

- > Programmable precision liquid metering device
- > 60mm stroke driven via stepper motor and precision ball screw
- > Available in three mechanical resolutions: 12K, 24K, 48K
- > Flexible and versatile to meet a variety of system configurations
- > Capable of simple closed loop control of an external quantity or process
- > Non-volatile user program memory and system input/output (I/O)
- > Can be used a stand alone controller or integrated into more complex systems
- > Can be configured with PC board selections to meet specific needs



## Specifications

### Physical

#### Height

10"

#### Width

2.55"

#### Depth

4.75" (face plate to back plate)

4.90" (face plate to card edge)

#### Weight

5.14 lbs

### Environmental

#### Operating Temperature

32°F to 131°F (0°C to 55°C)

#### Operating Humidity

5 to 95% RH, non-condensing at 131°F (55°C)

#### Storage Temperature

13°F to 185°F (-25° to 85°C)

#### WEEE & RoHS compliant

#### Lifetime <sup>(1)</sup>

> 5 Million cycles

[1 cycle = 1 full dispense and aspirate move]

### Mechanical

#### Operation

Any orientation

#### Mounting Holes

Top, bottom and front

#### Resolutions

12000, 24000 and

48000 increments

#### Speed

Max. – 10000 steps/sec.

Min. – 20 steps / sec.

(Default – 5000 steps/sec.)

#### Compatible Syringe Size

10µl to 50ml

#### Compatible Valve Type

2 way to 12 way (Rotary)

3/2 Solenoid valve

#### PC board choices:

**Base board** (sensor array and motor pin out only - no motor drivers or control electronics).

**Driver board** (sensor array and motor drivers only, no control electronics).

**Driver & Control boards** (fully functional motor drivers and control electronics).

#### Card-edge connector

### Performance

#### 1/10 Stroke Dispense

**Precision:** 0.20% max.

**Accuracy:** 0.60% max.

#### Full Stroke Dispense

0.0092% max.

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### Interface

RS-232 or RS-485 communications

Data terminal or OEM protocol

1200 to 38.4K baud, 8 data bits,

1 stop bit, no parity, half duplex

Three inputs, three output ports

Digital voltmeter

Switched and wired device address

### Power

#### Operation

24V (with a maximum power voltage ripple of 720mv peak-to-peak).

#### Power Consumption

44 watts, 13 watts idle.

<sup>(1)</sup> Tested using IMI standard test protocol

**V6 Syringe Pump:**

RESOLUTION			VALVE FEATURE			DRIVER & CONTROL FEATURE			PUMP
48K	24K	12K	NONE	SOLENOID	ROTARY	BASIC	DRIVER BOARD	DRIVER & CONTROL BOARD	PART NUMBER
X			X			X			54000
X			X				X		55001
X			X					X	55002
X				X		X			54010
X				X			X		55011
X				X				X	55012
X					X	X			54020
X					X		X		55021
X					X			X	55022
	X		X			X			54100
	X		X				X		55101
	X		X					X	55102
	X			X		X			55110
	X			X			X		55111
	X			X				X	55112
	X				X	X			54120
	X				X		X		55121
	X				X			X	55122
		X	X			X			55200
		X	X				X		55201
		X	X					X	55202
		X		X		X			55210
		X		X			X		55211

Decal (23279) is optional, add to order as required. 3-way solenoid valve supplied with pumps configured for solenoid valve.

**Ancillary items:**

Communication cable RS485, 6" long; pump to pump (2 units)	P/N 17736
Cooling Fan Option	P/N 24290
Connector (card edge with solder pins)	P/N 26875
Starter Kit (includes all items listed below)	P/N 23427
24VDC Power supply	P/N 23429
Adapter (card edge to AMP connectors)	P/N 23428
Software; operator's manual; and application notes.	P/N 23422
Communications cable (RS232 / 5' long; pump to computer)	P/N 17734

**Software support:**

KSerial (command-line communication utility)

**Plug Valves:**
**0.031" Orifice:**

Configuration	Distribution	Non-Distribution
1-Way	-	-
3-Way		19194
4-Way	23554	
5-Way	-	-
6-Way	24701	-
8-Way	19323	-

**0.059" Orifice:**

Configuration	Distribution	Non-Distribution
1-Way	19218	-
3-Way	17616	17615
4-Way	17617	17712
5-Way	17618	-
6-Way	17619	-
8-Way	17620	-

**0.076" Orifice:**

Configuration	Distribution	Non-Distribution
1-Way	18248	-
3-Way	18189	18192
4-Way	18190	18191
5-Way	18188	-
6-Way	18193	-
8-Way	17877	-

**Notes:**

Valve wetted surfaces have a PCTFE body insert and PTFE plug.

