



FlashPoint

Powered by icon



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All icon products are...

Easy to use: with an intuitive glass touch-screen, wipe-clean graphic user interface with multi-language options.

Certified to the latest global standards: ATEX and IECex approved to give absolute confidence and peace of mind in hazardous areas.

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 calibration options and standard modbus, 2x4-20mA and alarm contact outputs.

Guaranteed: with a two-year warranty if commissioned by icon scientific Ltd.

What does it do?

The icon scientific FlashPoint Analyser measures the lowest temperature at which typically kerosene or diesel fuel will form a flammable vapour mixture with air. The analyser heats a sample and applies a test spark to the headspace above the liquid. Delivering exceptional results, it enables you to determine the safe storage temperatures for various petroleum products.

Using sample heating and spark ignition to measure flash point, the analyser correlates well with standard laboratory tests and is immune to sulphur compounds. It is equipped with computer-controlled air and sample flow rates, positive spark detection, integral sample cooler, internal camera and electrode decoking system. These state-of-the-art features allow you to observe the spark and inspect the electrodes without having to open the explosion-proof box. The results are compatible with those produced by any standard flash point test methods, such as IP170, ASTM D92 and ASTM D93.

How does it work?

The sample is pumped into a test cup and trapped within it. At a controlled rate, air is also introduced to the test cup, which is then heated. At selected intervals, a high-voltage spark is generated by electrodes positioned over the sample. When it is reached, the flash point is detected by either a pressure switch or a highly sensitive low-mass thermocouple. The sample flow is then re-established and the air flow increased, allowing the test cup to cool in preparation for the next cycle.

Why choose the icon scientific FlashPoint Analyser?

Inbuilt sample metering pump: internal, programmable flow metering pump provides more accurate flow-rate control than traditional flowmeters.

Mass flow controller: provides programmable air flow and more accurate flow rate control than traditional flowmeters.

Inbuilt inspection facility: internal camera enables flash point observation without the need to open the explosion-proof box. This makes the whole process safer and easier to monitor.

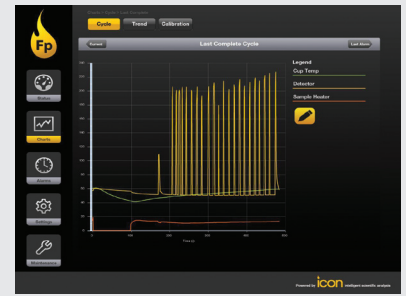
Spark electrode cleaning system: air is blown through the electrode assembly during cooling, and the electrodes are sparked to remove any deposits that have formed. This keeps the electrodes clean and enables routine maintenance without having to open the explosion-proof box.

Dual pump option: for higher viscosity samples such as fuel oils, the analyser can be fitted with a second pump which is used in conjunction with a heated vent line and flame trap. This option also allows sample return against back pressure.

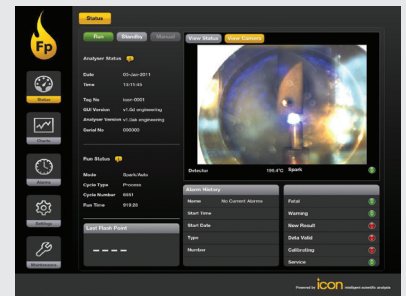
Inbuilt sample cooler: Peltier-based sample cooler to ensure that incoming sample is cooled below the flash point temperature.

Dual flash point detection methods: detection is based on a thermocouple or pressure switch chosen to suit the application.

Atmospheric pressure compensation: analyser results are adjusted according to atmospheric pressure as defined in the standard test methods.



FlashPoint cycle screen



FlashPoint status screen



Additional information

Measuring range	Adjustable for any range between 30°C to 300°C (depending on sample viscosity).
Repeatability	Equal to or better than the repeatability criteria of the relevant test (typically between $\pm 1^\circ\text{C}$ to $\pm 9^\circ\text{C}$ depending on actual flash point temperature and test method).
Reproducibility	Equal to or better than the reproducibility criteria of the relevant test.
Cycle time	4-8 minutes

Sample requirements

Filtration	Sample should be free from non-dissolved water and filtered to 10 microns.
Sample pressure at inlet	Between 0-5 bar(g).
Sample viscosity at inlet	Between 0.2-1,500 centipoise (0.2-1,500 mPaS).
Sample pressure at outlet	Atmospheric drain (with standard single pump), or a maximum of 5 bar(g) (with dual pump option).
Sample temperature at inlet	Ideally at least 10°C below the actual flash point or no more than 5°C above the actual flash point and not exceeding 80°C (standard pump drive) or 170°C (high-temperature pump drive).
Sample flow	Adjustable between 2-6L/h.

