

## 3500 data logger for remote data acquisition



### Features

- compact, low powered system, water proof enclosure for long term, remote operation
- accurate analogue interfacing – accuracy to 1:20000
- design based on long experience, latest electronics technology with large **1MB** non-volatile memory
- simple menu driven operation including field input calibration

### Applications

- Stream flow / rainfall / water quality monitoring
- Sewerage / drainage depth and velocity logging
- Flood / pollution warning systems
- Pump performance monitoring
- Groundwater resource measurement and groundwater aquifer recharge pump testing
- Environmental impact studies and tidal studies

The 3500 Series Data System incorporates the latest in electronic design to provide powerful, yet easy to use systems specifically for the Water Resources Industry.

The 3500 has 4 analogue inputs, and two digital inputs (one for rainfall, the other for an incremental encoder). Its unique Fixed Time and Event triggered recording facility means memory capacity is conserved, but detailed data is logged whenever an event occurs.

Data is stored on a fixed time base, at intervals between 10 seconds and 24 hours, with the option to scan the inputs at shorter intervals and log data only if inputs have changed in excess of preset levels. Thus for different applications you may select the amount of data compression you require, taking into account memory capacity and data resolution. Records of levels are stored with date and time to a resolution of 1 second.

The 3500 Series Data Logger utilises a highly accurate analogue to digital converter, which enables the sensor input and data to be stored with an accuracy of up to 1 part in 20,000 (equivalent to 14½ bit).

Unlike many other environmental systems, the 3500 Series Data Logger does not require an external power supply for its sensors. The logger power supply also powers the sensors, and achieves its long battery life by going into a low power (typically 800 µA) sleep state between readings of the sensor.



# Technical Specifications

## ELECTRICAL

<b>Processor</b>	80C31	<b>Clock</b>	Crystal regulated, Real Time Accuracy: $\pm 10$ sec / month
<b>Operating Temperature</b>	- 10°C to +60°C	<b>Communication</b>	RS232 1200 / 9600 Baud 8 data bits, 1 stop bit, parity ignore
<b>Inputs</b>	<ul style="list-style-type: none"> <li>Analogue Accuracy &amp; Resolution 1:20,000 (approx. 14.5 bit) Nominal 12 VDC switch power supplied to sensors</li> <li>Digital 1 x switch closure for TB rain gauge 1 x dual switch closure for rotary encoder</li> </ul>	<b>Power</b>	3500-CI 2 X internal sealed lead acid batteries 12V 2.2Ah each. Average recharge or exchange requirement – 4 months  3500-CE Provision for external 12 V dc power connection
<b>Memory</b>	<ul style="list-style-type: none"> <li>Flash EPROM Non-volatile 10 year data retention</li> <li>Capacity: 999,999 bytes</li> <li>Log interval: 10 seconds to 24 hours, software selectable</li> </ul>	<b>Consumption</b>	800 $\mu$ A continuous during sleep, 35mA processing or if DTR is high

## MECHANICAL

<b>Enclosure</b>	Material Tough impact resistant ABS Protection IP67	<b>Mounting</b>	Shelf or wall mount using screws through base outside of gasket area
<b>Connectors</b>	Plated brass, gold plated contacts, sub-mersible, rated to 30 metres water	<b>Weight</b>	1250 gms— excluding batteries 2890 gms— including batteries

# Operating Principle

The logger is initialised in the field using an IBM compatible portable computer and SDA/WinSDA software application. A simple menu driven series of prompts are then requested of the operator. Data is retrieved by computer or through telemetry.

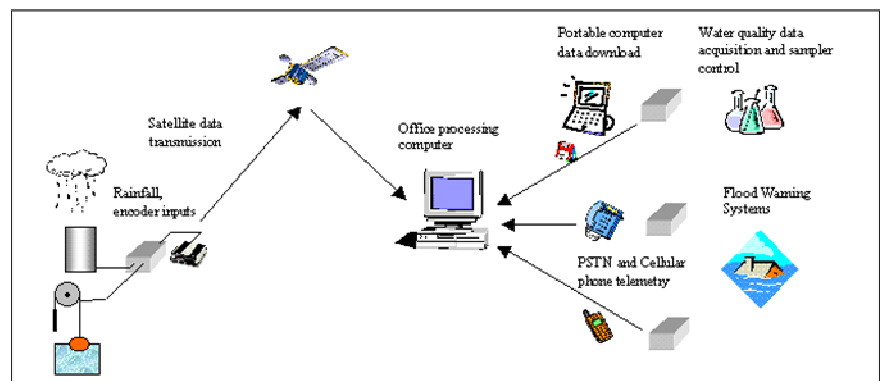
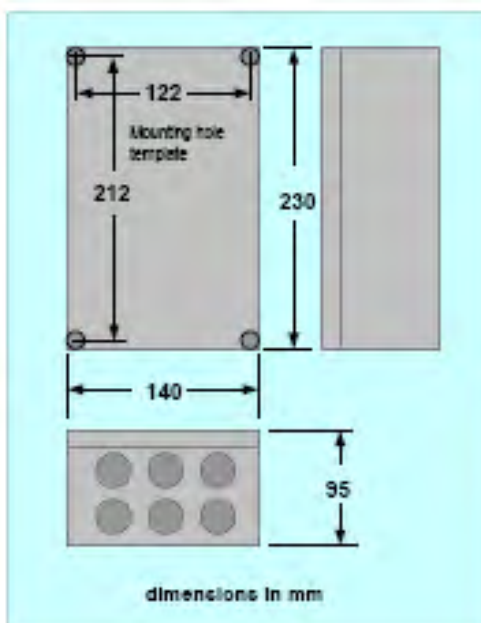
Once the 3500 Series Data Logger has been set up at a particular site, a field officer can visit the site and download data while logging is still active.

A simple field calibration procedure may be used by the operator for a variety of sensors including Depth, pH, Dissolved Oxygen Temperature, Conductivity and Turbidity ensuring that the 3500 Series Logger records accurate information in the appropriate scale and

units, while keeping maintenance to a minimum. Real time monitoring of data on all inputs is possible using the 'Monitor' screen selection.

The internal rechargeable batteries may be charged by either mains or solar charging options using the fitted external charging connector. Alternatively the batteries may be exchanged with fully charged ones at a service visit (internal battery version).

We understand the importance of after sales service. ES&S can provide full operator training courses at your office or on site, covering all aspects of the logger and peripheral devices.



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