

# HMP60 Miniature Humidity and Temperature Probe



**For use with the DI-710  
Data Logger**

**Measure 0% to 100%  
Relative Humidity**

**Measure -40°C to +60°C**

**Rugged Metal Housing**

**Low Power Consumption**

**2.5V Output**



The HMP60 sensor allows DI-710 data loggers to acquire relative humidity (RH) and temperature information. The combination of these two products provides a compact solution, with transducer excitation provided by the DI-710 data logger. The logger itself allows data to be communicated to a connected PC over either a USB or Ethernet interface. Optionally, the DI-710 can store data to a removable SD-style memory card to satisfy stand-alone applications. Even with a connected HMP60, the DI-710's 16-channel capacity allows up to 14 additional channels of information to be acquired and correlated with temperature and humidity information to satisfy nearly any level of measurement expansion.

## Features

### Low Current Consumption

Because of its low current consumption and short power-up time, the HMP60 is well suited for a multitude of data logger applications.

### Rugged Construction

The aluminum body of the HMP60 is IP-65 classified. The sensor is protected by a membrane filter and plastic grid.

### Easy Installation

The HMP60 probe cable has a screw-on quick connector for easy installation (3 meter cable included). Cable wires connect easily to the screw terminal ports on the front of your DI-710 instrument.

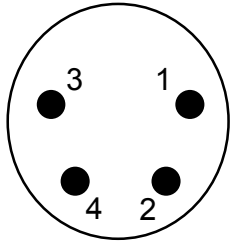
### No need for recalibration

The humidity sensor is interchangeable and easily replaced. Instead of recalibrating the instrument, the RH sensor replacement is faster, easier, and less costly in most situations.

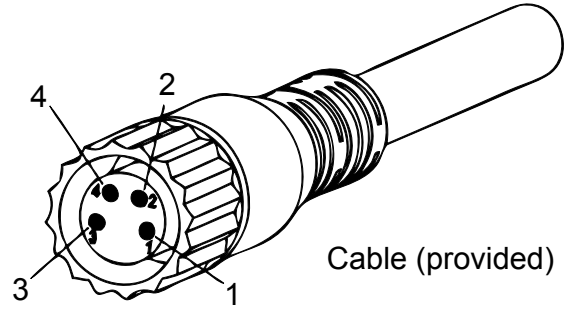
### Compatibility

Use the HMP60 with our popular DI-710 Series (with the "H" gain option) of data loggers and data acquisition systems. Please Note: Jumper "+12V" (see page 3 for location) on your DI-710 must be set properly for use with the HMP60 probe. Earlier versions of the DI-710 series (January 2006) are not compatible with the HMP60. See page 3 for more information and for proper DI-710 board configuration for use with the HMP60.

