

# Installation Instructions for the LM Series MCU (Microcontroller Unit) LCD Hour Meter

## STOP CAUTION

Be cautious when working around and connecting to the LM Series' terminals, especially those other than the positive terminal (+) as there is no electrical protection on the negative (-), reset, enable, and/or backlight terminals.

## INSTALLATION

For specific model instructions, see steps below for model-specific processes and Figure 8 for visual aids.

### Diamond Shape with Bezel Mounting Process (LM-HH\*)

1. Panel cut based on required mounting hole.
2. Insert product into mounting hole.
3. Insert screws into the two mounting holes.
4. From backside, fix washers and nuts on screws.
5. Torque nuts to 5 in-lb to secure hour meter to panel.

### Standard Shape Mounting Process (LM-HS\*)

1. Panel cut based on required mounting hole.
2. Insert product into mounting hole.
3. From backside, push retainer into panel.

### Round with Bezel Shape Mounting Process (LM-HB\* and LM-HW\*)

1. Panel cut based on required mounting hole.
2. Insert product into mounting hole.
3. From backside, push cup retainer into the panel.
4. Torque nuts to 5 in-lb to secure hour meter to panel.

### Rectangle Shape Mounting Process (LM-HC\*)

1. Panel cut based on required mounting hole.
2. Insert product into mounting hole.
3. From backside, push bracket into the panel.
4. From the backside, fix washers and nuts on screws.
5. Torque nuts to 5 in-lb to secure hour meter to panel.

### Diamond Shape with No Bezel Mounting Process (LM-HD\*)

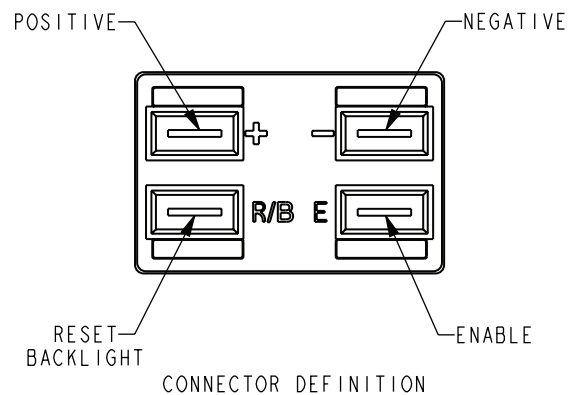
1. Panel cut based on required mounting hole
2. Insert product into mounting hole
3. Insert screws into the two mounting holes.
4. From backside, fix washers and nuts on screws.
5. Torque nuts to 5 in-lb to secure hour meter to panel.

## WIRING INSTRUCTIONS

Included with the LM Series hour meters are 16 ga, black PVC covered per GM spec 59072-R terminals wires (Honeywell part number 4685) (See Figure 4). The quantity of wires included with the LM Series hour meter is identical to the number of active terminals on the hour meter (either 2, 3, or 4). An equivalent wire may also be used.

If the hour meter is mis-wired, no product damage will occur under any mis-wired condition.

## FIGURE 1. WIRING DIAGRAM



CONNECTOR DEFINITION	
<b>Pin +</b>	V+ operating voltage
<b>Pin -</b>	V - common (ground)
<b>Pin E</b>	Enable (use operating voltage to power this pin to record elapsed time)
<b>Pin R/B</b>	Backlight or reset to zero

## ACTIVATION

Two-terminal hour meters will always record time once power has been applied. For LM Series hour meters with three or four active terminals, enable power on by the positive contact and the device will continuously record. Hour meters with four terminals will become backlit once the backlight terminal connects to positive contact.

## RESETTING THE DEVICE

To reset the Honeywell's LM Series hour meter's digits to zero, connect the "R" terminal to positive. This action should be applied for at least one second to avoid mis-operation.

