



# TOVATECH

## FlowCal 5000 Liquid Flow Meter

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## the new + improved FlowCal 5000

### The Ideal Liquid Flowmeter for HPLC Systems

The new FlowCal 5000 digital liquid flowmeter accurately and reliably determines liquid flow. It is designed primarily as a flow meter for HPLC systems used at the end of a flow system where measured liquid is collected.



#### ★ More accurate

- Linear from 0.05 - 25 ml/min
- Accurate to 1% of reading
- Improved calibration & validation

#### 🔗 Smaller size

- One third the size
- Total weight only 12 ounces
- Durable brushed aluminum case

#### ■ Fast & easy

- Rapid results
- Works with any HPLC
- Saves time and effort



#### ■ Other improvements

- New PEEK valve which is fitted with a soft elastomer seal and teflon diaphragm.
- The newly designed sensor head is more stable.
- The user replaceable inlet pipe is made with a 1/16 inch diameter PEEK tube.
- New modern looking and light

The new instrument measures liquid flow over a wide range, from 50µl/min to 25ml/min. You can see the working flow ranges and accuracy in the table below. Flow rate is measured by volume and is independent of the liquid type up to a viscosity of 10 centipoise. The unit uses a single chip micro-controller, the flow rate (rounded to four digits) is displayed on a large four digit back-lit Liquid Crystal Display (LCD) and data can be conveniently output via the built-in RS232 interface to the full 6-digit reading. No user calibration is required; the unit is generally supplied gravimetrically calibrated at 1.0 (+10%) ml/min. Calibration at multiple points is available. All wetted parts are made of PTFE, PEEK, DAI-EL PERFLUOR or Pyrex glass. There are no wetted metallic parts.

## Three modes of operation are available

- **Printer Mode:** liquid flow readings are displayed on the LCD and output to a printer if one is connected. a running average option is available in this mode
- **Terminal Mode:** in this mode the liquid flowmeter is controlled by the terminal or PC. Extra commands for averaging any number of readings are included.
- **Test Mode:** this mode allows the user to test the display, valve and RS232 interface and also display the calibration date.



■  
**Portable,  
rugged unit  
with 1 ul  
resolution**

■  
**Re-calibration  
service is  
available**

■  
**Unit connects  
to any HPLC**

✓  
**Perfect for  
IQ OQ PQ  
qualification**



## Accurate

Specially designed for HPLC the FlowCal 5000 permits easy and accurate measurement of flow rates of common HPLC solvents.

## Automatic Data Transfer

The LCD displays the current flow rate in ml/min to four digits and an RS-232 port is provided for connection of a serial printer or computer.

## Diagnostic Tool

The FlowCal 5000 makes it easy to diagnose common pump problems like poorly functioning check valves or leaking pump seals.

## Traceable

The flow meter is supplied with a calibration certificate traceable to UKAS (UK equivalent to NIST) and is ideal for IQ/OQ/PQ validations. Standard calibration points are 0.5, 1.0 and 2.0 ml/min. Calibration at other user specified flow rates can be provided on request.

The RS232 output allows the flowmeter to output data to any device fitted with an RS232 serial interface e.g. printer, terminal or personal computer. The unit is supplied with an RS232 cable fitted with a nine way female plug to connect directly to the COM port of a PC. By using the Terminal or Hyper-Terminal program supplied with MS Windows results can be collected and displayed or pasted into Excel or other programs to produce graphs or statistical analysis. The baud rate is internally switch selectable for 19200, 9600, 4800, 2400, 1200, 600, 300 baud with the option of sending a CR/LF after each reading. X-on / X-off handshaking is used.

## All instruments are supplied with:

- Mains 'wall block' power supply with a choice of 240v 3 pin UK, 230V 2 pin European or 100V 2 pin USA/Japan.

- Universal mounting kit: allows free standing mount, wall mounting, 'stacksystem' mounting and bottle top mount.

- RS232 input/output cable: 8 way mini-din plug to PC COM port 9 pin female.

- Cleaning kit now supplied with the flow meter.

- UKAS traceable single point flow calibration certificate is supplied as standard (UKAS is the UK equivalent of NIST)

- Black plastic carrying case with foam inserts. All parts of the mounting kit are packed within the carrying case.

## FlowCal 5000 Liquid Flow Meter Specification

<b>Range</b>	0.05 - 25 ml/min	Accuracy 1%	Reproducibility 0.5%
	0.25 - 5 ml/min	Accuracy 0.5%	Reproducibility 0.5%
<b>Reading update time</b>	15 sec @ 2 ml/min	25 sec @ 1 ml/min	45 sec @ 0.5 ml/min
<b>Measuring volume</b> 140 µl	<b>Priming volume</b> 250 µl		
<b>Backlit LCD Display</b> (12.7mm) 4 digits and 3 status symbols	<b>RS232 output</b> (6 digits) XX.XXXX ml/min		
<b>Size</b> 5.4 x 3.0 x 1.8 in	<b>Weight</b> 12 oz		



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