

# LIQUID CONTROLS

**Simply the Best**™



**Electromagnetic Flowmeters** 













# Premier products, premier performance

Liquid Controls offers a broad selection of electromagnetic (Mag) flow meters for industrial and water and waste water flow measurement applications, worldwide. The LCMag family consists of five types of electromagnetic flow meters for specific applications. The five models include microflow, wafer, sanitary, flanged, and insertion meters. The units are offered in a wide variety of sizes and flow ranges for many industrial as well as OEM applications.

### **Applications**

Agricultural

Food & Beverage

Chemical

**Pulp & Paper** 

Water & Waste Water

**Others** 

### **Features and benefits**

The LCMag family of electromagnetic flow meters offers the best solution for measuring the flow of electrically conductive liquids (5µS/cm minimum), for the following reasons:

- Accuracy is not affected by fluid characteristics such as viscosity, density, temperature, or suspended solids.
- No moving parts.
- Virtually no pressure drop.
- · Clean-in-place construction.
- Minimal maintenance.

- · Easy to install and operate.
- Wide range of nominal diameters from  $^{1}/_{8}$ " to 80".
- Wide range of flow rates from as low as 0.1 GPM to as high as 400,000 GPM.
- · Automatic, dual flow range capability.
- Broad selection of liners, electrode materials, and process connections.
- High, full-scale accuracy, ±0.2% over a 10:1 range (for liquid velocity greater than 4 ft/second) with HML210 Converter.

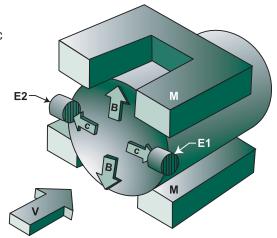
### **General**

LCMag meters are available in a full selection of configurations and sizes. Models are available in flow ranges from 0.10 GPM to 400,000 GPM and in process fittings from 1/8" NPT to 72" flanged meters and up to 80" insertion meters. Connections include flanged, threaded, wafer, and sanitary. Scaled, digital pulse output is standard. Analog outputs of 0–20mA or 4–20mA are optionally available. RS-232 or RS-485 serial interfaces are available on various models.

### **Function & Construction of the LCMag Flow Sensor**

LCMag Meters consist of a sensor and an integrally mounted or remote mounted converter. The LCMag Flow Sensor consists of a lined flow tube, two electromagnetic coils (M), and two diametrically opposed electrodes (E1 & E2). Faraday's Law of Electromagnetic Induction is the basis for magnetic flow measurement.

Faraday's Law postulates that when a magnetic field is created at right angles to the flow tube through which a conductive liquid is flowing, the voltage induced in the electrodes (immersed in the fluid) is proportional to the velocity of the liquid. This induced voltage is converted to a scaled digital pulse output and, optionally, to a 4–20mA (or 0–20mA) analog output by the converter. The analog output signal is a linear output directly proportional to rate of flow.



The flow sensor consists of a stainless steel pipe section with an internal, insulating liner. PTFE (Teflon), Polypropylene, and Ebonite (hard rubber) liners are available. The two electrodes are positioned opposite each other on the internal surface of the pipe. The coils, which generate the magnetic field, are placed outside the pipe. The complete sensor has an IP67/68 protection rating. The choice of materials in contact with the fluid (lining, electrodes, etc.) depends on the temperature, the chemical aggressiveness of the liquid, and the degree of abrasiveness of the liquid.

#### Working pressure rating

225 PSI (16 BAR) 575 PSI (40 BAR) Optional

#### Connections

1/8" to 3/4"

Threaded, Sanitary Clamp, ANSI Flange, DIN Sanitary, SMS, and others on request

#### **Body Material**

304 stainless steel 316 stainless steel

#### **Electrode Material**

316 Stainless Steel, Titanium, Hastelloy C, Tantalum, Platinum

#### Liner Material

PTFE



#### HMS501 Micro-flow

The HMS501 Micro-flow style has been designed for low flow and small volume dosing applications. Perfect for OEM filling machine applications, the Micro-flow is the smallest instrument with nominal diameters from <sup>1</sup>/<sub>8</sub>" to <sup>3</sup>/<sub>4</sub>". Liquid temperature range is -4° to 212°F (-20° to 100°C). The housing and external connections are manufactured in stainless steel with PTFE (Teflon) liners with the meter having a rating of IP67 or IP68 depending on the configuration.