# LM Series MCU (Microcontroller Unit) LCD Hour Meter

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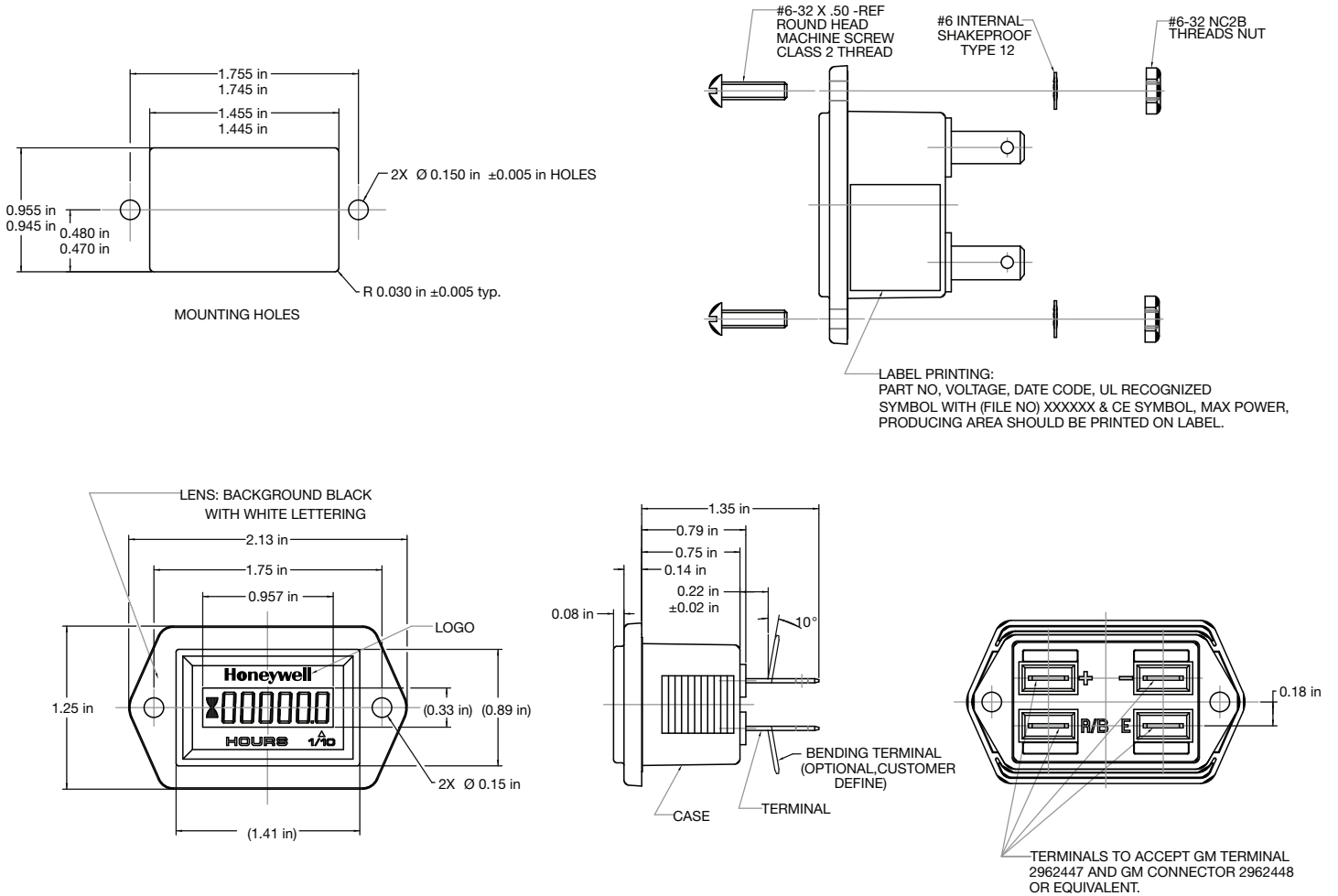
## PERFORMANCE SPECIFICATIONS

