

Microcontroller Unit (MCU) LCD Hour Meters/Counters

DESCRIPTION

Honeywell's MCU (microcontroller unit) LCD (liquid crystal display) Hour Meters and Counters, LM Series, are sealed digital instruments designed to monitor and record elapsed running time, normally displayed in hours and tenths of hours. These devices are used to log running time of equipment or counts of equipment use for potential use in transportation applications to assure proper maintenance of expensive machines or systems, as well as warranty claims and rental-use tracking. This maintenance typically involves replacing, changing, or checking parts, belts, filters, oil, and lubrication of heavy duty equipment, or running condition of engines, motors, and blowers, to name a few.

These devices can feature up to a 40-year memory data retention (without power) to provide customers with a long data retention capability within their desired application. The large 7 mm display eases readability and offers backlight options and a running indicator. Sealing to IP67 (front)/IP66 (rear) designed to provide enhanced durability. The hour meter also features a long reset time to offer customers the protection against malfunction of reset.

The LM Series offers customization options including the customer's logo, Honeywell logo, or a black face, as well as numerous customizable bezel options.

VALUE TO CUSTOMERS

- Manufactured for harsh, rugged environments
- Great for tracking rental product use
- Up to 40 years of data retention without power

DIFFERENTIATION

- Easy to read – The large 7 mm display on LM Series hour meters/counters eases readability and offers options of backlight and running indicators.
- Reliable and durable – The LM Series' IP67 (front)/IP66 (back) environmental sealing creates a rugged package design well suited for harsh environments.
- Customizable – LM Series hour meters/counters can be customized with the customer's logo, as well as numerous customizable bezel options.

POTENTIAL APPLICATIONS

Monitors and records elapsed running time in

- Agricultural vehicles
- Blowers
- Engines
- Heavy-duty construction vehicles
- Heavy-duty trucks
- Material-handling equipment
- Mowers



FEATURES

- Backlighting and large display ease readability
- IP67 (front) and IP66 (rear) rating provides enhanced durability
- Longer reset time can minimize the possibility of a reset malfunction
- Multiple bezel options allow for different aesthetic looks and accommodates various space requirements
- Optional bending terminal blades allow for use where space is at a premium

PORTFOLIO



Honeywell offers a wide range of hour meters. These include multiple power, display, shape and data options. In addition, Honeywell offers, analog or LCD displays, ac/dc, ac, or dc. Shock and vibration resistance also available.

To view the entire product portfolio, [click here](#).

MICROCONTROLLER UNIT (MCU) LCD HOUR METERS/COUNTERS, LM SERIES

TABLE 1. PERFORMANCE SPECIFICATIONS

| Characteristic | Measure |
|--------------------------------|---|
| Digital range hours | 0 to 99,999.9 hours; 0 to 999,999 with auto turn over |
| Digital range count | 0 to 999,999 counts with auto turn over |
| Digital height | 7 mm |
| Backlight color | Blue (default); other options available |
| View angle | 12 o'clock |
| Running indicator | Yes |
| Accuracy | ±200 ppm/hour |
| Operating voltage range | 9 Vdc to 64 Vdc |
| Sealing | IP67 (front); IP66 (rear) |
| Shock | 55 g per SAE J1378 |
| Vibration | 20 g per SAE J1378 |
| Humidity | 95 % non-condensing at 38 °C |
| Operating temperature | -40 °C to 85 °C [-40 °F to 185 °F] |
| Storage temperature | -50 °C to 90 °C [-58 °F to 190 °F] |
| Transient immunity | Load dump – yes Inductive – yes EMI – yes Reverse polarity – yes |
| Power consumption | 0.8 mA @ 12 Vdc |
| Panel mounting | Snap-in |
| Case sealing technique – front | Ultrasonic weld |
| Case sealing technique – rear | Sealant on terminals |
| Start time | <1 s; if including all “8” check, then >1 s |
| Material – case | Makroblend® |
| Material – lens | Lexan® |
| Case depth | 1.35 in (including terminals) |
| Termination | 1/4 in blades; 3/16 in blades |