#### Working pressure rating

225 PSI (16 BAR) 575 PSI (40 BAR) Optional

#### Connections

1" to 16" Wafer style

#### **Body Material**

Carbon steel 304 stainless steel (PTFE lining only) 316 stainless steel (PTFE lining only)

### Electrode Material

316 Stainless Steel, Titanium, Hastelloy C, Tantalum (not with Polypropylene liner), Platinum (not with Polypropylene liner)

#### Liner Material

Polypropylene, PTFE, Ebonite



#### **HMS1000 Wafer**

The HMS1000 Wafer style has been designed for water and waste water applications. The wafer style is easy to install between two existing flanges with nominal diameters from 1" to 16". Electrodes are available in 316 Stainless Steel, Hastelloy C, Titanium, Tantalum, and Platinum. Liners are available in PTFE (Teflon), Polypropylene, and Ebonite. Liquid temperature range depends on liner material.

• Polypropylene: 32° to 140°F (0° to 60°C)

• Ebonite: 23° to 176°F (-5° to 80°C)

• PTFE: -4° to 212°F (-20° to 100°C)

The meter has a rating of IP67 or IP68 depending on the configuration.

#### Working pressure rating

225 PSI (16 BAR) or 350 PSI (25 BAR) depending on connection and size

#### Connections

1" to 4" Sanitary Clamp, DIN Sanitary, SMS

#### **Body Material**

304 stainless steel, polished

#### Electrode Material

316 Stainless Steel

#### **Liner Material**

PTFE



### **HMS2410 Sanitary**

The HMS2410 is an instrument specifically designed for sanitary, food grade applications with nominal diameters from 1" to 4" and flow rates from 8 to 1,200 GPM with PTFE (Teflon) liners and sanitary connections. These meters are 3A Certified.

### **Meters**

#### Working pressure rating

225 PSI (16 BAR) 575 PSI (40 BAR) Optional

#### Connections

1" to 72" ANSI 150# raised face ANSI 300# raised face AWWA Class D, 8" to 40"

#### **Body Material**

Carbon steel 304 stainless steel 316 stainless steel

#### **Electrode Material**

316 Stainless Steel, Titanium, Hastelloy C, Tantalum (not with Polypropylene liner), Platinum (not with Polypropylene liner)

#### **Liner Material**

Polypropylene, PTFE, Ebonite



### **HMS2500 Flange**

The HMS2500 is a flanged style meter perfect for general industrial applications as well as water and waste water applications. Meters are available with nominal diameters from 1" to 72" and flow rates from 8 to 400,000 GPM. PTFE (Teflon) liners are available in 1" to 72" models; Polypropylene liners are available in 1" to 6" models; Ebonite liners are available in 8" to 72" models. Electrodes available in 316 Stainless Steel, Hastelloy C, Titanium, Tantalum, and Platinum.

#### Working pressure rating

225 PSI (16 BAR)

#### Connections

HMS3700: 1" Threaded HMS3770: 1" Threaded

#### **Body Material**

304 stainless steel

#### **Electrode Material**

316 stainless steel

#### **Liner Material**

PTFE



### HMS3700 & HMS3770 Insertion Flange

The HMS3700 and HMS3770 models are designed for water and waste water applications. HMS3700 is available with accessories for removal from pressurized lines and is available in three sizes for piping from 10" to 80" in diameter. HMS3770 is for installation in piping which is NOT under pressure and is available in four sizes for piping from 4" to 80" in diameter.

### **Electronics**

The signal generated by the sensor must be amplified and processed by an electronic device known as the converter. The converter provides power to the coils in the flow sensor for generating the magnetic field, and provides electrical output signals proportional to the fluid flow rate. Calibration features and other options are based on the converter model selected. All converters are available with four programming languages (English, Italian, Spanish, and French). For complete technical information, refer to pages 11 and 12.

#### **Features**

- · 3 internal programming keys
- IP65 rating
- Optional 2 line, 16 character display
- · Two digital outputs
- · Four internal totalizers
- · For use with all HMS sensors
- · Optional 4-20 ma output

#### **Accuracy**

Capable of ±0.8% for liquid velocity > 4 ft/sec

Optional accuracy of ±0.4%

#### Repeatability

Capable of 0.2% or better



#### **HML110**

The HML110 Converter is for use with HMS1000, HMS2500 (less than 40"), HMS3700, and HMS3770 series flow sensors. The converter is a programmable, microprocessor-driven unit providing automatic zeroing, EEProm data protection on loss of power, empty pipe detection, and self diagnostics. The unit has three internal programming keys is available with an optional two-line (16 character per line) backlit display.

