

# INSTALLATION INSTRUCTIONS FOR THE LCD HOUR METER/COUNTER, LM SERIES MCU (MICROCONTROLLER UNIT)

50082092  
Issue 5

## 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-H/CH\*)

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-H/CS\*)

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-H/CB\* and LM-H/CW\*)

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-H/CC\*)

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-H/CD\*)

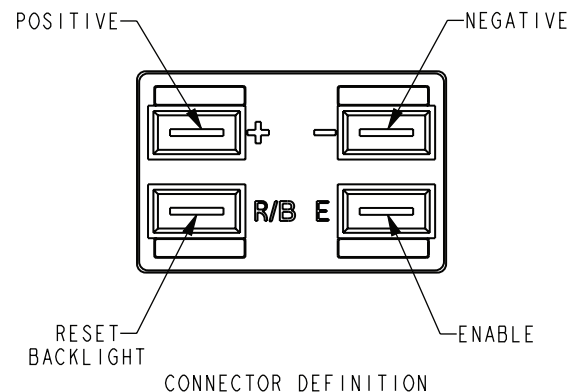
1. Panel cut based on required mounting hole
2. Insert product into mounting hole
3. Insert screws into the two mounting holes.
4. From backside, fix washers and nuts on screws.
5. Torque nuts to 5 in-lb to secure hour meter to panel.

## 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.

\*refer to product nomenclature on page 2.

PERFORMANCE SPECIFICATIONS	
Characteristic	Measure
Digital range	0 to 99,999.9 hours; 0 to 999,999 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

