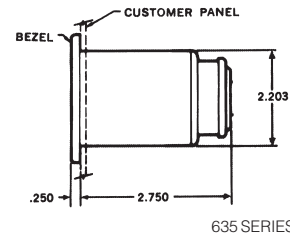
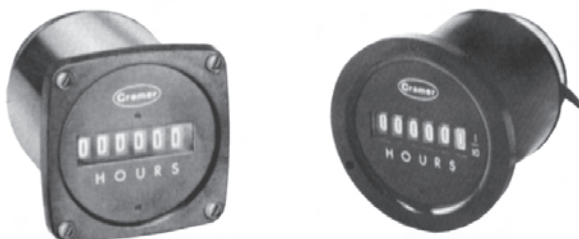


## CRAMER ELAPSED TIME INDICATORS

Designed for use wherever elapsed time must be accurately measured and accumulated. Ideal devices for measuring down time, for equipment maintenance or performance evaluation. Figures are .200" high x .100" wide and are legible at a distance of 10 feet with no portion of the preceding digit or following digit to distract the eye. Available in round or square bezel styles. The utility models 635-G and 635-K are similar to models 636-X and 636-Y respectively. They differ only in the type of lens mask and sealing arrangement utilized. The bezels of the 635-G and 635-K are moulded integrally with the housing (not detachable as with other types in the 635 and 636 Series).

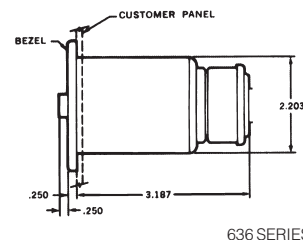


## CRAMER 635 SERIES NON-RESETTABLE 6-DIGIT INDICATORS—120 VAC, 60 Hz.

Available in round or square bezel styles, 2.50" or 3.50". Time ranges available are: 99999.9 Minutes; 99999.9 Hours. Over-all length (all Type 635 models): 2.65". Barrel diameter: 2.187". Weight: 12 oz. approx.

| Cat. No. | Timing Range | Type No. | Description                | Net Price |
|----------|--------------|----------|----------------------------|-----------|
| 10055    | 99999.9 Hrs. | 635-E    | 3.50" Round Bezel          | \$106.00  |
| 10069    | 99999.9 Min. | 635-G    | 2.50" Round Utility Model  | 86.00     |
| 10071    | 99999.9 Hrs. |          |                            | 86.00     |
| 10184    | 99999.9 Min. | 635-K    | 2.50" Square Utility Model | 86.00     |
| 10186    | 99999.9 Hrs. |          |                            | 86.00     |
| 10061    | 99999.9 Min. | 635-S    | 3.50" Square Bezel         | 106.00    |
| 10063    | 99999.9 Hrs. |          |                            | 106.00    |

\*Bezel sizes are nominal and reflect industry case sizes. See drawings for actual dimensions.

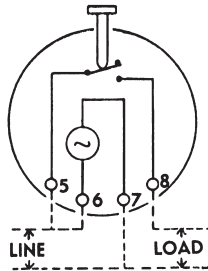


## CRAMER 636 SERIES RESETTABLE 5-DIGIT INDICATORS—120 VAC, 60 Hz.

Similar to 635 Series indicators, but feature a unique pushbutton reset. Available in round or square bezel styles, 2.50" or 3.50". Time ranges available are: 9999.9 Seconds; 9999.9 Minutes; 9999.9 Hours. Dimensions are identical to comparable models in the 635 Series.

| Cat. No. | Timing Range | Type No. | Description        | Net Price |
|----------|--------------|----------|--------------------|-----------|
| 10076    | 9999.9 Sec.  | 636-E    | 3.50" Round Bezel  | \$180.00  |
| 10078    | 9999.9 Min.  |          |                    | 180.00    |
| 10079    | 9999.9 Hrs.  |          |                    | 180.00    |
| 10084    | 9999.9 Sec.  | 636-S    | 3.50" Square Bezel | 180.00    |
| 10086    | 9999.9 Min.  |          |                    | 180.00    |
| 10087    | 9999.9 Hrs.  |          |                    | 180.00    |
| 10072    | 9999.9 Sec.  | 636-X    | 2.50" Round Bezel  | 180.00    |
| 10074    | 9999.9 Min.  |          |                    | 180.00    |
| 10075    | 9999.9 Hrs.  |          |                    | 180.00    |
| 10080    | 9999.9 Sec.  | 636-Y    | 2.50" Square Bezel | 180.00    |
| 10082    | 9999.9 Min.  |          |                    | 180.00    |
| 10083    | 9999.9 Hrs.  |          |                    | 180.00    |

\*Bezel sizes are nominal and reflect industry case sizes. See drawings for actual dimensions.