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PRODUCT NOMENCLATURE

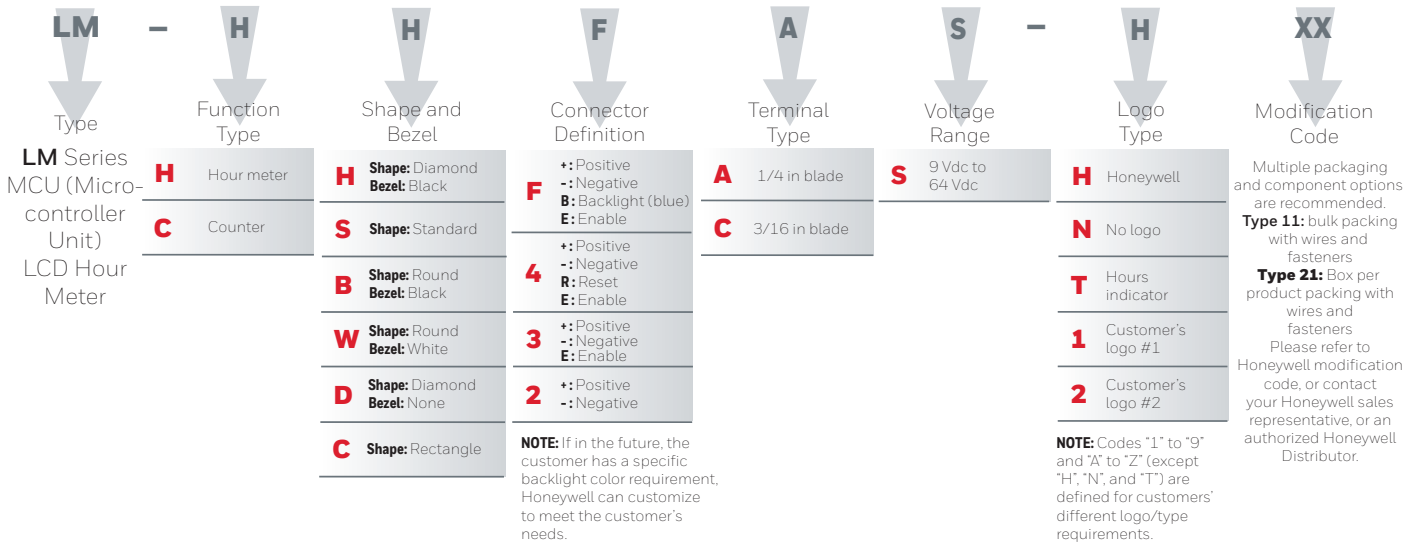


TABLE 2. MODIFICATION CODES

| Modification Code | Product Shape | Box/Meter Wrap/Marking | Hour Meter Terminal Wires | Fastenings | Product Qty Per Carton(s) | Instruction Sheet Qty |
|-------------------|-------------------------------------|--|---------------------------|------------------------|---------------------------|-----------------------|
| 11 | Diamond, Standard, Rectangle | Bulk pack, no box marking | 1 wire per terminal | Included | 96 pieces per carton | 1 |
| 12 | | | No wires included | No fastenings included | | |
| 13 | | | No wires included | Included | | |
| 14 | | | No wires included | No fastenings included | | |
| 21 | Diamond, Standard, Rectangle, Round | Box per product, box marked with part number | 1 wire per terminal | Included | 24 pieces per carton | 24 |
| 22 | | | No wires included | No fastenings included | | |
| 23 | | | No wires included | Included | | |
| 24 | | | No wires included | No fastenings included | | |
| 31 | Round | Bulk pack, no box marking | 1 wire per terminal | Included | 48 pieces per carton | 1 |
| 32 | | | No wires included | No fastenings included | | |
| 33 | | | No wires included | Included | | |
| 34 | | | No wires included | No fastenings included | | |



