Honeywell



Microcontroller Unit (MCU) LCD Hour Meters/Counters

LM Series



Datasheet

LM Series
Microcontroller Unit (MCU) LCD Hour Meters/Counters

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.

What makes our hour meters/counters better?

- 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

Manufactured for harsh, rugged environments



Features and Benefits

EASY TO READ

The large **7 mm display** on LM Series hour meters/counters eases readability and offers options of backlight and running indicators.

Great for tracking rental product use!

RELIABLE AND DURABLE

The LM Series' IP67 (front)/IP66 (back) environmental sealing creates a rugged package design **well suited for harsh environments**. The mounting assembly's durable design helps make installation accurate and efficient. Their shock and vibration resistance allows for use in a wide variety of heavy-duty applications.

Up to 40 years of data retention without power!

CUSTOMIZABLE

LM Series hour meters/counters can be customized with the customer's logo, as well as numerous **customizable bezel options**. Meters are offered with two function types: hour meter (measures time) or counter (measures number of instances, starts, etc.). **Optional bending terminal blades** allow for use where space is at a premium.

Potential Applications



TRANSPORTATION

Monitors and records elapsed running time in

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

Table 1. Specifications

Characteristic	Parameter
Digital range hours	0 to 99,999.9 hours with auto turn over
Digital range counts	0 to 999,999 counts with auto turn over
Digital height	7 mm
Backlight color (optional)	blue
View angle	12 o'clock
Running indicator	yes
Accuracy	±200 ppm/hour
Operating voltage range	9 V to 64 V dc/ac (50 Hz to 500 Hz); 50 Hz for counter enable
Sealing	IP67 (front); IP66 (back)
Shock	55 g per SAE J1378; 75 g per MIL-M-3917D
Vibration	20 g per SAE J1378; 10 g per MIL-M-3917D
Humidity	95 % non-condensing at 38 °C [100.4 °F]
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	multiple options, dependent upon bezel shape
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 blade (straight and bending); 3/16 in blade (straight and bending)