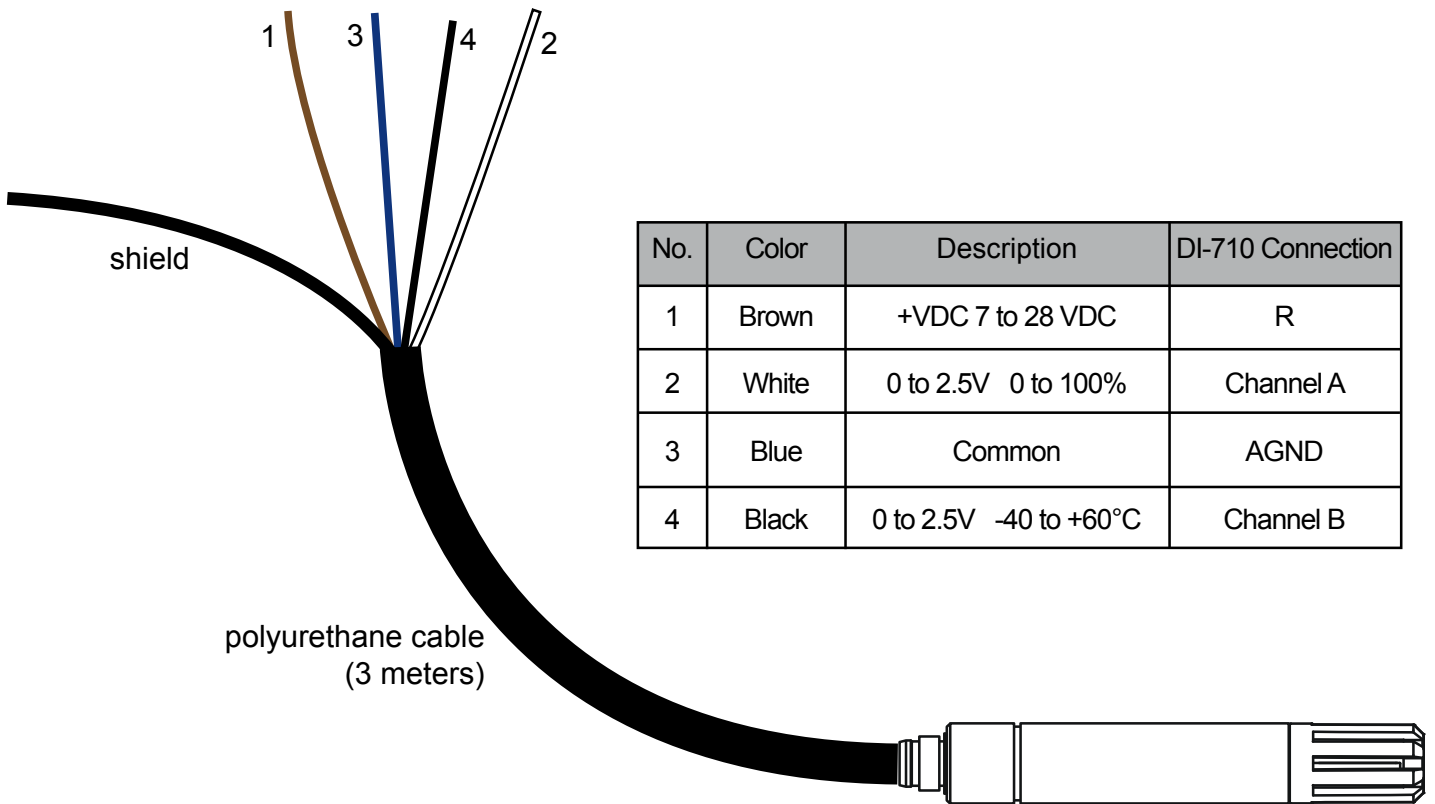
# Dimensional Drawings and Wiring Code



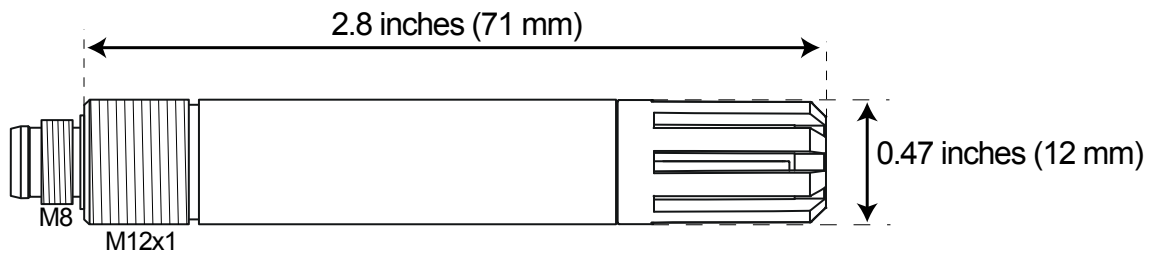
Pins (at end of probe)



Cable (provided)

