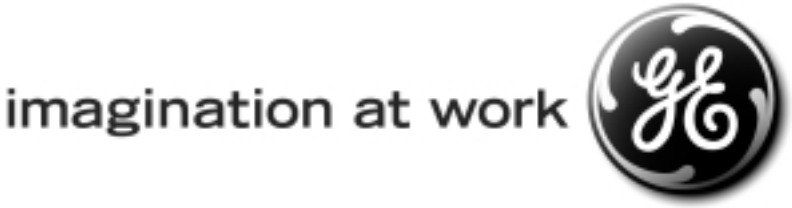
DEW-10 DEW POINT TRANSMITTER GUIDE



1-24-1992
PART NO. A40096273/B.00 ECO NO.2114

TABLE OF CONTENTS

TABLE OF CONTENTS
(continued)

INTRODUCTION TO DEW-10 DEW POINT TRANSMII1ER

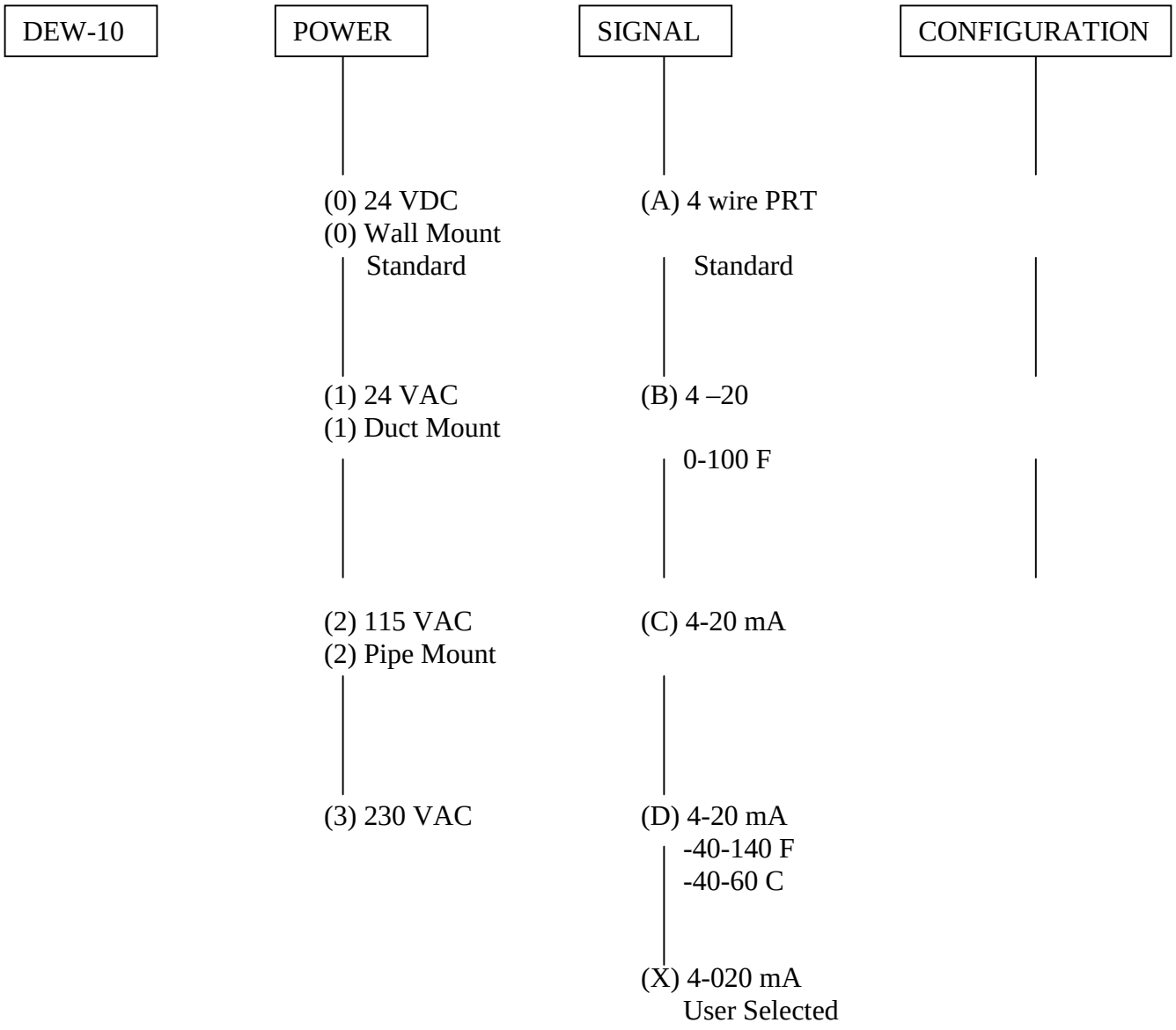
The DEW-10 Series is a family of low-cost, high-performance chilled mirror dew point transmitters. In the sensor a metal mirror surface is controlled at the dew point - the temperature at which water vapor condenses from the surrounding air. The temperature of the mirror is continuously measured by a platinum resistance thermometer (PRT). The measurement is available directly as resistance or may be internally converted to an analog signal. For the wall configuration only, an air temperature probe may be integrated into the unit.

