

Humidistats

DIGITAL HUMIDISTATS AND HUMIDITY SENSORS

Installation Manual

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Revision Number	Revision Date	Date Put In Manual	By	Revision Number	Revision Date	Date Put In Manual	By

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10-00

0-10V DIGITAL

HUMIDISTAT

1. INTRODUCTION

This document covers the operation and installation instructions for the following digital humidistats:

Part #	Description
1510142	0-10 V Digital Wall Humidistat
2520266*	0-10 V Digital Duct Humidistat pkg.

NOTE:

*Part # 2520266 is comprised of two parts:

- Part # 1509857 – Duct Sensor
- Part # 2520261 – Humidistat w/o sensor

2. PART #1510142 – 0-10V DIGITAL WALL HUMIDISTAT INSTALLATION

A. LOCATION

- (1) The wall humidistat should not be installed on an outside wall.
- (2) The sensor should be installed away from any heat source and away from direct sunlight.
- (3) The wall surface should be flat and clean.
- (4) Any draft originating from the wall interior should be prevented from interacting with the humidity sensor. A vapor barrier should be installed.
- (5) Nortec recommends using a sealed, single-gang, electrical mounting box (recessed in wall), to mount the wall humidity sensor.

B. INSTALLATION

- (1) Pull cables 6" (15cm) out of the wall
- (2) To remove the front face with the digital display, loosen the retaining screw at the bottom of the case. Pull firmly but gently on the bottom of the front face to unplug the face from the backboard. The front face will unhinge from the top retaining clips.
- (3) Connect the control wires to the terminals according to the wiring diagram(s). Table 1 outlines the terminal layout of the digital humidistat.
- (4) Secure the metal bracket to the mounting box using 2 screws. Make sure the screw heads do not stand out more than 1/5" (5mm) from the mounting surface.
- (5) Mount the front face onto the metal bracket. Ensure the top clips engage the grooves on the top of the metal bracket. Carefully lower the front face until the interconnector reaches the mounting plate. Ensure the connector pins are aligned with the plug on the back plate. While inserting the connectors, a slight resistance will be felt. Continue pressing gently until the front face is fully seated and tighten the retaining screw to secure the face.

3. PART #2520266 – 0-10V DIGITAL DUCT HUMIDISTAT INSTALLATION

A. Part #1509857 – Duct Sensor Installation

- (1) Location
 - (a) The duct sensor should be installed directly on the duct in an area where the air is well mixed with uniform flow.
 - (b) The supply air sensor should be mounted downstream of the steam distributor at a distance 1.5 times the absorption distance (typically 10-12 feet or 3-3.7m).
 - (c) If a return air humidity sensor is used it should be mounted close to the air inlet but downstream from a return fan if one is present.
- (2) Installation
 - (a) Open the housing by removing the 4 screws securing the housing together.
 - (b) Push the probe through the center hole and tighten the 2 mounting screws.
 - (c) Drill a 1/2" (13mm) hole in the duct and insert the probe into the air stream.
 - (d) Secure the sensor to the duct using 2 sheet-metal screws.
 - (e) Connect the signal wires to the sensor terminal strip. Table 1 outlines the terminal layout of the digital humidistat.
 - (f) Connect the plug from the temperature probe to the PCB board into the plug marked 'PROBE'.
 - (g) Close the cover and secure using the 4 Screws removed in step 1.

B. Part #2520261 – Humidistat w/o Sensor Installation

- (1) Refer to the installation instructions on page 1 for Part #1510142 – Wall Humidistat Installation.

Table 1. Humidistat Terminal Layout

	Wall Humidistat (Part #1510142)	Humidistat w/o Sensor (Part #2520261)
Ground	1	1
24 VAC	2	2
Outdoor Temperature Input	8	8
Control Output	6	6
Duct Sensor Input	N/A	7

4. HUMIDISTAT LCD DISPLAY

A. Legend for Figure 1.

- (1) Display of current humidity value.
- (2) Snowflake indicates that outdoor temperature setback for winter compensation is in effect.
- (3) Setpoint display.
- (4) Graphical display of output value with increments of 10%.
- (5) Buttons for operating the humidistat:
 - ⓪ POWER button: Toggles the control on or off.
 - △ ▽ UP/DOWN buttons: Change setpoint value.
 - ▷ OPTION button: Used for accessing the sensor calibration routine.

5. OPTIONAL OUTDOOR TEMPERATURE RESET FUNCTION

- A. Order Outdoor Temperature Sensor Separately, Part #2520263.
- B. Each humidistat is equipped with an integrated reset function that will lower the setpoint during cold weather operation. This will prevent condensation on windows and building structures. Figure 2 illustrates how the setpoint reset feature operates.
- C. When the outdoor temperature setback feature is in effect, the humidistat will normally display the calculated setpoint limit based on the outdoor air temperature. A snowflake will also be displayed to indicate cold weather operation. When any key on the humidistat is pressed the LCD screen will display the customer specified setpoint for a short duration.
- D. This feature is enabled by removing the jumper from terminals 8 and 1 on the humidistat, and wiring the outdoor temperature sensor to these terminals.

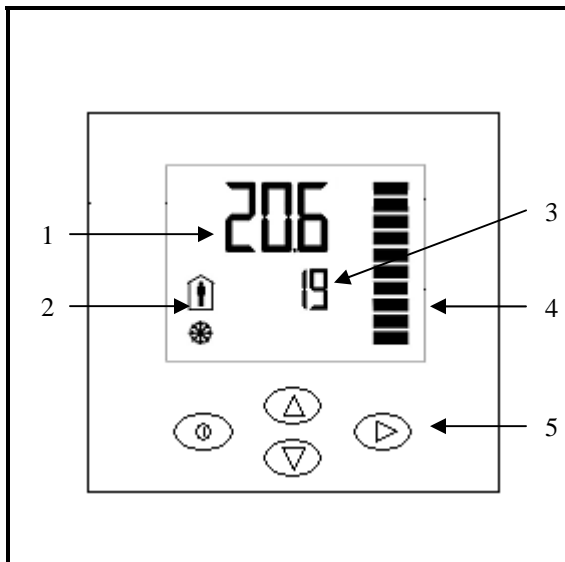


Figure 1. Humidistat LCD Display

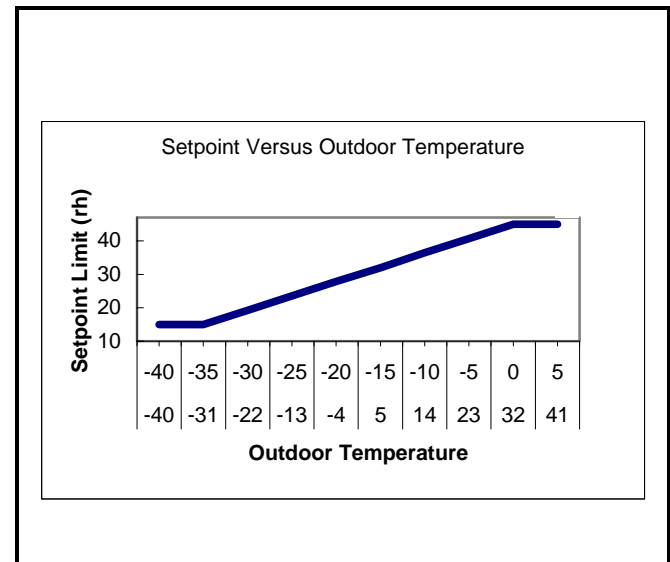


Figure 2. Outdoor Temperature Setback

6. SENSOR CALIBRATION

- A. The humidity sensor is factory calibrated, however, it can be field recalibrated. The calibration routine can be accessed by pressing and holding down the option button for five seconds. A new screen will appear with the calibration adjustments.
- B. Press the up or down buttons until the text *calH* appears on the LCD screen. To adjust the calibration, press the Option button. The screen should load to display the current calibration trim. The calibration trim can be adjusted by pressing the up or down buttons to the desired level and then pressing the option button to confirm the settings. Press the Power button to return to the normal display.

Table 2. Specifications

Power Supply	Operating Voltage	24 V AC \pm 10% 50/60 Hz
	Power Consumption	Max 3 VA
	Internal rectification	Half Wave Rectified
Signal Inputs	Analog Input Input Signal Resolution Accuracy	AI1 0-10 VDC 39 mV, 0.078 mA \pm 2%
	Temperature Input Range	External Thermistor -40...140 °C
	Humidity Input: Range Accuracy Repeatability	0...100 % rH \pm 3.0% at 25°C \pm 0.5%
Signal Outputs	Digital Outputs Maximum Load	DO1 24 VAC 2A max.
Environment	Operation: Temperature Humidity	0...50°C <95% r.h.
Housing	Materials: Cover, back Mounting Plate	Fire proof ABS plastic Galvanized Steel