#### **Features**

- Three external membrane programming keys
- IP67 rating
- LCD display, 8 lines, 16 characters, backlit
- · Two digital outputs
- · Four internal totalizers
- For use with all HMS sensors
- Data logging
- · Panel mount configuration available

#### Accuracy

Capable of  $\pm 0.2\%$  for liquid velocity > 4 ft/sec

#### Repeatability

Capable of 0.01% or better



#### **HML200**

The HML200 Converter is for use with all HMS series flow sensors that require a stainless steel housing. The converter is a programmable, microprocessor-driven unit providing automatic zeroing, EEProm data protection on loss of power, empty pipe detection, and self diagnostics. The display matrix is 128 x 64, 8-line (16 characters per line) with three external membrane programming keys

### **Electronics**

#### **Features**

- Three external membrane programming keys
- IP67 rating
- LCD display, 8 lines, 16 characters, backlit
- Two digital outputs
- · Four internal totalizers
- For use with all HMS sensors
- Data logging
- Panel mount configuration available

#### Accuracy

Capable of  $\pm 0.2\%$  for liquid velocity > 4 ft/sec

#### Repeatability

Capable of 0.01% or better



### **HML210**

The HML210 Converter is for use with all HMS series flow sensors. The converter is a programmable, microprocessor-driven unit providing automatic zeroing, EEProm data protection on loss of power, empty pipe detection, and self diagnostics. The display matrix is 128 x 64, 8-line (16 characters per line) with three external membrane programming keys

#### **Features**

- Programmable with the HMT200
- IP67 rating
- Sampling rate up to 400 Hz
- · One digital output
- Two internal totalizers
- For use with HMS501 and HMS2410

#### Accuracy

Capable of  $\pm 0.2\%$  of for liquid velocity > 4 ft/sec

#### Repeatability

Capable of 0.01% or better



### HML3-F1

The HML3-F1 is a fast sampling, frequency converter (up to 400 samples per second) for use with HMS501 and HMS2410 flow sensors. The converter is a microprocessor driven unit providing automatic zeroing, EEProm data protection on loss of power, empty pipe detection, and self diagnostics.

### **Programming Option**

#### Features

- Three external membrane programming keys
- Two line display
- 6.5 ft cable with male plug



#### **HMT200**

The HMT200 is a hand-held programmer used for programming LCMags that are furnished with an HM3-F1 or HML210 blind converter. This device is used for programming the setup parameters of the LCMag and for viewing certain flow values, such as total flow and rate of flow.

# **Technical Data - Sensors**

Specifications		Mo	del					
Specifications	HMS501	HMS1000	HMS2410	HMS2500				
Size	1/8" to 3/4"	1" to 16"	1" to 4"	1" to 72"				
Flow Range	0.1 to 1.0 GPM through 5.5 to 55 GPM	8 to 80 GPM through 2,800 to 28,000 GPM	8 to 80 GPM through 200 to 2,000 GPM	8 to 80 GPM through 40,000 to 400,000 GPM				
Connections	Threaded Sanitary ANSI	Wafer style	Sanitary clamp	150# or 300# ANSI Flanges AWWA Class D 8" to 40"				
Nominal Pressure	225 PSI (16 BAR)	225 PSI (16 BAR) for polypropylene liner 575 PSI (40 BAR) for PTFE (Teflon) liner	350 PSI (25 BAR) for 1" to 11/2" 225 PSI (16 BAR) for 2" to 4"	225 PSI (16 BAR)				
Body Material	304 stainless steel, polished	Carbon steel 304 or 316 stainless steel optional	304 stainless steel, polished	Carbon steel 304 or 316 stainless steel optional				
Liner	PTFE (Teflon)	PTFE (Teflon), Ebonite, or Polypropylene depending on size	PTFE (Teflon)	PTFE (Teflon), Ebonite, or Polypropylene depending on size				
Liquid Temperature	Nominal 212°F (100°C) 300°F (150°C) with remote converter option B	140°F (60°C) with polypropylene liner  300°F (150°C) with PTFE (Teflon) liner with remote converter option B  175°F (80°C) with ebonite liner	Nominal 212°F (100°C) 300°F (150°C) with remote converter option B	140°F (60°C) with polypropylene liner  300°F (150°C) with PTFE (Teflon) liner with remote converter option B  175°F (80°C) with ebonite liner				
Electrode Material	316 Stainless steel, Hastel	loy C, Titanium, Tantalum, or	Platinum (only 316 Stainless	s Steel for HMS2410)				
Protection Rating	IP67/68 with integral convo Complete submersion up to	erter o 5 feet (IP68) with remote c	converter option B.					
Minimum Liquid Conductivity	5μS/cm							

