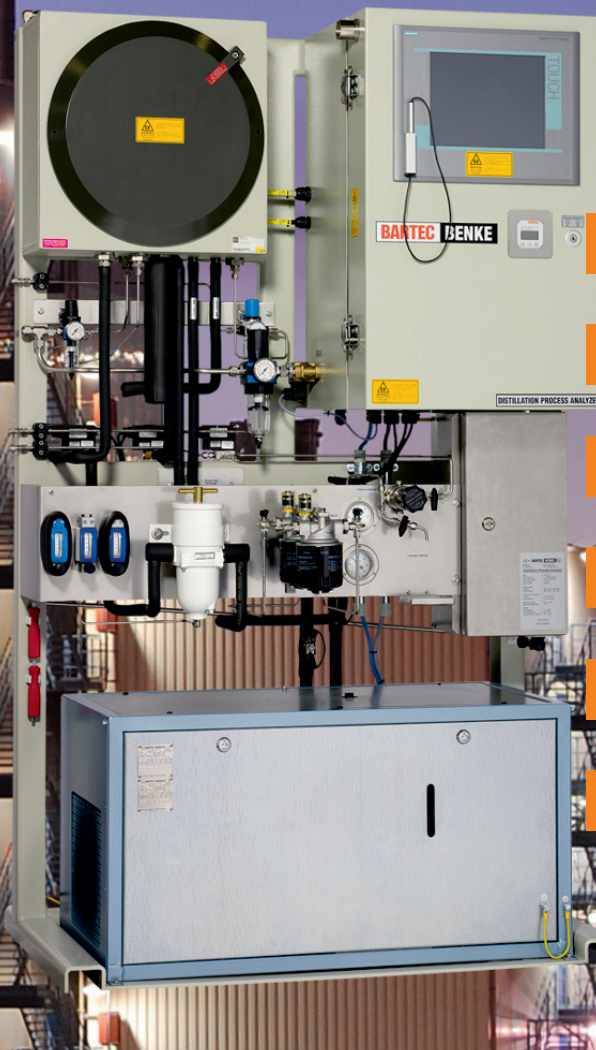


Distillation Process Analyzer DPA-4



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 Nm³
operation: approx. 1 Nm³/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.