

Example Sampling Rates in Expert Key Devices

Delphin [Expert Key data loggers](#) are equipped with powerful **A/D (analog-to-digital) converters** providing total sampling rates of **up to 100kHz**. Their total sampling rate is the product of the highest-set sampling frequency and the number of active analog inputs.

However, increased sampling rates also increase signal interference so that measurement precision decreases. Therefore, the lower the sampling rate, the more exact the measurement.

Maximum Sampling Rates by Sensor Type:

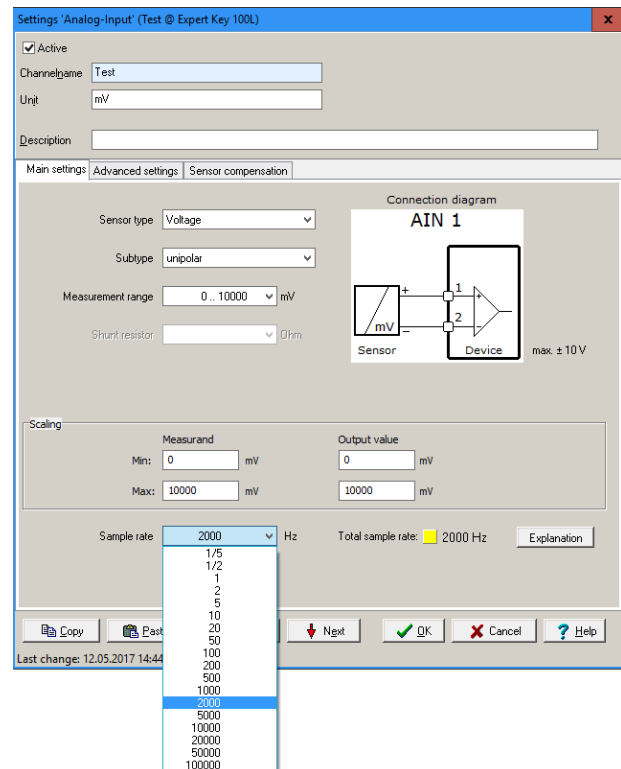
The following sensor types need to be considered in respect of the Expert Key's maximum sampling rates:

- **Max. 100kHz** when all analog inputs are set to sensor type "Voltage" or "Current."
- **Max. 10kHz** when at least one analog input is set to sensor type "Resistance", "Thermocouple", or "Resistance sensor."
- **Max. 1kHz** when at least one analog input is set to "Reference for differential inputs."

Analog inputs can have the following settings:

- From **0.2 Hz to 100kHz** for "Voltage" sensor types.
- From **0.2 Hz to 100kHz** for

- "Current" sensor types.
- From **0.2 Hz to 1kHz** for "Thermocouple" sensor types.
- From **0.2 Hz to 100 Hz** for "Resistance" sensor types.



For clarification, Delphin software sampling tests use a traffic light system to notify the user. Depending on the setting, a green, yellow or red signal lamp is displayed. These colors indicate the following statuses:

Green:

Green indicates that the total sampling rate is low enough to synchronize measurement with the network frequency. Signal interference is suppressed to the maximum and the above measurement precision can be maintained. This range is especially

suited to temperature measurement.

Yellow:

Yellow shows that shielding of the connection cables is generally recommended. The documented level of measurement precision is mostly maintained.

Red:

Red notifies users that shielding of the connection cables is essential. Signal interference increases and measurement precision is limited. Here it's recommended to reduce the sampling rate.

For help or more info on sampling rates in Delphin Expert Key devices, contact a **CAS DataLoggers Technical Specialist** at (800) 956-4437 or visit our website at www.DataLoggerInc.com.