

Harvard Apparatus Peristaltic Pumps



Remote Design • Programmable • Interchangeable Pump Drives

HARVARD APPARATUS PERISTALTIC PUMP



The Harvard Apparatus Peristaltic Pump series offers unparalleled accuracy, reproducibility, and ease of use over a broad range of flow rates. Consisting of a control unit and a choice of motor drives, the pump can deliver solutions over a range of flow rates from 0.001 to 1,500 ml/min depending on the motor drive used.

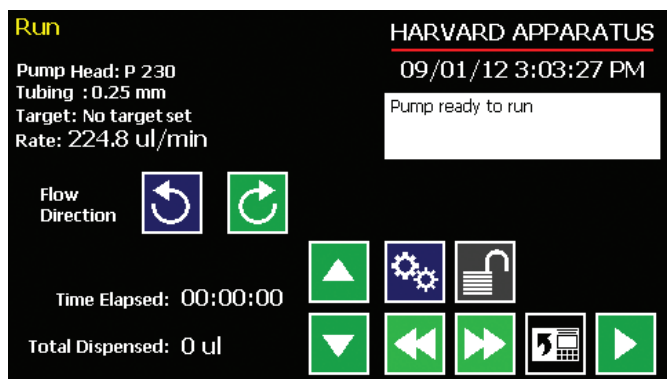
Three interchangeable motor drive modules provide flow over the following ranges:

- P-70, From 0.001 to 70 ml/min
- P-230, From 0.001 to 230 ml/min
- P-1500, From 0.001 to 1,500 ml/min

Unique Benefits

The Harvard Apparatus Peristaltic Pump series offers many benefits not available in other designs including:

- The ability to separate the motor drive from the controller to facilitate use, and save space in incubators and fume hoods.
- A library of various tubing sizes is stored in the pump's memory to allow the user to minimize set up time. The pump also accommodates manual entry for entering tubing sizes not contained in the library.
- A full range of interchangeable motor drives to allow for economical ease of use over a broad flow rate range.



Run Screen



Tubing Selection Screen

METHODS AND CALIBRATION

Programmable Functions

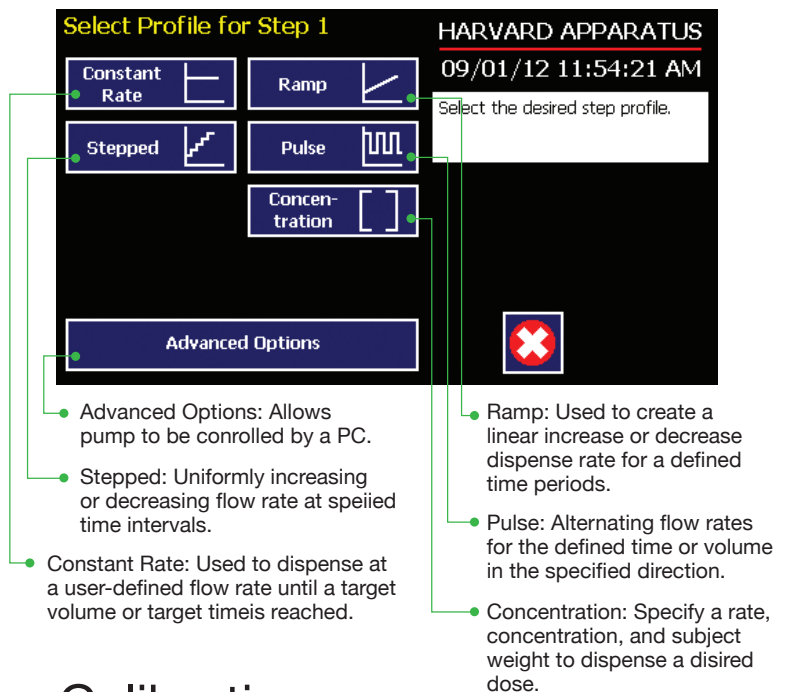
A complete range of programmable functions allows the pump to be easily adapted to a wide range of dispensing applications

These include:

- Constant Flow
- Flow Ramps
- Pulsatile Flow
- Concentration

The pump can be controlled from a PC via its USB port. The Advanced Options menu also provides additional functionality such as:

- Remote initiated start/stop
- Delayed start time
- Communication with external devices through 15 pin I/O connector



Quick Start Menu

Allows for fast setup and ease of use as well as access to other functions.



