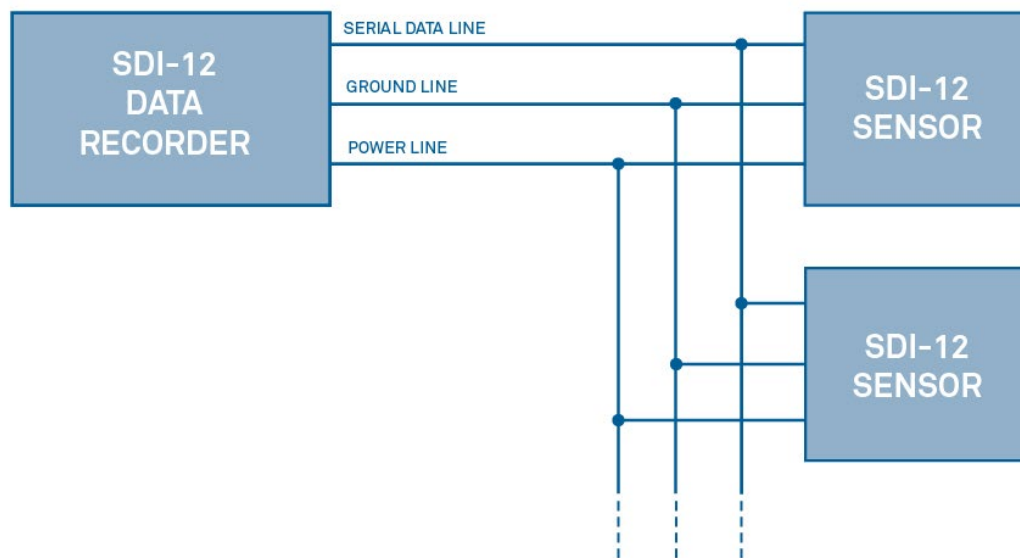![METER logo]

# SDI-12 SYSTEM SETUP



**Figure 1.** SDI-12 system

## DRAWBACKS

SDI-12's major advantage of allowing users to connect up to 62 sensors to one logger port also comes with one major drawback.  If one sensor on the line fails, the entire line of sensors will fail without indicating which of the sensors is faulty. SDI-12 users must be prepared for periodic system downtime. If loss of all data for any period of time will jeopardize a study, SDI-12 is a bad fit. Visit the METER website for more appropriate environmental monitoring systems. However, if a study can handle brief time periods without data, SDI-12 may be a good fit for that research.

## ADDRESSING EACH SENSOR

Before hooking up to 62 sensors into one data logger port, give each sensor a distinct address that the data logger will use to communicate with the sensor.  Imagine a classroom full of students and one teacher.  If each student has a different name, the

teacher can call on a specific student using their name.  This is how SDI-12 works: assigned addresses allow the sensors to share a port but be queried individually.

The sensor address can be any of the following:

- A number between  0 to 9

- A lower case letter between a to z

- An upper case letter between A to Z

If two or more sensors on the same communication line have the same address, the logger will receive no data when that specific address is queried, so it is a good idea to label each sensor as you set the addresses.

Get specific directions on addressing sensors

## DATA ORGANIZATION

Once each sensor is addressed, figure out where each addressed sensor will be installed in the study.  At minimum, make a map of the study site showing sensor locations and a spreadsheet containing sensor addresses and notes.  SDI-12 logger data consists of only the sensor address followed by that sensor's data, so record clear address and location information in the project notes.

## HOW TO GET 62 WIRES INTO ONE LOGGER PORT

About four wires fit into a small data logger port before there is no more room. In order to successfully connect up to 62 sensors to one logger port, obtain a sensor bus. There are some rudimentary solutions available, but the best solution is to build one.  A bad bus is the main cause of SDI-12 network failures, so take some time to do it right.

## LOGGER PROGRAMMING

Once all sensors are addressed and connected to a logger, program the logger to know what information to ask the sensors for and when it should ask for it. Using an example program as a starting point can make the programming process easier, but expect to spend a significant amount of time on this step.

Example programs for each product are found on their respective product pages in the support tab under 'downloads'. For example: the TEROS 12 example program is found here.

## USEFUL DOCUMENTS

SDI-12 specifications May 2017

METER SDI-12 best practices