

GREYSTONE

ACCURACY BY DESIGN



RELATIVE HUMIDITY TRANSDUCER



The RH series of Humidity/Temperature Transducer is designed for use with automation, energy management, and process computer control/monitoring systems. Provisions are included for mounting of various temperature sensors.

FEATURES:

- Compact enclosure
- Resistant to volatile organic compounds
- Highly stable
- Field selectable outputs
4 to 20 mA, 0 – 1 VDC,
0 – 5 VDC, 0 – 10 VDC
- Accuracy $\pm 2\%$ to $\pm 5\%$
- Humidity span 0% to 100%
- Temperature options available
- AC / DC operation
- Temperature compensated
- Fast response

*Peace of mind
through reliable
humidity monitoring*

GREYSTONE IS AN **ISO 9000** REGISTERED COMPANY

DESCRIPTION: (Humidity transmitter with temperature sensor)

The RH series transducers are intended specifically for use in environmental monitoring and control systems and comes in a variety of enclosures. Its state-of-the-art design combines microprocessor based linearization and temperature correction with a world class capacitance sensor. Reliability and accuracy for even the most critical of measurements.

Excellent long-term stability and quick response time combined with temperature compensation make the RH series transducers an ideal choice in the HVAC market. Various models offer accuracy within 2%, 3%, or 5%.

The RH100 Wall Mount comes in a very compact enclosure which mounts directly to a single electrical box. The RH200 Duct comes standard with a 230 mm (9-inch) stainless steel probe, and an ABS enclosure is provided for wire terminations. The RH300 OSA comes mounted in a weatherproof sun and wind shielded enclosure.

Temperature sensor options of RTD's and thermistors are available in all three configurations.

SPECIFICATION: (Humidity)

System Accuracy:	±2, 3, or 5% RH, 5% to 95% RH
Compensated Temp.:	-40°C to 85°C (-40°F to 185°F)
Sensor Construction:	Thermoset Polymer based capacitive
Protection:	60 micron HDPE cover
Repeatability:	±0.5% RH
Hysteresis:	±1% of span max
Linearity:	±0.5% RH typical
Response Time:	15 seconds @ 25°C
Stability:	±1% RH typical at 50% RH in 5 yrs.
Output Signal Types: (jumper selectable)	4 – 20mA 0 – 1 VDC 0 – 5 VDC 0 – 10 VDC
	Note: all output signals are scaled 0-100% RH
Power Supply:	12 – 35 VDC at unit (Loop Powered) 24 VAC/DC nominal ±10% (3-wire)
Wiring Connections:	Screw Terminals (14 to 22 AWG)
Optional Temperature sensor:	100 Ohm RTD, 1000 Ohm RTD, thermistors and transmitters

SPECIFICATION: (Temperature Transmitter)

Supply Voltage:	24VDC/VAC
Output:	4-20mA, 0-5VDC or 0-10VDC
Accuracy:	±0.1% of span
Operating temp:	0°C – 70°C (32°F – 158°F)
OSA operating temp:	-40°C – 85°C (-40°F – 185°F)
Temperature sensor:	1000Ω RTD standard 100Ω RTD optional

RH100



RH200



RH300



RELATIVE HUMIDITY: PRODUCT ORDERING INFORMATION

MODEL	Product Description (Single Transmitter Humidity)		
RH100	Space		
RH200	Duct		
RH300	Outside Air		
	CODE	Style	
	B	Designer space (RH100)	
	C	Corporate space (RH100)	
	A	ABS enclosure (RH200) or PVC enclosure (RH300)	
	M	Metal box duct (RH200)	
	W	Aluminum weatherproof (RH200)	
	CODE	Accuracy	
	02	2%	
	03	3%	
	05	5%	
	CODE	Optional Temperature Sensor	
	L	PT100-100Ω Platinum, IEC 751, 385 Alpha, thin film	
	C	PT1000-1000Ω Platinum, IEC 751, 385 Alpha, thin film	
	F	1801Ω, NTC Thermistor, ±0.2°C	
	E	3,000Ω, NTC Thermistor, ±0.2°C	
	D	10,000Ω, type 3, NTC Thermistor, ±0.2°C	
	J	10,000Ω, type 2, NTC Thermistor, ±0.2°C	
	K	10,000Ω, type 2, NTC Thermistor, ±0.2°C	

RH200	A	03	C
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EXAMPLE:
Duct humidity c/w ABS enclosure, 3% accuracy and 1000Ω temperature sensor.

Greystone Energy Systems, Inc. reserves the right to make design modifications without prior notice.

DESCRIPTION: (Humidity transmitter c/w temperature transmitter)

The RH110, 210, and 310 series of transducers are specifically designed for use in applications where both a temperature and RH signal are required. Each product includes an RH transmitter similar to the RH100, 200 or 300 and also an RTD temperature transmitter conveniently designed onto one PCB to ensure the highest accuracy and reliability available.

