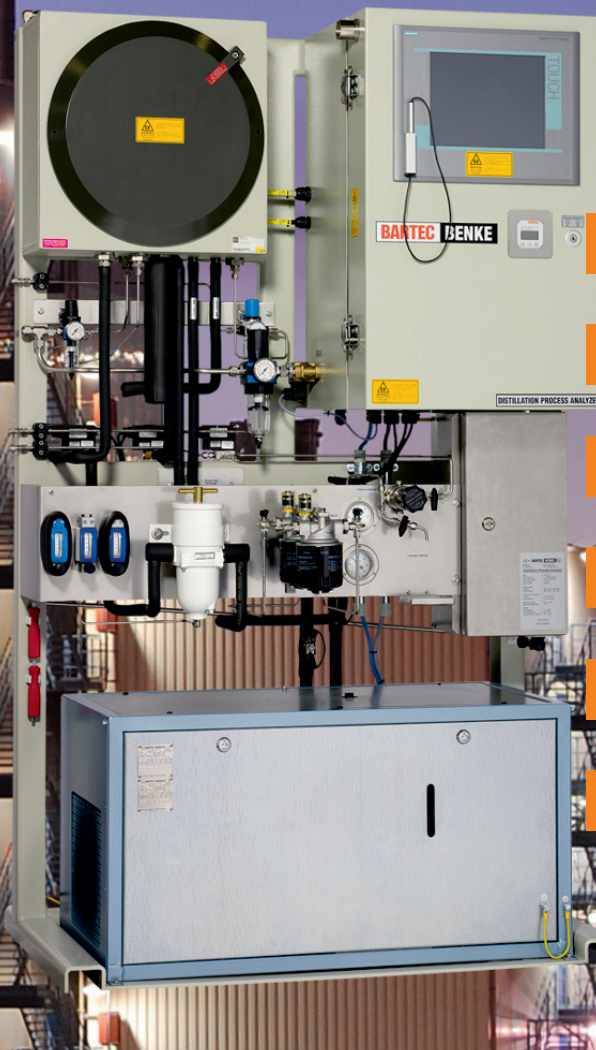


# Distillation Process Analyzer DPA-4



**ASTM D86 compliance\***

**Capability to reduce cycle time\*\***

**De-coking**

**State-of-the-art technology**

**ATEX and CSA certified**

**Network Fieldbus communication**

\* in Standard Analysis Method SAM

\*\* in Rapid Analysis Method RAM

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.



## Features

- The complete boiling curve is measured in every cycle (SAM)
- Measuring points of interest freely definable by software
- Cycle time reduction is possible: faster determination of distillation points (RAM)
- Enhances automatic control of blending processes
- De-coking

## Distillation Process Analyzer DPA-4

### Description

The DPA-4 is the only ASTM D86 compliant analyzer available. It is the most widespread distillation process analyzer on the market.

Refinery operator's requirements have had a significant influence on the redesign process of the new DPA-4 model with the result of the faster Rapid Analysis Method (RAM) beside the Standard Analysis Method (SAM) which is still compliant to the ASTM D86 laboratory method.

Switching between the methods after any desired measurement cycle is programmable or manually user selectable which allows flexibility at any time (e.g.: x RAM-cycles and occasional SAM-cycles for validation). Avoiding correlative methods for the SAM was the highest priority.

The faster RAM also uses the measurement setup required by the ASTM D86 method for a complete analysis including a flask, condenser and receiver. However, due to the unique design, measurement cycles of approx. 20 minutes are possible (sample dependent).

A special de-coking program prevents the coking of the measurement setup. Thus also allows the use of samples which tend to coke and therefore minimizes the maintenance requirements significantly.

### Explosion protection

**Marking (Europe)**

II 2G IIB+H2 T4 or II 2G IIB+H2 T3

**Optional available Classification**

(USA and CAN)

CSA Class I Div. 2 and Zone 1, T4 or T3

### Technical data

#### Method

SAM compliant to  
ASTM D86, DIN EN ISO 3405, IP123

RAM correlates to  
ASTM D86, DIN EN ISO 3405, IP123

#### Measurement procedure

batch distillation

#### Measurement range

20 °C to 420 °C (68 °F to 788 °F)

output of any temperature/distillate amount via Modbus

#### Repeatability & reproducibility

≤ ISO/ASTM

#### Measuring cycle

typical time for diesel/gasoline in SAM (in min)

IBP: approx. 29/24

50 % recovered: approx. 41/36

FBP: approx. 50

cycle time will be reduced by approx. 40 % in RAM

#### Product streams

up to 3 x sample with 1 validation sample each

#### Electrical data

##### Nominal voltage

AC 230 V ± 10 %, 1 phase; 50 Hz  
other ratings on request

##### Protection class

IP 54

#### Ambient conditions

##### Ambient temperature

5 to 40 °C

##### Ambient humidity

5 to 80 % relative humidity,  
at 25 °C/77 °F, non-corrosive

#### Sample

##### Quality

filtered 50 µm, bubble-free

##### Pressure at inlet

1 to 2 bar

##### Temperature at inlet

depending on application; max. 70 °C

##### Viscosity at inlet

max. 50 cSt

#### Utilities

##### Instrument air

##### Consumption

purge: min. 1.4 Nm<sup>3</sup>

operation: approx. 1 Nm<sup>3</sup>/h

##### Pressure at inlet

3 to 6 bar

##### Quality

humidity class 2 or better  
according to ISO 8573.1

##### Nitrogen

##### Consumption

1.5 NI/h

##### Pressure at inlet

3.5 to 10 bar

##### Quality

purity >98 %  
(humidity class  
- see instrument air)

#### Coolant

##### Pressure at inlet

2 to 7 bar

##### Quality

filtered 50 µm

##### Temperature at inlet

for layout for group 1 to 3

0 °C to 4 °C

##### for layout for group 4

5 K below requested condensing tube temperature, ±3 K hysteresis

#### Signal outputs and inputs

max. 8 analog outputs

8 digital outputs

5 digital inputs

#### Electrical data

##### of signal outputs and inputs

#### Analog outputs

max. 8 x 4 to 20 mA active, max. 1000 Ω out,  
isolated on request

#### Analog inputs

1 x 4 to 20 mA; 160 Ω

#### 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

##### Keyboard/display

virtual keyboard, controlled via TFT  
display with touch function

#### Connections

##### Pipe fittings

Swagelok® 6 mm/12 mm,  
other fittings on request

##### Vent/Slop

open to atmosphere  
backpressure on request

#### Weight and dimensions

##### Weight

approx. 250 kg without options  
(option chiller 100 kg)

##### Dimensions (L x W x H)

approx. 1191 mm x 1930 mm x 710 mm

##### Remote access (option)

via modem or Ethernet over VDSL;  
others on request

##### Modbus interfaces (option)

Modbus/RTU via RS485 or RS422

Modbus/TCP via VDSL;

others on request

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