

# dew.IQ

## *Moisture Analyzer*

User's Manual



imagination at work

910-295 Rev. B  
August 2014



GE

Measurement & Control

# dew.IQ

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User's Manual

910-295 Rev. B

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## Information Paragraphs

- **Note** paragraphs provide information that provides a deeper understanding of the situation, but is not essential to the proper completion of the instructions.
- **Important** paragraphs provide information that emphasizes instructions that are essential to proper setup of the equipment. Failure to follow these instructions carefully may cause unreliable performance.
- **Caution!** paragraphs provide information that alerts the operator to a hazardous situation that can cause damage to property or equipment.
- **Warning!** paragraphs provide information that alerts the operator to a hazardous situation that can cause injury to personnel. Cautionary information is also included, when applicable.

## Safety Issues

**WARNING!** It is the responsibility of the user to make sure all local, county, state and national codes, regulations, rules and laws related to safety and safe operating conditions are met for each installation.

## Auxiliary Equipment

### Local Safety Standards

The user must make sure that he operates all auxiliary equipment in accordance with local codes, standards, regulations, or laws applicable to safety.

### Working Area

**WARNING!** Auxiliary equipment may have both manual and automatic modes of operation. As equipment can move suddenly and without warning, do not enter the work cell of this equipment during automatic operation, and do not enter the work envelope of this equipment during manual operation. If you do, serious injury can result.

**WARNING!** Make sure that power to the auxiliary equipment is turned OFF and locked out before you perform maintenance procedures on the equipment.

### Qualification of Personnel

Make sure that all personnel have manufacturer-approved training applicable to the auxiliary equipment.

### Personal Safety Equipment

Make sure that operators and maintenance personnel have all safety equipment applicable to the auxiliary equipment. Examples include safety glasses, protective headgear, safety shoes, etc.

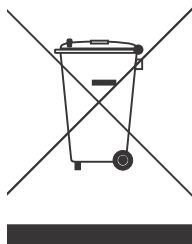
### Unauthorized Operation

Make sure that unauthorized personnel cannot gain access to the operation of the equipment.

## Environmental Compliance

### Waste Electrical and Electronic Equipment (WEEE) Directive

GE Measurement & Control is an active participant in Europe's *Waste Electrical and Electronic Equipment (WEEE)* take-back initiative, directive 2002/96/EC.



The equipment that you bought has required the extraction and use of natural resources for its production. It may contain hazardous substances that could impact health and the environment.

In order to avoid the dissemination of those substances in our environment and to diminish the pressure on the natural resources, we encourage you to use the appropriate take-back systems. Those systems will reuse or recycle most of the materials of your end life equipment in a sound way.

The crossed-out wheeled bin symbol invites you to use those systems.

If you need more information on the collection, reuse and recycling systems, please contact your local or regional waste administration.

Visit <http://www.ge-mcs.com/en/about-us/environmental-health-and-safety/1741-weee-req.html> for take-back instructions and more information about this initiative.

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# Chapter 1. Features and Capabilities

## 1.1 Introduction

The dew.IQ is a single-channel hygrometer that measures moisture content in gases. It is suitable for a wide range of process conditions in applications that require real-time moisture measurement.

The dew.IQ accepts any calibration range provided with GE probes (see *Chapter 7, Specifications* for more information). It comes equipped with two standard alarm relays, one fault alarm relay, and a single analog output. It also has onboard data logging capability using a micro SD card.

## 1.2 Electronics

You can program the meter using the keys on the front panel (see *Figure 1* below). The dew.IQ universal power supply accepts voltages from 100 to 240 VAC, or you may order the 24 VDC configuration.



Figure 1: Front Panel

### 1.3 Probes

The *moisture probe* is the part of the system that comes in direct contact with the process. The dew.IQ uses any GE M Series probe (see *Figure 2* below) or an IQ.probe (see *Figure 3* below) to measure dew point temperature in °C or °F. The sensor assembly is secured to the probe mount and is protected with a sintered stainless steel shield (see *Figure 2* below).

*Note: Other types of shields are available upon request.*

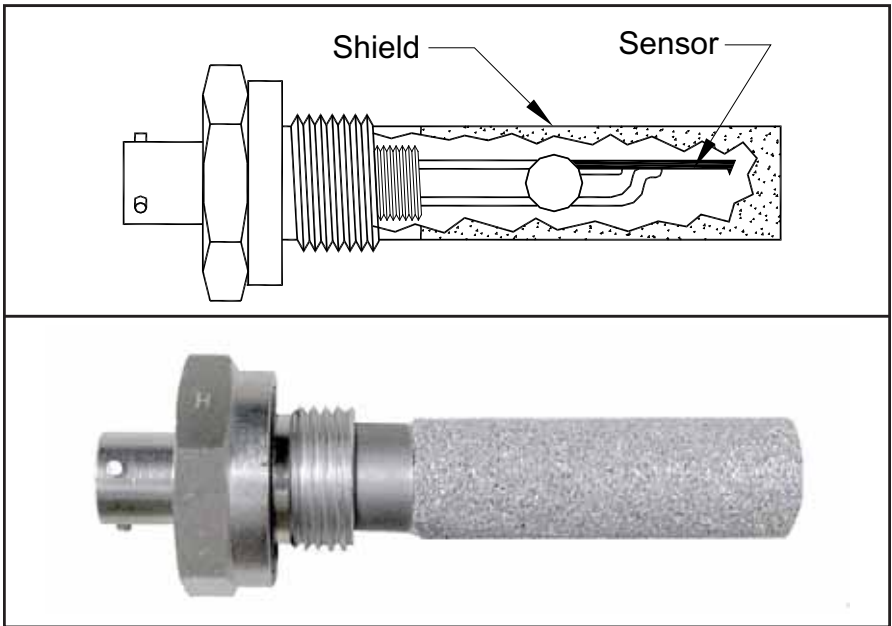


Figure 2: M Series Probe



Figure 3: IQ.probe

## Chapter 2. Installation

### 2.1 Introduction

Installing the dew.IQ includes the following steps:

- Selecting the analog recorder output (see *page 4*)
- Mounting the electronics (see *page 8*)
- Mounting the sample system (see *page 15*)
- Installing the probe (*page 16*)
- Wiring the system (see *page 18*)

**WARNING!** To ensure safe operation, the dew.IQ must be installed and operated as described in this manual. Also, be sure to follow all applicable local safety codes and regulations for installing electrical equipment.

## 2.2 Selecting the Analog Recorder Output

*Note: By default, the analog recorder output is set to the current output.*

*Note: Customers must provide their own cable for connecting the analog recorder output. Cables ranging from 16 to 26 AWG are acceptable.*

The dew.IQ has one isolated analog recorder output. The analog recorder output provides either a current or voltage signal, as determined by the position of switch S1 on the main PC board.

Complete these steps to check or reset switch S1 (see *Figure 8 on page 7*):

**WARNING!** Never connect line voltage or any other power input to the analog recorder output terminals.

1. Make sure the dew.IQ is turned OFF and unplugged. For wall mount and bench mount units, remove the dew.IQ from its enclosure before proceeding (see the appropriate figures in *Appendix A*).

**WARNING!** The dew.IQ must be isolated or disconnected from all voltage sources before changing the recorder output.

2. Remove the screw at the top of the back panel (see *Figure 4* below).

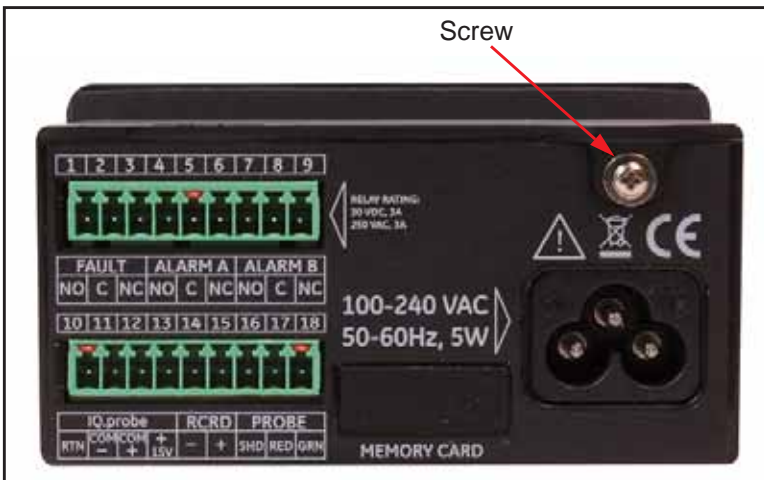


Figure 4: Back Panel (AC cord version shown)



## 2.2 Selecting the Analog Recorder Output (cont.)

3. Lift the back edge of the top cover (see *Figure 5* below).



Figure 5: Lifting the Back Edge of the Cover

4. Slide the cover toward the back of the dew.IQ (see *Figure 6* below).



Figure 6: Sliding the Cover to the Rear

## 2.2 Selecting the Analog Recorder Output (cont.)

5. Lift the cover away from the enclosure (see *Figure 7* below).



Figure 7: Removing the Cover

## 2.2 Selecting the Analog Recorder Output (cont.)

6. Locate switch S1 (see the highlighted area in *Figure 8* below).



**CAUTION!** Use proper ESD grounding prior to setting the switch.

7. Set switch S1 to the desired position: V for voltage or I for current.



Figure 8: Switch S1 on the Main PC Board

8. After setting the switch, reinstall the cover and secure it with the rear enclosure screw. For wall mount and bench mount units, reinstall the dew.IQ in its enclosure (see the appropriate figures in *Appendix A*).

## 2.3 Mounting the Electronics

The dew.IQ is available in the following configurations:

- Panel mount (see *page 8*)
- Rack mount (see *page 12*)
- Bench mount (see *page 13*)
- Wall mount (see *page 14*)

Proceed to the appropriate section for mounting your dew.IQ electronics.

### 2.3.1 Panel Mount

The panel mount unit can be installed in a panel up to 0.25 in. (6 mm) thick. See *Figure 43 on page 100*, for the required panel cutout dimensions.

**IMPORTANT:** *For Type 4X and IP66 installation, the dew.IQ must be mounted in a rigid, flat panel using the panel gasket and both mounting brackets provided.*



### 2.3.1 Panel Mount (cont.)

To mount the dew.IQ in a panel with a 3.69" (94 mm) x 1.81" (46 mm) opening, refer to the figures and complete the following steps:

1. Remove the side panel mount label prior to installation.



Figure 9: Removing Side Panel Mount Label

2. Slide the gasket along the dew.IQ and place it around the back of the display (see *Figure 10* below).



Figure 10: Installing the Gasket Behind the Display

### 2.3.1 Panel Mount (cont.)

3. Slide the dew.IQ into the panel cutout (see *Figure 11* below).



Figure 11: Sliding the dew.IQ into the Panel Cutout

4. Behind the panel, insert the mounting brackets into the side holes provided (see *Figure 12* below).



Figure 12: Installing the Mounting Brackets

### 2.3.1 Panel Mount (cont.)

5. Hold the chassis and lock each mounting bracket in place by sliding it toward the rear of the dew.IQ (see *Figure 13* below).



Figure 13: Locking the Mounting Brackets in Place

6. Use a screwdriver to extend the bracket screws to the back of the panel and secure the dew.IQ in the panel cutout (see *Figure 14* below).



Figure 14: Securing the dew.IQ to the Panel

### 2.3.1 Panel Mount (cont.)

7. Using a feeler gauge behind the display, check the gasket compression, and tighten the bracket screws until the gap is  $0.028''$  (0.71 mm)  $\pm$   $0.002''$  (0.05 mm), as shown in see *Figure 15* below.



Figure 15: Checking the Gasket Compression

### 2.3.2 Rack Mount

The rack mount dew.IQ is a half-rack sized component designed for mounting in a standard instrument rack. See *Figure 42 on page 99*, for the dimensions.





### 2.3.3 Bench Mount

The bench mount dew.IQ can be placed on any clean, flat, horizontal surface that provides adequate clearance around the unit for proper operation and configuration. See *Figure 44 on page 101*, for the dimensions.



### 2.3.4 Wall Mount

The wall mount dew.IQ consists of a panel mount unit pre-installed in a standard Type 4X, IP66 wall mount enclosure. See *Figure 39 on page 96*, *Figure 40 on page 97* and *Figure 41 on page 98* for dimensions and installation notes.



The enclosure should be mounted on a vertical surface that provides adequate clearance for proper operation and configuration by completing the following steps:

1. Loosen the four (4) screws on the front of the enclosure, pull the door straight forward until it stops and then swing the door open (it is hinged on the left side).
2. Install four (4) self-drilling wall anchors in your mounting location per the hole pattern shown in *Figure 39 on page 96*.
3. Mount the enclosure on the wall using four (4) #8 x 1-1/2" machine screws in the four mounting holes provided.
4. Prior to operation, the door must be closed and secured with the four screws located at the corners.

## 2.4 Mounting the Sample System

The sample system is normally fastened to a flat metal plate that has four mounting holes. Upon request, GE can also provide the sample system in an enclosure. A typical sample system is shown in *Figure 16* below.

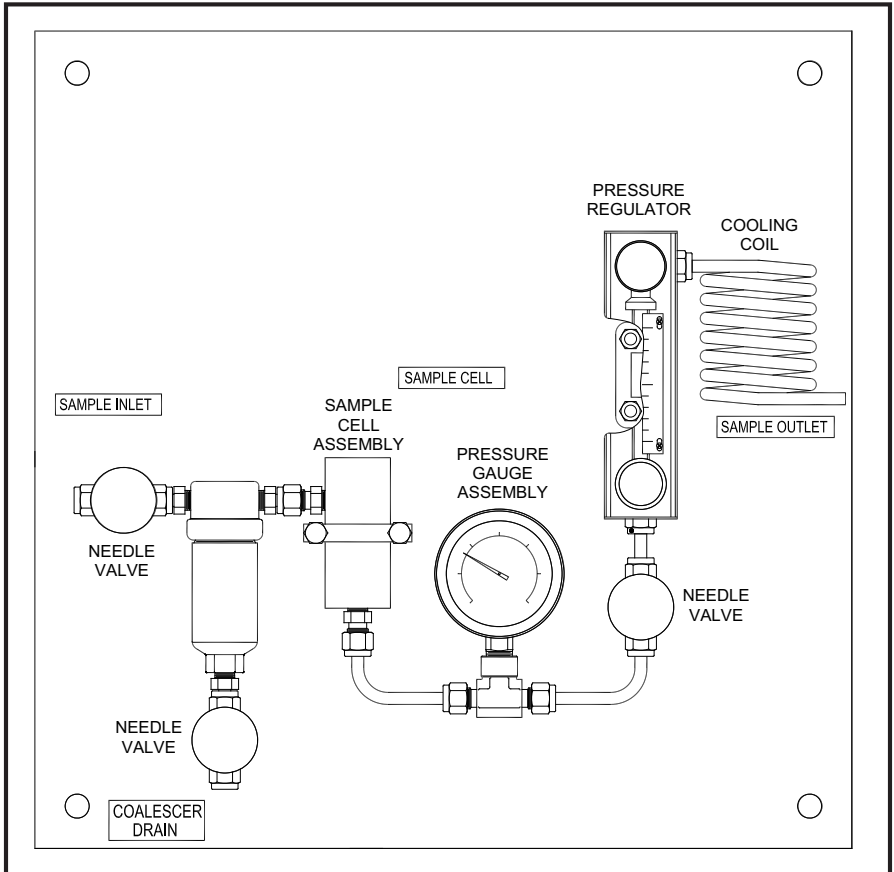


Figure 16: Typical Sample System

## 2.4 Mounting the Sample System (cont.)

Complete the following steps to mount the sample system:

1. Fasten the sample system plate or enclosure to a vertical wall or panel with a bolt in each of the four corners.
2. Connect the sample system inlet to the process and the outlet to the return, using appropriate stainless steel fittings and tubing.



**CAUTION!** Do not start the process flow through the system until the probe has been properly installed (see the following section).

## 2.5 Installing the Probe

The following probes are available for use with the dew.IQ:

- M Series probe (see *Figure 2 on page 2*)
- IQ.probe (see *Figure 3 on page 2*)

GE probes are usually installed in a sample system to protect the probe from any damaging elements in the process. The probe is mounted in a cylindrical container called the **sample cell**, which is included as part of your sample system.

Standard M Series probes and the IQ.probe are mounted in the sample system or the process line with 3/4-16 straight threads that are sealed with an o-ring. Other fittings are available for special applications.



**CAUTION!** If the probe is to be mounted directly in the process line, without a sample system, consult GE for proper installation instructions and precautions.

## 2.5 Installing the Probe (cont.)

Refer to *Figure 17* below, and complete these steps to install the probe in the sample cell:

1. Insert the probe into the sample cell and thread the probe into the sample cell fitting. Make sure you do not cross the threads.
2. Tighten the probe securely.
3. Identify the sample cell inlet port as the connection that is perpendicular to the installed probe.



**CAUTION!** For maximum protection of the aluminum oxide sensor, the probe shield should always be left in place.

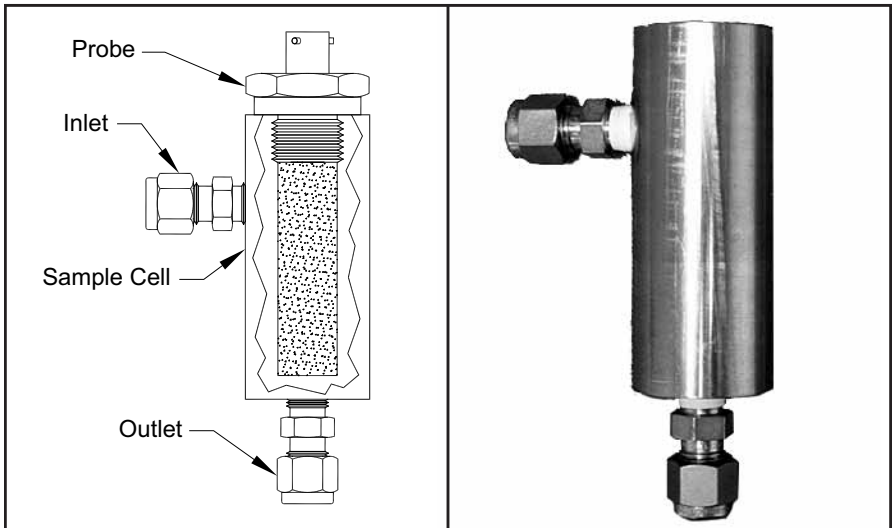


Figure 17: Probe/Sample Cell Assembly

## 2.6 Wiring the System

Wiring the dew.IQ system includes the following steps:

- Connecting the probe (see *page 20* or *page 23*)
- Connecting the analog recorder output (see *page 26*)
- Connecting the alarms (see *page 26*)
- Connecting the input power (see *page 29*)

**WARNING!** To ensure safe operation, the dew.IQ must be installed and operated as described in this manual. Also, be sure to follow all applicable local safety codes and regulations for installing electrical equipment.

