PourPoint

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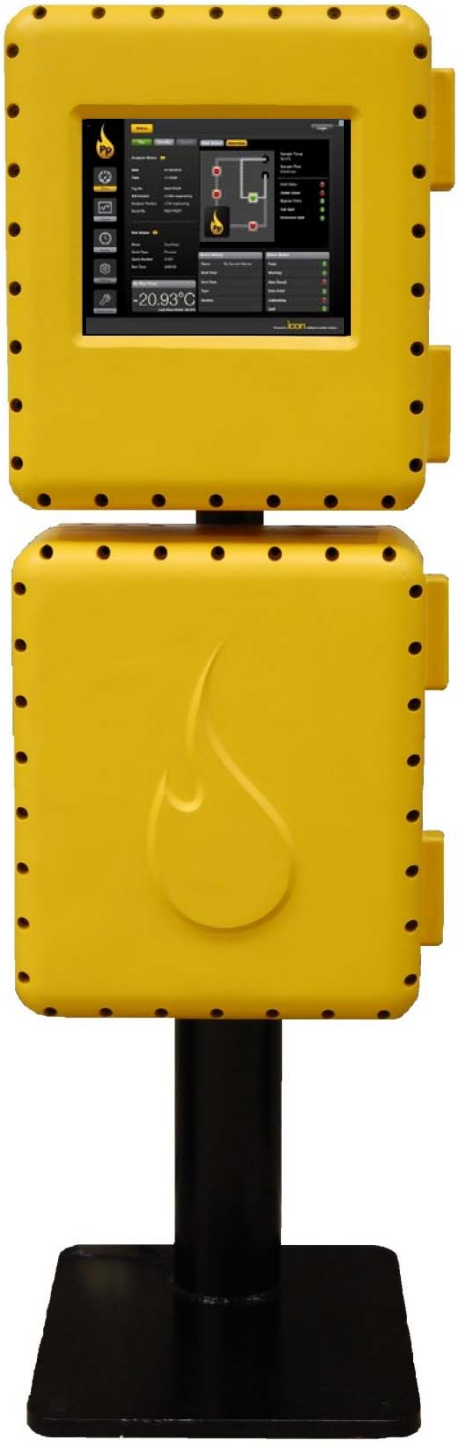

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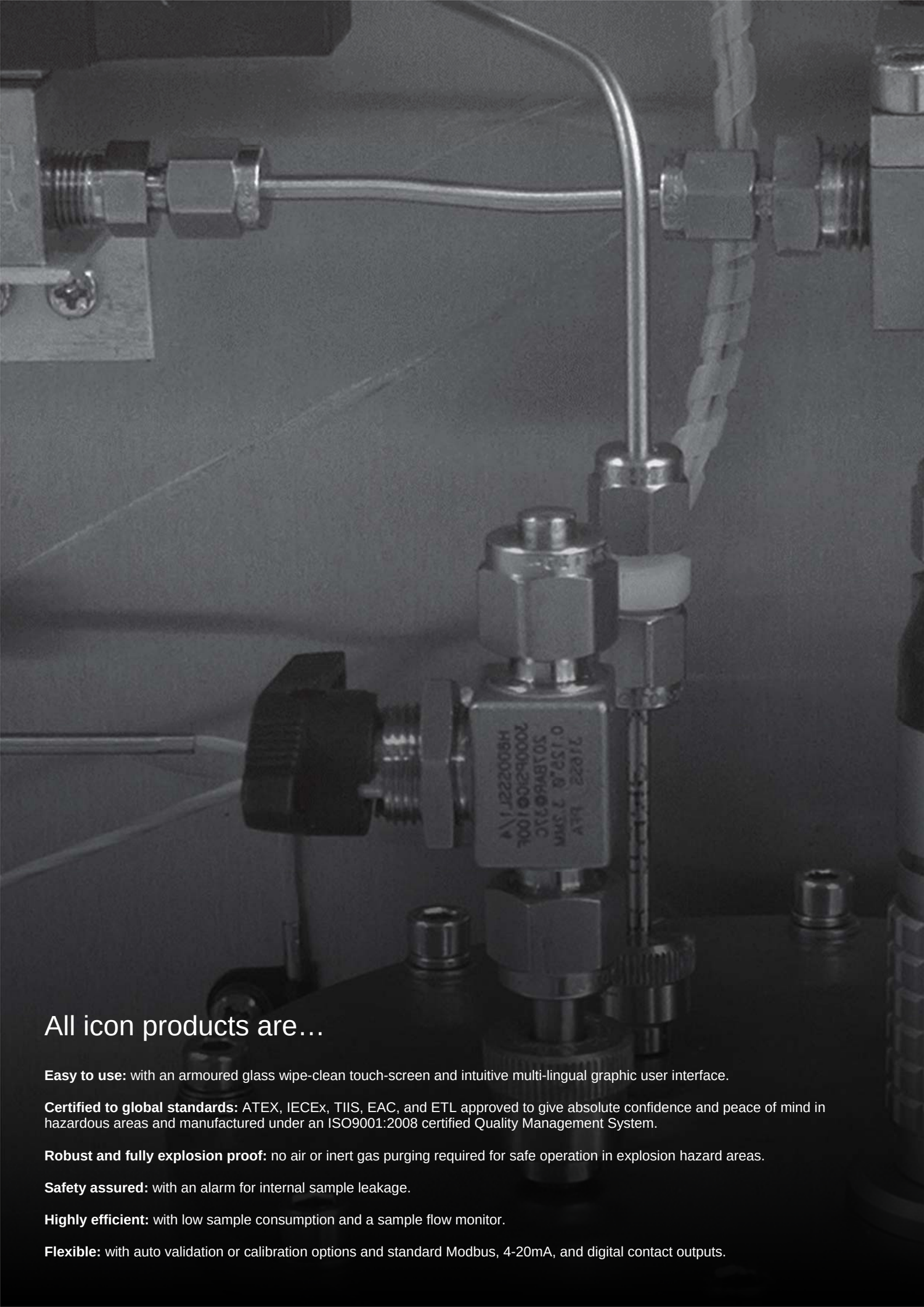


