

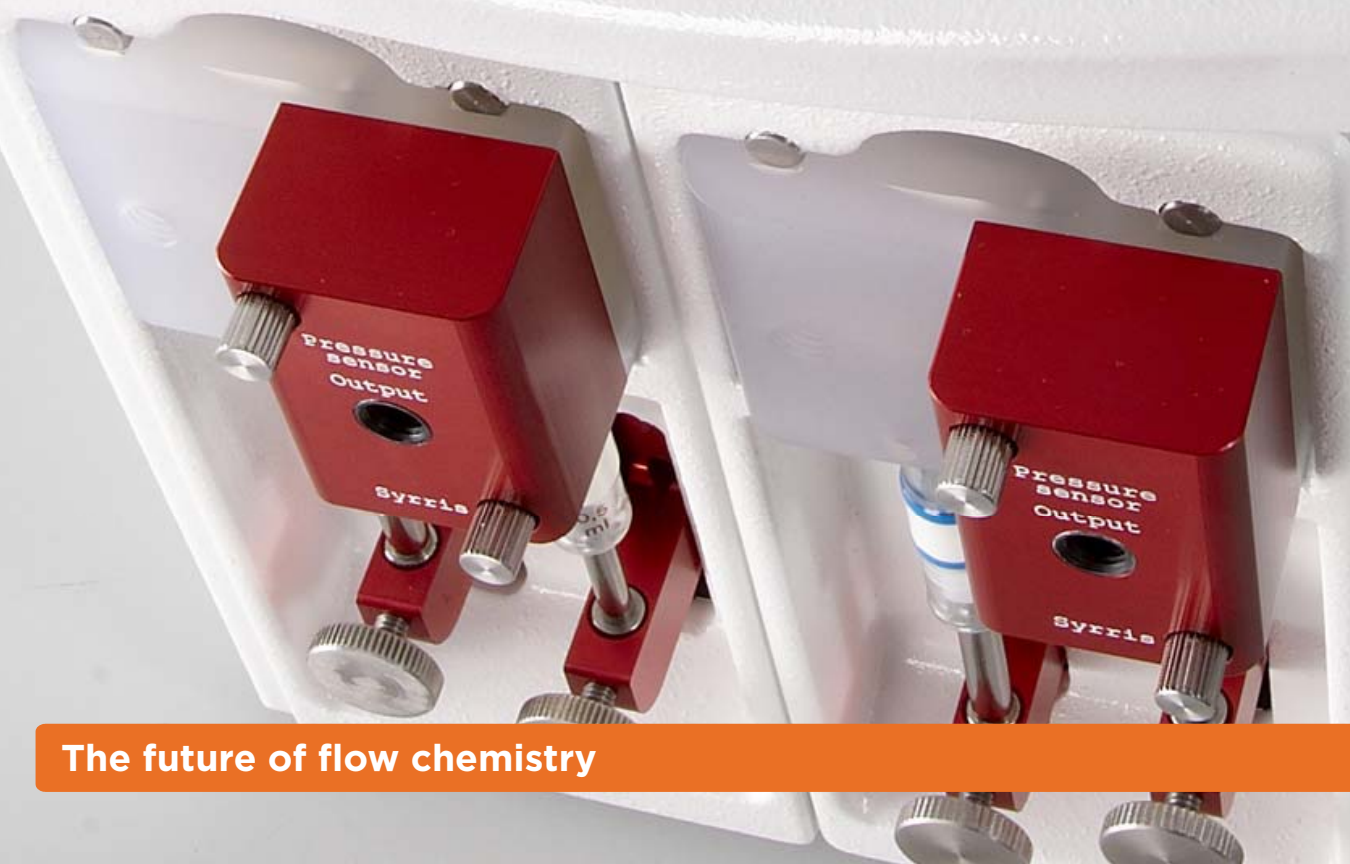


asia

fast, clean, safe  
flow chemistry

guide

quick start guide to  
asia syringe pump



The future of flow chemistry

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## 1. Summary

This quick start guide provides all the information required for setting up and using the Asia Pump.