**WARNING!** For wall mount units, refer to *Figure 41 on page 98* for the service loop required on all cable connections.

Refer to *Figure 18* below or *Figure 19* or *Figure 20 on page 19* and *Figure 45 on page 102* when making the electrical connections.



*This symbol in the three following figures is a reminder that the dew.IQ components can be damaged if electrical connections are not made correctly.*

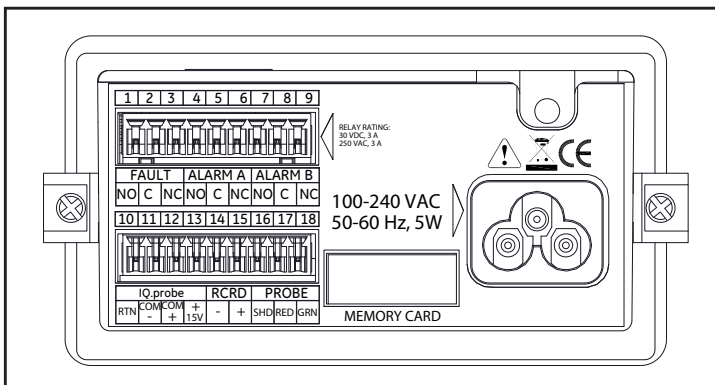


Figure 18: Electrical Connections (AC Power Cord units)

## 2.6 Wiring the System (cont.)

*Note: Figure 18 on page 18, Figure 19 below and Figure 20 below show the three different power connections available for the dew.IQ. Be sure to use the figure that corresponds to your unit. All other electrical connections are identical for the three versions.*

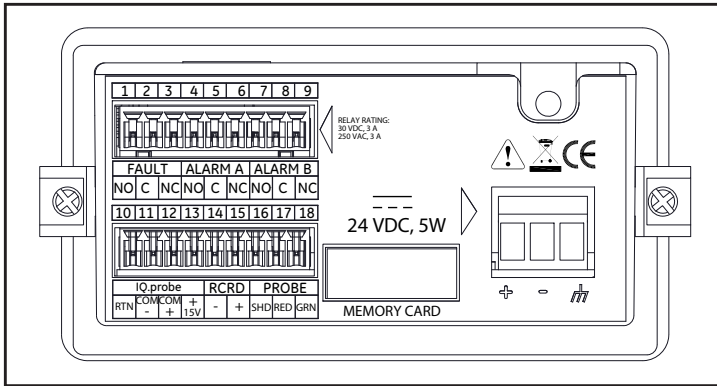


Figure 19: Electrical Connections (DC Power Terminal units)



*This symbol in Figure 20 below indicates the presence of electrical shock hazards. Always de-energize the unit prior to wiring or unwiring of the AC power terminals to avoid electrical shock.*

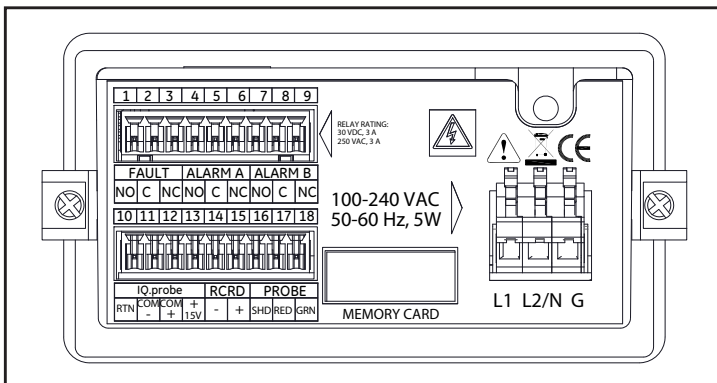


Figure 20: Electrical Connections (AC Power Terminal units)

### 2.6.1 Connecting an M Series Probe

The M Series probe must be connected to the dew.IQ with a continuous run of GE *two-wire shielded cable*. When connecting the probe, protect the cable from excessive strain (bending, pulling, etc.) and avoid subjecting the cable to temperatures above 65°C (149°F) or below -50°C (-58°F).

*Note: Standard factory-assembled cables (see Figure 21 below) are available from GE in lengths up to 600 meters (2000 feet).*



Figure 21: Two-Wire, Shielded, M Series Probe Cable

To connect the probe cable, refer to the accompanying photographs and complete the following steps:

1. Insert the end of the probe cable with the bayonet-type connector onto the probe and twist the shell clockwise until it snaps into a locked position (approximately 1/8 turn).

**IMPORTANT:** *Ensure that the power is OFF before proceeding.*



## 2.6.1 Connecting an M Series Probe (cont.)

**IMPORTANT:** *To maintain good contact at the terminal block and to avoid damaging the pins on the wiring connector, pull the connector straight off (not at an angle) the terminal block. Then, make the cable connections while the connector is off the unit. Finally, after the wiring is complete, push the connector straight onto the terminal block (not at an angle).*

- Remove the connector from the lower terminal block on the rear of the dew.IQ (see *Figure 22* below).



Figure 22: Bottom Connector Removed

- Refer to *Figure 23* below and *Figure 24* on page 22 to connect the end of the probe cable with the three leads to pins 16, 17 and 18 on the lower terminal block.

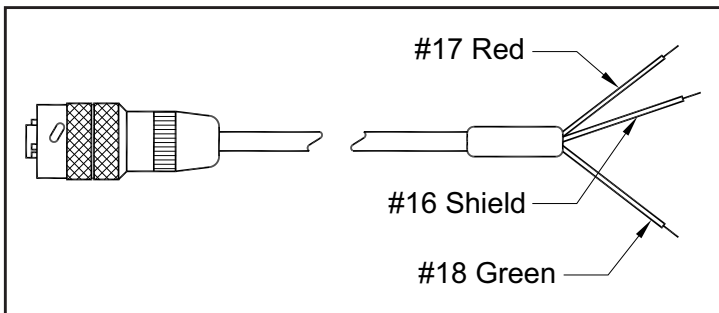


Figure 23: M Series Probe Cable Connections

### 2.6.1 Connecting an M Series Probe (cont.)



Figure 24: Making Probe Cable Connections to the Connector

4. Reinsert the connector into the lower terminal block on the rear of the dew.IQ (see *Figure 25* below).



Figure 25: Reinserting the Connector into the Terminal Block

## 2.6.2 Connecting an IQ.probe

Complete the following steps to wire an IQ.probe to the dew.IQ:

1. Insert the end of probe cable (see *Figure 26* below) with the connector onto the probe and twist the connector head clockwise until it is secure.

**IMPORTANT:** *Ensure that the power is OFF before proceeding.*



Figure 26: Four-Wire, IQ.probe Cable

## 2.6.2 Connecting an IQ.probe (cont.)

**IMPORTANT:** *To maintain good contact at the terminal block and to avoid damaging the pins on the wiring connector, pull the connector straight off (not at an angle) the terminal block. Then, make the cable connections while the connector is off the unit. Finally, after the wiring is complete, push the connector straight onto the terminal block (not at an angle).*

- Remove the connector from the lower terminal block on the rear of the dew.IQ (see *Figure 27* below).



Figure 27: Bottom Connector Removed

- Refer to *Table 1* below and *Figure 28* on page 25 to connect the end of the probe cable with the four leads to pins 10, 11, 12 and 13 on the lower terminal block.

Table 1: IQ.probe Wiring Connections

Wire Color	Pin Number	Function
Brown	10	RTN
Black	11	COM –
White	12	COM +
Blue	13	+15V
Bare Wire*	no connection	Shield

*\*The cable shield lead requires no connection to the dew.IQ and should be wrapped around the base of the other four leads.*

## 2.6.2 Connecting an IQ.probe (cont.)

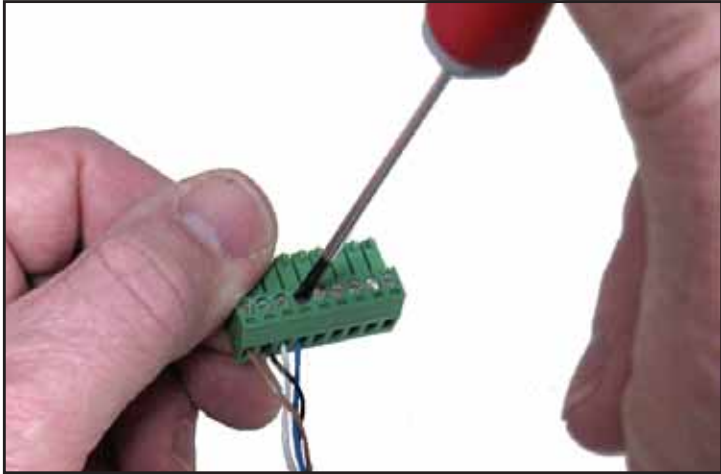


Figure 28: Wiring the Cable to the Connector

4. Reinsert the connector into the lower terminal block on the rear of the dew.IQ (see *Figure 29* below).

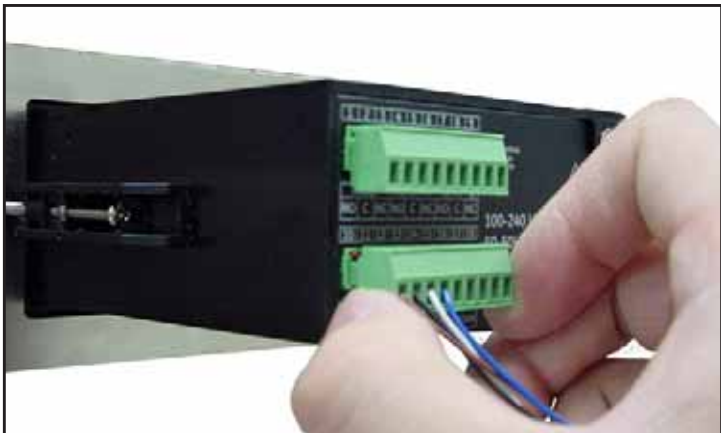


Figure 29: Reinserting the Connector into the Terminal Block

*Note: If there is a No Link error for the IQ.probe, check the wiring connections and make sure there is no short between +15V and RTN.*

### 2.6.3 Connecting the Analog Output

**IMPORTANT:** *Ensure that the power is OFF before proceeding.*

Refer to *Table 2* below to connect your analog recorder to pins 14 and 15 on the lower terminal block on the back of the dew.IQ (see *Figure 22* on page 21 or *Figure 27* on page 24).

**IMPORTANT:** *To maintain good contact at each terminal block and to avoid damaging the pins on the connector, pull the connector straight off (not at an angle), make cable connections while the connector is away from the unit, and push the connector straight on (not at an angle) when the wiring is complete.*

Table 2: Pin Assignments for Analog Output

Wire Color	Pin Number	Function
Black	14	Signal-
Red	15	Signal+

### 2.6.4 Connecting the Alarm Relays

*Note: The cable for connecting the alarm relays is supplied by the customer. Acceptable cables range from 16 to 26AWG.*

The dew.IQ has one *fault alarm relay* and two *high/low alarm relays*. Each alarm relay is a single-pole, double-throw contact set with the following contacts (see *Table 3* below for the connector pin assignments):

- Normally Open (NO)
- Common (C)
- Normally Closed (NC)

Table 3: Pin Assignments for Alarm Relay Contacts

Contact	Fault Alarm	Alarm A	Alarm B
Normally Open	1	4	7
Common	2	5	8
Normally Closed	3	6	9

### 2.6.4a Connecting the High/Low Alarms (A and B)

**IMPORTANT:** *Ensure that the power is OFF before proceeding.*

Each of these alarms can be set to trip on either a high or low condition. For a high alarm, the alarm will trip if the input exceeds the setpoint. For a low alarm, the alarm will trip if the input drops below the setpoint.

To wire the high/low alarm relays, complete the following steps:

1. Remove the connector from the upper terminal block on the rear of the dew.IQ (see *Figure 30* below).

**IMPORTANT:** *To maintain good contact at each terminal block and to avoid damaging the pins on the connector, pull the connector straight off (not at an angle), make cable connections while the connector is away from the unit, and push the connector straight on (not at an angle) when the wiring is complete.*

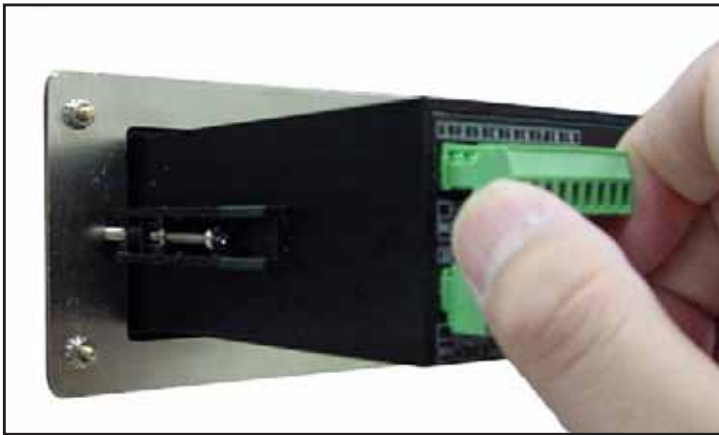


Figure 30: Removing the Upper Connector

2. Make the Alarm A and Alarm B connections to upper terminal block connector, as indicated in *Table 3 on page 26*.
3. Reinsert the connector into the upper terminal block on the rear of the dew.IQ.

### 2.6.4b Connecting the Fault Alarm

If enabled, the dew.IQ fault alarm trips when one or more of the following faults occurs: *power failure*, *range error* (configurable) or *watchdog function* system reset

*Note: The watchdog function is a supervisory circuit that automatically resets the unit whenever a system error occurs.*

The fault alarm has two possible operating modes:

- **Fail-Safe Mode:** Using *pins 2 and 3* provides a “normally closed” contact. When the dew.IQ is operating in a non-fault state, the fault alarm relay is energized to open the contact between pins 2 and 3. When a fault occurs, the fault alarm relay is de-energized to close the contact between pins 2 and 3 and trigger the alarm.
- **Non-Fail-Safe Mode:** Using *pins 1 and 2* provides a “normally open” contact. When the dew.IQ is operating in a non-fault state, the fault alarm relay is de-energized with an open the contact between pins 1 and 2. When a fault occurs, the fault alarm relay is energized to close the contact between pins 1 and 2 and trigger the alarm.

**IMPORTANT:** *Ensure that the power is off before proceeding.*

To wire the fault alarm relay, complete the following steps:

1. Remove the connector from the upper terminal block on the rear of the dew.IQ (see *Figure 30 on page 27*).

**IMPORTANT:** *To maintain good contact at each terminal block and to avoid damaging the pins on the connector, pull the connector straight off (not at an angle), make cable connections while the connector is away from the unit, and push the connector straight on (not at an angle) when the wiring is complete.*

2. Make the fault alarm connections to upper terminal block connector, as indicated in *Table 3 on page 26*.
3. Reinsert the connector into the upper terminal block on the rear of the dew.IQ.



## 2.6.5 Connecting the Input Power

There are three input power configurations available for the dew.IQ:

- AC power cord (not used for wall mount units)
- DC power terminals (available for all configurations)
- AC power terminals (available for all configurations)

Proceed to the appropriate section to connect your input power.

### 2.6.5a Connecting the AC Power Cord

To install the AC power cord included with the dew.IQ, simply plug the female connector end of the cable into the male connector on the rear panel of the dew.IQ (see *Figure 31* below and *Figure 32* on page 30).

*Note: This configuration is not used for AC powered wall mount units.*



Figure 31: Inserting the AC Power Cable

### 2.6.5a Connecting the AC Power Cord (cont.)



Figure 32: The AC Power Cable Installed

### 2.6.5b Connecting the DC Power Terminals

The DC power cable (with 14 to 26 AWG conductors) is supplied by the customer. To connect the power cable to the dew.IQ input power terminals (see *Figure 19 on page 19*) complete the following steps:

1. Remove the input power connector from the rear panel of the dew.IQ (see *Figure 33* below).



Figure 33: Removing the DC Power Connector

### 2.6.5b Connecting the DC Power Terminals (cont.)

2. Strip the three power cable conductors by about 3/8" (10 mm).
3. Insert each wire into the appropriate connector pin (see *Table 4* below) and tighten each screw to secure the wires in place.

Table 4: Pin Assignments for DC Power Connector

Wire Color	Pin	Function
Red	+	V+
Black	-	V-
Green	GND Symbol	Ground

**IMPORTANT:** *Be sure that the dew.IQ chassis ground connection is properly grounded.*

4. Reinsert the power connector into the rear panel of the dew.IQ as shown in *Figure 34* below.



Figure 34: Reinserting the DC Power Connector

### 2.6.5c Connecting the AC Power Terminals

**IMPORTANT:** *Unlike the DC power connector, which has screw terminals, the AC power connector has spring finger terminals. It is essential that this connector be removed from the dew.IQ for wiring to avoid putting stress on the PCB, which may cause damage to the board.*

The AC power cable (with 14 to 26 AWG conductors) is supplied by the customer. To connect the power cable to the dew.IQ input power terminals, refer to *Figure 20 on page 19* and complete the following steps:

1. Remove the input power connector from the rear panel of the dew.IQ, as shown in *Figure 35* below.



Figure 35: Removing the AC Power Connector

### 2.6.5c Connecting the AC Power Terminals (cont.)

- Strip the three power cable conductors by about 3/8" (10 mm).
- Using a small screwdriver to assist in opening each spring finger terminal, insert each wire into the appropriate connector pin (see *Table 5* below).

Table 5: Pin Assignments for AC Power Connector

Wire Color	Pin	Function
Black	L1	Line
White	L2/N	Line 2 (230 VAC) or Neutral
Green	G	Ground

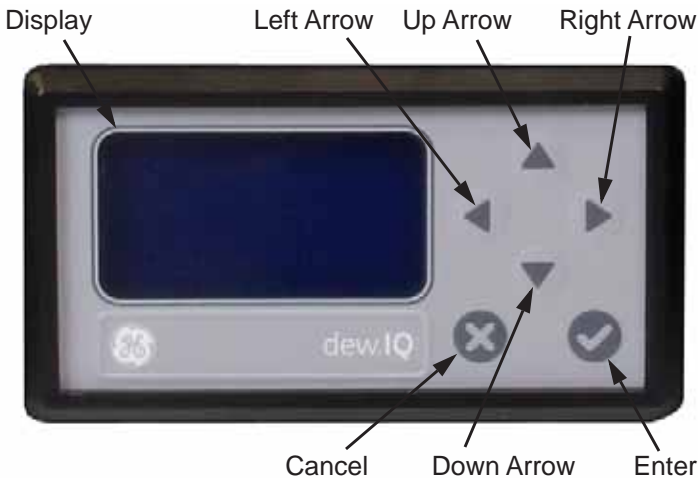
- Reinsert the power connector into the rear panel of the dew.IQ.

