

Serial Input/Output Module

Connects to
Campbell Scientific dataloggers



Overview

The SDM-SIO1 module connects to Campbell Scientific dataloggers using the SDM port and communications protocol. It connects to a remote serial device using industry standard hardware that can be set to true RS-232, RS-485 or RS-422 signal levels. When operating in RS-232 mode it also supports hardware handshaking.

The SDM-SIO1 will accept serial data up to 2047 bytes and store it in its buffer. This allows remote equipment to transmit large amounts of data without needing to stop other processes in the datalogger.

Up to 15 SDM-SIO1s can be connected to a single logger using the SDM port, allowing the user to connect 15 different serial devices to their logger with ease. This is in addition to any connections made to the dataloggers other serial ports.

The SDM-SIO1 module is implemented in such a way that it looks like a standard datalogger serial port to the user when writing programs in CRBasic. The only difference in

operation between the SDM-SIO1 and a built-in port is that there will be a small delay when transferring data to and from the device via the SDM connection.

The SDM-SIO1 can also be used in 'talk-through' mode to allow a user to talk, via a terminal interface, to a sensor connected to the SDM-SIO1 for test and diagnostic purposes.

The SDM-SIO1 is transient and surge protected to IEC61000-4-5 level 4 on the serial port interface avoiding the need for separate transient protection in most applications.

The CABLE5CBL is recommended for connecting the module to the datalogger. A 30 cm cable length should be sufficient when both datalogger and SDM-SIO1 are housed within an ENC12/14 enclosure; a 60 cm length may be required if the datalogger and SDM-SIO1 are housed at opposite ends of an ENC16/18 enclosure.

Benefits and features

- › Allows up to 15 additional devices to be connected to a datalogger
- › SDM-SIO1 is fully compliant with the RS232/RS485/RS422 standards
- › Simple connection to Campbell Scientific dataloggers using the SDM port and communications protocol
- › Can collect large amounts of data without hindering other processes within the datalogger
- › Supports 'talk-through' mode that facilitates testing and diagnostics
- › Currently compatible with CR800/850, CR1000, CR3000, CR5000 and CR9000X dataloggers
- › Uses simple CRBasic programs
- › Includes transient and surge protection on the serial port interface, eliminating the need for separate transient protection
- › Acts as an RS-485 interface for sensors with only a digital output (e.g., sonic and road weather sensor) providing a straight-forward and low power alternative to other RS-485 interfaces

Note: The SDM-SIO1 does NOT support auto baud rate detection nor the use of the serial port for DNP3 or general PakBus communications.

SDM-SIO1 Specifications

Supported data rates	300, 1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115200 bits/s
Supported modes of operation	RS-232 (Full duplex and receive only), RS-485 (Half and full duplex), RS-422 (Half and full duplex). Hardware CTS/RTS flow control is supported in RS-232 mode, the handshaking lines can also be used as general purpose I/O lines otherwise.
Supported data format	8, 7 bit data size*; none, odd or even parity; one or two stops bits. * In 7 bit mode with no parity the user must ensure that the characters received by the SDM-SIO1 have a delay of at least one bit period or greater between them. This does not affect any other configuration and does not affect transmissions out of the SDM-SIO1.
Miscellaneous information	<ul style="list-style-type: none">• Auto baud rate detection is NOT supported• Use of the serial port for general Pakbus communications is not currently supported
Buffer sizes	<ul style="list-style-type: none">• Transmit buffer size: 767 Bytes (Buffer from the logger to the sensor)• Receive buffer size: 2047 Bytes (Buffer from the sensor to the logger) <p>Both transmit and receive buffers are fill and discard type, i.e. once the buffers become full no new information is accepted and all further data is discarded until space is made when the logger requests data from the SDM-SIO1.</p>
Voltage specifications	Power supply +12V connection; 7V minimum; 12V nominal; 20V maximum
Current consumption	Standby current: 70µA nominal, 100µA max Active current: 5-13 mA depending on transmit mode and connections made.
Temperature range	Standard range: -25°C to +50°C Extended range (optional): -40°C to +80°C (Contact Campbell Scientific Ltd for further extended temperature requirements)
Humidity	Standard range: 0% - 95% (non-condensing)
Physical parameters	Main body Height: 5.4 cm (2.2") Width: 8.0 cm (3.1") Depth: 2.5 (1.0")
EMC compliance	The SDM-SIO1 has been tested and shown to comply with IEC 61326. The device incorporates transient and surge protection that is designed to meet IEC61000-4-5, level 4, providing the device is adequately grounded.