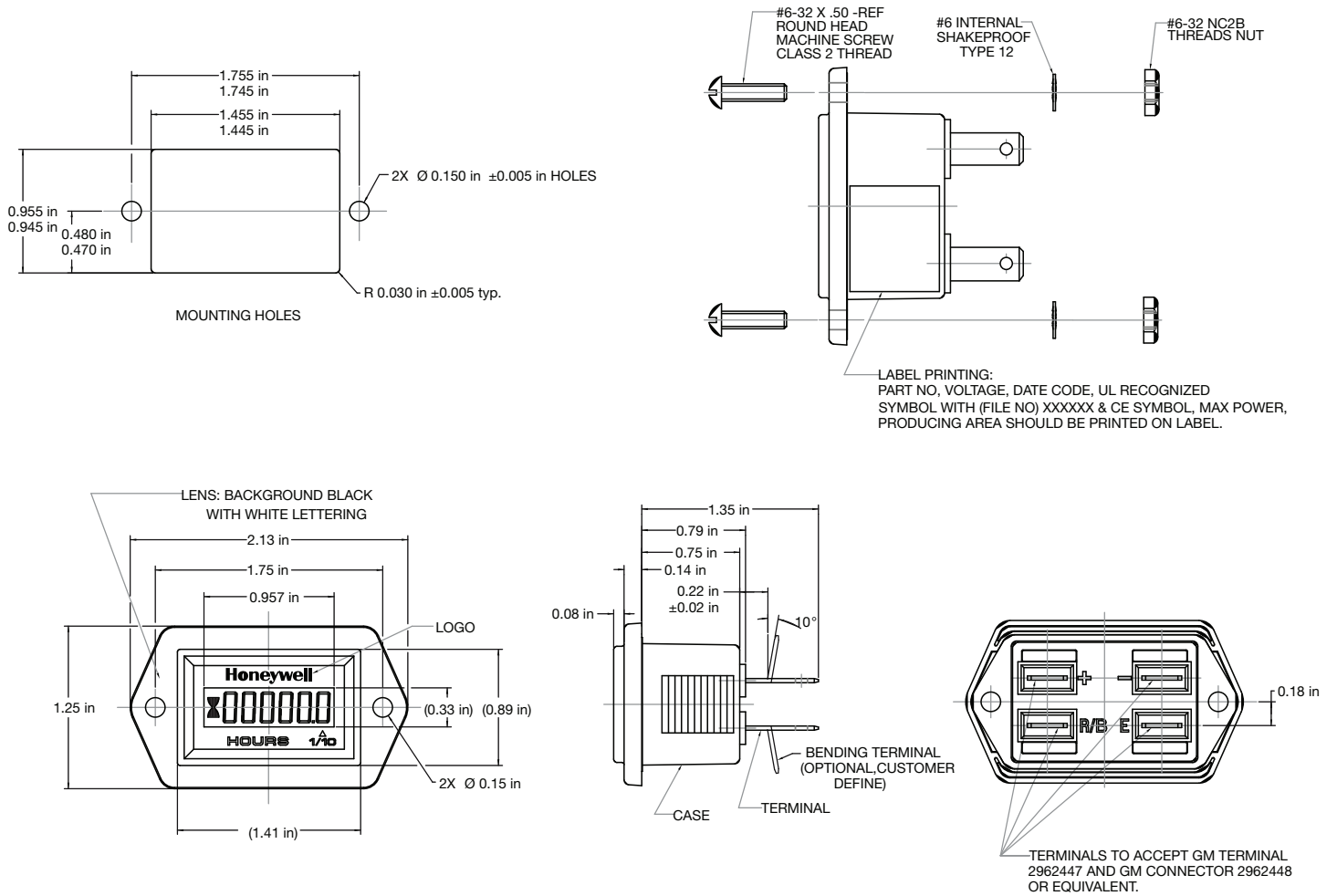
### PRODUCT NOMENCLATURE

LM	-	H	H	F	A	S	-	H	XX
Type		Function Type	Shape and Bezel	Connector Definition	Terminal Type	Voltage Range		Logo Type	Modification Code
LM Series MCU (Micro-controller Unit) LCD Hour Meter		<b>H</b> Hour meter <b>C</b> Counter	<b>H</b> Shape: Diamond Bezel: Black <b>S</b> Shape: Standard <b>B</b> Shape: Round Bezel: Black <b>W</b> Shape: Round Bezel: White <b>D</b> Shape: Diamond Bezel: None <b>C</b> Shape: Rectangle	<b>F</b> +: Positive -: Negative <b>B</b> : Backlight (blue) <b>E</b> : Enable <b>4</b> +: Positive -: Negative <b>R</b> : Reset <b>E</b> : Enable <b>3</b> +: Positive -: Negative <b>E</b> : Enable <b>2</b> +: Positive -: Negative	<b>A</b> 1/4 in blade <b>C</b> 3/16 in blade	<b>S</b> 9 Vdc to 64 Vdc		<b>H</b> Honeywell <b>N</b> No logo <b>T</b> Hours indicator <b>1</b> Customer's logo #1 <b>2</b> Customer's logo #2	Multiple packaging and component options are recommended. <b>Type 11:</b> bulk packing with wires and fasteners <b>Type 21:</b> Box per product packing with wires and fasteners Please refer to Honeywell modification code, or contact your Honeywell sales representative, or an authorized Honeywell Distributor.
				<b>NOTE:</b> If in the future, the customer has a specific backlight color requirement, Honeywell can customize to meet the customer's needs.				<b>NOTE:</b> Codes "1" to "9" and "A" to "Z" (except "H", "N", and "T") are defined for customers' different logo/type requirements.	

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



\*refer to product nomenclature on page 2.