[no content intended for this page]

## Chapter 3. Initial Setup & Operation

### 3.1 Using the dew.IQ

All programming of the dew.IQ is done via the front panel keypad and display, as illustrated below.



The front panel components perform the following functions:

- **Display** - The programming menus and options are shown on the LCD display screen.
- **✓ Enter** - In most instances, press this key to save an entry and/or to advance to the next screen.
- **✗ Cancel** - In most instances, press this key to reject an entry and/or to return to the previous screen.
- **Left/Right Arrow Keys** - Use these keys to move the cursor along a row one character at a time in the direction indicated.
- **Up/Down Arrow Keys** - Use these keys to move the cursor between rows one row at a time in the direction indicated.

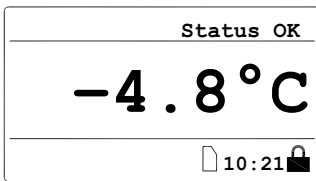
*Note: In those instances when the keys behave in a manner unique to a specific screen, the differences will be described in that section.*

### 3.1.1 Starting Up

After installation, the dew.IQ moisture analyzer can be configured to meet the user's requirements. While programming the instrument, refer to one of the following menu maps:

- *Figure 46 on page 104* when using an M Series probe (this probe is used for the programming examples in this chapter.)
- *Figure 47 on page 105* when using an IQ.probe

Upon the application of power, the dew.IQ proceeds through several displays until a measurement mode screen similar to the following appears:



After startup, the Main Menu needs to be unlocked. To unlock the menu, press:



### 3.1.2 Accessing the Menus

After unlocking the menu (as confirmed by the absence of the padlock icon in the lower right corner), press **Cancel** (X) to display the Main Menu (see *Figure 36* below). Use the arrow keys to select the desired menu option and press **Enter** (checkmark) to access the highlighted option. Pressing **Cancel** (X) from the Main Menu returns the screen to the *Measurement Display*.

*Note: Menu items followed by an ellipsis (i.e., a series of three dots) have sub-menus, while those without it take immediate action.*

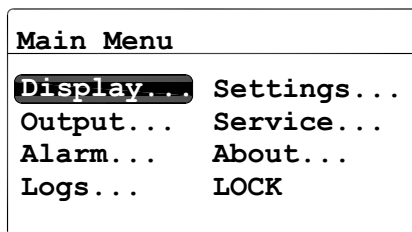


Figure 36: Main Menu



### 3.1.3 Entering Numeric Values

Since the dew.IQ has no numeric keypad, numeric values are entered using a “combination lock” type of entry (see *Figure 37* below as an example):

1. Use the left ◀ and right ▶ arrow keys to select the digit to change. The digit selected will be indicated with an **█**.
2. Use the up ▲ and down ▼ arrow keys to increment or decrement the selected digit.

*Note: If incrementing or decrementing a digit would cause the numeric value to leave its allowable range (maximum or minimum value), the digit will not change.*

3. After you have completed your numeric entry, press Enter ✓ to save the new value and return to the previous screen, or press Cancel ✕ to leave the original value intact and return to the previous screen.



Set Output Span	
<b>Max:</b>	+60.0
	+0 <b>█</b> 60.0 DP °C
<b>Min:</b>	-110.0
√=Save ✕=Cancel	

Figure 37: Numeric Entry

## 3.2 Setting Up the Display

### Main Menu


<b>Display...</b>	Settings...
Output...	Service...
Alarm...	About...
Logs...	LOCK

When the screen is unlocked, press the Cancel  key and the Main Menu appears with several options. To set up the display, select Display... and press Enter . The following screen appears:

### 3.2.1 Selecting the Primary Units


### Display Menu

<b>Unit Select</b>
Decimal
Contrast

To select the units for the primary display, select Unit Select and press Enter . The following screen appears:

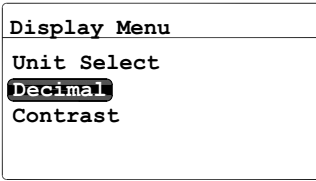
### Select Display Unit:

<b>DP °C</b>	<b>g/m<sup>3</sup></b>
DP °F	kg/m <sup>3</sup>
PPMv	MH
mg/m <sup>3</sup>	

Use the arrow keys to select the desired units and press Enter . The screen returns to the Display Menu.

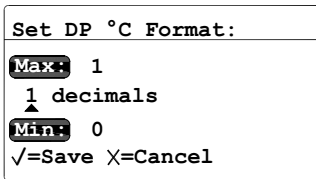
*Note: If the IQ.probe is being used, FH replaces MH.*

### 3.2.2 Setting the Decimal Places



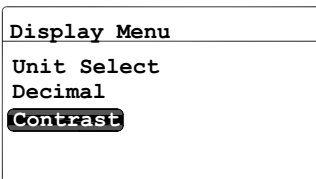
To set the decimal places for unit values, from the Display Menu use the arrow keys to select Decimal and press Enter . The following screen appears:

*Note: The decimal places setting determines the number of digits displayed to the right of the decimal point (“.”) for the value, if possible.*

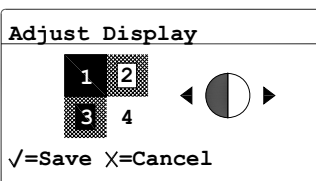


Use the arrow keys to change the number of decimal places and press Enter , or press Cancel if no changes are desired. The screen returns to the Display Menu.

### 3.2.3 Adjusting the Contrast



To adjust the display contrast, from the Display Menu use the arrow keys to select Contrast and press Enter . The following screen appears:




Use the Right/Left arrow keys to increase or decrease the display contrast. Press Enter to save the changes, or press Cancel to discard the changes. The screen returns to the Display Menu.

## 3.3 Setting Up the Analog Output


### 3.3.1 Entering the Output Menu

Main Menu	
Display...	Settings...
<b>Output...</b>	Service...
Alarm...	About...
Logs...	LOCK


To set up the output, from the Main Menu choose Output... and press Enter . The following screen appears:

### 3.3.2 Selecting the Output Units

Output Menu	
<b>Units</b>	Test
Type	Trim...
Upper	
Lower	

From the Output Menu, select Units and press Enter . The following screen appears:

Select Output Unit:	
<b>DP °C</b>	g/m <sup>3</sup>
DP °F	kg/m <sup>3</sup>
PPMv	MH
mg/m <sup>3</sup>	


Use the arrow keys to select the desired units and press Enter . The screen returns to the Output Menu.

*Note: If the IQ.probe is being used, FH replaces MH.*



### 3.3.3 Selecting an Output Type

**IMPORTANT:** *Before changing the analog output type, refer to Selecting the Analog Recorder Output on page 4 to make sure that Switch S1 is set correctly (V for voltage or I for current).*

Output Menu	
Units	Test
Type	Trim...
Upper	
Lower	


To change the output type, from the Output Menu select Type and press Enter . A screen similar to the following appears:

Output Menu	
Select Output Type:	
4-20mA	0-20mA 0-2V
√=Accept X=Cancel	

Use the arrow keys to select a new output type. Press Enter  to save the selection (or Cancel  to keep the previous value), and return to the Output Menu.



### 3.3.4 Changing the Output Span

Output Menu	
Units	Test
Type	Trim...
Upper	
Lower	

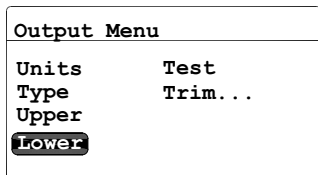
To adjust the output span, from the Output Menu select Upper and press Enter . A screen similar to the following appears:

Set Output Span	
Max:	+60.0
	+060.0 DP °C
Min:	-110.0
√=Save X=Cancel	

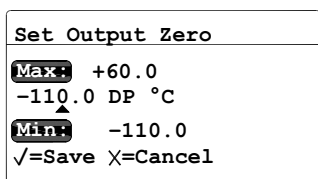
Use the left and right arrow keys to select each digit to be changed and the up and down arrow keys to increase or decrease its value.

Press Enter  to save (or Cancel  to keep the previous value), and return to the Output Menu.

### 3.3.5 Changing the Output Zero



To adjust the output zero, from the Output Menu select Lower and press Enter . A screen similar to the following appears:



Use the left and right arrow keys to select each digit to be changed and the up and down arrow keys to increase or decrease its value.

Press Enter to save the new value (or Cancel to keep the previous value), and return to the Output Menu.

### 3.3.6 Testing the Output


To verify proper operation of connected recording or SCADA equipment, the dew.IQ can output test signals of known value. Based on the percent of range selected, the Test Menu causes the dew.IQ to output test signals that can be easily calculated. As examples, the test signals for three commonly used range percentages are shown in *Table 6* below.

Table 6: Output Test Value Examples

Output Type	0%	50%	100%
0-20mA	0.00 mA	10.00 mA	20.00 mA
4-20mA	4.00 mA	12.00 mA	20.00 mA
0-2V	0.00 V	1.00 V	2.00 V

#### Output Menu



```
Units      Test
Type      Trim...
Upper
Lower
```

To test the system output, from the Output Menu select **Test** and press **Enter** . The dew.IQ will check the output settings, and a screen similar to the following appears:

#### Output Test Value:

```
Max: +110.00
+050.00 %
Min: -25.00
√=Apply X=Exit
```


Use the left and right arrow keys to select each digit to be changed, and the up and down arrow keys to increase or decrease its value.

Press **Enter**  to save the new value (or **Cancel**  to keep the previous value), and return to the Output Menu.


### 3.3.7 Trimming the Output

The Trim Menu enables the operator to compensate for differences in the 0/4-20 mA or 0-2V dew.IQ test outputs and the readings on a connected output device. To trim the analog output:


Output Menu	
Units	Test
Type	<b>Trim...</b>
Upper	
Upper	

Select Trim from the Output Menu and press Enter . The following screen appears:


Output Trim	
<b>Reset Trim</b>	
Trim Zero	
Trim Span	

When performing a Trim operation, the dew.IQ requires you to first reset the trim. To reset the trim output, select Reset Trim and press Enter . The following screen appears:

Output Trim	
Reset Out Trim?	
<b>YES</b>	NO
√=Accept X=Cancel	

Use the left or right arrow keys to select YES and press Enter . This cancels any previous trim values, and returns the dew.IQ to its factory adjustment. The display returns to the previous screen.

Output Trim	
Reset Trim	
<b>Trim Zero</b>	
Trim Span	

To trim the zero value, select Trim Zero and press Enter . A screen similar to the following appears:

This step causes the dew.IQ to output 4.000 mA or 0.4 V on the output being trimmed. The output value should then be read using the connected analog device or a DVM.



### 3.3.7 Trimming the Output (cont.)



Enter the value read from the connected equipment as the Zero Trim value, as follows:

*Note: Since you cannot trim 0 mA or 0 V for negative offsets, trim for the lower end of the scale is always at the 4 mA or 0.4 V output level.*

```

Enter Out Reading:
Max:  5.2000
  04.0000 mA
  ▲
Min:  3.0000
√=Save X=Cancel
  
```


Use the left and right arrow keys to select each digit to be changed, and the up and down arrow keys to increase or decrease its value.

Press Enter  to save (or Cancel  to keep the previous value).

```

Output Trim
Reset Trim
Trim Zero
Trim Span
  
```

The Output Trim menu returns with Trim Span highlighted. To change the span value, press



Enter . A screen similar to the following appears:

This step causes the dew.IQ to output 20.000 mA or 2 V on the output being trimmed. The output value should then be read using the connected analog device or a DVM. Enter the value read from the connected equipment as the Span Trim value, as follows:

```

Enter Out Reading:
Max:  22.2000
  20.0000 mA
  ▲
Min:  10.0000
√=Save X=Cancel
  
```

Use the left and right arrow keys to select each digit to be changed, and the up and down arrow keys to increase or decrease its value.

Press Enter  to save the new value (or Cancel  to keep the previous value).

Trimming is complete. To verify the accuracy, see *Testing the Output on page 43*.

### 3.3.7 Trimming the Output (cont.)

Example:



1. Trim is reset, then Trim Zero is selected. The connected output device reports 3.977 mA.
2. The operator enters “3.977” as the Zero Trim value.
3. Trim Span is selected. The connected output device reports 19.985 mA.
4. The operator enters “19.985” as the Span Trim value.
5. The dew.IQ adjusts the output accordingly to align the output with the readings by the connected output device or a DVM.
6. Using the Test Menu, the operator verifies that a test value of 0% now reads 4.000 mA at the connected output device, and a test value of 100% now reads 20.000 mA.

## 3.4 Setting Up the Measurement Alarms


The dew.IQ has with two programmable high/low alarm relays and one fault alarm relay. Use the instructions in this section to set up these alarms.

### 3.4.1 Selecting an Alarm Output

Alarm Menu [A]	
<b>Select</b>	Upper
Status	Lower
Units	Test
Type...	


To set up the alarms, on the Main Menu choose Alarm and press Enter . Then, from the Alarm Menu choose Select and press Enter . A screen similar to the following appears:

Alarm Menu [A]	
<b>Select Alarm:</b>	
<b>A</b>	B
√=Accept X=Cancel	

Use the arrow keys to select the output (A or B) to be set up and press Enter . The display returns to the Alarm Menu.

### 3.4.2 Selecting the Alarm Status

Alarm Menu [A]	
Select	Upper
<b>Status</b>	Lower
Units	Test
Type...	


To select the alarm status, from the Alarm Menu select Status and press Enter . The following screen appears:

Alarm Menu [A]	
Set Alarm Status:	
OFF	<b>ON</b>
√=Accept X=Cancel	



Use the arrow keys to select OFF or ON and press Enter . The display returns to the Alarm Menu.

### 3.4.3 Selecting the Alarm Units

Alarm Menu [A]	
Select	Upper
Status	Lower
<b>Units</b>	Test
Type...	

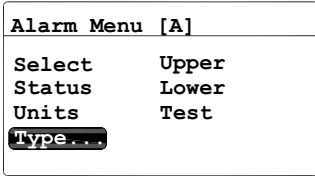
To select the alarm units, from the Alarm Menu select Units and press Enter . The following screen appears:

Select Alarm Unit:	
<b>DP °C</b>	g/m <sup>3</sup>
DP °F	kg/m <sup>3</sup>
PPMv	MH
mg/m <sup>3</sup>	

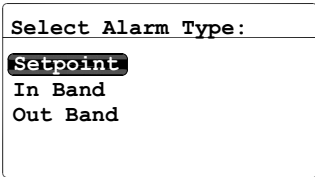
Use the arrow keys to select the desired alarm units. Press Enter  to save the selection (or Cancel  to keep the previous value), and return to the Alarm Menu.

*Note: If the IQ.probe is being used, FH replaces MH.*

### 3.4.4 Selecting an Alarm Type



To change the alarm type, from the Alarm Menu select Type and press Enter . A screen similar to the following appears:



Use the arrow keys to select an alarm type (see *How the Alarm Types Work on page 49*). Press Enter to save (or Cancel to keep the previous value), and return to the Alarm Menu.

### 3.4.5 How the Alarm Types Work

The available alarm types (see *Figure 38* below) for the dew.IQ are:

- **Setpoint:** The alarm activates when the selected parameter exceeds the upper limit. It deactivates when the selected parameter is less than the lower limit.
- **Inner Band:** The alarm activates when the selected parameter is between the upper limit and the lower limit. It deactivates when the selected parameter exceeds the upper limit or is less than the lower limit.
- **Outer Band:** The alarm activates when the selected parameter exceeds the upper limit or is below the lower limit. It deactivates when the selected parameter is between the upper limit and the lower limit.

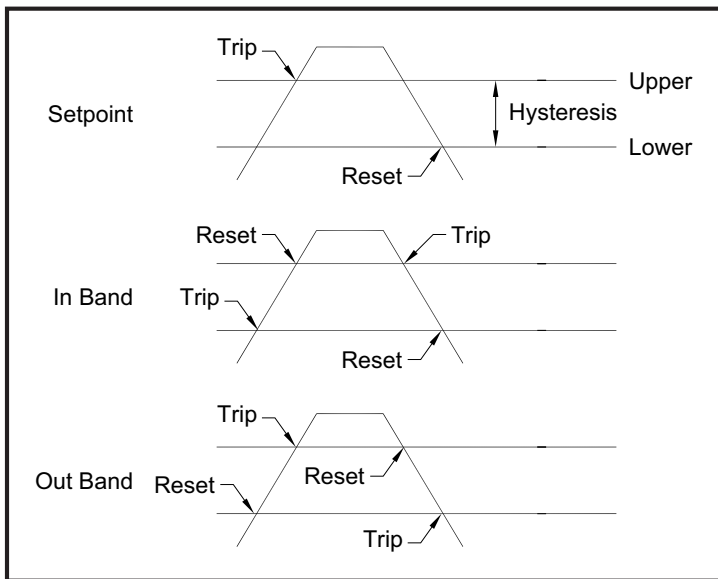



Figure 38: Available Alarm Types



### 3.4.6 Setting the Alarm Span

Alarm Menu [A]	
Select	<b>Upper</b>
Status	Lower
Units	Test
Type...	

To adjust the alarm span, from the Alarm Menu select Upper and press Enter . A screen similar to the following appears:


Enter MAX Alm Value	
<b>Max.</b>	+60.0
	+000.0 DP °C
<b>Min.</b>	-110.0
√=Save X=Cancel	

Use the left and right arrow keys to select each digit to be changed and the up and down arrow keys to increase or decrease its value.

Press Enter  to save the new value (or Cancel  to keep the previous value), and return to the Alarm Menu.



### 3.4.7 Setting the Alarm Zero

Alarm Menu [A]	
Select	Upper
Status	<b>Lower</b>
Units	Test
Type...	

To adjust the alarm zero, from the Alarm Menu select Lower and press Enter . A screen similar to the following appears:

Enter MIN Alm Value	
<b>Max.</b>	+60.0
	+000.0 DP °C
<b>Min.</b>	-110.0
√=Save X=Cancel	


Use the left and right arrow keys to select each digit to be changed and the up and down arrow keys to increase or decrease its value.

Press Enter  to save the new value (or Cancel  to keep the previous value), and return to the Alarm Menu.

### 3.4.8 Testing the Alarm Relays



```

Alarm Menu [A]
-----
Select      Upper
Status      Lower
Units       Test
Type...
  
```

To test the alarm relay and devices connected to it, from the Alarm Menu select Test and press Enter . A screen similar to the following appears:

```


Alarm Menu [A]
-----
Alarm is TRIPPED
-----
Reset Trip
-----
√=Accept X=Cancel
  
```

Use the left and right arrow keys to select Reset or Trip and press Enter . If Reset was selected, the message Alarm is RESET appears. If Trip was selected, the message Alarm is Tripped appears. Press Cancel  to return to the Alarm Menu.