# **Technical Data - Sensors**

Specifications	Model	HMS3700	(Hot Tap)	нмя	S3770			
Specifications	Model Option	Pipe Diameter Sensor Length <sup>1</sup>		Pipe Diameter	Sensor Length			
For Insertion Into Existing Piping			19"	3" to 20"	7"			
	2	3" to 40"	24.5"	3" to 40"	9.5"			
	3	3" to 80"	34.5"	3" to 80"	18"			
Connections		1" Threaded Optional ball valve ava	ailable	1" Threaded				
Nominal Pressure		225 PSI (16 BAR)						
Body Material		304 Stainless steel						
Liner		PTFE (Teflon)						
Liquid Temperature		Nominal 212°F (100°C) 300°F (150°C) with remote converter option B						
Electrode Material		316 Stainless steel						
Protection Rating		IP67/68 with integral converter Complete submersion up to 5 feet (IP68) with remote converter option B.						
Minimum Liquid Condu	ctivity	5μS/cm						

 $<sup>^{\</sup>mbox{\tiny 1}}\mbox{Sensor}$  length varies due to the required insertion depth of  $^{\mbox{\tiny 1}}\mbox{\mbox{\tiny 8}}$  pipe diameter.

# **Technical Data - Sensors**

Meter Mo	del and	HMS501	HMS1000	HMS2410	HMS2500	HMS3700	HMS3770
Style		Micro-Flow	Wafer Style	Sanitary	Flange Style	Insertion (1, 2, or 3)	Insertion (1, 2, or 3)
Meter Size (Inches)	Flow Range <sup>1</sup> (GPM)						
1/8	0.1 to 1.0	•					
1/4	0.4 to 4.0	•					
3/4	1.3 to 13.0	•					
1/2	2.6 to 26.0	•					
3/4	5.5 to 55	•					
1	8.0 to 80.0		•	•	•		
1 <sup>1</sup> / <sub>4</sub>	13 to 130		•	•	•		
1 <sup>1</sup> / <sub>2</sub>	20 to 200		•	•	•		
2	32 to 320		•	•	•		
21/2	53 to 530		•	•	•		
3	80 to 800		•	•	•		
4	120 to 1,200		•	•	•	•	•
5	200 to 2,000		•		•	•	•
6	280 to 2,800		•		•	•	•
8	500 to 5,000		•		•	•	•
10	780 to 7,800		•		•	•	•
12	1,110 to 11,100		•		•	•	•
14	1,500 to 15,000		•		•	•	•
16	2,000 to 20,000		•		•	•	•
18	2,500 to 25,000				•	•	•
20	3,100 to 31,000				•	•	•
24	4,500 to 45,000				•	•	•
26	5,200 to 52,000				•	•	•
28	6,200 to 62,000				•	•	•
30	7,000 to 70,000				•	•	•
32	7,900 to 79,000				•	•	•
34	9,000 to 90,000				•	•	•
36	10,000 to 100,000				•	•	•
40	12,500 to 125,000				•	•	•
48	17,600 to 176,000				•	•	•
56	24,200 to 242,000				•	•	•
64	31,700 to 317,000				•	•	•
72	40,000 to 400,000				•	•	•

<sup>&</sup>lt;sup>1</sup>Flow range in GPM. To obtain L/min, multiply GPM by 3.78.