The RH110 Wall Mount comes standard in the Designer Space enclosure designed for ease of installation and is available as a 24 VDC loop powered device with both temperature and RH signal outputs. The RH210 Duct Mount features a 9" stainless steel probe with integral 60 micron filter, operates on 24 VAC/DC and is available with either voltage or loop powered current output signals for both temperature and RH. The RH310 OSA transducer is mounted in a compact 4"x4" weatherproof enclosure with integral sun shield and potted sensor assembly. It also operates on 24 VAC/DC with both current and voltage outputs available and includes industrial electronics rated for use from -40°-85°C (-40°-185°F).

SPECIFICATIONS:

These devices feature the same humidity specifications as the RH100, 200 and 300 products, except the output signal types are specified when ordering (not jumper selectable) and note that the RH110 is only available as a DC loop powered device.

The temperature transmitter specifications are also the same as those listed for the RH100, 200 and 300 products except the RH110 is only a DC loop powered device. For all devices, the RH and temperature signals are completely independent from each other.

PLEASE SEE OVER FOR PRODUCT ORDERING INFORMATION.



RELATIVE HUMIDITY: PRODUCT ORDERING INFORMATION

MODEL	Product Description (Dual Transmitter – Humidity and Temperature)					
RH110 RH210 RH310	Space Duct Outside Air					
	CODE	Style				
	B	Designer space (RH110)				
	C	Corporate space (RH110 with display)				
	A	ABS enclosure (RH210) or PVC enclosure (RH310)				
	M	Metal box (RH210)				
	CODE	RH Accuracy				
	02	2%				
	03	3%				
	05	5%				
	CODE	Temperature Sensor				
	L	PT100–100Ω Platinum, IEC 751, 385 Alpha, thin film				
	C	PT1000-1000Ω Platinum, IEC 751, 385 Alpha, thin film				
	CODE	Power Supply				
	1	24 VDC (RH110)				
	2	24 VAC/DC (RH210 and RH310)				
	CODE	Output Signal (RH and Temperature)				
	A	4 – 20mA (RH110, RH210, and RH310)				
	D	0 – 5 VDC (RH210 and RH310 only)				
	E	0 – 10 VDC (RH210 and RH310)				
	CODE	Temperature Transmitter Range				
	1	0°C – 35°C (32°F – 95°F)				
	2	0°C – 50°C (32°F – 122°F)				
	3	0°C – 100°C (32°F – 212°F)				
	6	-50°C – +50°C (-58°F – 122°F)				

Other ranges and combinations available.

RH210	A	03	C	2	A	1
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EXAMPLE:

Duct humidity c/w ABS enclosure, 3% accuracy temperature transmitter c/w 1000Ω RTD, 24 VDC, 2 wire, 4-20mA output over 0°C–35°C (32°F–95°F)



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Greystone Energy Systems Inc., established in 1983, is Canada's largest manufacturer of HVAC sensors and transducers for Building Automation Management Systems. We have conscientiously established a worldwide reputation as an industry leader by maintaining leading-edge design technology, prompt technical support, and a commitment to on-time deliveries. We take pride in our Quality Management System which is ISO 9002 certified, assuring our customers of consistent product reliability.

GREYSTONE IS AN ISO 9000 REGISTERED COMPANY

DESCRIPTION:

The RH series transducers are intended specifically for use in environmental monitoring and control systems and comes in an attractive, functional, well ventilated enclosure. Its state-of-the-art design combines linearization and temperature correction with a world class capacitance sensor. Reliability and accuracy for even the most critical of measurements.

The temperature transmitter provides a high accuracy, temperature compensated signal with excellent long term stability, low hysteresis and fast response while being virtually immune to power supply noise and input voltage fluctuations. All models operate on a wide range of AC or DC power supplies and are available with industry standard outputs.

The RH100 is a precision current loop RH transmitter featuring an optional three digit LCD indication of the RH signal that is being sent to the control system. The display and output signal are configured to display readings over the entire span of 0 to 100% RH. The RH100 is also available with an optional temperature sensor when both humidity and temperature are required to be monitored at the controller. Slide pot and pushbutton options are also available with the RH100 assembly.

The RH110 is a humidity transmitter with a temperature transmitter. Both readings can be displayed on an optional LCD in Fahrenheit or Celsius.