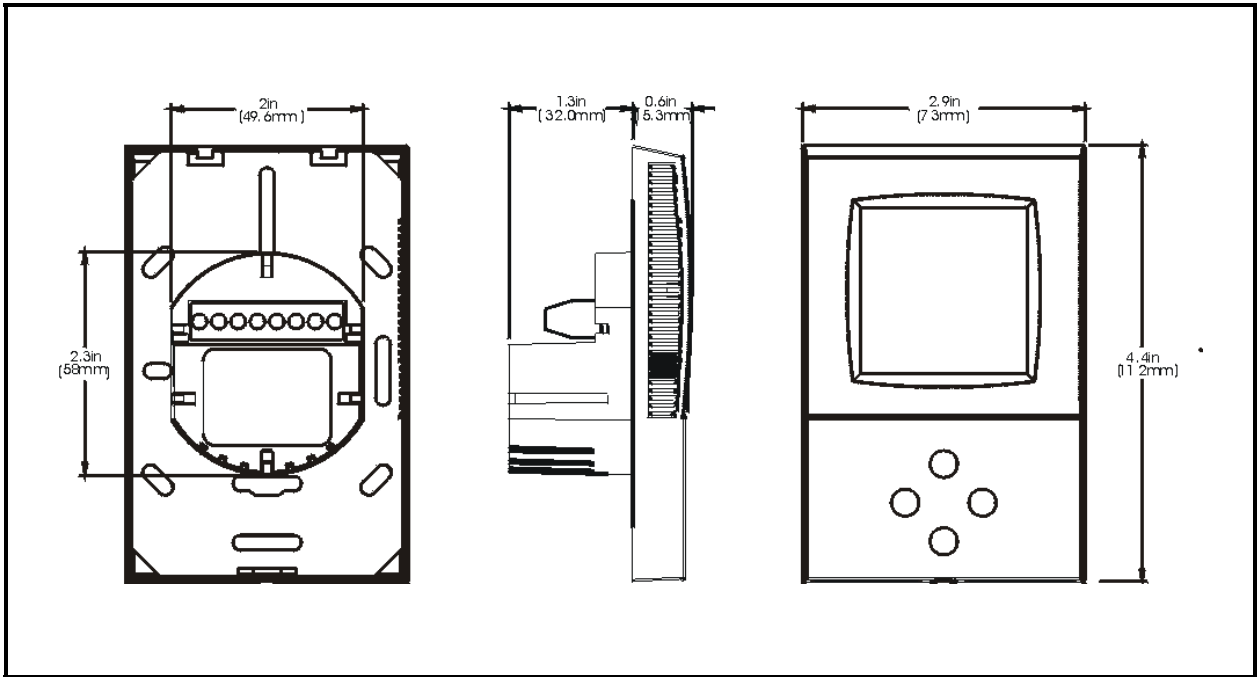


Figure 3. Humidistat Dimensions

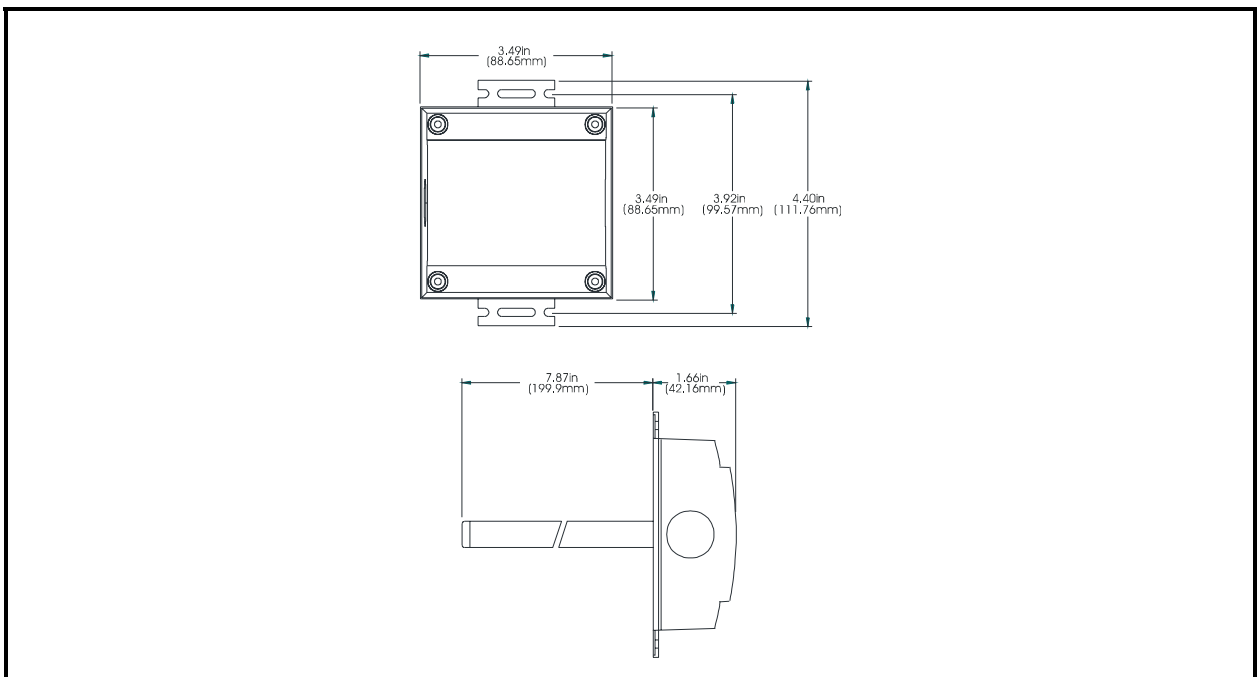


Figure 4. Duct Sensor Dimensions

7. TROUBLESHOOTING

Table 3. Troubleshooting

<u>Display</u>	<u>Cause</u>	<u>Symptoms</u>	<u>Corrective Action</u>
ALA3	The controller will initiate this alarm if the humidity sensor reports a relative humidity below 6%.	The LCD screen will report the message ALA3. The controller will negate output until a relative humidity above 6% is report to the controller from the sensor.	Normal operation resumes once the sensed humidity is above 6% RH. The message will remain on the LCD screen until removed by pressing the option button on the control panel. If this error persists verify that the wiring is correct. Also verify that the sensor is mounted in an area that accurately represents the controlled humidity level.
ALA4	The controller will initiate this alarm if the humidity sensor reports a relative humidity above 95%.	The LCD screen will report the message ALA4. The controller will negate output until a relative humidity below 95% is report to the controller from the sensor.	Normal operation resumes once the sensed humidity is below 95% RH. The message will remain on the LCD screen until removed by pressing the option button on the control panel. If this error persists verify that the wiring is correct. Also verify that the sensor is mounted in an area that accurately represents the controlled humidity level.
SNOWFLAKE	This function activates when the temperature sensor reports a temperature below 0 degrees Celsius or 32 degrees Fahrenheit.	The controller will automatically be lowered to a specific setpoint to compensate for the low temperature being reported from the sensor.	This is a normal action controlled by the controller software to compensate for low operating temperatures. If this option is believed to be malfunctioning verify the sensor is properly wired and in an appropriate location to read the controlled humidity accurately.

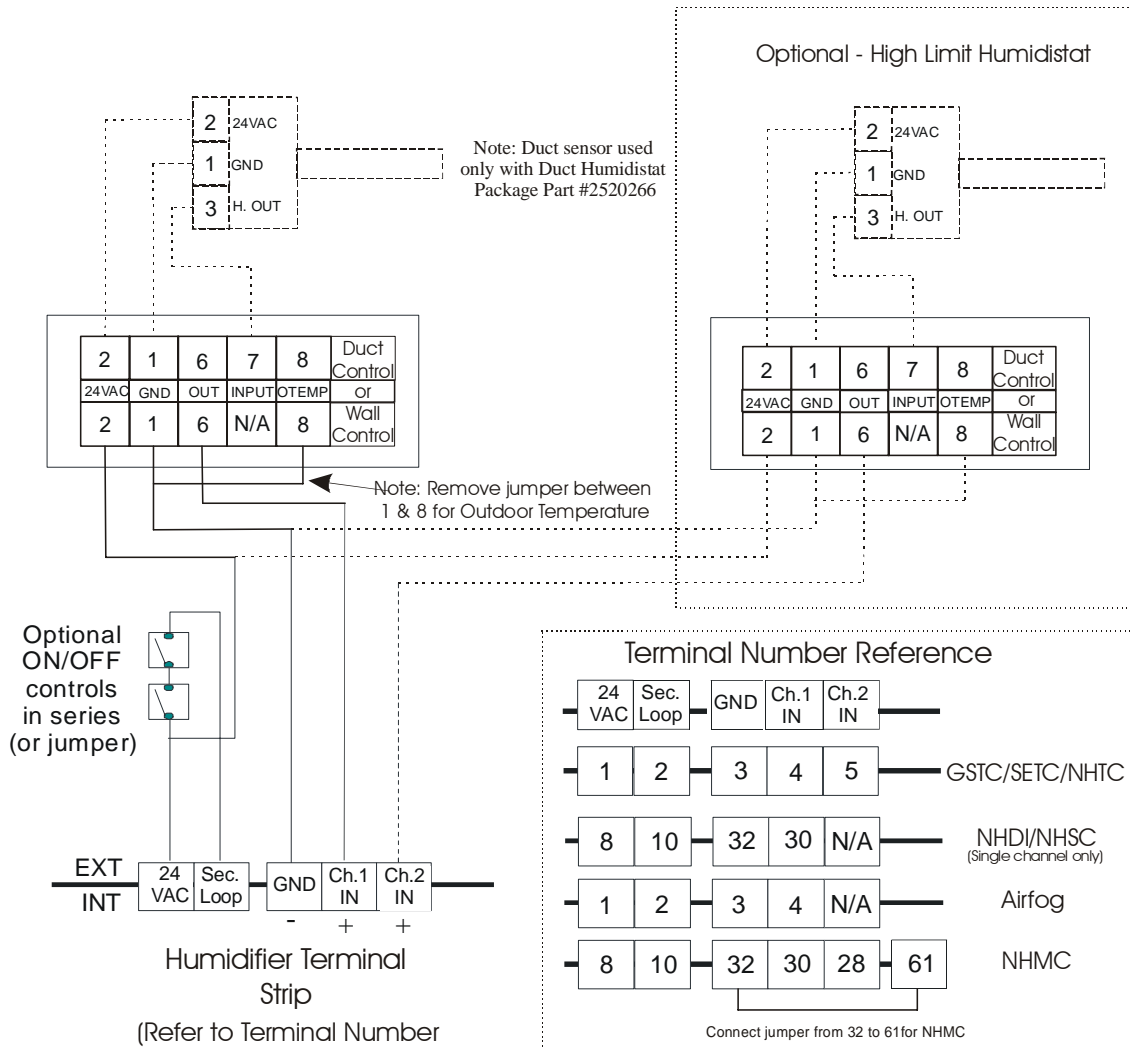
NORTEC 0-10V DIGITAL HUMIDISTAT WIRING DIAGRAM

Diagram Number 2520528
Date March 30, 2006

Use for GSTC, SETC, NHTC, NHDl, NHSC and NHMC with:

Part #	Description
1510142	0-10V Digital Wall Humidistat
2520266	0-10V Digital Duct Humidistat

Warning: Failure to wire the humidistat in accordance with the wiring diagram could permanently damage the electronics. Such errors will void the warranty.
Cabling between controls and unit should be shielded 18 AWG



NOTE: Nortec recommends using the Network Staged Modulation option when controlling multiple humidifiers with a single set of controls.

