



Series 7000 I&I Spy Inflow Monitor Engineering SPECIFICATIONS Spec: 7000.01.06

1.0 SCOPE

These specifications describe a model 7000 and 7500 system microprocessor based, ultrasonic inflow and infiltration monitoring system as manufactured by Enchlor, Inc.

2.0 DESCRIPTION

The Series 7000 I&I Spy monitor shall provide continuous, non-contact measurement of open-channel flow height through any flow channel designed for gravity flow. The monitor shall be designed to be mounted in a sewer manhole by means of a tension rod mounting bar that provides easy installation and removal of the system. No permanent mounting or mounting in the flow channel will be required. The Series 7000 shall include a single monitor, mounting bar and software package. The Series 7500 system shall include a set of five(5) monitors, five(5) mounting bars and software package.

2.1 MONITOR UNIT

- a. The 7000 Inflow Monitor shall be a battery powered microprocessor based ultrasonic level monitor that continuously measures the height of the flow. The monitor shall be powered by six(6) 'AA' batteries to provide a minimum of four(4) weeks operation time. The batteries shall be easily replaceable through two battery tubes and shall not require any disassembly of the monitor unit.
- b. The monitor shall be mounted fifteen(15) inches above the bottom of the flow channel. The projected ultrasonic beam shall be no greater than 5 $\frac{1}{2}$ conical and suitable for use in a stilling well. The monitor will measure the height of the flow over a range of 0.00" – 8.00". The height measurement shall be accurate to within 0.10". The monitor shall take measurements every five(5) minutes. All measurements will be logged into the non-volatile memory. The monitor shall be able to log flow height data for a minimum period of four(4) weeks.
- c. Calibration monitor shall be factory set. The monitor shall be factory set to be installed fifteen(15) inches above the bottom of the flow channel. The monitor system shall be supplied with a calibrated installation tool to provide correct monitor installation height.
- d. The monitor shall have a single power button and two color LED. The monitor shall operate continuously for a period of three(3) minutes during startup. During this period, the LED shall glow continuously indicating a red light for a poor signal and a green light for a good signal. After the three-minute startup period the light will turn off. A quick test shall be able to be performed by touching the power button, the LED will light green for "ON" and red for "OFF" operating condition.



e. The monitor shall be completely sealed in a machined PVC enclosure. All sealed connections on the unit shall be permanently siliconed at the factory. The battery tubes shall be machined aluminum with o-ring seals.

2.2 DATA LOGGING

The flowmeter shall have built-in, Time Stamped Data Logging capabilities. The monitor will have a factory set logging rate of 5 minutes of average flow height. The logging data shall be stored in non-volatile memory until downloaded. A serial port output terminal jack shall be available to download Data Logging to a PC computer.

2.3 SOFTWARE

I&I Spy software shall be provided with each monitor or monitor system. The software CD shall contain an auto-install program suitable for any Windows operating system (95 or newer). The software shall provide the user the controls to download data from a 7000 series monitor. The program will provide the user with a graph indicating date and time compared to flow height in inches. The display shall show a one-week period of time per screen. The display will be selectable to view from 0"-3" range or 0"-8" range and 24 hour period or 12am-6am periods. The display chart shall be able to be printed directly from the software. All data downloads shall be saved and stored in memory as an individually named file. All data files shall be able to be exported to other spreadsheet software for custom graph design.

2.4 MOUNTING BRACKET

A threaded expansion-mounting bar shall be supplied with each monitor. The bar shall be adjustable to accommodate most manhole applications. The mounting bar shall include two adjustable o-rings for positioning the unit and a safety line for tying off to a ladder rung for ease of removal.

2.5 WARRANTY

The monitor shall be pretested, calibrated and 100% quality control inspected and is warranted against defects in parts and labor for one (1) year from date of shipment.