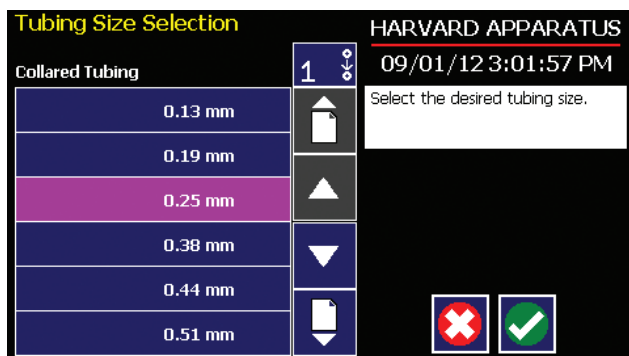
Quick Start Screen



Calibration Screen

Tuning Library

Pre-stored tubing sizes allow for rapid setup. The Harvard Peristaltic Pump also accommodates user defined tubing sizes.



Tubing Size Selection Screen

Alphanumeric Keypad

Alphanumeric keypad makes it easy to name new Methods and recall stored Methods.



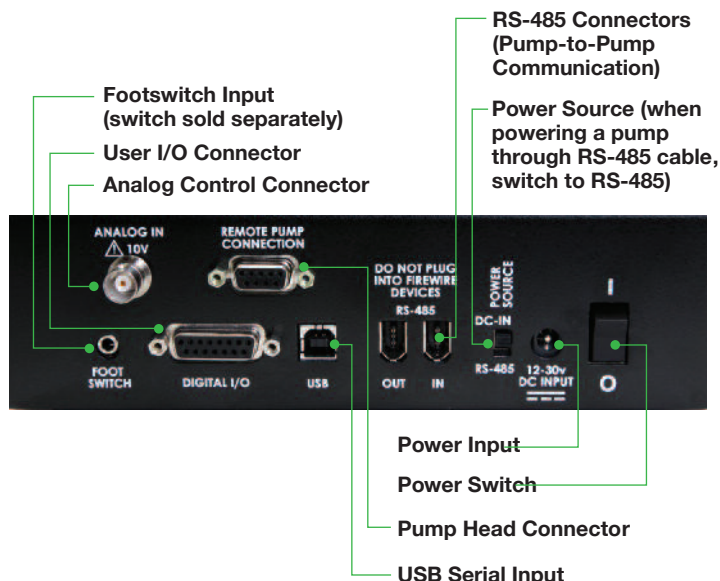
CONNECTIVITY

Advanced Connectivity

With analog inputs, RS-485 USB, foot switch and digital I/O, the Harvard Peristaltic Pump is ideally suited to interface with external devices. The system can send or receive start/stop commands, be networked via RS-485, or be controlled externally.

Other Capabilities Include:

- Single Channel or “Gang” mode (combined channel) for setting flow rate.
- Timed Dispense: Dispenses for a fixed time at a set flow rate.
- Volume Dispense: Dispenses a fixed volume on start. May be started remotely with external signal such as foot pedal.