Figure 5. 0-10V Digital Humidistat Wiring Diagram for GSTC, SETC, NHTC, NHDl, NHSC, and NHMC

0-10V DIGITAL HUMIDISTAT
Wiring Diagram for Livesteam

Date March 31, 2006

Part #	Description
1510142	0-10V Digital Wall Humidistat
2520266	0-10V Digital Duct Humidistat pkg.
2520261	0-10V Digital Humidistat w/o Sensor

Warning: Failure to wire the humidistat in accordance with the wiring diagram could permanently damage the electronics. Such errors will void the warranty. Cabling between controls and unit should be shielded 18 AWG

HUMIDISTAT TO ACTUATOR CONNECTIONS

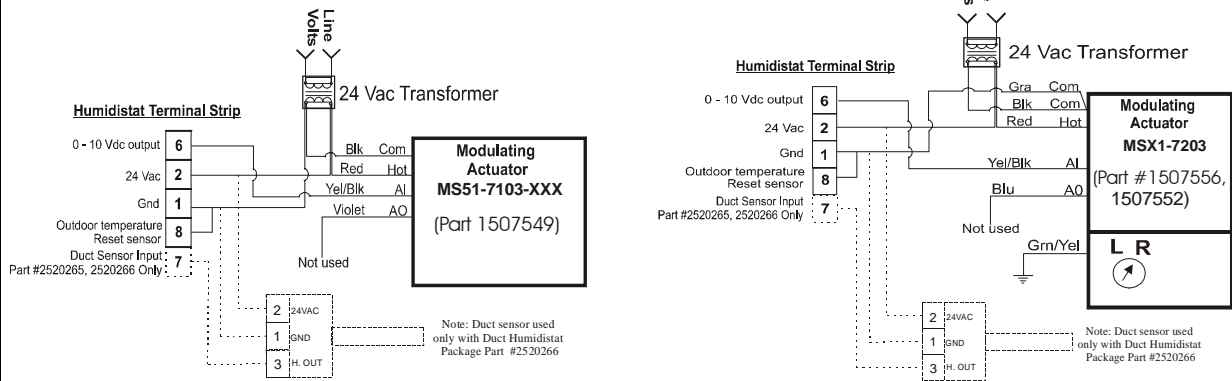


Figure 6. 0-10V Digital Humidistat Wiring Diagram for LiveSteam

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10-10

HUMIDITY SENSORS

1. INTRODUCTION

This document covers the operation and installation instructions for the following digital humidistats:

Part #	Description
1509858	2-10 V Wall Humidity Sensor
1509857	2-10 V Duct Humidity Sensor

2. PART # 1509858 – WALL HUMIDITY SENSOR INSTALLATION

A. LOCATION

- (1) The wall humidistat should not be installed on an outside wall.
- (2) The sensor should be installed away from any heat source and away from direct sunlight.
- (3) The wall surface should be flat and clean.
- (4) Any draft originating from the wall interior should be prevented from interacting with the humidity sensor. A vapor barrier should be installed.
- (5) Nortec recommends using a sealed, single-gang electrical mounting box (recessed in wall) to mount the wall humidity sensor.

B. INSTALLATION

- (1) Pull cables 6" (15cm) out of the wall
- (2) To remove the front face with the digital display, loosen the retaining screw at the bottom of the case. Pull firmly but gently on the bottom of the front face to unplug the face from the backboard. The front face will unhinge from the top retaining clips.
- (3) Connect the control wires to the terminals according to the wiring diagram(s). Table 1 outlines the terminal layout of the digital humidistat.
- (4) Secure the metal bracket to the mounting box using 2 screws. Make sure the screw heads do not stand out more than 1/5" (5mm) from the mounting surface.
- (5) Mount the front face onto the metal bracket. Ensure the top clips engage the grooves on the top of the metal bracket. Carefully lower the front face until the interconnector reaches the mounting plate. Ensure the connector pins are aligned with the plug on the back plate. While inserting the connectors, a slight resistance will be felt. Continue pressing gently until the front face is fully seated and tighten the retaining screw to secure the face.

3. PART # 1509857 – DUCT SENSOR INSTALLATION

A. Location

- (1) The duct sensor should be installed directly on the duct in an area where the air is well mixed with uniform flow.
- (2) The supply air sensor should be mounted downstream of the steam distributor at a distance 1.5 times the absorption distance (typically 10-12 ft or 3-3.7 m).
- (3) If a return air humidity sensor is used it should be mounted close to the air inlet but downstream from a return fan if one is present.

B. Installation

- (1) Open the housing by removing the 4 screws securing the housing together.
- (2) Push the probe through the center hole and tighten the 2 mounting screws.
- (3) Drill a 1/2" (13mm) hole in the duct and insert the probe into the air stream.
- (4) Secure the sensor to the duct using 2 sheet-metal screws.
- (5) Connect the signal wires to the sensor terminal strip. Table 1 outlines the terminal layout of the digital humidistat.
- (6) Connect the plug from the temperature probe to the PCB board into the plug marked 'PROBE'.
- (7) Close the cover and secure using the 4 Screws removed in step 1.

Table 1. Sensor Terminal Connections

	Wall Sensor (Part # 1509858)	Humidistat w/o Sensor (Part # 15098571)
Ground	1	1
24 VAC	2	2
Humidity Output	6	3

4. WALL SENSOR LCD DISPLAY

A. Legend for Figure 1.

- (1) Display of current humidity value.
- (2) Buttons for operating the humidistat:
 - ⓪ POWER button: No function.
 - △ ▽ UP/DOWN buttons: Adjusts calibration value.
 - ▷ OPTION button: Used for accessing the sensor calibration routine.

5. SENSOR CALIBRATION

- A. The humidity sensor is factory calibrated, however, it can be field recalibrated. The calibration routine can be accessed by pressing and holding down the option button for five seconds. A new screen will appear with the calibration adjustments.
- B. Press the up or down buttons until the text *calH* appears on the LCD screen. To adjust the calibration, press the Option button. The screen should load to display the current calibration trim. The calibration trim can be adjusted by pressing the up or down buttons to the desired level and then pressing the option button to confirm the settings. Press the Power button to return to the normal display.

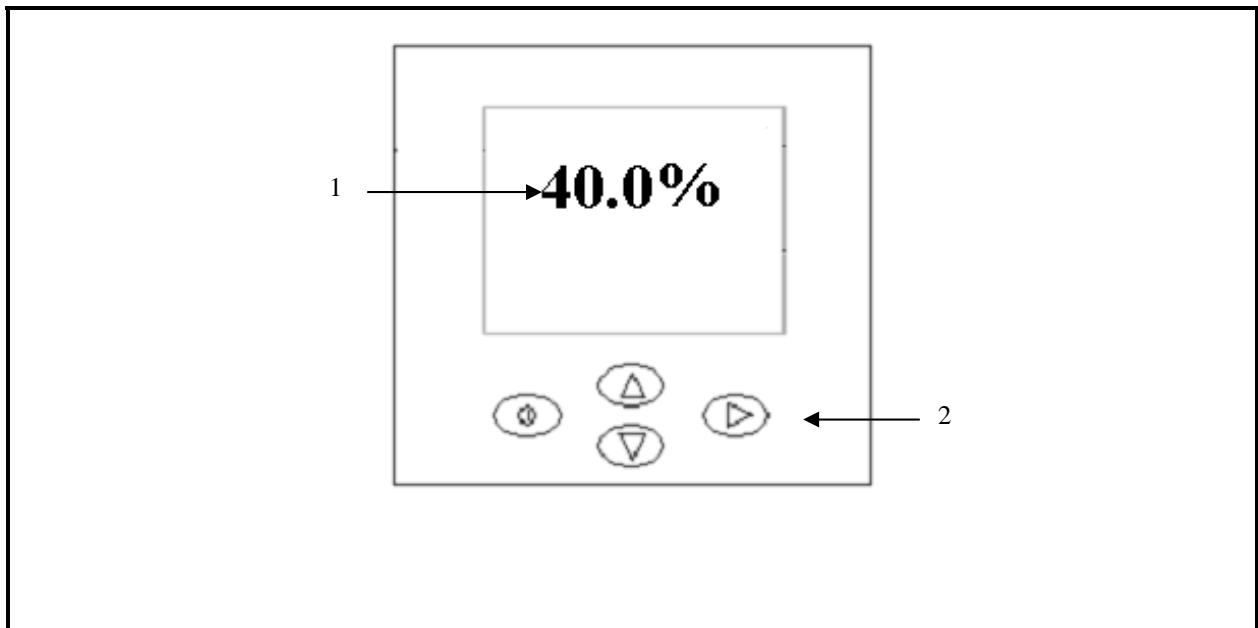


Figure 1. Wall Sensor LCD Display

6. SPECIFICATIONS

Table 2. Specifications

Power Supply	Operating Voltage	24 V AC 50/60 Hz \pm 10%
	Power Consumption	Max 3 VA
	Electrical Connection	Terminal Connectors
Humidity Input Signal Outputs	Internal rectification	Half Wave Rectified
	Type Range Accuracy Hysteresis Repeatability Stability	Capacitive 0...100 % RH \pm 3.0% at 25°C \pm 3% \pm 0.5% \pm 0.5% / year if used within 0 - 50°C
	Analog Outputs Output Signal Resolution Accuracy Maximum Load	AO1 DC 2-10V 9.76 mV, 0.019 mA \pm 1% 20 mA, 500 Ω
Display (LCD)	Humidity Values Resolution Setpoint Values	3 digits 0.5 2 digits
Environment	Operation: Temperature Humidity	0...50°C <95% r.h.
Housing	Materials: Cover, back Mounting Plate	ABS plastic Galvanized Steel

