CAMPBELL® SCIENTIFIC
WHEN MEASUREMENTS MATTER

SDM-SIO1
Serial Input/Output Module

Overview

The SDM-SIO1 expands the number of serial devices that can communicate with a CR800, CR850, CR1000, CR3000, CR9000X, or CR5000 datalogger. Up to 15 SDM-SIO1 modules can be attached to the datalogger.

The SDM-SIO1 accepts up to 2047 bytes of serial data and stores the data in a buffer. The buffer allows remote equipment to transmit large amounts of data without hindering other processes in the datalogger.

Benefits and Features

› Fully compliant with the RS-232, RS-485, RS-422 standards
› Collects large amounts of data without hindering other processes within the datalogger
› Includes transient and surge protection on the serial port interface, eliminating the need for separate transient protection
› Uses simple CRBasic programs

› Acts as an RS-485 interface for sensors with only a digital output (e.g., sonic and road weather sensor) providing a straightforward and low power alternative to other RS-485 interfaces
› Supports talk-through mode that facilitates testing and diagnostics

Communication

SDM Operation

The SDM-SIO1 module connects to the datalogger using the SDM port and communication protocol. The datalogger enables individual modules through an addressing scheme; multiple SDMs (in any combination) can be connected to one datalogger. After a module is enabled, it operates independently of the datalogger until additional commands are received or results are transmitted.

Serial Devices[a]

The SDM-SIO1 can communicate with serial devices that output a true RS-232, RS-485 or RS-422 signal. Remote serial devices use industry standard hardware to connect to the SDM-SIO1. When operating in RS-232 mode, the module also provides hardware handshaking.

Ordering Information

Synchronous Device for Measurement	
SDM-SIO1	One-Channel Serial I/O Module

Accessories	
SC110	Two RS-232 to Datalogger Control Port Cables, 2 ft that can be used to connect the serial sensors.
CABLE5CBL-L	5-conductor, 24 AWG cable connects the SDM-SIO1 to the datalogger. Enter cable length, in feet, after the -L. Must choose a cable termination option (see below).

Cable Termination Options (choose one)	
-PT	Cable terminates in stripped and tinned leads for direct connection to a datalogger's terminals.
-PW	Cable terminates in connector for attachment to a prewired enclosure.

Specifications

- Modes Of Operation:[b] RS-232 (full duplex & receive only); RS-485 (half and full duplex); RS-422 (half and full duplex)
- Data Rates: 300, 1200, 2400, 4800, 9600, 19200, 38400, 57600, or 115200 bps
- Data Format: 8, 7 bit data size[c]; none, odd or even parity; one or two stops bits
- EMC Compliance: [d] Complies with IEC 61326
- Power Supply Connection: +12 V
- Operating Voltage: 7 V (minimum); 12 V (nominal); 20 V (maximum)
- Maximum Cable Length: 6 m (20 ft) total to all SDM devices. Consult Campbell Scientific if longer lengths are necessary
- Dimensions: 5.4 x 8.0 x 2.5 cm (2.2 x 3.1 x 1.0 in)
- Operating Temperature Range: -25° to +55°C

Current Consumption

- Standby (nominal): 70 µA
- Standby (maximum): 100 µA
- Active: 5 to 13 mA depending on transmit mode and connections made

Buffer

- Storage Type: Both transmit and receive buffers are fill and discard[e]
- Transmit-Buffer Size: 767 bytes (buffer from datalogger to sensor)
- Receive-Buffer Size: 2047 bytes (buffer from sensor to-datalogger

[a]The SDM-SIO1 does NOT support auto baud rate detection nor the use of the serial port for Modbus, DNP, or general PakBus communications.

[b]Hardware CTS/RTS flow control is supported in RS-232 mode; the handshaking lines can also be used as general purpose I/O lines.

[c]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.

[d]The device incorporates transient and surge protection that is designed to meet IEC61000-4-5, level 4, providing the device is adequately grounded.

[e]Once the buffers are full, the fill and discard storage type will not accept new information and will discard all new data until space has been made.