



CURTIS

Instrumentation



# Solid State Digital Hourmeters & Counters

## 700 Series - Modules



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Curtis Solid-State Module Assemblies are designed for OEM applications. Curtis offers a wide selection of miniature AC & DC meter assembly modules for PC board mounting applications.

**700–703:** Single-function 6-digit display for Counter or Hour Meter configurations.

These models offer a variety of functions, sizes, voltages and customizable options to fit most applications. Ideal for OEMs, contract manufacturers, and panel makers for monitoring equipment usage, scheduling maintenance, warranty validation, rental/leasing use and more. Used extensively in industrial, agricultural, military & specialty vehicles, as well as applications such as: vending machines, medical & office equipment, fuel pumps, and consumer products.

### FEATURES

- ▶ Selection—hour meters, counters, maintenance monitors and more.
- ▶ Solid State Circuitry—no moving parts to wear out. Silent operation and years of rugged & reliable operation.
- ▶ Crisp, clean readouts—high-contrast 5 & 7mm LCD displays.
- ▶ Versatility—compact module designs with high quality components to minimize space.
- ▶ AC/DC Configurations—wide range of operating voltages & noise protection.
- ▶ OEM Compatibility—an unparalleled selection of power compatibility, design configurations and functionality for OEM custom designs, panel makers and contract manufacturers.
- ▶ Distinctive Icons—clear indicators for hour meter/timer activation and display modes.
- ▶ Backlighting—available on all models (see model coding chart or consult factory).
- ▶ EEPROM memory—nonvolatile, retention of data for as much as 25 yrs.+ without power.
- ▶ Manufactured under ISO 9001 Certified Quality Management System.
- ▶ Low power consumption.
- ▶ UL and CE recognized.

See a 360° view of the 700 Series at:  
[curtisinstruments.com/360view](http://curtisinstruments.com/360view)



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### MODEL CODING ASSEMBLY MODULES 700, 701, 703



#### 1 MODEL NUMBER

|     |                       |
|-----|-----------------------|
| 700 | Hour Meter w/o enable |
| 701 | Hour Meter w/ enable  |
| 703 | Pulse Counter         |

#### 2 DIGIT HEIGHT

|    |            |
|----|------------|
| P  | 5mm digits |
| P7 | 7mm digits |

#### 3 RESET OPTIONS

|   |             |
|---|-------------|
| R | Wired Reset |
| N | No Reset    |

#### 4 FUNCTIONS

|   |                  |
|---|------------------|
| 0 | AC/DC w/o enable |
| 1 | DC only          |
| 2 | AC/DC w/enable   |

#### 5 OPERATING VOLTAGE

|   |                                |
|---|--------------------------------|
| 0 | 5-12 VDC, 6-12 VAC             |
| 1 | 12-48 VDC, 20-60 VAC           |
| 2 | 48-150 VDC, 100-230 VAC        |
| 4 | 12 VDC only (see Note 1 below) |

#### 6 RESET/BACKLIGHT CONFIGURATIONS

|   |                                                  |
|---|--------------------------------------------------|
| 0 | No Reset, No Backlight                           |
| 2 | Reset, No Backlight                              |
| 4 | Reset, External Backlight                        |
| 5 | No Reset, External Backlight                     |
| H | Reset, Internal Backlight. (see Note 2 below)    |
| J | No Reset, Internal Backlight. (see Note 2 below) |

#### NOTES:

1. All external backlight configurations—require 12 VDC (only) connection to illumination pin.
2. 7mm models—Backlighting only available as External.
3. Available only in 5mm and with voltage option 4 only.

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### SPECIFICATIONS

|                    |                             |                      |
|--------------------|-----------------------------|----------------------|
| Display            | 6-digit, 5 or 7 mm high     | Models 700, 701, 703 |
| Range & Resolution | Hour meters: 99,999.9 hours | All models           |
|                    | Counters: 999,999 counts    | Model 703            |
| Accuracy           | Hour Meters $\pm 0.1\%$     | Models 700, 701      |
|                    | Counters $\pm 1$ count      | Model 703            |
| Humidity           | 95%, non-condensing at 38°C | All models           |