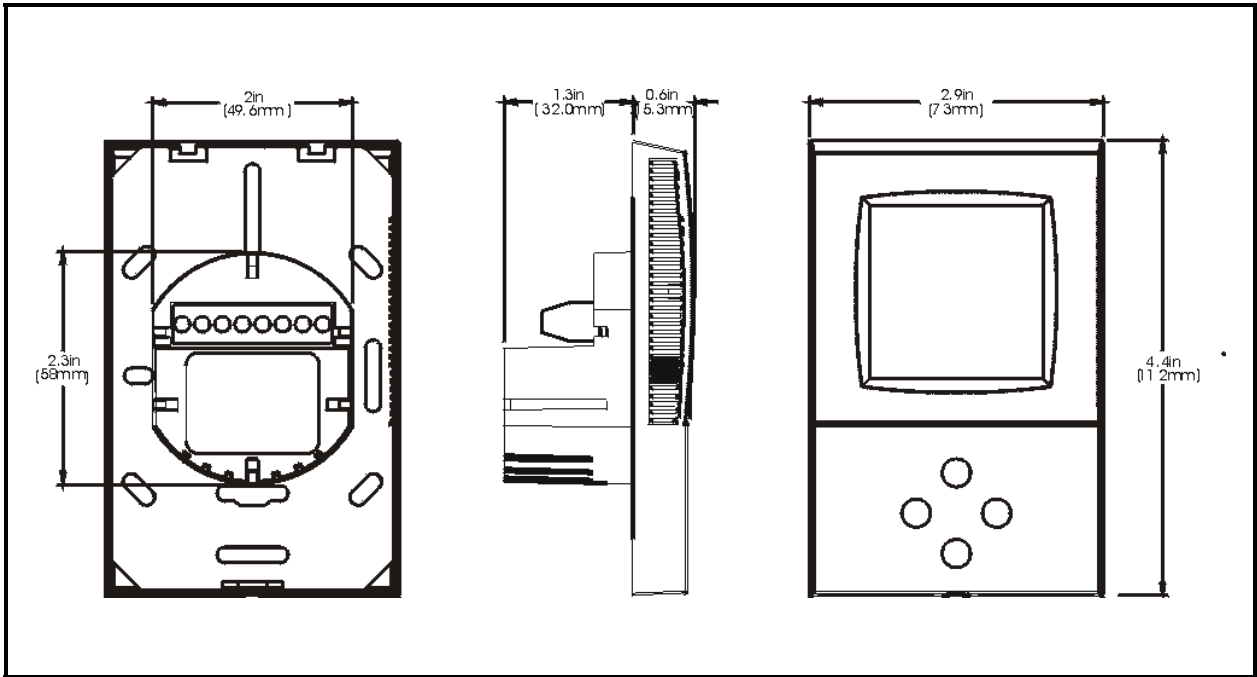


Figure 2. Wall Sensor Dimensions

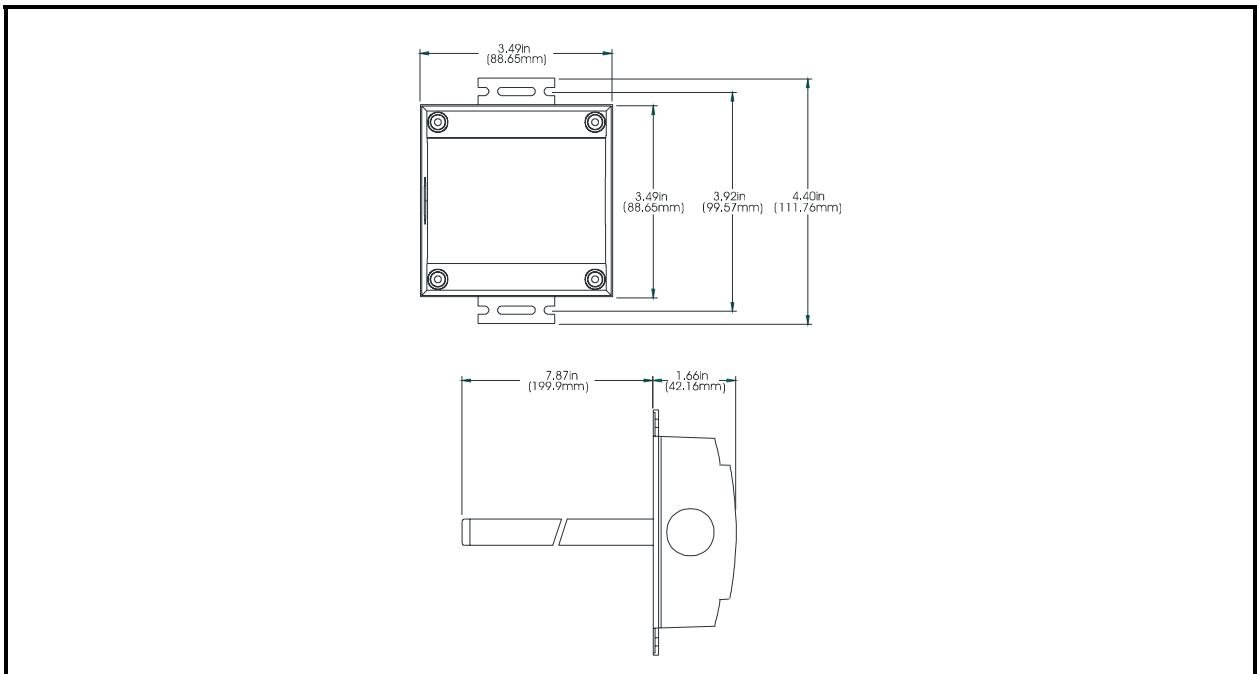


Figure 3. Duct Sensor Dimensions

7. TROUBLESHOOTING

Table 3. Troubleshooting

<u>Display</u>	<u>Cause</u>	<u>Symptoms</u>	<u>Corrective Action</u>
ALA3	The sensor will initiate this alarm if a relative humidity below 6% is reported.	The LCD screen will report the message ALA3. The sensor will provide 10volts or 100% output until a relative humidity above 6% is report from the sensor.	Normal operation resumes once the sensed humidity is above 6% RH. The message will remain on the LCD screen until remove by pressing the option button on the sensor display panel. If this error persists verify that the wiring is correct. Also verify that the sensor is mounted in an area that accurately represents the controlled humidity level.
ALA4	The sensor will initiate this alarm if a relative humidity above 95% is reported.	The LCD screen will report the message ALA4. The sensor will provide 10volts or 100% output until a relative humidity below 95% is report by the sensor.	Normal operation resumes once the sensed humidity is below 95% RH. The message will remain on the LCD screen until removed by pressing the option button on the control panel. If this error persists verify that the wiring is correct. Also verify that the sensor is mounted in an area that accurately represents the controlled humidity level.

NOTE:

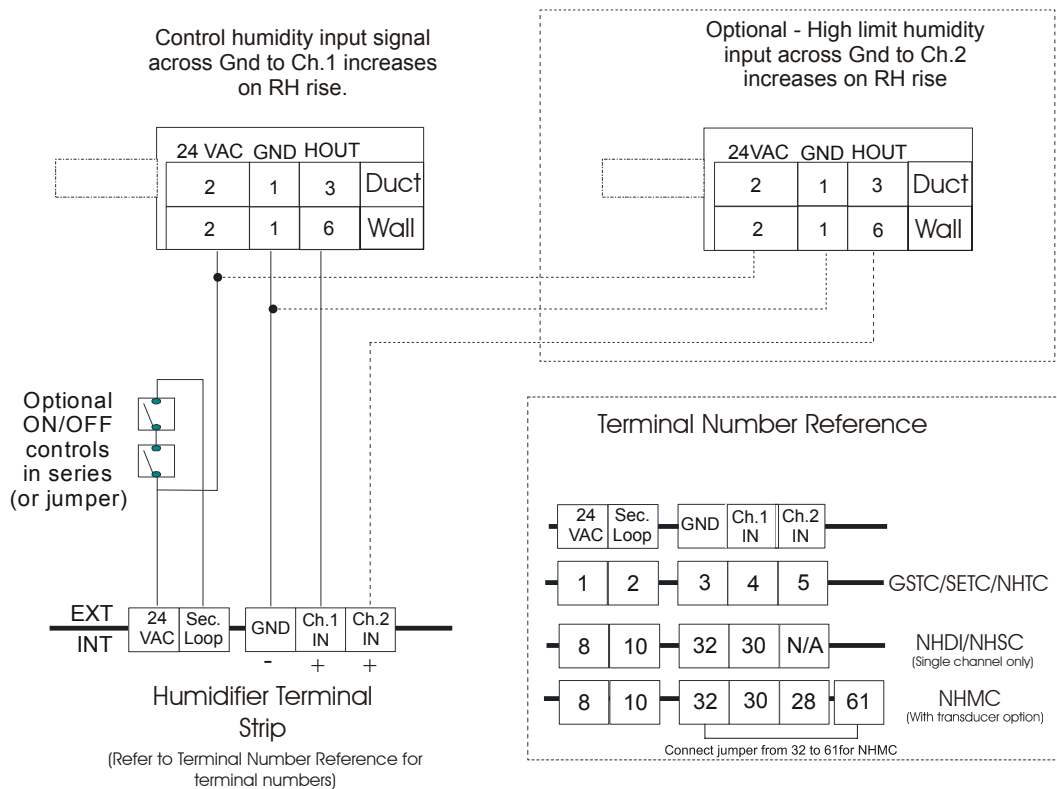
If at any time this troubleshooting guide fails to provide the information needed Nortec's Technical Support Department can be reached at 1-866-NORTEC-1 to provide assistance.

NORTEC 2-10V HUMIDITY SENSOR WIRING DIAGRAM

Use for GSTC, SETC, NHTC, NHMC, NHDI and NHSC with:

Part #	Description
1509858	2-10V Wall Humidity Sensor
1509857	2-10V Duct Humidity Sensor

Warning: Failure to wire the humidity transducer in accordance with wiring diagram could permanently damage the electronics. Such errors will void the warranty.
Cabling between transducers and unit should be shielded 18 AWG



NOTE 1: Nortec recommends using the Network Staged Modulation option when controlling multiple humidifiers with a single set of controls.

Figure 4. 2-10V Digital Sensor Installation Instruction / Wiring Diagram

10-20

DIGITAL ON/OFF

HUMIDISTAT

1. INTRODUCTION

This document covers the operation and installation instructions for the following digital humidistats:

Part #	Description
2520259	On/Off Digital Wall Humidistat
2520273*	On/Off Digital Duct Humidistat pkg.

NOTE:

*Part # 2520273 is comprised of two parts:

Part # 2520265 – Humidistat w/o sensor

Part # 1509857 – Duct Sensor

2. PART # 2520259 – ON/OFF DIGITAL WALL HUMIDISTAT INSTALLATION

A. LOCATION

- (1) The wall humidistat should not be installed on an outside wall.
- (2) The sensor should be installed away from any heat source and away from direct sunlight.
- (3) The wall surface should be flat and clean.
- (4) Any draft originating from the wall interior should be prevented from interacting with the humidity sensor. A vapor barrier should be installed.
- (5) Nortec recommends using a sealed, single-gang, electrical mounting box (recessed in wall), to mount the wall humidity sensor.

B. INSTALLATION

- (1) Pull cables 6" (15cm) out of the wall
- (2) To remove the front face with the digital display, loosen the retaining screw at the bottom of the case. Pull firmly but gently on the bottom of the front face to unplug the face from the backboard. The front face will unhinge from the top retaining clips.
- (3) Connect the control wires to the terminals according to the wiring diagram(s). Table 1 outlines the terminal layout of the digital humidistat.
- (4) Secure the metal bracket to the mounting box using 2 screws. Make sure the screw heads do not stand out more than 1/5" (5mm) from the mounting surface.
- (5) Mount the front face onto the metal bracket. Ensure the top clips engage the grooves on the top of the metal bracket. Carefully lower the front face until the interconnector reaches the mounting plate. Ensure the connector pins are aligned with the plug on the back plate. While inserting the connectors, a slight resistance will be felt. Continue pressing gently until the front face is fully seated and tighten the retaining screw to secure the face.