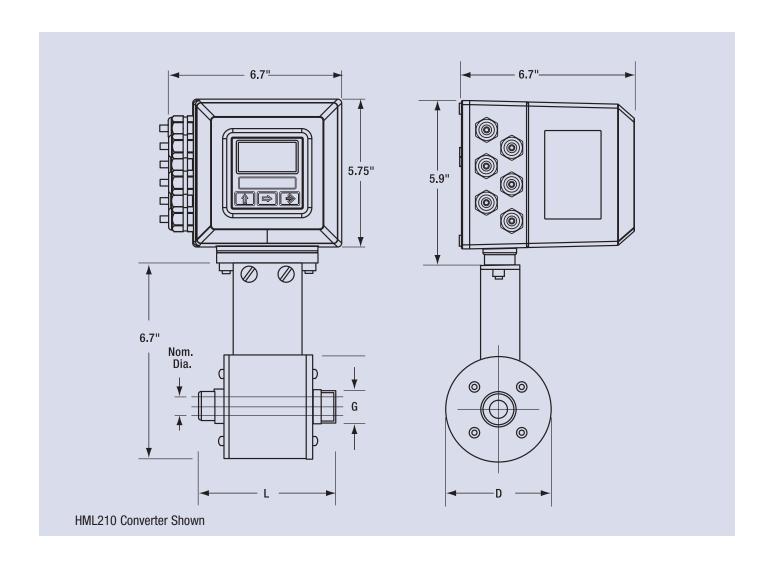
# **Technical Data - Converters**

<b>Converter Model</b>	HML110	HML200	HML210	HML3-F1	
Housing Material	Nylon with glass fiber	304 stainless steel	Aluminum	304 stainless steel	
<b>Protection Rating</b>	IP65	IP67	IP67	IP67	
Panel Mount	N/A	Available	Available	N/A	
Temperature Rating	32° to 122°F	-4° to 140°F	-4° to 140°F	-4° to 140°F	
Display	Optional 16 character 2 line	Standard 16 character 8 line	Optional 16 character 8 line	None	
Backlit	No	Yes	Yes	N/A	
Keyboard	3 internal keys	3 membrane keys	3 membrane keys	N/A	
Pulse/Frequency Output	1,250 Hz max	100mA, 40VDC 1,250-12,500 Hz	100mA, 40VDC 1,250Hz	100mA, 40VDC 1,250Hz 12,500Hz optional	
Current Output 0/4-20mA	Optional	Standard	Optional	Optional	
Alarm Output	Programmable	Programmable	Programmable	ON-OFF output	
Digital Input		Programmable	Programmable	Programmable	
<b>Bi-Directional Flow</b>	Yes	Yes	Yes	Yes	
Dual Range	No	Yes	Yes	No	
<b>Empty Pipe Detection</b>	Yes	Yes	Yes	Yes	
Data Storage	No	32 values	32 values 64 alarm events	No	
Programming Input	PC hand held terminal	PC hand held terminal	PC hand held terminal	PC hand held terminal	
<b>Batch Function</b>	No	Yes	Yes	Yes, with auto preset	
Serial Input	No	RS485, RS232	RS485, RS232	No	
Accuracy	±0.8% (±0.4% Optional)	±0.2%	±0.2%	±0.2%	
Repeatability	0.2%	0.01%	0.01%	0.01%	
Power Supply	90-265VAC@45-66Hz 10-63VDC 15-45VAC@45-66Hz	90-265VAC@45-66Hz 10-63VDC 15-45VAC@45-66Hz	90-265VAC@45-66Hz 10-63VDC 15-45VAC@45-66Hz	10-33VDC	
Power Consumption	5VA 4VA (AC) 3W (DC)	25VA 23VA (AC) 21W (DC)	25VA 23VA (AC) 21W (DC)	10W max 5W typical	
Sensor Compatibility	HMS501 HMS1000 HMS2410 HMS2500 up to 40" HMS3700 HMS3770	HMS501 HMS1000 HMS2410 HMS2500 HMS3700 HMS3770	HMS501 HMS1000 HMS2410 HMS2500 HMS3700 HMS3770	HMS501 HMS2410	

