

Temp/Humidity Transducer

FOR ADDITIONAL INFORMATION
 SEE HU-226 DATA SHEET

SPECIFICATIONS

Humidity Transducer

Accuracy*: $\pm 2\%$ / $\pm 3\%$ RH

Range: 0-100% RH

Hysteresis: $\pm 1\%$

Supply Voltage: 12-40 VDC
 12-35 VAC (VDC output units only)

Compensated Temp Range: -30°F-130°F
 (-35°C-55°C)

Load Impedance: 3000 ohms max. at 40 VDC (mA output unit)
 1000 ohms min. at 40 VDC (VDC output unit)

Temperature Sensor

Interchangeability: $\pm 0.2^\circ\text{C}$

Heat Dissipation: 3.0 mW/°C

Operating Temp: -30°F to 130°F (-35°C to 55°C)

Conformance: EMC Standards EN50082-1 (1992)
 EN55014 (1993)/EN60730-1 (1992)

Platinum RTD Sensor

Accuracy: 0.12% at 0°C

Resistance: 100 or 1000 ohm at 0°C

Standard: Din 43760

Operating Temp. Range: -30°F to 130°F (-35°C to 55°C)

Heat Dissipation: 3.0 mW/°C

Technology: Thin film deposition laser trimmed (LPVD)

Conformance: EMC Standards EN50082-1 (1992)
 EN55014 (1993)/EN60730-1 (1992)

General Specifications

Environmental: 10-90% RH Non-Condensing

Enclosure: 18 Ga C.R. Steel NEMA 4 (IP-65)

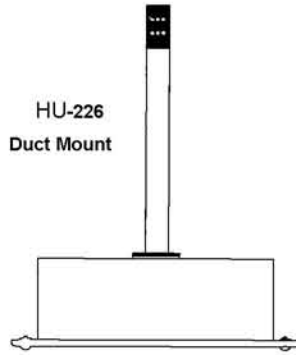
Finish: Baked on enamel -PMS2GR88B

Termination: Unpluggable screw terminal block

Wire Size: 12 Ga maximum

Weight: Duct mount 1.0 lbs. (.45 kg)

*Includes non-linearity and non-repeatability



Mounting

The HU-226 must be mounted as referenced by figure 5.

1. Drill 5/8" hole in appropriate location.
2. Mount transducer on a vertical surface with two #8 self-tapping screws (not provided).
3. Pull wires through knockout and make necessary connections (see wiring drawings).
4. Replace cover tighten phillips screws.

Wiring

Use maximum 12 AWG wire for wiring terminals. Refer to Figures 1, 2, 3, & 4 for wiring information

Wiring HU-226 Units with mA Output

HU-226 Temp/Humidity Transducers are 4-20 mA output units powered with a 12-40 VDC supply. The following describes the proper wiring of the Temp/Humidity Transducers with mA output:

1. Remove the blue terminal block by carefully pulling it off the circuit board.
2. Locate the [+] and [-] terminal markings on the board.
3. Attach the supply voltage to the [+] lead.
4. Connect the 4-20 mA output ([-] terminal) to the controller's input terminal
5. Ensure that the power supply common is attached to the common bus of the controller.
6. Re-insert the terminal block to the circuit board and apply power to the unit.
7. Check for the appropriate output signal using a DVM set on DC milliamps connected in series with the [-] terminal.

Wiring HU-226 Units with VDC Output

HU-226 Temp/Humidity Transducers with VDC output are field selectable 0-5 VDC or 0-10 VDC output and can be powered with either 12-40 VDC or 12-35 VAC. The following describes the proper wiring of the Temp/Humidity Transducers with VDC output:

1. Remove the blue terminal block by carefully pulling it off the circuit board.
2. Locate the (+), (-), and (0) terminal markings on the board.
3. Attach the power wires to the (+) and (-) terminals. The (-) terminal is also the negative output terminal.
4. Connect the (0) terminal, which is the positive VDC output terminal, to the controller's input.
5. Re-insert the terminal block to the circuit board and apply power to the unit.
6. Check the appropriate VDC output using a voltmeter set on DC volts across the (0) and (-) terminals.

Caution: If you are using grounded AC, the hot wire must be on the (+) terminal. Also, if you are using a controller without built-in isolation, use an isolation transformer to supply the HU-226 transducer.

Caution: This product contains a half-wave rectifier power supply and must not be powered off transformers used to power other devices utilizing non-isolated full-wave rectifier power supplies.

Caution: When multiple HU-226 units are powered from the same transformer, damage will result unless all 24G power leads are connected to the same power lead on all devices. It is mandatory that correct phasing be maintained when powering more than one device from a single transformer.

INSTALLATION

Inspection

Inspect the package for damage. If damaged, notify the appropriate carrier immediately. If undamaged, open the package and inspect the device for obvious damage. Return damaged products.