All icon products are…

Easy to use: with an armoured glass wipe-clean touch-screen and intuitive multi-lingual graphic user interface.

Certified to global standards: ATEX, IECEx, TIIS, EAC, and ETL approved to give absolute confidence and peace of mind in hazardous areas and manufactured under an ISO9001:2008 certified Quality Management System.

Robust and fully explosion proof: no air or inert gas purging required for safe operation in explosion hazard areas.

Safety assured: with an alarm for internal sample leakage.

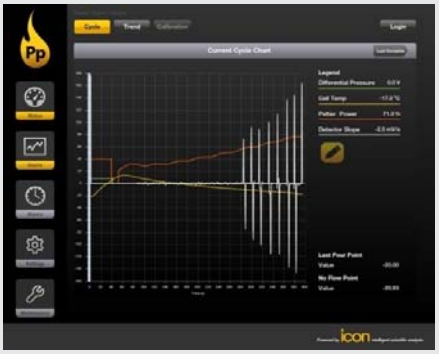
Highly efficient: with low sample consumption and a sample flow monitor.

Flexible: with auto validation or calibration options and standard Modbus, 4-20mA, and digital contact outputs.

What does it do?

The icon scientific Pour Point Analyser is used to provide an indicator of the lowest temperature at which typically a fuel oil may be used. The analyser uses advanced thermoelectric cooling to provide exceptional results, in most cases without the need for chilled water.

To improve performance and eliminate condensation, and ice formation, the whole system is housed in a patented, sealed containment vessel held under vacuum. The vessel features detection systems to monitor the vacuum and alert you to any sample leakage. The obtained results are compatible with those of no flow and pour point test methods such as ASTM D97, D5853, D5949 and D5985.



How does it work?

The low mass measuring cell traps a small amount of the sample that is then cooled at a controlled rate by the peltier cooler. At pre-set temperature intervals, the sample is pressure pulsed by a stepper motor driven piston cylinder. Sample movement is then detected by a differential pressure sensor connected across the cell. The cooling is continued until the applied differential pressure pulse has been attenuated sufficiently to indicate that the sample is no longer moving. This temperature is taken as the no flow point. The old sample is then warmed and flushed away, and the cycle is repeated.

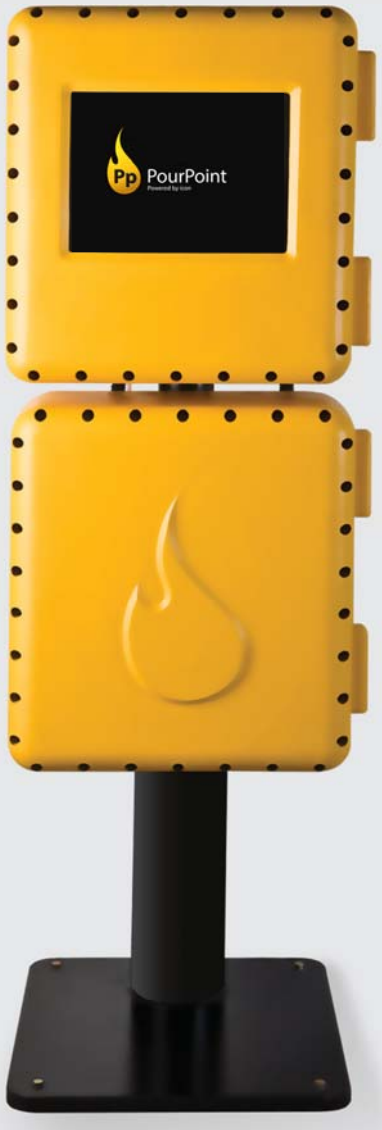
Why choose the icon scientific Pour Point Analyser?