Characteristic	Measure
<b>Digital range</b>	0 to 99,999.9 hours
<b>Digital height</b>	7 mm
<b>Backlight color</b>	Blue (default); other options available
<b>View angle</b>	12 o'clock
<b>Running indicator</b>	Yes
<b>Accuracy</b>	±200 ppm/hour
<b>Operating voltage range</b>	9 V to 64 V dc/ac (50 Hz to 500 Hz)
<b>Sealing</b>	IP67 (front); IP66 (rear)
<b>Shock</b>	55 g per SAE J1378 75 g per MIL-M-3917D
<b>Vibration</b>	20 g per SAE J1378 10 g per MIL-M-3917D
<b>Humidity</b>	95 % non-condensing at 38 °C
<b>Operating temperature</b>	-40 °C to 85 °C [-40 °F to 185 °F]
<b>Storage temperature</b>	-50 °C to 90 °C [-58 °F to 190 °F]
<b>Transient immunity</b>	Load dump – yes Inductive – yes EMI – yes Reverse polarity – yes
<b>Power consumption</b>	0.8 mA @ 12 Vdc
<b>Panel mounting</b>	Snap-in
<b>Case sealing technique – front</b>	Ultrasonic weld
<b>Case sealing technique – rear</b>	Sealant on terminals
<b>Start time</b>	<1 s; if including all "8" check, then >1 s
<b>Material – case</b>	Makroblend
<b>Material – lens</b>	Lexan
<b>Case depth</b>	1.35 in (including terminals)
<b>Termination</b>	1/4 in blades; 3/16 in blades

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FIGURE 2. LM SERIES DIAMOND-SHAPED DIMENSIONS AND MOUNTING (LM-HH\*)



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FIGURE 3. LM SERIES STANDARD-SHAPED DIMENSIONS AND MOUNTING (LM-HS\*)

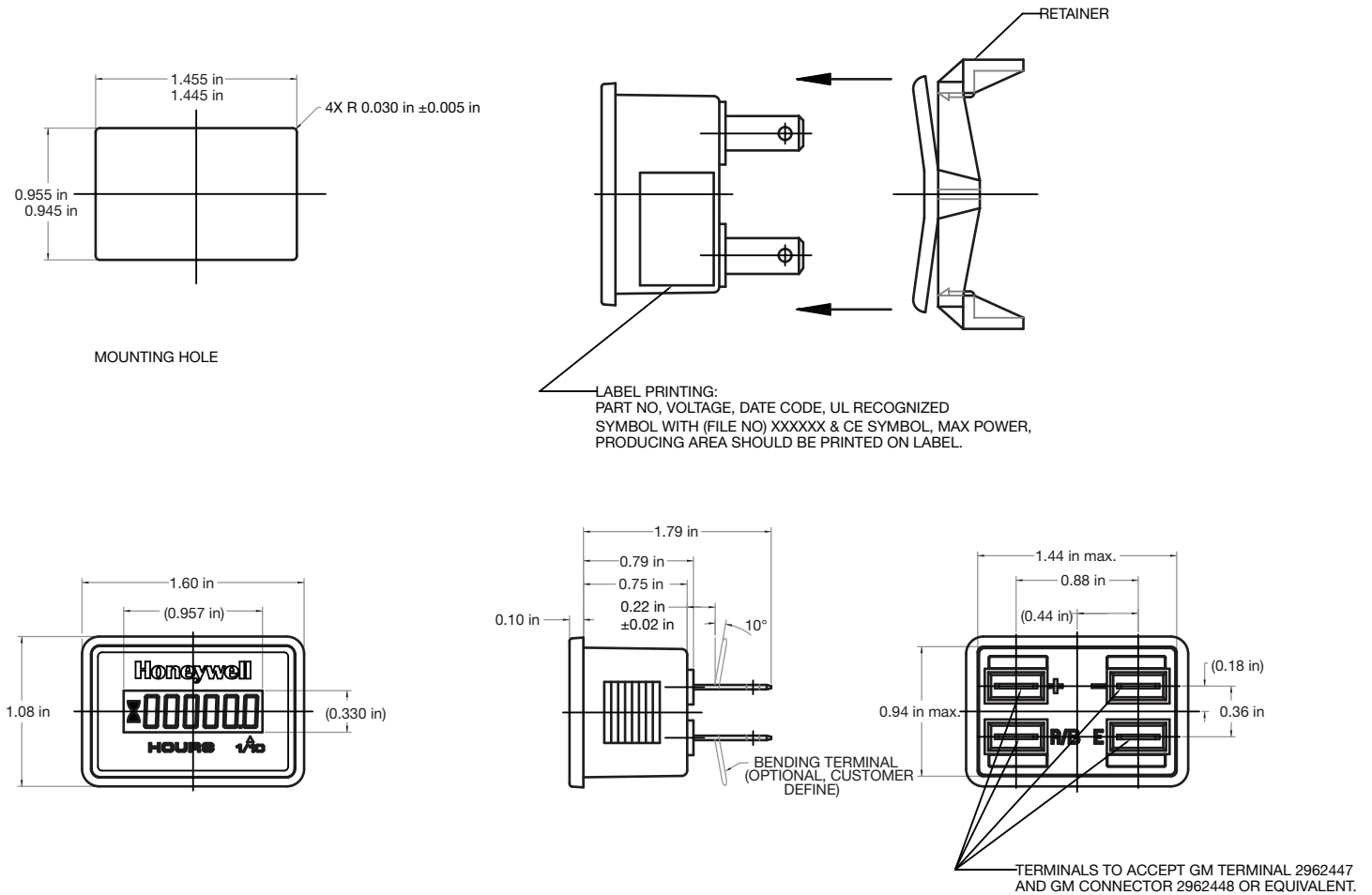
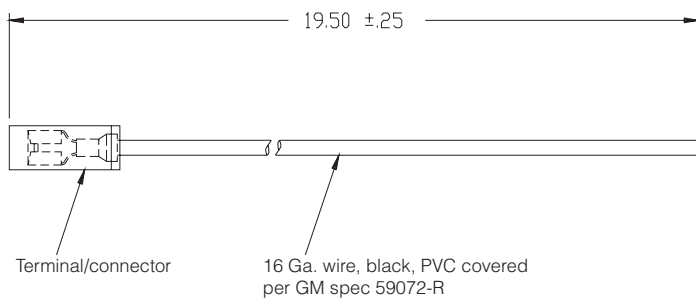