Designed specifically for flow chemistry, the ultra smooth Asia Pump is extremely chemically resistant and is rated to 20 bar (300psi). This compact module offers two independent flow channels each with an integrated pressure sensor and a flow rate range from 1.0 $\mu$ l to 10ml/min.

In either standalone mode or PC software mode, flow rate can be controlled quickly and easily. When used as part of a larger flow chemistry system, the Asia Pump accurately controls and runs complex flow chemistry experiments with the click of a button.

## 2 Hardware Summary

The main functionality of the hardware can be seen in the image below:



### 2.1 Asia Syringes

The Asia Pump can be purchased with four different types of syringe size pairs (minimum and maximum flow rate ranges are shown below):

- Asia Yellow Syringes (50 $\mu$ l/100 $\mu$ l): 1.0 $\mu$ l to 250 $\mu$ l/min
- Asia Green Syringes (250 $\mu$ l/500 $\mu$ l): 5.0 $\mu$ l to 1.25ml/min
- Asia Blue Syringes (500 $\mu$ l/1ml): 10 $\mu$ l to 2.5ml/min
- Asia Red Syringes (2.5ml/5.0ml): 50 $\mu$ l to 10ml/min



### 3 Hardware Use and Maintenance

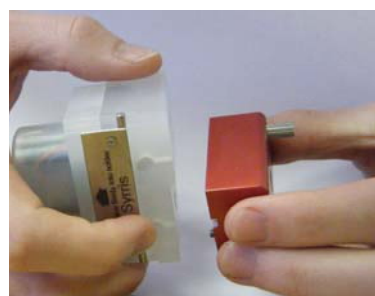
The Asia Pump will arrive with Pressure Sensors, Valve Modules, Syringes and Drives pre-assembled (refer to Asia Pump image in section 2). Setting syringe volume in the menu will be described in section 4.4.5. This section will describe how to remove the before mentioned components.

The Asia Pump is made up of a number of components, three of which are changeable:

1. Pressure Sensors x 2
2. Valves x 2
3. Syringes x 4



These can be removed and added/replaced quickly and easily\*. The Pressure Sensor and Valve Modules should be removed together. Pull Pressure Sensor and Valve Module together. Both will come away from the Asia Pump with a firm 'pull' (see image below left).



To remove the Pressure Sensor Module from the Valve, unscrew the two connectors on the Pressure Sensor and when loose, pull away from Valve (see above right).

To remove a syringe(s) from the Asia Pump, select (P1) Pump 1 or (P2) Pump 2 from the menu, then select CHANGE OVER. This will drive both syringes down to the bottom. Unscrew the metal connectors at the bottom of the syringes (below right), then you can turn the syringe anti-clockwise from the top and easily remove it.

Inputs and outputs for reagent addition are highlighted (below left):



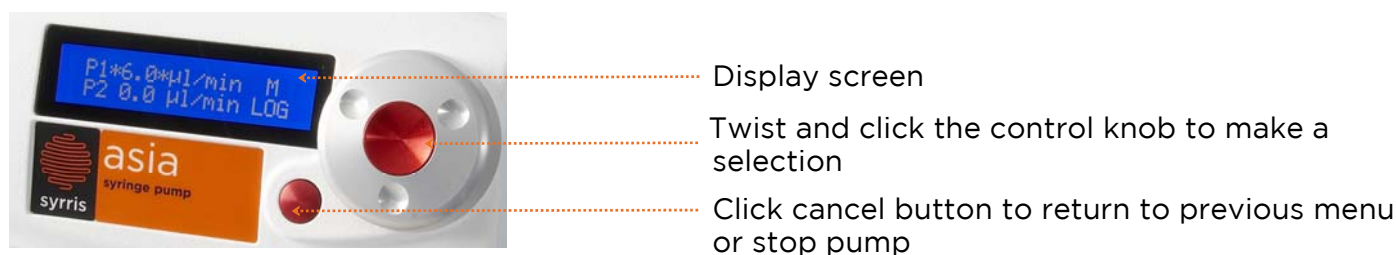
\*Please note that components should only be removed when the Asia Pump is switched OFF.