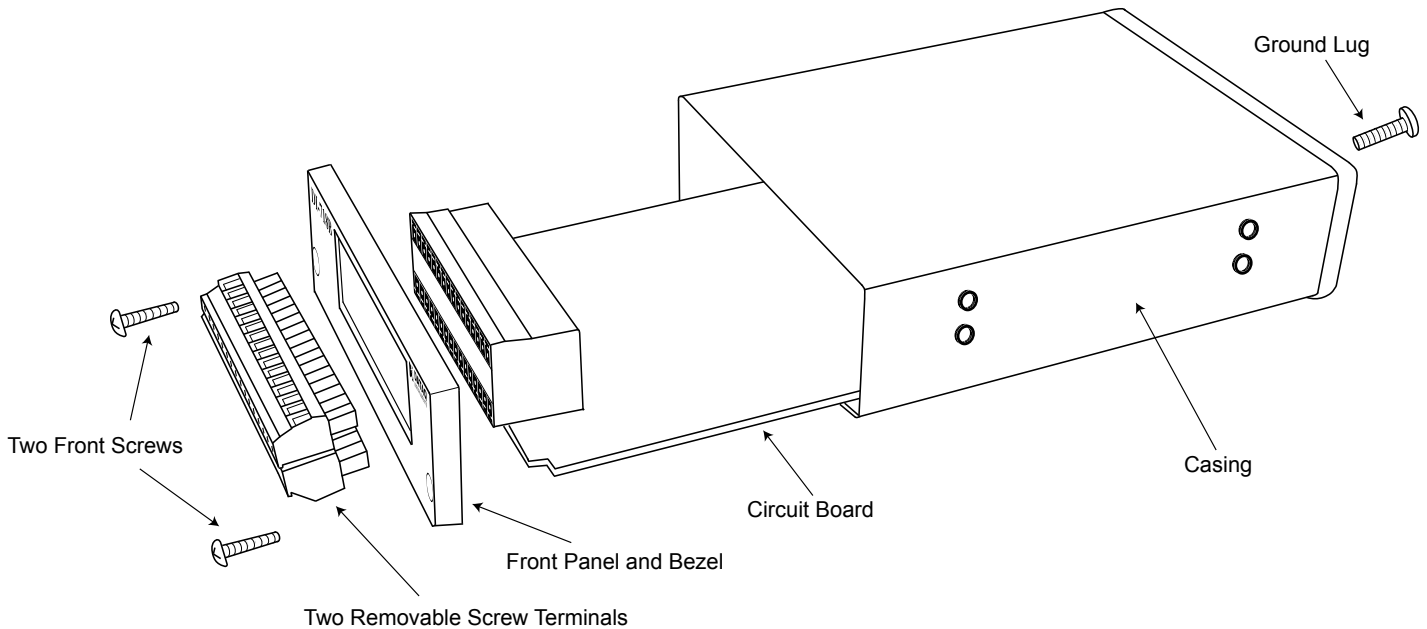


No.	Color	Description	DI-710 Connection
1	Brown	+VDC 7 to 28 VDC	R
2	White	0 to 2.5V 0 to 100%	Channel A
3	Blue	Common	AGND
4	Black	0 to 2.5V -40 to +60°C	Channel B

