BARTEC BENKE

Flash Point Process Analyzer FPA-4

ASTM correlation

Customized solutions

State-of-the-art technology

ATEX and CSA certified

Network Fieldbus communication

Note: Picture shows an exemplary analyzer with the opitional sample conditioning system and closed loop chiller.

We, BARTEC BENKE, represent over 50 years of experience and specialist knowledge in analytical instruments and analytical systems for control and optimization of production processes in plants.

Our Physical Property Process Analyzers are synonymous with excellence and reliability.

To meet market demands, BARTEC BENKE is continuously developing new products that are internationally known for their quality and innovation.

Flash Point Process Analyzer FPA-4

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FPA-4 Redesign

The established Flash Point Process Analyzer FPA-4 and its measurement principle remains the best solution for jet fuel, kerosene, naphtha and other refinery applications.
The improved concept of the analyser design has resulted in an extended measuring range up to 180 °C (356 °F) which enables the FPA-4 to be used for additional applications such as Biodiesel.

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 or Ethernet

Norms and Standards

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

Explosion protection

Ex protection type
Ⓔx II 2G IIC T4 (or T3) Gb (Europe)
Protection type depending on application

Certification
pending for ATEX, IECEx and CSA US/CAN

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
+30 °C to +180 °C (+86 °F to +356 °F)

Repeatability
≤ ASTM

Reproducibility
≤ ASTM

Measuring cycle
continuously operated

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

Electrical data

Nominal voltages
AC 230 V ± 10 %, 1 phase; 50 Hz
AC 115 V ± 10 %, 1 phase; 60 Hz

Maximum power consumption
approx. 700 W

Protection class
IP 54

Ambient conditions

Ambient temperature
operation +5 °C to +40 °C
(+41 °F to +104 °F)

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

Sample

Quality
clean and dry; liquid
(≤ 37 cSt at inlet temperature)

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

Pressure at inlet
1.5 to 5 bar

Temperature at inlet
min. 15 K below expected FP

Outlet
< 1 bar

Utilities

Coolant
(dependent on flash point temperature)

Sample

Consumption
30 to 60 l/h

Temperature
max. +40 °C (+104 °F)

Plant Cooling Water

Consumption
10 to 40 l/h

Temperature
max. +40 °C (+104 °F)

Instrument air

Consumption
min. 1.4 Nm³ per flushing cycle during start-up
approx. 0.8 Nm³/h in normal operating mode only for leak compensation

Pressure at inlet
2 to 7 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, temperature

Digital outputs
sum alarm, measurement valid, see options

Digital inputs
return from safe state, 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 7®

Control software
PACS

User interfaces

Display
TFT display with touch function
1024 x 768 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

Optional signal outputs and inputs

Digital outputs
- Validation ID, stream ID
- warning/low-priority error
- valve switching
- calibration ID
- regeneration ID

Digital inputs
- stream selection
- enable/disable automatic stream switching
- request validation
- request regeneration
- inhibit (force safe state)

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

Remote access
via Modem or Ethernet

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

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