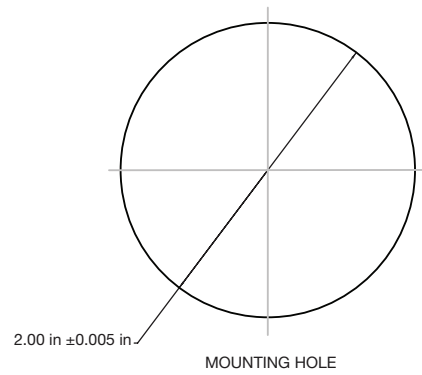
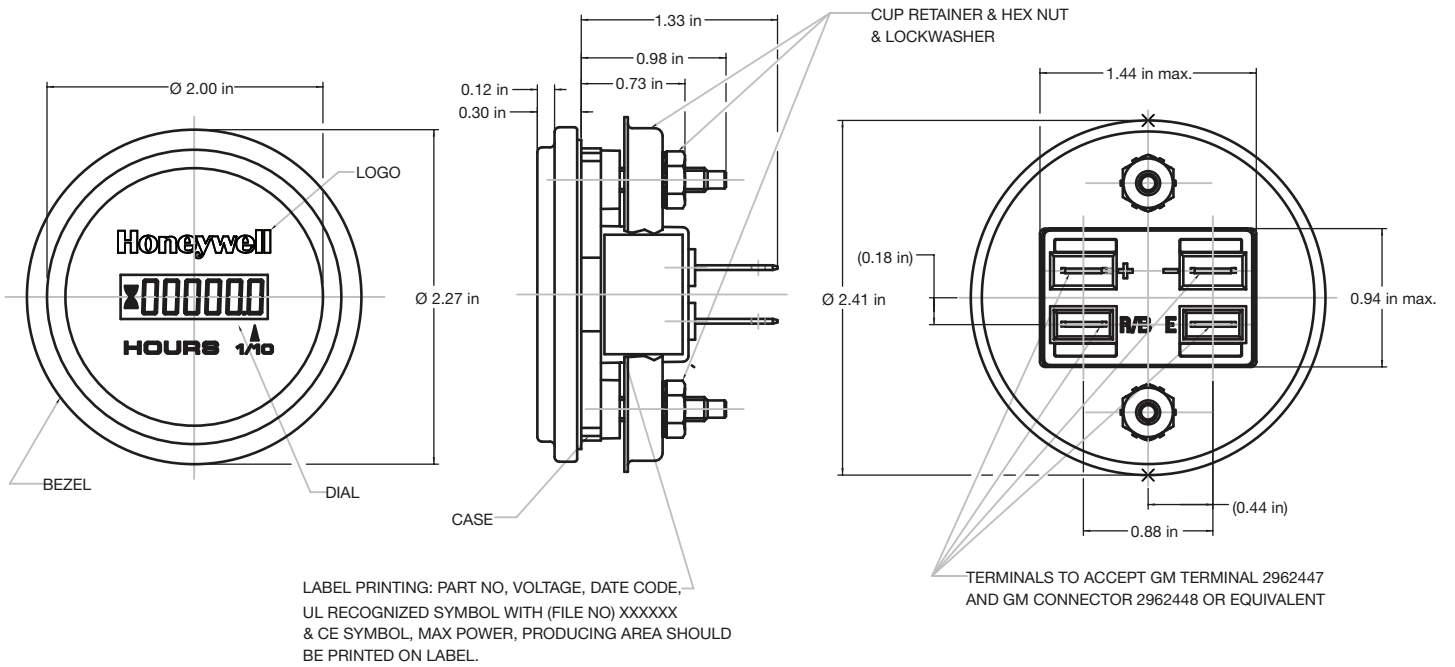
FIGURE 4. LM SERIES TERMINAL CONNECTOR WIRE (Honeywell Part number: 4685)