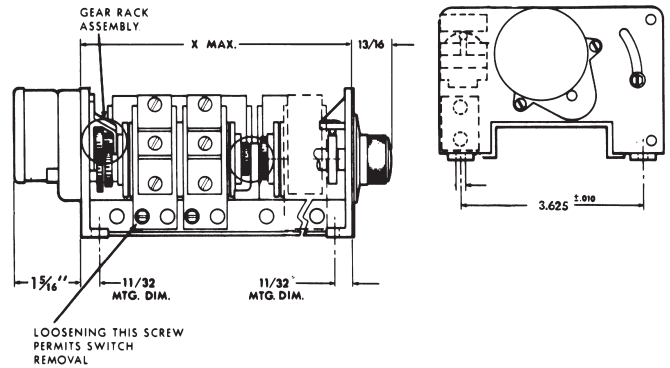
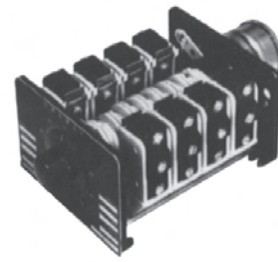


### CRAMER 241 SERIES

#### AUTOMATIC RESET INTERVAL TIMERS—120 VAC, 60 Hz.

Highly accurate, motor-driven interval timers for panel mounting. Features include pushbutton operation, automatic reset and elapsed time indication. Timing cycle is initiated by pushing button built into centre of adjustment knob, instantly transferring contacts. A pointer on the dial face shows timing progression. Contacts drop out at end of the timing cycle, and timer resets within 0.5 Seconds. Contacts are SPDT, rated 15 amperes resistive @ 120 VAC. Nominal operating voltage: 120 VAC, 60 Hz. Dial and pointers are protected by a clear plastic dome. Repeat accuracy for units having a time range of 30 Seconds or longer is 0.25% of full scale; 0.5% of full scale for shorter ranges. Flange diameter: 3<sup>3</sup>/<sub>4</sub>" ; depth behind panel: 3<sup>1</sup>/<sub>8</sub>". Mounts in a 3<sup>1</sup>/<sub>16</sub>" diameter hole with 3 #6-32 screws spaced 120° on a 1.687" radius.

| Cat. No. | Timing Range | Net Price |
|----------|--------------|-----------|
| 10000    | 60 Seconds   | \$330.00  |
| 10001    | 5 Minutes    | 330.00    |
| 10002    | 15 Minutes   | 330.00    |
| 20001    | 30 Minutes   | 330.00    |
| 10003    | 60 Minutes   | 330.00    |
| 10004    | 5 Hours      | 330.00    |
| 10005    | 24 Hours     | 330.00    |



### MULTIPOLE CYCLE TIMERS MODEL 540 SERIES

Versatile multi-pole cycle timer controls 2 through 10 independent circuits. Cams are individually adjustable over approximately 2 to 98% of the total cycle and can provide any desired sequence or program. Complete timer consists of chassis, motor and gear rack. Chassis incorporates baseplate, cams and switches. SPDT switches rated at 15 amperes non-inductive at 115 volts AC. Repeat accuracy ±1.8°. For 115 volts 60 Hz. UL recognized. Order motor and gear rack separately from table below.

| Cat. No. | No. of Circuits | Dimension "X"                    | Net Price |
|----------|-----------------|----------------------------------|-----------|
| 10136    | 2               | 2 <sup>7</sup> / <sub>16</sub> " | \$180.00  |
| 10137    | 4               | 3 <sup>7</sup> / <sub>16</sub> " | 365.00    |
| 10138    | 6               | 4 <sup>7</sup> / <sub>16</sub> " | 365.00    |
| 10139    | 8               | 5 <sup>7</sup> / <sub>16</sub> " | 425.00    |
| 10140    | 10              | 6 <sup>7</sup> / <sub>16</sub> " | 440.00    |

### HOW TO ORDER MODEL 540 CYCLE TIMERS

Choose basic chassis Model 540 from description above. Then select time cycle desired from selection chart and order appropriate motor and gear rack from the chart.

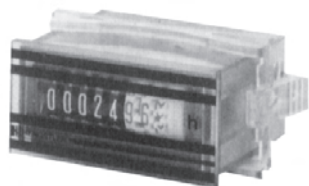
Example: For a 6 pole Model 540 with 60 second time cycle, order Cramer No. 10138 6 pole chassis plus Cramer No. 10159 gear rack plus Cramer No. 10145 motor.