The measurements of dew point and air temperature are stable, accurate and traceable to National standards. As long as the Transmitter is in good working order, outputs are accurate to +/- 0.5 degrees Celsius. The calibration of each PRT is confirmed by GE Infrastructure Sensing Instruments against transfer standards calibrated by the National Institute of Standards and Technology (formerly NBS). Each transmitter comes with the full support that GE Infrastructure Sensing offers for all its products.

PERFORMANCE AND OPERATING RANGES

Mirror depression:	40 C (72 F) at 25 C (77 F) ambient (See Operating Range Diagram)
Accuracy:	+/- 0.5 C (+/- 1.0 F)
Repeatability:	+/- 0.05 C (+/- 0.1 F)
Response Time:	2 minutes max for one time constant at 100 meters/300 feet per minute
Environmental Limits	
Min/Max Sensor:	-lOCto70C(OF to 160F)
Min/Max Electronics:	0 C to 60 C (32 F to 120 F)
Flow Rate:	100 to 1000 meters (300 to 3000 feet) per minute for duct/pipe
Max. Pressure:	0 to 300 mbar (0 to 5 psig)
Power Requirements	
Standard Power:	24 +/- 6 VDC at 350 mA
Optional Power:	24/115/230 VAC +/- 10% 50/60 Hz 10 VA
Available Output Signal	
Standard output:	DIN 43760 4-wire PRT (100 Ohms @ 0 C)
Optional output:	Linear 4-20mA/1-5VDC loop/source powered
Dimensions	
Shipping Weight:	10 pounds
Dry Weight:	6 pounds
Shipping Dimensions:	14” x 6” x 20”

TO SPECIlY POWER/SIGNAL/CONFIGURATION OF DEW-10 TRANSMITTER



Identify your Dew-10 specifications:

DEW-10 –

_____ _____ _____

POWER **SIGNAL** **CONFIGURATION**

INSTALLATION OF THE DEW-10 - XX0: *WALL MOUNT*

(1) Identify installation point. Unit is mounted with chassis against wall and metal cap or optional air temperature probe toward floor. Avoid detectable down drafts and allow easy access for periodic maintenance.

(2) Remove plastic cover and use holes in chassis as template for locating mounting screws. The plastic cover is attached to chassis by velcro strips. To remove cover, pull away from chassis.

(3) Wire according to guide that follows installation instructions. Unit will power up immediately upon connection to power.

(4) Check operation by moving switch SW1 on PCB No. 1 to CHECK position. LED should light within two minutes to confirm that unit can operate correctly. If LED does not light see trouble shooting guide. If LED does light return SW1 to OPERATE position. LED will go out as dew condenses on the metal mirror in the sensor.

(5) Replace plastic cover.

Installation Hint

As air is sampled by convection currents through the sensor cavity, the transmitter is sensitive to down drafts and orientation. If down drafts cannot be eliminated a baffle may be mounted above the transmitter to deflect the air flow around unit

INSTALLATION OF DEW-10 - XX1: *DUCT MOUNT*

(1) Identify installation point. Flow through duct at location should be non-turbulent at a rate of 100 to 1000 meters (300 to 3000 feet) per minute. Location should allow removal of unit from duct for periodic maintenance.