Excellent repeatability: with advanced detection algorithms and pulse width modulated variable rate peltier cooler control, it achieves better repeatability than the standard test methods.

Best in class cooling performance: with reduced thermal losses thanks to the low mass measuring cell, patented vacuum insulation system and non-contacting light source and detector. This provides the highest differential between cooling water temperature and the lowest measurable pour and no flow points.

Increased measuring cell life: as well as giving improved cooling performance, vacuum insulation eliminates premature cell failure caused by condensation and cooling errors due to ice formation.

Cell service exchange plan: to aid planned maintenance and reduce downtime in the unlikely event of a problem, icon operates a Pour Point cell-service exchange plan. The cell is sent to icon or their local representative, and a fully-refurbished cell is delivered by return. This process enables considerable savings on the individual cost of parts. It can also save you time and money by reducing the risks associated with carrying out your own cell repairs.



Sample Requirements

Sample Filtration	Free from non-dissolved water and filtered to 10 microns.
Sample Inlet Temperature	Maximum 50 °C
Sample Inlet Pressure	1-5 barg
Sample Outlet Pressure	At least 1 bar below the sample inlet pressure. Maximum 4 barg.
Sample Consumption	Typically 6-30 L/hour

Utility Requirements

Instrument Air	Not Required (standard) 0.2 barg (3 psig) for optional cell and/or electronics enclosure cooling.
Coolant	1-10 barg, at 40-60 L/hr Minimum 0.5 bar differential pressure. Filtered to 100 microns. Not more than 40°C above the lowest expected cloud point to be measured.
Power	115-230VAC 50-60Hz, Max 500VA

Installation Requirements

Location	Unit must be located out of direct wind sun and rain.
Ambient Temperature	+5 to +40 °C
Ambient Humidity	0-95% RH, non-condensing.

Control System

Control System	Based on fan-less industrial PC with solid state hard drive.
Graphical User Interface (GUI)	17” armoured glass touch-screen. The GUI is used to program the unit and display current and historical analyser results and alarm status.
Language	User-selectable multilingual display.

Certification

Hazardous Area Certification	The Pour Point analyser is Exd certified to ATEX, IECEx standards, suitable for zone 1 or zone 2 use in gas groups IIA, IIB, or IIB+H2, with a variable T-rating depending upon application. It is also ETL listed for the USA and Canada Class 1, Div 1, groups B,C,D.
IP Ratings	Tested and certified to IP66/IP67 (dust tight and protected from temporary total immersion in water).

Specification

Measuring Range	-30°C to +30°C
Repeatability	Equal to or better than repeatability criteria of the relevant test.
Cycle Time	Typically 4-8 minutes.

Inputs/Outputs

Analog Outputs	2 x 4-20mA (active) isolated outputs provided as standard for pour point and no-flow results.
Digital (Contact) Inputs	**Run / Standby**: reads a customer supplied latching switch to toggle between run and standby modes. **Remote Cal**: reads a customer supplied momentary switch to remotely initiate a calibration cycle. **Remote Val**: reads a customer supplied momentary switch to remotely initiate a validation cycle.
General Fault Alarms	Alarm limits can be configured for monitored conditions, and set to be Fatal, Warning, or Inactive. Active alarms are notified on screen and stored in the alarm history table.
Digital (Contact) Outputs	**Fatal Alarm** (NC): this general fault alarm will cause the analyser to suspend its operation when triggered. **Warning Alarm** (NC): this general fault alarm is for notification only. **New Result** (NO)**:** a 10 second monostable contact to notify that a new analyser result is available. **Data Valid** (NO)**:** this contact will indicate that the analyser is running, and that data is valid. As opposed to when a calibration or validation is in progress, or when the analyser is in standby. **Cal/Val** (NO)**:** this contact will indicate that the analyser is in calibration or validation mode. **Spill Alarm** (NC)**:** this alarm contact will trigger if a leak is detected in the analyser enclosure. All contact ratings are 24VDC 0.5A, 230VAC 1A
Analog Inputs (optional)	The analyser can optionally read up to four 0-10V or 4-20mA active signals. These inputs may be displayed, and the values can each have an alarm level associated with them.
Digital (Contact) Inputs (optional)	The analyser can optionally monitor up to four volt-free external contacts. These contacts may be included in the alarm table.
Communications	Modbus RTU or OPC over RS485 or Ethernet (TCP/IP), with optional fiber optics. Optional OPC server software.

Dimensions & Weights

Notes:

All dimensions in mm

Unpacked weight approx. 415kg
Packed weight approx. 522kg