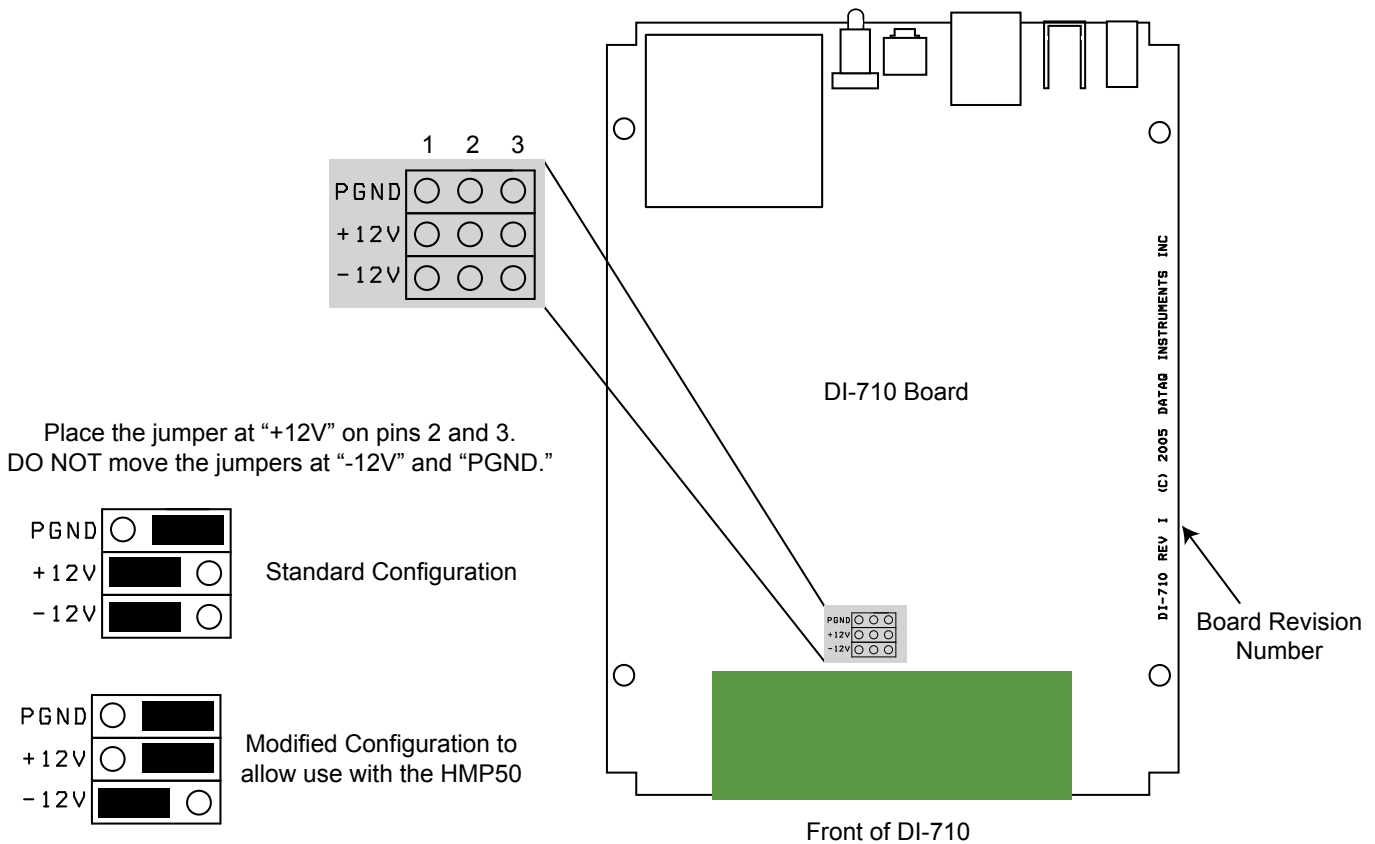


## Board Compatibility and Configuration of your DI-710

Earlier versions of the DI-710 are not compatible with the HMP60. Access the circuit board to determine the board revision. (1) Remove the two front screws and the screw terminal blocks. (2) Remove the front panel and bezel. (3) Remove the ground lug at the rear of the instrument. (4) Pull the circuit board from the case.