SPECIFICATIONS & ORDERING INFORMATION

Harvard Peristaltic Pump: Control Box and Pump Motor Drive			
SPECIFICATIONS	PUMP WITH P-70 MOTOR DRIVE: Includes: control unit, pump head, cartridges/cassettes, and 3-Stop PVC tubing, 1.52 mm ID (pkg. of 2)	PUMP WITH P-230 MOTOR DRIVE: Includes: control unit, pump head, cartridges/cassettes, and 2-Stop Tygon® R-3607 tubing, 1.52 mm ID (pkg. of 2)	PUMP WITH P-1500 MOTOR DRIVE: Includes: control unit, pump head, cartridge/cassette, and Standard Tygon® R-3603 tubing, 4.8 mm ID (7 feet)
Tape	8 rollers, 5 channels	8 rollers, 4 channels	8 rollers, 1 channel
Accuracy	±1.0%	±1.0%	±1.0%
TTL Connector	15-pin D-sub	15-pin D-sub	15-pin D-sub
Computer Interface	USB Type B	USB Type B	USB Type B
Pump-to-Pump	IEEE 1394	IEEE 1394	IEEE 1394
Back pressure	15 psi	15 psi	15 psi
Tubing ID	0.13 to 2.79 mm (0.005 to 0.11 in)	0.13 to 3.17 mm (0.005 to 0.13 in)	0.8 to 8 mm (0.03 to 0.31 in)
Flow Rate Range	0.001 to 70 ml/min	0.001 to 230 ml/min	0.001 to 1,500 ml/min
Dimensions: Control Box	20.7 x 13 x 9.6 cm (8.13 x 5.13 x 3.75 in)	20.7 x 13 x 9.6 cm (8.13 x 5.13 x 3.75 in)	20.7 x 13 x 9.6 cm (8.13 x 5.13 x 3.75 in)
Dimensions: Pump Head	11.5 x 25.4 x 11.8 cm (4.5 x 10 x 4.63 in)	16 x 23.6 x 11.8 cm (6.3 x 9.3 x 4.63 in)	11.5 x 24.1 x 11.8 cm (4.5 x 9.5 x 4.63 in)
Weight	4.7 kg (10.5 lbs)	5 kg (11 lbs)	5 kg (11 lbs)
Pump Voltage	30 VDC, 1.67 A	30 VDC, 1.67 A	30 VDC, 1.67 A
Power Supply	100-250 VAC, 50/60 Hz	100-250 VAC, 50/60 Hz	100-250 VAC, 50/60 Hz
For Compatible Tubing	See reverse side of page.	See reverse side of page.	See reverse side of page.
ORDER #	70-7000	70-7001	70-7002

Replacement Parts	
ORDER #	PRODUCT
Accuracy	±1.0%
TTL Connector	15-pin D-sub
Computer Interface	USB Type B
Pump-to-Pump	IEEE 1394
Back pressure	15 psi
Tubing ID	0.13 to 2.79 mm (0.005 to 0.11 in)



Our technical support specialists are available to answer questions and assist you with product selection.

Tel: +1 508.893.8999
Toll Free: +1 800.272.2775
Techsupport@harvardapparatus.com
www.harvardapparatus.com

TUBING SETS

3-Stop Collared Tubing for P-70 Pump Head

				Silicone	Marprene	PVC
Tube Bore mm (in)	Color Code	Max Flow Rate (ml/min)	Connector Gauge/ Barb Size	Order #	Order #	Order #
0.13 mm (0.005 in)	Orange/Black	.152	32 g	–	–	72-0653
0.19 mm (0.007 in)	Orange/ Red	.325	31 g	–	–	72-0654
0.25 mm (0.010 in)	Orange/Blue	.562	28 g	–	72-0621	72-0655
0.38 mm (0.015 in)	Orange/Green	1.30	25 g	–	–	72-0656
0.50 mm (0.020 in)	Orange/Yellow	2.25	23 g	–	–	72-0657
0.63 mm (0.025 in)	Orange/White	3.57	22 g	72-0638	–	72-0658
0.76 mm (0.030 in)	Black/Black	5.19	20 g	72-0639	–	72-0659
0.88 mm (0.035 in)	Orange/Orange	6.96	19 g	–	–	72-0660
1.02 mm (0.040 in)	White/White	9.36	18 g	72-0641	–	–
1.14 mm (0.045 in)	Red/Red	11.7	1/16 in	–	–	72-0662
1.29 mm (0.050 in)	Gray/Gray	14.9	1/16 in	–	–	–
1.42 mm (0.055 in)	Yellow/Yellow	18.1	1/16 in	72-0644	–	72-0664
1.52 mm (0.060 in)	Yellow/Blue	20.8	1/16 in	72-0646	72-0631	72-0665
1.65 mm (0.065 in)	Blue/Blue	24.5	1/16 in	72-0647	72-0632	72-0666
1.85 mm (0.070 in)	Green/Green	30.8	3/32 in	72-0648	–	72-0667
2.05 mm (0.080 in)	Purple/Purple	37.8	3/32 in	72-0649	–	72-0668
2.38 mm (0.095 in)	Purple/Black	50.9	3/32 in	72-0650	–	72-0669
2.54 mm (0.100 in)	Purple/Orange	58.0	1/8 in	–	–	–
2.79 mm (0.110 in)	Purple/White	70.0	1/8 in	72-0652	72-0637	72-0671
Package Size				6 pieces	6 pieces	12 pieces