Utility requirements

Instrument air	Required at 1 to 10 bar(g) dew point minus 40°C or better. Flow rate 100-1,000 ml/min.
Power	115-220V ($\pm 15\%$) AC 50/60Hz Maximum Consumption 500VA.

Installation Requirements

Location	Unit should be located out of direct wind, sun and rain.
Ambient temperature	Should be maintained between $+5$ to $+50^\circ\text{C}$.
Ambient humidity	0 to 95% relative humidity, non-condensing.

Control System

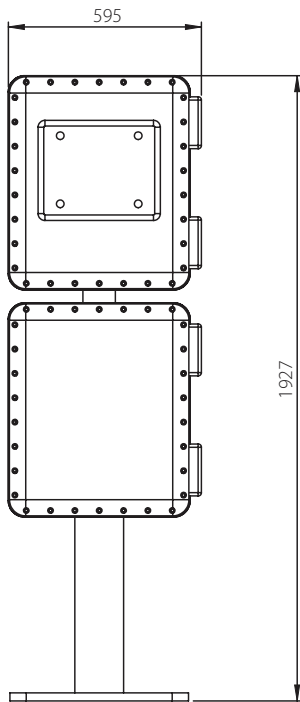
Control system	Based on fan-less industrial PC with solid state hard drive.
Graphical User Interface (GUI)	17" dual-touch, touch-screen panel that can be wiped clean and operated with gloved hands. The GUI is used to programme the unit and display current and historical analyser results and alarm status.
Language	Screen language selectable between English, French, Spanish and Chinese (others on request).

Inputs/Outputs

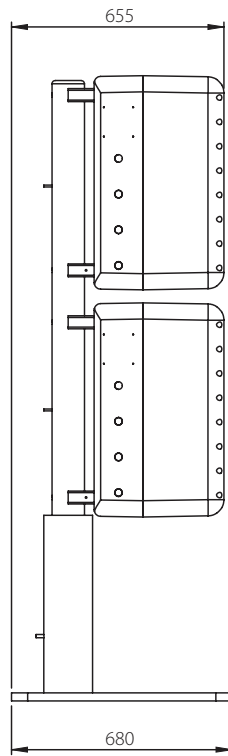
Analog outputs	2 x 4-20ma isolated outputs are provided as standard.
Modbus output	Wired Modbus RTU (RS485) and Modbus RTU over Ethernet available as standard.
Analog inputs	The analyser can read in up to four customer-provided 0-10V or 4-20mA signals. These inputs may be named, scaled and displayed and the values can have alarm levels associated with them.
Digital (contact) inputs	The analyser can monitor up to four volt free external contacts. The contacts can be allocated names for screen display and may be included in the alarm table.
Alarms	Any available alarm condition within the analyser may be allocated as active or inactive. Active alarms are notified on screen and stored in the alarm history table. Active alarms can be set by the user to activate a warning alarm contact or a fatal alarm contact. A warning alarm is for notification only while a fatal alarm causes the analyser to suspend its operation.
Contact outputs	In addition to the above Alarm contacts, the analyser also provides the following contact outputs. New Result: a two second contact to notify that a new analyser result is available. Data Valid: this contact will operate if the analyser is operating but the data is not valid because calibration or validation is in progress or the analyser is being run in manual mode. Service Alarm: the analyser monitors a number of internal functions and will warn the user if key items require service. All contact ratings are 24VDC 0.5A.
Hazardous area certification	The icon FlashPoint Analyser is ATEX and IECEx certified Exd (Tamb. -20°C to $+60^\circ\text{C}$) suitable for zone 1 or zone 2 use in gas groupings of IIA, IIB or IIB+H2 with a variable T-rating depending upon application. ATEX cert No.ITS10ATEX17189. IECEx certificate no. IECEx ITS 10.0058.
IP ratings	Tested and certified to IP66 (dust-tight and protected from powerful water jets) and to IP67 (dust-tight and protected from temporary total immersion in water).

Dimensions & Weights

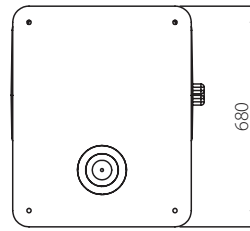
Front view



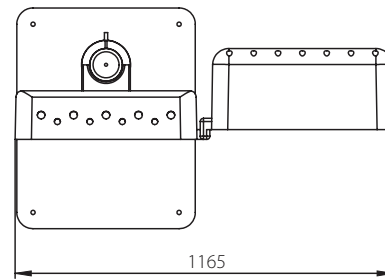
Side view



Top view



Top view with door open



Notes:

All dimensions in mm

Unpacked weight approx 300kg

Packed weight approx 350kg

Note: icon scientific products are subject to a program of continuous development and improvement and specifications are liable to change without notice. Please check that you have the latest information available before relying on any specification.