SDM-SIO4A
4-Channel Serial I/O Module

Serial I/O Expansion for Dataloggers

Overview

The SDM-SIO4A is a serial I/O expansion module for Campbell Scientific dataloggers. It is designed to add four additional and individually configurable and addressable RS-232, RS-422, or RS-485 (half- or full-duplex) serial ports to an SDM-capable datalogger for the purposes of interfacing with intelligent sensors, actuators, or displays. Up to three SDM-SIO4A modules can be connected to a single datalogger SDM port. The SDM-SIO4A channels behave much like a native datalogger serial port and use the same familiar serial I/O commands. The SDM-

SIO4A is transient and surge protected to IEC61000-4-5 level 4 on the serial port interfaces, avoiding the need for separate transient protection in most applications.

Note: The SDM-SIO4A is not a direct replacement for the SDM-SIO4. The SDM-SIO4A consists of four SDM-SIO1A modules in a single package. Consequently, the SDM-SIO4A is a good replacement for up to four SDM-SIO1 modules or as an alternative to the SDM-SIO1A.

Benefits and Features

❯ Easy and compact method to add up to 12 additional serial ports to an SDM-capable Campbell Scientific datalogger

❯ 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 datalogger 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

Technical Description

The SDM-SIO4A connects to multiple remote serial devices 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 channel 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.

For comprehensive details, visit: **www.campbellsci.ca/sdm-sio4a**

The SDM-SIO4A 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 datalogger.

Up to 3 SDM-SIO4A modules can be connected to a single datalogger using the SDM port, allowing a user to connect 12 different serial devices to a datalogger with ease. This is in addition to any connections made to the dataloggers via other serial ports.

Specifications

Supported Data Rates	300, 1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115200 bits/s	Mounting Holes	Two spaced 177.8 mm (7 in.) apart
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.	Mounting Clips	Optional DIN rail mounting clips are available, which can be fitted to the base of the case.
		EMC Compliance	The SDM-SIO4A 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.
Supported Data Format	› In 7 bit mode with no parity, the user must ensure that the characters received by the SDM-SIO4A 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-SIO4A. › 8, 7 bit data size; none, odd, or even parity; one or two stops bits	Dimensions	64 x 154.5 x 22 mm (2.51 x 6.09 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 datalogger requests data from the SDM-SIO4A.*
Transmit Buffer Size	767 bytes (buffer from the datalogger to the sensor)
Receive Buffer Size	6143 bytes (buffer from the sensor to the datalogger)

Auto Baud Rate Detection	Auto baud rate detection is 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) › 12 V (nominal) › 30 V (maximum)
Temperature Range	-40° to +70°C (standard)
Humidity	0% to 95% (non-condensing) standard

Current Consumption

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

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