ABB MEASUREMENT & ANALYTICS | DATA SHEET

RVP4500 Series

Reid vapor pressure analyzers

Maximizing gasoline blending profits

Measurement made easy

Key benefits

- Correlation to the laboratory method
  - First process RVP analyzer that better matches the laboratory methods by automatically saturating the sample

- Improved blending with air saturation
  - Reduces variable bias between lab and process RVP analyzer from changes in seasonal and octane level blends
  - Allows blenders to optimize their blend on the less expensive feeds by safely blending closer to the sweet spot

- Ethernet connectivity
  - VistaReport, OPC, Modbus

- Easy to read display
  - Visible display in low light conditions

- Different ranges due to variability of the feedstock going to the gasoline blenders
  - RVP4500 0 to 20 psi
  - RVP4501 0 to 90 psi
  - RVP4503 0 to 30 psi
  - RVP4510 0 to 25 psi
  - RVP4540 0 to 225 psi
  - RVP4550 0 to 20 psi with air saturation

- ASTM method D5482 (off-line mode)
  - RVP4500 meets the requirements for this ASTM method

- ASTM lab method D1267
  - RVP4540 meets the requirements for this ASTM method and measures vapor pressure of LPG or LNG streams

- RVP 4510 Shale Oil
  - RVP4510 measures RVP for demanding shale oil process streams

Overview

Application
Reid Vapor Pressure (RVP) is a vapor pressure measurement of gasoline and its feedstocks that is measured at a constant set of conditions which is used to monitor the quantity of light compounds in the gasoline. This measurement is used to reduce the amount of pollution from light compounds such as butane from escaping into the atmosphere and also to make sure there are enough light compounds to make sure car engines will start in cold temperatures.

Description
The RVP4500 series analyzers consist of several models to cover various range requirements. The ranges allow the analyzers to be used not only on the final gasoline blending but also on the various feedstocks to the gasoline blender. The RVP4550 offers a novel air saturation step that simulates the manual air saturation step of the laboratory method for the final gasoline blending operations. The RVP4540 is the version that is used to measure the vapor pressure in LPG and NGL streams.

Specification

RVP4500 Series
Enviromental (enclosure)
Protected from weather - IP 66, (NEMA 4 Equivalent)
Ambient temperature range
0 to +32 °C (32 to 90 °F),
0 to +40 °C (32 to 104 °F) with Vortex option
Humidity
95% relative humidity, non-condensing
Dimensions (W x D x H)
762.0 mm x 222.3 mm x 1371.6 mm
30.0 in. x 8.75 in. x 54.0 in.
Weight
56.7 kg (125 lbs.) (minimum, configuration dependent)
Mounting
Wall – 33 mm (1.3 in.) from wall with brackets
Floor – Optional dolly
EMI / RFI considerations
Conform to Class A industrial environment
Electrical entries
Side

Performance specification

RVP4500, RVP4501, RVP4503, RVP4510, RVP4540 and RVP4550

Cycle time

Without air saturation	8.5 minutes
With air saturation	10 minutes
RVP4510	12 minutes

Repeatability

RVP4500/RVP4503/RVP4550	0.05 psia
RVP4501/RVP4510	0.20 psia
RVP4540	1.8 psia

Reproducibility

RVP4500/RVP4503/RVP4550	0.02 psia
RVP4501	0.8 psia
RVP4510	0.4 psia
RVP4540	2.8 psia

Operating range

RVP4500	0 to 20 psia
RVP4501	0 10 90 psia
RVP4503	0 20 to 30 psia
RVP4510	0 to 20 psia
RVP4540	0 to 225 psia
RVP4550	0 to 20 psia

Pressure transducer

High performance, accuracy
0.5% of full scale

Outputs

4 to 20 mA isolated, 600 Ω maximum
Ethernet
RS-232 serial output

RVP cell drain

Cell drain must be unrestricted vent to atmosphere

Safety area classification

CSA / NRTL

Class I, Division 1; Gas Groups B, C, D
Temperature code 6

ATEX

Zone 1: CE 0344; II2G, Exd IIB T3

IECEx

Zone 1: Exd IIB+H2 T6

Power (Hot, Neutral, Ground)

Voltage

100 to 240 V AC

Frequency

50 to 60 Hz

Power consumption

150 W Startup and steady-state operation
Typical, varies with installed options.

Instrument air

Supply connection

¼ in. (6.4 mm) tube, minimum

Supply pressure

414 kPa (60 psig) minimum

Quality

Instrument grade:
Clean, oil free and and -34 °C (-30 °F) dew point

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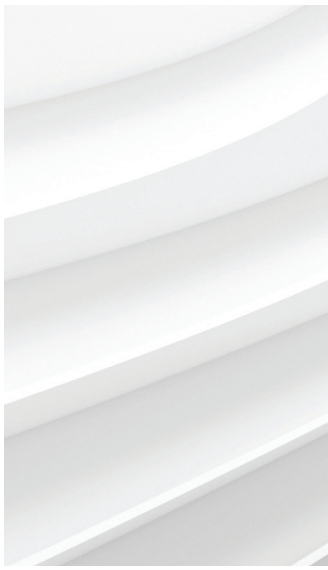

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