

GJC Instruments Ltd.

North West House, Chester Road, Tattenhall, Cheshire, CH3 9AH, United Kingdom.

Tel: +44 (0) 1829 770087 Fax: +44 (0) 1829 771694

email: gjcinstr@btinternet.com

website: www.gjcinstruments.com

CERTIFICATE OF CALIBRATION

DATE OF ISSUE: 17-October-2025 CERTIFICATE No: 2025-0788L

APPROVED SIGNATORY: Dr. A. Munday, Mr. J. Steen, Mr. M. J. Munday

INSTRUMENT: DIGITAL LIQUID FLOWMETER with RS232 interface

MANUFACTURER: G J C Instruments Ltd., Tattenhall, Cheshire, U.K.

MODEL No: 5025000 PART No: 2000

SERIAL No: 5-3262 FIRMWARE Rev: 5.00

RANGE OF FLOWMETER: 0.05 - 25.0 ml/min

DATE OF CALIBRATION: 17-October-2025 NEXT DUE: 17-October-2026

The manufacturer recommends an annual re-calibration.

CALIBRATION DETAILS	Point 1	Point 2	Point 3	Specification
NOMINAL FLOW ml/min:	0.4	1.0	5.0	
ACTUAL FLOW ml/min:	0.4017	0.9997	5.0077	Within $\pm 10\%$ of Nominal Flow
DISPLAYED FLOW ml/min:	0.4005	0.9996	5.0121	Within $\pm 1.0\%$ of Actual Flow
STANDARD DEVIATION %:	0.024	0.028	0.119	$\leq 0.5\%$
ERROR %:	-0.319	-0.014	0.089	$\leq \pm 1.0\%$

This calibrated flowmeter is linear ($\pm 1\%$) across range 0.05 - 25.0 ml/min.

CALIBRATION EQUIPMENT

INSTRUMENT:	Balance	Balance	Univ Counter/Timer
MANUFACTURER:	OHAUS	PRECISA	Black Star (RS Components)
MODEL:	E01140	XT 920M	Apollo 100 (612-445)
SERIAL No:	1118501519	W47044	43260
UKAS CERTIFICATE No:	CS0065	CS0064	U415846
DATE OF CALIBRATION:	15 January 2025	15 January 2025	20 April 2025
NEXT CALIBRATION DUE:	15 January 2026	15 January 2026	20 April 2026
TESTING LABORATORY:	D.Brash&sons(0430)	D.Brash&sons(0430)	ServiceCal Ltd. (0152)

This certifies that the above product was calibrated in accordance with GJC Instruments Ltd calibration procedure NEW CALPROC2000. Calibration measurements were made using test equipment calibrated to United Kingdom Accreditation Service (UKAS) standards. It provides traceability of measurement to recognised national standards, and to units of measurement realised at the National Physical Laboratory or other recognised National Standards Laboratories.

The results quoted were found to meet the manufacturer's specification.

Calibrated at:- G J C Instruments Ltd.

Calibrated by:-

(J. Steen)

Verified by:-

(A. Munday)

GJC Instruments Ltd., North West House, Off Chester Road, Tattenhall, Cheshire, CH3 9AH, U.K.

This certificate shall not be reproduced except in full, without the written approval of GJC Instruments Ltd.

GJC Instruments Ltd

North West House, Off Chester Road, Tattenhall, Cheshire, CH3 9AH, United Kingdom.

Tel: ++44 (0)1829-770087 Fax: ++44 (0)1829-771694 e-mail: gjcinstr@btinternet.com web: www.gjcinstruments.com

HPLC Liquid Flowmeter. Model : 5025000 - Revision 5

GJC Instruments Ltd is pleased to introduce a HPLC liquid flowmeter offering improved performance and a dramatic reduction in size and weight – one third the size and weight of the previous models!

G J C Instruments Ltd liquid flowmeters accurately and reliably determine liquid flow. They are designed for use primarily on HPLC systems at the end of a flow system where measured liquid is collected or dispensed to a drain.

Revision 4 units include the following improvements:-

- PEEK bodied valve fitted with soft elastomer seal and Teflon diaphragm.
- More stable Sensor head design.
- User replaceable inlet pipe - now 1/16 inch diameter PEEK tube.
- Light weight brushed finish all aluminum case – weight only 320gm.

The instrument measures over a range of 50µl /min to 25ml/min, the range and accuracies are given in the table below.

