

- Wall mount/Indoor 4-20 mA transmitter for temperature and relative humidity with digitally calibrated sensors for accuracy and stability.
- Can be used as temperature only or RH only 4-20 mA transmitter.
- Two part enclosure, mounts onto a standard single-gang wiring conduit box or can be surface mounted. It is a compact, thin and stylish design: 4.2" W x 4.7" H x 1.2" D
- RH Accuracy at 25 C: 2% typical / 3% maximum; Please see graphs under Specifications section for more details.
- Microprocessor controlled 4-20 mA transmitter has 4 uA or 0.025% resolution and is digitally calibrated for accuracy.
- Output goes to 22.5 mA if a sensor fault is detected.



## DESCRIPTION

The Model 1232 is an indoor 4-20 mA temperature/humidity transmitter. It is a microprocessor-controlled device that is digitally calibrated. The temperature and humidity sensors are integrated and individually calibrated for accuracy. The temperature reading is used to compensate the RH reading for temperature effects. This correction occurs whether or not the temperature loop is used. This is essential to maintain accuracy of RH reading.

Electrically, it has a three-wire interface. One is for the positive supply input, usually +24 VDC. The second is for a temperature output. The third is for a humidity

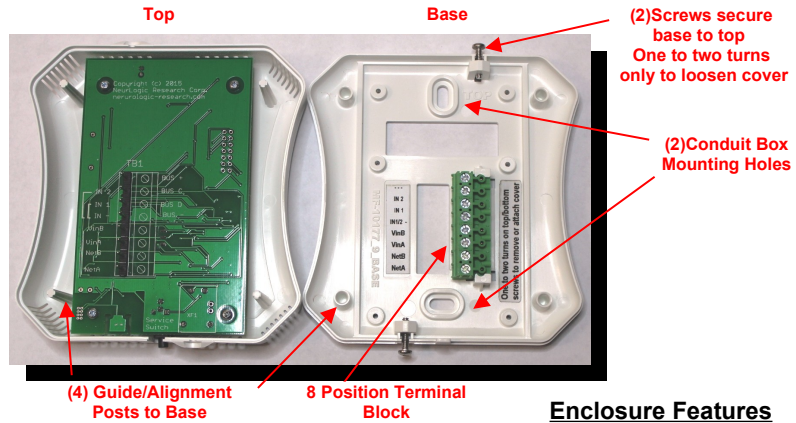
output. The unit can be powered using either loop or both loops. This allows usage as temperature only, humidity only, or temperature and humidity.

The on-board processor monitors for fault conditions. A fault detected with the temperature or humidity reading will cause that output to be driven to about 22.4 mA to indicate an error condition. Wiring is accomplished via on-board terminal block. The RH current output is scaled for 0 to 100% relative humidity. The temperature current output is scaled for -50 to 100 degrees C. Please contact the factory for custom ranges.

## WIRING AND INSTALLATION

The Model 1232 is supplied in a two part enclosure with features as shown in the diagram to the right. The base is typically mounted on a single gang conduit box or can also be wall mounted directly using standard surface adapters that are widely available. A single eight-position terminal block is captive in the base and is used to attach all wiring connections.

The top is then plugged into the base and the top and bottom screws secure the base to the top. The screws



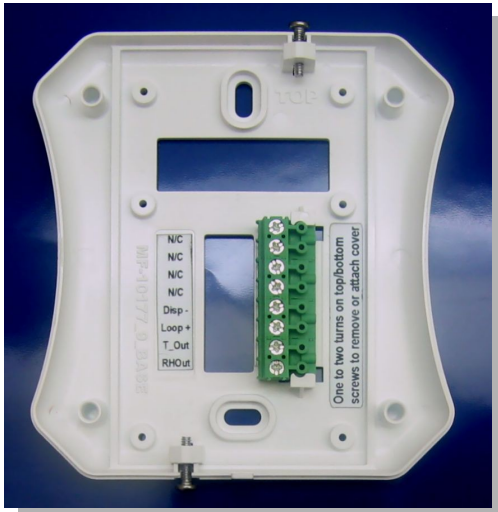
**Enclosure Features**

The electrical interface consists of three wires. Please see the wiring diagram below. The loop circuitry is internally fused, transient and reverse voltage protected. The internal fuse does not need to be replaced.

**NOTE** The unit will operate correctly with one or two loops connected. Can be used as a temperature only or humidity only transmitter if a single loop is connected.


The loop compliance voltage is 9 volts. The maximum current sense resistor depends on the power supply used. The maximum loop sense resistor can be calculated as:  $R_{max} = \text{Supply} - 9 / 0.0224$ . For a 24 VDC supply it is 670 Ohms. This is calculated using a maximum current of 22.4 mA, which indicates a fault condition. Using 20 mA,  $R_{max}$  is actually more like 750 Ohms.

