



METER
ENVIRONMENT

SDI-12 PROS AND CONS

Contributors

Before committing to an SDI-12 system, fully explore all the SDI-12 pros and cons. SDI-12 integrates [METER sensors](#) with data loggers manufactured by other companies such as [Campbell Scientific](#) and allows monitoring of up to 62 SDI-12 enabled sensors on each port of a data logger. However, [SDI-12](#) has significant drawbacks.

Monitoring 62 sensors on a single data logger port may sound like a dream come true, but for the poorly-informed, the dream can become a nightmare. Not only is the correct hardware needed for the system to work properly, an adequate number of well-trained technicians is also required to monitor the system and ensure that it transmits data properly throughout a study. For more technical information on SDI-12 pros and cons, visit the [SDI-12 Support Group](#).

WHEN SDI-12 DOESN'T WORK

Sometimes, SDI-12 literally ruins a research study. The three most common reasons for failure are:

- **The researcher/research staff were unable to visit the site on at least a weekly basis.** SDI-12 systems demand constant attention. If there's no time to check a system frequently, do not use SDI-12.
- **The study could not tolerate a gap in data transmission.** The nature of SDI-12 makes data outages inevitable. If a study can't tolerate occasional loss of data, use a different system setup.
- **The research team did not include skilled technical personnel.** SDI-12 systems will experience failures. If there's no available expertise to solve these issues in-house, SDI-12 will be frustrating.

If a research project is at risk for one or more of these failure scenarios, **STOP. Do not use SDI-12.** Check [METERGroup.com](#) for [data collection systems](#) that may be a better fit.

SDI-12 PROS AND CONS FOR SENSORS

Traditional sensor-to-logger communication is based on one-way communication with data flowing from the sensor to the logger. In SDI-12, however, the logger queries a particular sensor address, much like calling someone by name before directing a question at them, and the correct sensor responds with data. METER and many other manufacturers have SDI-12-compatible sensors. At METER, each of our digital sensors, including the [TEROS soil moisture sensors](#), the 5TM, 5TE, and [TEROS 21](#) are all SDI-12 compatible. For more information on our SDI-12 compatible sensors and their capabilities, visit the [sensors page](#).



The METER [TEROS 12](#) is an example of an SDI-12 compatible sensor that measures three parameters: soil moisture, soil temperature, and soil EC

Keep in mind that SDI-12 requires a three-wire interface:

1. Serial data line
2. Ground line
3. 12-volt line

To meet this need when ordering from METER, ask for “pigtail end” cables on your sensors. If you already have “stereo end” cabled sensors a [“pigtail” adapter](#) can convert the sensors for SDI-12 use. You can also hook these adapters into an SDI-12 bus as “stereo ports” for your sensors.

LOGGERS

SDI-12 requires a logger that can have a two-way conversation with a sensor. METER does not manufacture SDI-12 compatible loggers but recommends using data loggers manufactured by Campbell Scientific. METER offers free example programs written specifically for Campbell Scientific loggers. These programs can be found on the [example programs](#) page.

THE PROCHECK: A NECESSARY TOOL

The [ProCheck](#), a sensor readout and storage device, is meant to be an all-in-one SDI-12 sidekick. The ProCheck makes addressing sensors during setup and [troubleshooting](#) an SDI-12 system a breeze. It turns a daunting task involving complicated and temperamental terminal programs into a simple matter of plugging in the sensor and pressing a button or two. The ProCheck isn't absolutely required to address and troubleshoot, but it makes things much easier.

VIRTUAL SEMINAR

Watch a [virtual seminar](#) covering SDI-12 pros and cons. View it before ordering anything to make absolutely sure that the research application is compatible with SDI-12. For questions after watching the seminar, contact METER support at support.environment@metergroup.com.

BEYOND SDI-12: GET THE COMPLETE PICTURE

Everything you need to know about measuring soil moisture—all in one place.

[Download the researcher's complete guide to soil moisture](#)

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