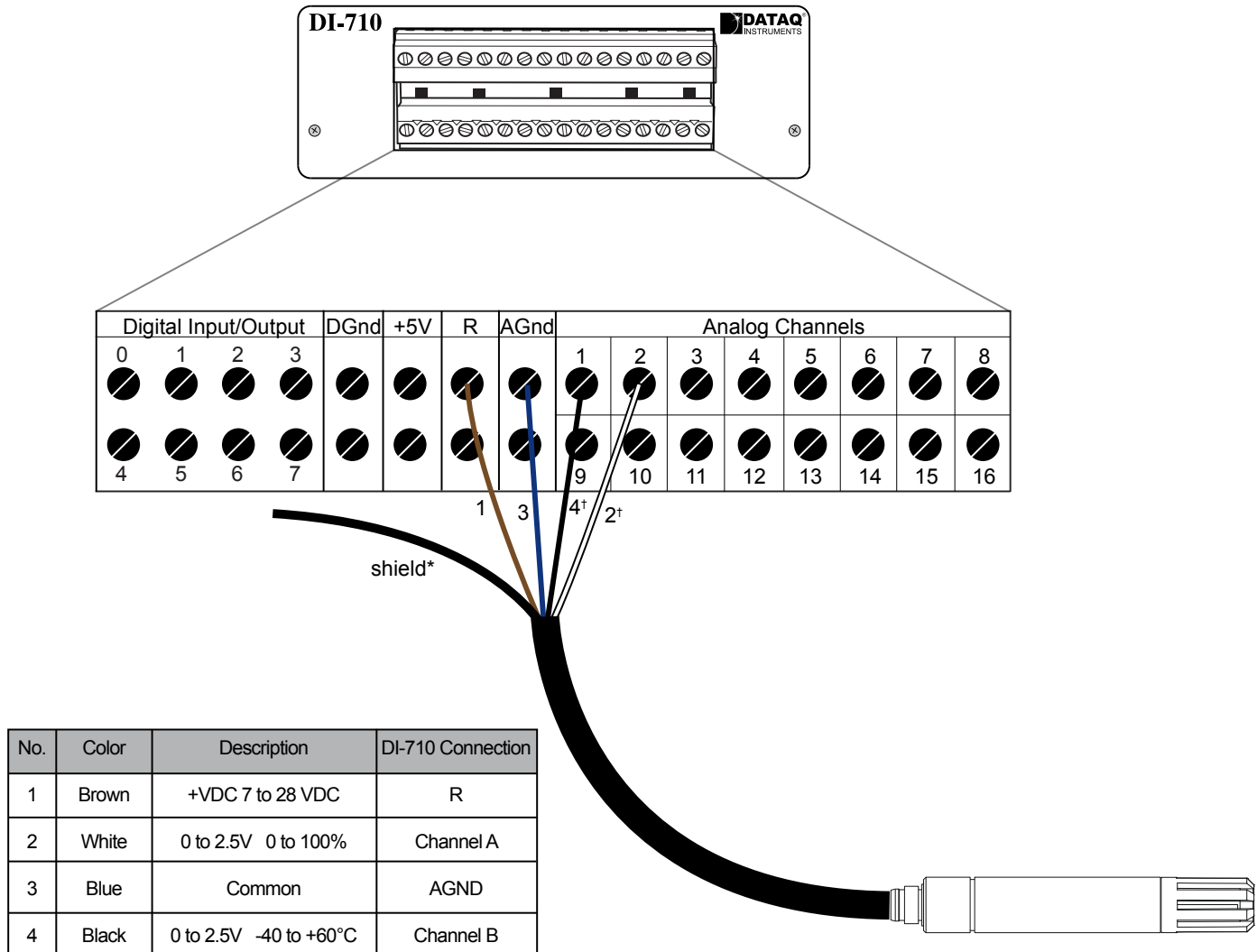


An easy way to determine compatibility is the presence of the “+12V” jumper. If there is a +12V jumper your board is compatible, if there is not a +12V jumper, your board is not compatible. Another way to determine compatibility is by looking at the board revision number. If you have a USB model, board revisions I and later are compatible. If you have an Ethernet model, board revisions F and later are compatible. If you determine your board is compatible set the +12V jumper as shown below. The “+12V” jumper must be moved from the 1 and 2 pins to the 2 and 3 pins. This is the **ONLY** jumper you should change.



## Connecting the HMP60 to your DI-710 Data Logger

Connect the Brown wire (1) to one of the Reserved screw terminal ports (R). Connect the Blue wire (3) to one of the analog ground screw terminal ports (AGnd). Connect the White wire (2) to any analog channel port to measure Relative Humidity. Connect the small Black wire (4) to any analog channel port to measure temperature. The shield wire (larger Black wire) may need to be connected to analog ground depending on your probe setup.\*



