

CELLFLO™ Foam Porosity Meter

Precision Airflow Measurement System for Flexible Cellular Polyurethane Materials

Authorized Distributor: Agaram Industries, India

Sales: sales@agaramindia.com | **90031-30625**

Service: service@agaramindia.com | 

Manufacturer Statement & Company Overview

Tommy Halmos, Managing Director

Thank you for choosing **IDM Instruments Pty Ltd**. Founded in 1972, IDM Instruments is Australia's leading designer and supplier of quality testing and measuring equipment. Our instruments are engineered to strict international standards, backed by global sales, maintenance, and calibration support.

1 Overview & Operating Principle

Standard laboratory test methods determine foam porosity by forcing air through a cellular test specimen at a fixed differential pressure (typically **~0.5 inches / 12 mm water gauge**) and measuring the resulting airflow volume. Higher airflow directly correlates with greater cell openness and material porosity.

The **CELLFLO™ Foam Porosity Meter** incorporates this core testing methodology into a portable, high-precision instrument:

- Precision Air Supply:** An internal miniature centrifugal blower generates a stable, continuous airflow stream through the test specimen.
- Electronic Mass Flow Sensing:** An internal electronic sensor measures volumetric air transport and drives a digital display output scaled from **0 to 100**.
- Testing Repeatability:** High-precision electronic monitoring ensures repeatability within **±2 units**.

Altitude Operating Requirement: The CELLFLO™ meter is factory-calibrated at sea level. If operating at an elevation greater than **200 metres (650 ft) above sea level**, complete recalibration is mandatory prior to initial testing (see Section 5).

2 Technical Specifications

0 – 100
MEASUREMENT RANGE

±2 Units
TESTING REPEATABILITY

~0.5 in H₂O
DIFFERENTIAL PRESSURE

2× AA (1.5V)
POWER REQUIREMENTS

Parameter / Feature	Specification & Technical Detail
Measurement Output	0 to 100 relative airflow units (Digital LCD Display)
Measurement Repeatability	±2 display units under constant environmental conditions
Differential Pressure Baseline	Approx. 0.5 inches (12 mm) water gauge baseline
Airflow Generator	Precision miniature centrifugal motor-driven blower
Power Source	2 × AA 1.5V alkaline battery cells (Internal rear compartment)
Calibration Base Elevation	Sea level factory calibration (Recalibration mandatory > 200 m elevation)

3 Operating Instructions & Component Layout

3.1 Battery Installation & Replacement

1. Slide off rear battery lid.
2. Ensure eject tape lies underneath.
3. Insert 2 × AA 1.5V batteries (observe +/-).
4. Reattach battery compartment lid.

3.2 Power On & Stabilization

1. Slide **ON/OFF** switch forward (see diagram).
2. Allow **30 sec** for motor stabilization.
3. Verify open air reading: **98 – 102**.

3.3 Zero-Point Baseline Check

1. Press outlet against non-porous test block.
2. Verify reading drops to **0** (range: 0–2).
3. Keep underside intake grill clear.

3.4 Sample Measurement

1. Hold outlet flat against freshly cut foam.
2. Ensure full seal to prevent edge leaks.
3. Depress into foam by **~2 mm**.
4. Record reading; turn OFF when done.

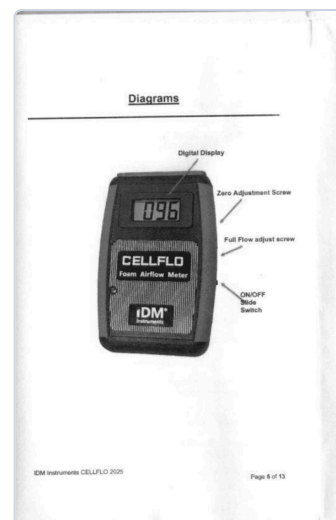


Figure 1: CELLFLO™ Instrument Diagram showing LCD display, switch, & adjustment screws.

4 Digital Reading Reference & Porosity Interpretation

Digital display values represent relative airflow volume through the sample. Higher readings signify open cell structures; lower readings indicate restricted airflow or closed cells. While CELLFLO™ units do not map 1:1 to laboratory units, they provide immediate quality assurance benchmarks.

Display Reading	Porosity Condition	Cell Structure & Physical Characteristics
100	Extremely Open	Severe foam settling / loose structural matrix
70	Very Open	Moderate openness / minor foam settling
40 – 60	Standard Open Range	Nominal open-cell polyurethane foam specification
30	Tight Foam	Restricted airflow / partial cell closure
20	Very Tight Foam	Significant cell restriction / minor block shrinkage
0 – 10	Closed Foam	Severe cell closure / severe block shrinkage

Quality Control Recommendation: Establish internal production acceptance criteria by correlating CELLFLO™ digital display numbers with standard laboratory test values and physical block performance history.

5 Calibration Procedure

Calibration is required if zero readings fall outside **0–2**, full-flow readings fall outside **98–102**, or when operating at altitudes exceeding **200 metres**. Always use the **screwdriver provided** with the instrument kit to make all calibration screw adjustments.

SEQUENCE 1

Zero Airflow Adjustment

Use provided screwdriver on top-right screw



SEQUENCE 2

Full Flow Adjustment

Use provided screwdriver on middle-right screw

Step 1: Zero Airflow Calibration

1. Switch unit **ON** and run in open air for **30 seconds**.
2. Press air outlet firmly against a non-porous test surface (e.g., closed-cell PVC foam).
3. **If display reads 0:** Using the **screwdriver provided**, turn the Zero Adjustment Screw (top right) **CLOCKWISE** until display exceeds 0, then turn slowly **COUNTER-CLOCKWISE** until it reads **0**.
4. **If display reads > 0:** Using the **screwdriver provided**, turn the Zero Screw slowly **COUNTER-CLOCKWISE** until display reads **0**.
5. **CRITICAL:** Stop immediately when 0 appears. Do NOT turn any further counter-clockwise.

Step 2: Full Flow Airflow Calibration

1. Keep motor running and hold meter horizontally in clear, unobstructed open air.
2. Verify intake vent underneath is completely uncovered.
3. Using the **screwdriver provided**, adjust the Full Flow Adjustment Screw (middle right) until display reads **100**:
 - o Turn **CLOCKWISE** to increase reading value.
 - o Turn **COUNTER-CLOCKWISE** to decrease value.

6 Maintenance & Operating Care

Cold Environment Idle Starts

If stored cold or idle, allow up to 30 seconds for fan motor stabilization after power-on.

Intake Vent Clearance

Never obstruct the underside intake grill during handling or sample testing.

Low Battery Warning

Replace batteries immediately when low battery light triggers to maintain testing accuracy.

Approved Cleaning Method

Wipe casing with a cloth dampened in water or mild detergent.

No organic solvents.

7 Warranty & Service Claim Procedure

IDM Instruments Pty Ltd warrants the CELLFLO™ Foam Porosity Meter against manufacturing defects for **12 months from purchase date** under normal operation according to this manual.

Exclusions: Warranty is void if the instrument is subjected to misuse, physical impact, unauthorized modification, or damage from leaking/incorrectly installed batteries.

Service Claim Procedure:

1. Do not return the meter immediately. Contact IDM support with failure details & Serial Number.
2. If technical resolution fails remotely, IDM will issue formal Return Authorization instructions.
3. Manufacturing defects are repaired/replaced free of charge with return shipping covered. Non-warranty repairs receive cost estimates for client approval prior to service.

Manufacturer:

IDM Instruments Pty Ltd

Authorized Distributor & Service Center:

Agaram Industries, India