

DB450 MINI Cabinet Extraction Type Flue Gas Humidity Analyzer

Compact extractable flue gas humidity analyzer for CEMS and high-temperature, high-dust industrial exhaust environments.

Overview

The DABECO DB450 MINI humidity analyzer is widely used in continuous emission monitoring systems (CEMS) for flue gas humidity measurement. It is also suited to humidity measurement and control in wood, building materials, paper, chemical, pharmaceutical, fiber, textile, tobacco, vegetable, and food processing applications. For low-temperature, high-humidity, and high-dust environments, the extraction sampling design with optional electric heat tracing provides a reliable, compact flue gas humidity solution.

Operating Principle

The DB450 MINI uses a capacitance-method sensing element housed in a compact wall-mounted enclosure, drawing sample gas via an extraction (split/pumped) sampling method rather than in-situ insertion. Optional electric heat tracing (50-150°C) keeps the sample line above dew point to prevent condensation before it reaches the sensor, which displays either volume ratio or relative humidity (one mode at a time, specified at order) on a four-digit tube display, with 4-20mA analog and RS485 digital outputs.

Key Features

- Capacitance-method humidity sensing
- Compact cabinet form factor
- Extraction (split/pumped) sampling for harsh flue gas conditions
- Optional electric heat tracing, 50-150°C, to prevent line condensation
- Selectable display: volume ratio (0-40% VOL) or relative humidity (0-100% RH)
- Four-digit tube display
- 4-20mA analog output plus RS485 digital interface
- IP65-rated instrument enclosure
- Wall-mounted cabinet installation

Benefits

- Compact footprint suits sites with limited installation space versus the full-size DB460
- Extraction sampling with heat tracing handles low-temperature, high-humidity, high-dust flue gas that would damage in-situ sensors
- Dual output (4-20mA + RS485) supports both simple loop integration and digital SCADA/CEMS connectivity
- IP65 enclosure suits demanding industrial installation sites

Typical Applications

Continuous Emission Monitoring Systems (CEMS), Flue Gas Humidity Monitoring, Wood & Building Materials Processing, Paper & Pulp Industry, Chemical & Pharmaceutical Processing, Fiber & Textile Production, Tobacco Processing, Vegetable & Food Processing

Technical Specifications

Measurement

Principle	Capacitance method
Range	Volume ratio 0-40% VOL or Relative humidity 0-100% RH (one mode at a time, specify at order)
Resolution	0.1%
Accuracy	<±1.5% FS
Repeatability	<±1%
Response Time (T90)	<15s

Display

Type	Four digital tube display
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Sampling & Conditioning

Sampling Mode	Extraction type
Heat Tracing	Electric heat tracing (optional), 50°C-150°C
Sample Gas Requirement	No flammable gas, no strongly corrosive gas

Outputs

Analog	4-20mA (non-isolated, load resistance <500Ω)
Digital	RS485

Operating Conditions

Instrument Working Temperature	-10°C to +50°C
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Power & Physical

Supply	DC 24V
Consumption	<3A
Protection Rating	IP65 (instrument box)
Installation	Wall-mounted
Service Life	Instrument >36 months; sensor >24 months (normal use)