|                                           |                                                                                                                                                  |                                                                                      |
|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Operating Temperature                     | -40°C to +85°C (-40°F to +185°F)                                                                                                                 | All models                                                                           |
| Storage Temperature                       | -50°C to +85°C (-58°F to +185°F)                                                                                                                 |                                                                                      |
| Operating Frequency<br>(AC powered units) | 48 to 440 Hz abs                                                                                                                                 | All models                                                                           |
| Memory                                    | Main power must be applied for 5 sec to activate memory (with no loss of time/counts).<br>EEPROM-Data retention 25+ years without power present. |                                                                                      |
| Input Signal<br>(DC Only)                 | Counter                                                                                                                                          | Model 703 - 500 Hz max, 50% duty cycle<br>(1ms low, min, between consecutive highs)  |
| Input Signal<br>(AC/DC)                   | Hour Meter                                                                                                                                       | Model 701 - Power must be applied<br>for 0.5 sec, min, to accumulate time.           |
|                                           | Counter                                                                                                                                          | Model 703 - 1 Hz max, 50% duty cycle (500ms low, min,<br>between consecutive highs). |
| Reset                                     | 0.5mA max. @ 5VDC (0512D models)                                                                                                                 |                                                                                      |
|                                           | All Models                                                                                                                                       | Main power must be applied for a minimum<br>of 0.5 sec. prior to reset signal.       |
|                                           | Models 700, 701, 703                                                                                                                             | 50ms, min, at operating voltage.                                                     |

#### NOTES:

1. All modules are supplied with critical components exposed. If the module is being used in an environment other than specified, the user must take precautions to package the module to provide adequate protection.
2. For proper mechanical support, all module pins should be soldered to the PC-board.
3. To prevent heat damage to components, module face should be 10-20mm minimum away from PC-board when flow soldered.

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### DIMENSIONS mm

#### MODELS 700, 701, 703 - 5MM DIGITS



Non-Backlight



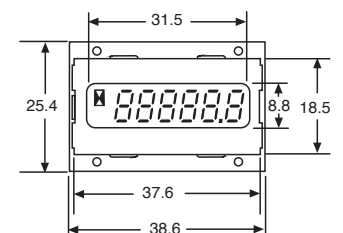
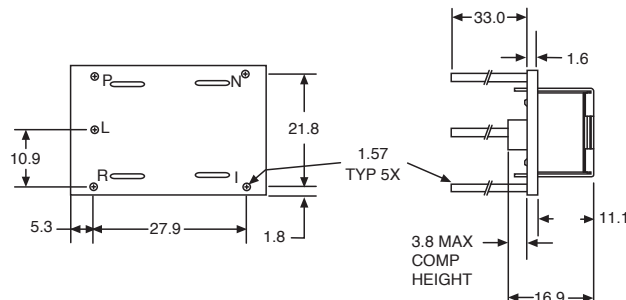
Backlight



#### NOTE:

Standard pin lengths are shown. Optional lengths are available.

#### MODELS 700, 701, 703 - 7MM DIGITS



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### CURRENT CONSUMPTION: (MA MAX)

|                                    | Operating Voltage<br>at Power Terminals | 700, 701, 703<br>(5mm) | 700, 701, 703<br>(7mm) |
|------------------------------------|-----------------------------------------|------------------------|------------------------|
| External or No<br>Backlight Models | 5 – 12                                  | VDC (@ 5 V)            | 0.5                    |
|                                    | 12 – 48                                 | VDC (@ 12 V)           | 0.8                    |
|                                    | 48 – 150                                | VDC (@ 48 V)           | 0.8                    |
|                                    | 100 – 230                               | VAC (@ 120 V)          | 1.0                    |
|                                    | 100 – 230                               | VAC (@ 230 V)          | 2.0                    |
| Internal Backlight Models          | 9 – 15 VDC (@12 V)                      | VDC (only)             | 3.5                    |

### MODULE WIRING GUIDE

| Pin | Assignment                                                                                                                       |
|-----|----------------------------------------------------------------------------------------------------------------------------------|
| P   | V+                                                                                                                               |
| N   | V– (common)                                                                                                                      |
| I   | Enable V+ to activate elapsed time (Optional on 701, N/A on 700) or increment count (703).                                       |
| R   | Reset V+ to reset count/elapsed time to zero (Optional on 700, 701, 703) or resettable channel to zero.                          |
| L   | Illumination Control - 12 VDC only (Optional, external backlight units only) 9-15 VDC absolute, regardless of operating voltage. |

**WARRANTY** Two year limited warranty from time of delivery.



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Specifications subject to change without notice

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