3. PART # 2520273 – ON/OFF DIGITAL DUCT HUMIDISTAT INSTALLATION

NOTE:

Overview: The duct sensor (Part # 2520265) must be wired to the humidistat w/o sensor (Part # 1509857).

A. Part # 2520265 – Duct Humidistat Package Installation

(1) Location

- (a) The duct sensor should be installed directly on the duct in an area where the air is well mixed with uniform flow.
- (b) The supply air sensor should be mounted downstream of the steam distributor at a distance 1.5 times the absorption distance (typically 10-12 feet or 3-3.7m).
- (c) If a return air humidity sensor is used it should be mounted close to the air inlet but downstream from a return fan if one is present.

(2) Installation

- (a) Open the housing by removing the 4 screws securing the housing together.
- (b) Push the probe through the center hole and tighten the 2 mounting screws.
- (c) Drill a 1/2" (13mm) hole in the duct and insert the probe into the air stream.
- (d) Secure the sensor to the duct using 2 sheet-metal screws.
- (e) Connect the signal wires to the sensor terminal strip. Table 1 outlines the terminal layout of the digital humidistat.
- (f) Connect the plug from the temperature probe to the PCB board into the plug marked 'PROBE'.
- (g) Close the cover and secure using the 4 Screws removed in step 1.

Table 1. Humidistat Terminal Layout

	Wall Humidistat (Part # 2520259)	Controller w/o Sensor (Part # 2520265)
Ground	1	1
24 VAC	2	2
Digital Out (Common)	3	3
Digital Out	4	4
Outdoor Temperature Input	8	8
Duct Sensor Input	N/A	7

B. Part # 1509857 – Humidistat w/o Sensor

- (2) Refer to the installation instructions for Part # 1510142 – Wall Humidistat Installation.

4. HUMIDISTAT LCD DISPLAY

A. Legend for Figure 1.

- (1) Display of current humidity value.
- (2) Snowflake indicates that outdoor temperature setback for winter compensation is in effect.
- (3) Setpoint display
- (4) Indicates humidistat is calling for humidity.
- (5) Buttons for operating the humidistat:
 - ⓪ POWER button: Toggles controller on and off.
 - △ ▽ UP/DOWN buttons: Change setpoint value.
 - ▷ OPTION button: Used for accessing the sensor calibration routine.

5. OPTIONAL OUTDOOR TEMPERATURE RESET FUNCTION

- A. Order Outdoor Temperature Sensor Separately, Part # 2520263
- B. Each humidistat is equipped with an integrated reset function that will lower the setpoint during cold weather operation. This will prevent condensation on windows and building structures. The diagram below illustrates how the setpoint reset feature operates.
- C. When the outdoor temperature setback feature is in effect, the humidistat will normally display the calculated setpoint limit based on the outdoor air temperature. A snowflake will also be displayed to indicate cold weather operation. When any key on the controller is pressed the LCD screen will display the customer specified setpoint for a short duration.
- D. This feature is enabled by removing the jumper from terminals 8 and 1 on the humidistat, and wiring the outdoor temperature sensor to these terminals.

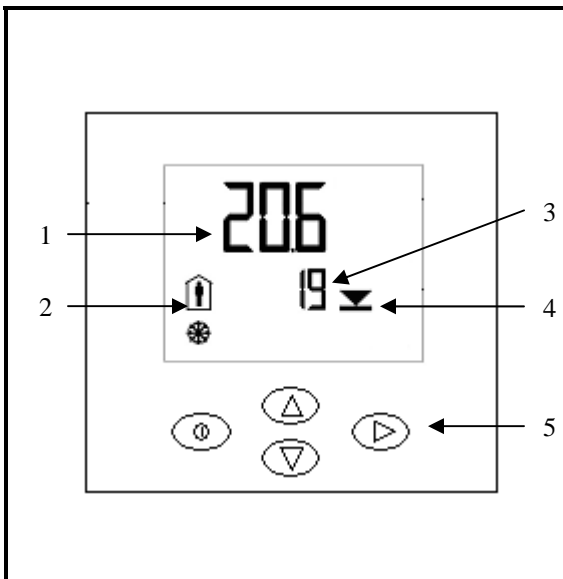


Figure 1. Humidistat LCD Display

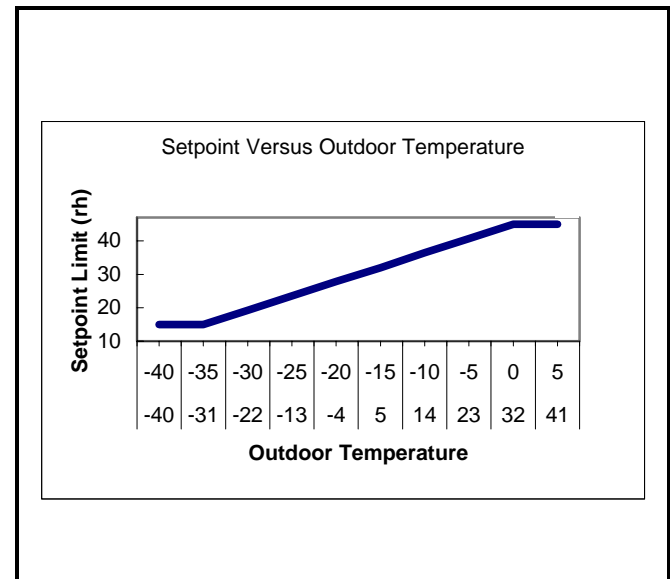


Figure 2. Outdoor Temperature Setback

6. SENSOR CALIBRATION

- A. The humidity sensor is factory calibrated, however, it can be field recalibrated. The calibration routine can be accessed by pressing and holding down the option button for five seconds. A new screen will appear with the calibration adjustments.
- B. Press the up or down buttons until the text calH appears on the LCD screen. To adjust the calibration, press the Option button. The screen should load to display the current calibration trim. The calibration trim can be adjusted by pressing the up or down buttons to the desired level and then pressing the option button to confirm the settings. Press the Power button to return to the normal display.

7. SPECIFICATIONS

Table 2. Specifications

Power Supply	Operating Voltage	24 V AC \pm 10% 50/60 Hz
	Power Consumption	Max 3 VA
	Internal rectification	Half Wave Rectified
Signal Inputs	Analog Input Input Signal Resolution Accuracy	AI1 0-10 VDC 39 mV, 0.078 mA \pm 2%
	Temperature Input Range	External Thermistor -40...140 °C
	Humidity Input: Range Accuracy Repeatability	0...100 % rH \pm 3.0% at 25°C \pm 0.5%
Signal Outputs	Digital Outputs Maximum Load	DO1 24 VAC 2A max.
Environment	Operation: Temperature Humidity	0...50°C <95% r.h.
Housing	Materials: Cover, back Mounting Plate	Fire proof ABS plastic Galvanized Steel