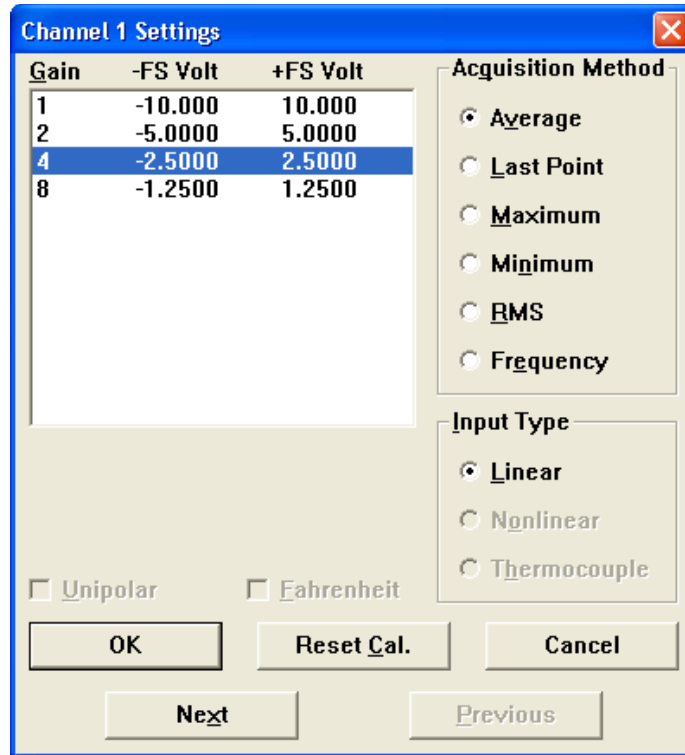
\* If the sensor body is grounded you should not connect the shield wire. If the sensor body is not grounded, connect the shield wire to analog ground (AGnd).  
 † Wires 2 (white) and 4 (black) can connect to any free Analog Channel.

# Configuring WINDAQ® for use with your HMP60

Follow these steps to change the settings in WINDAQ Acquisition software to get the best readings from your HMP60.

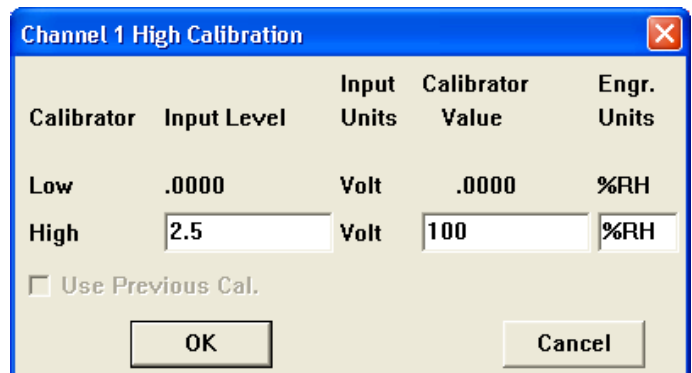
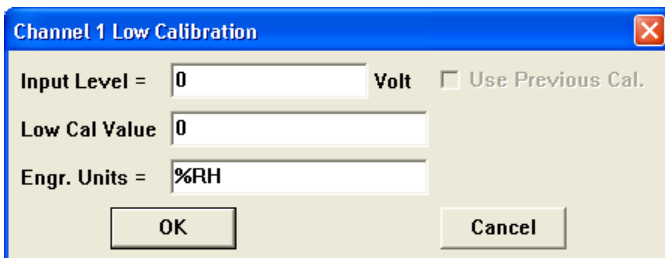
## 1. Change Gain

Select the channel connected to RH. Press F10 or select the menu item Edit > Channel Settings. Click on the Gain Setting 4 (shown to the right). Click the OK button to save the setting to that channel. If you are also measuring temperature, select the appropriate channel and perform the same operation.



## 2. Set Calibration

Use the High/Low calibration method to calibrate your channel. Select the channel connected to RH. Press the F9 key or select the menu item Edit > Low Calibration. Enter "0" for both Input Level and Low Cal Value. Enter %RH for Engr. Units. Click the OK button to save the settings. With the same channel selected press the F11 key or select the menu item Edit > High Calibration. Enter 2.5 for the Input Level. Enter 100 for the Calibrator Value. Click OK to save the settings. Use the images below for reference.

