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WHEN MEASUREMENTS MATTER

SDM-SIO1A
One-Channel Serial I/O Module

Serial I/O Expansion for Data Loggers

Overview

The SDM-SIO1A is a serial I/O expansion module for Campbell Scientific data loggers. It is designed to add an additional RS-232, RS-422, or RS-485 (half- or full-duplex) serial port to an SDM-capable data logger for the purposes of interfacing with an intelligent sensor, actuator, or display. Up to 15 SDM-SIO1A modules can be connected to a single data logger SDM port.

The SDM-SIO1A behaves much like a native data logger serial port and uses the same familiar serial I/O commands. The SDM-SIO1A 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.

Benefits and Features

❯ Easy and compact method to add up to 15 additional serial ports to an SDM-capable Campbell Scientific data logger

❯ Fully compliant with the RS-232, RS-422, and RS-485 (half- and full-duplex) standards

❯ Can buffer large amounts of serial sensor data between datalogger processing events

❯ Supports data logger terminal "talk-through" mode, facilitating serial device testing and diagnostics

❯ Includes transient and surge protection on the serial port interface, eliminating the need for separate transient protection

❯ Low idle power consumption, which is ideal for battery-powered stations

Detailed Description

The SDM-SIO1A 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, the module also supports hardware handshaking. RS-422 mode is functionally the same as RS-485 mode, except the connection is limited to a point-to-point system. Connections and programming for RS-422 are otherwise identical to RS-485.

The SDM-SIO1A will accept serial data up to 6143 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 data logger.

Up to 15 SDM-SIO1A modules can be connected to a single data logger using the SDM port, allowing a user to connect 15 different serial devices to a data logger with ease. This is in

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addition to any connections made to the data loggers via other serial ports.

The SDM Jumper Wire Kit (pn 32505) connects up to four SDMs to the data logger. This kit is recommended when multiple

SDMs are connected to one data logger or for extremely short distances between the SDM and data logger. The CABLE5CBL-L cable is recommended for connecting a single SDM to the data logger, and for longer distances between the SDM and data logger.

Specifications

Function	Expands the number of serial devices that can communicate with a data logger.
Number of Channels	1
Supported Data Rates	300, 1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115200 bits/s
Supported Modes of Operation	❯ RS-422 (half and full duplex) ❯ RS-485 (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. ❯ RS-232 (full duplex and receive only)
Supported Data Formats	❯ In 7-bit mode with no parity, the user must ensure that the characters received by the SDM-SIO1A 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-SIO1A. ❯ 8, 7 bit data size; none, odd, or even parity; one or two stops bits
Auto Baud Rate Detection	Not supported
PakBus Communications	Use of the serial port for general PakBus communications is not currently supported.
Voltage	❯ Power supply +12 V connection ❯ 7 V (minimum) ❯ 30 V (maximum) ❯ 12 V (nominal)
Operating Temperature	-40°C to +70°C (standard)

Standard Humidity Range	0 to 95% (non-condensing)
EMC Compliance	The SDM-SIO1A 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.
Mounting Clips	Optional DIN rail mounting clips are available, which can be fitted to the base of the case.
Mounting Holes	Two spaced 7.6 cm (3 in.) apart
Dimensions	6.4 x 6.25 x 2.2 cm (2.51 x 2.46 x 0.86 in.) excluding mounting tabs

Buffer Sizes

-NOTE-	*Both transmit and receive buffers are fill and discard type. That is, after the buffers become full, no new information is accepted and all further data is discarded until space is made when the data logger requests data from the SDM-SIO1A.*
Transmit Buffer Size	767 bytes (buffer from the data logger to the sensor)
Receive Buffer Size	6143 bytes (buffer from the sensor to the data logger)

Current Consumption

Standby Current	❯ 150µA (max) ❯ 110 µA (nominal)
Active Current	9.6 to 11.7 mA (depending on transmit mode and connections made)

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