

## Humidity Measurement in Dyeing and Discharge Processes

**Industry:** Chemical

**Product:** Zirconia Humidity Analyzer

### Introduction

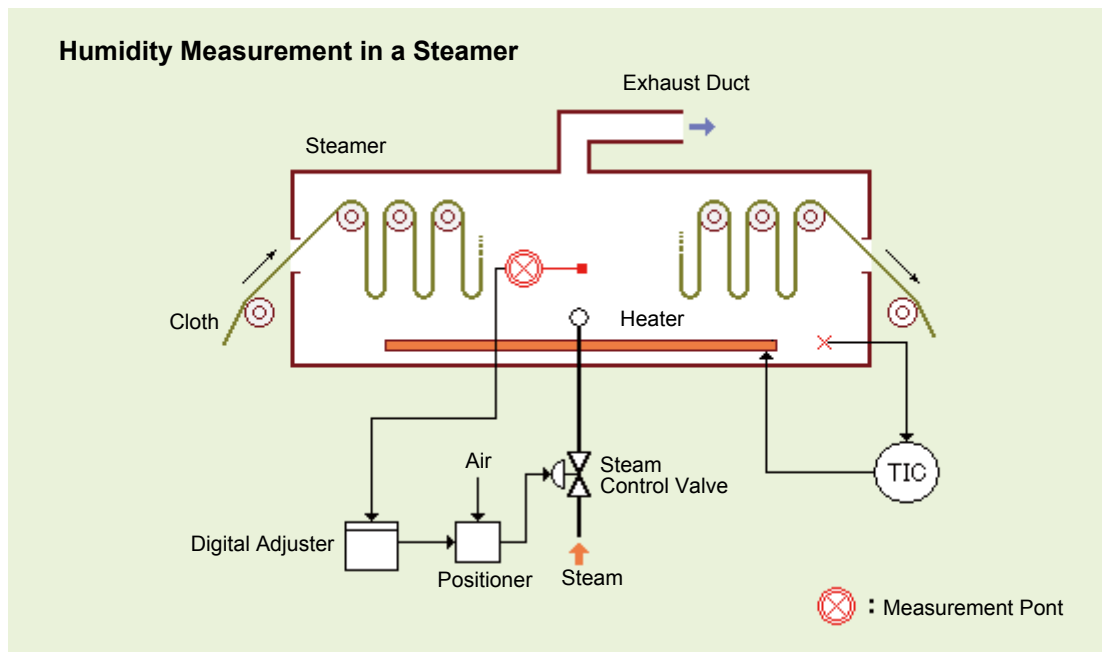
There are various methods for continuous fabric dyeing as well as dye fixing. When dye is directly applied, steaming (heat treatment) is required. At present the pad-steam method is widely used for continuous dyeing. To ensure stable product quality, the humidity in the steamer is kept at a constant level. The ZR402G/HS Direct In Situ Zirconia High Temperature Humidity Analyzer provides excellent maintainability as it does not require the use of a sampling system, and ensures stable measurement in high temperature environments. It has been well received in the marketplace and is widely used in humidity control applications.

### Process Overview

The pad-steam dyeing process uses vat, reactive, acid, disperse, and other types of dyes, and includes padding, drying, fixing, washing, and re-drying steps. After padding, the fabrics are forwarded to a steamer where the dye is fixed under conditions of constant temperature and humidity.

### Expected Benefits

- Maintains the quality of the discharge process
- Ensures stable, continuous humidity measurement
- Reduces operating costs



## Solution Details

### Field Data

#### Process conditions

Measurement point: Steamer side  
 Sample gas component: Steam: 90 to 100%; air: remaining  
 Temperature: 70 to 110 °C  
 Pressure: 10 to 30 kPa  
 Dust: Non

#### Measurement system

Detector:  
 ZR22G-□□□-S-H-C-R-□-E-A/SV  
 Converter:  
 ZR402G-□-E-E-A/HS/□  
 Standard gas unit:  
 ZO21S-□-E\*A

#### Utilities

Power supply: rated voltage: 100 to 240 V AC  
 operating voltage range: 85 to 264 V AC  
 rated frequency: 50/60 Hz  
 operating frequency range: 45 to 66 Hz  
 Power consumption: approx. 100 VA (300 VA max.)

#### Notes

- It is best to install the detector vertically with the probe head pointing downward, but it can also be installed at any angle between 0° and 90° (horizontal installation shown right) with respect to the vertical.