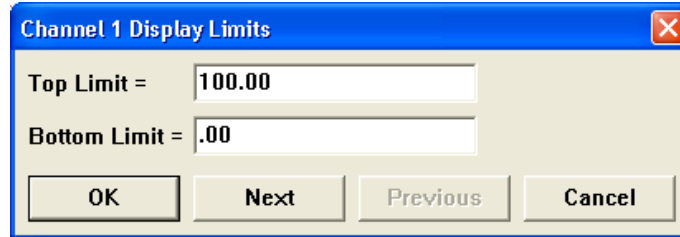


To set the Temperature Channel follow the procedures above but for the Low Calibration values enter: Input Level = 0; Low Cal Value = -40; Engr. Units = degC. For the High Calibration values enter: Input Level = 2.5; Calibrator Value = 60.

# Configuring WinDAQ® for use with your HMP60 (continued)

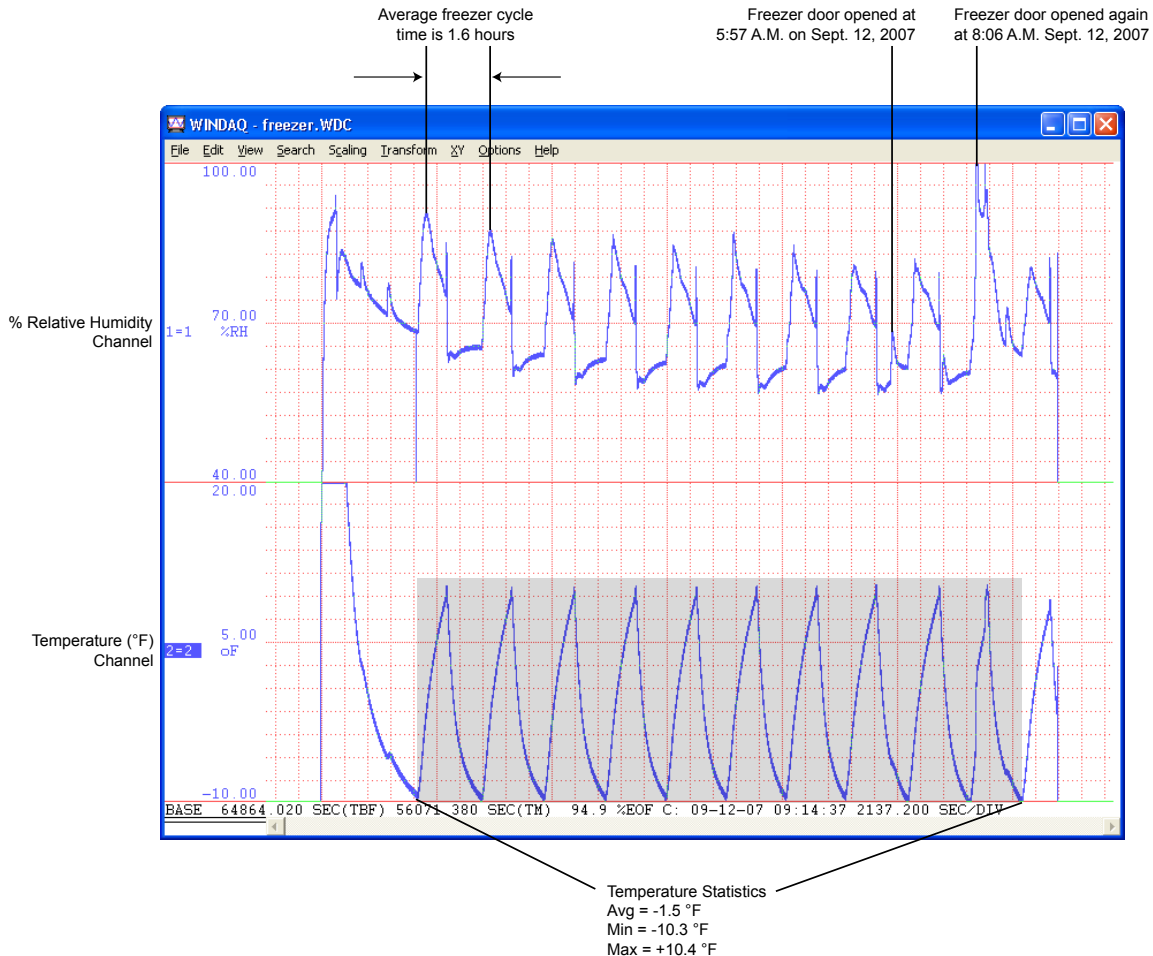
## 3. Set Display Limits

Zoom in on your data by setting the display limits. Select the channel then press ALT + F9 or select the menu item Scaling > Limits. Enter a Top Limit and a Bottom Limit to display based on the readings you think you will get. If you do not know what your readings will be you can always enter the maximum readings of the HMP60 (for %RH the top limit is 100 and the bottom limit is 0 - as shown below).



## 4. Analysis

This screen shot of WinDAQ Playback software shows a temperature and humidity recording from a freezer using the DI-710 and a HMP60 sensor. The 710 operated in a stand-alone mode, continuously collecting data to a removable SD-style memory card for approximately eighteen hours. The graphic shows the entire session compressed on to one screen width for a bird's eye view of all recorded information. Items of interest, all derived from WinDAQ Playback software, are shown.



## Specifications\*

Relative Humidity		Temperature	
<b>Measurement Range:</b>	0 to 100% RH	<b>Measurement Range:</b>	-40°C to +60°C
<b>Typical Accuracy: (0 to +40°C)</b>	0 to 90% RH: ±3% RH 90 to 100% RH: ±5% RH	<b>Accuracy over temperature range: (-40 to +60 °C)</b>	±0.6°C
<b>Typical Accuracy: (-40 to 0°C and +40 to +60°C)</b>	0 to 90% RH: ±5% RH 90 to 100% RH: ±7% RH	Dew Point	
		<b>Measurement Range:</b>	-40°C to +60°C