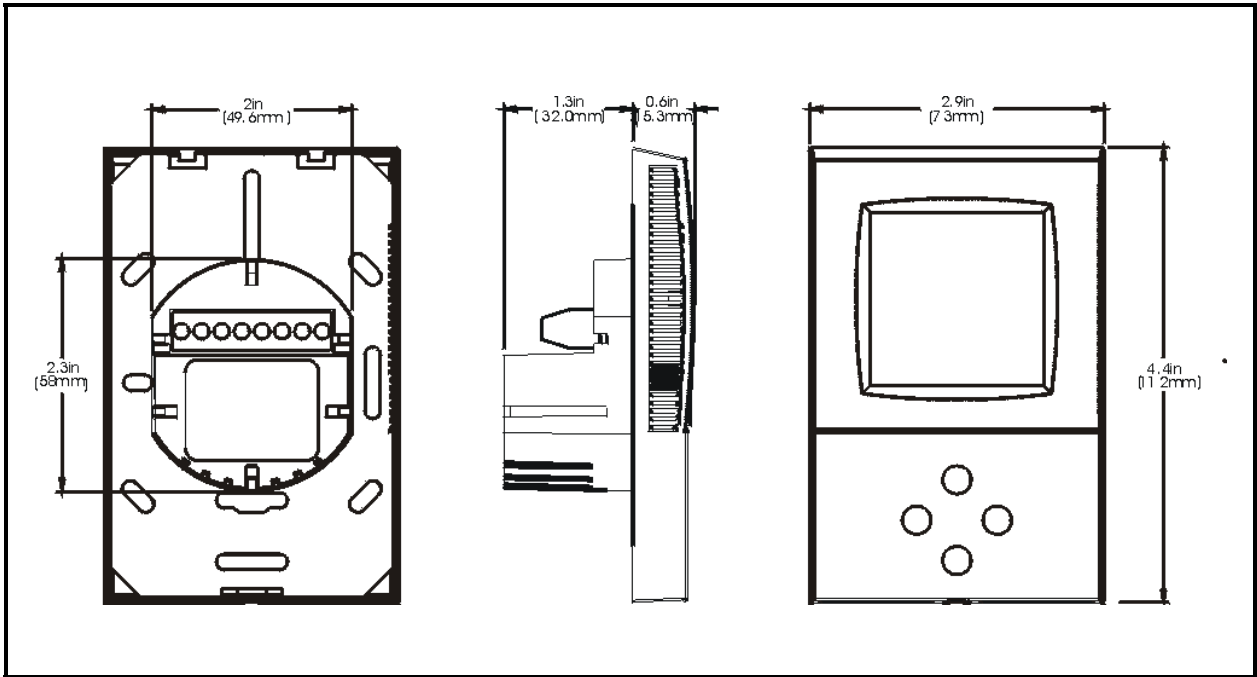


Figure 3. Humidistat Dimensions

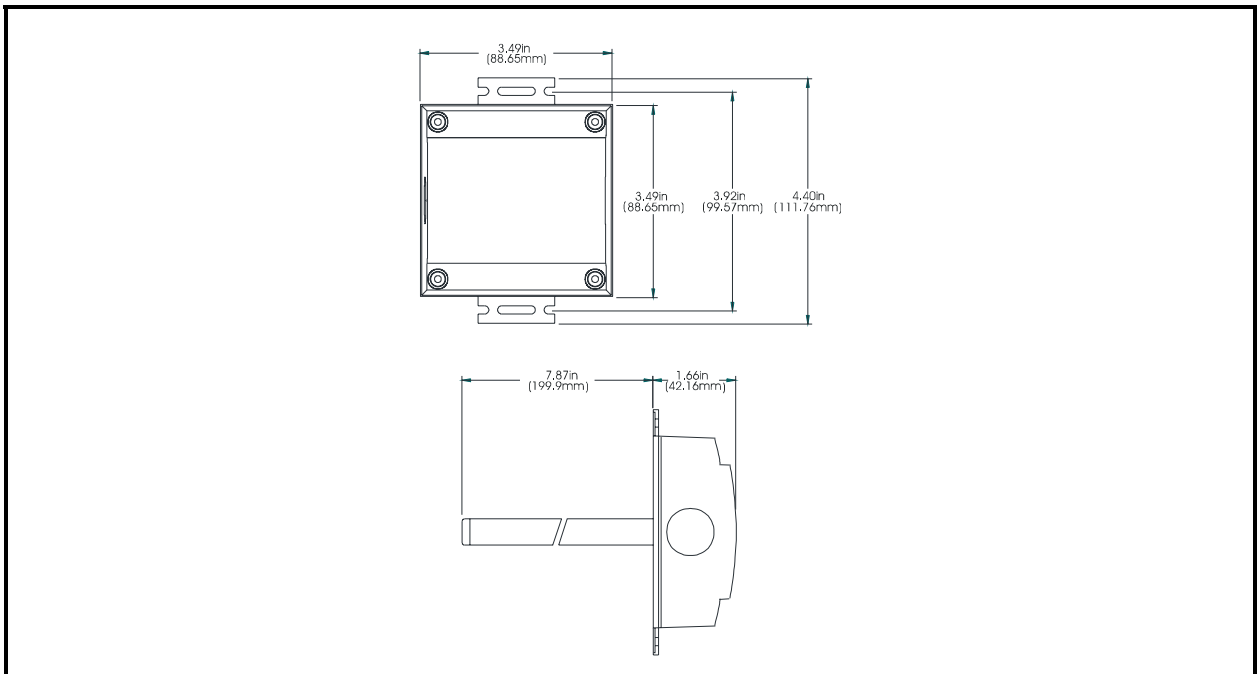


Figure 4. Duct Sensor Dimensions

8. TROUBLESHOOTING

Table 3. Troubleshooting

<u>Display</u>	<u>Cause</u>	<u>Symptoms</u>	<u>Corrective Action</u>
ALA3	The controller will initiate this alarm if the humidity sensor reports a relative humidity below 6%.	The LCD screen will report the message ALA3. The controller will negate output until a relative humidity above 6% is reported to the controller from the sensor.	Normal operation resumes once the sensed humidity is above 6% RH. The message will remain on the LCD screen until removed by pressing the option button on the control panel. If this error persists verify that the wiring is correct. Also verify that the sensor is mounted in an area that accurately represents the controlled humidity level.
ALA4	The controller will initiate this alarm if the humidity sensor reports a relative humidity above 95%.	The LCD screen will report the message ALA4. The controller will negate output until a relative humidity below 95% is reported to the controller from the sensor.	Normal operation resumes once the sensed humidity is below 95% RH. The message will remain on the LCD screen until removed by pressing the option button on the control panel. If this error persists verify that the wiring is correct. Also verify that the sensor is mounted in an area that accurately represents the controlled humidity level.

NOTE:

If at any time this troubleshooting guide fails to provide the information needed Nortec's Technical Support Department can be reached at 1-866-NORTEC-1 to provide assistance.

NORTEC DIGITAL ON/OFF HUMIDISTAT WIRING DIAGRAM

Use for Resdelux

Part #	Description
2520259	Digital On/Off Wall Humidistat
2520273	Digital On/Off Duct Humidistat Package

Warning: Failure to wire the humidistats in accordance with wiring diagram could permanently damage the electronics. Such errors will void the warranty. Cabling between humidistat and unit should be 18 AWG

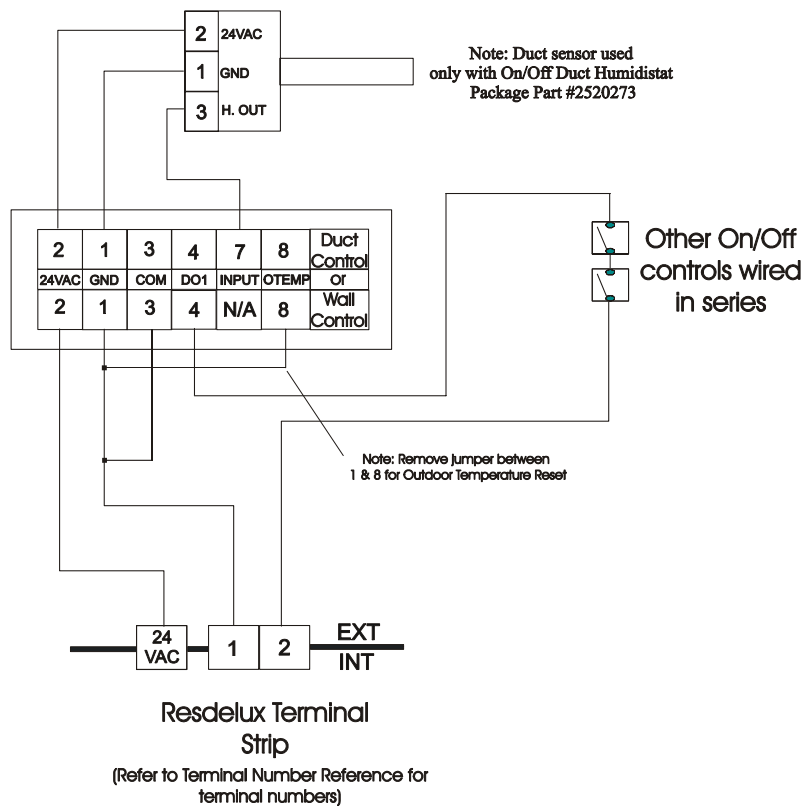


Figure 5. NORTEC On/Off Digital Humidistat

NORTEC DIGITAL ON/OFF HUMIDISTAT WIRING DIAGRAM

Use for GSTC, SETC, NHTC, NHMC, NHDI and NHSC with:

Part #	Description
2520259	Digital On/Off Wall Humidistat
2520273	Digital On/Off Duct Humidistat Package
2520265	Digital On/Off Humidistat w/o Sensor

Warning: Failure to wire the humidistats in accordance with wiring diagram could permanently damage the electronics. Such errors will void the warranty.
Cabling between humidistat and unit should be 18 AWG

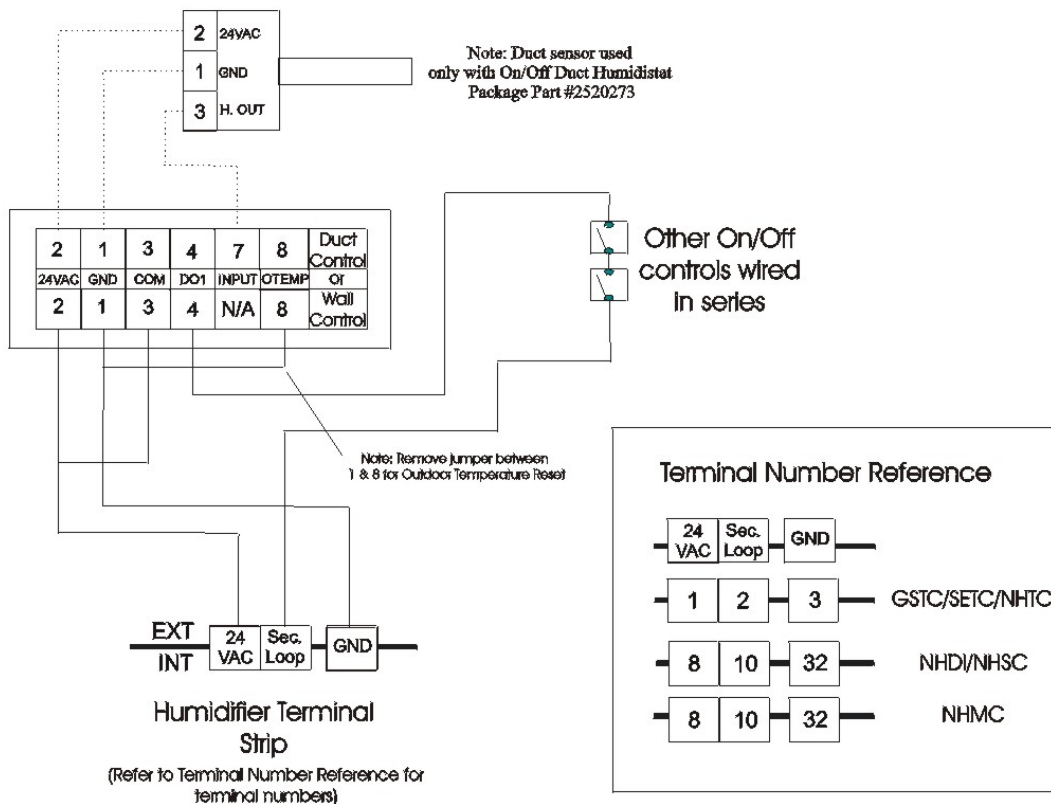


Figure 6. NORTEC On/Off Digital Humidistat Wiring Diagram

ON/OFF DIGITAL HUMIDISTAT Wiring Diagram for Livesteam

<u>Part #</u>	<u>Description</u>
2520259	On/Off Digital Wall Humidistat
2520273	On/Off Digital Duct Humidistat pkg.
2520265	On/Off Digital Humidistat w/o Sensor

Warning: Failure to wire the humidistat in accordance with the wiring diagram could permanently damage the electronics. Such errors will void the warranty. Cabling between controls and unit should be shielded 18 AWG