Requirements

- Tools (not provided)
 - Digital Volt-ohm Meter (DVM)
 - Appropriate screwdriver for mounting screws
 - Appropriate drill and drill bit for mounting screws
- Appropriate accessories
- Two #8 self-tapping mounting screws (not provided)
- Training: Installer must be a qualified, experienced technician

Warning:

- Disconnect power supply before installation to prevent electrical shock and equipment damage.
- Make all connections in accordance with the job wiring diagram, and in accordance with national and local electrical codes. Use copper conductors only.

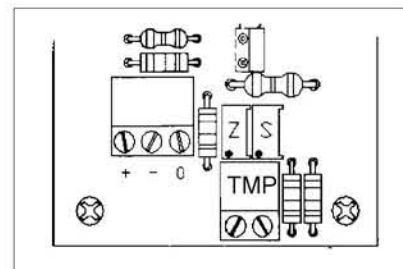
Caution:

- Use electrostatic discharge precautions (e.g., use of wrist straps) during installation and wiring to prevent equipment damage.
- Avoid locations where severe shock or vibration, excessive moisture or corrosive fumes are present. NEMA Type 4 housings are intended for outdoor use primarily to provide a degree of protection against wind-blown dust, rain, and hose-directed water.
- Do not exceed ratings of the device.



The following diagram indicates mA output for the HU-226.

VDC output



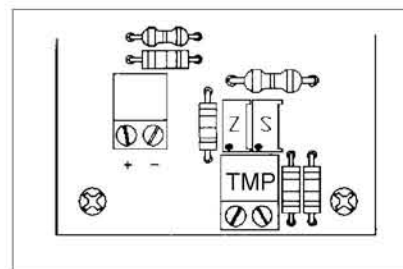
LEGEND:

S= SPAN ADJUST
 Z= ZERO ADJUST
 += + SUPPLY VOLTAGE
 -= COMMON
 0= OUTPUT

OUTPUT= 0-5/0-10 VDC
 RANGE= 0-100% RH
 SUPPLY Voltage= 12-40 VDC
 12-35 VAC (VDC output units only)
 TMP=TEMPERATURE SENSOR

The following diagram indicates mA output for the HU-226.

mA output



LEGEND:

S= SPAN ADJUST
 Z= ZERO ADJUST
 += SUPPLY VOLTAGE 12-40VDC

TMP=TEMPERATURE SENSOR
 RANGE= 0-100% RH
 -= Output 4-20mA

TYPICAL APPLICATIONS (wiring diagrams)

Figure-1 and Figure-2
Illustrate typical wiring diagrams for the HU-226,
4-20 mA,two-wire Temp/Humidity Transducers.

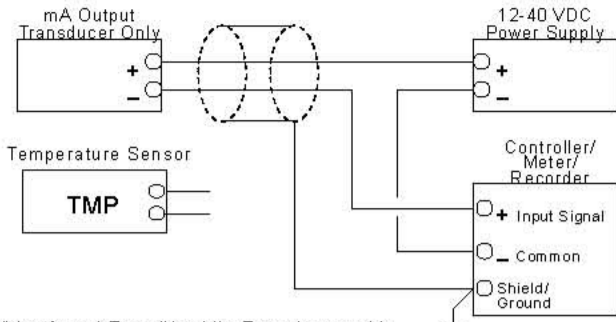


Figure-1 Wiring for mA Temp/Humidity Transducers with external DC power supply

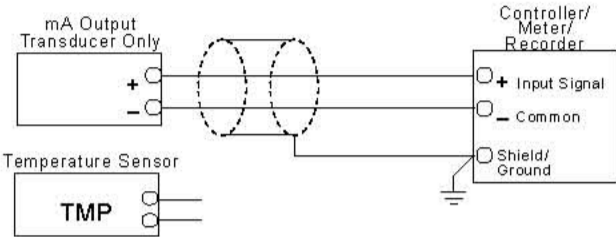


Figure-2 Wiring for mA Temp/Humidity Transducers where controller or meter has internal DC power supply

Figure-3 and Figure-4
Illustrate typical wiring diagrams for the HU-226,
0-5/0-10VDC output Temp/Humidity Transducers.

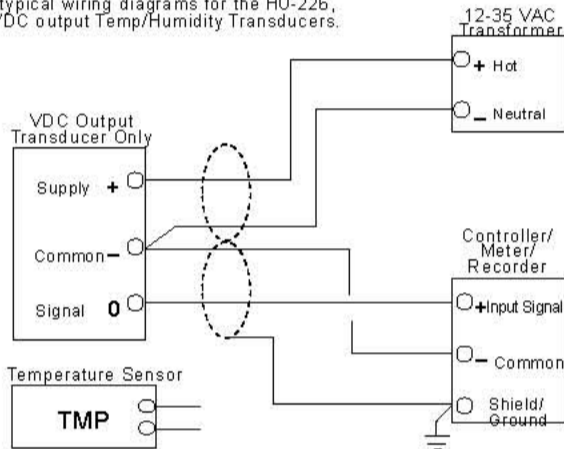


Figure-3 Wiring for VDC Temp/Humidity Transducers when applied with external AC supply

