

**Q: How do I know what sample rate to use and for how long I can log?**

**A:** There are two formulas used to calculate these settings:

1. *Determining Recording Duration given a Sample Rate & # of Channels enabled:*  
Recording Duration = (Logger Memory Size/# of Channels On) X Sample Rate
2. *Determining the best Sample Interval:*  
Sample Rate = (Recording Duration/Logger Memory Size) X (# of Channels On)

**Logger Memory Size:**

- 32,767 for **SmartReaders** and **OWLS**
  - 21,500 for **SmartReader Plus 32K** loggers
  - 87,000 for **SmartReader Plus 128K** loggers
  - 1,048,000 for **SmartReader Plus 1.5M** loggers
- (These are the maximum number of readings each logger can take)*

**Sample Rate Intervals:**

1. **SmartReader Plus**
  - 0.04 second intervals from 0.04 seconds to 8 seconds in FastRead Mode
  - 4 second intervals from 8 seconds to 8 hours in Normal Mode
2. **SmartReader** - 4 second intervals from 8 seconds to 5 days.
3. **OWL:**
  - 0.2 second intervals to 8 seconds in FastRead Mode
  - 8 second intervals from 8 seconds to 12 hours in Normal Mode

**Examples:**

1. *Let us assume we have a sample rate of 4 seconds on a 32K SRP008 logger with 3 channels turned on. How long can we log for?*  
Plug the values into the first formula:  
 $4 \text{ seconds} \times 21,500 / 3 = 28666.66 \text{ seconds (7.96 hours)}$   
*We can record for approximately 8 hours.*
2. *Let us assume we have a 32K SRP008 and we want to measure temperature on 3 channels for an 8 hour period. What sample rate can we use?*  
Convert 8 hours into seconds.  
 $(8 \times 60 \times 60 = 28800 \text{ seconds})$   
Plug values into the second formula:  
 $28800 \text{ seconds} / 21,500 \times 3 = \text{Sample rate (4.0 seconds)}$   
*We can use a sample rate of 4 seconds.*

\*TrendReader 2 software can calculate logging duration based on sample rate automatically when the data logger is connected to your computer!