(2) Remove duct mounting plate from unit and use as template to locate mounting screws. An access hole through the duct wall of 1.25 inches(3.25 cm) diem. at the center of the installation point is required to insert the sensor into the duct.

(3) Install duct mounting plate to duct wall. Insert sensor through duct wall and secure unit to the plate.

(4) Gain access to PCB No. 1 by removing one screw holding back cover of electronics housing. Loosen second screw and pivot cover and gasket around this screw. Wire according to guide following installation instructions. Unit will power up immediately upon connection of power.

(5) Check operation by moving switch SW1 on PCB No. 1 to CHECK position. LED should light within two minutes to confirm that unit can operate correctly. If LED does not light see trouble shooting guide. If LED does light return SW1 to OPERATE position. LED will go out as dew condenses on the metal mirror in the sensor.

(6) Replace back cover.

Installation Hints

The sampling system of the unit requires non-turbulent flow between 100 and 1000 meters (300 to 3000 feet) per minute. Avoid plenums, dampers, turns, etc. that create turbulent flow or manifolds with dead flow zones. The unit is shipped with an air sample flow choke positioned for maximum flow through the sensor cavity. If high flow rates through the duct cause excessive signal oscillation, remove the sensor shield and move the slot in the choke above the sensor cavity counterclockwise to reduce flow through the sensor.

Install the unit well downstream of air washers or steam injectors as water carryover can flood and damage the sensor.

Avoid installation points with negative pressure relative to outside the duct such as at a fan inlet as the unit is not pressure tight. Air may be drawn through the electronics housing into the sample cavity making incorrect dew point measurements.

INSTALLATION OF DEW-10 – XX2: *PIPE MOUNT*

(1) Identify installation point. Flow through duct at location should be non-turbulent at a rate of 100 to 1000 meters (300 to 3000 feet) per minute. Location should allow for unit to be removed for periodic maintenance.

(2) Mount a pipe flange with a female one inch NPT thread for the male compression fitting on the sensor.

(3) Position the compression fitting just below the sensor shield. Insert the sensor into the flange and screw in the compression fitting. Hand-tighten until the sensor is secure. Hold the electronics housing in the desired orientation and tighten the compression fitting until the sensor is held securely in place.

(4) Gain access to PCB No. 1 by removing one screw holding back cover of housing. Loosen second screw and pivot cover and gasket around this screw. Wire according to guide in next section. Unit will power up upon connection of power.

(5) Check operation by moving switch SW1 on PCB No. 1 to CHECK position. LED should light within two minutes to confirm that unit can operate correctly. If LED does not light see trouble shooting guide. If LED does light return SW1 to OPERATE position. LED will go out as dew condenses on the metal mirror in the sensor.

(6) Replace back cover.

Installation Hints

The sampling system of the unit requires non-turbulent flow between 100 and 1000 meters (300 to 3000 feet) per minute. Avoid plenums, dampers, turns, etc. that create turbulent flow or manifolds with dead flow zones. The unit is shipped with an air sample flow choke positioned for maximum flow through the sensor cavity. If high flow rates through the duct cause excessive signal oscillation, remove the sensor shield and move the slot in the choke above the sensor cavity counterclockwise to reduce flow through the sensor.

Install the unit well downstream of air washers or steam injectors as water carryover can flood and damage the sensor.

Avoid installation points with negative pressure relative to ambient conditions such as a fan inlet as the unit is not pressure tight.

The shield may be removed for flow rates below 1 liter per minute or 5 cubic feet per hour if ambient light is prevented from entering the sample cavity. Consult factory for additional support. A sample system for this application is available.

WIRING GUIDE FOR THE DEW-10

This Guide is for DEW-10 with PCB No.1 having a ten terminal strip for electrical connections, all versions of PCB No.2 and all internal transmitters. The controller circuit, PCB No. l, operates on 18 to 30 VDC at 350 mA maximum. The transformer PCB No.2, converts 24/115/230 VAC to 24 VDC to power PCB No. 1. The standard output for dew point and air temperature as an option on the wall configuration is four-wire PRT. Internal transmitters to provide linear analog signals are available as loop or source powered. All the wiring to the DEW-10 should be 22 AWG.

Power Connections

For 24 VDC to unit connect leads to ten terminal strip (connector P4) on PCB No. 1.

