

# Model MS3500L

## Remote LPR Data Logger

The MS3500L is a battery-powered, intrinsically safe, remote data-logger capable of measuring and storing data from all types of linear polarization resistance (LPR) corrosion probes. The instrument is microprocessor-based and features a simple, menu-driven interface using a 2-key keypad and a 2-line LCD display.

Corrosion rate measurements are made using the linear polarization resistance technique. The instrument measures the current required to polarize the electrodes of a probe to a known potential. From the polarization potential and the measured current, polarization resistance can be calculated. Then, using Faraday's law, the instantaneous corrosion rate can be calculated from polarization resistance.



The MS3500L incorporates a high-precision zero-resistance ammeter (ZRA) for measuring galvanic current between electrodes. It also offers a high-precision voltmeter for measuring the open-circuit potential between electrodes.

The MS3500L takes probe readings on a user-programmable logging interval. Readings are time and date stamped as they are taken, then stored to memory. Between readings, the instrument remains in a “sleep” mode to conserve main battery power. The instrument's memory is capable of storing 3,000 readings, and is protected by a lithium back-up battery.

Stored data can be uploaded to a PC as a comma-delimited ASCII text file. Because the data is in ASCII text format, it can be imported into any standard data analysis program such as Microsoft Excel. Data can also be reviewed on the instrument's LCD display for quick reference.

Stored data can also be uploaded to a Metal Samples model MS1500L Handheld ER Data Logger for transfer to a PC. This handy feature eliminates the need to remove the MS3500L from its site, or to bring a laptop PC to the site. This can be particularly useful when collecting data from multiple MS3500L Data Loggers. And since both the MS3500L and the MS1500L are intrinsically safe, data can be uploaded from the MS3500L to the MS1500L even in hazardous locations.

The MS3500L also offers an optional 4-20mA current loop output (model MS3510L). This feature allows data from the instrument to be fed directly to any industrial process computer that accepts analog inputs.

The instrument is housed in a stainless steel NEMA 4X enclosure, and all external connections are weather-proof. This makes the MS3500L suitable for use in almost any indoor or outdoor environment.

## Technical Specifications

### Model

MS3500L - Remote LPR Data Logger (Ordering # IN3500L)

MS3510L - Remote LPR Data Logger w/ 4-20mA Current Loop Output (Ordering # IN3510L)

### Physical Data

Instrument Weight: 11.94 lb. (5.42 Kg)  
Total Weight w/ Accessories: 13.64 lb. (6.19 Kg)  
Instrument Dimensions: 11.50”H x 8.94”W x 4.00”D (29.21cm x 22.71cm x 10.16cm)  
Case Specifications: NEMA 4X \*  
Mounting Specifications: 10.75”H x 6”W (27.31cm x 15.24cm) Bolt Pattern  
0.3” (0.76cm) Diameter Bolt Holes  
Operating Temperature: 32° to 122°F (0° to 50°C)  
Storage Temperature: -4° to 158°F (-20° to 70°C)

### Performance Data

Measurement Type	Range	Resolution	Cycle Time
2-Electrode	0 to 200 mpy	0.01 mpy	1 min to 99 hrs
3-Electrode	0 to 150 mpy	0.01 mpy	1 min to 99 hrs
Galvanic	± 999 µA	1 µA	1 min to 99 hrs
Potential	± 999 mV	1 mV	1 min to 99 hrs

### Electrical Data

Power Requirements: Six 1.5V AA Batteries  
Standard Probe Cable Length\*\*: 10 ft (3.05 m)  
Output Specifications: RS-232 Output in Comma-Delimited ASCII Text Format  
4-20mA Current Loop Output (MS3510L Only)

Intrinsic Safety:



Class I, Division 1  
Groups A, B, C, and D  
Temperature Code T3  
Class I, Zone 0,  
Group IIC, T3  
Conforms to ANSI/UL Std. 913

### Special Features

- Microprocessor-based electronics
- Data storage capacity of 3,000 readings, with battery backup
- Menu-driven interface using a 2-key keypad and a 2-line LCD display
- Low-battery detection

### Accessory Items

10' Probe Cable, Meter Prover, 6 to 5-Pin Adapter, Galvanic Adapter, Communications Cable and Connector, Current Loop Connector (MS3510L only), Operation Manual, Corrosion Data Management Software

\* As of March 2016 the enclosure is stainless steel.

\*\* Please contact Metal Samples for longer probe cable lengths.



#### **Metal Samples Company**

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