MICROCONTROLLER UNIT (MCU) LCD HOUR METERS/COUNTERS, LM SERIES

LM SERIES ORDER GUIDE

| | Catalog Listing | Function | Shape | Bezel | Connectors | Terminal Type | Logo |
|--|---|---------------------|------------|---------------|--------------|---------------|--------------|
|  | LM-CS3CS-N11 | Counter | Standard | – | 3 | 3/16 in blade | None |
| | LM-CS3CS-N13 | Counter | Standard | – | 3 | 3/16 in blade | None |
| | LM-CS3CS-N21 | Counter | Standard | – | 3 | 3/16 in blade | None |
| | LM-CS3CS-N22 | Counter | Standard | – | 3 | 3/16 in blade | None |
| | LM-CS3CS-N23 | Counter | Standard | – | 3 | 3/16 in blade | None |
| | LM-CS4AS-N11 | Counter | Standard | – | 4 (reset) | 1/4 in blade | None |
|  | LM-HB2AS-H31 | Hour Meter | Round | Black | 2 | 1/4 in blade | Honeywell |
| | LM-HB3AS-H31 | Hour Meter | Round | Black | 3 | 1/4 in blade | Honeywell |
| | LM-HB4AS-H31 | Hour Meter | Round | Black | 4 (reset) | 1/4 in blade | Honeywell |
|  | LM-HC3CS-H11 | Hour Meter | Rectangle | – | 3 | 3/16 in blade | Honeywell |
| | LM-HC3CS-H21 | Hour Meter | Rectangle | – | 3 | 3/16 in blade | Honeywell |
| | LM-HC3CS-H22 | Hour Meter | Rectangle | – | 3 | 3/16 in blade | Honeywell |
|  | LM-HD2AS-H11 | Hour Meter | Diamond | None | 2 | 1/4 in blade | Honeywell |
| | LM-HD2AS-N11 | Hour Meter | Diamond | None | 2 | 1/4 in blade | None |
| | LM-HD2AS-N21 | Hour Meter | Diamond | None | 2 | 1/4 in blade | None |
| | LM-HD2AS-N22 | Hour Meter | Diamond | None | 2 | 1/4 in blade | None |
| | LM-HD3AS-H11 | Hour Meter | Diamond | None | 3 | 1/4 in blade | Honeywell |
| | LM-HD3AS-H13 | Hour Meter | Diamond | None | 3 | 1/4 in blade | Honeywell |
| | LM-HD3AS-N11 | Hour Meter | Diamond | None | 3 | 1/4 in blade | None |
| | LM-HD4AS-H11 | Hour Meter | Diamond | None | 4 (reset) | 1/4 in blade | Honeywell |
| | LM-HD4AS-N11 | Hour Meter | Diamond | None | 4 (reset) | 1/4 in blade | None |
| |  | LM-HH2AS-H11 | Hour Meter | Diamond | Black | 2 | 1/4 in blade |
| LM-HH2AS-H21 | | Hour Meter | Diamond | Black | 2 | 1/4 in blade | Honeywell |
| LM-HH2AS-H22 | | Hour Meter | Diamond | Black | 2 | 1/4 in blade | Honeywell |
| LM-HH2AS-N11 | | Hour Meter | Diamond | Black | 3 | 1/4 in blade | None |
| LM-HH3AS-H11 | | Hour Meter | Diamond | Black | 3 | 1/4 in blade | Honeywell |
| LM-HH3AS-H21 | | Hour Meter | Diamond | Black | 3 | 1/4 in blade | Honeywell |
| LM-HH3AS-H22 | | Hour Meter | Diamond | Black | 3 | 1/4 in blade | Honeywell |
| LM-HH3AS-N11 | | Hour Meter | Diamond | Black | 3 | 1/4 in blade | None |
| LM-HH4AS-H11 | | Hour Meter | Diamond | Black | 4 (reset) | 1/4 in blade | Honeywell |
| LM-HH4AS-H21 | | Hour Meter | Diamond | Black | 4 (reset) | 1/4 in blade | Honeywell |
| LM-HH4AS-H22 | | Hour Meter | Diamond | Black | 4 (reset) | 1/4 in blade | Honeywell |
| LM-HH4AS-N11 | | Hour Meter | Diamond | Black | 4 (reset) | 1/4 in blade | None |
| LM-HHFAS-H11 | Hour Meter | Diamond | Black | 4 (backlight) | 1/4 in blade | Honeywell | |
| LM-HHFAS-H21 | Hour Meter | Diamond | Black | 4 (backlight) | 1/4 in blade | Honeywell | |
| LM-HHFAS-H22 | Hour Meter | Diamond | Black | 4 (backlight) | 1/4 in blade | Honeywell | |