Terminal 8	24 VDC in
Terminal 10	24 VDC return

For 24/115/230 VAC to unit connect leads to two terminal strip on PCB No. 2.

Terminal 1	VAC in
Terminal 2	VAC return
Card Cage Lug	VAC common

Signal connections for DEW POINT

For dew point as four-wire RTD output connect leads to ten terminal strip (connector P4) on PCB No. 1 or to the six terminal connector P3.

P4	**P3**	
Terminal 1	Terminal 5	High
Terminal 2	Terminal 6	High
Terminal 3	Terminal 3	Low
Terminal 4	Terminal 4	Low

For dew point as linear 420 mA signal connect leads to ten terminal strip (connector P4) on PCB No. 1.

Terminal 5	signal out
Terminal 10	signal return

For 1-5 VDC signal make same connections and connect 250 Ohm resistor across load terminals.

Signal connections for AIR TEMPERATURE (on wall mount only)

For air temperature as four-wire RTD output connect leads to six terminal connector P2 on PCB No. 1.

P2	
Terminal 5	High
Terminal 6	High
Terminal 3	Low
Terminal 4	Low

For air temperature as linear 4-20 mA signal connect leads to ten terminal strip (connector P4) on PCB No.1.

Terminal 6	signal out
Terminal 10	signal return

For 1-5 VDC signal make same connections and connect 250 Ohm resistor across load terminals.

Conversion of Internal Transmitter to Loop Power

Internal transmitter configured at factory as source powered unless specified as loop powered at time of order. Cut jumper J1 on edge of PCB No. 1 as identified on attached drawing. Connect leads to ten terminal strip on PCB No. 1.

For dew point connect leads as follows:

Terminal 5	signal return
Terminal 7	20 mA power in

For air temperature connect leads as follows:

Terminal 6	signal return
Terminal 7	20 mA power in

Connection of Internal Transmitters to PCB No. 1

The internal transmitters accept four-wire PRT output and convert it to a linear 4-20 mA signal that spans a preset temperature. The transmitter for dew point may be wired to the ten terminal strip P4 or to the six pin connector P3. The transmitter for air temperature is wired to the six pin connector P2. The leads are color coded.

For dew point connect transmitter leads as follows:

Transmitter Lead Color	PCB No.1 Connection	
Red	P4 Term. 7 P3 Term. 1	Power in
Black	P4 Term. 5 P3 Term. 2	Signal return
Green	P4 Term. 1 P3 Term. 3	High
Yellow	P4 Term. 2 P3 Term. 4	High
Blue	P4 Term. 3 P3 Term. 5	Low
Violet	P4 Term. 4 P3 Term. 6	Low

For air temperature connect transmitter leads as follows:

Transmitter Lead Color	PCB No.1 Connection	
Red	P2 Term. 1	Power in
Black	P2 Term. 2	Signal return
Green	P2 Term. 3	High
Yellow	P2 Term. 4	High
Blue	P2 Term. 5	Low
Violet	P2 Term. 6	Low

Listing of Terminal and Connector Designations

PCB No. 1 Ten Terminal Strip (P4)

Terminal	Designation
1	PRT high for dew point
2	PRT high for dew point
3	PRT low for dew point
4	PRT low for dew point
5	Linear 4 to 20 mA out for dew point
6	Linear 4 to 20 mA out for air temp
7	power in for internal transmitter
8	24VDC power in for PCB No. 1
9	Chassis ground
10	24VDC power out from PCB No. 1

PCB No. 1 Internal Transmitter Connectors (P3 & P2)

Connector P3	Designation
1	PRT high for dew point
2	PRT high for dew point
3	PRT low for dew point
4	PRT low for dew point
5	Linear 4 to 20 mA out for dew point
6	Linear 4 to 20 mA out for air temp.