## 3.5 Viewing System Information

```

Main Menu
-----
Display... Settings...
Output... Service...
Alarm...  About...
Logs...   LOCK
  
```


To view the dew.IQ system information, from the Main Menu choose About... and press Enter . Proceed to the following sections.

*Note: The information shown in the following screens are examples only. Your dew.IQ will display the information for your specific unit.*

### 3.5.1 Checking the ID


```

About dew.IQ
-----
ID          Wiring
Status
Version
Probe
  
```

To check the identity information of the dew.IQ, from the About dew.IQ menu select ID and press Enter . A screen similar to the following appears:

```

Menu: X
-----
GE Sensing dew.IQ
Copyright © 2012
General Electric Co.
Unit SN: 111111
Probe SN: 90104
  
```


The information includes serial numbers for the dew.IQ unit and the attached probe. To return to the About dew.IQ menu, press Cancel .



### 3.5.2 Checking the Status


```

About dew.IQ
-----
ID           Wiring
Status
Version
Probe
  
```

To check the status of the MicroSD card, from the About dew.IQ menu select Status and press Enter . A screen similar to the following appears:

```

Menu: X
-----
Uptime: 0d 00h
SD Card Installed.
Format is FAT16
  0.27 MB used
244.68 MB free
  
```


The information includes the format, amount of used space and amount of free space for an installed SD card. To return to the About dew.IQ menu, press Cancel .

### 3.5.3 Checking the Software Version

*Note: The information shown in the following screens is intended as typical examples only. Your unit always displays your actual information.*


```

About dew.IQ
-----
ID           Wiring
Status
Version
Probe
  
```

To check the software version of the dew.IQ, from the About dew.IQ menu select Version and press Enter . A screen similar to the following appears:

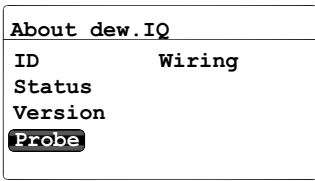
```

Menu: X
-----
Prog:        STD.001.A
  
```


The information includes the program number (i.e., the firmware version). To return to the About dew.IQ menu, press Cancel .

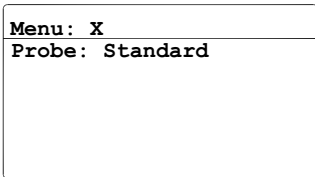
### 3.5.4 Checking the Probe


*Note: The information shown in the following screens is intended as typical examples only. Your unit always displays your actual information.*

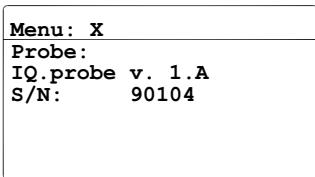



To check the probe details, from the About dew.IQ menu select Probe and press

Enter . A screen similar to one of the following appears:




For an M Series probe, this probe information is shown. To return to the About dew.IQ menu, press Cancel .




For an IQ.probe, this probe information is shown. To return to the About dew.IQ menu, press Cancel .

### 3.5.5 Checking the Wiring

About dew.IQ	
ID	<b>Wiring</b>
Status	
Version	
Probe	


To view the dew.IQ wiring diagram, from the About dew.IQ menu select Wiring and press Enter . A screen similar to the following appears:

Menu: x									
1	FAULT		ALM A		ALM B		9		
	NO	C	NC	NO	C	NC	NO	C	NC
10	IQ. PROBE		RCDR		H2O PROBE		18		
	±	C-	C+	V+	-	+	SHL	RED	GRN

When you are ready to return to the dew.IQ Main menu, press Cancel  twice.

### 3.6 Locking the Main Menu

Main Menu	
Display...	Settings...
Output...	Service...
Alarm...	About...
Logs...	<b>LOCK</b>

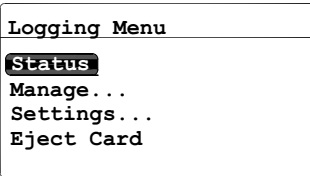
To lock out access to changing menu settings, from the Main Menu choose LOCK and press Enter . The display returns to normal measurement mode.


*Note:* To unlock the menu, refer to Starting Up on page 36.

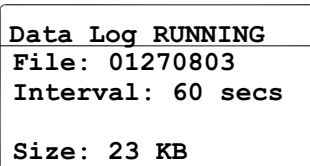
[no content intended for this page]


## Chapter 4. Data Logging

### 4.1 Checking the Data Log Status



To check the data log status, from the Logging Menu select Status and press Enter . A screen similar to the following appears:

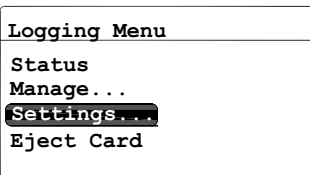



The current data log status is displayed. After about 10 seconds or upon pressing Cancel , (whichever occurs first), the screen returns to the Logging Menu.

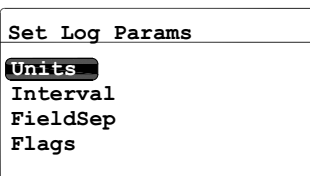
### 4.2 The Log Settings Menu


*Note: To access the Settings... option in the Logging Menu, the log file must be stopped (see Pausing or Closing a Log on page 62).*

### 4.3 Setting the Log Units




From the Logging Menu select Settings... and press Enter . The following screen appears:




To set units to log, from the Set Log Params menu, select Units and press Enter . The following screen appears.:

### 4.3 Setting the Log Units (cont.)


Units to Log:	
1	DP °C
2	DP °F
3	-----
4	-----

Use the arrow keys to select the unit to log, and press Enter . The following screen appears:

Units to Log:	
Choose Unit Action:	
<b>Modify</b>	Remove
√=Accept X=Cancel	




To change the unit setting, select Modify and press Enter . The following screen appears:

Select Unit #1:	
DP °C	g/m <sup>3</sup>
DP °F	kg/m <sup>3</sup>
PPMv	MH
mg/m <sup>3</sup>	

Use the arrow keys to select the first unit to be logged and press Enter . The screen returns to the Units to Log menu.

*Note: If the IQ.probe is being used, FH replaces MH.*


Units to Log:	
Choose Unit Action:	
<b>Modify</b>	Remove
√=Accept X=Cancel	

To remove a unit, from the Units to Log menu, select Remove and press Enter . Select the unit to be removed, press Enter , to delete the selected unit. Press Cancel  to return to the Set Log Params menu.

## 4.4 Setting the Log Interval

```



Set Log Params
Units
Interval
FieldSep
Flags
  
```

To set the log interval, from the Set Log Params menu, select Interval and press Enter . The following screen appears:

```

Set Log Interval
Max: 86400
00005 seconds
Min: 1
√=Save X=Cancel
  
```


Use the left and right arrow keys to select each digit to be changed and the up and down arrow keys to increase or decrease its value.

Press Enter  to save the new value (or Cancel  to keep the previous value), and return to the Set Log Params menu.

## 4.5 Setting a Log Field Separator


```

Set Log Params
Units
Interval
FieldSep
Flags
  
```

To designate a text character to separate the log fields, from the Set Log Params menu select FieldSep and press Enter . The following screen appears:

```

Set Log Params
Field Separator:
Comma Tab
√=Accept X=Cancel
  
```

Use the arrow keys to select the text character used to separate the log fields and press Enter . The screen returns to the Set Log Params menu.


## 4.6 Setting the Log Status Flags

The flags used to identify the log status are as follows:

Range Err	No Comm	Bad Message	No Data	Read Err
Over Range	No Link	Auto Cal	No Cal	ADC Failure
Under Range	Bad CRC	No Refs	Write Err	Cal Error

### Set Log Params

Units  
Interval  
FieldSep  
**Flags**



To turn log status flags on or off, from the Set Log Params menu select Flags and press Enter . The following screen appears:

### Set Log Params

#### Log Status Flags:

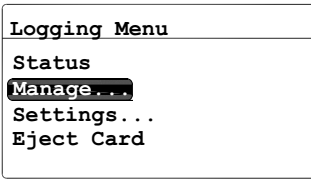
off **On**


√=Accept X=Cancel

Use the arrow keys to select OFF or ON and press Enter . The screen returns to the Set Log Params menu. Then, press Cancel  to return to the Logging Menu.



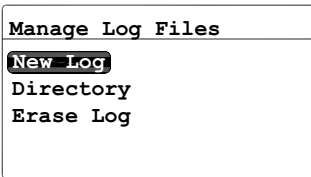
## 4.7 Managing Log Files




To manage the log file status, from the Logging Menu select Manage and press Enter . If no log has been created, the following screen appears:

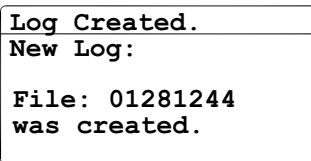
### 4.7.1 Creating a New Log

*Note: The New Log option is available only if there are no logs currently running or paused. All running or paused logs must be closed before proceeding. Note that a closed log cannot be resumed.*




To create a new log, from the Manage Log Files menu select New Log and press

Enter . A screen similar to the following appears:

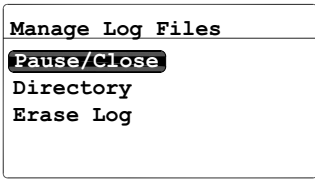



A file name, which corresponds to the date and time the log is started, is assigned to the new log by the dew.IQ. For example, a log started on May 1 at 4:37 pm will be named 05011637. After about 10 seconds or upon

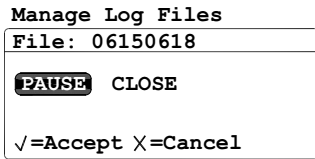
pressing Cancel , (whichever occurs first), the screen returns to the Manage Log Files menu.


*Note: When a new log is created, the New Log option in the Manage Log Files menu changes to a Pause/Close option.*

### 4.7.2 Pausing or Closing a Log



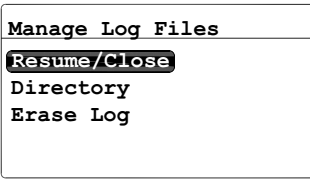
After a new log is created, it can be paused or closed at any time. To pause or close a log, from the Manage Log Files menu select **Pause/Close** and press **Enter** . The following screen appears:




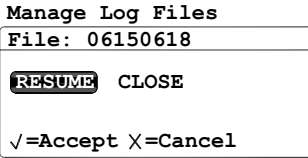
The log file name is shown in the header. Select **Pause** or **Close** and press **Enter** . The screen returns to the Manage Log Files menu.


*Note: After a log is paused, the Pause/Close option in the Manage Log Files menu changes to a Resume/Close option.*

### 4.7.3 Resuming a Log



A paused log can be resumed or closed at any time. To resume or close a log, from the Manage Log Files menu select Resume/Close and press Enter . The following screen appears:

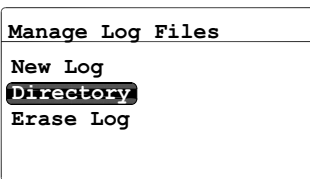



Select Resume or Close and press Enter . The screen returns to the Manage Log Files menu.

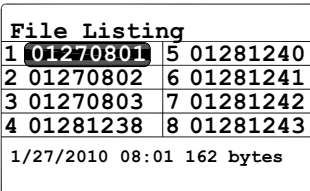
*Note: After a log is resumed, the Manage Log Files menu displays the Pause/Close option again.*


*Note: If a log is running and the dew.IQ reboots due to a power failure, the log returns to its status prior to the power failure.*

### 4.7.4 Viewing the Log Directory



To view the existing log file names, select Directory and press Enter . A screen similar to the following appears:



When a log file is highlighted, the date, time and size of that log file is shown at the bottom of the screen. Use the arrow keys to move from one log file to another. To return to the Manage Log Files menu, press Cancel .

## 4.7.5 Deleting Log Files

<b>Manage Log Files</b>
Pause/Close
Directory
<b>Erase Log</b>

To erase existing log files, from the Manage Log Files menu, select Erase Log and press Enter . The File Listing screen appears:

<b>File to Erase:</b>	
1 <b>01270801</b>	5 01281240
2 01270802	6 01281241
3 01270803	7 01281242
4 01281238	8 01281243
1/27/2010 08:01 162 bytes	

Using the arrow keys, move to the name of the log file to be deleted and press Enter . The following screen appears:

<b>File to Erase:</b>	
<b>ERASE Log 01281243?</b>	
YES	<b>NO</b>
√=Accept X=Cancel	

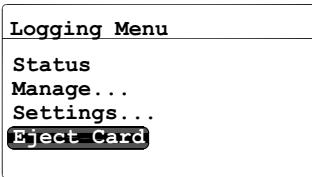
Using the arrow keys, select YES to erase the log file, or NO to keep the log file. Press Enter  and the screen returns to File Listing. If YES was selected, the erased log file is no longer listed. If NO was selected, the log file is still listed. Press Cancel  to return to the Manage Log Files menu.


## 4.8 Ejecting the MicroSD Card

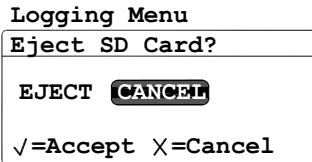
Ejecting the MicroSD card requires two steps:



1. Closing all active logs. Complete this step by following the instructions in *Pausing or Closing a Log on page 62*.
2. Ejecting the MicroSD card. Accomplish this as follows:

**IMPORTANT:** *Physically removing the MicroSD card from the dew.IQ without first closing all active logs and ejecting the card will not damage either the card or the dew.IQ, but it may result in data loss.*



To eject the SD card, from the Logging Menu, select Eject Card and press Enter . The following screen appears:



Use the arrow keys to select EJECT or CANCEL and press Enter . The screen returns to the Logging Menu. Press Cancel  to return to the Main Menu.

If EJECT was selected above, the MicroSD card may now be physically removed from the dew.IQ. To remove and read the card see Appendix C, *Reading the MicroSD Card on page 107*.

## 4.9 Viewing Data Log Files

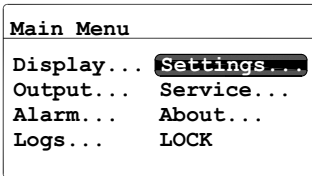
Any standard MicroSD card reader may be used to read the dew.IQ MicroSD card on a PC. The log files are stored in text format, and any word processing or spreadsheet program may be used to read the data.


See *Reading the MicroSD Card on page 107*, for instructions and examples on how to work with the dew.IQ log files.

## Chapter 5. Programming the Settings Menu

### 5.1 Entering Your Passcode

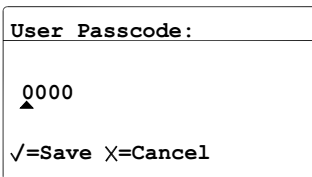
To access the Settings Menu, proceed as follows:




To access the Settings menu, from the Main Menu select Settings... and press Enter .

The Settings Menu is the only user menu that requires a passcode. The passcode is a four-digit number that enables only authorized users to enter setup data. The dew.IQ prompts you to enter your passcode whenever you attempt to program most of the Settings Menu options, as shown below.

**IMPORTANT:** *See page 127 near the end of this manual for your factory default passcode.*



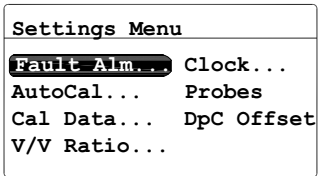
Use the left and right arrow keys to select each digit to be changed and the up and down arrow keys to increase or decrease its value. After the passcode has been entered, press Enter  to proceed.

*Note: The AutoCal, Clock and DpC Offset submenus do not require a passcode for access.*

*Note: After entering your passcode, all menus that require the passcode for access will display a U in the lower right corner to indicate that the Settings menu has been Unlocked.*

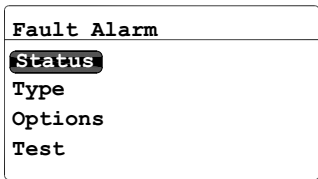
## 5.2 Setting the Fault Alarm

*Note: Access to this menu requires a passcode (see Entering Your Passcode on page 67).*

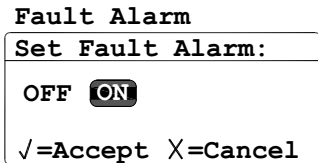


To configure the fault alarm, from the Settings Menu select Fault Alarm and press Enter . Then, enter your passcode and press Enter .

### 5.2.1 Setting the Fault Alarm Status



To check the status of the fault alarm, from the Fault Alarm menu, select Status and press Enter . The following screen appears:




To change the status of the fault alarm, select OFF or ON and press Enter . The screen returns to the Fault Alarm menu.




## 5.2.2 Setting the Fault Alarm Type

*Note:* For more information on alarm types, see How the Alarm Types Work on page 49.

<b>Fault Alarm</b>
Status
<b>Type</b>
Options
Test


To check or change the fault alarm type, select Type and press Enter . The following screen appears:

<b>Fault Alarm</b>
<b>Fault Relay:</b>
<b>Fail-Safe</b> Normal
√=Accept X=Cancel



To change the type of fault alarm used, select the non-highlighted option and press Enter . The screen returns to the Fault Alarm menu.

## 5.2.3 Setting the Fault Alarm Options

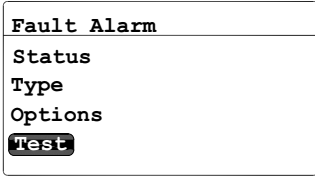
<b>Fault Alarm</b>
Status
Type
<b>Options</b>
Test


To check or change the Fault Alarm options, select Options and press Enter . The following screen appears:

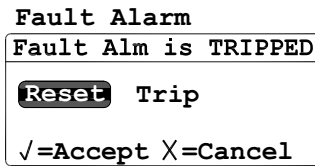
<b>Fault Alarm</b>
<b>Alarm on Range Error</b>
Yes <b>No</b>
√=Accept X=Cancel




To set the Alarm on Range Error response, select Yes or No and press Enter . The screen returns to the Fault Alarm menu. Then, press Cancel  to return to the Settings Menu.

## 5.2.4 Testing the Fault Alarm



To test the Fault Alarm, select Test and press Enter . The following screen appears:

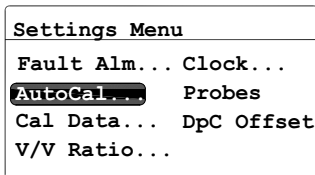



To reset the fault alarm, select Reset and press Enter . To trip the fault alarm, select Trip and press Enter . Press Cancel  twice to return to the Settings Menu.