#### SELECTION CHART—MODEL 540 CYCLE TIMERS ORDER BASIC CHASSIS PLUS MOTOR & GEAR RACK TO GIVE DESIRED CYCLE TIME

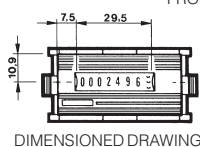
| Motor Speed             | 40 RPM | 20 RPM | 10 RPM | 8 RPM | 4 RPM | 1 <sup>1</sup> / <sub>2</sub> RPM | 3 <sup>4</sup> / <sub>5</sub> RPM | 1 <sup>1</sup> / <sub>6</sub> RPM | 1 <sup>1</sup> / <sub>8</sub> RPM | 1 <sup>1</sup> / <sub>4</sub> RPM | 3 <sup>4</sup> / <sub>5</sub> RPH | 1 <sup>1</sup> / <sub>6</sub> RPH |
|-------------------------|--------|--------|--------|-------|-------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| Motor Code for Mod. 540 | 10141  | 10142  | 10143  | 10144 | 10145 | 10146                             | 10147                             | 10148                             | 10149                             | 10150                             | 10151                             | 10152                             |
| Cycle Time              | Sec.   | Sec.   | Sec.   | Sec.  | Sec.  | Min.                              | Min.                              | Min.                              | Min.                              | Hrs.                              | Hrs.                              | Hrs.                              |
| Gear Racks, Model 540   |        |        |        |       |       |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
| 10153                   | 3.0    | 6.0    | 12.0   | 15.0  | 30.0  | 1.5                               | 3.0                               | 12.0                              | 36.0                              | 1.5                               | 3.0                               | 12.0                              |
| 10159                   | 6.0    | 12.0   | 24.0   | 30.0  | 60.0  | 3.0                               | 6.0                               | 24.0                              | 72.0                              | 3.0                               | 6.0                               | 24.0                              |
| 10163                   | 8.0    | 16.0   | 32.0   | 40.0  | 80.0  | 4.0                               | 8.0                               | 32.0                              | 96.0                              | 4.0                               | 8.0                               | 32.0                              |



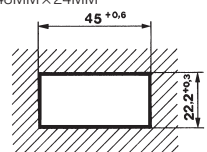
## Hengstler Timers



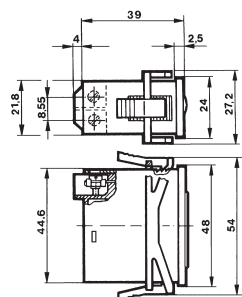
0891 TIME COUNTER  
FRONT DIMENSIONS: 48MM×24MM



DIMENSIONED DRAWING



DIMENSIONS IN MM  
ENQUIRE FOR SEALS



### TYPE 0891 LOW-COST TIME COUNTER WITH DIN DIMENSIONS

These new low priced series time counters can easily be mounted. By using six different frames (A, B, C, D, E, and F), ordered separately, these units can be mounted in virtually any instrument or control panel.

The 7-segment display indicates the elapsed hours with a resolution of 0.01h. The display is highly legible, can run continuously for more than eleven years, and then restarts again at zero. As a safeguard against tampering, a reset is not available.

#### TECHNICAL DATA:

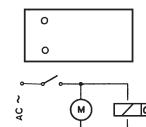
|                               |   |
|-------------------------------|---|
| <b>Drive:</b>                 | Synchronous motor                             |
| <b>Voltage Tolerance:</b>     | ±10%  |
| <b>Power Consumption:</b>     | 0.1VA at 24VAC<br>0.7VA at 230VAC             |
| <b>Line Frequency:</b>        | 60Hz  |
| <b>Operating Temp.:</b>       | -10 to +50°C                                  |
| <b>Storage Temp.:</b>         | -25 to +70°C                                  |
| <b>Count Range:</b>           | 0 to 99999.99h                                |
| <b>Display:</b>               | Hours: white on black<br>1/100h: red on white |
| <b>Digit Size:</b>            | 5mm × 2mm, optical                            |
| <b>Electrical Connection:</b> | Screw terminals for max. 2.5mm <sup>2</sup>   |
| <b>Attachment:</b>            | Clamping frame                                |
| <b>Protection:</b>            | front: IP60; rear: screw terms. IP20          |
| <b>General Design:</b>        | to DIN VDE0435                                |
| <b>Weight:</b>                | Approx. 50g.                                  |