# **Technical Data - Converters**

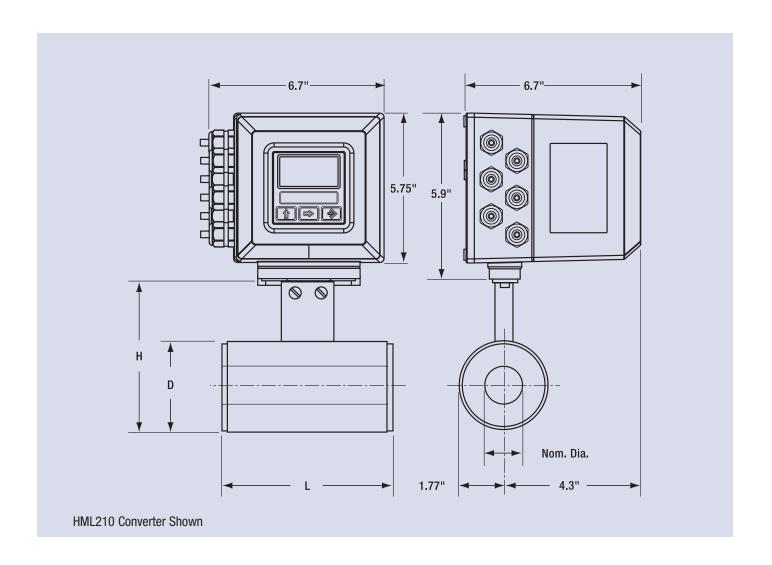
<b>Converter Model</b>	HML110	HML200	HML210	HML3-F1
Mounting Style	Meter Mount Wall Mount	Meter Mount Wall Mount Panel Mount	Meter Mount Wall Mount Panel Mount	Meter Mount
Optional Additional Output Modules Available	N/A	2 additional ON/OFF programmable outputs  2 additional ON/OFF programmable outputs; 1 at 10 kHz  Additional 0/4-20 mA and 2 additional ON/OFF programmable outputs	2 additional ON/OFF programmable outputs  2 additional ON/OFF programmable outputs; 1 at 10 kHz  Additional O/4-20 mA and 2 additional ON/OFF programmable outputs  RS232 serial interface and 2 additional ON/OFF programmable outputs  RS232 serial interface, additional O/4-20 mA and 2 additional O/4-20 mA and 2 additional ON/OFF programmable outputs  2 relay outputs	High frequency measuring range output; 12,500 kHz 4-20 mA output
		2 relay outputs		
Internal Totalizers	Four 10-digit totalizers	Four 10-digit totalizers	Four 10-digit totalizers	Two 10-digit totalizers

# **Dimensions: HMS501 - Microflow Style**



HMS501 Microflow Style Sensor Dimensions (Inches)									
Nominal Diameter 1/8" 1/4" 3/8" 1/2" 3/8"									
Dimension L	5	5	5	5	6				
D	3	3	3	3	3				
G 1/4 3/8 1/2 3/4 1									
Weight (lbs)	7	7	7	7	7				

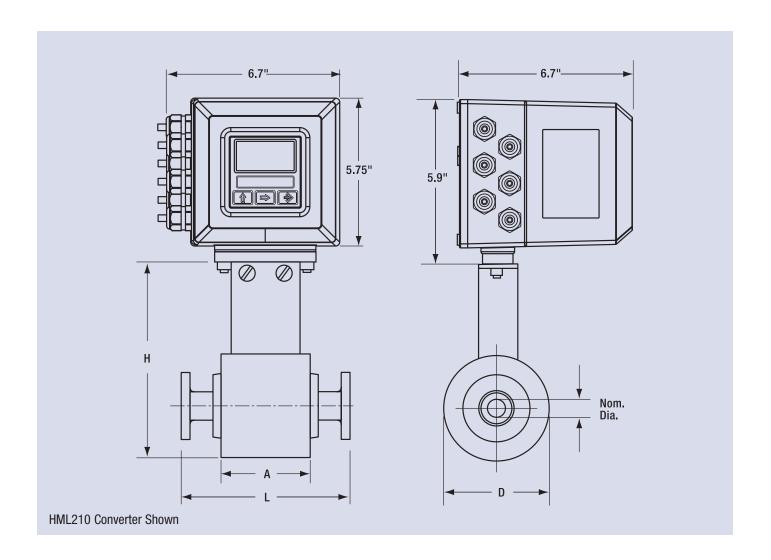
# **Dimensions: HMS1000 - Wafer Style**



HMS1000 Wafer Style Sensor Dimensions (Inches)										
Nominal Diameter 1" 11/4" 11/2" 2" 21/2" 3" 4" 5" 16"										
Dimension L	4	4	4	4	6	6	6	7	7	
Н	11.4	12.1	12.5	13.1	13.9	14.4	15.6	16.7	17.6	
D	2.2	2.4	2.8	3.4	4.3	4.6	5.7	6.8	7.9	
Weight (lbs)	2.6	3.5	4	4.4	7.9	8.4	11	17.2	18.1	