P-70

2-Stop Collared Tubing for P-230 Pump Head

				Tygon® ST R-3607	Tygon® LFL	Tygon® SI Silicone 3350	Ismaprene
ENE #	Tube ID	Color Code	Max Flow Rate (ml/min)	Order #	Order #	Order #	Order #
00	0.13 mm	Orange/Black	.387	73-3174	–	–	–
01	0.19 mm	Orange/ Red	.826	73-1840	–	–	–
02	0.25 mm	Orange/Blue	1.43	73-1841	–	–	–
03	0.38 mm	Orange/Green	3.31	73-1842	–	–	–
04	0.44 mm	Green/Yellow	4.43	–	–	–	–
05	0.51 mm	Orange/Yellow	5.95	73-1844	–	–	72-3194
06	0.57 mm	White/Yellow	7.44	–	–	–	–
07	0.64 mm	Orange/White	9.37	–	73-3234	–	–
08	0.76 mm	Black/Black	13.2	73-1847	–	–	72-3196
09	0.89 mm	Orange/Orange	18.1	73-1848	–	–	72-3197
10	0.95 mm	White/Black	20.7	73-1849	–	–	–
11	1.02 mm	White/White	23.8	73-1850	72-3237	–	–
12	1.09 mm	White/Red	27.2	–	–	–	–
13	1.14 mm	Red/Red	29.7	73-1852	–	–	–
14	1.22 mm	Red/Gray	34.1	–	–	–	–
15	1.30 mm	Gray/Gray	38.7	73-1854	–	–	73-3200
16	1.42 mm	Yellow/Yellow	46.2	73-1855	–	–	–
17	1.52 mm	Yellow/Blue	52.9	73-1856	–	–	73-3202
18	1.65 mm	Blue/Blue	62.3	–	72-3242	–	–
19	1.75 mm	Blue/Green	70.1	–	–	–	–
20	1.85 mm	Green/Green	78.3	73-1859	–	–	–
21	2.06 mm	Purple/Purple	97.1	73-1860	–	–	–
22	2.29 mm	Purple/Black	120.0	73-1861	–	–	–
23	2.54 mm	Purple/Orange	147.7	73-1862	–	–	–
24	2.79 mm	Purple/White	178.2	73-1863	73-3247	–	–
25	3.17 mm	Black/White	230.0	73-1864	–	–	–
Package Size				12 pieces	12 pieces	6 pieces	6 pieces



P-230

Standard Pump Tubing for P-1500 Pump Head

			Tygon® ST R-3607	Tygon® LFL	Tygon® SI Silicone 3350	Ismaprene
Tubing ID	Max Flow (ml/min)	Wall Thickness	Order #	Order #	Order #	Order #
0.8 mm (1/32 in)	15.0	1.6 mm (1/16 in)	–	–	–	72-0958
1.6 mm (1/16 in)	60.0	1.6 mm (1/16 in)	72-1016	–	–	72-0960
3.2 mm (1/8 in)	240	1.6 mm (1/16 in)	72-1020	–	–	72-0963
4 mm (5/32 in)	375	1.6 mm (1/16 in)	72-1022	–	–	–
4.8 mm (3/16 in)	540	1.6 mm (1/16 in)	72-1024	–	–	72-0964
6.4 mm (1/4 in)	960	1.6 mm (1/16 in)	72-1026	72-0986	–	72-0965
8 mm (5/16 in)	1500	1.6 mm (1/16 in)	72-1027	72-0988	–	72-0967
Length Supplied			15 m (49 ft)	7.5 m (24.6 ft)	15 m (49 ft)	7.5 m (24.6 ft)



P-1500

With more than 100 years of success behind us and a proven track record of designing and manufacturing high quality reliable syringe and peristaltic pumps, only Harvard Apparatus has the scientific depth and fluidics knowledge to recommend the right pump and accessories for your application. Our superior technical experts are available to assist you from start to finish. Harvard Apparatus invented the lead screw based syringe pump in the 1950's and introduced the first microprocessor pump, the now legendary Pump 22, in the 1980's. Our syringe pumps are so accurate, that even at low flow rates they have become the standard for mass spectrometry calibration, physiological research and anywhere accurate volumes must be delivered.



Harvard Apparatus
84 October Hill Road
Holliston, MA 01742
USA

Sales:
sales@hbiosci.com
Technical Support:
support@hbiosci.com
Web:
harvardapparatus.com

Americas
Tel: (+1) 508 893 8999

Toll Free (USA ONLY)
Tel (+1) 800 272 2775

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