#### TYPE 0891

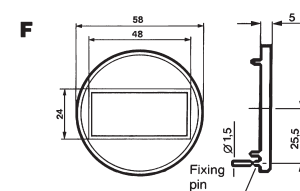
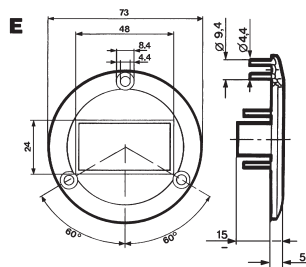
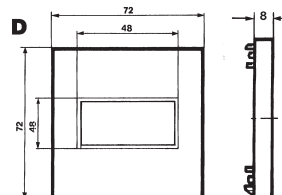
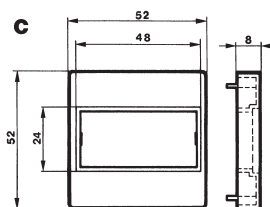
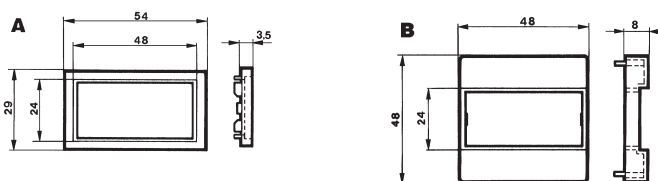
| Cat. No.             | Supply Voltage | Frequency | Net Price |
|----------------------|----------------|-----------|-----------|
| <b>TIME COUNTERS</b> |                |           |           |
| G0-891-202           | 24 VAC         | 60Hz      | \$53.11   |
| G0-891-204           | 115 VAC        | 60Hz      | 53.11     |
| G0-891-206           | 220 VAC        | 60Hz      | 53.11     |



TIME COUNTER  
WITH PANEL FRAME ADAPTER PLATES  
48MM×48MM



CONNECTION DIAGRAM



PANEL FRAME ADAPTER PLATES

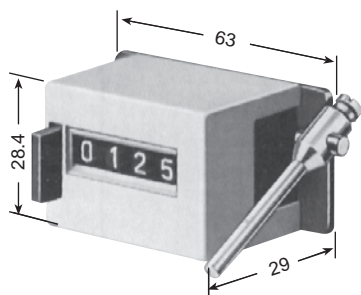
DIMENSIONS IN MM

#### 0891 PANEL ADAPTER PLATES

| Cat. No.                    | Fig. | Size      | Cutout               | Net Price |
|-----------------------------|------|-----------|----------------------|-----------|
| <b>PANEL ADAPTER PLATES</b> |      |           |                      |           |
| G2-405-218                  | A    | 54×29mm   | 50×25mm              | \$4.19    |
| G2-405-219                  | B    | 48×48mm   | 45×45mm              | 4.19      |
| G2-405-220                  | C    | 52×52mm   | 45×45mm or 50mm dia. | 4.19      |
| G1-405-672                  | D    | 72×72mm   | 68×68mm              | 18.17     |
| G2-405-223                  | E    | 73mm dia. | 50mm dia.            | 4.19      |
| G2-405-224                  | F    | 58mm dia. | 50mm dia.            | 4.19      |

## TOTALIZING COUNTERS "PICCOLO"

| Cat. No.   | Reset              | No. of Digits | Counts Per Second | Volts   | Net Price |
|------------|--------------------|---------------|-------------------|---------|-----------|
| G0-872-106 | No                 | 4             | 20                | 12 VDC  | \$0.00    |
| G0-872-107 |                    |               |                   | 24 VDC  | 55.90     |
| G0-872-112 |                    |               | 10                | 24 VAC  | .00       |
| G0-872-113 |                    |               |                   | 110 VAC | 76.87     |
| G0-873-106 | Manual Push Button | 4             | 20                | 12 VDC  | 88.05     |
| G0-873-107 |                    |               |                   | 24 VDC  | 88.05     |
| G0-873-112 |                    |               | 10                | 24 VAC  | 83.85     |
| G0-873-113 |                    |               |                   | 110 VAC | 103.42    |
| G0-874-106 | No                 | 5             | 20                | 12 VDC  | 74.07     |
| G0-874-107 |                    |               |                   | 24 VDC  | 74.07     |
| G0-874-112 |                    |               | 10                | 24 VAC  | 00.00     |
| G0-874-113 |                    |               |                   | 110 VAC | 83.85     |
| G0-875-106 | Manual Push Button | 5             | 20                | 12 VDC  | 92.24     |
| G0-875-107 |                    |               |                   | 24 VDC  | 83.85     |
| G0-875-112 |                    |               | 10                | 24 VAC  | 111.81    |
| G0-875-113 |                    |               |                   | 110 VAC | 110.41    |
| G0-876-106 | No                 | 6             | 20                | 12 VDC  | .00       |
| G0-876-107 |                    |               |                   | 24 VDC  | .00       |
| G0-876-112 |                    |               | 10                | 24 VAC  | .00       |
| G0-876-113 |                    |               |                   | 110 VAC | 00.00     |
| G0-877-106 | No                 | 7             | 20                | 12 VDC  | .00       |
| G0-877-107 |                    |               |                   | 24 VDC  | 76.87     |
| G0-877-112 |                    |               | 10                | 24 VAC  | 101.77    |
| G0-877-113 |                    |               |                   | 110 VAC | 104.82    |



