

I/P® DIGITAL PROCESS DRIVES

FEATURES/BENEFITS

- Flow rates: 0.0006 to 19 LPM (0.0002 to 5.0 GPM) with I/P tubing; achieve up to 26 LPM (7 GPM) with two stacked Easy-Load® or Standard pump heads
- Four-line graphical LCD shows four operating modes: continuous run, volume dispense, time dispense, and copy dispense—interface permits precise setting of desired flow rate or volume without over- or undershoot
- Select one of seven languages for programming and operation
- Set time interval (delay) between dispense cycles for hands-free dispensing
- Antidrip function ensures dispensing accuracy
- Batch count lets you set the desired number of batches and displays number of batches completed
- Cumulative volume function (totalizer) tracks total volume dispensed/pumped
- User-selectable English or metric flow/volume units
- PWM speed control with tachometer feedback for ±0.1% speed control accuracy
- Reversible, maintenance-free brushless motor
- Universal voltage, 90 to 260 VAC autoselect, 50/60 Hz
- Compatible with all I/P pump heads

DRIVE CONTROLS

- Protected power switch located on back of drive
- Lighted display indicates power is on
- Simple programming and operation of the following via sealed membrane keypad:

- | | |
|----------------------------------|----------------------------------|
| ◆ Tubing size | ◆ Batch count |
| ◆ Flow rate | ◆ On/off time |
| ◆ Flow direction | ◆ Antidrip |
| ◆ Flow units (English or metric) | ◆ Control mode (remote/internal) |
| ◆ Motor speed (rpm) | ◆ Prime |
| ◆ Total volume | ◆ Start/stop |
| ◆ Dispense (volume/copy/time) | ◆ Calibration |

SETUP

1. Mount pump head(s) and load tubing.
2. Turn drive power on and select language.
3. Select manual (internal) or remote control.
4. Select motor direction.
5. Prime and calibrate pump if required.
6. Set flow rate through keypad.
7. Press START key to begin pumping.

SPEED CONTROL/ CIRCUITRY

- Regulate motor through keypad and menus, 4 to 20 mA, or 0 to 10 V signal
- Soft start for starts without power surges
- Speed not affected by variations in power line voltage (VAC) and frequency (Hz)
- Line filters reduce outside interference
- Meets UL 61010-1, CSA C22.2, No. 61010-1; For CE mark: EN61010-1 (EU low voltage) and EN61326-1 (EU EMC)

REMOTE CONTROL

- Remote control via 31-pin weather-resistant circular connection on back of drive
- Speed control input: 0 to 20 mA, 4 to 20 mA, and 0 to 10 V (scaleable/invertable)
- Speed signal output: 0 to 20 mA, 4 to 20 mA, and 0 to 10 V (scaleable/invertable)
- START/STOP, CW/CCW, PRIME via contact closure
- Tach output: open collector
- Motor running indicator
- Remote cable and foot switch options; order separately under "Accessories"



I/P digital drive 77420-10 with I/P Easy-Load pump head 77602-10

SELECTION CRITERIA

1. Motor rpm / flow rate.
2. Housing material: 316 stainless steel or powder-coat steel.

Order pump heads and tubing separately.

ISO9001:2008
CERTIFIED SUPPLIER



2 year warranty

ORDERING INFORMATION

Catalog number	rpm	Power (50/60 Hz)
Digital process drive with 316 stainless steel housing		
HL-77420-10	0.1 to 650	90 to 260 VAC
Digital process drive with powder-coat steel housing		
HL-77420-20	0.1 to 650	90 to 260 VAC

I/P PUMP TUBING FLOW RATE INFORMATION

Order Masterflex I/P pump tubing separately on pages 126–130.

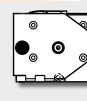
STANDARD
0.001 to 13 LPM
pages 120–121



EASY-LOAD®
0.001 to 13 LPM
pages 122–123



HIGH-PERFORMANCE
0.001 to 19 LPM
pages 124–125



Tubing cross sections	I/P Precision pump tubing			I/P High-performance Precision pump tubing†		
	I/P 26	I/P 73	I/P 82	I/P 70	I/P 88	I/P 89
Flow range @ 0.1 to 650 rpm	0.001 to 4.0 LPM (0.0002 to 1.0 GPM)	0.001 to 8.0 LPM (0.0002 to 2.1 GPM)	0.002 to 13 LPM (0.0005 to 3.5 GPM)	0.001 to 8.0 LPM (0.0002 to 2.1 GPM)	0.002 to 17 LPM (0.0005 to 4.5 GPM)	0.002 to 19 LPM (0.0005 to 5.0 GPM)

†Use High-performance Precision tubing with High-Performance pump head. Flow rates were determined using water at room temperature and with zero back pressure and zero suction lift.