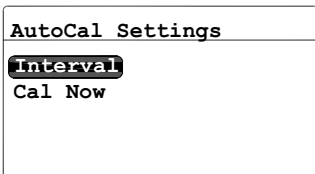
## 5.3 Setting AutoCal


*Note: Access to this menu does not require a passcode.*

*Note: The AutoCal Settings menu is only available for an M Series probe. This menu is not available for an IQ.probe.*



To change the AutoCal settings, from the Settings Menu select AutoCal and press Enter . The following screen appears:





To change the AutoCal interval settings, select Interval and press Enter . A screen similar to the following appears:

### 5.3 Setting AutoCal (cont.)

```


Enter AutoCal Interval
Max: 72
  08 Hours
Min: 0
√=Save X=Cancel
  
```

Use the left and right arrow keys to select each digit to be changed and the up and down arrow keys to increase or decrease its value.

Press Enter  to save the new value (or Cancel  to keep the previous value), and return to the AutoCal Settings menu.


```

AutoCal Settings
Interval
Cal Now
  
```

To manually initiate an immediate one-time AutoCal, select Cal Now and press Enter . A screen similar to the following appears:

```

AutoCal Settings
AutoCal Now
Yes No
√=Accept X=Cancel
  
```



To initiate the AutoCal, select Yes. To cancel the AutoCal select No. Press Enter  to confirm your selection and return to the AutoCal Settings menu.

## 5.4 Entering Calibration Data for an M Series Probe


*Note:* Access to this menu requires a passcode (see Entering Your Passcode on page 67).

*Note:* If you are using an IQ.probe, see Viewing Calibration Data for an IQ.probe on page 75.

```
Settings Menu
Fault Alm... Clock...
AutoCal... Probes
Cal Data... DpC Offset
V/V Ratio...
```


To enter M Series probe calibration data, from the Settings Menu select Cal Data and press Enter . Then, enter your passcode and press Enter . The following screen appears:

```
Cal Data
MH/DP Cal...
FH DPCal...
Cal Reference...
Probe SN
```



For a standard M Series probe, the MH/DP Cal option is highlighted by default. Press Enter  and continue to the next section.

### 5.4.1 Selecting the Number of Points

```
Edit MH/DP Cal
Select Num of Points
Select Cal Point
Edit MH
Edit DP/°C
```

To select the number of points, highlight Select Num of Points and press Enter . The following screen appears:


```
Select Num of Points
Max: 20
 14
Min: 2
√=Save X=Cancel
```

Use the left and right arrow keys to select each digit to be changed and the up and down arrow keys to increase or decrease its value. Press Enter  to save the new value (or Cancel  to keep the previous value), and return to the Edit MH/DP Cal menu.

## 5.4.2 Selecting the Calibration Point

```



Edit MH/DP Cal
Select Num of Points
Select Cal Point
Edit MH
Edit DP/°C
  
```

To select the calibration point, highlight **Select Cal Point** and press Enter . The following screen appears:

```

Select Hygro Cal Point
Max: 13
  00
  ^
Min:  0
√=Save X=Cancel
  
```


Use the left and right arrow keys to select each digit to be changed and the up and down arrow keys to increase or decrease its value.

Press Enter  to save the new value (or Cancel  to keep the previous value), and return to the Edit MH/DP Cal menu.

## 5.4.3 Entering the MH Calibration

```



Edit MH/DP Cal
Select Num of Points
Select Cal Point
Edit MH
Edit DP/°C
  
```

To enter the MH calibration value for the selected point, highlight **Edit MH** and press Enter . The following screen appears:

```


Set MH [00]
Max:  4.0000
  0.0000
  ^
Min:  0.0000
√=Save X=Cancel
  
```

Use the left and right arrow keys to select each digit to be changed and the up and down arrow keys to increase or decrease its value.

Press Enter  to save the new value (or Cancel  to keep the previous value), and return to the Edit MH/DP Cal menu.




## 5.4.4 Entering the Dew Point Calibration

```
Edit MH/DP Cal
Select Num of Points
Select Cal Point
Edit MH
Edit DP/°C
```

To enter the dew point calibration value for the selected point, highlight Edit DP/°C and press Enter . The following screen appears:

```
Set DP/°C [00]
Max.: +100.00
      -110.00 °C
      ▲
Min.: -200.00
√=Save X=Cancel
```

Use the left and right arrow keys to select each digit to be changed and the up and down arrow keys to increase or decrease its value.



Press Enter  to save the new value (or Cancel  to keep the previous value), and return to the Edit MH/DP Cal menu. Press Cancel  to return to the Cal Data menu.

## 5.5 Viewing Calibration Data for an IQ.probe


*Note:* Access to this menu requires a passcode (see Entering Your Passcode on page 67).

*Note:* If you are using an M Series probe, see Entering Calibration Data for an M Series Probe on page 72.

Settings Menu	
Fault Alm...	Clock...
AutoCal...	Probes
<b>Cal Data...</b>	DpC Offset
V/V Ratio...	


To view the IQ.probe calibration data, from the Settings Menu select Cal Data and press Enter . Then, enter your passcode and press Enter . The following screen appears:

Cal Data
MH/DP Cal...
<b>FH/DP Cal...</b>
Cal Reference...
Probe SN



For an IQ.probe, the FH/DP Cal option is highlighted by default. Press Enter  and continue to the next section.

### 5.5.1 Selecting the Calibration Point

Read FH/DP Calibration
<b>Select Cal Point</b>
Read FH Value
Read DP Value

To select the calibration point, highlight Select Cal Point and press Enter . The following screen appears:

Select Hygro Cal Point
<b>Max:</b> 13
00
▲
<b>Min:</b> 0
√=Save X=Cancel


Use the left and right arrow keys to select each digit to be changed and the up and down arrow keys to increase or decrease its value. Press Enter  to save the new value (or Cancel  to keep the previous value), and return to the Read FH/DP Calibration menu.

### 5.5.2 Reading the FH Value

```

Read FH/DP Calibration
Select Cal Point
Read FH Value
Read DP Value


```

To view the FH calibration value for the selected point, highlight Read FH and press Enter . The following screen appears:

```

Viewing FH [00]
Read Only
10.6821
X=Exit

```


The FH value is for viewing only. When you are ready, press Cancel  to return to the Read FH/DP Calibration menu.

### 5.5.3 Reading the DP Value

```

Read FH/DP Calibration
Select Cal Point
Read FH Value
Read DP Value



```

To view the DP calibration value for the selected point, highlight Read DP and press Enter . The following screen appears:

```

Viewing DP [00]
Read Only
-110.00
X=Exit

```

The DP value is for viewing only. When you are ready, press Cancel  to return to the Read FH/DP Calibration menu. Press Cancel  twice to return to the Settings Menu.

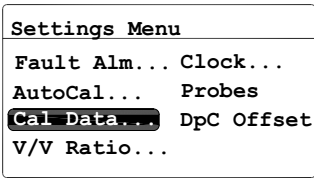




## 5.6 Reading and Setting the Calibration References

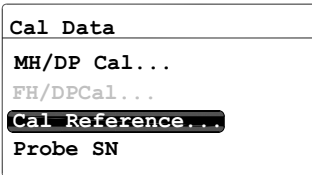
*Note: This section applies only to an M Series probe. The Cal Reference menu is not available for an IQ probe.*


*Note: Access to this menu requires a passcode (see Entering Your Passcode on page 67).*

**IMPORTANT:** *The dew.IQ is factory programmed with high and low reference MH values. These values are generated from a factory lab calibration and should not be changed without first consulting GE technical support. Changes to these values will alter the accuracy of your measurements.*




To update the calibration references, from the Settings Menu select Cal Data and press Enter . Then, enter your passcode and press Enter . The following screen appears:




To view or edit the calibration reference settings, select Cal Reference and press Enter . Proceed to the next section.

## 5.6.1 Setting the Calibration High Reference

<b>Edit Cal Refs</b>
<b>High Reference</b>
Low Reference


To update the high reference setting, from the Edit Cal Refs menu select High Reference and press Enter . A screen similar to the following appears:

<b>High MH Ref.</b>
<b>Max:</b> 15.0000
▲ 3.0419 MH
<b>Min:</b> 0.0000
√=Save X=Cancel


Use the left and right arrow keys to select each digit to be changed and the up and down arrow keys to increase or decrease its value. After the changes have been made, press Enter . The screen returns to the Edit Cal Refs menu.

## 5.6.2 Setting the Calibration Low Reference

<b>Edit Cal Refs</b>
High Reference
<b>Low Reference</b>

To update the low reference setting, from the Edit Cal Refs menu select Low Reference and press Enter . A screen similar to the following appears:

<b>Low MH Ref.</b>
<b>Max:</b> 15.0000
▲ 0.1752 MH
<b>Min:</b> 0.0000
√=Save X=Cancel



Use the left and right arrow keys to select each digit to be changed and the up and down arrow keys to increase or decrease its value. After the changes have been made, press Enter . The screen returns to the Edit Cal Refs menu.

## 5.7 Entering an M Series Probe Serial Number


*Note: This section applies only to an M Series probe. The Probe SN menu is not available for an IQ.probe.*

*Note: Access to this menu requires a passcode (see Entering Your Passcode on page 67).*


Settings Menu	
Fault Alm... Clock...	
AutoCal... Probes	
<b>Cal Data...</b>	DpC Offset
V/V Ratio...	

To update the probe serial number, from the Settings Menu select Cal Data and press Enter . Then, enter your passcode and press Enter . The following screen appears:

Cal Data
MH/DP Cal...
FH/DPCal...
Cal Reference
<b>Probe SN</b>

To view or edit the probe serial number, select Probe SN and press Enter . The following screen appears:

Enter M2 Probe SN	
<b>Max:</b> 99999999	
10000000	▲
<b>Min:</b> 0	
√=Save X=Cancel	



Use the left and right arrow keys to select each digit to be changed and the up and down arrow keys to increase or decrease its value. After the changes have been made, press Enter . The screen returns to the Cal Data menu.

## 5.8 Setting the Volume Mixing Ratio

*Note: Access to this menu requires a passcode (see Entering Your Passcode on page 67).*

```


Settings Menu
Fault Alm... Clock...
AutoCal... Probes
Cal Data... DpC Offset
V/V Ratio...
  
```

To set the volume mixing ratio, from the Settings Menu select V/V Ratio and press Enter . Then, enter your passcode and press Enter . Proceed to the following sections.

### 5.8.1 Setting the Pressure Units



```

Volume Mixing Ratio
Press. Units
Press. Value
k x PPMv
  
```

To set the pressure units, select Press. Units and press Enter . The following screen appears:


```

Volume Mixing Ratio
Pressure Units:
kPa (a) Bar (g) PSI (g)
√=Accept X=Cancel
  
```

Use the left and right arrow keys to highlight the desired units. Press Enter  to save the new units (or Cancel  to keep the previous units) and return to the Volume Mixing Ratio menu.



## 5.8.2 Setting the Pressure Value

<b>Volume Mixing Ratio</b>
Press. Units
<b>Press. Value</b>
k x PPMv

To set the pressure value, select Press. Value and press Enter . The following screen appears:


<b>Line Pressure:</b>
<b>Max:</b> 70000.000
00101.325 kPa (a)
<b>Min:</b> 0.000
√=Save X=Cancel

Use the left and right arrow keys to select each digit to be changed and the up and down arrow keys to increase or decrease its value.

Press Enter  to save the new value (or Cancel  to keep the previous value) and return to the Volume Mixing Ratio menu.



## 5.8.3 Setting the k x PPMv Multiplier

<b>Volume Mixing Ratio</b>
Press. Units
Press. Value
<b>k x PPMv</b>

To set the multiplier value, select k x PPMv and press Enter . The following screen appears:

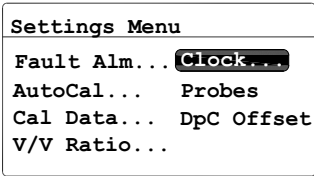
<b>k x PPMv Multiplier</b>
<b>Max:</b> 100.000
001.000
<b>Min:</b> 0.001
√=Save X=Cancel

Use the left and right arrow keys to select each digit to be changed and the up and down arrow keys to increase or decrease its value.

Press Enter  to save the new value (or Cancel  to keep the previous value) and return to the Volume Mixing Ratio menu.

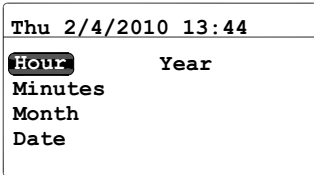
## 5.9 Setting the System Clock

*Note: Access to this menu does not require a passcode.*

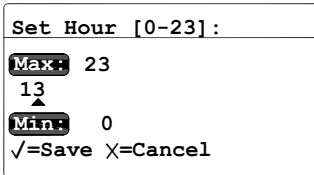


To set the system clock, from the Settings Menu select Clock and press Enter to display the current day, date and time. To make changes, see the following sections.

### 5.9.1 Setting the Hour




To change the hour, select Hour and press Enter . The following screen appears:



Use the left and right arrow keys to select each digit to be changed and the up and down arrow keys to increase or decrease its value. Press Enter to save the new value (or Cancel to keep the previous value) and return to the previous menu.



## 5.9.2 Setting the Minutes

Thu 2/4/2010 13:44	
Hour	Year
<b>Minutes</b>	
Month	
Date	

To change the minutes, select Minutes and press Enter . The following screen appears:


Set Minutes [0-59]:	
<b>Max:</b>	59
	44
	▲
<b>Min:</b>	0
√=Save X=Cancel	

Use the left and right arrow keys to select each digit to be changed and the up and down arrow keys to increase or decrease its value.

Press Enter  to save the new value (or Cancel  to keep the previous value) and return to the previous menu.



## 5.9.3 Setting the Month

Thu 2/4/2010 13:44	
Hour	Year
Minutes	
<b>Month</b>	
Date	

To change the month, select Month and press Enter . The following screen appears:


Set Month [1-12]:	
<b>Max:</b>	12
	02
	▲
<b>Min:</b>	1
√=Save X=Cancel	

Use the left and right arrow keys to select each digit to be changed and the up and down arrow keys to increase or decrease its value.

Press Enter  to save the new value (or Cancel  to keep the previous value) and return to the previous menu.



## 5.9.4 Setting the Date

Thu 2/4/2010 13:44	
Hour	Year
Minutes	
Month	
Date	

To change the date, select Date and press Enter . The following screen appears:


Set Date:	
Max:	28
	04
Min:	1
√=Save X=Cancel	

Use the left and right arrow keys to select each digit to be changed and the up and down arrow keys to increase or decrease its value.

Press Enter  to save the new value (or Cancel  to keep the previous value) and return to the previous menu.



## 5.9.5 Setting the Year

Thu 2/4/2010 13:44	
Hour	Year
Minutes	
Month	
Date	

To change the year, select Year and press Enter . The following screen appears:

Set Year:	
Max:	2099
	2010
Min:	2007
√=Save X=Cancel	

Use the left and right arrow keys to select each digit to be changed and the up and down arrow keys to increase or decrease its value.

Press Enter  to save the new value (or Cancel  to keep the previous value) and return to the previous menu.





## 5.10 Selecting the Probe Type

*Note: Access to this menu requires a passcode (see Entering Your Passcode on page 67).*

**IMPORTANT:** *Changing the probe type will reset the analog output, measurement alarms, fault alarm and output range to their factory default settings.*

### Settings Menu


Fault Alm... Clock...  
 AutoCal... **Probes**  
 Cal Data... DpC Offset  
 V/V Ratio...

To select the probe type, from the Settings Menu select Probes and press Enter . Then, enter your passcode and press Enter . The following screen appears:

### Settings Menu

#### Select Probe:

**STANDARD** IQ.probe  
 √=Accept X=Cancel

Use the left or right arrow key to select the correct probe type and press Enter . The dew.IQ will reboot in 5 seconds.

## 5.11 Setting a Constant DP °C Offset

*Note: Access to this menu does not require a passcode.*

This feature enables the user to add a constant DP °C offset to all dew.IQ readings. It allows for positive or negative offset limiting up to  $\pm 50^{\circ}\text{C}$ . The constant offset only applies within the calibrated range of the probe, and the measurement alarms will use the constant offset within that range.

Use the following procedure to set the DP °C Offset:

```

Settings Menu
Fault Alm... Clock...
AutoCal... Probes
Cal Data... DpC Offset
V/V Ratio...
  
```



To set a constant DP °C offset, from the Settings Menu select DpC and press

Enter . The following screen appears:

```

Enter Td Offset:
Max+ +50.00
+05.00 °C
Min- -50.00
√=Save X=Cancel
  
```

Use the left and right arrow keys to select each digit to be changed and the up and down arrow keys to increase or decrease its value.

Press Enter  to save the new value (or Cancel  to keep the previous value) and return to the previous menu.

## Chapter 6. Service and Maintenance

### 6.1 Introduction

The dew.IQ is designed to be maintenance and trouble free. However, because of severe process conditions and other factors, minor problems may occur from time to time. Some of the most common problems and recommended maintenance procedures are discussed in this chapter. If you cannot find the information you need in this chapter, please consult GE for help.



**CAUTION!** Do not attempt to troubleshoot the dew.IQ beyond the instructions in this chapter. If you do, you may damage the unit and void the warranty.

This chapter covers the following topics:

- The Service Menu (see below)
- Troubleshooting common problems (see *page 88*)
- Replacing/recalibrating moisture probes (see *page 89*)
- Cleaning the dew.IQ front panel (see *page 90*)

Proceed to the appropriate section to perform any of the above tasks.

### 6.2 The Service Menu

The dew.IQ Service menu is intended for use only by trained service engineers and requires the use of a Factory-Level Passcode for access.

**Service Passcode:**

0000

√=Save X=Cancel

Use the left and right arrow keys to select each digit to be changed and the up and down arrow keys to increase or decrease its value. After the passcode has been entered, press **Enter** to proceed.

## 6.3 Troubleshooting Common Problems

If the dew.IQ measurements read too wet or too dry, or if they do not make sense, there may be a problem with either the probe or a process component. Refer to *Table 7* below to troubleshoot and solve such problems.