Connector P2	Designation
1	PRT high for air temperature
2	PRT high for air temperature
3	PRT low for air temperature
4	PRT low for air temperature
5	power to internal transmitter
6	signal output of transmitter

PCB No.2 Incoming AC Power and 24VDC to PCB No. 1

AC Connector	Designation
1	AC power high
2	AC power low

24VDC Leads	Connection to PCB No. 1
red	Terminal 8 24VDC power in
black	Terminal 10 24VDC power return

REQUIREMENT FOR PERIODIC MAINTENANCE

The DEW-10 Transmitter utilizes a chilled mirror sensor to measure dew point - the temperature at which water vapor condenses from the surrounding air. The control of the mirror surface is done automatically by comparing the intensity of a reference light bridge to the primary bridge that reflects light across the surface of the mirror. A thermoelectric heat pump under the mirror reduces its temperature to the dew point. Condensed water vapor scatters light reflected across the mirror reducing the intensity of the primary light bridge. The electronics in the transmitter controls the heat pump to maintain a constant difference in reference to primary light intensity keeping the mirror at the dew point. The temperature of the mirror is continuously measured by a platinum resistance thermometer (PRT) with the measurement available as resistance or optionally as a linear analog signal.

The ability of the DEW-10 Transmitter to control the mirror at the dew point is dependent on the mirror surface condition and the optical balance of the primary and reference light bridges. Contaminants trapped in dew on the mirror may alter the dew point at its surface as well as reduce its reflectance. The optical balance performed at the factory may be altered by a physical change in the mirror surface as well as aging of the optical components. The mirror condition and optical balance must be checked regularly and serviced if required.

Service checks should be performed each month though the period is specific to the installation. A service kit with cotton swabs and cleaning solution to clean the mirror and a screwdriver to adjust the optical balance as well as fuses and O-rings is included with each order. Additional kits and parts as listed in the Recommended Service Parts section may be purchased directly from GE Infrastructure Sensing .

DESCRIPTION OF DEW-10 TRANSMITTER SUBASSEMBLIES

The electronics housing contains the printed circuit board that controls the chilled mirror sensor (PCB No. l) as well as an optional transformer board to convert AC power to 24 VDC (PCB No.2) and internal transmitters to convert resistance outputs of the PRTs to linear analog signals.

PCB No. 1 Subassembly

Wiring to PCB No. 1 is connected to the ten terminal strip on the edge of the board. Next to this strip is a blue component with a brass screw head called the trimpot. In front of the trimpot is a light emitting diode (LED) referred to in the following procedures. At the corner of PCB No. 1 on this edge is a three position slide switch (SW1) to control the operating mode of the Transmitter. The center position is the normal operating mode - OP - with the position closest to the corner of PCB No. 1 as the optics balance mode - BAL - and the position closest to the terminal strip as the mirror check mode - CHK. Moving SW1 to either end position disables the thermoelectric heat pump allowing the mirror to warm to air temperature. See the PCB No. 1 drawing for greater detail.

PCB No.2 Subassembly

The transformer board (PCB No.2) accepts 24/115/230 VAC +/- 10 % and converts it to 24VDC to power PCB No. 1. Consult the wiring guide for specific connections to PCB No.2. The two leads from PCB No.2 must be connected to the ten terminal strip of PCB No. 1 at terminals 8 and 10. The fuse is rated at 250 mA and 250 volts.

Sensor Subassembly

The components of the chilled mirror sensor are in the sensor cavity. The sensor cavity may be accessed in the duct and pipe configurations by sliding the shield away from the electronics housing while access to the cavity in the wall configuration requires that the plastic cover be pulled from the chassis and that the sintered bronze filter be removed. The mirror is a tiny metal reflector on top of the black plastic-coated pyramid mounted at a 45 degree angle.

Drawings of each subassembly follow.

PERIODIC MAINTENANCE PROCEDURES

Unit should be powered to perform maintenance procedures.

PROCEDURE FOR MIRROR SURFACE CONDITION CHECK

(1) Gain access to PCB No. 1

Duct/pipe configuration: Remove one screw from the back cover. Loosen the other screw. Pivot the cover and gasket around the loose screw to expose the edge of PCB No. 1.

Wall configuration: Plastic front cover is mounted to the transmitter chassis by velcro tabs. Pull the cover away from the chassis.

(2) Locate SW1 on PCB No. 1. SW1 is in OP position.

(3) Move SW1 to CHK position. Wait 120 seconds for LED next to SW1 to light.

(4) If LED lights then mirror condition is acceptable. Return SW1 to OP position. Replace cover.

(4a) If LED does not light then perform the mirror cleaning procedure.

PROCEDURE FOR MIRROR SURFACE CLEANING

Cotton swabs and cleaning solution (methanol with distilled water) are in the service kit.