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

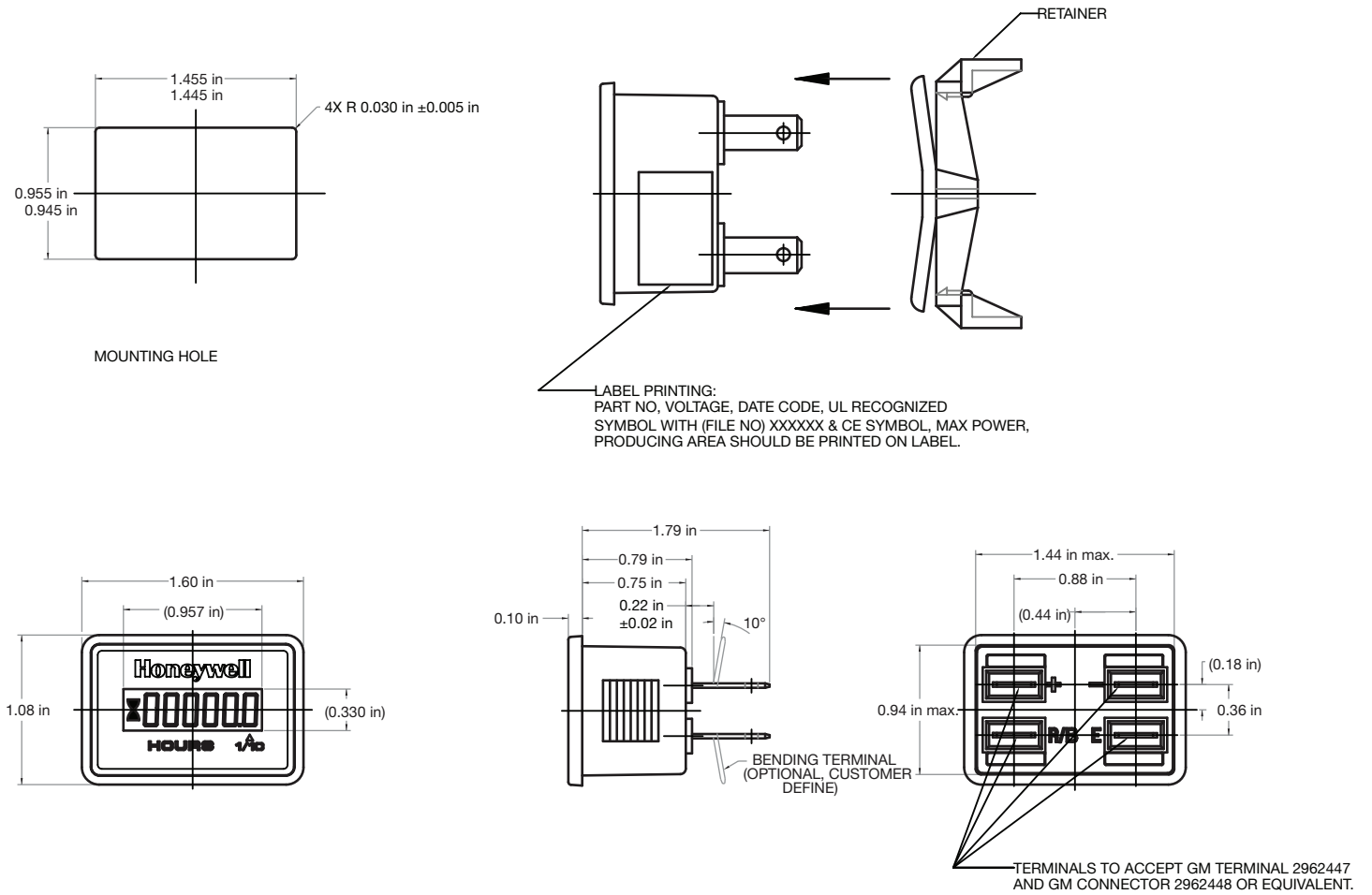
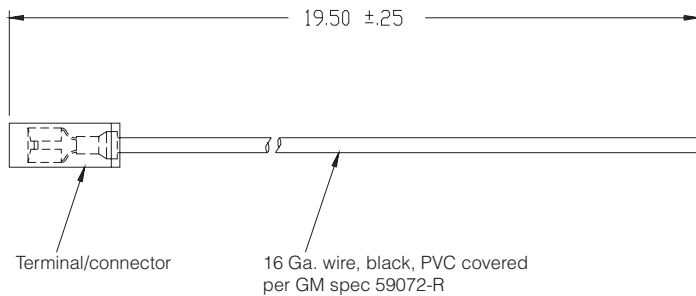


FIGURE 4. LM SERIES TERMINAL CONNECTOR WIRE (Honeywell Part number: 4685)