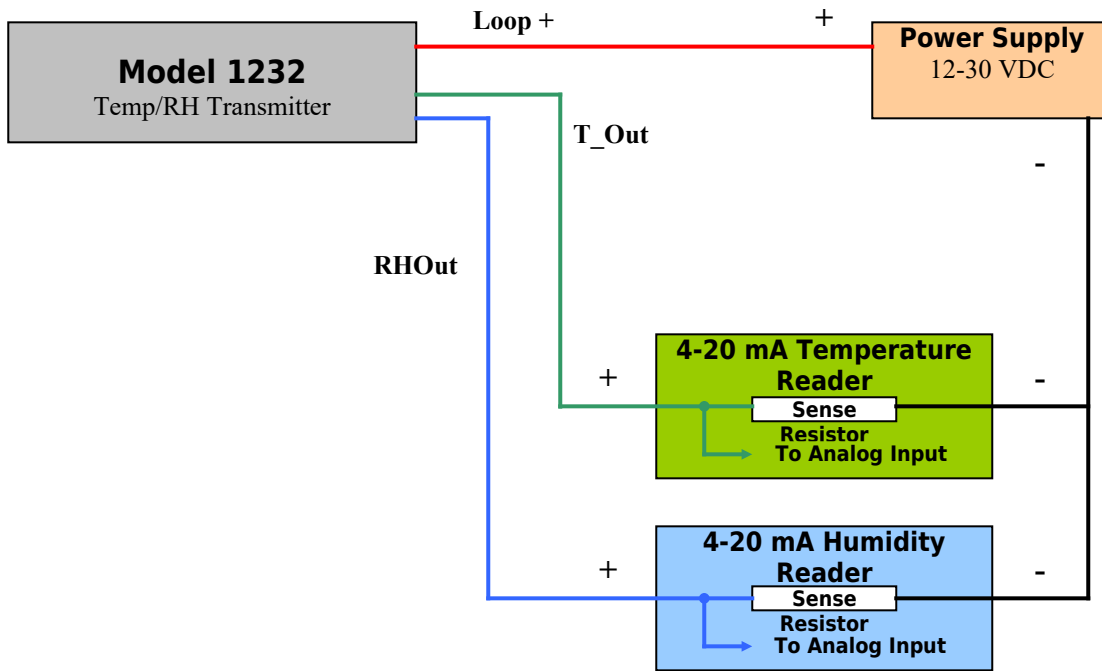
Terminal Label	Description
Loop +	Positive loop supply for both temperature and humidity loops.
T Out	Temperature loop output.
RHOut	Humidity loop output



only need to be turned one or two turns to secure or to loosen the top from the base. **You do not need to remove the screws. They are intended to stay attached to base.** To detach the base you need only turn the top and bottom screw a couple of turns counter-clockwise and pull apart.

**NOTE** Once the base is mounted and wired, the top portion of the unit has four alignment posts that are guided into the sockets at the corner of the base. Once the top is plugged into the base, simply turn the top and bottom screw a couple of turns clockwise

**NOTE**  Mounting orientation could affect accuracy. Please mount as shown above.



The current output is scaled as follows for each loop

Output	Temperature	Humidity	Description
4 mA	-50 C	0%	4 mA represents the minimum value
20 mA	100 C	100%	20 mA represents the maximum value
22.4 mA	Fault	Fault	22.4 mA represent a fault condition that has been detected by the on-board processor.

## SPECIFICATIONS

### Temperature

Sensing Element	Solid state
Standard Accuracy	
Temperature Range	-40 to 85C
Resolution	0.06 C

### Relative Humidity

Standard Accuracy at 25C	
Resolution	0.05%
Maintenance	No routine maintenance required Bronze filter is removable for cleaning Sensor Module is field replaceable.
Sensor Stability	<0.5% RH typical per year (See notes 1 &2)
Notes	<ul style="list-style-type: none"> <li>• Sensor drift and inaccuracies maybe higher if sensor is exposed to high contents of volatile organic compounds.</li> <li>• Long term exposure to &gt;80% RH may temporarily offset RH by up to 3% after 60 hours. This recoverable after return to lower RH levels.</li> </ul>

## Electronics

Operating Environment	-40 to 85 C 0-95% RH non-condensing Clean indoor air environment
Input Power	12 to 30 VDC at 22.4 mA maximum
Input Protection	Input power is fused; outputs are reverse voltage protected and transient protected. (Fuses do not need to be replaced)
Current output resolution	4 uA or 0.025%

## Dimension and Materials

Electronics Compartment	4.2" W x 4.7" H x 1.2" D
Housing Material	ABS Plastic

## ORDERING INFORMATION

1232-WH	Model 1232, basic unit with white ABS Housing (-50 to 100 C temperature output range)
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\*\*Contact factory for custom ranges

