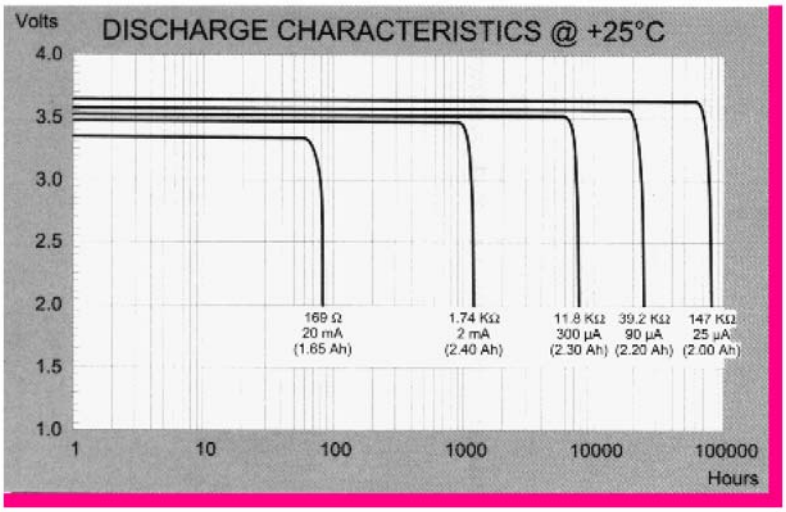
Battery Life Considerations for the PL200-H Data Logger

The PL200-H Fire Hydrant Logger uses a 3.6 volt lithium battery who's characteristics are shown below. Unlike alkaline batteries, the nature of lithium batteries is to hold a constant output voltage over time until the end of their life, at which time the output declines rapidly. This stable output voltage is required in order to maintain accurate pressure readings from the transducer and to keep the circuitry running reliably.



In a powered down state the logger will draw about 70uA of current. From the above graph, this indicates a battery life in excess of 2 years at room temperature. However; when the logger is taking readings, the transducer must be powered up and the current is increased to about 5mA. If readings are being taken at slow sample rates this increased current is not very significant. At faster sample rates this increased current can become a much larger factor and the battery life can be greatly reduced. Temperature will also affect the battery voltage and it isn't possible to accurately predict battery life under all conditions. In the worst case the sensor is powered up all the time, during fast sampling mode for example. At this sample rate the life will be reduced to about 3 weeks or less.

When using high sample rates, the battery life can be increased significantly by using slower sample rates, or by reprogramming the logger with a slower rate when pressure recording is completed. Another method is to set the start and stop timers to only log data during a specific period of time. Once the stop timer is triggered, the logger will stop recording data and the sensor will remain powered down until the logger is restarted as described in the manual.

In order to maintain the integrity of the recorded data, the logger is programmed to stop recording pressure readings to memory when the battery voltage falls below about 3.2 volts. At that time the voltage is so low that the battery is almost completely dead and the readings would start to become meaningless. In order to check the battery voltage, the reading should be taken when the sensor is powered up and the maximum amount of current is being drawn. This can be done by connecting to the logger with the Global Logger II software and selecting Sample Continuously mode, or by programming the logger into Fast Sample Rate mode and clicking on Get Sample. The battery voltage monitor is factory calibrated and will give an accurate voltage reading. Any voltage below about 3.4 volts indicates a low battery state and the battery should be replaced as soon as possible. Use only a 3.6 volt lithium high capacity battery available from most electronics suppliers. Replacements can also be purchased from Global Water.