

DB442 Condensation-Resistant Dew Point Humidity Transmitter (up to 200°C)

Condensation-resistant dew point and humidity transmitter rated to 200°C for high-moisture industrial and climate chamber environments.

Overview

The DABECO DB442 transmitter is designed for fixed installation in industrial applications with conditions ranging from 0 to 100% RH and 0 to 200°C, with the probe able to survive exposure up to 200°C. Beyond its aluminum enclosure and 316L probe, a special condensation-resistant design lets the DB442 measure relative humidity, absolute humidity, temperature, volume ratio, mixing ratio, and dew point in high-moisture industrial environments — including textile printing and dyeing, papermaking, shaping and drying, tunnel drying, ceramic production, rubber production, steam pipelines, constant temperature test chambers, and hydrogen fuel cells. The DB440 series is available in different installation modes: direct duct mounting or wall mounting with an extra probe.

Operating Principle

A condensation-resistant humidity and temperature sensing element housed in a 316L stainless steel probe is engineered to remain accurate even when exposed to repeated condensation cycles in high-moisture, high-temperature process air, deriving relative humidity, absolute humidity, volume ratio, mixing ratio, and dew point. Readings are transmitted via 4-20mA analog and RS485 digital outputs for duct or wall-mounted installation.

Key Features

- Condensation-resistant sensor design for high-moisture environments
- Temperature rating up to 200°C (-40 to 200°C, customizable)
- Derives relative humidity, absolute humidity, volume ratio, mixing ratio, and dew point
- Cast aluminum housing with 316L stainless steel probe
- Pressure resistant to max. 4 bar
- 4-20mA analog output and RS485 digital interface
- Duct-mounted (thread/flange/clamp) or wall-mounted with extra probe installation

Benefits

- Condensation-resistant design maintains accuracy in cyclic high-humidity, high-temperature processes where standard sensors would drift or fail
- 316L probe and pressure-rated housing suit harsh industrial and lab environments
- Multi-parameter output (RH, dew point, absolute humidity, etc.) supports advanced process and climate chamber control
- Flexible mounting (duct or wall with probe) adapts to varied installation layouts

Typical Applications

Climate & Environmental Test Chambers, Textile Printing & Dyeing, Papermaking, Fabric Shaping & Drying, Tunnel Drying, Ceramic Production, Rubber Production, Steam Pipelines, Hydrogen Fuel Cell Systems

Technical Specifications

Measurement

Humidity Range	0-100% RH
Temperature Range	-40 to 200°C (customizable)
Humidity Accuracy	±2% RH (20-80% RH @ 25°C)
Temperature Accuracy	±0.2°C (@ 25°C)
Humidity Repeatability	±0.2% RH
Temperature Repeatability	±0.1°C
Response Time (Humidity)	≤15s
Response Time (Temperature)	30s

Outputs

Analog	4-20mA
Digital	RS485

Power & Electrical

Supply	24V DC
Current Consumption	Max 80mA
Electrical Connection	Terminal block

Mechanical & Environmental

Transmitter Working Temperature	-40 to 70°C
Pressure Resistance	Max. 4 bar
Housing Material	Cast Aluminium
Stem Material	304 Stainless Steel
Probe Material	316L Stainless Steel
Installation	Duct mounted (thread/flange/clamp) or wall mounted with extra probe

Dimensions

Stem Length	400mm standard, up to 800mm
Cable Length (wall mount)	1m standard, up to 3m
Probe Length	150mm standard; 52mm and 87mm options