

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



*Process Analyzer*  
**Pour Point Process Analyzer PPA-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 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.

**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.

ASTM compliant measurement based on tilting mechanism

Low and high temperature applications

Opacity independent measurement

Network and fieldbus communication

**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

**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.

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

<b>Marking</b>	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
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## TECHNICAL DATA

<b>Technology</b>	Automatic tilting measuring cell
<b>Method</b>	compliant with: ASTM D97, DIN EN ISO 3016, IP 15 correlates with: ASTM D5949 Automatic Tilt Method similar to ASTM D5950

<b>Measuring range</b>	-30 to 33°C (-22 to 91.4°F)
<b>Repeatability</b>	≤ DIN EN/ASTM
<b>Reproducibility</b>	≤ DIN EN/ASTM
<b>Measuring cycle</b>	discontinuous, cycle time 15 to 90 min depends on pour point temperature
<b>Product streams</b>	1 x sample, 1 x validation (additional hardware required)

### ■ Electrical data

<b>Nominal voltage</b>	230 VAC ± 10 %, 1 phase; 50 Hz; other ratings on request
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<b>Maximum power consumption</b>	approx. 600 W
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■ <b>Protection class</b>	IP 54 (NEMA 13)
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### ■ Ambient conditions

<b>Ambient temperature</b>	operation 5 to 40°C (41 to 104°F) storage 0 to 60°C (32 to 140°F)
<b>Ambient humidity</b>	operation 5 to 80 % relative humidity, non-corrosive storage 5 to 85 % relative humidity, non-corrosive

### Sample

<b>Quality</b>	filtered 50 µm, free of suspended water (≤ 37 cSt at inlet temperature)
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<b>Consumption</b>	approx. 20 to 40 l/h
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<b>Pressure at inlet</b>	1 to 3 bar (14.5 to 43.5 psi)
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<b>Temperature at inlet</b>	normal: 30 to 50°C (86 to 133°F) min. 20 K above pour point temperature
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### Utilities

#### ■ Instrument air

<b>Consumption</b>	8 Nm <sup>3</sup> /h while purging (~12 min)
Purge	approx. 0.8 Nm <sup>3</sup> /h
Operation	

<b>Pressure at inlet</b>	2 to 5 bar (29 to 72.5 psi)
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<b>Quality</b>	humidity class 2 or better acc. to ISO 8573.1
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■ <b>Coolant</b>	controlled and supplied by chiller
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## Signal outputs and inputs

<b>Analog outputs</b>	pour point temperature (others on request)
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<b>Digital outputs</b>	Alarm, Ready / Valid
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<b>Digital inputs</b>	Stream Selection, Validation Request, Reset
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## Electrical data of signal outputs and inputs

<b>Analog outputs</b>	max. 8 (4 to 20 mA; 1000 Ω) active isolated on request
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<b>Analog inputs</b>	4 to 20 mA; 160 Ω
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<b>Digital outputs</b>	24 VDC; max. 0.5 A
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<b>Digital inputs</b>	high: 15 to 28 VDC low: 0 to 4 VDC
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<b>Auxiliary power supply output</b>	24 VDC; max. 0.8 A
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## Control unit

<b>Central control unit</b>	Industrial PC
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<b>Operating system</b>	Windows Embedded Standard 7®
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<b>Control software</b>	PACS
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## User interfaces

<b>Display</b>	TFT display with touch function 1024 x 768 pixel
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<b>Keyboard</b>	virtual keyboard, controlled via TFT display with touch function
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## Connections

<b>Tube fittings</b>	Swagelok® 6 mm/8 mm/12 mm/18 mm other fittings on request
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<b>Vent/Drain</b>	open to atmosphere, backpressure on request
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## Weight and dimensions

<b>Weight</b>	approx. 420 kg
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<b>Dimensions (W x H x D)</b>	approx. 1140 x 1900 x 710 mm
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<b>Space requirements</b>	right: 500 mm / left: 500 mm
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## Optional interfaces

<b>Analog outputs</b>	on request
<b>MODBUS interface</b>	MODBUS/RTU via RS485 or RS422 or FOC is, MODBUS/TCP via FOC is via Ethernet (VDSL or FOC is)
<b>Remote access</b>	

**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.