Port connection is 1/4-28 UNF

Some valve ports may not be accessible when used with certain syringes sizes. See Application Notes for further information.

See PDS-0032 for additional information on ceramic, loop and 12way valve options.

**PTFE Syringes** (individually boxed):

Size	Orifice (in)	Standard	ZDV
10µL**	0.027	18883	-
25µL**	0.027	17591	-
50µL	0.024	17592	-
100µL	0.032	17593	-
250µL	0.039	17594	19509
500µL	0.076	17595	19537
1.0mL	0.076	17596	25429
1.25mL	0.076	17597	25431
2.5mL	0.076	17598	19539
5.0mL	0.076	17599	18463
10.0mL	0.076	17600	18469
25.0mL	0.076	17601	23734
50.0mL	0.076	17602	-

**Notes:**

Wetted materials include Borosilicate glass, PCTFE and PTFE

**UHMW Syringes** (individually boxed):

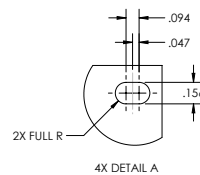
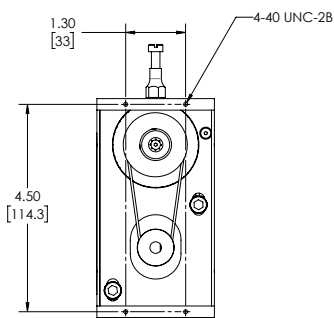
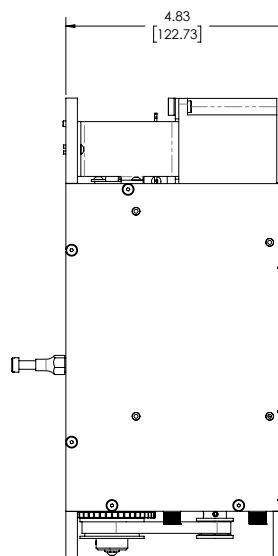
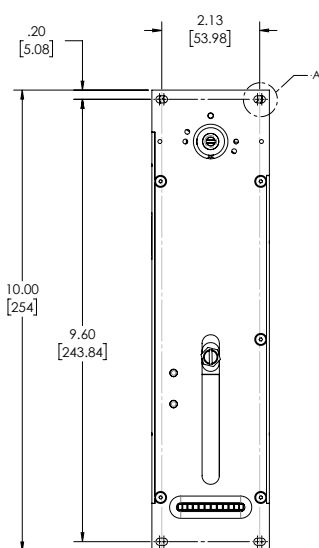
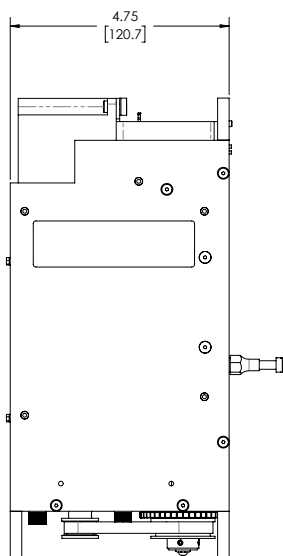
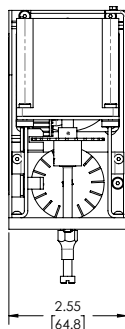
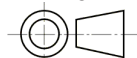
Size	Orifice (in)	Standard	ZDV
25µL**	0.027	26662	-
50µL	0.024	24681	-
100µL	0.032	24518	-
250µL	0.039	19513	-
500µL	0.076	24694	25427
1.0mL	0.076	24690	25413
1.25mL	0.076	-	25438
2.5mL	0.076	24685	25388
5.0mL	0.076	18857	24691
10.0mL	0.076	19110	24139
25.0mL	0.076	24688	25380

**Notes:**

Wetted materials include Borosilicate glass, PCTFE and UHMW-PE.

Dimensions in inches [mm]

Third Angle Projection



**Warning**

Improper selection, misuse, age or malfunction of components used in systems can cause failure in various modes. The system designer is warned to consider the failure modes of all component parts and to provide adequate safeguards to prevent personal injury or damage to equipment or property in the event of such failure modes. System designers and end users are cautioned to consult instruction sheets and specifications available from the factory. The system designer/end user is responsible for verifying that all requirements for the application are met.

**Warranty**

The products described herein are warranted subject to seller's Standard Terms and Condition of Sale, available at seller's website.

**Proposition 65:** These products may contain chemicals known to the state of California to cause cancer, or birth defects, or other reproductive harm.