BARTEC BENKE

Process Analyzer

Pour Point Process Analyzer PPA–4

Credible Solutions for the Oil and Gas Industry

Pour Point Process Analyzer PPA–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 pour point of a liquid is the temperature at which it still flows but starts losing its flow characteristics by becoming semi solid. For hydrocarbons the pour point temperature depends on the content of paraffin in the liquid but also on the viscosity that changes with temperature. The pour point temperature is an important quality parameter especially for lube oils but also for gas oils and fuel oils.

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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.

ASTM compliant measurement based on tilting mechanism

Low and high temperature applications

Opacity independent measurement

Network and fieldbus communication

APPLICATION

The BARTEC BENKE Pour Point Process Analyzer PPA-4 is a system for the fully automatic determination of the pour point of a variety of products. The PPA-4 is used by lube oil producers to optimize the production processes and the use of cold flow additives. It is also used by fuel oil producers to meet market demands. The PPA-4 is the only process analyzer that is compliant with the applicable norm using a tilting device.

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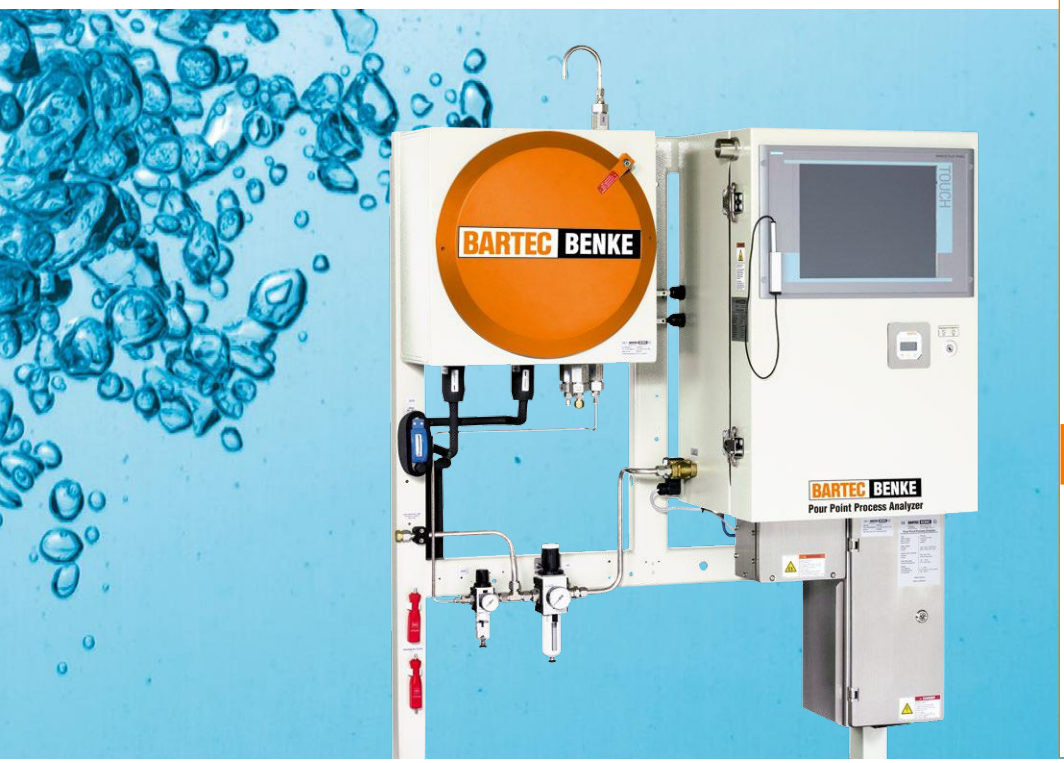

Special Features:

- **Real tilting measuring cell**
- **Rugged design of measuring cell**
- **Optimized assembly – easy removal of complete cell**
- **Available communication interfaces:**
  - Modbus/RTU, Modbus/TCP (bidirectional)
  - Remote access via Ethernet (VDSL or FOC is)
- **Integrated failure diagnosis and self monitoring**
- **Validation report for quality assurance**
- **Freely programmable digital and analog inputs**

Norms and Standards:

Compliant with:

- **ASTM D97**
- **DIN ISO 3016**
- **IP 15**

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**

Pour Point Process Analyzer PPA–4

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EXPLOSION PROTECTION

Marking	ATEX: II 2 G IIB (or IIC) T4 Gb NEC 500: Class I, Div. 2, Groups B, C and D NEC 505: Class I, Zone 1, AEx d e ib px IIB or IIB+H2

TECHNICAL DATA

Technology	Automatic tilting measuring cell
Method	compliant with: ASTM D97, DIN EN ISO 3016, IP 15 correlates with: ASTM D5949 Automatic Tilt Method similar to ASTM D5950
Measuring range	-30 to 33°C (-22 to 91.4°F)
Repeatability	≤ DIN EN/ASTM
Reproducibility	≤ DIN EN/ASTM
Measuring cycle	discontinuous, cycle time 15 to 90 min depends on pour point temperature
Product streams	1 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. 600 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 (≤ 37 cSt at inlet temperature)
Consumption	approx. 20 to 40 l/h
Pressure at inlet	1 to 3 bar (14.5 to 43.5 psi)
Temperature at inlet	normal: 30 to 50°C (86 to 133°F) min. 20 K above pour point temperature

Utilities

■ **Instrument air**	
Consumption	
Purge	8 Nm³/h while purging (~12 min)
Operation	approx. 0.8 Nm³/h
Pressure at inlet	2 to 5 bar (29 to 72.5 psi)
Quality	humidity class 2 or better acc. to ISO 8573.1
■ **Coolant**	controlled and supplied by chiller

Signal outputs and inputs

Analog outputs	pour 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 intputs	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/8 mm/12 mm/18 mm other fittings on request
Vent/Drain	open to atmosphere, backpressure on request

Weight and dimensions

Weight	approx. 420 kg
Dimensions (W x H x D)	approx. 1140 x 1900 x 710 mm
Space requirements	right: 500 mm / left: 500 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 PPA-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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