Flow rates are measured volumetrically and are 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 is output via the built-in RS232 interface to the full 6-digit reading. No user calibration is required; the unit is normally 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 – no wetted metallic parts.

Three modes of operation are possible:-

- **Printer Mode:-** readings are displayed on the LCD and output to the printer if one is connected. 'Box - Car' or running average option is available in this mode
- **Terminal Mode :-** in this mode the 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.

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 the following: - -

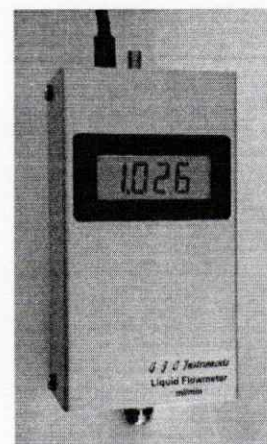
- Mains 'wall block' power supply with a choice of 240v 3 pin UK, 230v 2 pin European or 100v 2 pin USA/Japan.
- RS232 input/output cable: - 8way mini-din plug to PC COM port 9 pin female.
- UKAS traceable single point calibration certificate is supplied as standard (UKAS is the UK equivalent of NIST)
- Universal mounting kit: - allows free standing mount, wall mounting, 'stack system' mounting and bottle top mount.
- Black plastic carrying case with foam inserts. All parts of the mounting kit are packed within the carrying case.
- Cleaning kit now supplied with the flow meter.

Specifications

Range -	0.05 - 25 ml/min	Accuracy -	+/-1%	Reproducibility -	+/-0.5%
Reading update time (+/-10%)	15sec @ 2 ml/min, 25sec @ 1 ml/min, 45 sec @ 0.5 ml/min				
Measuring volume -	140µl	Priming volume: -	250 µl		
LCD Display (12.7mm)-	4 digits + 3 status symbols	RS232 o/p -	(6 digits) XX.XXXX ml/min		
Max Resolution -	Display -	1 µl	RS232 o/p -	0.1 µl	
Size -	138mm High x 76mm Wide x 45mm Deep.		Weight 320g		

Ordering Information

Product	Model	Range	Power supply	Part No
HPLC Liquid Flowmeter	5025000	0.05 - 25 ml/min	universal power supply	2000UK / US / EU



GJC Instruments Ltd

North West House, Off Chester Road, Tattenhall, Cheshire, CH3 9AH, United Kingdom

Tel: ++44 (0)1829-770087 Fax: ++44 (0)1829-771694 e-mail: info@gjcinstruments.com Website: www.gjcinstruments.com

New thermal printer for use with GJC Instruments Ltd Liquid Flowmeters.

GJC Instruments Ltd is pleased to introduce a new miniature printer for use with model 5025000 (Part nos:- 2000UK/US/EU) HPLC liquid flowmeters . The printer will print all readings and error messages output from the flowmeter via the built-in RS232 interface.

Features:-

- Compact and stylish design.
- Unique SINGLE-handed easy-load paper system.
- Built-in RS232 interface.
- Strong case design that won't stress the lid hinge.
- Miniature size - yet takes up to 16m paper roll.
- Supplied with re-chargeable battery.
- Supplied with power/charger lead with Print on/off switch built-in to plug directly into the flowmeter.
- No extra power supply required – unit uses the flowmeter power supply.
- Supplied ready configured to work with GJC liquid flowmeters set to the default settings.
- Can be supplied for use with earlier Phase Separations' & GJC Instruments' type liquid flowmeters fitted with RS232 interface. A special lead and power supply may be required, please contact GJC Instruments for details.
- Readings printed to four decimal places.



Specification:-

Data Input	RS-232 Serial (RJ12 connector)
Print Method	Fixed head thermal mechanism (Fujitsu FTP-628MCL103)
Print Speed	50mm/s typical
Paper Specification	Roll width : 57.5 ±0.5mm. Max roll diameter: 36mm (length 14.5 – 16 meters) Accepts paper rolls with or without a core.
Print Width	48mm
Dots/line(graphics)	384
Sensors	Paper Out and Head up
Data Buffer	20Kb
Baud Rate	Up to 56000 (9600 Default)
Character Set	IBM™ 224 character set, CP437
Number of columns	12, 16, 21, 24, 42, 32 (Default set to 32)
Fonts(dots)	7 x 24, 10 x 24 (Default)
Dimensions	47 x 92 x 108 mm (H x W x L)
Weight	330gm (including battery and full roll of paper)
Power supply options	Supplied as standard with shrink wrapped re-chargeable battery pack (5 cell 6V NiMH) and power/charger lead for use with GJC liquid flowmeters. Other power supply options include:- <ul style="list-style-type: none">• BC1300 Universal i/p trickle charger – may be required for older flowmeters.• BC1300FC Universal i/p combined fast charger and 12v vehicle charger.
Other options	Ap1300BP-01 Spare NiMH battery pack.
Temperature range	0-50 ° C
Reliability	>13 million print lines (Approx 3500 rolls of paper)