(1) Gain access to PCB No. 1 (See mirror check procedure).

(2) Move SW1 to CHK position.

(3) Gain access to the sensor cavity.

Duct/pipe configuration: Remove sensor from duct or pipe. Pull shield away from electronics housing.

Wall conf~guration: Remove plastic cover by pulling away from velcro tabs on chassis. Remove sintered bronze filter.

(4) Locate mirror surface in the sensor cavity. Soak cotton swab in cleaning solution and wipe across mirror. Dry mirror with second swab.

(5) Return shield or filter to original position.

(6) If LED lights move SW1 to operate OP. Replace cover.

(6a) If LED does not light perform fine optical balance adjustment procedure.

(7) For duct/pipe configuration reinsert sensor in-line and secure transmitter.

PROCEDURE FOR FINE OPTICAL BALANCE ADJUSTMENT

With this procedure the intensity of the primary light bridge is matched to the light intensity of the reference bridge. The mirror should be clear and dry and ambient light must be prevented from entering the sensor cavity during the adjustment.

(1) Gain access to PCB No. 1 (See mirror check procedure).

(2) Move SW1 switch to BAL position. Clean mirror according to mirror cleaning procedure. Replace filter for wall configuration or shield for duct/pipe configuration to block ambient light from sensor cavity.

(3) Turn trimpot clockwise to light the LED and counterclockwise to turn the LED off. Turn the trimpot until LED just lights. If trimpot adjustment does not light LED then perform the Coarse Bias Adjustment that follows.

(4) Move SW1 to the operate position. LED should go out within 40 seconds as dew is condensed on the mirror. If LED does not go out replace PCB No. 1 and perform this procedure again.

COARSE BIAS ADJUSTMENT PROCEDURE

This procedure is to adjust the intensity of the reference light bridge to be within the range of the trimpot that controls the intensity of the primary light bridge. This field procedure makes the sensor compatible the different versions of PCB No. 1 The mirror should be clear and dry and ambient light must be prevented from entering the sensor cavity during the adjustment.

1) Gain access to PCB No. 1 (see mirror check procedure).

2) Identify each wire connection by wire color and terminal number. Disconnect PCB No. 1 and replace with new board. Reconnect wires.

3) Perform the mirror cleaning procedure. To block ambient light replace filter over cavity of wall configuration or shield over cavity of duct/pipe mount.

4) At PCB No. l, move switch SW1 to the BAL position. Power to the thermoelectric heatpump is interrupted allowing the mirror to warm to ambient temperature. Turn the screwhead of the trimpot next to the LED counterclockwise until it gives an audible click as it is turned through the end of its range. If the LED lights then no coarse adjustment is required.

5) Identify the coarse bias adjustment screw above sensor cavity. The screw is aluminum and requires a 1/16 inch Allen wrench to be adjusted. Block light from entering the sensor cavity and turn screw clockwise and counterclockwise until LED on PCB No. 1 just lights. Then turn screw so that LED is just extinguished.

6) Perform fine optical adjustment procedure.

DIAGNOSTIC PROCEDURES FOR DEW-10 TRANSMITTER SUBASSEMBLIES

For these procedures the DEW-10 is powered and SW1 is in the operate position. A volt/Ohm/Ammeter is required.

Diagnostics for PCB No.1

DC Power Supply: Check the voltage across terminals 8 and 10 of the ten terminal strip on PCB No.1 for 24 +/- 6 VDC. This voltage powers PCB No.1 and sensor.

If voltage is out of range check power supply and capture of power leads in terminal strip. Replace PCB No.1.

Primary Optics Voltage: Check voltage across pin 5 of LM324 (Z1) and power loop return (terminal 10 of terminal strip) for 2.3 to 2.7 VDC. Move SW1 to BAL position and wait 120 seconds. Voltage should be 3.1 VDC maximum.

If voltage with SW1 in OP position is out of range return unit to factory for service or replace sensor. If voltage with SW1 in BAL position is out of range adjust trim pot so that voltage falls within range. If voltage is in range but LED does not light then return unit to factory for service or replace PCB No.1.

Diagnostics for PCB No 2

Power Loop: Check voltage input across terminals 1 and 2 of two terminal strip for appropriate input voltage. Check output leads for 24 VDC.

