

# 4111 Temperature Compensated Humidity Transmitter

## Specification

### Overview

The Honeywell Temperature Compensated Humidity Transmitter is a premium system designed for high temperature industrial humidity measurements. The packaging is extremely rugged and can be installed in the process, or mounted to a wall or pipe. Whether used as a rugged industrial humidity transmitter or in hazardous areas, the 4111 is designed to provide premium performance using sensors proven to perform in hostile environments.

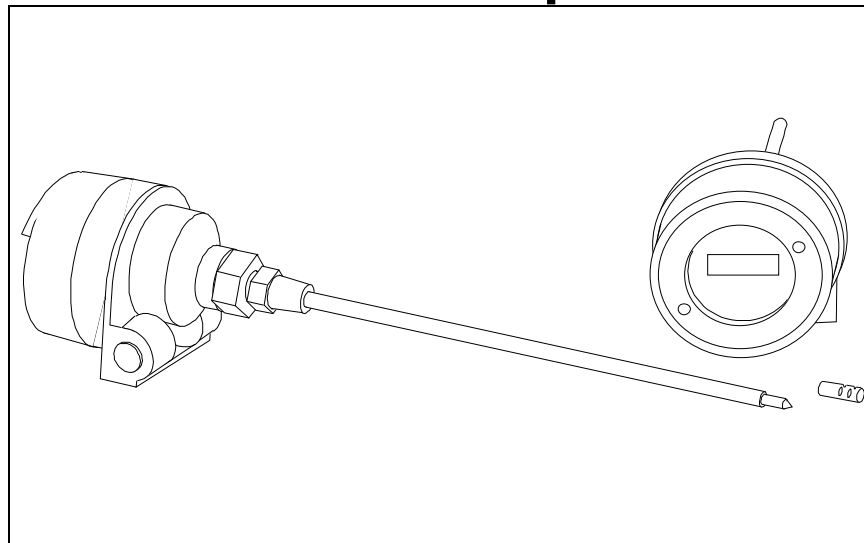
### Features/Benefits

- Temperature Compensated
- Operation up to 176°F
- Contamination Resistant
- External Non-Interactive Adjustments
- One-Point Field Calibration
- Interchangeable Sensor

### Description

**Temperature Compensated** - A patented ULTRA-7™ thin film platinum RTD is mounted directly on the back of the humidity sensor to monitor its temperature. Output is automatically corrected over the full range of relative humidity and operating temperatures.

**176°F Operation** - The 4111 is designed to perform in elevated temperature applications. The sensor is fully compensated for accurate humidity measurements in atmospheric pressure environments up to 176°F. This unique temperature compensation and high temperature capability opens the door to elevated temperature drying applications as well as industrial inline process control.



**Contamination Resistant** - The Honeywell 4111 incorporates the new ULTRA-H II™ sensor. This sensor has superior contamination resistance. Common solvents, dirt, oil and other pollutants do not affect the stability or accuracy of the sensor. The sensor's polymer coating has excellent contamination resistance even in ammonia or chlorine environments. A porous platinum layer over the sensing polymer layer eliminates sensing external contamination and a final polymer topcoat protects the sensor. The sensor connections are potted in a custom molded plug to exclude contamination. Response time may be slowed by heavy contaminant layers, but accuracy is unaffected. The protective shield is removable for cleaning the thin film chip sensor. This rugged sensor is unique in that it may be washed. If physical damage occurs a new dual sensor may be plugged in and the system recalibrated.

**External Non-Interactive Adjustment** - The zero and span adjustments are located on the outside of the enclosure. Therefore, during normal maintenance, the environmental seal is not violated.

This allows for adjustments on-site yet retains the extra level of safety needed in potentially explosive environments. The circuit board is protected in a dual compartment housing adding an extra measure of protection from condensation.

