BARTEC BENKE

Process Analyzer

Flash Point Process Analyzer FPA–4

Credible Solutions for the Oil and Gas Industry

Flash Point Process Analyzer FPA–4

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.

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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**

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.

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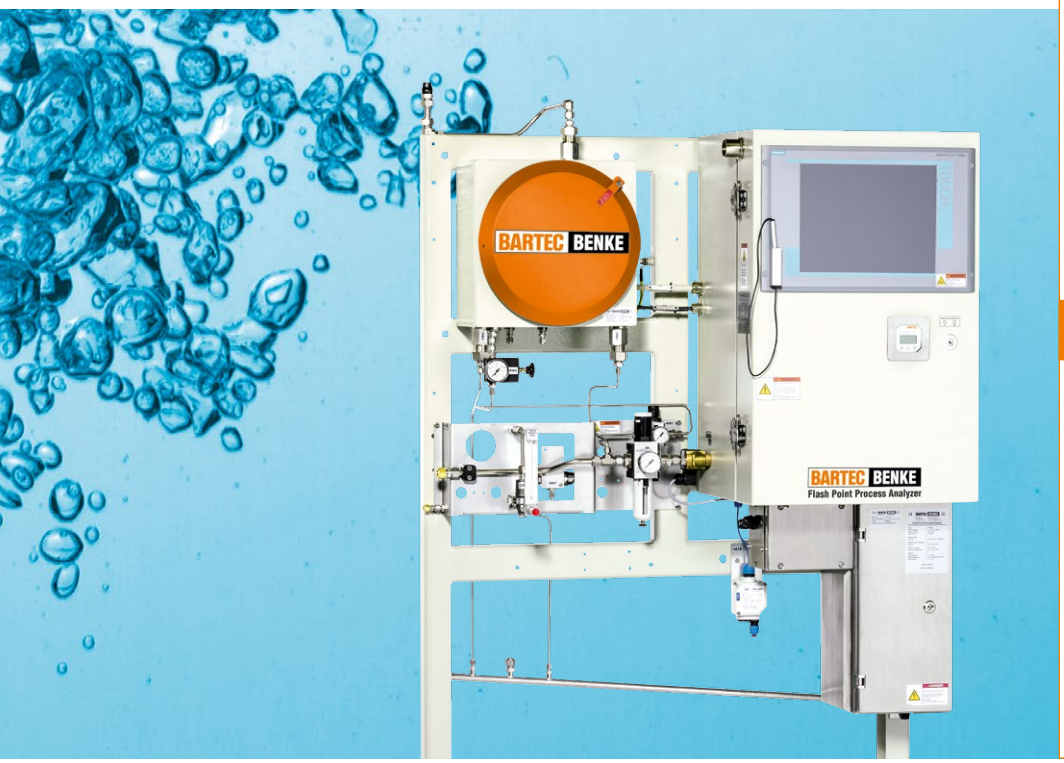
Special Features:

- **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**

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**

oil ■ gas ■ refineries ■ petrochemistry ■ chemistry

Flash Point Process Analyzer FPA–4

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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**	depends on flash point temperature
Consumption	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.

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