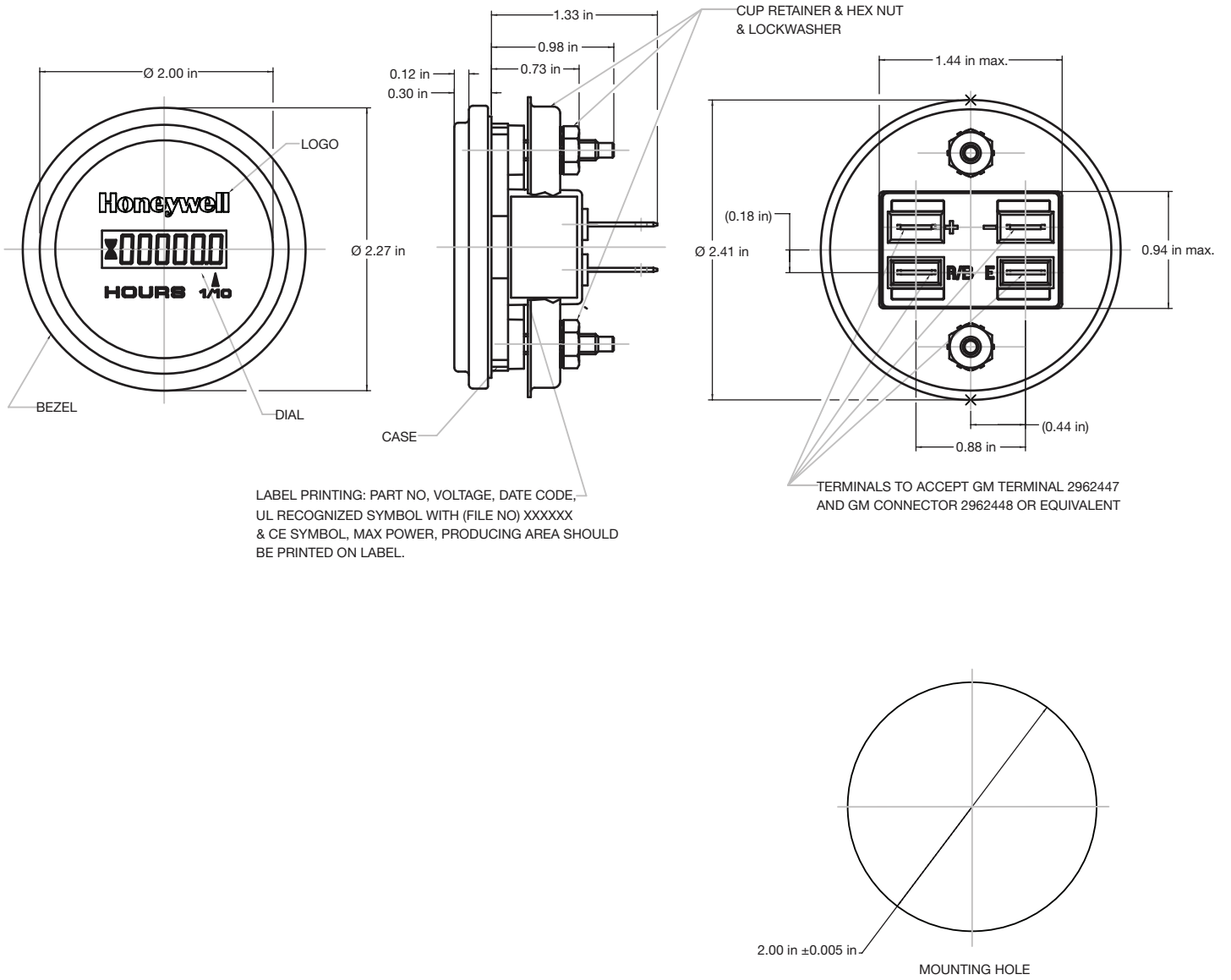


\*refer to product nomenclature on page 2.

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

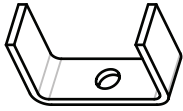


\*refer to product nomenclature on page 2.

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



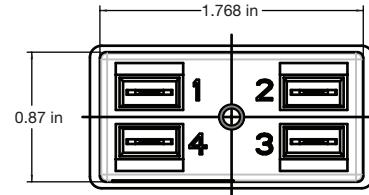
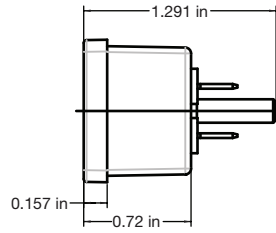
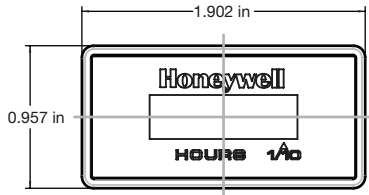
BRACKET  
(50067657-001)



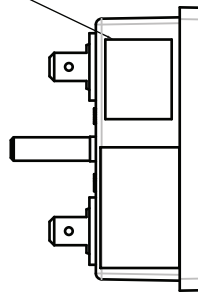
NUT  
(50067656-001)



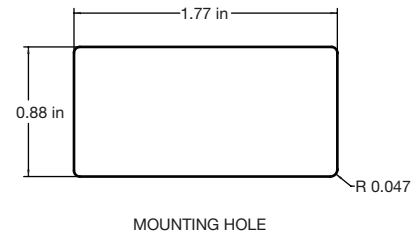
LOCK WASHER  
(50067695-001)



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.