HUMIDISTAT TO ACTUATOR CONNECTIONS

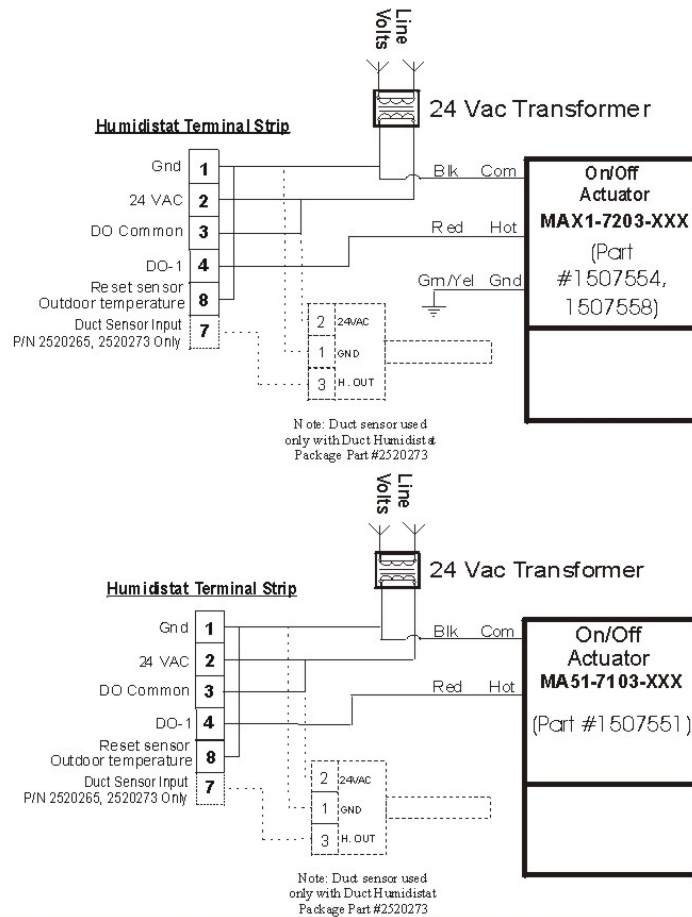


Figure 7. NORTEC On/Off Digital Humidistat Wiring Diagram for LiveSteam

10-30

HUMIDITY SENSORS

1. INTRODUCTION

This document covers the operation and installation instructions for the following digital humidistats:

Part #	Description
2529307	0.2-3.2V Wall Humidity Sensor
2529308	0.2-3.2V Wall Humidity Sensor

2. PART # 2529307 – WALL HUMIDITY SENSOR INSTALLATION

A. LOCATION

- (1) The wall humidistat should not be installed on an outside wall.
- (2) The sensor should be installed away from any heat source and away from direct sunlight.
- (3) The wall surface should be flat and clean.
- (4) Any draft originating from the wall interior should be prevented from interacting with the humidity sensor. A vapor barrier should be installed.
- (5) Nortec recommends using a sealed, single-gang, electrical mounting box (recessed in wall), to mount the wall humidity sensor.

B. INSTALLATION

- (1) Pull cables 6" (15cm) out of the wall
- (2) To remove the front face with the digital display, loosen the retaining screw at the bottom of the case. Pull firmly but gently on the bottom of the front face to unplug the face from the backboard. The front face will unhinge from the top retaining clips.
- (3) Connect the control wires to the terminals according to the wiring diagram(s). Table 1 outlines the terminal layout of the digital humidistat.
- (4) Secure the metal bracket to the mounting box using 2 screws. Make sure the screw heads do not stand out more than 1/5" (5mm) from the mounting surface.
- (5) Mount the front face onto the metal bracket. Ensure the top clips engage the grooves on the top of the metal bracket. Carefully lower the front face until the interconnector reaches the mounting plate. Ensure the connector pins are aligned with the plug on the back plate. While inserting the connectors, a slight resistance will be felt. Continue pressing gently until the front face is fully seated and tighten the retaining screw to secure the face.

3. PART # 2529308 – DUCT SENSOR INSTALLATION

A. Location

- (1) The duct sensor should be installed directly on the duct in an area where the air is well mixed with uniform flow.
- (2) The supply air sensor should be mounted downstream of the steam distributor at a distance 1.5 times the absorption distance (typically 10-12 feet or 3-3.7m).
- (3) If a return air humidity sensor is used it should be mounted close to the air inlet but downstream from a return fan if one is present.

B. Installation

- (1) Open the housing by removing the 4 screws securing the housing together.
- (2) Push the probe through the center hole and tighten the 2 mounting screws.
- (3) Drill a 1/2" (13mm) hole in the duct and insert the probe into the air stream.
- (4) Secure the sensor to the duct using 2 sheet-metal screws.
- (5) Connect the signal wires to the sensor terminal strip. Table 1 outlines the terminal layout of the digital humidistat.
- (6) Connect the plug from the temperature probe to the PCB board into the plug marked 'PROBE'.
- (7) Close the cover and secure using the 4 Screws removed in step 1.

Table 1. Sensor Terminal Connections

	Wall Humidistat (Part # 2529307)	Controller w/o Sensor (Part # 2529308)
Ground	1	1
24 VAC	2	2
Humidity Out	6	3

4. WALL SENSOR LCD DISPLAY

A. Legend for Figure 1.

(1) Display of current humidity value.

(2) Buttons for operating the humidistat:

⓪ POWER button: No function.

△ ▽ UP/DOWN buttons: Adjusts calibration value.

▷ OPTION button: Used for accessing the sensor calibration routine.

5. SENSOR CALIBRATION

A. The humidity sensor is factory calibrated, however, it can be field recalibrated. The calibration routine can be accessed by pressing and holding down the option button for five seconds. A new screen will appear with the calibration adjustments.

B. Press the up or down buttons until the text *calH* appears on the LCD screen. To adjust the calibration, press the Option button. The screen should load to display the current calibration trim. The calibration trim can be adjusted by pressing the up or down buttons to the desired level and then pressing the option button to confirm the settings. Press the Power button to return to the normal display.

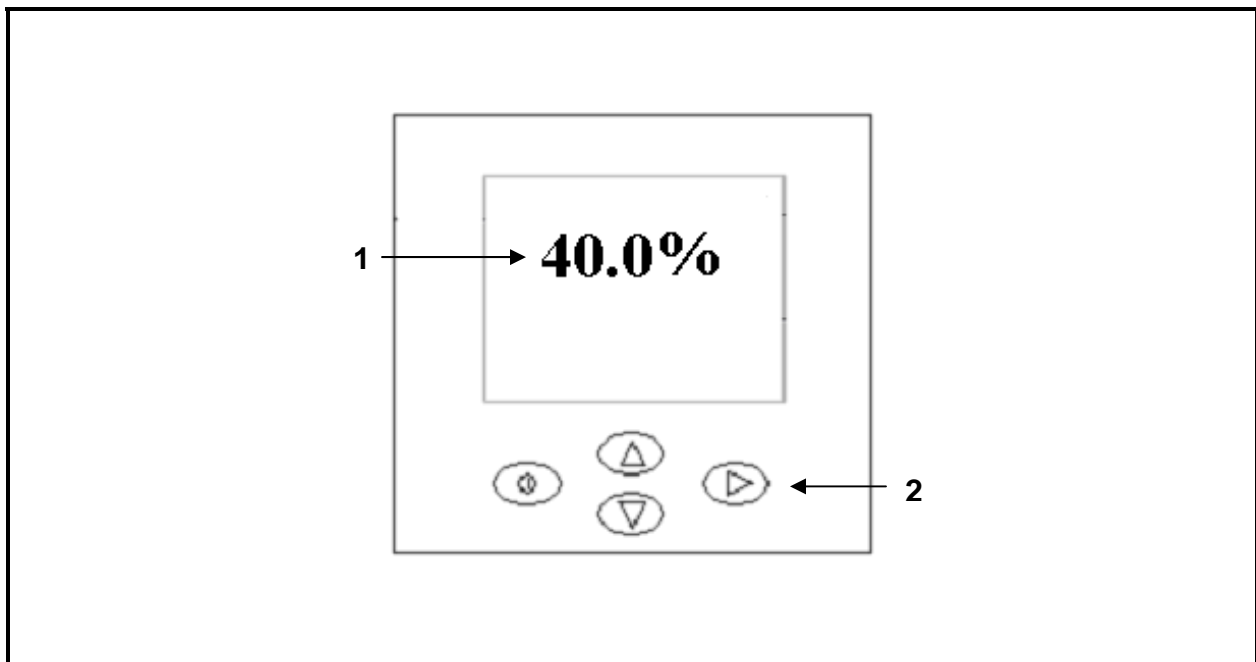


Figure 1. Wall Sensor LCD Display

6. SPECIFICATIONS

Table 2. Specifications

Power Supply	Operating Voltage	24 V AC 50/60 Hz \pm 10%
	Power Consumption	Max 3 VA
	Electrical Connection	Terminal Connectors
Humidity Input Signal Outputs	Internal rectification:	Half Wave Rectified
	Type Range Accuracy Hysteresis Repeatability Stability	Capacitive 0...100 % RH \pm 3.0% at 25°C \pm 3% \pm 0.5% \pm 0.5% / year if used within 0-50°C
	Analog Outputs Output Signal Resolution Accuracy Maximum Load	AO1 DC 0.2-3.2V 9.76 mV, 0.019 mA \pm 1% 20 mA, 500 Ω
Display (LCD)	Humidity Values Resolution Setpoint Values	3 digits 0.5 2 digits
Environment	Operation Temperature Humidity	0...50°C <95% r.h.
Housing	Materials: Cover, back Mounting Plate	ABS plastic Galvanized Steel