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PRODUCT NOMENCLATURE

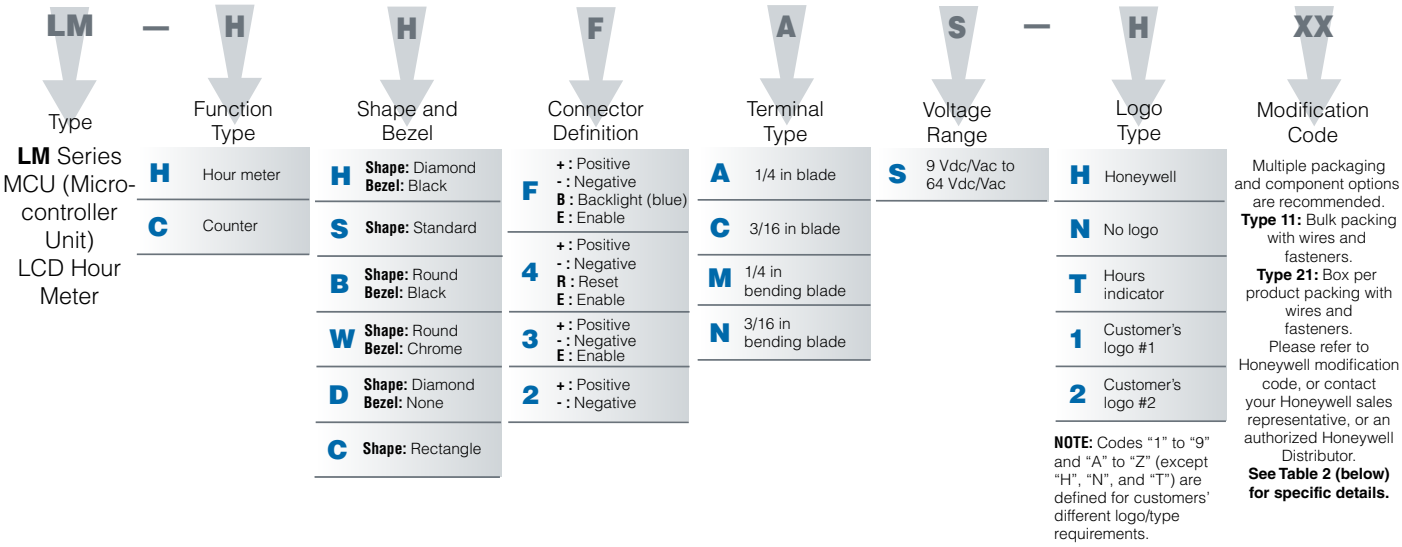


Table 2. Modification Codes

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 fastenings included		
13			No wires included	Included		
14				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 fastenings included		
23			No wires included	Included		
24				No fastenings included		
31	Round	Bulk pack, no box marking	1 wire per terminal	Included	48 pieces per carton	1
32				No fastenings included		
33			No wires included	Included		
34				No fastenings included		

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	Honeywell
	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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LM SERIES ORDER GUIDE, CONTINUED

