



MASTERFLEX[®]



Masterflex[®] Flow Controller

No more manually adjusting pump speed as your tubing ages

1-800-637-3739

Masterflex.com

Masterflex® Flow Controller

- Regulates pump speed to maintain accurate flow rates
- Easily set parameters with the intuitive touch-screen interface
- Works with 33501-series Masterflex ultrasonic flow sensors and most Masterflex pumps*
- Data storage via micro SD interface
- Compact footprint—only weighs two pounds

Using proprietary technology, the Masterflex flow controller measures, controls, and logs fluid path information. Controller receives input from a flow sensor and then responds by adjusting the speed of your Masterflex pump to maintain a set flow rate or dispense volume.



The controller is easy to use. On the 4.3" color touch screen, simply select the size of the ultrasonic flow sensor connected to the controller, then choose either continuous flow or volume dispense mode. Continuous flow: Controller will vary the output of the pump to automatically maintain the desired flow rate set point. Dispense flow: Controller will run the pump at a selected flow rate until a selected volume set point has been pumped, and then stop the pump operation. Trigger repeat dispensing through an optional foot switch (sold separately) or by tapping the start icon.

Log date-and-time stamped entries of flow rate, flow set point, pump speed, and total flow onto a 32GB microSD card installed in the controller. Log file is in CSV format for easy import into programs such as Microsoft® Excel® for further data analysis and plotting.

*Special adapter is available to support Masterflex process drives.

What's included: USB microSD card reader, preprogrammed 32 GB SD memory card, RJ45 cable (6 ft), DB9 adapter, DB25 adapter, and 24 VDC power supply.

Description	Masterflex flow controller
Catalog number	MK-33502-01
Modes	Continuous flow and volume dispense
Outputs	DB25 or DB9
Data logging	Via micro SD card, 32GB
Dimensions (W x H x D)	6¼" x 3⅜" x 5½" (17.1 x 8.4 x 13.9 cm)
Power	90 to 200 VAC, 50/60 Hz



Masterflex® Ultrasonic Flow Sensors

- 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 electronics or transmitter is needed
- Continuously monitor peristaltic pump flow rates and send data directly to your computer with optional communications package or automatically control pump speed and fluid flow with the 33502-01 flow controller



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.

Ready to use out of the box—calibrated for use with Masterflex platinum-cured silicone tubing

Each sensor comes calibrated to national measurement standards for the appropriately sized Masterflex platinum-cured silicone tubing (order on next page) 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 (sold separately below). For best accuracy, the sensor should be calibrated for the specific working fluid.



Cable connector

Lid clasp

Specifications

- Accuracy: ± 2 after using calibration software
- Repeatability: ± 2 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		
Engineered for L/S Precision tubing						
13	0.57	36	0.48	30	1.73" x 1.73" x 1.10" (44 x 44 x 28 mm)	MK-33501-13
14	2.06	130	0.48	30	1.73" x 1.73" x 1.18" (44 x 44 x 30 mm)	MK-33501-14
16	7.61	480	0.48	30	1.73" x 1.73" x 1.26" (44 x 44 x 32 mm)	MK-33501-16
25	15.85	1000	0.48	30	1.73" x 1.73" x 1.42" (44 x 44 x 36 mm)	MK-33501-25
17	26.95	1700	0.48	30	1.73" x 1.73" x 1.34" (44 x 44 x 34 mm)	MK-33501-17
18	36.46	2300	0.48	30	1.73" x 1.73" x 1.38" (44 x 44 x 35 mm)	MK-33501-18
Engineered for L/S High-Performance Precision tubing						
15	14.4	1100	0.48	30	1.73" x 1.73" x 1.34" (44 x 44 x 34 mm)	MK-33501-15
24	28.53	1800	0.48	30	1.73" x 1.73" x 1.38" (44 x 44 x 35 mm)	MK-33501-24
35	41.21	2600	0.48	30	1.73" x 1.73" x 1.42" (44 x 44 x 36 mm)	MK-33501-35
36	53.89	3400	0.48	30	1.73" x 1.73" x 1.42" (44 x 44 x 36 mm)	MK-33501-36
Engineered for I/P Precision tubing						
26	63.4	4000	0.48	30	1.73" x 1.73" x 1.42" (44 x 44 x 36 mm)	MK-33501-26
73	126.8	8000	0.48	30	1.73" x 1.73" x 1.50" (44 x 44 x 38 mm)	MK-33501-73
82	285	18000	0.48	30	2.6" x 2.6" x 1.89" (66 x 66 x 48 mm)	MK-33501-82
Engineered for B/T Precision tubing						
91	2222	140000	0.48	30	2.6" x 2.95" x 2.83" (66 x 75 x 72 mm)	MK-33501-91