## 4 Using the Asia Pump

### 4.1 Use of Controls / LCD

The Asia Pump is controlled by a twist and click control knob.



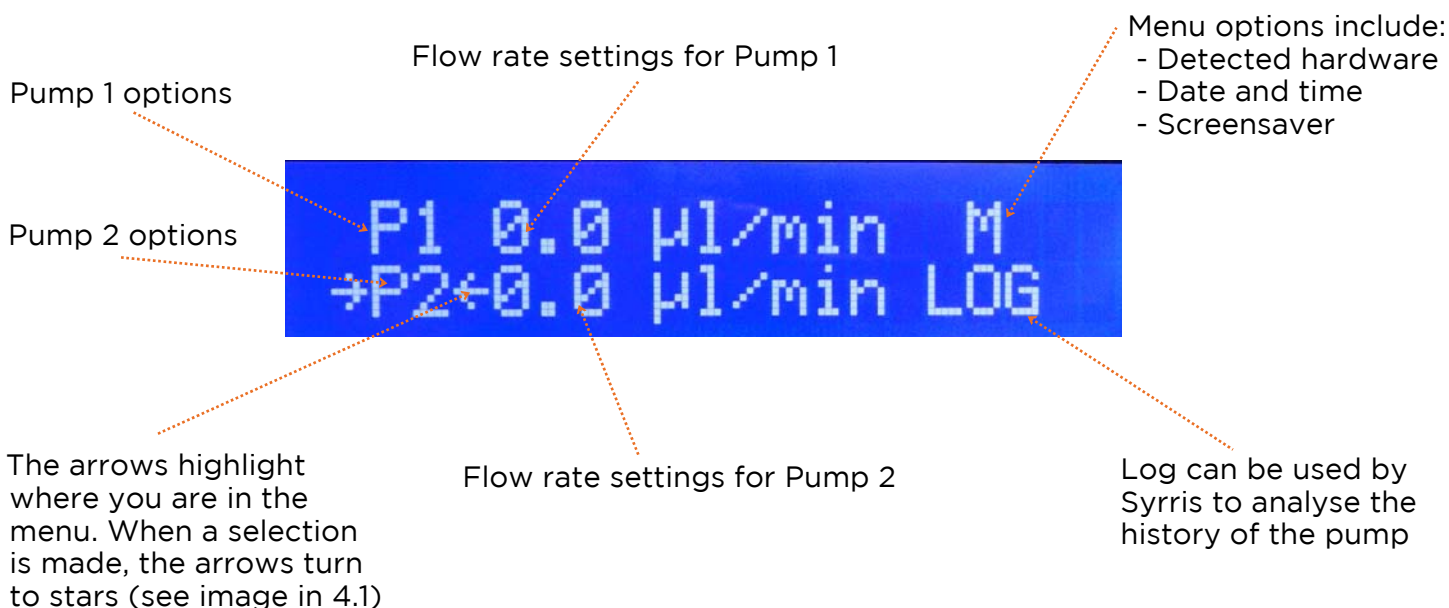
All settings and commands are made from the control knob e.g. syringe type, flow rates maximum pressure, etc (covered in section 4.4).

### 4.2 Switching on the Asia Pump

To switch on the Asia Pump, press the ON / OFF switch on the back of the unit.

There will then be a series of welcome screens appearing on the display screen of the Asia Pump (this will take approximately 30 seconds).

After the start up / initialisation process, the home screen will appear:



### 4.3 Set Flow Rate from Home Screen\*

The flow rate of Pump 1 or Pump 2 can be set from the home screen.

From the home screen, turn the control knob so that the arrows are pointing at the flow rate to be changed (next to P1 or P2). Click the wheel to select then turn to specify desired flow rate. Click again to begin pumping. Press the cancel button to stop both the pumps simultaneously (see 4.4.2 for stopping pumps individually).

