FlashPoint

Powered by icon

intelligent scientific analysis

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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.

Return to Pressure option: where no atmospheric return point is available an internal recovery unit is available to return against back pressures up to 5 barg.

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

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

Specification

Measuring range	Adjustable for any range between 30^0C to 200^0C. (Sample viscosity permitting).
Repeatability	Equal to or better than the repeatability criteria of the relevant test (typically between ±1°C to ± 9°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	4-10 minutes.

Sample Requirements

Filtration	Sample should be free from non-dissolved water and filtered to 10 microns
Sample Pressure at Inlet	Between 0.2–1 Barg
Sample Pressure at Outlet	Atmospheric drain (standard). Maximum of 5 Barg with optional internal recovery system.
Sample Viscosity at Inlet	0.2-10 centipoise (IIB+H2) 0.2-30 centipoise (IIA)
Sample Temperature at Inlet	Ideally 20°C below the actual flash point or, with internal cooler, 5°C above the actual flash point. Not higher than 80°C in all cases.
Sample Consumption	2-6L/h.

Utility Requirements

Instrument Air	Required at 1–2 Barg, flow 100-1000ml//min.
Power	100-250V, 50/60Hz, Max 500VA

Installation Requirements

Location	Unit should be located out of direct wind sun and rain
Ambient Temperature	+5 to +40 deg.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 multi-language.

Inputs/Oututs

Analog Output	1 x 4-20ma isolated output is provided as standard.
Modbus Output	Wired Modbus RTU(RS485) and Modbus RTU over Ethernet (TC/IP) available as standard. Optionally these wired connections can be converted to fibre optic. OPC (wired) is also available.
Analog Inputs (optional)	The analyser can read in up to 4 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 (contacts) Inputs (optional)	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.
Digital (contacts) 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. Calibration/Validation in progress: 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. Leakage Alarm: This contact will operate in the case of a leak being detected in the analyser enclosure. All contact ratings are 24VDC 0.5A, 230VAC, 1A

Certification

Hazardous Area Certification	The icon Flashpoint analyser is ATEX, IECEx and TIIS (Japanese) certified to the latest 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 Canada and the USA Class1 Div1 groups B,C,D.
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). Classification broadly equivalent to NEMA 6

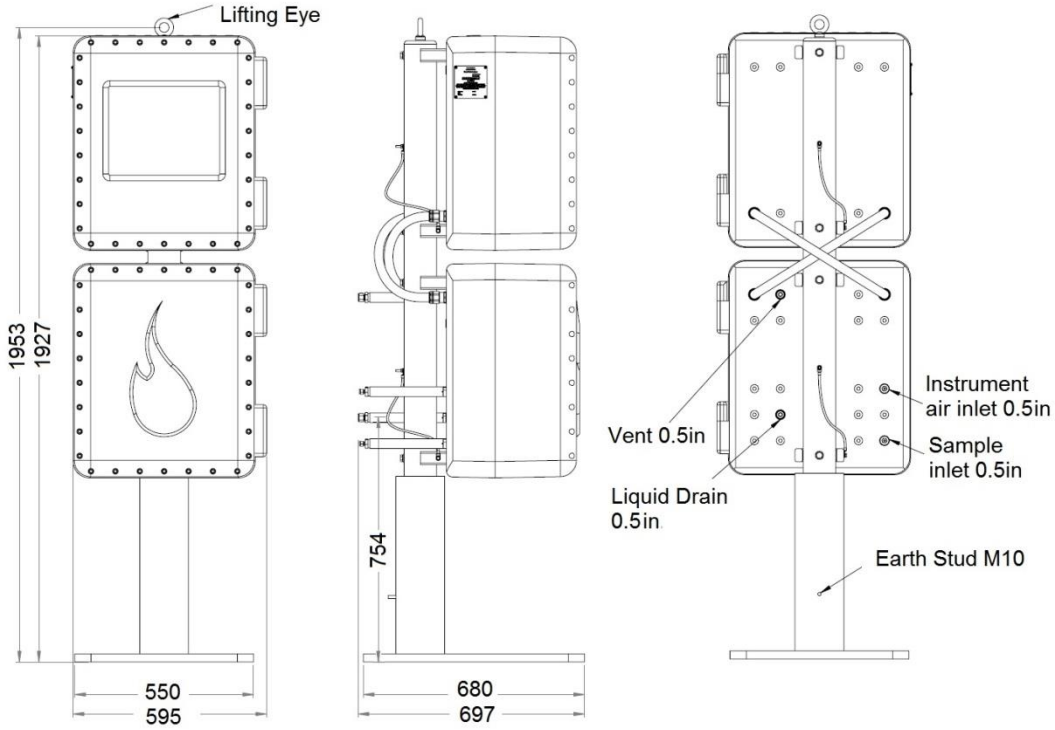
Dimensions & Weights

Notes:

All dimensions in mm

Unpacked weight approx 450kg

Packed weight approx 500kg



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.*