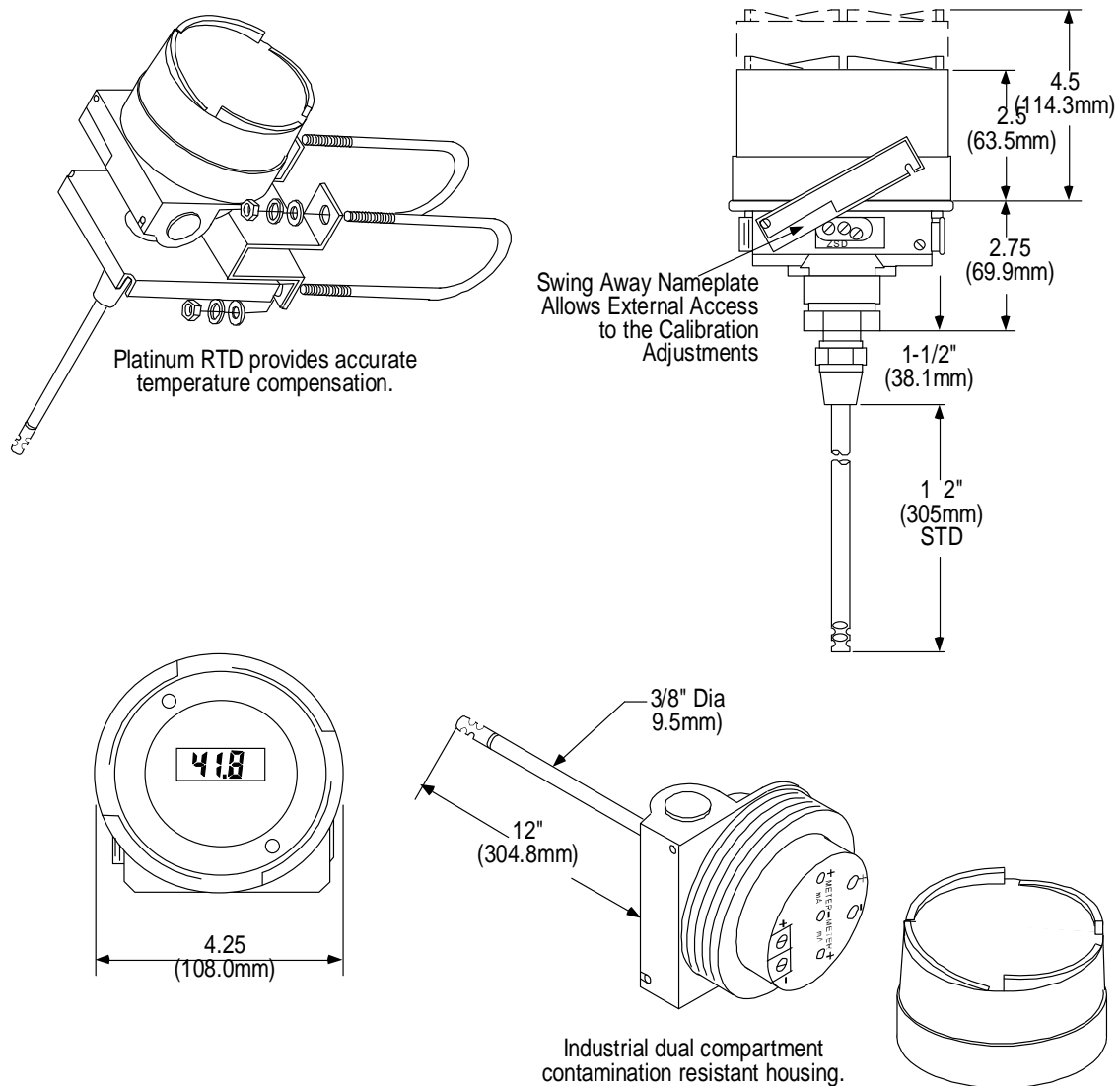
Unique, fully independent zero and span adjustments cut calibration time and provide easy field adjustment.

**One-Point Field Calibration** - Calibration is simple: one-pot, one-point, one-adjustment. Only the zero setting needs adjusting for routine field calibration. The sensor can be calibrated on-line in most instances.

**Interchangeable Sensor** - The ULTRA-H II™ humidity sensor is linear and interchangeable with only a zero adjustment. The ULTRA-7™ platinum RTD, built in the humidity sensor, is fully interchangeable with no adjustment necessary.

### Specifications

<b>Transmitter Output</b>	4-20 mA (Corresponding to 0 to 100% RH)
<b>Calibrated Humidity Range</b>	0 to 100% RH
<b>Calibration</b>	NBS traceable data available
<b>Sensing Element</b>	ULTRA-H II™ thin film capacitive element with an ULTRA-7™ thin film platinum RTD for temperature compensation
<b>Accuracy</b>	±2.5% RH at 15°C to 40°C (59°F to 104°F) or ±3.5% RH at 10°C to 80°C (41°F to 176°F); from 0 to 93.8% RH at 1 Atm; ±1% RH to user setpoint held ±10% RH and ±5°C (Includes temperature, linearity, hysteresis and repeatability)
<b>Repeatability</b>	±0.5% RH
<b>Linearity</b>	±1% RH
<b>Hysteresis</b>	±1% of operating humidity span
<b>Temperature Effect</b>	±0.03% RH/°C ±1% RH at 10°C to 80°C (41°F to 176°F);
<b>Operating Temperature</b>	-40°C to 80°C (-40°F to 176°F)
<b>Storage Temperature</b>	-55°C to 85°C (-67°F to 185°F)
<b>Time Constant</b>	16 seconds in slow moving air at 25°C
<b>Stability</b>	Within 0.5% RH up to 80% RH; at 93.8% RH increases to +3% FH with 16 hours at 25°C
<b>Washability</b>	Washable in detergent solution with a water rinse
<b>Sensor Interchangeability</b>	Plug-in and recalibrate transmitter to original specifications
<b>RFI Susceptibility</b>	Per SAMA PMC 33.1
<b>Input Voltage Effect</b>	±0.002% RH/Volt from 12 V to 45 V
<b>Power Requirement</b>	12 Vdc +(R <sub>load</sub> x 0.02 A) min to 45 Vdc maximum unregulated
<b>Recommended R<sub>load</sub></b>	250 ohms ±0.1% maximum at 17 Vdc min. 500 ohms ±0.1% maximum at 22 Vdc min. 750 ohms ±0.1% maximum at 27 Vdc min.
<b>Zero and Span Adjust</b>	Adjustable for calibration, non-interacting
<b>Break Indication</b>	Upscale to 20 mA except shorted RTD sensor downscale to 4 mA
<b>Polarity Protection</b>	Diode protected
<b>Pressure Rating</b>	0 - 50 psi
<b>Sensor Housing</b>	Stainless steel probe; fluted shield, (standard); porous stainless steel filter, (optional)
<b>Transmitter Housing</b>	NEMA 4X, cast low copper aluminum, fully anodized with aliphatic urethane finish. Weight of standard unit 3.2 lb. (1.5 kg). Weight with extended dome cover approximately 4.4 lb. (2.0 kg)
<b>Sensor connections</b>	Coaxial jack and 2 pin connector; Sensor cables plug into transmitter module; Cable allows sensor tip extension up to 36" from transmitter
<b>Signal Connection</b>	Power/signal leads to terminals under outer cover
<b>System Test</b>	Disconnected humidity cable provides 4.0 ±0.01 mA output; Disconnected RTD cable or removed sensor provides 20 ±0.01 mA output



Distributor :

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