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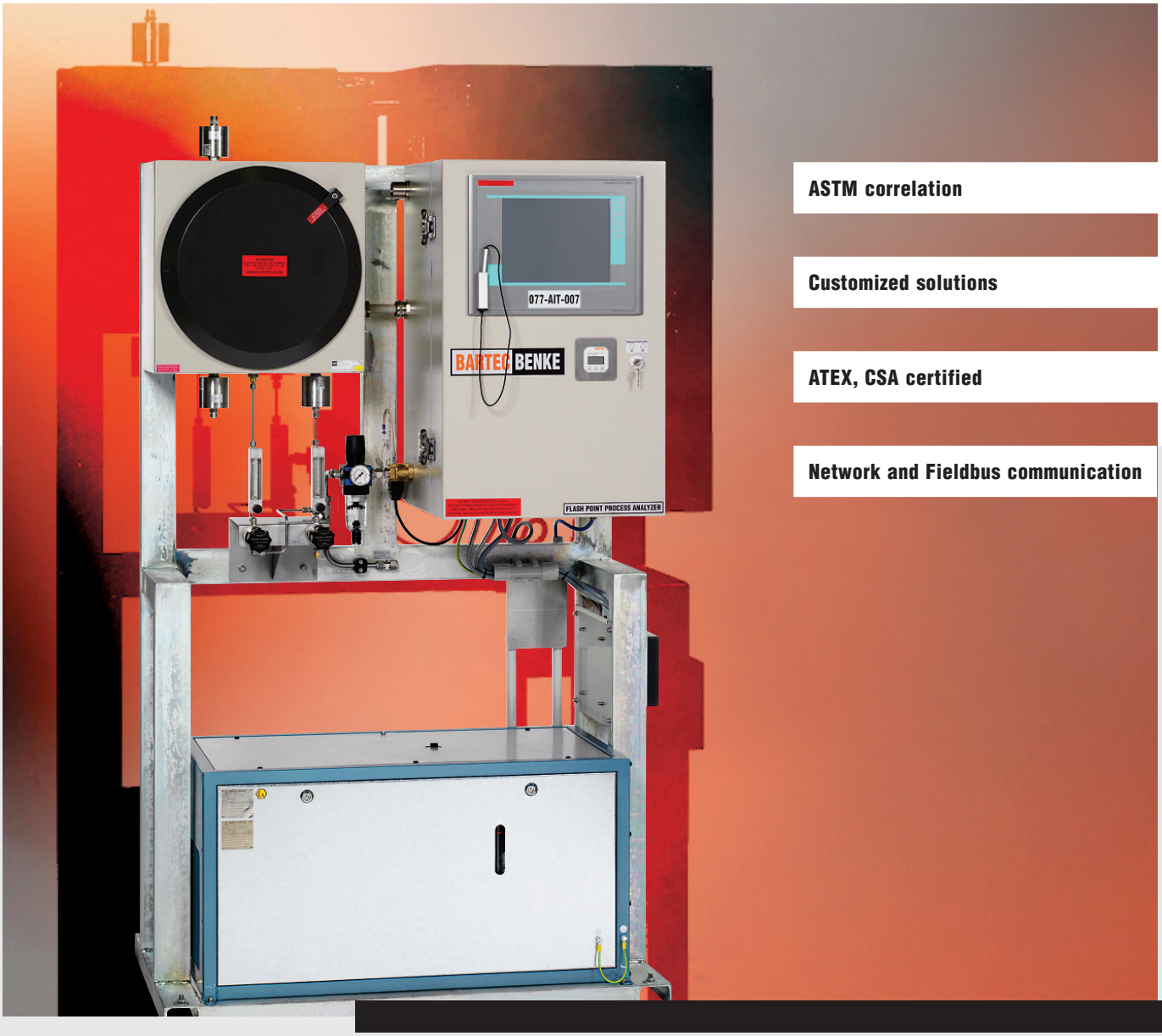

- ASTM correlation
- Customized solutions
- ATEX, CSA certified
- Network and Fieldbus communication

Process Analyzer

Flash Point Process Analyzer FPA-4

Flash Point Process Analyzer **FPA-4**

Application

The BARTEC BENKE Flash Point Process Analyzer (FPA-4) is a **continuously** measuring analyzer, suited to measure the flash point (FP) of a liquid phase. It correlates with laboratory measurements. The FPA-4 operates online. It serves to monitor/maintain product quality for the in-spec production of mineral oil products.

BARTEC BENKE

YOUR competent partner for safe plants

The specialists from BARTEC BENKE have many years of experience in plant safety. They create solutions which you can rely on: economical, reliable and for the future.

Special Features

- Continuous measurement
- 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
  - Remote Access via modem, ISDN, LAN, VPN

Make your decision for a strong partner!