\*Please note, that flow rate range is pre-set depending on the syringe size installed.

### 4.4 Using Pump 1 (P1) and Pump 2 (P2) Menus

This section describes the basics of operating the pumps from the P1 and P2 menus. On the home screen, to select the P1 or P2 menu, twist the control knob until the arrows are pointing at P1 or P2 (as shown below), then click the knob. To return to a previous screen, or to cancel a selection, press the cancel button (see section 4.1).



The following sections will describe the details of menu options available to Pump 1 and Pump 2.

#### 4.4.1 Initialise

Initialising a pump drives both syringe drives to the top to find their home position.

To initialise Pump 1 or Pump 2, select either **P1** or **P2** then select **INITIALISE**.

#### 4.4.2 Stop

Stopping a Pump stops the pump from running.

To stop Pump 1 or Pump 2 individually, select either **P1** or **P2** then select **STOP**.

#### 4.4.3 Set Initial Fill Flow Rate

The first fill flow rate can be selected from either Pump 1 or Pump 2 menus.

```
→3) FILL@*4.00*ml/min
4) CHANGE OVER
```

To select this option, select either **P1** or **P2** then select **FILL@**, from here you can specify flow rate.

\*Please note, that flow rate range will be pre-set by Syrris prior to shipping, depending on the syringe size installed.

#### 4.4.4 Change Over

Change Over drives both syringes down to the bottom of the pump to enable easy removal of syringes. The pump should be initialised after Change Over.

For this option select either **P1** or **P2** then select **CHANGE OVER**

#### 4.4.5 Syringe Volume

When a different volume syringe is added to the Asia Pump, the settings need to be edited so as to accurately fill and dispense at the correct speed.

```
4) CHANGE OVER
→5) S. VOL →2.5,5ml
```

For this option, select either **P1** or **P2** then select **S. VOLUME** and select the syringe size\*.

\*Although there are many syringe sizes available in the menu, Syrris only offer four sizes at present (see section 2.1 for more).

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### 4.4.6 Set Pressure\*

The Asia Pump will operate up to 20 bar. To select the maximum pressure allowed for a given pump, from home screen, select Pump 1 (P1) or Pump 2 (P2), then select MAX PRESSURE and select your desired pressure.

\*Asia Pumps are automatically set to 20 bar.

### 4.4.7 Over Pressure

The over pressure option allows the automatic stopping of either just the (single) pump that has exceeded its maximum pressure or both (all) pumps simultaneously if P1 or P2 exceeds its maximum pressure.

For this option, select either **P1** or **P2** then select **OVER P**, then select **SINGLE** or **ALL**

### 4.4.8 Zero Pressure

As the displayed pressure can sometimes vary a little (e.g. 0.3bar) by actions such as tightening a fitting, this option allows re-calibration.



PRESSURE ZEROED OK

To re-calibrate a pump to zero pressure, ensure the pumps are stopped and that the pressure sensor is at atmospheric pressure. Select either **P1** or **P2** then select **ZERO PRESSURE**. A message will then appear to confirm the re-calibration (see image above).

## 4.5 Other Menu Options

### 4.5.1 Using Menu (M) Options

This section will describe the options available in the menu (**M**) (for visual reference, refer to screen image in section 4.2).

### 4.5.2 Detected Hardware

Detected hardware is a non-functioning section at present. It should only be used to get to the screensaver option (see section 4.5.4)

### 4.5.3 Setting the Date and Time

To select and the date and time on the Asia Pump select **M**, then **SET DATE/TIME**. From here the date and time can be changed.

### 4.5.4 Screensaver

The screen rotates software version number, Pump 1 (P1) activity and Pump 2 (P2) activity (including flow rate and pressure).



ASIA PUMP TOP  
SW VERSION 0.9.10

To select Screensaver, select M then SCREENSAVER.

## 5 Other Notes

### 5.1 Find Software Version Number

If you need to find the software version number, select **M**, then **DETECTED HW**, then **ASIA PUMP TOP**.

The latest software version is displayed e.g. 0.9.10



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