SPECIFICATIONS for I/P Digital Process Drives

Catalog number		HL-77420-10	HL-77420-20
Performance Specifications			
Flow capacity		0.0006 to 19 LPM (0.0002 to 5 GPM)	
rpm		0.1 to 650	
Number of heads accepted		2	
Maximum torque	Starting	1102 N-cm (1560 oz-in)	
	Running	367 N-cm (520 oz-in)	
Reversible		Yes	
External control – Input		0 to 20 mA, 4 to 20 mA, 0 to 10 V; START/STOP, CW/CCW, PRIME via contact closure	
External control – Output		1 to 20 mA, 4 to 20 mA, 0 to 10 V; TTL pulse, drive running	
Electrical Specifications			
Voltage/Frequency VAC (Hz)		90 to 260 (50/60)	
Current		4.5 A at 115 V; 2.5 A at 230 V	
Fuse rating		6.3 A / 250 V	
Motor type		Continuous duty, brushless DC	
Motor size		280 W (¾ hp)	
Display		Four-line graphical LCD	
Motor/speed control type		PWM with microprocessor	
Speed regulation		±0.1%	
Soft start/Electronic brake		Yes/Yes	
Physical specifications			
Housing materials		316 stainless steel	Epoxy powder-coat steel
IP rating†		IP66 (NEMA 4X)	
Agency listings		ETL, cETL, CE	
Operating temperature		0 to 40°C (32 to 104°F)	
Storage temperature		–25 to 65°C (–13 to 149°F)	
Dimensions (L x W x H)		42.3 x 28.3 x 32.8 cm (16¾" x 11½" x 13")	
Shipping weight		18.1 kg (40 lb)	

†See page 194 for an explanation of IP ratings.

CALIBRATION

1. Select TUBING CAL via Main or Setup menu.
2. Set flow direction, tubing size, and flow rate.
3. Prime the tubing.
4. Highlight START and press ENTER, drive will run based on default volume.
5. Press ENTER and adjust CAL VOLUME to the actual measured volume.
6. Press ENTER to SAVE setting and EXIT.

Note: Digital signal processor retains one calibration value for each tubing size, even when power is turned off.

KEYPAD LOCK/UNLOCK FEATURE

- ▶ Lock keypad and protect settings by highlighting the lock icon and pressing ENTER
- ▶ Select LOCK and press ENTER to exit menu
- ▶ Repeat above steps to unlock keypad

ACCESSORIES

HL-07575-84 Washdown foot switch, momentary start/stop; 1.8-m (6-ft) cable.

HL-07575-80 Remote control cable assembly; 31-pin round water tight connector and 7.9-m (25-ft) cable with stripped wire ends for remote control, wire to controller/PLC.

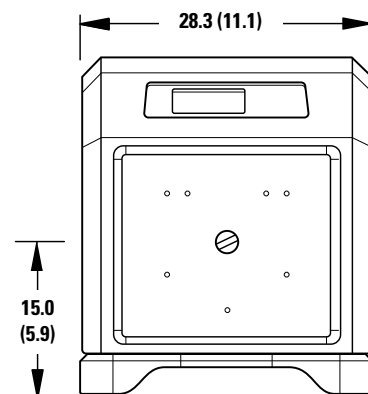
HL-17050-01 NIST-traceable calibration with data for peristaltic pump drive.

The I/P digital console process drive accepts a single I/P High-performance pump head or up to two I/P Standard pump heads (below, left) or two I/P Easy-Load pump heads (below, right) with any I/P tubing formulation.

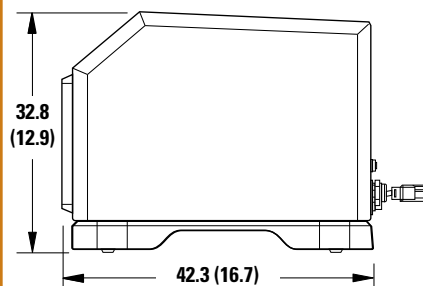


Dimensional Drawings cm (in.) 77420-10, 20

FRONT



SIDE



I/P digital drive 77420-20 with Easy-Load® pump head 77601-10

I/P PUMP HEADS 118–125
I/P TUBING 126–130
I/P PUMP SYSTEMS 146–151

ACCESSORIES 160–171

TECHNICAL DATA 172–206