Choose BARTEC BENKE also for

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

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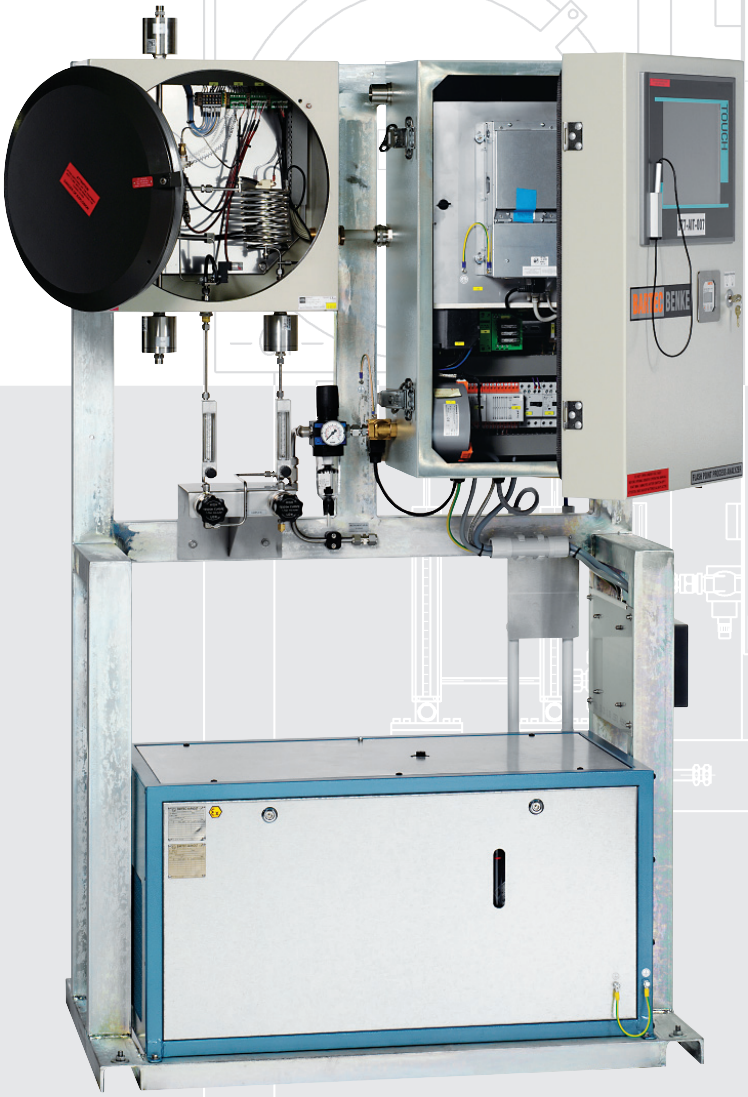

Norms and Standards

- ASTM D 56
- ASTM D 93
- DIN EN ISO 13736
- DIN EN ISO 2719
- IP 170
- IP 34
- DIN 51755

Principle of operation

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

The sample flows continuously through the measuring cell of the FPA-4. It is heated to the FP temperature, controlled by the FP-detector.

Note: Illustrations of this brochure show a typical FPA-4 Analyzer with the optional application specific chiller.

Oil and Gas Refineries **Petrochemistry** Chemistry

Flash Point Process Analyzer FPA-4

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Explosion protection

Ex protection type (Europe)	Ⓔx II 2G EEx pd (IIA; IIB; IIB+H_2) T3 or T4 Protection type depending on application
Certification	TÜV 03 ATEX 2222
Optional available classification (USA and CAN)	Class I, Div. 2, Groups B, C and D Class I, Zone 1, Groups IIA or IIB or IIB+H_2
CSA certificate no.	1524800

Technical data

Method	ASTM D 56, ASTM D 93 DIN EN ISO 2719, DIN EN ISO 13736 IP 34, IP 170 DIN 51755
Measuring range	within 30 to 120 °C (86 to 248 °F) or within 80 to 160 °C (176 to 320 °F) max. FP 160 °C (320 °F)
Repeatability	≤ ASTM
Reproducibility	≤ ASTM
Measuring cycle	continuously operated
Product streams	3 x sample, 1 x validation (additional hardware required)

Electrical data

Nominal voltage	AC 230 V ± 10 %, 1 phase; 50 Hz other rating on request
Maximum power consumption	approx. 700 W
Protection class	IP 54

Ambient conditions

Ambient temperature	operation 5 to 40 °C (41 to 104 °F)
Ambient humidity	operation 5 to 80 % relative humidity, non-corrosive

Sample

Quality	clean and dry; liquid (≤ 30 cSt)
Consumption	2 to 3 l/h (at sample inlet)
Pressure at inlet	1.5 to 3 bar
Temperature at inlet	min. 15 K below expected FP
Outlet	open to atmosphere

Utilities

Instrument air

Consumption	min. 1.4 Nm³ per flushing cycle during start-up ~ 0.8 Nm³/h in normal operating mode only for leak compensation
Pressure at inlet	2 to 5 bar
Quality	dew point ≤ -40 °C (-40 °F) humidity class 2 or better according to ISO8573.1

Signal outputs and inputs

Analog outputs	flash point selectable
Digital outputs	sum alarm, measurement valid, see options
Digital inputs	reset, see options

Electrical data of signal outputs and inputs

Analog outputs	4 to 20 mA 800 Ω out; active isolated on request
Digital outputs	DC 24 V; max. 0.5 A
Digital inputs	high DC 15 to 28 V low DC 0 to 4 V
Auxiliary power supply output	DC 24 V; max. 0.8 A

Control unit

Central control unit	Industrial PC
Operating system	Windows XP®
Control software	PACS

User interfaces

Display	TFT display with touch function 800 x 600 pixels
Keyboard	virtual keyboard, controlled via TFT display

Connections

Pipe fittings	Swagelok® 6 mm/12 mm/18 mm other fittings on request
Vent/Slop	open to atmosphere

Weight and dimensions

Weight	approx. 300 kg
Dimensions (W x H x D)	approx. 1140 x 1900 x 710 mm

Optional signal outputs and inputs

Digital outputs	identification of a validation cycle identification of a stream warning/low-priority error valve switching calibration ID regeneration ID
Digital inputs	stream selection enable/disable automatic stream switching request for a validation cycle request calibration request regeneration
MODBUS interface	MODBUS/RTU via RS485 or RS422 or fiber optic cable MODBUS/TCP via fiber optic cable
Remote access	via modem, ISDN, Ethernet via fiber optical or VPN

Important notice FPA-4 is subject to continuous product improvement, specifications may be subject to change without notice.

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