OPERATING MANUAL

PATHFINDER INSTRUMENTS

Model EMIT-ORP

I. General Description

The **Model EMIT-ORP** (encapsulated miniature isolated transmitter) is a 2-wire, 4-20 mA pH transmitter featuring input to output isolation, high performance and small size.

The transmitter accepts as its input any ORP electrode via a BNC coaxial connector. It transforms the probe signal to a 4 to 20mA current proportional to the millivolt level. This output may be transmitted over two wires to a control location, the same 2 wires provide power to the transmitter. Any D.C. power supply from 12 to 36V may be used. There are two adjustments on the transmitter to standardize probes for "SPAN" and "ZERO". The output can be monitored with a loop powered meter, a loop resistor or a multimeter during the standardization procedure.

EMIT-ORP Specifications

Input:	-1000 to +1000mV
Output:	4-20mA
Power Supply:	12 to 36VDC
Load Resistor:	0 to 750Ω at 24VDC
Linearity:	± 2mV
Input to Output Isolation:	1000V RMS
Operating Temperature Range:	-25 to +70ºC
Reverse Polarity Protection:	Internal diode
Dimensions:	2" × 2" × 1.5"

II. Installation

1. Two mounting holes are provided. The transmitter can be mounted in a head, weather-proof box, or DIN rail.

2. The input probe connector is a BNC jack. Use only a coaxial cable that has insulation around the shield. The shield is isolated from ground, and this isolation should be maintained for proper operation. For best results, the probe cable should not be longer than 25 feet. Long cables result in a slow response because the probe must charge the cable capacitance through the high probe source resistance.

3. The output wires are isolated from ground; connections are made to the terminal strip observing polarity to the terminals marked +, - out. These wires are to be connected to a D.C. power supply through a load resistor. The wires can be as long as necessary. Connect the ground terminal to earth ground.

5. The loop resistor can be either in the positive or negative power supply lead. The value of the loop resistor depends on the voltage required at the monitoring location. Calculate the required power supply voltage from the following equation: Minimum power supply voltage = 12 + (.02 × R_L). A convenient value for the loop resistor might be 250 ohms, V_O = 1V to 5V. Minimum supply voltage = 12 + (.02 × 250) = 17V. The maximum supply voltage is 36V.

6. To calibrate the transmitter place use a millivolt source of known accuracy. Apply -1000mV to the input connector and adjust the "ZERO" pot for 4.00mA, reverse the input connections and apply +1000mV to the input, adjust the "SPAN" pot for 20.00mA. Repeat the process until the ZERO and SPAN end points are set (these is some interaction between the adjustments).