Product	Part Number
Ap1300 Thermal Printer with flowmeter power supply/charger lead. A separate power supply is NOT normally required if used with flowmeter Part nos: 2000UK/EU/US Rev 3 & 4 and later.	Ap1300/LF
BC1300 Universal i/p trickle charger	BC1300
BC1300FC Universal i/p combined fast charger and 12v vehicle charger.	BC1300FC
Ap1300BP-01 Spare NiMH battery pack.	Ap1300BP-01

When ordering please quote the model & serial number of the flowmeter with which the printer will be used (to ensure the correct charger is supplied if required).

G J C Instruments LTD

North West House, Chester Road, Tattenhall, Cheshire, CH3 9AH, United Kingdom.

Tel +44 (0)1829-770087 Fax +44 (0)1829-771694 e-mail: gjcinstr@btinternet.com www.gjcstruments.com

FLOWMETER Return Request Form / Notification of Hazards

Name of Sender:- _____ Tel. No _____

Company:- _____

Email:- _____

Please complete and send this document back to us with your instrument.

Please state the company name you wish to appear on Calibration Certificate:-

Description of Goods	Serial No.	Your Purchase Order Number: (no work will be carried out without a valid PO). Please include a copy of your PO with this form:
Item No. 1		
Item No. 2		
Reason for return - please indicate below:- Item No. 1 Recalibration Only <input type="checkbox"/> Repair & Recalibration <input type="checkbox"/>	Please give a brief outline of any Problems (please send the power supply with the flowmeter if reporting a fault on the instrument):-	
Item No. 2 Recalibration Only <input type="checkbox"/> Repair & Recalibration <input type="checkbox"/>		
Please tick the flowrates required for calibration, note nominal flows $\pm 10\%$ ml/min: (1ml/min is compulsory) Calibration flow rates 'As left' data* (please tick those needed): 0.5 <input type="checkbox"/> 1.0 <input checked="" type="checkbox"/> 2.0 <input type="checkbox"/> 3.0 <input type="checkbox"/> 5.0 <input type="checkbox"/> 20.0 <input type="checkbox"/> Additional calibration flow rates (please itemise, up to 25ml/min max):- *Standard 'As found' data is taken at 1.0ml/min only. For additional 'As found' flows please request by email. There is an additional charge / flow rate required		Note:- Please request a quotation for calibration pricing. Price is dependent on the flow rates required. The normal recalibration charge is for a single point calibration at 1.0 ml/min.
Have any items that you are returning been exposed to any hazardous materials?	Yes	No
		Comments

IMPORTANT SHIPPING ADVICE:-

Your instrument must be shipped **DOOR TO DOOR** using a well-known courier such as **FEDEX, DHL or UPS** - (do **NOT** send your goods by "air freight" or it will result in lengthy delays in customs and additional duty and transportation charges for which your company will be liable. Please also avoid Road Services).

MOST IMPORTANT: If based outside of the UK - to clear UK Customs, the following declaration must appear on your shipping documents & the outside of your shipping box:-

CUSTOMS CLEARANCE as TEMPORARY IMPORT under IP to the UK for CALIBRATION & RETURN to (insert your country here)

Tariff 9026102100 CPC 5100A04 IP/0923/563/27 UK VAT#: GB 851 5168 26

UK EORI: GB851516826000 CDS ref: GBIPO85151682600020220330135952

UK CONTACT NAME & TELEPHONE NUMBER:- Adele Munday, 01829-770087.

(To avoid unnecessary customs duty please keep the declared value price for each instrument to ~ £150.00 GBP / 180.00 euro / \$200.00 USD).

PLEASE ENSURE YOUR INSTRUMENTS ARE RETURNED IN THEIR CARRY CASE WHICH SHOULD BE WELL PACKED AS THESE INSTRUMENTS ARE FRAGILE.

Name (please print):-

Signature:-

Date:-

If you need a Returns Authorisation No. / RMA (please email gjcinstr@btinternet.com) & insert here: _____