	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

DIMENSIONAL DRAWINGS

Figure 1. Diamond-Shaped Hour Meter Dimensions

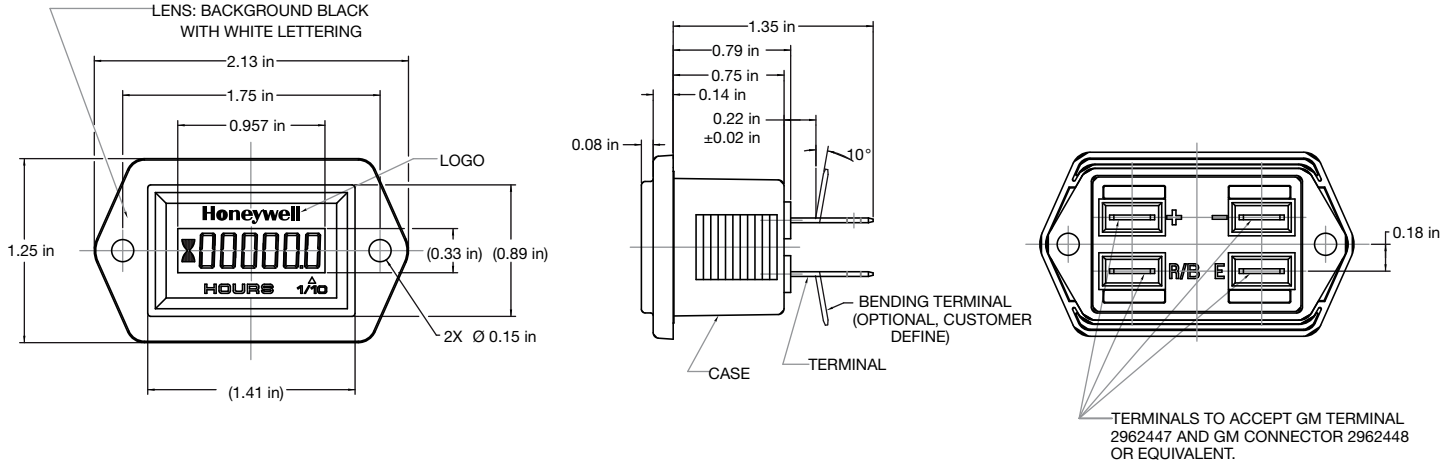


Figure 2. Standard-Shaped Hour Meter Dimensions

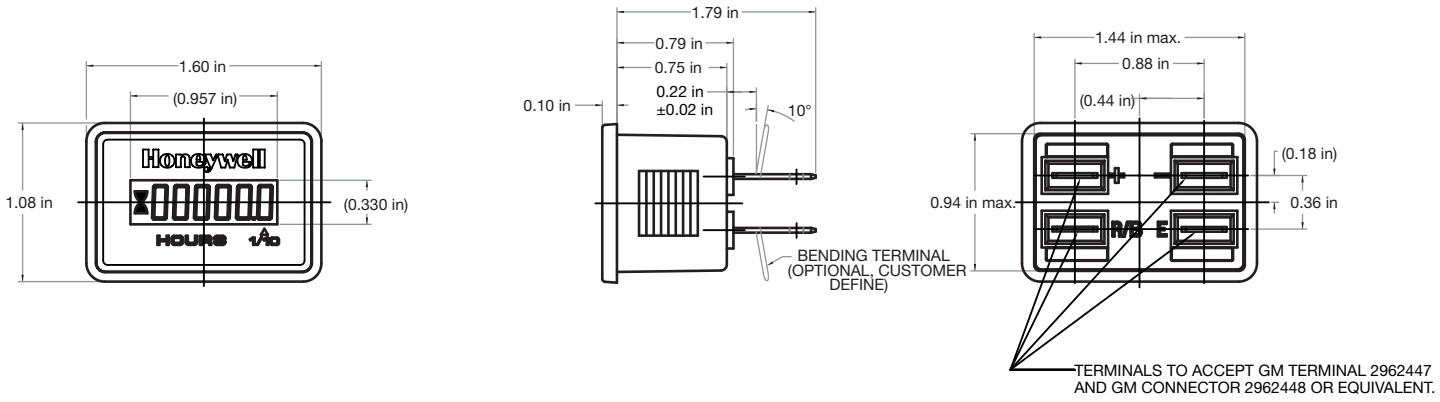
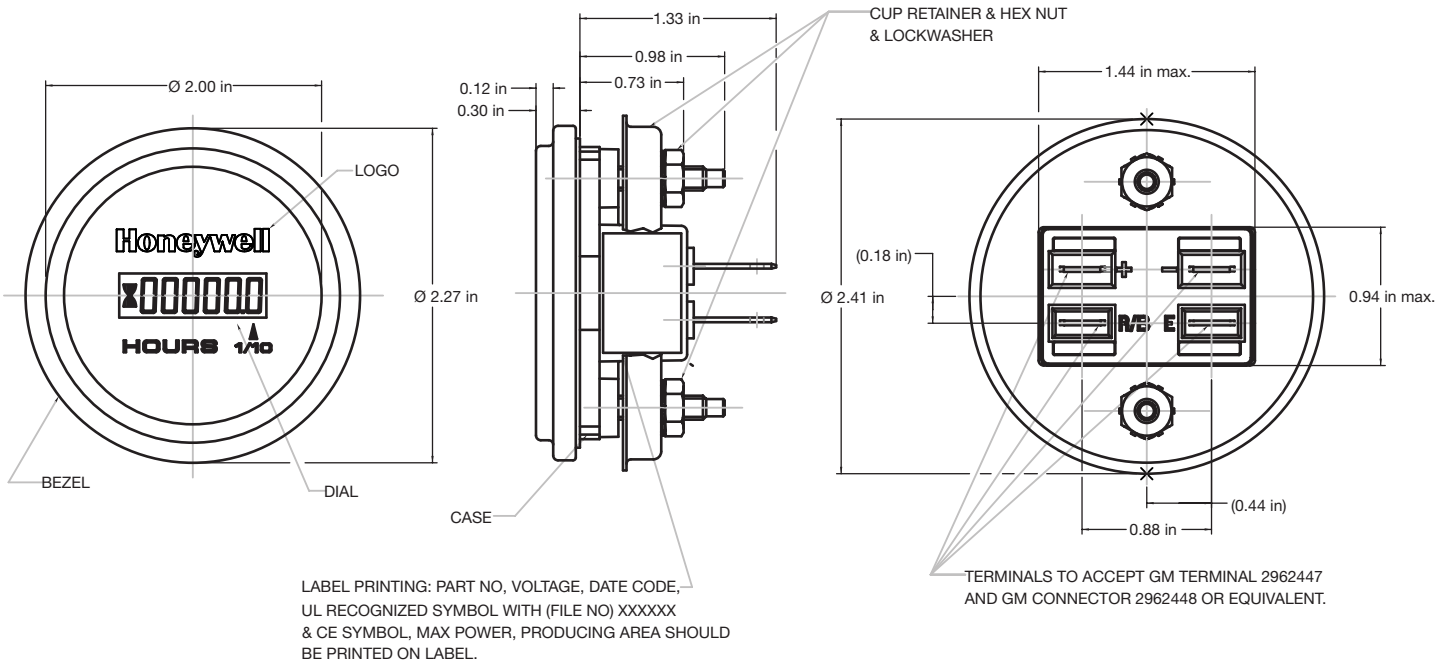