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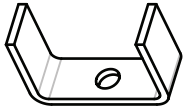
FIGURE 5. LM SERIES ROUND-SHAPED DIMENSIONS AND MOUNTING (LM-HB\* and LM-HW\*)



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FIGURE 6. LM SERIES RECTANGLE-SHAPED DIMENSIONS AND MOUNTING (LM-HC\*)



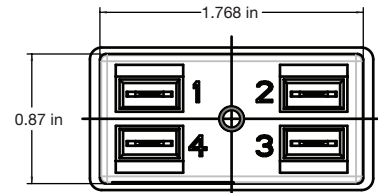
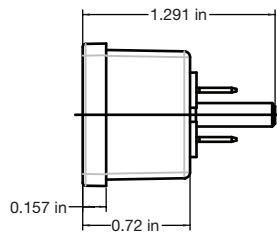
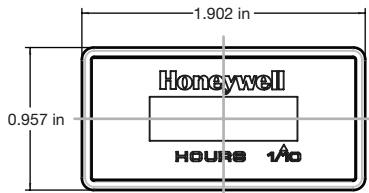
BRACKET  
(50067657-001)



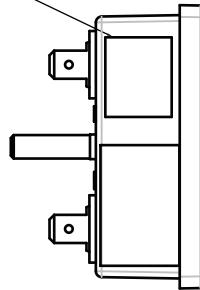
NUT  
(50067656-001)



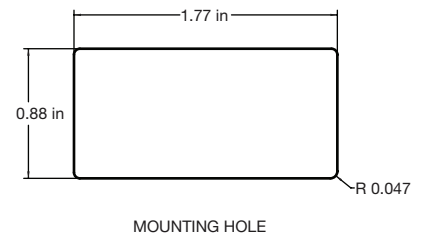
LOCK WASHER  
(50067695-001)



LABEL PRINTING: PART NO, VOLTAGE, DATE CODE, UL RECOGNIZED SYMBOL WITH (FILE NO) XXXXXX & CE SYMBOL, MAX POWER, PRODUCING AREA SHOULD BE PRINTED ON LABEL.



