Viscosity

Powered by icon

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: 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.

Flexible: with standard modbus, 4-20mA and alarm contact outputs.

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What does it do?

The Viscosity Analyser is used to measure the dynamic viscosity of a range of petroleum products including lube oils, lube oil stocks, biodiesel and fuel oils.

Kinematic viscosity may also be calculated with a density input.

The results obtained may be directly correlated to standard test methods such as ASTM D445 .

How does it work?

The unit works by measuring the differential pressure across a capillary tube at constant and variable flow rates using a variable speed metering pump. In this way a single capillary tube can be used for a wide range of viscosity measurements. Precise temperature control is achieved by immersing the measuring capillary in a small stirred heated oil bath. The unit may be fitted with an additional oil bath if required to measure viscosity at two different temperatures. The unit can accommodate a wide range of pressures and temperatures at the inlet and can return sample direct to the process.

Why choose the icon scientific Process Viscosity Analyser?

Proven reliable measuring principle: The determination of viscosity by capillary tube measurement is the most widely accepted industry standard.

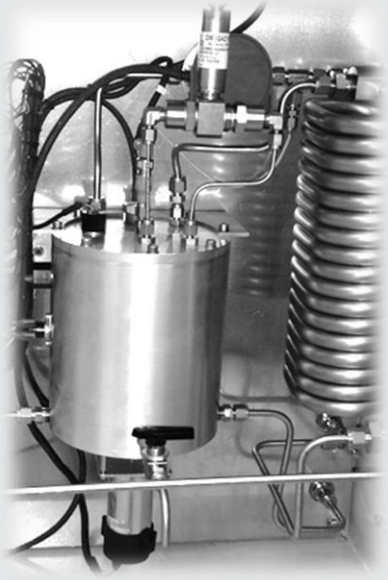
Rugged explosion proof construction: No purge gas required, analyser is rated to IP 66/67 suitable for installation in harsh environments.

Wide range of measuring temperatures and sample inlet and outlet conditions: Minimises the need for addition sample handling components simplifying system design.

User friendly multi-language interface: Uses the same common PC system as the other icon analysers with user friendly 17" glass touchscreen graphic user interface with full size plotting of all parameters.

Auto calibration and validation: the analyser can be programmed to perform automatic validation and calibration on demand or on a timed basis.

Standard Modbus output: as well as 4-20mA outputs and alarm contacts the unit has a standard Modbus RS485 wired output (fibre optic optional) and LAN Ethernet connectivity.



Specification

Standard Measuring Range	between 0-10 and 0-200cP
Maximum Measurement Temperature	135ºC
Repeatability	Within the repeatability criteria of the ASTM D445 test for the type of product under test and the measuring range.
Response Time	<90 sec to register 90% of a step change in viscosity at the analyser inlet.

Sample Requirements

Filtration	Filtered to 10 microns or better.
Maximum Static Sample Pressure	15 barg
Maximum Inlet Viscosity	Typically 50cP but application specific, consult icon.
Sample Temperature at Inlet	Bath (measuring) temperature +/- 50ºC. For samples above the measuring temperature additional coolant may be required.
Sample Flow	1-5.l/min

Utility Requirements

Power	115VAC 50Hz, 230VAC 50Hz 115VAC 60Hz, 230VAC 60Hz 1000VA
Coolant	A suitable coolant to be provided if the sample inlet temperature exceeds the measuring temperature. Consult Icon

Installation Requirements

Location	Unit must 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" dual-touch, touch-screen panel that can be wiped clean and operated with gloved hands
Language	Screen Language Selectable

Inputs/Outputs

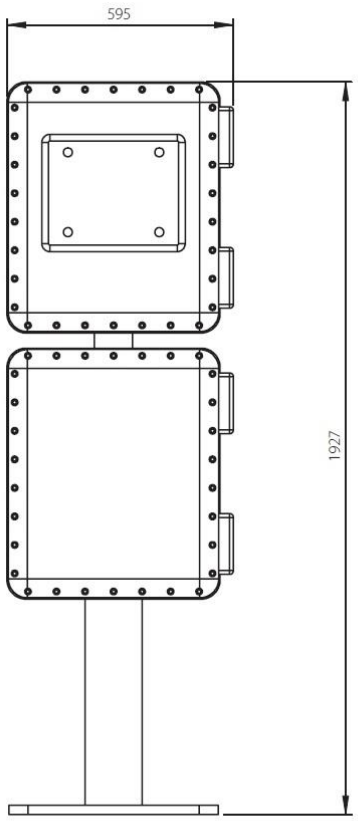
Analog Output	1 x 4-20mA active isolated output is provided.
Communications	Modbus RTU over RS485, Ethernet (TCP/IP) or optional fiber optics. Optional OPC c/w server software over RS485.
Analog Inputs	The analyser can read in up to 2 active 0-10V or 4-20mA signals. These inputs may be named scaled and displayed and the values can have alarm levels associated with them.
Digital Inputs	Optionally, 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 10 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. **Calibration/Validation**: indicates that the analyser is in calibration/validation. **Spill Alarm**: This contact will operate in the case of a leak being detected in the Cloudpoint cell or analyser enclosure. All contact ratings are 24VDC 0.5A, 230VAC, 1A

Certification

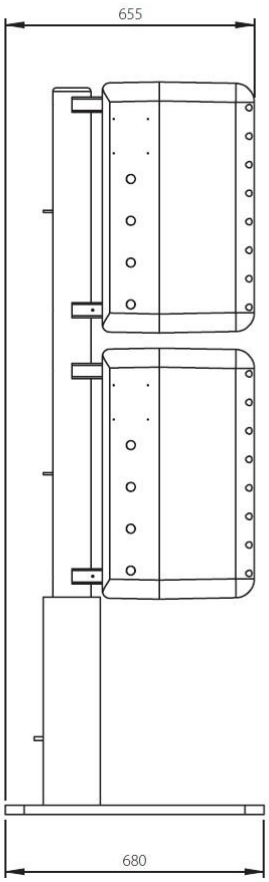
Hazardous Area Certification	The icon Viscosity analyser is ATEX, IECEx certified Exd for zone 1or zone 2 use IIB+H2 T6. It is also ETL listed for Canada and the USA Class1, Div1, groups B,C,D.
IP Ratings	Tested and certified to IP67 (dust tight and protected from temporary total immersion in water). Classification broadly equivalent to NEMA 6

Dimensions & Weights

Front view



Side view



Notes:

All dimensions in mm

Unpacked weight approx. 418 kg

Packed weight approx. 525 kg

Packed dimensions 210 x 78 x 105 cms

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.*