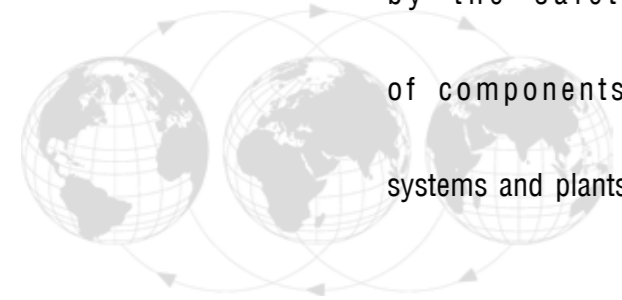


BARTEC GROUP
protects people and
the environment
by the safety
of components,
systems and plants.



Process Analyzer
Flash Point Process Analyzer FPA-4

Credible Solutions for the Oil and Gas Industry

To remain competitive, today's refiners must employ all optimization and product control techniques available. The use of online physical property analyzers is one of the key features to reach those objectives because they measure important quality properties in the process directly.

The flash point temperature is defined as the lowest temperature at which application of an ignition source causes the vapor of specimen of the sample to ignite under specified conditions of test.

BARTEC BENKE

Your partner for innovative system solutions.



The BARTEC BENKE specialists have many years of experience. They create system solutions that you can rely on: efficient and dependable for decades to come.

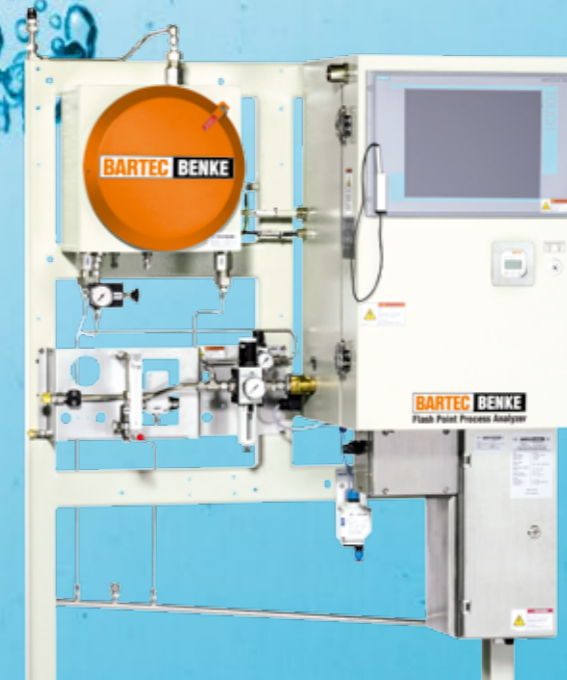
Flash point temperature continuously measured

No coking of measuring cell

Wide temperature range from 25 to 180°C

ASTM correlation based on catalytic reaction

Network and fieldbus communication



Special Features:

- Continuous measurement
- Overflow protection
- Multi-stream capability
- Integrated failure diagnosis and self monitoring
- No coking of measuring cell by catalytic reaction
- Scheduled automatic regeneration
- Available communication interfaces:
 - Modbus/RTU, Modbus/TCP (bidirectional)
 - Remote access via Ethernet (VDSL or FOC is)
- Validation report for quality assurance
- Freely programmable digital and analog inputs

Norms and Standards:

- Correlates with:
- ASTM D56
 - ASTM D93
 - DIN EN ISO 13736
 - DIN EN ISO 2719
 - IP 170
 - IP 34
 - DIN 51755

APPLICATION

The well established Flash Point Process Analyzer FPA-4 remains the best solution to continuously measure the flash point of kerosene, diesel and other low sulphur refinery products. The improved concept offers an extended measuring range up to 180°C (356°F). The catalytic oxidation technique significantly reduces maintenance requirements by eliminating carbonization of the sample on the cell.

Make your decision for a strong partner!