**Table 7: Troubleshooting Guide for Common Problems**

Possible Cause	Response and Action
<b>Symptom: The accuracy of the moisture sensor is questioned.</b>	
There is insufficient time for the system to equilibrate.	<p><b>Response:</b> Reads too wet during dry down conditions or too dry in wet up conditions.</p> <p><b>Action:</b> Change the flow rate. A change in dew point indicates the sample system is not at equilibrium or there is a leak. Allow sufficient time for sample system to equilibrate and moisture reading to become steady. Check for leaks.</p>
Dew point at the sampling point is different from the dew point of the main stream.	<p><b>Response:</b> Reads too wet or too dry.</p> <p><b>Action:</b> Readings may be correct if the sampling point and main stream do not run under the same process conditions. The different process conditions cause readings to vary. If sampling point and main stream conditions are the same, check sample system pipes, and any pipe between the sample system and main stream for leaks. Also, check sample system for adsorbing water surfaces, such as rubber or plastic tubing, paper-type filters, or condensed water traps. Remove or replace the contaminating parts with stainless steel parts.</p>
Sensor or sensor shield is affected by process contaminants	<p><b>Response:</b> Reads too wet or too dry</p> <p><b>Action:</b> Clean the sensor and the sensor shield, then reinstall the sensor.</p>
Sensor is contaminated with conductive particles.	<p><b>Response:</b> Reads high dew point.</p> <p><b>Action:</b> Clean the sensor and the sensor shield, then reinstall the sensor. Also, install a proper filter (i.e. sintered or coalescing element).</p>
Sensor is corroded	<p><b>Response:</b> Reads too wet or too dry</p> <p><b>Action:</b> Return probe to factory for evaluation.</p>
Stream particles causing abrasion.	<p><b>Response:</b> Reads too wet or too dry.</p> <p><b>Action:</b> Return probe to factory for evaluation.</p>

## 6.4 Replacing/Recalibrating Moisture Probes

For maximum accuracy, moisture probes should be returned to the factory for recalibration every 6–12 months, depending on the application. Under very severe conditions, more frequent calibrations are recommended. However, under very mild conditions, less frequent calibrations are necessary. Contact a GE applications engineer for your specific recommended calibration frequency.

All new or recalibrated moisture probes must be installed in accordance with the instructions in *Chapter 2, Installation*.

**IMPORTANT:** *To maintain good contact at the terminal block and to avoid damaging the pins on the wiring connector, pull the connector straight off (not at an angle) the terminal block. Then, make the cable connections while the connector is off the unit. Finally, after the wiring is complete, push the connector straight onto the terminal block (not at an angle).*

After the probe has been installed and wired, enter the probe calibration curve data as described in *Chapter 5, Programming the Settings Menu*. Each probe is shipped with its own *Calibration Data Sheet*, which includes the serial number for that probe.

## 6.5 Cleaning the dew.IQ Front Panel

When necessary, use the procedure below to clean the front panel of the dew.IQ. You will need the following items:

- Clean, lint-free cloth
- Cleaning solution (soap and warm water)

To clean the front panel, complete the following steps:

1. Moisten the cloth with the cleaning solution.
2. Gently wipe the front panel clean.
3. Use a dry cloth to dry the front panel.

## Chapter 7. Specifications

### 7.1 Electronics

#### ***Intrinsic Safety***

External safety barrier for moisture input (optional on M Series probe)

#### ***European Compliance***

Complies with EMC Directive 2004/108/EC and 2006/95/EC Low Voltage Directive (Installation Category II, Pollution Degree II)

#### ***Input***

Moisture signal from an M Series probe or an IQ.probe

#### ***Analog Output***

Single internal isolated recorder output, internally optically isolated, 10-bit (0.1%) resolution

#### ***Switch-Selectable Output Ranges***

0–2 V, 10 k $\Omega$  minimum load resistance

0–20 mA, 400  $\Omega$  maximum series resistance

4–20 mA, 400  $\Omega$  maximum series resistance

The outputs are user-programmable within the range of the instrument and the corresponding sensor or transmitter.

#### ***Alarm Relays***

One fail-safe fault relay

Two standard Form C SPDT relays, rated for 3 A at 250 VAC/30 VDC

The alarm relays may be set to any level within the range of the instrument and are programmable from the front panel.

## 7.1 Electronics (cont.)

### **Alarm Setpoint Repeatability**

$\pm 0.2^{\circ}\text{F}$  ( $\pm 0.1^{\circ}\text{C}$ ) dew point

### **Datalogger**

MicroSD/SDHC up to 32 GB capacity, 4 GB MicroSD card included

### **Display**

128 x 64 matrix LCD

### **Display Functions**

Dew point temperature  $^{\circ}\text{F}$  or  $^{\circ}\text{C}$   
ppmv with a constant pressure input  
Sensor signals for diagnostics

### **Power Requirements**

Universal power supply,  
100-240 VAC @ 50-60 Hz or 24 VDC nominal,  
5W maximum power

### **Temperature**

*Operating:*  $-20^{\circ}$  to  $60^{\circ}\text{C}$  ( $-4^{\circ}$  to  $140^{\circ}\text{F}$ )  
*Storage:*  $-40^{\circ}$  to  $70^{\circ}\text{C}$  ( $-40^{\circ}$  to  $158^{\circ}\text{F}$ )

### **Warm-Up Time**

Meets specified accuracy within three minutes

### **Configurations**

Panel Mount (rated Type 4X and IP66)  
Half-Rack (9.5")  
Bench Top  
Wall Mount (rated Type 4X and IP66)



## 7.2 Moisture Measurement

### **Sensor Type**

Thin-film aluminum oxide

### **Moisture Probe Compatibility**

Compatible with all Panametrics M-Series aluminum oxide moisture probes and the IQ.probe

### **Dew/Frost Point Temperature**

*Overall range capability:*  $-110^{\circ}$  to  $60^{\circ}\text{C}$  ( $-166^{\circ}$  to  $140^{\circ}\text{F}$ )

*Standard:*  $-80^{\circ}$  to  $20^{\circ}\text{C}$  ( $-112^{\circ}$  to  $68^{\circ}\text{F}$ ) with data to  $-110^{\circ}\text{C}$  ( $-166^{\circ}\text{F}$ )

*Ultra-Low:*  $-110^{\circ}$  to  $-50^{\circ}\text{C}$  ( $-166^{\circ}$  to  $-58^{\circ}\text{F}$ )

*High Range Data:*  $-80^{\circ}\text{C}$  to  $60^{\circ}\text{C}$  ( $-112^{\circ}$  to  $140^{\circ}\text{F}$ )

### **Calibrated Accuracy at 77°F (25°C)**

$\pm 2^{\circ}\text{C}$  ( $\pm 3.6^{\circ}\text{F}$ ) from  $-65^{\circ}$  to  $10^{\circ}\text{C}$  ( $-85^{\circ}$  to  $50^{\circ}\text{F}$ )

$\pm 3^{\circ}\text{C}$  ( $\pm 5.4^{\circ}\text{F}$ ) from  $-80^{\circ}$  to  $-66^{\circ}\text{C}$  ( $-112^{\circ}$  to  $-87^{\circ}\text{F}$ )

### **Repeatability**

$\pm 0.5^{\circ}\text{C}$  ( $\pm 0.9^{\circ}\text{F}$ ) from  $-65^{\circ}$  to  $10^{\circ}\text{C}$  ( $-85^{\circ}$  to  $50^{\circ}\text{F}$ )

$\pm 1.0^{\circ}\text{C}$  ( $\pm 1.8^{\circ}\text{F}$ ) from  $-80^{\circ}$  to  $-66^{\circ}\text{C}$  ( $-112^{\circ}$  to  $-87^{\circ}\text{F}$ )

### **Traceability:**

All moisture probe calibrations are traceable to National Institute of Standards and Technology (NIST) standards or National Physical Lab, U.K. (NPL) as accredited by Irish National Accreditation Board (INAB).

[no content intended for this page]

## Appendix A. Outline and Installation Drawings

This appendix includes the following dew.IQ drawings:

- Wall Mount Outline & Installation  
(Ref. Drawing 712-1823, sheet 1 of 3)
- Wall Mount Outline & Installation  
(Ref. Drawing 712-1823, sheet 2 of 3)
- Wall Mount Outline & Installation  
(Ref. Drawing 712-1823, sheet 3 of 3)
- Rack Mount Outline & Installation  
(Ref. Drawing 712-1824, sheet 1 of 1)
- Panel Mount Outline & Installation  
(Ref. Drawing 712-1825, sheet 1 of 1)
- Bench Top Outline & Installation  
(Ref. Drawing 712-1826, sheet 1 of 1)
- Interconnection Diagram  
(Ref. Drawing 702-1381, sheet 1 of 1)

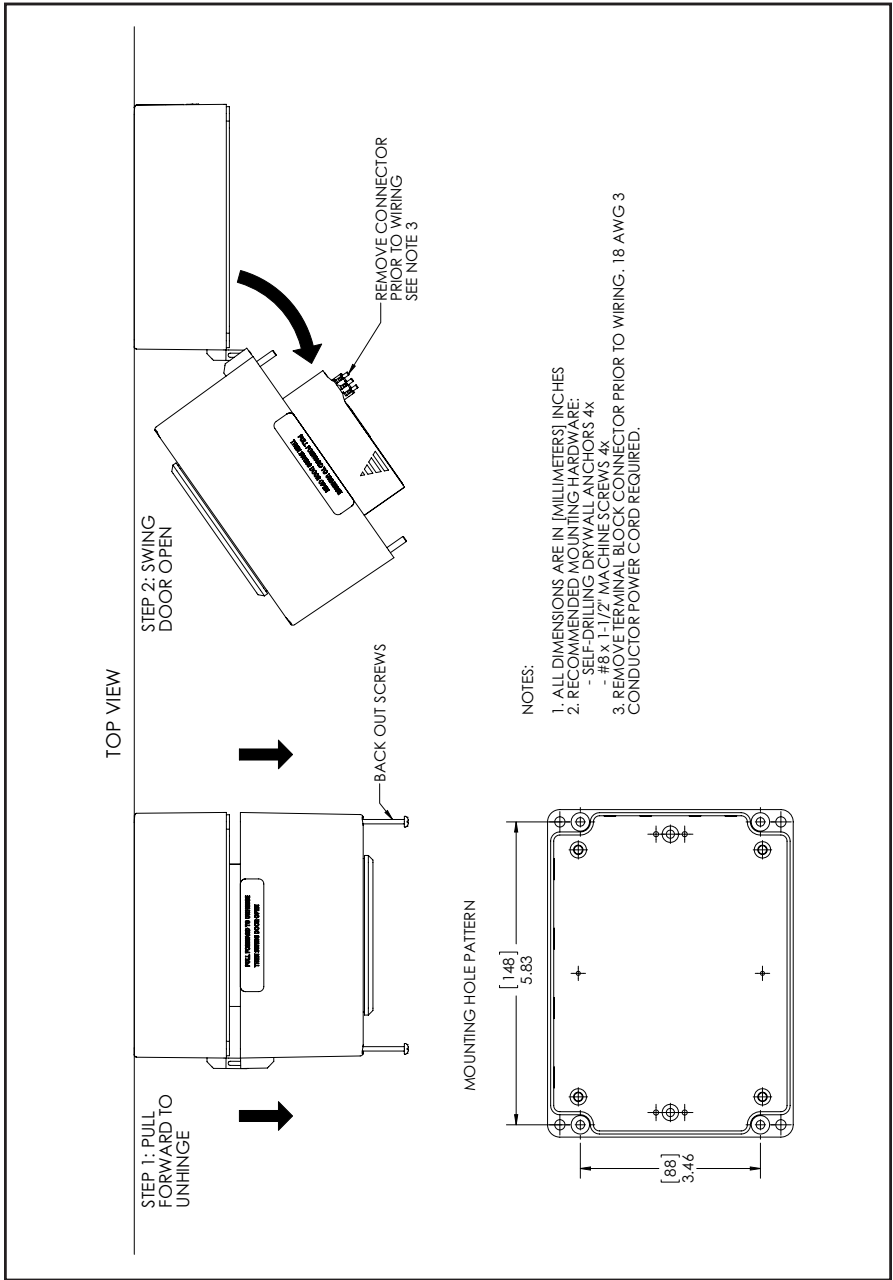


Figure 39: Wall Mount Outline & Installation (ref. dwg 712-1823, 1 of 3)

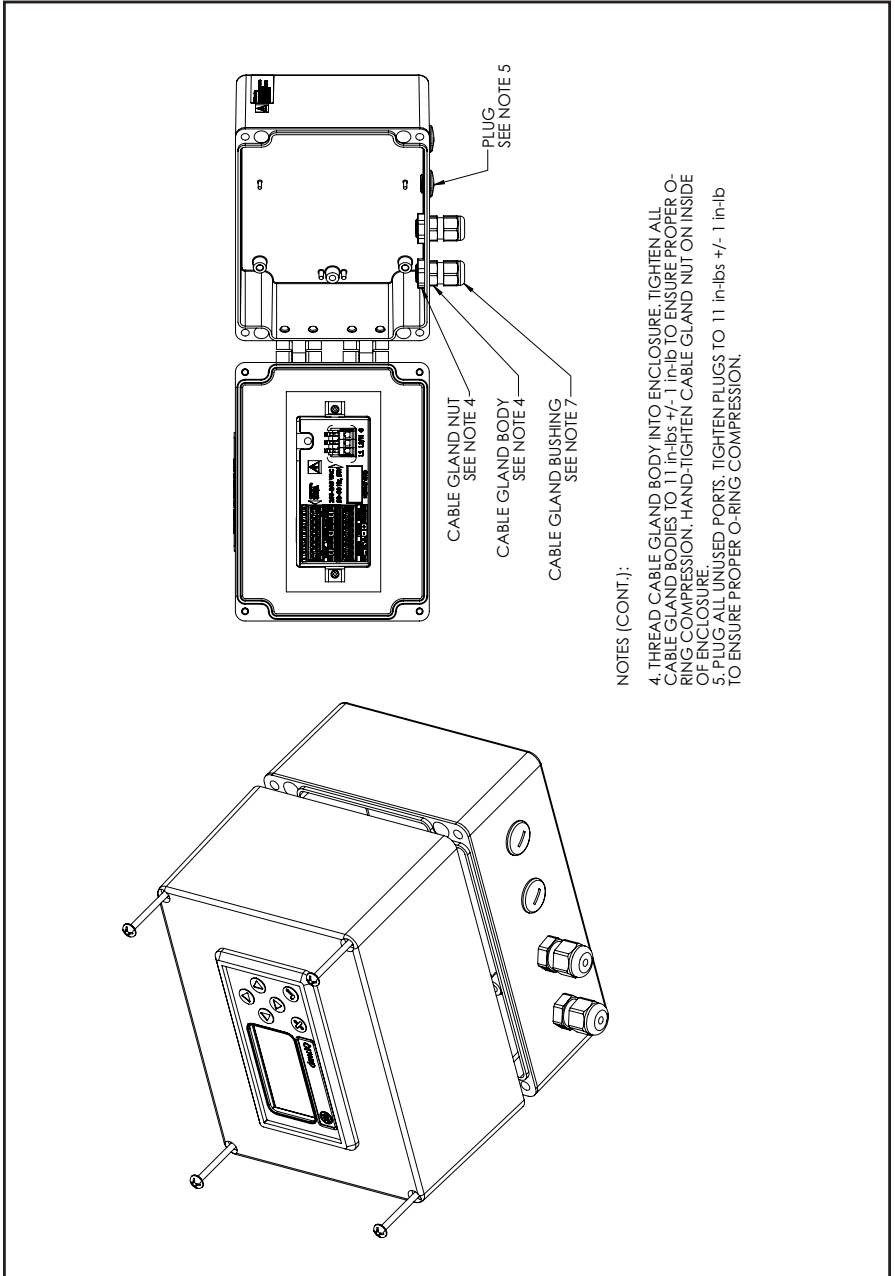


Figure 40: Wall Mount Outline &amp; Installation (ref. dwg 712-1823, 2 of 3)

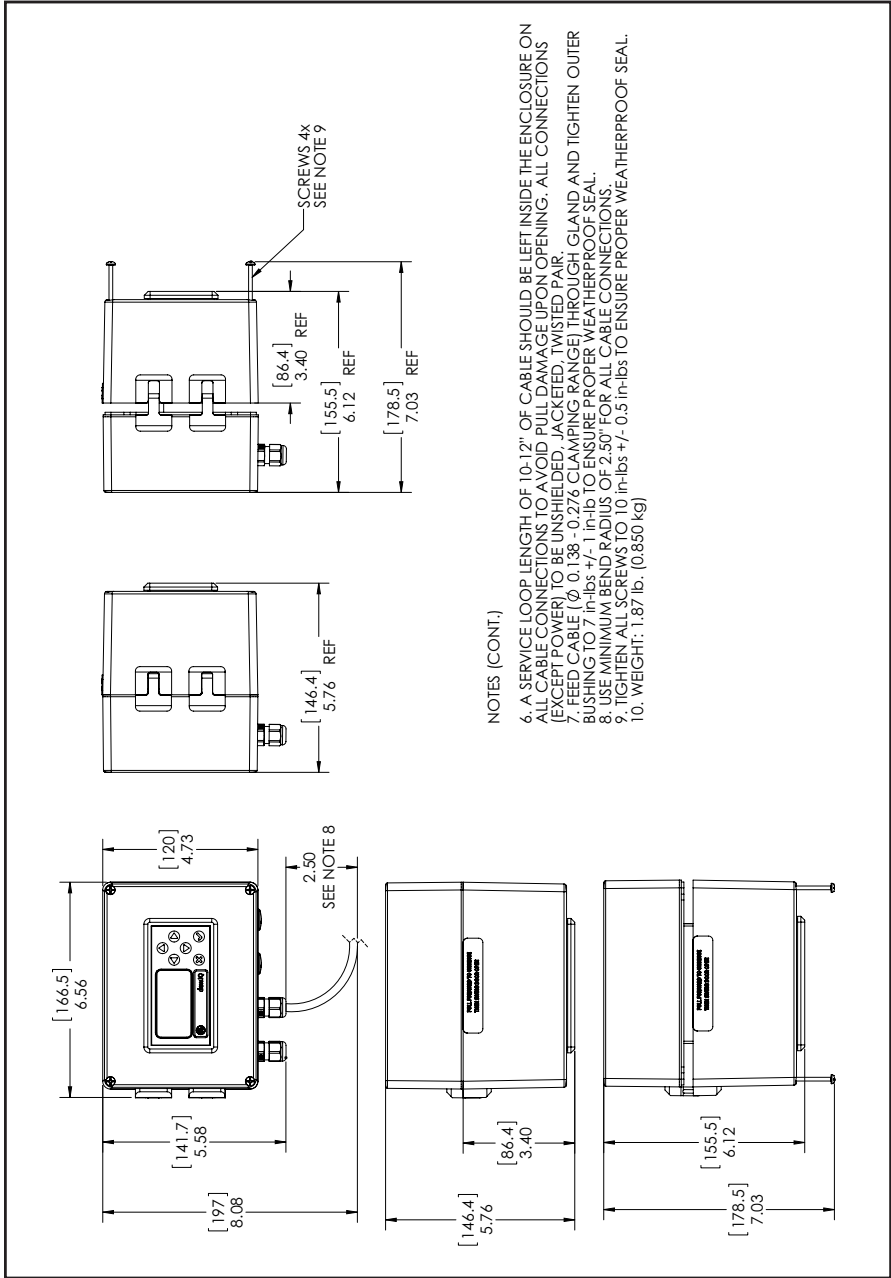


Figure 41: Wall Mount Outline & Installation (ref. dwg 712-1823, 3 of 3)