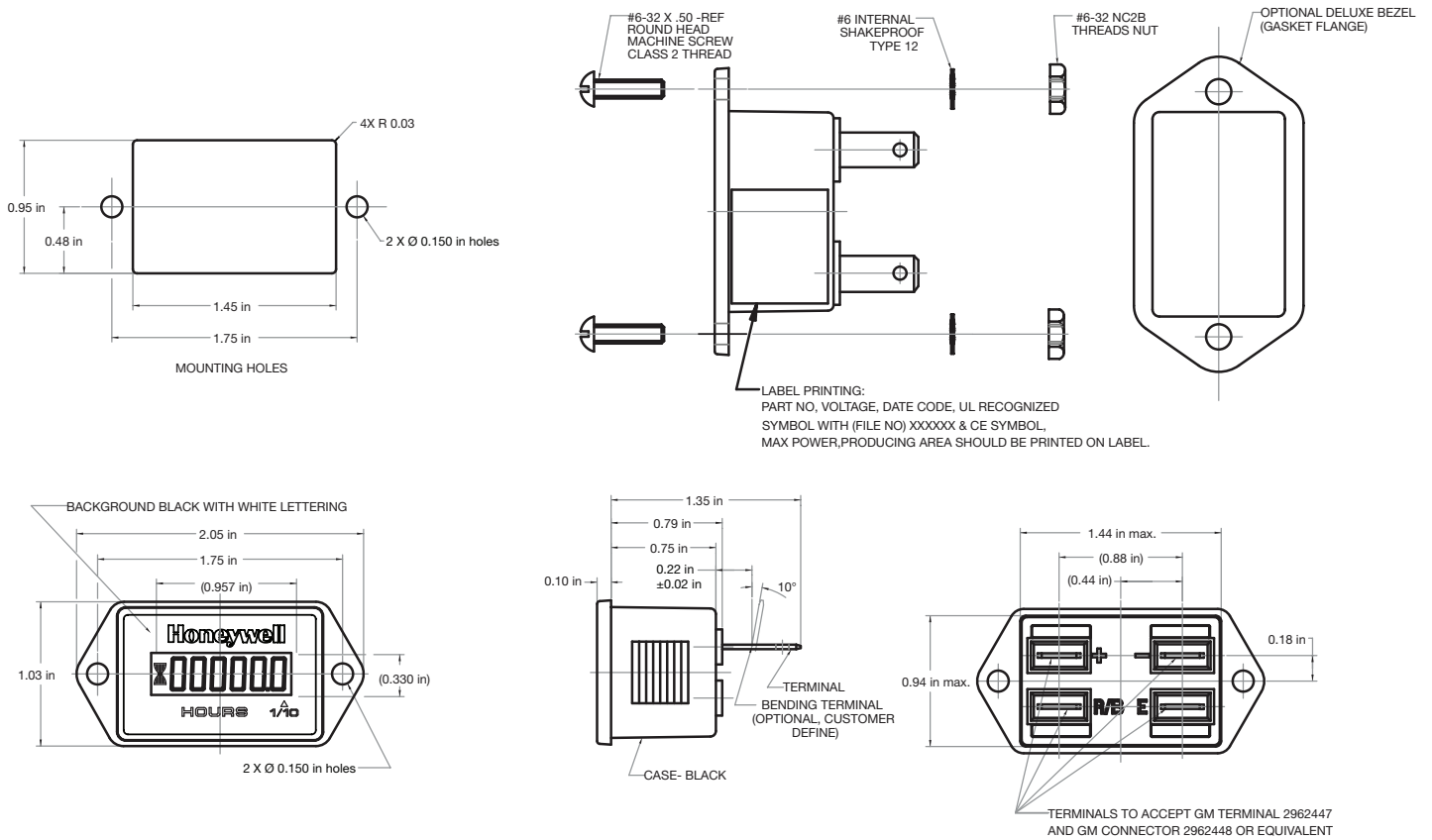
RECTANGLE GEOMETRY



MOUNTING HOLE

\*refer to product nomenclature on page 2.