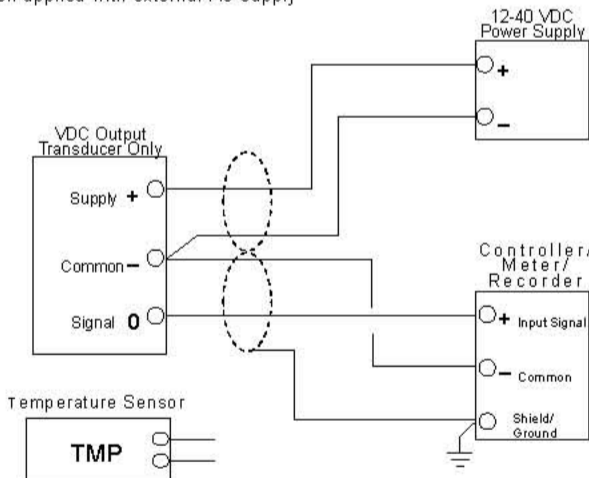


Figure-4 Wiring for VDC Temp/Humidity Transducers when applied with external DC supply

CHECKOUT

1. Verify that the unit is mounted in the correct position.
2. Verify appropriate input signal and supply voltage.

Caution: Never connect 120 VAC to these transducers. Never connect AC voltage to a unit intended for DC supply.

3. Verify appropriate configuration range.

Transducer Operation

Note: The HU-226 is a highly accurate device. For applications requiring a high degree of accuracy, the use of laboratory quality meters and gauges are recommended.

MAINTENANCE

Regular maintenance of the total system is recommended to assure sustained optimum performance.

FIELD REPAIR

None. Replace with a functional unit.

WARRANTY

See data sheet for additional information.

CALIBRATION

All units are factory calibrated to meet or exceed published specifications. If field adjustment is necessary, follow the instructions below.

Calibration of HU-226-2, 3-mA/VDC Temp/Humidity Transducer

Field Calibration instructions are provided with the following precautions and advice.

1. Do not verify comparative RH with a sling Psychrometer. There are far too many variables which induce errors into this process. New HU-226 RH transducers are already supplied with calibration.
2. Recalibration must be done in a controlled environment. Relative humidity must be held stable while making any adjustment.
3. Verify the output from the device directly with calibrated instrumentation and verify the RH with calibrated instrumentation, (NOT A CONTROLLER OUTPUT). With the correct power applied and only a meter connected to the output of the transducer, ensure that the output is proportional to the true RH.
4. A. SINGLE POINT CALIBRATION, NOTE; SELECT EITHER OPTION 1 OR OPTION 2, BUT NOT BOTH.
 - OPTION 1. Select a controlled humidity environment between 10 & 40% R.H. insure humidity is stable and adjust zero trimmer (z).
 - OPTION 2. Select a controlled humidity environment between 40 & 70% R.H. insure humidity is stable and adjust span trimmer (s).
- B. TWO POINT CALIBRATION
 1. Select a controlled humidity environment between 10 & 40% R.H. insure humidity is stable and adjust zero trimmer (z). Then select a controlled humidity environment between 70 & 75% R.H. insure humidity stable and then adjust span trimmer (s).

DIMENSIONAL DATA

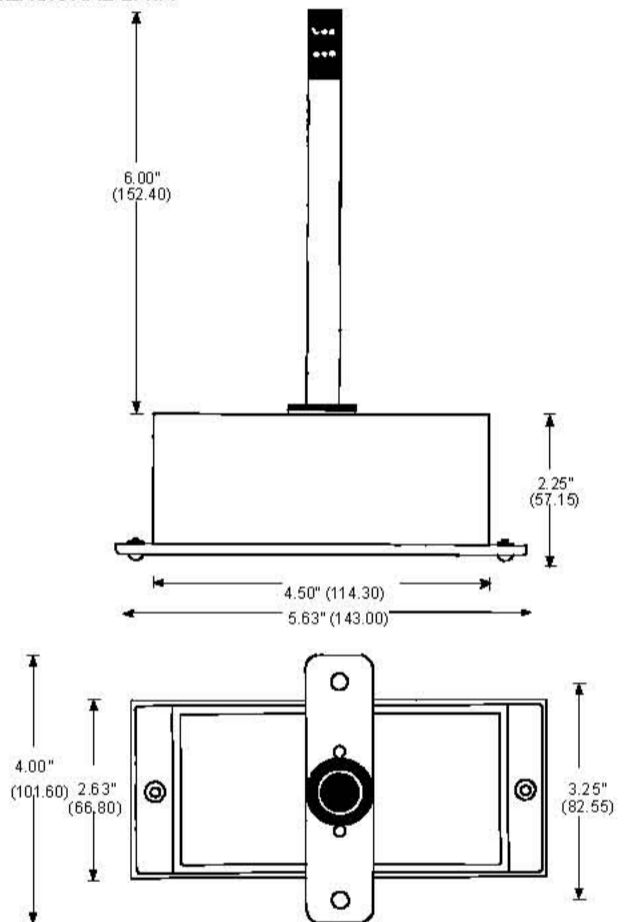


Figure-5 HU-226 Temp/Humidity Transducer Dimensions shown in inches and millimeters (mm).