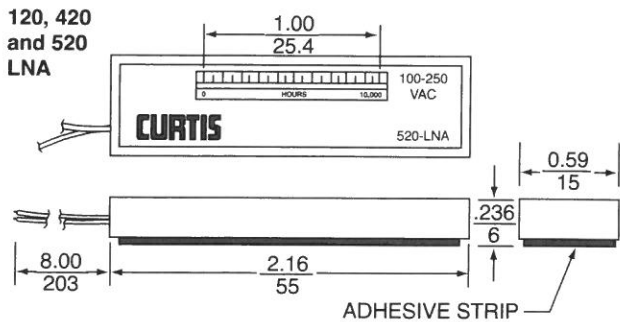
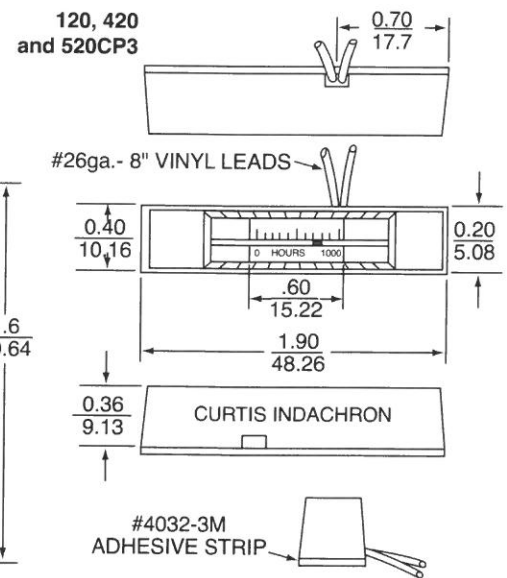
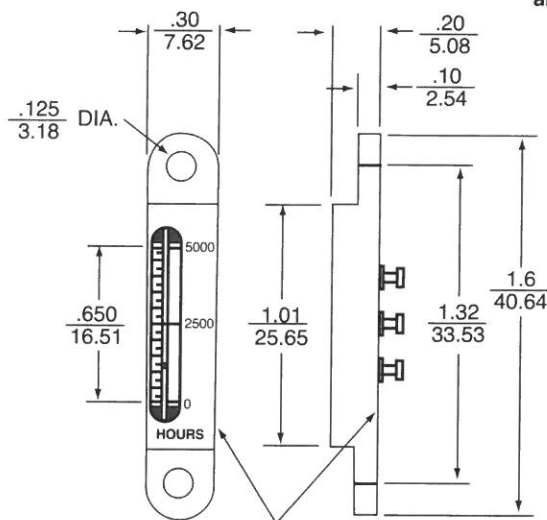
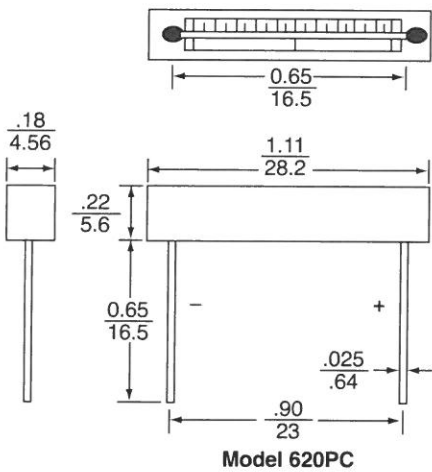
### MAXIMUM CURRENT

50  $\mu$ A (120PC, LNA, LC, CP3 Series)

250  $\mu$ A (620PC)

2 mA (620N Series)

## DIMENSIONS inches (mm)



**WARRANTY** One-year replacement warranty.



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Specifications subject to change without notice

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