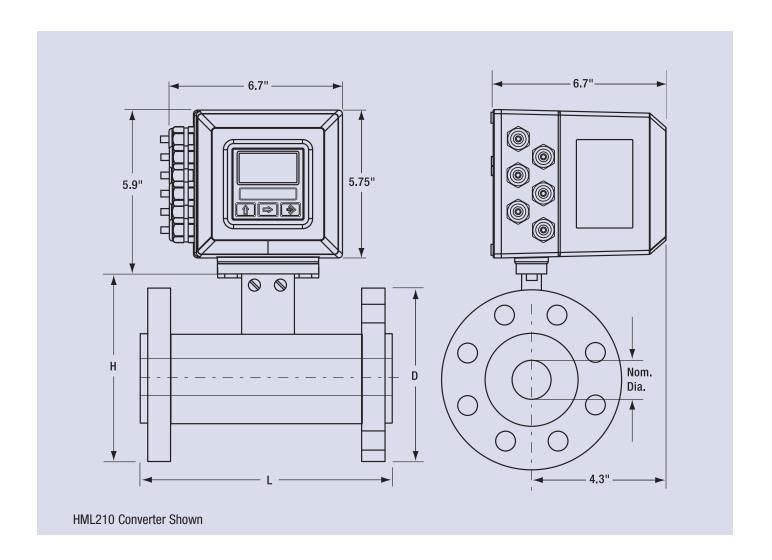
<sup>&</sup>lt;sup>1</sup>For models larger than 6" (up to 16") contact the factory.

# **Dimensions: HMS2410 - Sanitary Style**



HMS2410 Sanitary Style Sensor Dimensions (Inches)									
Nominal Di	ameter	1"	1 <sup>1</sup> /4"	1 <sup>1</sup> /2"	2"	2 <sup>1</sup> /2"	3"	4"	
Dimension	Α	4	4	4	4	4	7	4	
	L	7	7	7	7	7	7.9	7.9	
	Н	6.7	7.2	7.2	8.2	9.2	9.2	10.2	
	D	3	3.5	3.5	4.5	5.5	5.5	6.5	
Weight (lbs)		3.9	4.4	4.8	9.7	9.2	13.9	18.7	

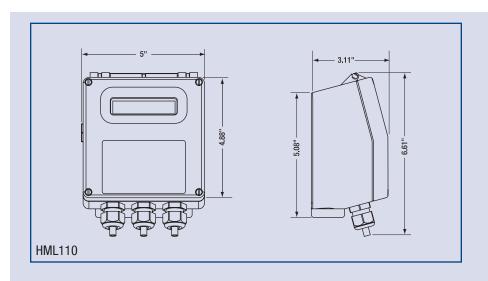
# **Dimensions: HMS2500 - Flange Style**

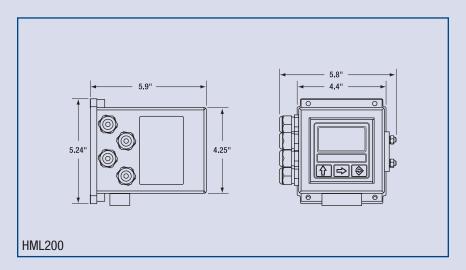


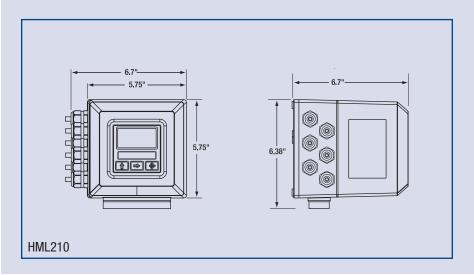
	HMS2500 Flange Style Sensor Dimensions (Inches)																
Nominal Diameter 1" 11/4" 11/2" 2" 21/2" 3" 4" 5" 6" 8" 10" 12" 14" 16" 18" 20" 24"										24"							
Dimension L	7.9	7.9	7.9	7.9	7.9	7.9	9.8	9.8	11.8	13.8	17.7	19.7	21.7	23.6	23.6	23.6	23.6
Н	7.3	8	8.4	9	9.8	10.4	11.1	12.3	13.5	15.7	18.1	20.3	22.6	24.8	27.2	29.8	34.6
D	4.5	5.5	5.9	6.5	7.3	7.9	8.7	9.8	11.2	13.4	15.9	18.1	20.5	22.8	25.2	28.1	33.1
Weight (lbs)	20	26.5	30.9	33	35.3	50.7	57.3	88.2	94.8	154	221	331	441	551	604	706	902

<sup>&</sup>lt;sup>1</sup>For models larger than 24" (up to 72") contact the factory.