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| | Catalog Listing | Function | Shape | Bezel | Connectors | Terminal Type | Logo |
|---|---------------------|------------|----------|--------|---------------|---------------|-----------------|
|  | LM-HS2AS-H11 | Hour Meter | Standard | – | 2 | 1/4 in blade | Honeywell |
| | LM-HS2AS-H21 | Hour Meter | Standard | – | 2 | 1/4 in blade | Honeywell |
| | LM-HS2AS-N21 | Hour Meter | Standard | – | 2 | 1/4 in blade | None |
| | LM-HS2AS-N22 | Hour Meter | Standard | – | 2 | 1/4 in blade | None |
| | LM-HS2AS-T11 | Hour Meter | Standard | – | 2 | 1/4 in blade | Hours indicator |
| | LM-HS3AS-H11 | Hour Meter | Standard | – | 3 | 1/4 in blade | Honeywell |
| | LM-HS3AS-H21 | Hour Meter | Standard | – | 3 | 1/4 in blade | Honeywell |
| | LM-HS3CS-N11 | Hour Meter | Standard | – | 3 | 3/16 in blade | None |
| | LM-HS4AS-H11 | Hour Meter | Standard | – | 4 (reset) | 1/4 in blade | Honeywell |
| | LM-HSFAS-H11 | Hour Meter | Standard | – | 4 (backlight) | 1/4 in blade | Honeywell |
|  | LM-HW2AS-H31 | Hour Meter | Round | Chrome | 2 | 1/4 in blade | Honeywell |
| | LM-HW3AS-H31 | Hour Meter | Round | Chrome | 3 | 1/4 in blade | Honeywell |
| | LM-HW4AS-H31 | Hour Meter | Round | Chrome | 4 (reset) | 1/4 in blade | Honeywell |