TYPE 125

## TYPE 125 MECHANICAL REVOLUTION COUNTERS, STROKE COUNTERS WITH BUTTON RESET

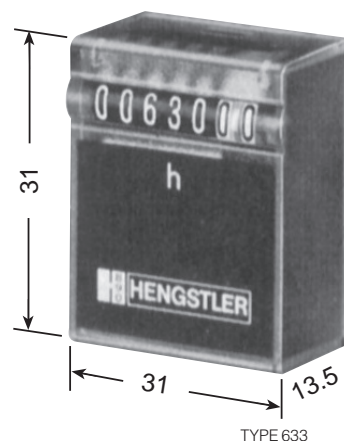
### TECHNICAL DATA

|                             | Revolution Counter    | Stroke Counter        |
|-----------------------------|-----------------------|-----------------------|
| Counting Mode               | +(-)                  | +                     |
| Speed (max.)                | 1:1 = 1500 rpm        | 500/min.              |
| Digit Size (white on black) | 4.0 x 1.8mm (5-digit) | 4.0 x 2.6mm (4-digit) |
| Reset                       | Button                | Button                |

### TYPE 125 MECHANICAL REVOLUTION COUNTERS, STROKE COUNTERS WITH BUTTON RESET

| Cat. No.                          | Ratio | Actuator   | Direction of Rotation | Net Price |
|-----------------------------------|-------|------------|-----------------------|-----------|
| <b>REVOLUTION COUNTER—5-DIGIT</b> |       |            |                       |           |
| G0-125-105                        | 1:1   | right hand | Bz                    | \$88.05   |
| G0-125-106                        | 1:1   | right hand | Bw                    | 88.05     |
| G0-125-107                        | 1:1   | left hand  | Bz                    | 81.06     |
| G0-125-108                        | 1:1   | left hand  | Bw                    | 88.05     |
| <b>STROKE COUNTER—5-DIGIT</b>     |       |            |                       |           |
| G0-125-305                        | 1:1   | right hand | Bz                    | 92.24     |
| G0-125-306                        | 1:1   | right hand | Bw                    | 92.24     |
| G0-125-307                        | 1:1   | left hand  | Bz                    | 83.85     |
| G0-125-308                        | 1:1   | left hand  | Bw                    | 86.65     |

NOTE: Bz = Top coming; Bw = Top going



TYPE 633



## TYPE 633 TIME COUNTERS "MINI-H"

These small elapsed-time meters are particularly suitable for integration into circuit boards with their encapsulated design. They can measure and indicate the useful life of electromechanical and electronic components and then store and indicate them for an unlimited period without any power consumption. They are notable for their high resistance to shock.

### TECHNICAL DATA:

|                                  |   |
|----------------------------------|---|
| Current Consumption, Continuous: | 2 mA  |
| Pulse Duration every 36 sec.:    | 31 ms                                       |
| Temperature Range:               | -10°C to +60°C                              |
| Number of Digits:                | 7   |
| General Design:                  | to DIN VDE 0435                             |
| Protection Class:                | IP 66 .7 & .8 only front<br>IP 00 terminals |
| Voltage Tolerance:               | 5V ±10%/12V ±20%                            |

### TYPE 633 TIME COUNTERS "MINI-H"

| Cat. No.   | Reset | Ohms | Pulse Current | Volts  | Net Price |
|------------|-------|------|---------------|--------|-----------|
| G0-633-031 | No    | 140  | 36 mA         | 5 VDC  | \$81.06   |
| G0-633-032 |       | 720  | 17 mA         | 12 VDC | 81.06     |
| G0-633-731 | No    | 140  | 36 mA         | 5 VDC  | 86.65     |
| G0-633-732 |       | 720  | 17 mA         | 12 VDC | 90.84     |
| G0-633-831 | No    | 140  | 36 mA         | 5 VDC  | 67.08     |
| G0-633-832 |       | 720  | 17 mA         | 12 VDC | 92.24     |

1-800-56-SONIC  
www.e-sonic.com