How can I get the calibration data from the TEDS chip? Is it possible to freely read and write the TEDS chip data?

TEDS (Transducer Electronic Data Sheet) is a set of electronic data in a standardized format defined within the IEEE 1451.4 standard. This data specifies what type of sensor is present, describes its interface, and gives technical information such as manufacturer, type number, serial number, sensitivity, calibration date, reference condition, etc. A TEDS sensor is the same as a "plug-and-play sensor". Via its internal memory, it can identify and describe itself to the data acquisition system and perform automatic system configuration.

Most GRAS sensors are equipped with a TEDS chip inside the preamplifier (both in Traditional and CCP types). This chip can be a Dallas DS2430 (already discontinued) or the newest Dallas DS2431. You can double-check if your GRAS sensor has a TEDS chip inside by looking at the specification of the product in our website. When a GRAS sensor is sold as a set (for example: microphone + preamplifier), the TEDS chip inside the preamplifier will contain all the important information from the sensor, including the calibration data.

Preamplifiers sold separately can also have a TEDS chip inside. You can check the preamplifier´s specifications in our website to check if it has a TEDS chip. In preamplifiers sold this way, the TEDS chip is going to be blank and ready for writing data.

In order to read and write a TEDS chip it is necessary to have software and hardware compatible with the technology. Most of the Data Acquisition Systems (DAQs) and software related to sound and vibration measurements available nowadays are already compatible with TEDS.

If you have problems reading a TEDS chip with equipment that claims to be TEDS compatible, ask the manufacturer about the compatibility with the newest Dallas DS2431 chip. In some cases, a simple software update might solve the issue.

All equipment TEDS compatible can read the information written in the chip, but not all hardware and software has the capability of writing data. You should ask the equipment manufacturer about these capabilities.

Every GRAS microphone sold as a set (microphone + preamplifier) will have data written in the TEDS chip. This is the typical data stored and structure used in TEDS-compatible GRAS sensors:

Table 1. Typical microphone set TEDS data.

Basic TEDS	Manufacturer ID
	Model Number
	Version Letter
	Version Number
	Serial Number
Standard TEDS	Calibration Date
	Sensitivity @ 250 Hz
	Prepolarized 0/1
	Microphone Type
	Polarization Voltage
	Microphone Size
User TEDS	i.e. Measurement Position

The basic TEDS data is stored in a programmable read-only memory (PROM). That means that once the data is written, it cannot be changed or erased. The rest of the data is written in an electronically erasable programmable read-only memory (EEPROM), that can be programmed by the manufacturer or any user that has TEDS-compatible equipment with writing capabilities.

There are other types of TEDS chips available that have the capability to store more data but are still not common in the market, still not supported by most DAQ manufacturers and therefore not covered here.