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

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

Masterflex® Pump Systems

- Transfer, dispense, and meter in lab, process and washdown environments
- Graphical LCD shows six different parameters: motor rpm, flow rate, dispense volume, cumulative volume, dispense interval time, and copy number.
- Brushless, maintenance-free motor with $\pm 0.1\%$ speed control accuracy and a 6000 to 1 turndown ratio
- Dispense by: volume—volume, copy, or time with programmable delay interval.



System	Flow range (mL/min)	What's included			Power (50/60 Hz)	Catalog number
		Pump head	Tubing	Drive		
L/S cloud-enabled digital pump systems						
	0.08 to 480	Easy-Load II 77200-30	C-Flex® ULTRA L/S 16 tubing 06434-16, 10 ft (3 m)	Digital console drive 07551-50 0.1 to 600 rpm	90 to 260 VAC	MK-77924-75
	0.28 to 1700	Easy-Load II 77200-32	C-Flex ULTRA L/S 24 tubing 06434-24, 10 ft (3 m)			MK-77924-77
L/S cloud-enabled digital process pump systems with 316 stainless steel housing						
	0.08 to 480	Easy-Load II 77200-30	C-Flex ULTRA L/S 16 tubing 06434-16, 10 ft (3 m)	Digital process drive 07575-70 0.1 to 600 rpm	90 to 260 VAC	MK-77975-80
	0.28 to 1700	Easy-Load II 77200-32	C-Flex ULTRA L/S 24 tubing 06434-24, 10 ft (3 m)			MK-77975-82
I/P cloud-enabled digital process pump system with 316 stainless steel housing						
	1 to 8000	Easy-Load 77602-30	C-Flex ULTRA I/P 73 tubing 06434-73 10 ft (3 m)	Digital process drive 77420-50 0.1 to 650 rpm	90 to 260 VAC	MK-77964-60

Note: If using these pump systems with the ultrasonic flow sensors, you will need to first calibrate with the C-Flex tubing using the 33501-96 communications package.

Masterflex® Pump Tubing, Platinum-Cured Silicone

- Low protein binding, fungus resistant, phthalate and latex-free
- Accommodates a wide temperature range
- USP Class VI, EP, FDA, REACH, RoHS, ADCF
- Masterflex ultrasonic flow sensors come calibrated to this specific formulation of tubing

Tubing size	Flow range	Qty/pk	Catalog number
L/S® Precision pump tubing			
L/S 13	0.06 to 36 mL/min	25 ft (7.6 m)	MK-96410-13
L/S 14	0.21 to 130 mL/min		MK-96410-14
L/S 16	0.8 to 480 mL/min		MK-96410-16
L/S 25	1.7 to 1000 mL/min		MK-96410-25
L/S 17	2.8 to 1700 mL/min		MK-96410-17
L/S 18	3.8 to 2300 mL/min		MK-96410-18
L/S® High-Performance Precision pump tubing†			
L/S 15	1.7 to 1000 mL/min (1.8 to 1100 mL/min)	25 ft (7.6 m)	MK-96410-15
L/S 24	2.8 to 1700 mL/min (3.0 to 1800 mL/min)		MK-96410-24
L/S 35	3.8 to 2300 mL/min (4.3 to 2600 mL/min)		MK-96410-35
L/S 36	4.8 to 2900 mL/min (5.8 to 3400 mL/min)		MK-96410-36
I/P® Precision pump tubing			
I/P 26	0.01 to 4 L/min	25 ft (7.6 m)	MK-96410-26
I/P 73	0.01 to 8 L/min		MK-96410-73
I/P 82	0.02 to 13 L/min		MK-96410-82
B/T® PerfectPosition® pump tubing			
B/T 91	1.4 to 42 L/min	10 ft (3 m)	MK-96510-91

†Flow rates in parentheses can only be obtained using the High-Performance pump head.

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