If voltage in or out is out of range then check power supply or connection of leads to terminal strip. Also check fuse. Replace fuse if open. Replace board if fuse is good.

Diagnostics for Sensor

Four-Wire PRT Dew Point Output: Disconnect the optional temperature transmitter at PCB No.1 connector P3 or if connected to ten terminal strip record terminal connections and remove from strip. Check continuity across terminals 2 and 3 of terminal strip. Measure resistance across these terminals. DIN Standard 43760 PRT provides resistance of 100 Ohms at 0 C with a change of 0.385 Ohms per 1 degree C. As examples, the PRT would have a resistance of 103.85 Ohms at 10 degrees Celsius and 96.15 Ohms at -10 degrees Celsius.

If PRT shows discontinuity or resistance output is inconsistent with ambient temperature return sensor to factory for service.

Diagnostics for Internal Transmitter

This check compares the 4-Wire PRT resistance to the internal transmitter output at the dew point and air temperature. The measurements for air temperature may be checked against an air temperature thermometer.
Record the analog signal with SW1 in the operate position. Move SW1 to the mirror check position and record the signal when the LED lights. See 4-wire PRT output diagnostic to disconnect the internal transmitter. Record the resistance output of the PRT across terminals 2 and 3. Move SW1 to operate position and record the resistance output forty seconds after the LED goes out. Convert resistances to temperatures. The calculated temperatures for dew point and ambient temperatures from the PRT should match within +/-0.5øC (+/-1.0 F) to the temperatures from the internal transmitter signal.

Ouick Calibration Check

Move switch SW1 on PCB No.1 to CHK position. Power to the thermoelectric heatpump is interrupted. The mirror warms to ambient temperature in 120 seconds. Compare the dew point output to a reliable air temperature probe. The two temperatures should agree within 1.0 C (2.0 F).

Trouble Shooting Guide

To check for symptoms attach ammeter for linear 4 to 20 mA signal at terminals 5 and 10 of ten terminal strip on PCB No.1 with unit under power. If 4Äwire PRT output is taken from the unit then check the resistance across terminals 2 and 3 of the ten terminal strip.

	Symptom	Response
(1)	Zero Analog Output	Check power to PCB No 2
	Zero PRT Output	Check power to PCB No 1 Check 4Äwire PRT for continuity If all check out then internal transmitter requires factory service.
(2)	Oscillating Output	Perform mirror cleaning Adjust optical balance For duct/pipe unit confirm that air flow past sensor is non-turbulent and is above 100 meter (300 feet) per minute. If all check out then contact factory for service.
(3)	4 mA Output only Low PRT Output	Clean mirror Adjust optical balance Confirm that air flow past sensor is non-turbulent and is above 100 meter (300 feet) per minute. Put sensor back into service and observe LED. If LED remains on then dew point is out of sensor range. If minimum output persists return to factory for service.

(4)	20 mA Output only infinite PRT Output	Check 4-wire PRT for continuity
(5)	Output tracks ambient temperature	Check SW1 and move to OP position Check power to PCB No.2 Check power to PCB No.1 Check 4-wire PRT for continuity If all check out then internal transmitter requires factory service.

For other symptoms contact your local sales rep or an applications engineer at GE Infrastructure Sensing at 1-800-225-3208.

IDENTIFICATION OF SUBASSEMBLIES AND PARTS

Common parts to DEW-10 Transmitter

GEI P/N	DESCRIPTION
C40095333	PCB No.1 with ten terminal strip
C40057564	Wall Mount Transformer Board (PCB #2) 24 VAC
C40057556	Wall Mount Transformer Board (PCB #2) 115 VAC
P40101081	Wall Mount Transformer Board (PCB #2) 230 VAC
C40003444	Duct Mount Transformer Board (PCB #2) 24 VAC
C40003089	Duct Mount Transformer Board (PCB #2) 115 VAC
P40101099	Duct Mount Transformer Board (PCB #2) 230 VAC
P40101172	Transmitter, 4-20mA (1Ä5 VDC), 0 to 100°F
P40101214	Transmitter, 4-20mA (1Ä5 VDC), 0 to 50°C
P40101198	Transmitter, 4-20mA (1Ä5 VDC), -40 to 140°F
P40101230	Transmitter, 4-20mA (1Ä5 VDC), user selected range
P70000454	Wall Mount Sensor Assembly
P70001055	Wall Mount Sensor Assembly with Air Temp.
P70000445	Duct/Pipe Mount Sensor Assembly
B40055386	Sensor Maintenance Kit for Wall Mount
P40055592	Six sintered bronze replacement filters
B40050403	Sensor Maintenance Kit for Duct/Pipe Mount
P40055543	Six sintered bronze replacement filters
A40096273	DEW-10 Manual