Figure 3. Round-Shaped Hour Meter Dimensions



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Figure 4. Rectangle-Shaped Hour Meter Dimensions

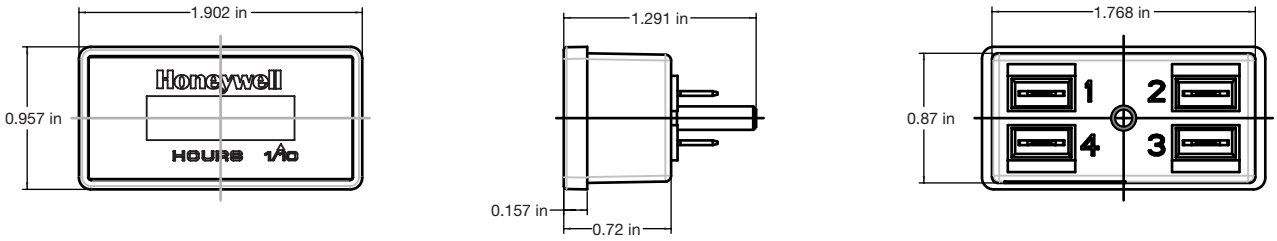
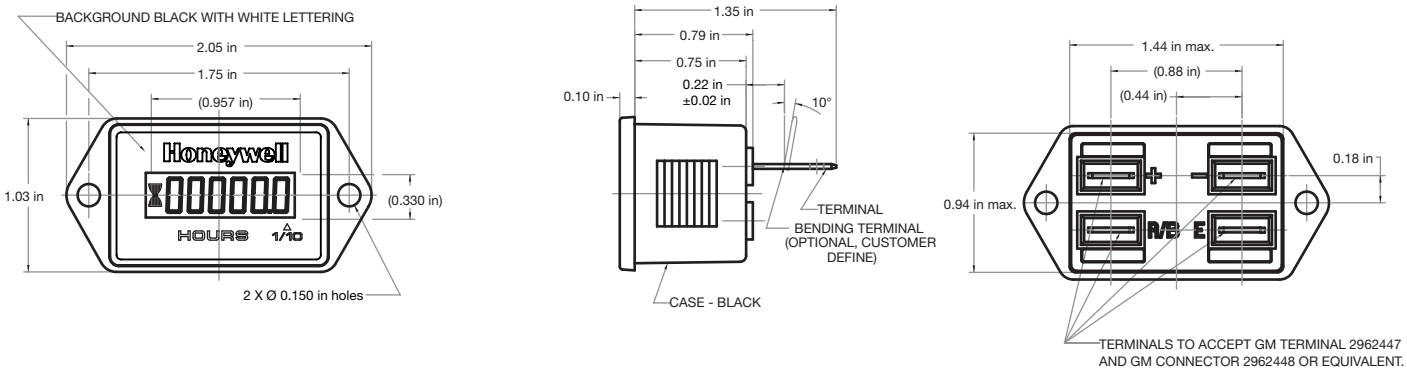