Choose BARTEC GROUP also for:

- Fast Loop Systems
- Sample Conditioning Systems
- Validation Systems
- Recovery Systems
- Chillers
- Air Conditioning Systems/HVAC
- Pre Commissioned Analyzer Shelters / Turn-Key Solutions



EXPLOSION PROTECTION

Marking ATEX: II 2 G IIC T4 Gb
CSA C/US ongoing
TR CU Certification available

TECHNICAL DATA

Technology continuous measurement using catalytic combustion

Method correlates with:
ASTM D56, ASTM D93, DIN EN ISO 2719,
DIN EN ISO 13736, IP 34, IP 170, DIN 51755

Measuring range 25 to 180°C (77 to 356°F)

Repeatability ≤ DIN EN/ASTM
e.g. kerosene typ. 0.1°C (approx. 0.2°F)

Reproducibility ≤ DIN EN/ASTM

Measuring cycle continuous

Product streams 2 x sample, 1 x validation
(additional hardware required)

■ Electrical data

Nominal voltage 230 VAC ±10 %, 1 phase; 50 Hz;
other ratings on request

Maximum power consumption approx. 500 W

■ **Protection class** IP 54 (NEMA 13)

■ Ambient conditions

Ambient temperature operation 5 to 40°C (41 to 104°F)
storage 0 to 60°C (32 to 140°F)

Ambient humidity operation 5 to 80 % relative humidity,
non-corrosive
storage 5 to 85 % relative humidity,
non-corrosive

Sample

Quality filtered 50 µm, free of suspended water,
bubble-free, sulfur < 2000 ppm,
free of heavy metals, free of phosphate
(≤ 37 cSt at inlet temperature)

Consumption approx. 2 to 3 l/h (at sample inlet)

Pressure at inlet 2 to 5 bar (29 to 72.5 psi)

Temperature at inlet min. 15 K below expected FP temperature
max. 80°C

Utilities

■ Instrument air

Consumption

Purge 8 Nm³/h while purging (~12 min)
Operation approx. 1 Nm³/h

Pressure at inlet 2 to 7 bar (29 to 101.5 psi)

Quality humidity class 2 or better acc. to ISO 8573.1

■ Coolant Consumption

depends on flash point temperature
sample as coolant: 30 to 60 l/h or
plant cooling water: 10 to 40 l/h

Temperature 5 to 40°C (41 to 104°F)

Pressure at inlet 2 to 5 bar (14.5 to 72.5 psi)

Quality filtered 50 µm

Signal outputs and inputs

Analog outputs flash point temperature
(others on request)

Digital outputs Alarm, Ready / Valid

Digital inputs Stream Selection, Validation Request, Reset

Electrical data of signal outputs and inputs

Analog outputs max. 8 (4 to 20 mA; 1000 Ω)
active isolated on request

Analog inputs 4 to 20 mA; 160 Ω

Digital outputs 24 VDC; max. 0.5 A

Digital inputs high: 15 to 28 VDC / low: 0 to 4 VDC

Auxiliary power supply output 24 VDC; max. 0.8 A

Control unit

Central control unit Industrial PC

Operating system Windows Embedded Standard 7®

Control software PACS

User interfaces

Display TFT display with touch function
1024 x 768 pixel

Keyboard virtual keyboard, controlled via
TFT display with touch function

Connections

Tube fittings Swagelok® 6 mm/12 mm/18 mm
other fittings on request

Vent/Drain open to atmosphere

Weight and dimensions

Weight approx. 200 kg

Dimensions (W x H x D) approx. 1140 x 2000 x 710 mm

Space requirements right: 200 mm / left: 200 mm

Optional interfaces

Analog outputs on request

MODBUS interface MODBUS/RTU via RS485 or RS422
or FOC is, MODBUS/TCP via FOC is

Remote access via Ethernet (VDSL or FOC is)

Important notice FPA-4 is subject to continuous product improvement, specifications are preliminary and may be subject to change without notice. If your technical data do not comply with existing data, please contact us for technical clarification.