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

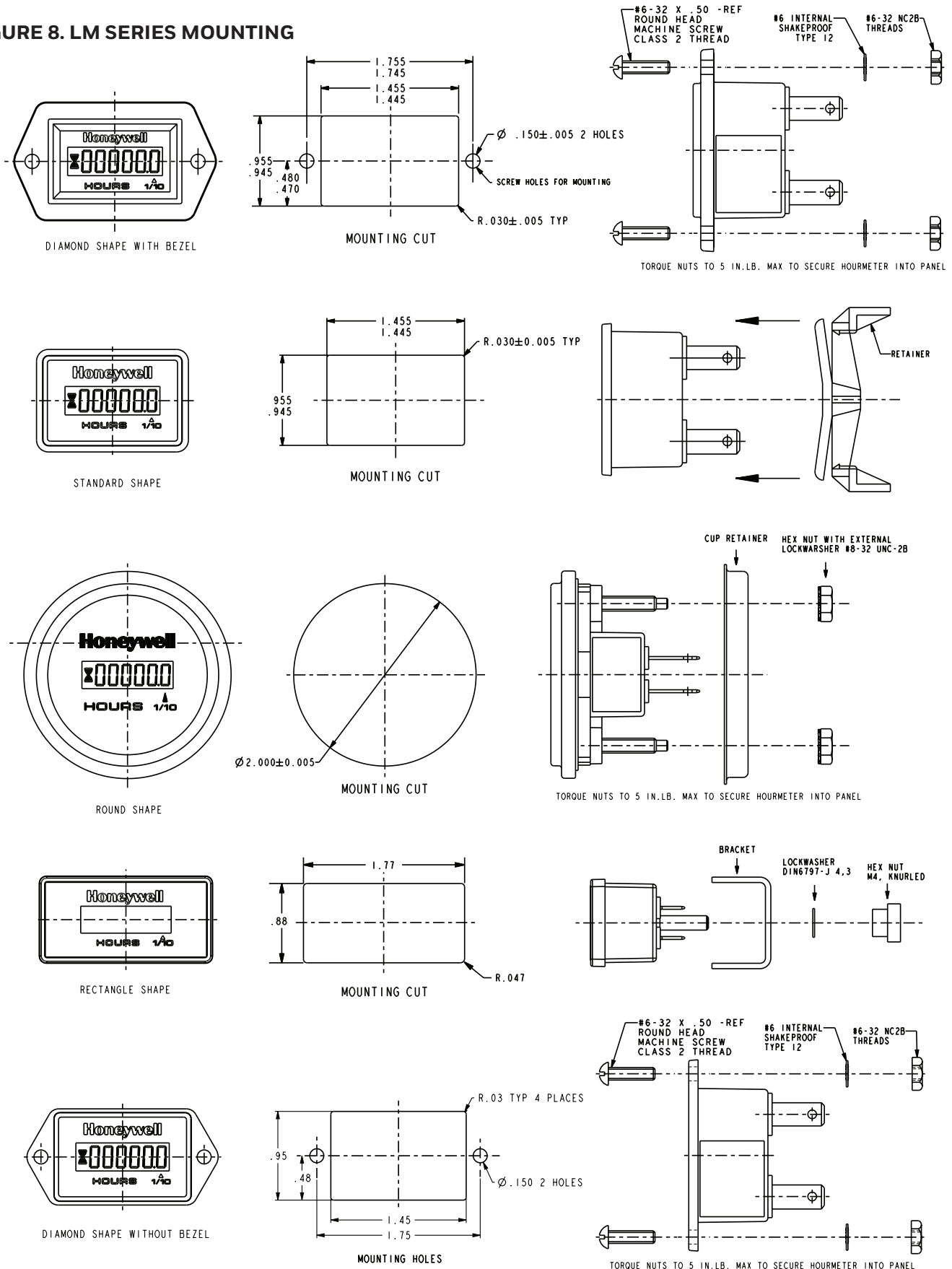


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FIGURE 8. LM SERIES MOUNTING





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## 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 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 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](http://sps.honeywell.com/ast) or call:

USA/Canada	+302 613 4491
Latin America	+1 305 805 8188
Europe	+44 1344 238258
Japan	+81 (0) 3-6730-7152
Singapore	+65 6355 2828
Greater China	+86 4006396841

## 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.**

## Honeywell Advanced Sensing Technologies

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