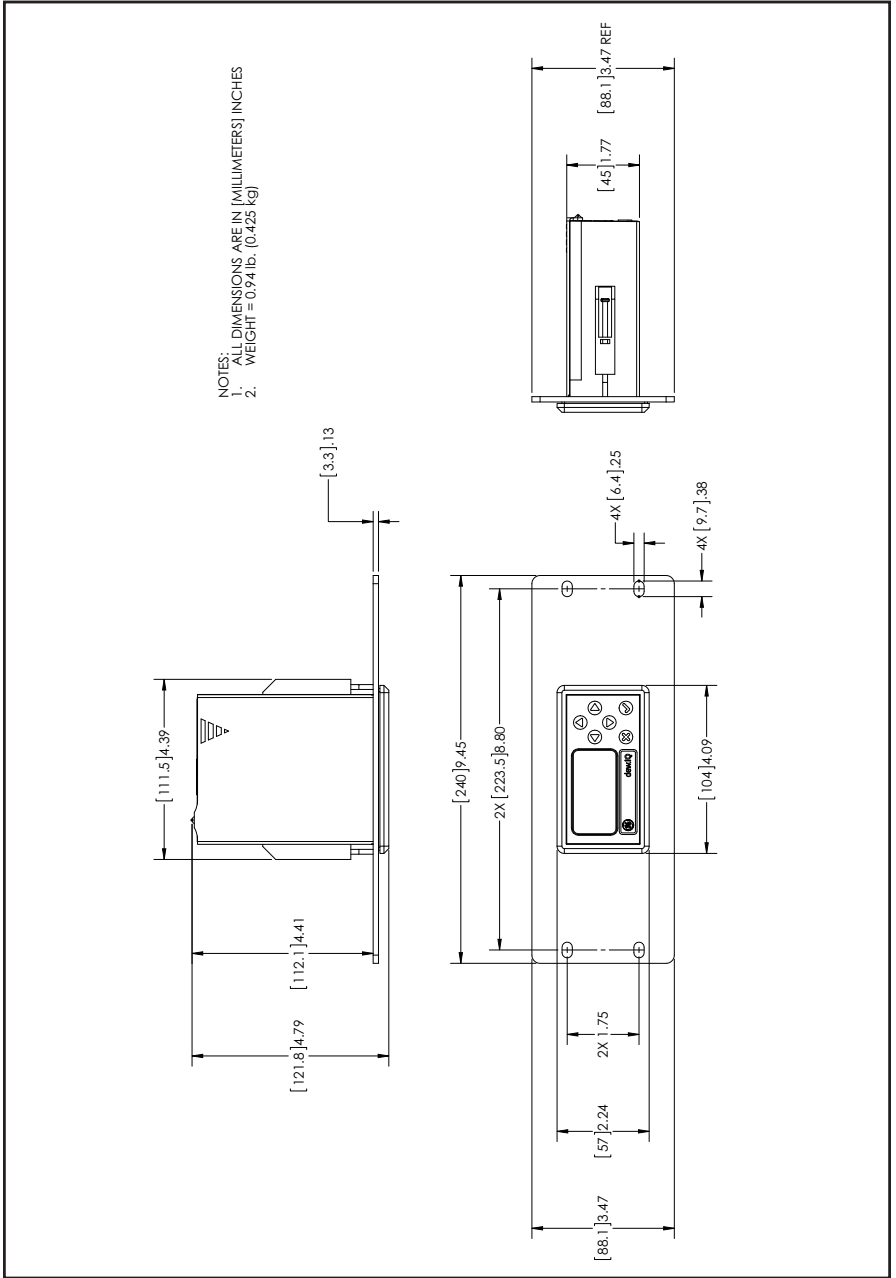


Figure 42: Rack Mount Outline & Installation (ref. dwg 712-1824)

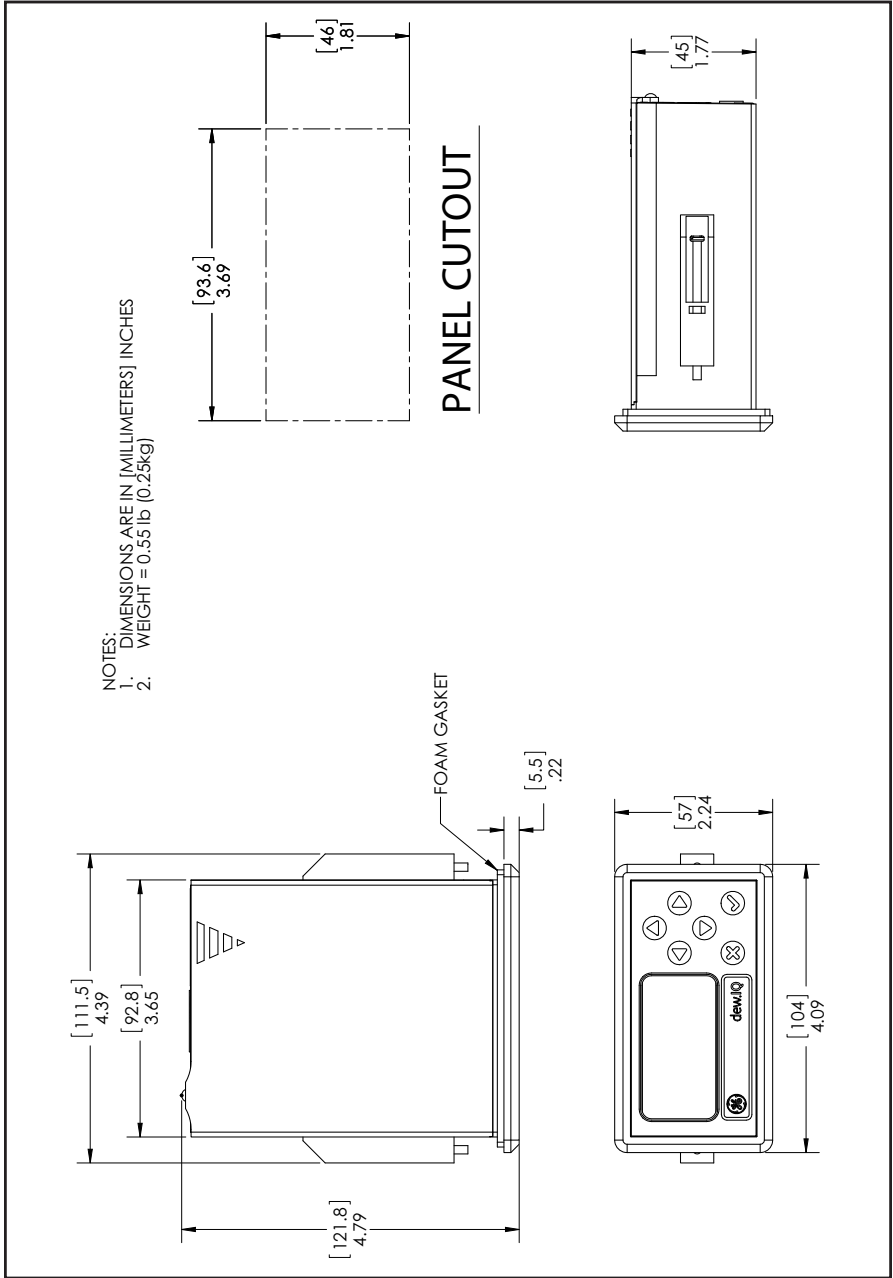


Figure 43: Panel Mount Outline & Installation (ref. dwg 712-1825)



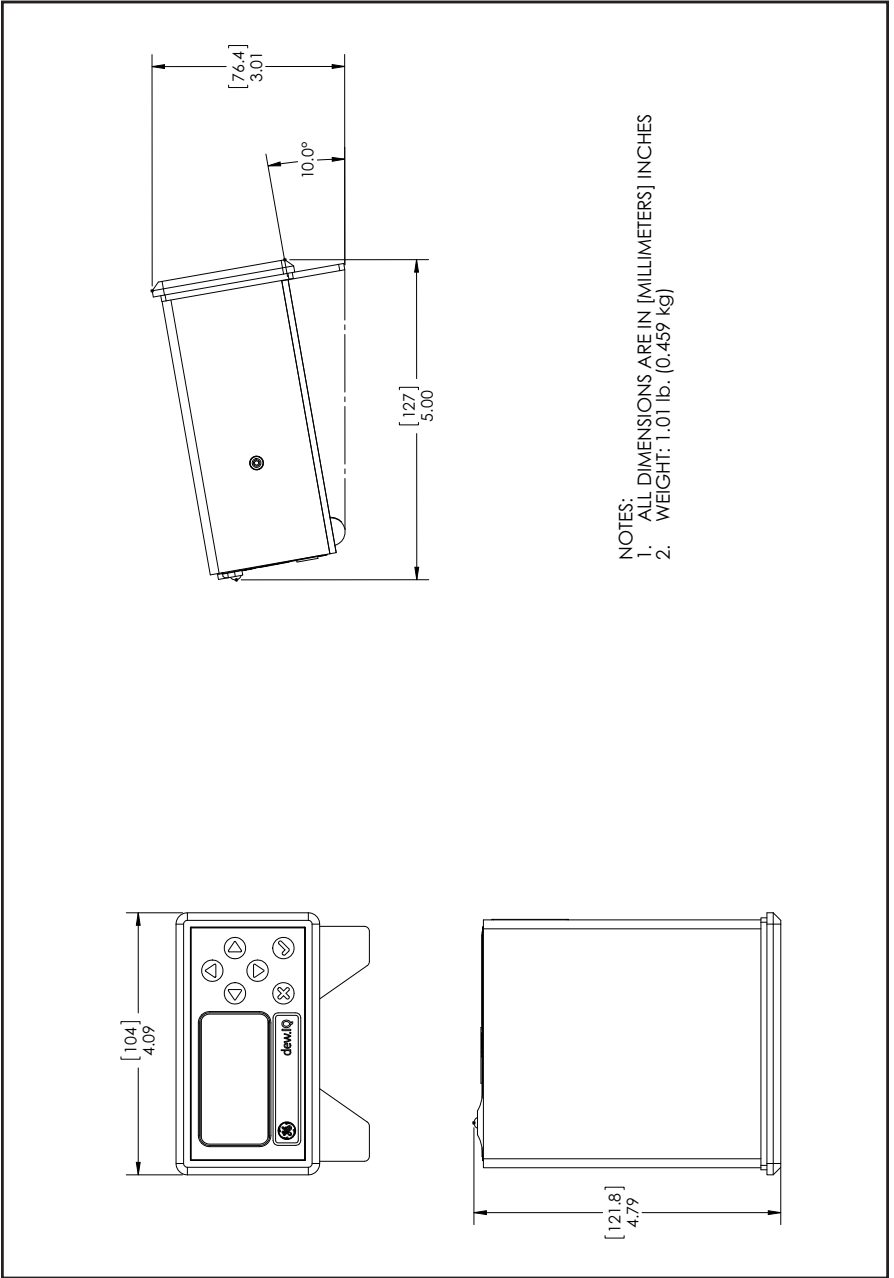


Figure 44: Bench Top Outline & Installation (ref. dwg 712-1826)

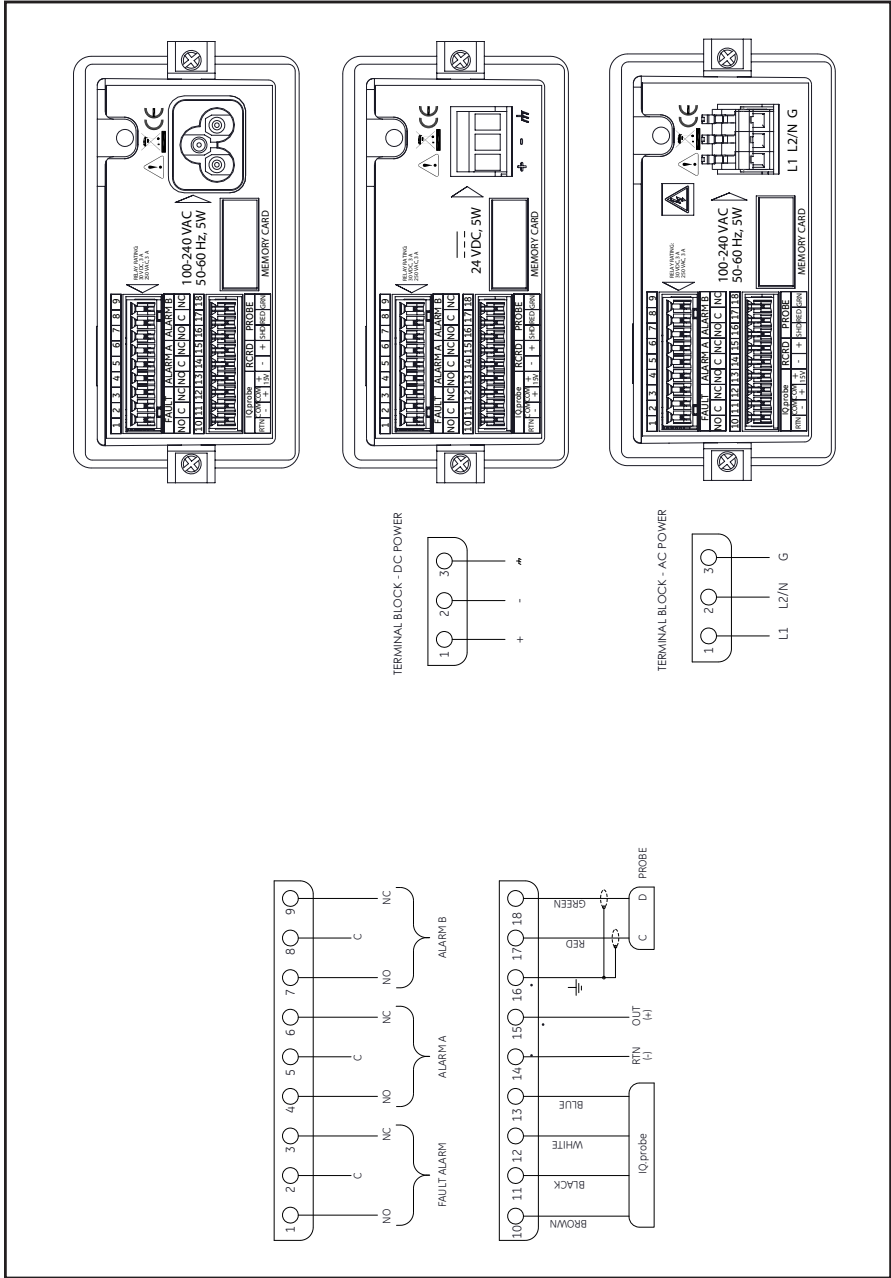


Figure 45: Interconnection Diagram (ref. dwg 702-1381)

## Appendix B. Menu Maps

This appendix includes the following dew.IQ menu maps:

