

PH Monitor/Recorder  
4605

Instruction Manual



2. Check for faulty electrode
- a. If a faulty electrode is suspected replace with a new one and recheck pH function.

Symptoms

Unable to standardize unit.

Action

1. Check Temp. Knob to verify correct setting.
2. Open a new bottle of standard buffer and recheck standardization.
3. Check electrode for physical defects.
4. Clean electrode to eliminate clogged reference junction.
  - a. Immerse the tip of the electrode in boot solution for 5 minutes.
  - b. Rinse the electrode.
  - c. Soak in pH 4 buffer for 10-15 minutes.
  - d. Recheck calibration

Symptom

PH readings are unstable, slow or drift.

Action

1. Check the sample
  - a. A changing sample temp. Allow sufficient time for a sample temp. to stabilize.
  - b. A non-uniform sample.
  - c. A sample with very low or very high ionic strength
2. Check the electrode for physical defects.
3. Clean the electrode.
4. Check the Unit.

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## 1.0 Introduction

This pH monitor recorder is designed for monitoring pH on a long-term basis. It is useful for providing a hard copy off the pH profile of treatment plant flow.

## 2.0 Specifications

Read-out Strip chart  
Chart Speed 1 inch/hr.

### pH measurement:

Range	0-14 pH units
Accuracy	0.2 pH unit
Temp. Comp.	Manual 0-100C
Input Resistance	>10M Ohms
Connector	BNC
Recorder Input	0-1mA
Power	115vac; 230vac
Size	7.5"H x 3.5"W x 5" D
Weight	8 lbs.

## 3.0 Preliminary Set-Up

3.1 Remove and inspect the carton for the following items:

- Recorder
- Manual
- Warranty card

 3.2 Instrument should be used away from vibration. Close proximity to high voltage wires and transformers should be avoided.

3.3 Plug the power cord into the appropriate electrical outlet.

3.4 Attach the pH electrode to the BNC connector on the back.

3.5 To decrease breakage, the electrode should then be placed into an electrode stand. This electrode stand can then be raised or lowered for sample measuring.

3.6 The instrument can now be calibrated and used. Turn the front switch ON for use.

## 4.0 Standard pH calibration

4.1 Three buffers are normally used to calibrate pH meters. A pH 7 buffer is used to **SET** the meter. Then a pH 4 or 10 is used along with the **SLOPE** knob. Use the buffer, which is closest to the pH range you will be measuring. If your use will span the entire pH range, the instrument would be calibrated with two buffers and checked with the third buffer.

4.2 Turn instrument on. LED should turn on. If not see trouble shooting section 7.0.

4.3 Set TEMP control to 25°C or sample temperature. pH electrodes and measurements are temperature sensitive. To ensure accuracy, the sample temperature must be compensated for.

4.4 Place pH electrode in pH 7 buffer. Sufficient buffer should be used to immerse the electrode tip. Freshly poured buffers should be used for each calibration.

4.5 Use the SET knob to adjust the strip chart striker for a pH reading of 7.

 4.6 Rinse the electrode with distilled water, shake dry and/or carefully blot using lint free paper. **WARNING: DO NOT** wipe the electrode; it causes static electricity charges, which can result in faulty readings.

4.7 Immerse the electrode in a second standard buffer, either pH 4.00 or pH 10.00. Which ever is closer to measurements to be taken. (If sample will be reading below pH 7, use pH 4 buffer. If your sample will read higher than pH 7, use pH 10 buffer.) Allow time for the electrode to reach equilibrium.

4.8 Use the **SLOPE** knob to adjust the strip chart striker to read exactly 4.0 or 10.0 depending on the second buffer used. If unable to get value, refer to trouble shooting guide 6.0

4.9 If monitor is not going to be used for a wide span skip to step 4.12.

4.10 Rinse the electrode with distilled water, shake dry and/or carefully blot using lint free paper.

4.11 Immerse the probe in the third buffer. The third buffer should read within 0.2 pH units of the expected value. If it does not, refer to trouble shooting section 7.0

4.12 Rinse the electrode with distilled water, shake dry and/or carefully blot using lint free paper. The unit is now calibrated and ready for monitoring. Be certain that the **TEMP** Control knob is set to correspond with the sample temperature,

 Caution: The calibration of the pH is not permanent and needs to be checked before each use. It should be done on regular basis, or any time the pH reading response becomes slow and/or erratic.

 Caution: Do not pour used buffers back in the bottle. This will contaminate the buffer and give inaccurate results.

## 5.0 Recorder operation

5.1 The chart paper is divided into 14 heavy lines across the width. Each line represents 1 pH unit. Each pH division is divided into 5 smaller lines corresponding to 0.2 pH units. By calibrating the pH 7.00 buffer to the central line the chart will span pH 0-14.

5.2 A Rustrak instruction manual is included with the 4605. Instruction on changing paper can be found there.

## 6.0 Troubleshooting

### Symptoms

Unit exhibits no response when measuring pH

### Action

- Check power to meter
  - Unit not plugged in
  - Unit not turned to ON.
  - Probe not properly connected
  - Check connection between Rustrak & Unit