		<b>Typical accuracy: (0 to +40°C)</b>	±2 °C (when dew point depression < 15 °C)
		<b>Typical accuracy: (40 to 0°C and +40 to +60°C)</b>	±3°C (when dew point depression < 10°C)
		dew point depression = ambient temperature - dew point	
Inputs and Outputs		Mechanical	
<b>Operating Voltage:</b>	5 to 28 VDC	<b>Materials body:</b>	chrome coated aluminum
<b>Power Requirements:</b>	56mW	<b>grid/filter:</b>	chrome coated ABS plastic
<b>Settling time at power up:</b>	150ms	<b>cable:</b>	polyurethane or FEP
<b>Start-up time at operating voltage:</b>	<14 V: 1 s; >14 V: 4 s	<b>Body thread:</b>	M12x1 / 10 mm
<b>Outputs:</b>	0 to 2.5 VDC (equals 0% to 100% RH and -40°C to +60°C)	<b>Grid thread:</b>	M11x1 / 5mm
<b>External loads:</b>	R <sub>L</sub> min 50kΩ	<b>Cable connector:</b>	4-pin M8 female
		<b>Weight:</b>	3.5 oz (99 grams) includes cable
Environment		*Sensor Only. DI-710 inaccuracy not included in these specifications.	
<b>Operating Relative Humidity:</b>	0% to 100% RH		
<b>Operating/Storage Temperature:</b>	-40°C to +60°C		
<b>Electromagnetic compatibility :</b>	Complies with EMC standard EN61326-1, Basic immunity test requirements		

## Ordering Guide

Description	Order Number		
HMP60 RH (0 to 100%) and temperature (-40°C to +60°C) sensor.	HMP60		
Accessories			
Description	Order Number	Description	Order Number
Spare 3-meter cable	CBL-HMP60	Spare RH sensor with membrane filter	SNSR-HMP60
Spare plastic grid and membrane	FLTR-HMP60	Spare mounting nuts, Hex-M12x1, pair	NUT-HMP60



DATAQ Instruments, Inc.  
241 Springside Drive  
Akron, Ohio 44333  
Phone: 330-668-1444  
Fax: 330-666-5434

### Data Acquisition Product Links

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