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DIMENSIONAL DRAWINGS

Figure 1. Diamond-Shaped Hour Meter Dimensions

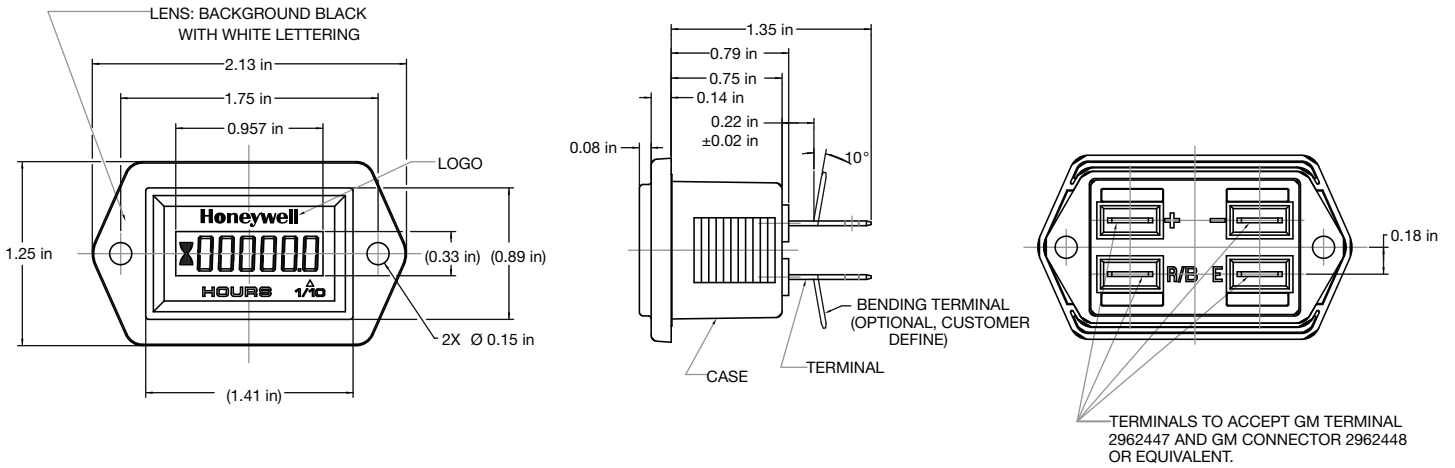


Figure 2. Standard-Shaped Hour Meter Dimensions

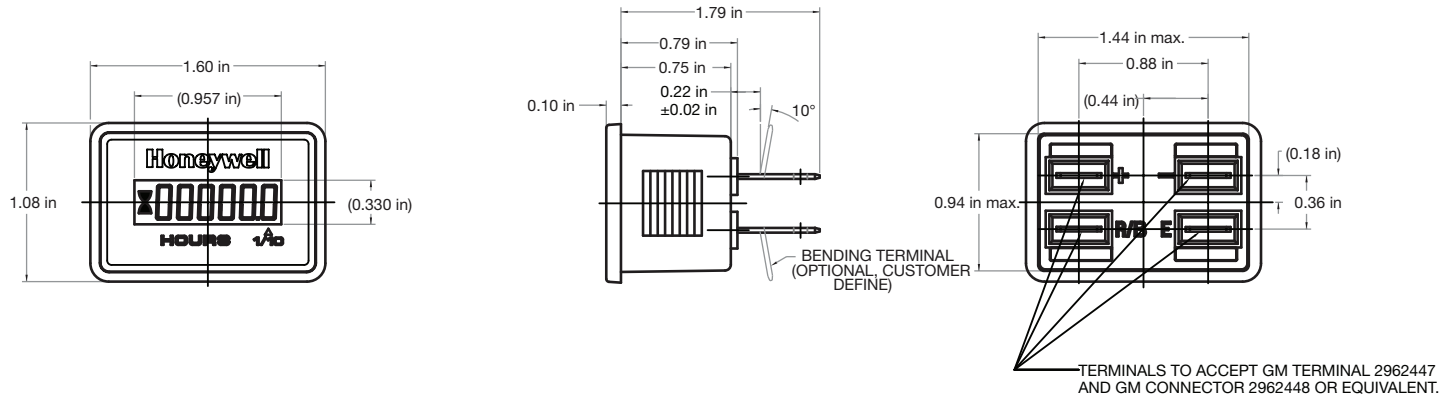
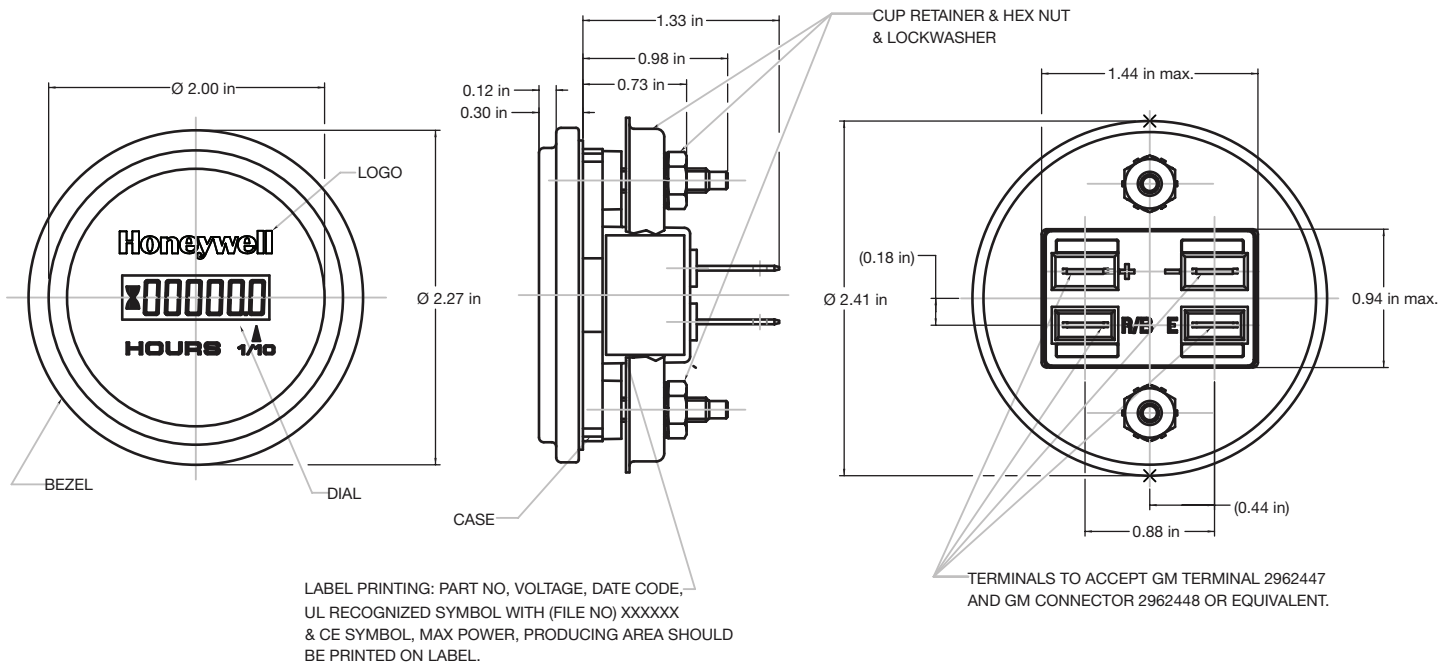
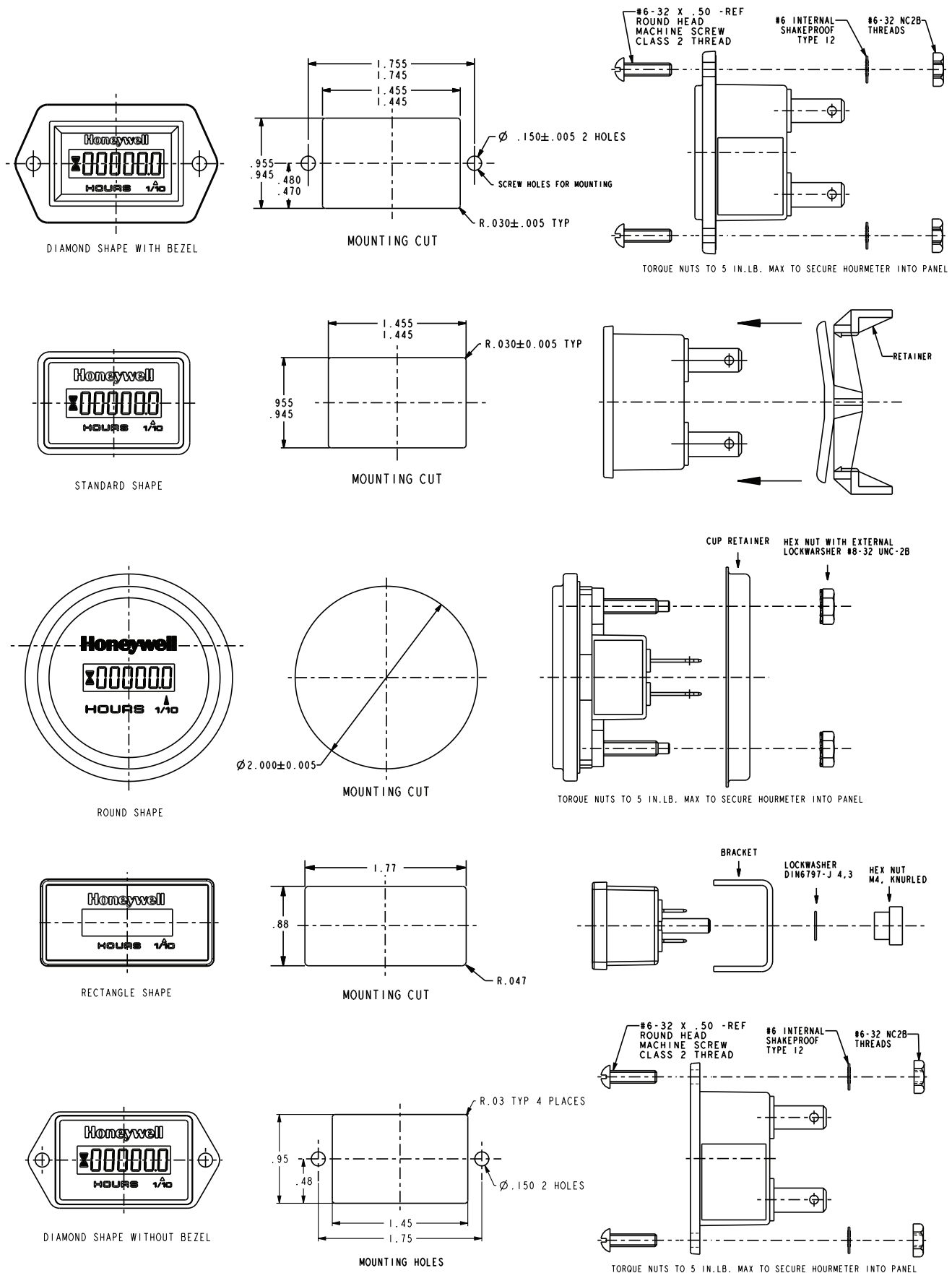


Figure 3. Round-Shaped Hour Meter Dimensions



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Figure 6. LM Series Mounting and Fasteners (if applicable)



WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship during the applicable warranty period. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgment or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items that Honeywell, in its sole discretion, finds defective.

The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.

While Honeywell may provide application assistance personally, through our literature and the Honeywell web site, it is buyer's sole responsibility to determine the suitability of the product in the application.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this writing. However, Honeywell assumes no responsibility for its use.

FOR MORE INFORMATION

Honeywell Advanced Sensing Technologies services its customers through a worldwide network of sales offices and distributors. For application assistance, current specifications, pricing, or the nearest Authorized Distributor, visit sps.honeywell.com/ast or call:

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⚠ WARNING PERSONAL INJURY

DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

Failure to comply with these instructions could result in death or serious injury.

⚠ WARNING MISUSE OF DOCUMENTATION

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

Failure to comply with these instructions could result in death or serious injury.

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