SPECIFICATIONS:

4-20 mA Loop Power Supply.....	18 to 35 Vdc or 18 to 32 Vac (with 250 ohm load and no LCD) 22 to 35 Vdc or 22 to 32 Vac (with 250 ohm load and LCD)	Hysteresis	±1% RH maximum
Minimum Loop Current	2.5 mA nominal	Linearity	±0.5% RH typical
Maximum Loop Current	21.5 mA nominal	Sensor Response Time	15 seconds at 25°C in slowly moving air
Maximum Loop Load	> 600 ohms at 24 Vac/dc with no LCD, > 325 ohms with LCD	Stability	±1% RH typical at 50% RH in 5 years
0-5 Vdc Power Supply	10 to 35 Vdc or 10 to 32 Vac, 15 Volts minimum with LCD	Sensor Type	Thermoset Polymer based capacitive
0-10 Vdc Power Supply	15 to 35 Vdc or 15 to 32 Vac	Display Units	%RH
Voltage Mode Maximum Current	< 3 mA with no LCD, 15 mA nominal with LCD	Display Range	0 to 100% RH
Voltage Mode Maximum Output	Limited to < 5.5 Vdc for 0-5 model and < 10.5 Vdc for 0-10 model	Display Resolution	0.1% RH for display of 00.0 to 99.9
Input Voltage Effect	Negligible over specified operating range	Display Accuracy	±0.5% RH over full range with respect to the output signal
RFI Rejection	Good RFI rejection of normal frequencies with standard Installation	Display Update Rate	3 times per second
Protection Circuitry	Reverse voltage protected and output limited	Display Size	0.95"W x 0.45" H (24mm x 11mm) three digit
Output Signal	4-20 mA current loop, 0-5 Vdc or 0-10 Vdc (factory configured)	Operating Temperature	0 to 70°C (32 to 158°F)
System Accuracy at 25°C	±2, 3 or 5% RH, 5 to 95% RH	Operating Humidity	0 to 95% RH (non-condensing)
Temperature Dependence	±2% RH from 0 to 40°C and 5 to 95% RH, maximum	Wiring Connections	Screw terminal block (14 to 22 AWG)
Repeatability	±0.5% RH typical	Manufacturing Process	ISO 9002 Certified
		Internal Adjustments	Clearly marked ZERO and SPAN pots
		Enclosure Size	2.8" W x 4.7" H x 1.25" D (71 mm x 119 mm x 32 mm)
		Optional Slidepot	20 – 30K (L-R) standard, other values available
		Optional Switch	Normally open pushbutton, 0.4 VA at 24 Vac/dc standard

STYLES:



RH100A c/w LCD, slidepot and push button.



RH100A c/w slidepot and push button



RELATIVE HUMIDITY: PRODUCT ORDERING INFORMATION

MODEL	Product Description					
RH100A	Executive Space – Humidity transmitter with options					
RH110A	Executive Space – Combination Humidity / Temperature transmitter					
	CODE	RH Accuracy				
	02	2%				
	03	3%				
	05	5%				
	CODE	Temperature Sensor (Use PT1000 “C” with a temperature transmitter)				
	C	PT1000-1000Ω Platinum, IEC 751, 385 Alpha, thin film				
	D	10,000Ω, type 3, NTC Thermistor, ±0.2°C				
	F	3,000Ω, NTC Thermistor, ±0.2°C				
	E	1801Ω, NTC Thermistor, ±0.2°C				
	J	10,000Ω, type 2, NTC Thermistor , ±0.2°C				
	K	20,000Ω, NTC Thermistor, ±0.2°C				
	L	PT100–100Ω Platinum, IEC 751, 385 Alpha, thin film				
	M	1000 Nickel				
	CODE	Power Supply				
	1	24 VDC (RH110)				
	2	24 VAC/DC (RH100)				
	CODE	Output Signal				
	A	Current 4 – 20 mA (RH100 & RH110)				
	D	Voltage 0 – 5 VDC (RH100 only)				
	E	Voltage 0 – 10 VDC (RH100 only)				
	CODE	Temperature Transmitter Range (RH110 only)				
	1	0°C – 35°C (32°F – 95°F)				
	2	0°C – 50°C (32°F – 122°F)				
	3	0°C – 100°C (32°F – 212°F)				
	6	-50°C – +50°C (-58°F – 122°F)				
	CODE	Options				
	AC	Dual LCD display (Celsius for RH110)				
	AF	Dual LCD display (Fahrenheit for RH110)				
	01	LCD display (RH100)				
	02	20-30K slide pot option (RH100)				
	03	Push button override option (RH100)				
	04	20-30K slidepot and push button option (RH100)				
	05	LCD and 20-30K slidepot option (RH100)				
	06	LCD, 20-30K slidepot & push button (RH100)				

RH100	03	D	2	A	1	06
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Call for other ranges and combinations.

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EXAMPLE:
 Space humidity c/w executive housing, 3% accuracy
 10,000Ω type 3 thermistor, 24 VAC/DC supply, 4-20 mA output, LCD display, 20 – 30 K slidepot adjustment and push button.