RECTANGLE GEOMETRY

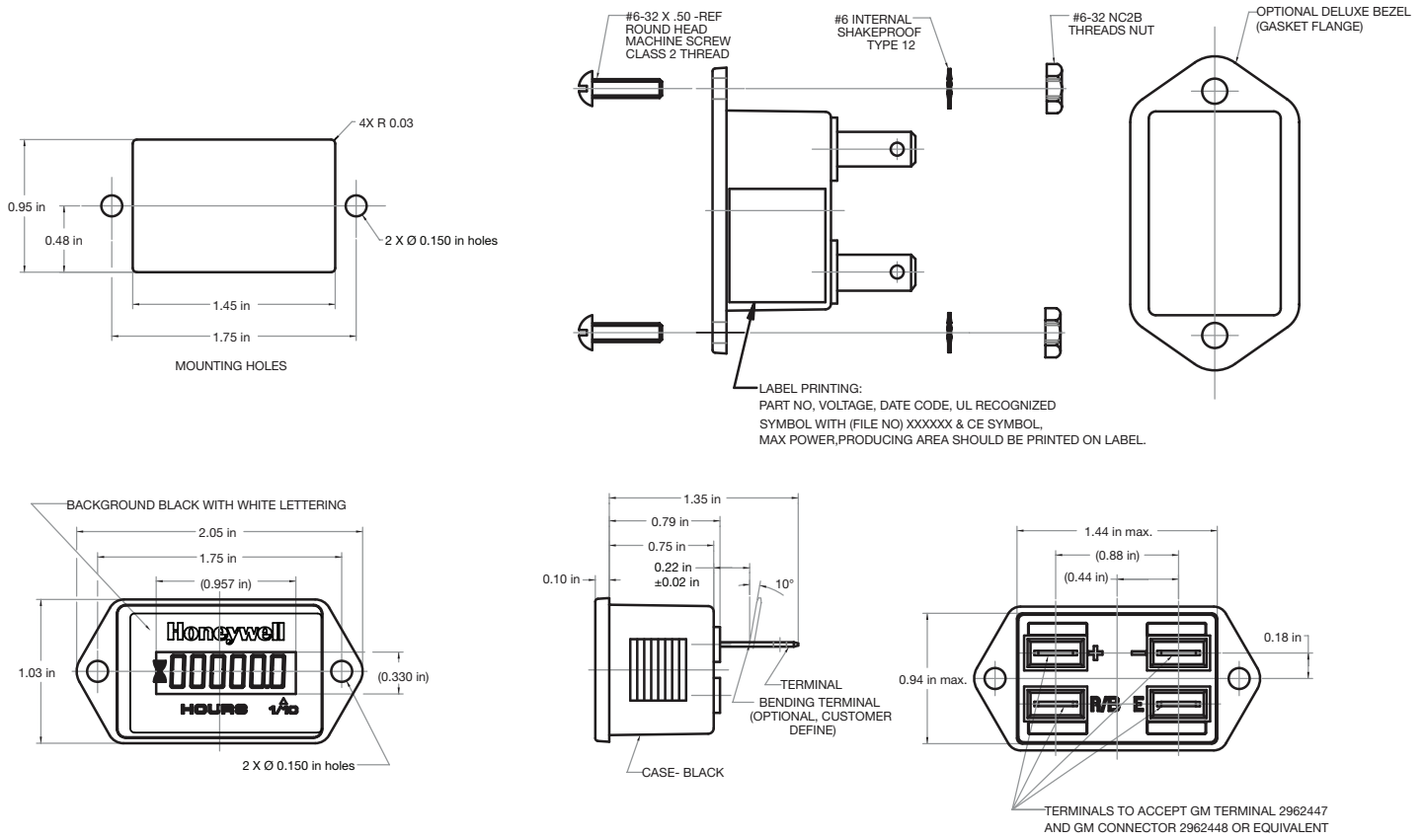


MOUNTING HOLE

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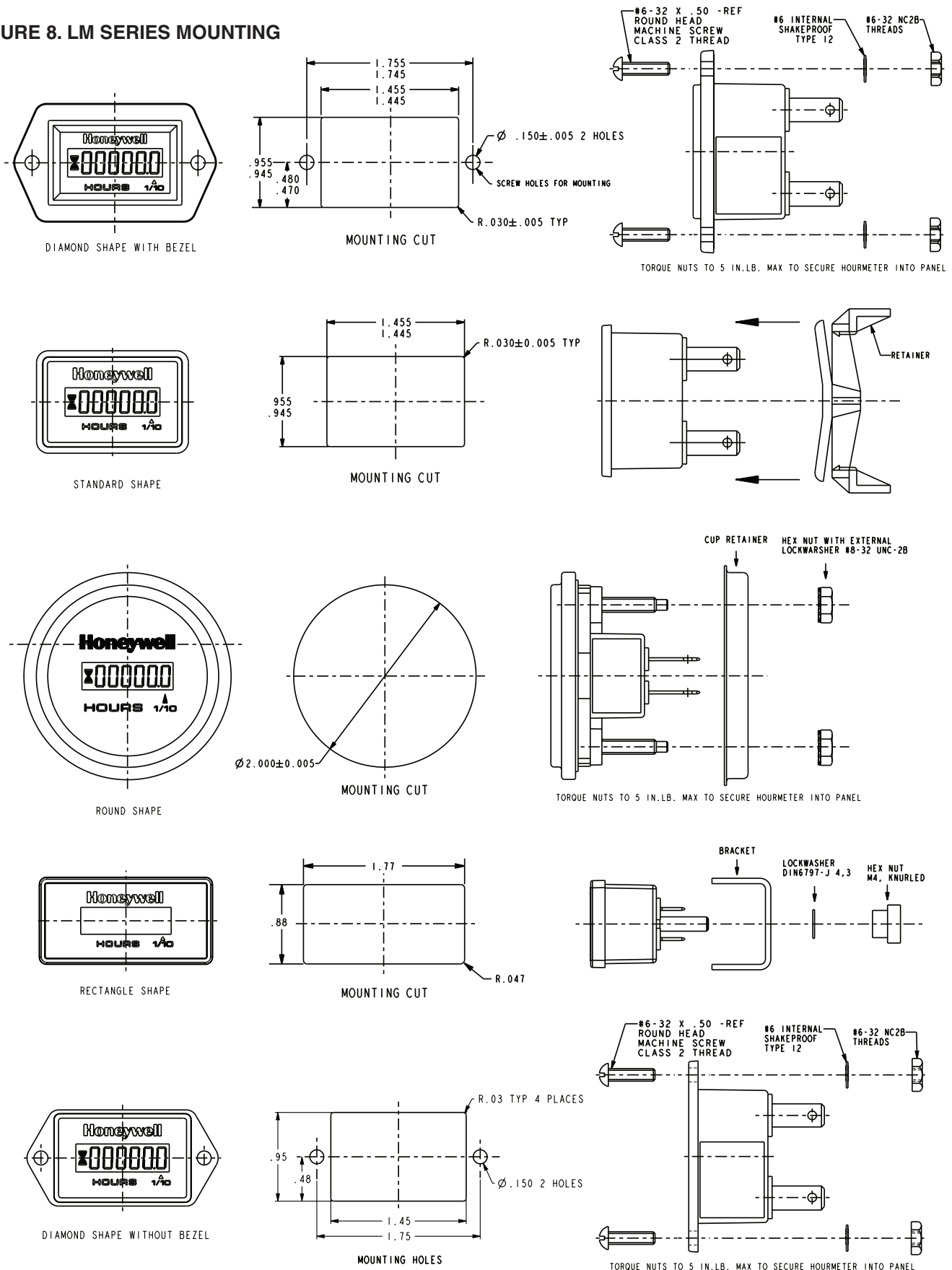
FIGURE 7. LM SERIES DIAMOND-SHAPED (NO BEZEL) DIMENSIONS AND MOUNTING (LM-HD\*)



# LM Series MCU (Microcontroller Unit) LCD Hour Meter

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FIGURE 8. LM SERIES MOUNTING





# LM Series MCU (Microcontroller Unit) LCD Hour Meter

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## WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement 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 it 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.**

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## PERSONAL INJURY WARNING

**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.**

Sensing and Control

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