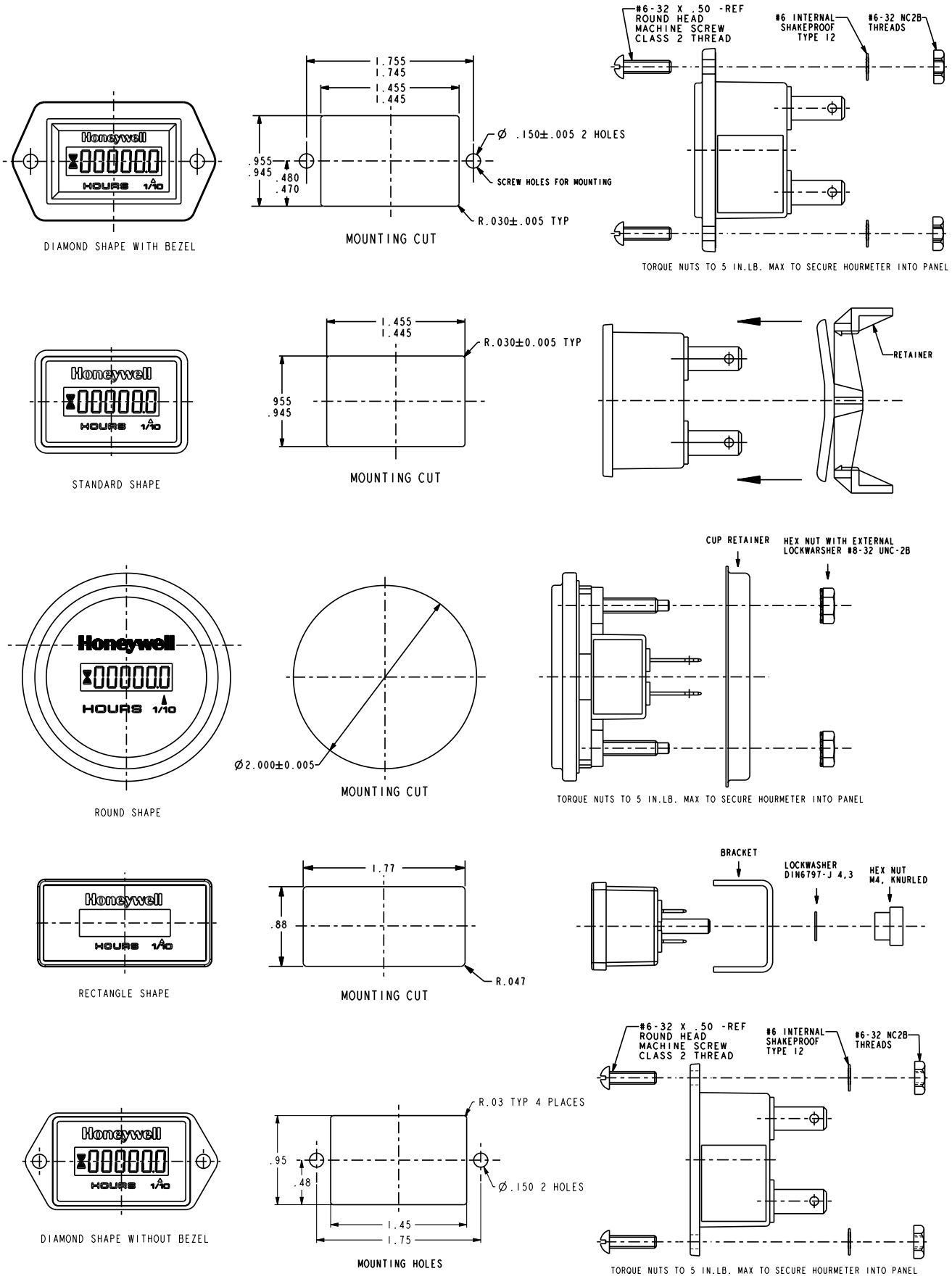
Figure 5. Diamond-Shaped (No Bezel) Hour Meter Dimensions



CAUTION

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

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



ADDITIONAL INFORMATION

The following associated literature is available on the Honeywell web site at sensing.honeywell.com:

- Product installation instructions
- Product range guide
- Product line guide
- Product application-specific information
  - Case study: True time stamp hour meters
  - Industrial product line card
  - Application note: Sensors and switches for potential medical applications
  - Application note: Sensors and switches in front loaders
  - Application note: Sensors and switches in mobile cranes
  - Appilcation note: Sensors and switches in oxygen concentrator applications

⚠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.

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.**

While we provide application assistance personally, through our literature and the Honeywell website, it is up to the customer 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 printing. However, we assume no responsibility for its use.

Find out more

Honeywell serves its customers through a worldwide network of sales offices, representatives and distributors. For application assistance, current specifications, pricing or name of the nearest Authorized Distributor, contact your local sales office.

To learn more about Honeywell's sensing and control products, call **+1-815-235-6847 or 1-800-537-6945**, visit **sensing.honeywell.com,** or e-mail inquiries to **info.sc@honeywell.com**

Sensing and Control
Honeywell
1985 Douglas Drive North
Golden Valley, MN 55422
honeywell.com

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