INSTRUMENT PRODUCTS WARRANTY POLICY

GE Infrastructure Sensing warrants equipment of its manufacture against defective materials or workmanship for a period of one year from date of shipment.

Liability of the Seller under this warranty is limited, at Seller's option, to:

- Repair or replacement of defective parts at no charge.
- Credit adjustment, not to exceed original equipment sales price.

This warranty is subject to the following conditions:

- Prompt notification to Seller upon discovery of defects or missing items.
- Obtaining return authorization number from Seller to return defective items to plant as directed.
- Return of equipment, freight charges pre-paid, or as otherwise agreed.

Defects caused by negligence, misuse, improper installation, accident or unauthorized repair or alternation by buyer or user, or any modification, such as changing range resistors, may void this warranty.

This warranty does not include mechanical parts failing from normal usage nor does it cover limited life electrical components which deteriorate with age.

This warranty is in lieu of all other warranties, expressed or implied, including the implied warranty of fitness for a particular purpose to the original purchaser or to any other person. Seller shall not be liable for consequential damages of any kind.

Damage shipments: In case of shipping damage, it is the Buyer's responsibility to file a claim. The customer should inspect the shipping container upon receiving and note any evidence of damage of the freight receipt. If concealed damage is found after opening the container, the customer should file a claim with the carrier at once. The customer must retain the shipping container and all materials.

Repaired equipment: All repairs are warranted for **1 year**. Only the repairs and components replaced as part of these repairs are covered by this warranty. Other repairs or defective parts are covered by the original warranty if applicable.

PRODUCT RETURN PROCEDURE

All GE Infrastructure Sensing are fully tested and calibrated prior to shipment. Should a problem with the operation of the equipment arise, the following procedure must be followed:

1. Contact the factory* to discuss the problem. Sometimes a problem can be resolved by a change in operating procedure or an adjustment to the equipment.

2. If the equipment must be returned to the factory, a Return Authorization number must be obtained from GE Infrastructure Sensing and referenced on the return shipping papers. A written description of the problem should also be included.

3. If equipment is not covered by GE Infrastructure Sensing's Warranty Policy, a purchase order should be submitted with the equipment returned. The order should cover one of the following:

    a. Open order, authorizing repair of equipment to meet published specs. Repair costs will be billed on actual cost basis, but will not exceed 50% of replacement cost without prior customer approval.

    b. Order for not to exceed $500.00 or 30% of replacement cost, whichever is higher. If repair costs exceed this amount, customer will be quoted cost before work is done.

    c. Order to cover cost of test and evaluation only. Amount based on type of equipment returned. GE Infrastructure Sensing will evaluate but not repair the unit. GE Infrastructure Sensing will call customer to discuss evaluation and quote cost of repair or replacement.

    To expedite repairs and reduce costs, options a) and b) are recommended.

4. After receiving a Return Authorization number, the equipment must be returned freight PREPAID.

5. GE Infrastructure Sensing reserves the right to apply a minimum service charge in cases where an instrument is returned for repairs or recalibration but does not require service.

Return of equipment without a Return Authorization number and Purchase Order would significantly delay turn-around time and incur additional costs. To expedite repairs and reduce costs, all stipulations above should be followed.

NOTE: GE Infrastructure Sensing guarantees N.I.S.T. traceability and operation within stated specifications. However, claims regarding accuracy or traceability will be covered under warranty only when verified at GE Infrastructure Sensing, or by a fully independent testing

laboratory. Examples of independent labs are: N.I.S.T. (U.S.), N.P.L. (U.K.), SIRA Institute (U.K.), and C.E.T.I.A.T. (France). For a list of other independent labs, contact GE Infrastructure Sensing*.

* For countries other than the U.S., the local agent may also be contacted.