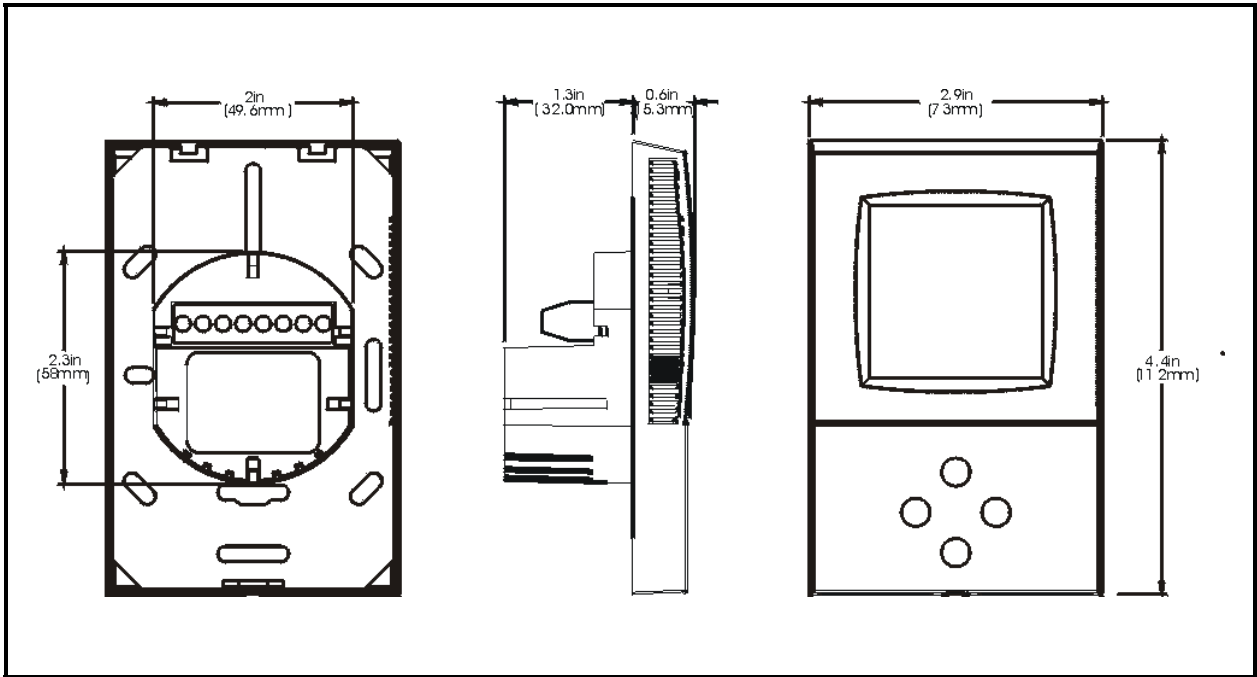


Figure 2. Wall Sensor Dimensions

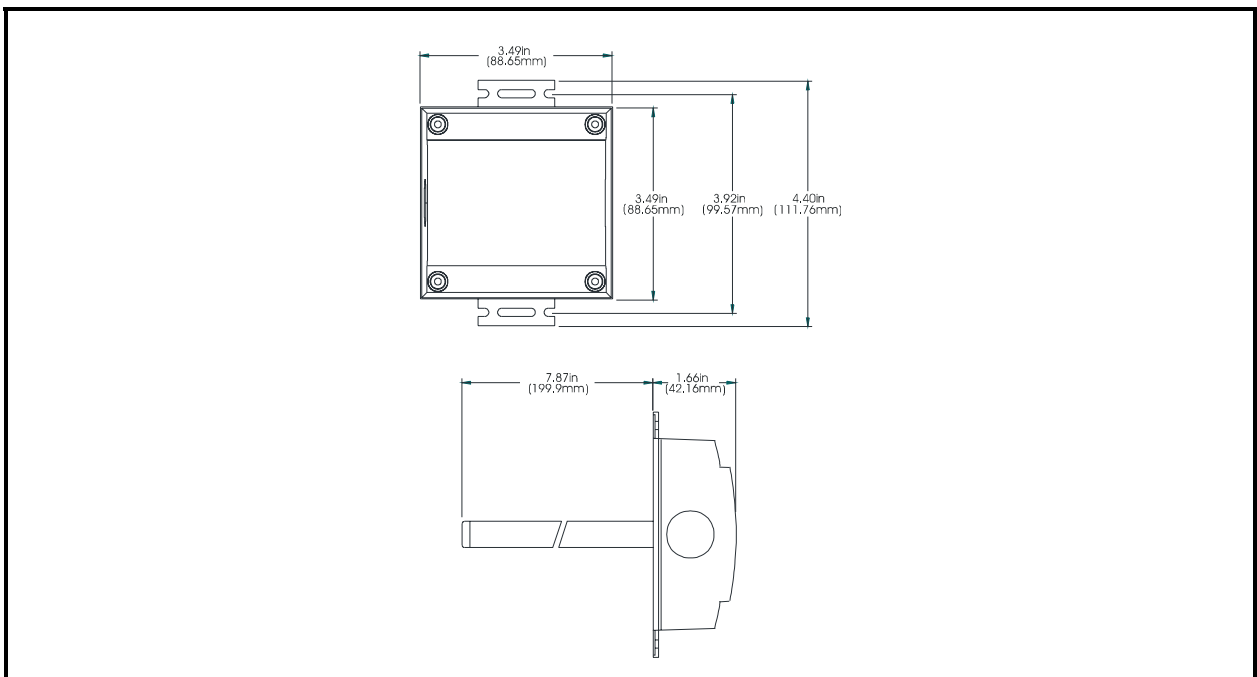


Figure 3. Duct Sensor Dimensions

7. TROUBLESHOOTING

Table 3. Troubleshooting

<u>Display</u>	<u>Cause</u>	<u>Symptoms</u>	<u>Corrective Action</u>
ALA3	The sensor will initiate this alarm if a relative humidity below 6% is reported.	The LCD screen will report the message ALA3. The sensor will provide 3.2volts or 100% output until a relative humidity above 6% is report from the sensor.	Normal operation resumes once the sensed humidity is above 6% RH. The message will remain on the LCD screen until remove by pressing the option button on the sensor display panel. If this error persists verify that the wiring is correct. Also verify that the sensor is mounted in an area that accurately represents the controlled humidity level.
ALA4	The sensor will initiate this alarm if a relative humidity above 95% is reported.	The LCD screen will report the message ALA4. The sensor will provide 3.2volts or 100% output until a relative humidity below 95% is report by the sensor.	Normal operation resumes once the sensed humidity is below 95% RH. The message will remain on the LCD screen until removed by pressing the option button on the control panel. If this error persists verify that the wiring is correct. Also verify that the sensor is mounted in an area that accurately represents the controlled humidity level.

NOTE:

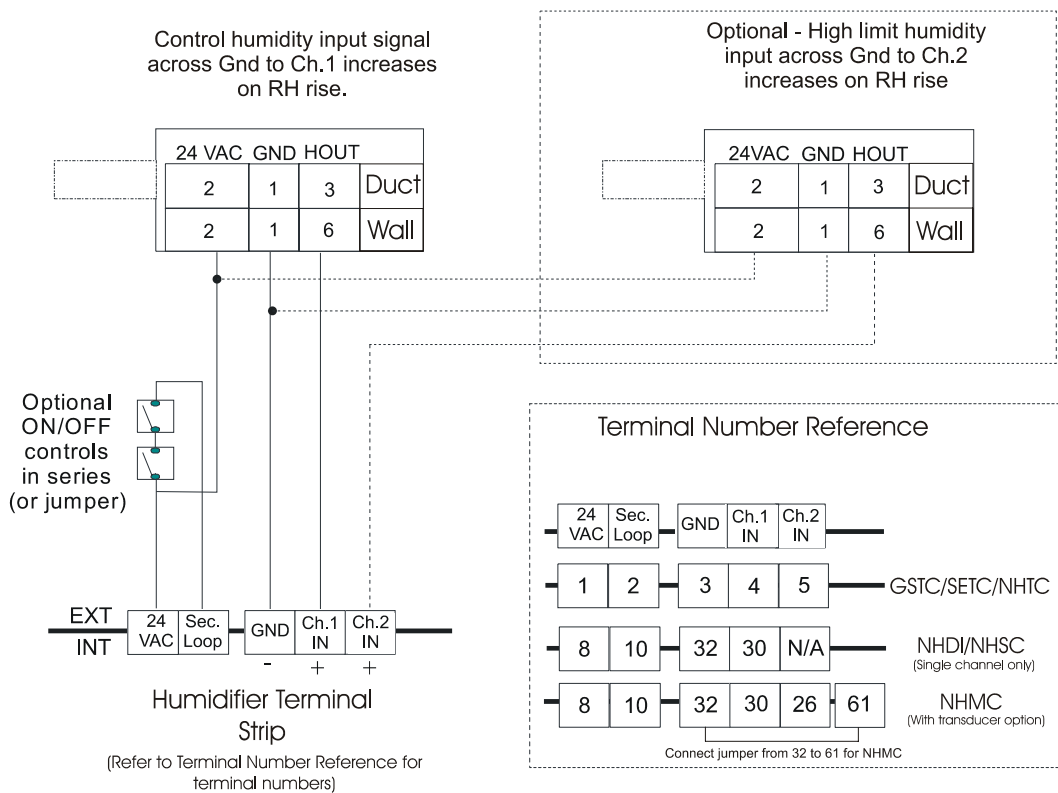
If at any time this troubleshooting guide fails to provide the information needed Nortec's Technical Support Department can be reached at 1-866-NORTEC-1 to provide assistance.

NORTEC 0.2 - 3.2V HUMIDITY SENSOR WIRING DIAGRAM

Use for GSTC, SETC, NHTC, NHMC, NHDI and NHSC with:

Part #	Description
2529307	0.2-3.2Vdc Wall Humidity Sensor
2529308	0.2-3.2Vdc Duct Humidity Sensor

Warning: Failure to wire the humidity transducer in accordance with wiring diagram could permanently damage the electronics. Such errors will void the warranty.
Cabling between transducers and unit should be shielded 18 AWG



NOTE 1: Nortec recommends using the Network Staged Modulation option when controlling multiple humidifiers with a single set of controls.

Figure 5. NORTEC 0.2-3.2V Digital Sensor

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WARRANTY

- (1) WALTER MEIER INC. and/or WALTER MEIER LTD. (hereinafter collectively referred to as THE COMPANY), warrant for a period of two years after installation or 30 months from manufacturer's ship date, whichever date is earlier, that THE COMPANY's manufactured and assembled products, not otherwise expressly warranted (with the exception of the cylinder), are free from defects in material and workmanship. No warranty is made against corrosion, deterioration, or suitability of substituted materials used as a result of compliance with government regulations.
- (2) THE COMPANY's obligations and liabilities under this warranty are limited to furnishing replacement parts to the customer, F.O.B. THE COMPANY's factory, providing the defective part(s) is returned freight prepaid by the customer. Parts used for repairs are warranted for the balance of the term of the warranty on the original humidifier or 90 days, whichever is longer.
- (3) The warranties set forth herein are in lieu of all other warranties expressed or implied by law. No liability whatsoever shall be attached to THE COMPANY until said products have been paid for in full and then said liability shall be limited to the original purchase price for the product. Any further warranty must be in writing, signed by an officer of THE COMPANY.
- (4) THE COMPANY's limited warranty on accessories, not of the companies manufacture, such as controls, humidistats, pumps, etc. is limited to the warranty of the original equipment manufacturer from date of original shipment of humidifier.
- (5) THE COMPANY makes no warranty and assumes no liability unless the equipment is installed in strict accordance with a copy of the catalog and installation manual in effect at the date of purchase and by a contractor approved by THE COMPANY to install such equipment.
- (6) THE COMPANY makes no warranty and assumes no liability whatsoever for consequential damage or damage resulting directly from misapplication, incorrect sizing or lack of proper maintenance of the equipment.
- (7) THE COMPANY retains the right to change the design, specification and performance criteria of its products without notice or obligation.

**walter
meier**

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