

## Model H-350XL™

Pressure Measurement System/  
Data Collection Platform (DCP)

The **WATERLOG<sup>®</sup>** Model H-350XL™ is a microprocessor controlled pressure sensor/data logger designed for remote operation. This instrument can be interfaced with:

- Data Loggers
- Chart Recorders
- GOES Transmitter
- Remote Displays
- Telemetry Systems



### KEY FEATURES

- Direct replacement for mercury manometers
- Easy to read digital display shows stage directly in engineering units (feet or meters)
- Compatible with SDI-12 and RS-232 data loggers
- Built-in temperature compensation and auto-zero functions
- Operating temperature range of -40° to 60°C
- Ideal for small Hydrologic/Met Stations
- Three RS-232 serial communication ports
- Quadrature shaft encoder input
- Scalable and programmable 4-20 mA Output
- Four analog inputs
- SDI-12 Slave and Master mode
- Two programmable digital inputs/outputs
- One event counter input (Tipping Bucket Rain Gauge)
- Frequency input (wind speed)
- Sealed, corrosion-resistant, nonconductive enclosure
- Data logging capability using non volatile internal storage (4 Meg and up)

# SPECIFICATIONS

## Performance

### Pressure Sensor

#### Accuracy

(Maximum percent of error in measurement)

Pressure: Less than or equal to 0.02% of full scale output (FSO) over temperature range referenced to a straight line stretched from zero PSI to maximum pressure

Temperature: Internal temperature  $\pm 1^\circ\text{C}$  over temperature range

#### Resolution

(Smallest change detectable in output signal)

Pressure: 1 part in 65,536 (0.002%)

Temperature: 1 part in 65,536 (0.002%)

#### Linearity

Less than 0.02% deviation from a straight line referenced to end points

#### Pressure Hysteresis

Less than 0.01% of FSO

#### Long-term Stability

Accuracy drift is less than  $\pm 0.05\%$  of FSO per year

#### Response Times

Pressure only: 10-second measurement sequence

Pressure & Temp.: 10-second measurement sequence

Temperature only: 5-second measurement sequence

#### Pressure Range Options

Pressure	Depth	Accuracy
0 to 15 PSI	0 to 34.60 ft.	$\pm 0.007$ ft.
0 to 30 PSI	0 to 69.20 ft.	$\pm 0.014$ ft.

Custom calibration ranges available from 5 to 100 PSI

Pressure Overload: Less than 2 times the rated pressure

#### General Analog Input

Channels: 4 (Single Ended)

Resolution: 16-Bit Resolution (1 Part in 65536)

Accuracy:  $\pm 0.02\%$  FS

Input Ranges: 0 to 5 Volts (All Channels)

0 to 500 mV (Additional Input Range

Only Available on Channel 1)

Accuracy  $\pm 0.15\%$

#### Excitation

5.0V Switched, Ratiometric with  
10mA (max load)

#### Accuracy

$\pm 1.0$  mV Over Load and Temperature Range

#### Frequency Input

Input Range: 1 to 10 KHz at  $\pm 75$ mVolts or greater

1 to 15 KHz at  $\pm 1$  Volt or greater

Input Amplitude:  $\pm 5.0$  V Max

Accuracy:  $\pm 0.1\%$

Resolution:  $1/10000$  \* Reading

#### Counter Input

Type: Switch closure or voltage pulse, Internal 50k pull up resistor, falling edge triggered.

Input Voltage: 0-5 Volts

Minimum Pulse Width: 5 mS

Input Frequency: 100Hz (max)

#### Digital I/O

Channels: 2, Independently configured for input or output

Input Voltage: 0-5 Volt

High Level: 3.5 V (min)

Low Level: 0.8 V (max)

#### Output Voltage

Low: 0.4 V (max)@ -5mA

High: 3.5V (min)@+5mA

#### 4-20 mA Output

Resolution: 4.0FA

#### Data Storage

Type: Non-Volatile FLASH

Size: 4 Mega Byte (Expandable)

#### Interface

##### SDI-12

Supports both Master and Slave modes

Protocol: SDI-12, 7-bit even parity, 1 stop bit

Baud Rate: 1200

##### RS-232

3 RS-232 Communication Ports

Protocol: RS-232, 8-bit, no parity, 1 stop bit

Baud Rate: Programmable

## Mechanical Data

### Physical

Enclosure: Sealed, corrosion resistant fiberglass with clear Lexan® window

Size: 7.0 in. wide x 8.5 in. long x 4.3 in. deep

Weight: 4.25 lbs

Mounting: Hardware supplied for wall mounting

Pressure Inlet: 1/8 in. NPT female fitting

### Power

Input Voltage: 10.0 to 16.0 volts DC

Input Current: Sleep Mode: 4 mA typical

Active: 80 mA average

(measuring, display off)

Active: 250 mA average

(measuring, display on)

Auto display shut-off after 5 minutes

# SPECIFICATIONS (CONTINUED)

## Environment

### Temperature

Extended Operating Range: -40° to 60°C

Storage: -40° to 80°C

### Humidity

0-95% non-condensing

### Media Compatibility

Non-corrosive dry gases only

## Miscellaneous

### Options

Data Logging:

Data is stored internally on MB ATA  
Compact FLASH Card  
H-222SE (Signal Engineering)  
or H-222 (Telonics)

GOES:

## Accessories

Cables:

- Power/SDI-12 cable supplied with base unit
- 9-pin D connector cable required for RS-232 communication available (H-350-RSC)
- 9-pin D Male to Male Gender Changer
- RS-232 Null Modem Adaptor
- Sensor Terminal Block

Hardware: Pressure inlet plumbing installation kit available (H-350-INS)

## Warranty

The **WATERLOG**® H-350XL™ is warranted against defects in materials and workmanship for one year from date of shipment.

## Note

Specifications subject to change without prior notice due to ongoing commitment to product testing and improvement. LR June 18, 2003

## Typical Application Drawing

