

# Masterflex® Ultrasonic Flow Sensors



Compact aluminum sensor body clamps around the tubing

## Ensure accurate flow rates without affecting working fluid

- Noninvasive design eliminates contact with working fluid—ideal for applications with strict hygienic standards
- Provides accurate readings not affected by fluid color, tube color, or electromagnetic properties of liquids
- Integrated electronics—no external electronic board is needed
- Continuously monitor peristaltic pump flow rates and send data directly to your computer with optional communications package
- Ready to use out of the box—calibrated for use with Masterflex L/S® and I/P® platinum-cured silicone tubing
- Easily adapt settings for your application using optional communications package

Masterflex ultrasonic flow sensors accurately and noninvasively measure the flow rate of liquid in tubing used with peristaltic pumps. Since the sensor never contacts the working fluid, it is reusable in single-use applications providing significant recurring savings. The clamp-on sensor design makes setup easy—simply place the tubing in the sensor channel and close the clamp lid.

Each sensor is optimized for Masterflex tubing sizes, and comes calibrated to national measurement standards for Masterflex platinum-cured silicone tubing when water is the working fluid and across the full flow range. Adapt for use with other working fluids or Masterflex tubing materials of the same size with the optional communications package. For best accuracy, the sensor should be calibrated for the specific working fluid.

## Specifications

- Accuracy:** ±2 to 4% after using calibration software
- Repeatability:** ±2 to 4% after using calibration software
- Output:** RS-485, 4 to 20 mA, 0 to 20 kHz, or PNP-NPN
- Sensor housing material:** aluminum
- Max operating temperature:** 140°F (60°C)
- Enclosure rating:** IP65



**What's included:** flow sensor, cable, and calibration report.

For Masterflex tubing size	Maximum flow rate*		Minimum flow rate		Dimensions (L x W x H)	Catalog number
	GPH	mL/min	GPH	mL/min		
<b>Engineered for L/S Precision tubing</b>						
13	0.57	36	0.48	30	1.73" x 1.73" x 1.10" (44 x 44 x 28 mm)	<a href="#">MK-33501-13</a>
14	2.06	130	0.48	30	1.73" x 1.73" x 1.18" (44 x 44 x 30 mm)	<a href="#">MK-33501-14</a>
16	7.61	480	0.48	30	1.73" x 1.73" x 1.26" (44 x 44 x 32 mm)	<a href="#">MK-33501-16</a>
25	15.85	1000	0.48	30	1.73" x 1.73" x 1.42" (44 x 44 x 36 mm)	<a href="#">MK-33501-25</a>
17	26.95	1700	0.48	30	1.73" x 1.73" x 1.34" (44 x 44 x 34 mm)	<a href="#">MK-33501-17</a>
18	36.46	2300	0.48	30	1.73" x 1.73" x 1.38" (44 x 44 x 35 mm)	<a href="#">MK-33501-18</a>
<b>Engineered for L/S High-Performance Precision tubing</b>						
15	14.4	1100	0.48	30	1.73" x 1.73" x 1.34" (44 x 44 x 34 mm)	<a href="#">MK-33501-15</a>
24	28.53	1800	0.48	30	1.73" x 1.73" x 1.38" (44 x 44 x 35 mm)	<a href="#">MK-33501-24</a>
35	41.21	2600	0.48	30	1.73" x 1.73" x 1.42" (44 x 44 x 36 mm)	<a href="#">MK-33501-35</a>
36	53.89	3400	0.48	30	1.73" x 1.73" x 1.42" (44 x 44 x 36 mm)	<a href="#">MK-33501-36</a>
<b>Engineered for I/P Precision tubing</b>						
26	63.4	4000	0.48	30	1.73" x 1.73" x 1.42" (44 x 44 x 36 mm)	<a href="#">MK-33501-26</a>
73	126.8	8000	0.48	30	1.73" x 1.73" x 1.50" (44 x 44 x 38 mm)	<a href="#">MK-33501-73</a>

\*Higher flow rates can be measured; the stated maximum flow rate is that of the tubing.

## Masterflex Flow Sensor Communications Package

- Calibrate flow sensors to your requirements
- Get direct access to settings and fine-tune parameters

The optional communications package lets you adapt the flow sensor for your application, then monitor and record data. Adjust sensor parameters including tubing material, working fluid and temperature to calibrate for your application. Then monitor your data in real-time graphically, or capture and export to analyze your process. Connect sensors directly to a computer or to any meter or controller that accepts RS-485, 4 to 20 mA, 0 to 20 kHz, or PNP-NPN push-pull inputs.



**MK-33501-96 Communications package** for Masterflex ultrasonic flow sensors. Includes software for data capture and calibration on USB drive and connector cable.

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**Cole-Parmer®**

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