- Main Menu Map for M Series probe
- Main Menu Map for IQ.probe

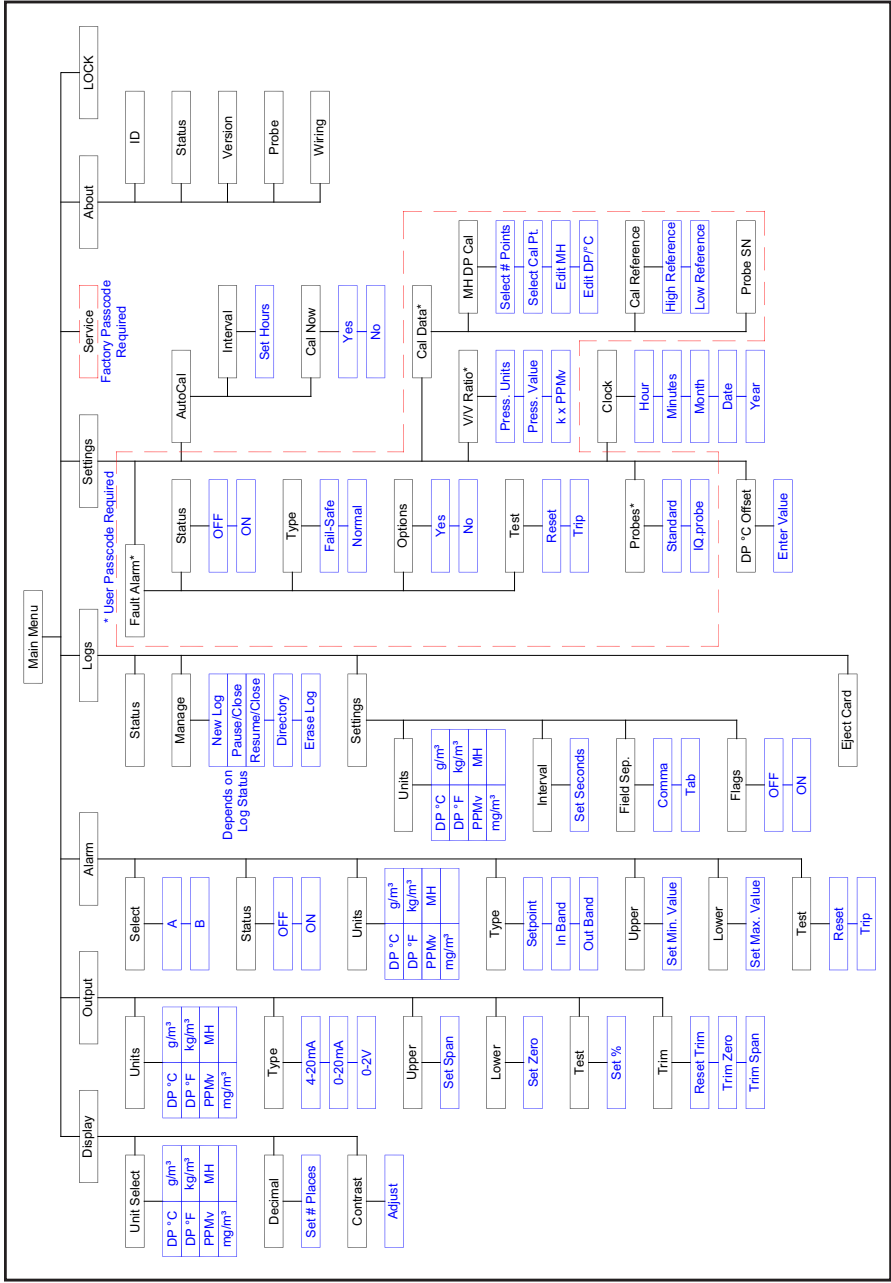


Figure 46: Main Menu Map Using M Series Probe

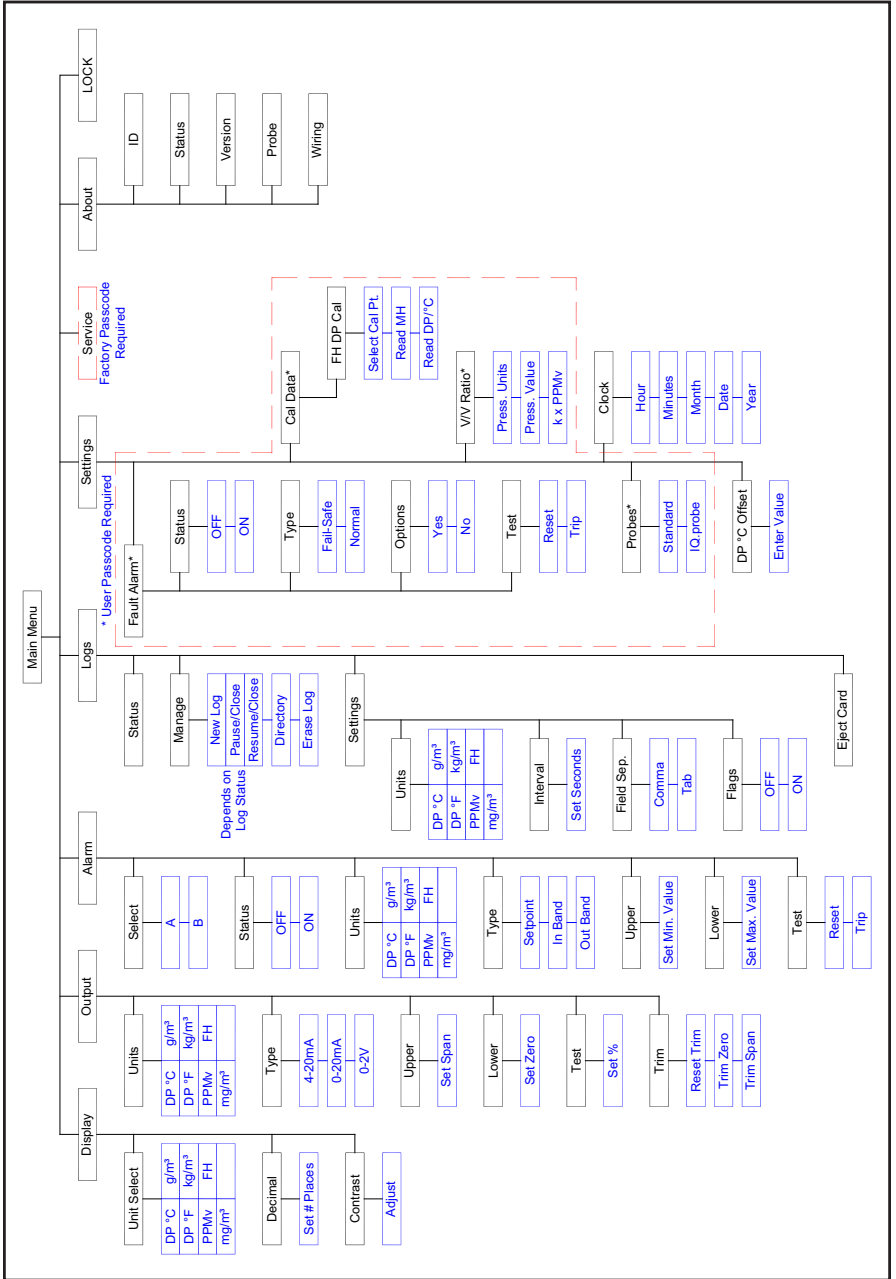


Figure 47: Main Menu Map Using IQ.probe

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## Appendix C. Reading the MicroSD Card

### C.1 Removing the MicroSD Card

**IMPORTANT:** *Before physically removing the MicroSD Card, refer to “Ejecting the MicroSD Card” on page 65.*

1. Locate the memory card in the lower center of the rear panel of the dew.IQ and pull the left side of the flexible cover. The cover is hinged on the right side (see *Figure 48* and *Figure 49* below).



Figure 48: Pulling the Flexible Cover



Figure 49: The Exposed Memory Card Holder

## C.1 Removing the MicroSD Card (cont.)

2. Push in the memory card until it clicks and then release it (see *Figure 50* below).



Figure 50: Pushing in on the MicroSD Card

3. After the MicroSD card is partially ejected, pull it from the dew.IQ chassis (see *Figure 51* below).

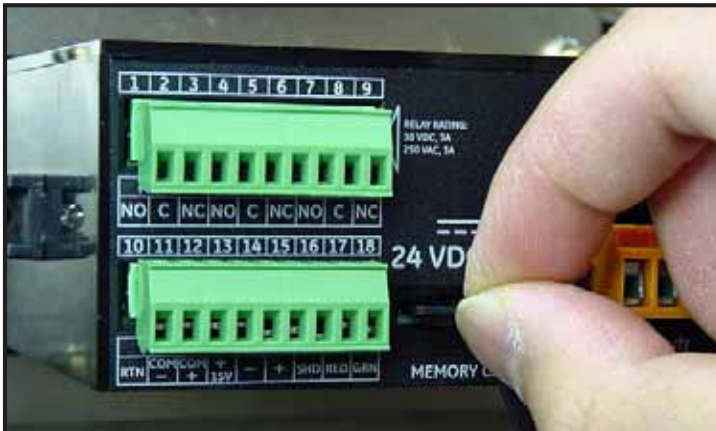


Figure 51: Removing the MicroSD Card



## C.2 Connecting the MicroSD Card to a PC

1. Plug the MicroSD card into a card reader (see *Figure 52* below)



Figure 52: Plugging the MicroSD Card into a Card Reader

2. Connect the card reader to a PC (see *Figure 53* below).



Figure 53: Plugging the Card Reader into a PC

### C.3 Accessing the Log Files

1. From the PC, open My Computer and find the card reader in the “Devices with Removable Storage” section. (see Figure 54 below).



Figure 54: Locating the Card Reader

### C.3 Accessing the Log Files (cont.)

- Click on the Removable Disk icon and a window similar to *Figure 55* below opens. The available log files are listed in the window.

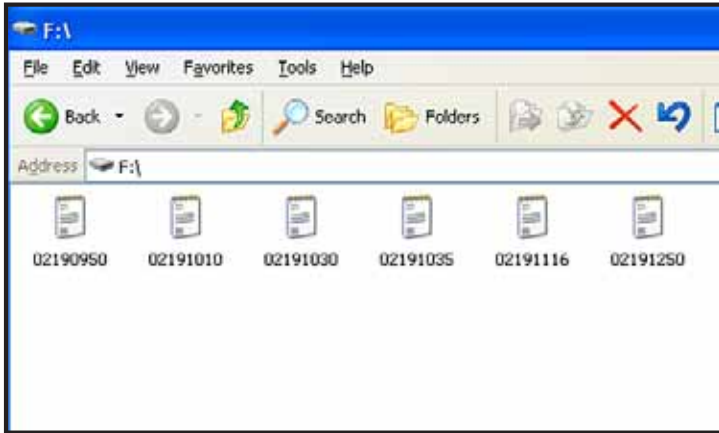


Figure 55: List of Log Files

- Click on the desired log file and a window similar to *Figure 56* below opens. The data in the log file is listed in the window.

Date/Time	DP	°C	°F	DP	°C	DP	°C	Status	Alarm A	Alarm B
2/19/2010 12:50:45	-10.2	13.7	-10.2	-10.2	-10.2	0	0			
2/19/2010 12:50:48	-10.2	13.7	-10.2	-10.2	-10.2	0	0			
2/19/2010 12:50:51	-10.2	13.7	-10.2	-10.2	-10.2	0	0			
2/19/2010 12:50:54	-10.2	13.6	-10.2	-10.2	-10.2	0	0			
2/19/2010 12:50:57	-10.2	13.6	-10.2	-10.2	-10.2	0	0			
2/19/2010 12:51:00	-10.2	13.7	-10.2	-10.2	-10.2	0	0			
2/19/2010 12:51:03	-10.2	13.7	-10.2	-10.2	-10.2	0	0			
2/19/2010 12:51:06	-10.2	13.7	-10.2	-10.2	-10.2	0	0			
2/19/2010 12:51:09	-10.2	13.7	-10.2	-10.2	-10.2	0	0			
2/19/2010 12:51:12	-10.2	13.7	-10.2	-10.2	-10.2	0	0			
2/19/2010 12:51:15	-10.2	13.6	-10.2	-10.2	-10.2	0	0			
2/19/2010 12:51:18	-10.2	13.6	-10.2	-10.2	-10.2	0	0			
2/19/2010 12:51:21	-10.2	13.6	-10.2	-10.2	-10.2	0	0			
2/19/2010 12:51:24	-10.2	13.6	-10.2	-10.2	-10.2	0	0			
2/19/2010 12:51:27	-10.2	13.6	-10.2	-10.2	-10.2	0	0			
2/19/2010 12:51:30	-10.2	13.6	-10.2	-10.2	-10.2	0	0			
2/19/2010 12:51:33	-10.2	13.6	-10.2	-10.2	-10.2	0	0			
2/19/2010 12:51:36	-10.2	13.6	-10.2	-10.2	-10.2	0	0			

Figure 56: Log File Data

### C.3 Accessing the Log Files (cont.)

4. The dew.IQ log files can be opened with a spreadsheet program, such as Microsoft Excel. Launch the spreadsheet program and select **Open** (see *Figure 57* below).

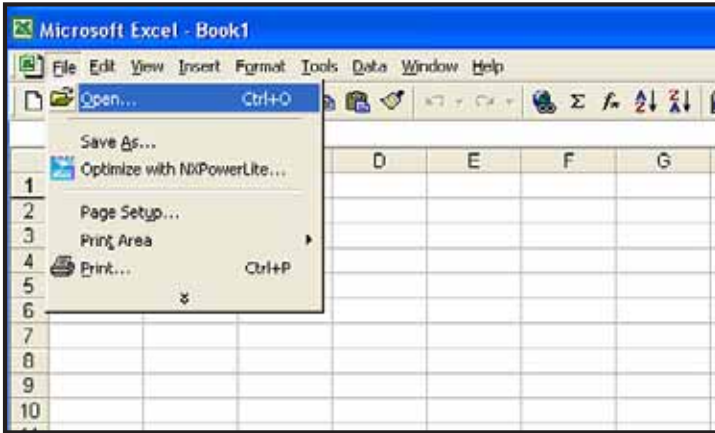


Figure 57: Opening a Log File in Microsoft Excel

5. Click on the name of the desired log file (see *Figure 58* below).

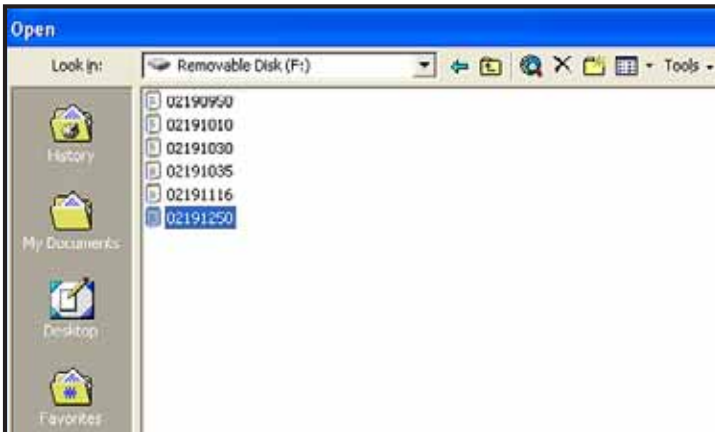


Figure 58: Selecting the Log File to Open

## C.4 Setting Up a Log File

1. Make sure that the file type is set to “*All Types*” and then open the selected log file by double clicking on the file name. A window similar to the one in *Figure 59* below will open.

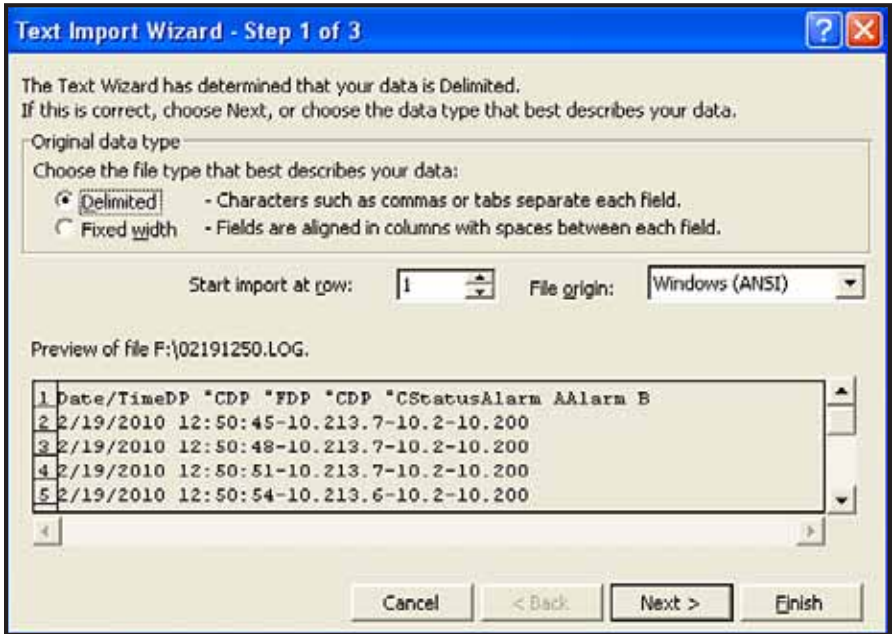


Figure 59: Microsoft Excel Import Wizard - Step 1

## C.4 Setting Up a Log File (cont.)

- Follow the directions on the screen, make changes if necessary, and then click on **Next**. A window similar to the one in *Figure 60* below will open.



Figure 60: Microsoft Excel Import Wizard - Step 2

## C.4 Setting Up a Log File (cont.)

3. Select the desired data delimiters, and click on **Next >**. A window similar to the one in *Figure 61* below will open.
4. Select each column and set the desired data format for that column (see *Figure 61* below).



Figure 61: Microsoft Excel Import Wizard - Step 3

## C.4 Setting Up a Log File (cont.)

- When the setup is complete, click on **Finish**, and a window similar to *Figure 62* below will open. The log file is now properly formatted for graphing or analysis, and the results may be saved as a standard spreadsheet file for future use.

	A	B	C	D	E	F	G	H	I	J
	Date/Time	DP °C	DP °F	DP °C	DP °C	Status	Alarm A	Alarm B		
2	2/19/2010 12:50	-10.2	13.7	-10.2	-10.2		0	0		
3	2/19/2010 12:50	-10.2	13.7	-10.2	-10.2		0	0		
4	2/19/2010 12:50	-10.2	13.7	-10.2	-10.2		0	0		
5	2/19/2010 12:50	-10.2	13.6	-10.2	-10.2		0	0		
6	2/19/2010 12:50	-10.2	13.6	-10.2	-10.2		0	0		
7	2/19/2010 12:51	-10.2	13.7	-10.2	-10.2		0	0		
8	2/19/2010 12:51	-10.2	13.7	-10.2	-10.2		0	0		
9	2/19/2010 12:51	-10.2	13.7	-10.2	-10.2		0	0		
10	2/19/2010 12:51	-10.2	13.7	-10.2	-10.2		0	0		
11	2/19/2010 12:51	-10.2	13.7	-10.2	-10.2		0	0		
12	2/19/2010 12:51	-10.2	13.6	-10.2	-10.2		0	0		
13	2/19/2010 12:51	-10.2	13.6	-10.2	-10.2		0	0		
14	2/19/2010 12:51	-10.2	13.6	-10.2	-10.2		0	0		
15	2/19/2010 12:51	-10.2	13.6	-10.2	-10.2		0	0		
16	2/19/2010 12:51	-10.2	13.6	-10.2	-10.2		0	0		
17	2/19/2010 12:51	-10.2	13.6	-10.2	-10.2		0	0		
18	2/19/2010 12:51	-10.2	13.6	-10.2	-10.2		0	0		
19	2/19/2010 12:51	-10.2	13.6	-10.2	-10.2		0	0		

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## Warranty

Each instrument manufactured by GE Sensing is warranted to be free from defects in material and workmanship. Liability under this warranty is limited to restoring the instrument to normal operation or replacing the instrument, at the sole discretion of GE Sensing. Fuses and batteries are specifically excluded from any liability. This warranty is effective from the date of delivery to the original purchaser. If GE Sensing determines that the equipment was defective, the warranty period is:

- one year from delivery for electronic or mechanical failures
- one year from delivery for sensor shelf life

If GE Sensing determines that the equipment was damaged by misuse, improper installation, the use of unauthorized replacement parts, or operating conditions outside the guidelines specified by GE Sensing, the repairs are not covered under this warranty.

---

The warranties set forth herein are exclusive and are in lieu of all other warranties whether statutory, express or implied (including warranties of merchantability and fitness for a particular purpose, and warranties arising from course of dealing or usage or trade).

---

## Return Policy

If a GE Sensing instrument malfunctions within the warranty period, the following procedure must be completed:

1. Notify GE Sensing, giving full details of the problem, and provide the model number and serial number of the instrument. If the nature of the problem indicates the need for factory service, GE Sensing will issue a RETURN AUTHORIZATION NUMBER (RAN), and shipping instructions for the return of the instrument to a service center will be provided.
2. If GE Sensing instructs you to send your instrument to a service center, it must be shipped prepaid to the authorized repair station indicated in the shipping instructions.
3. Upon receipt, GE Sensing will evaluate the instrument to determine the cause of the malfunction.

Then, one of the following courses of action will then be taken:

- If the damage is covered under the terms of the warranty, the instrument will be repaired at no cost to the owner and returned.
- If GE Sensing determines that the damage is not covered under the terms of the warranty, or if the warranty has expired, an estimate for the cost of the repairs at standard rates will be provided. Upon receipt of the owner's approval to proceed, the instrument will be repaired and returned.

## Default Factory Passcode

Your passcode is 2719.

Please remove this page and put it in a safe place for future reference.

[no content intended for this page]

We,

**GE Sensing  
1100 Technology Park Drive  
Billerica, MA 01821  
USA**

declare under our sole responsibility that the

**dew.IQ Moisture Analyzer**

to which this declaration relates, is in conformity with the following standards:

- EN 61326-1: 2006, Class A, Table 2, Industrial Locations
- EN 61326-2-3: 2006
- EN 61010-1: 2012, Overvoltage Category II

following the provisions of the 2004/108/EC EMC and 2006/95/EC Low Voltage Directives.

The unit listed above and any ancillary equipment supplied with it do not bear CE marking for the Pressure Equipment Directive, as they are supplied in accordance with Article 3, Section 3 (sound engineering practices and codes of good workmanship) of the Pressure Equipment Directive 97/23/EC for DN<25.

Billerica - October 2013

Issued



Mr. Gary Kozinski  
Certification & Standards, Lead Engineer







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