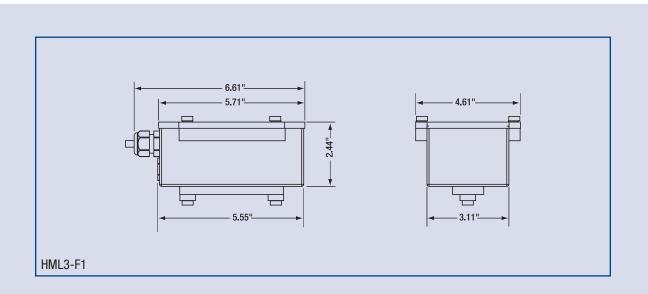
# **Dimensions: HML110 & HML200, and HML210**

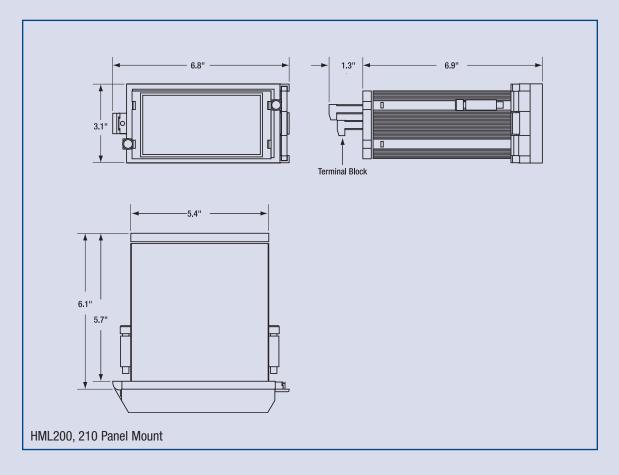






## **Dimensions: HML3-F1 and Panel Mount HML200 and HML210**





# **LCMag Ordering Worksheet**

				Date:
<b>Distributor Information</b>				
Distributor Name/Contact Person:				
<b>Customer Information</b>				
Customer Name:				
Customer Address:				
Contact Name/Telephone:				
Application Data				
Meter to be used for:				
Rate of Flow Indication:			Product (proce	ess fluid):
Totalization:			Conductivity o	of Product (5µS/cm minimum):
Batching:			Suspended So	olids in Product?
Process Control:			Abrasive Fluid	l?
Other:				
Rate of Flow (GPM):	Min.		Max	Normal:
Rate of Flow (L/min):				
System Pressure Range (PSI):				
System Temperature Range (°F)				
Process Fittings (flanged, wafer, tl	hreaded, or	sanitary):		
Pulse Output per Unit:				
(pulses per unit must not exceed 1.25	5KHz at max	flow or 10KHz with C	onverter Option "D", High	Frequency Output)
Desired Display (if specified on co	onverter)	Totalizer Units:		Rate of Flow Units:
		(full gal., 1/10 (	gal, etc.)	(full GPM, 1/10 GPM, etc.)
Analog Output Range:		0-20 mA or 4-2	20 mA	
		0 or 4mA: min.	scale	GPM
		20mA: full scal	e	_ GPM
Supply Voltage:				
Converter Location:		Integral:		Remote:
Length of Cable Required:	ft			



### A tradition of excellence that benefits you

Almost fifty years ago, Liquid Controls set a new standard of excellence in engineering and building the finest flow meter products possible, starting with metering aviation fuel for the United States Air Force.

Since that time, the industry base we serve has grown, broadened. Our product line has expanded to include a wide variety of flow meters, accessories and related items distributed worldwide. But our commitment to excellence will never change. The professionals at Liquid Controls are driven to bring you products that perform efficiently and accurately, with minimum maintenance for years to come. Delivering everything you'd expect from the very best—that's our goal.

### A good fit

In 2001, Liquid Controls joined the IDEX team of companies. IDEX is a leader in the manufacture of a broad range of pump products, dispensing equipment and other engineered technologies. Maintaining a theme of leadership, IDEX delivers Innovation, Diversity and EXcellence to thousands of valued customers around the world.



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