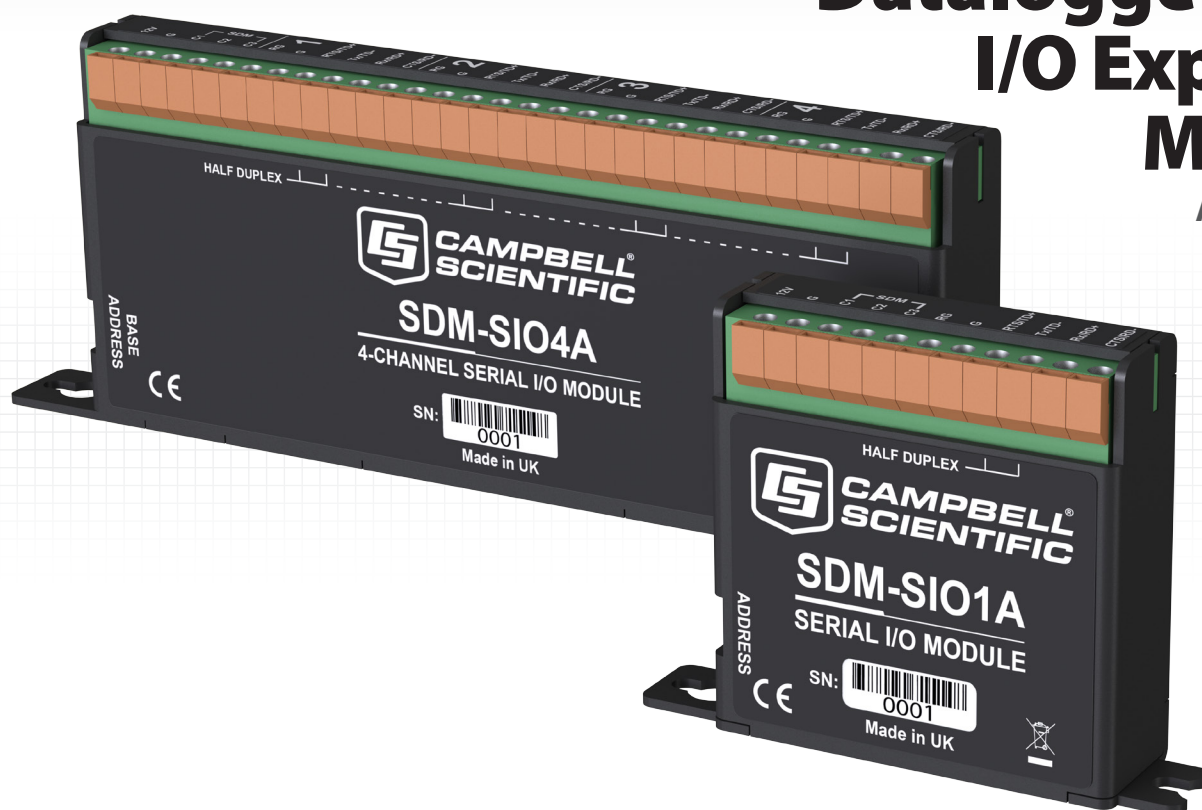# CAMPBELL SCIENTIFIC®
WHEN MEASUREMENTS MATTER

SDM-SIO1A and SDM-SIO4A
Serial Input/Output Modules

Datalogger Serial I/O Expansion Modules
Add RS-232 or RS-485 ports

Overview

The SDM-SIO1A and SDM-SIO4A are serial input/output modules that increase the number of serial ports available to SDM-capable dataloggers for interfacing intelligent sensors.

The SDM-SIO1A adds one RS-232, RS-422, or RS-485 (half- or full-duplex) serial port. The SDM-SIO4A adds four individually configurable and addressable RS-232, RS-422, or RS-485 (half- or full-duplex) serial ports. Multiple modules can be connected to a single datalogger SDM port.

The serial ports on these modules behave much like native datalogger serial ports and are controlled using the same familiar serial I/O commands. Each serial port interface is transient and surge protected to IEC61000-4-5 level 4, eliminating the need for separate transient protection in most applications.

The large memory and buffer allow remote equipment to transmit large amounts of data without needing to stop other processes in the datalogger.

Benefits and Features

> Connection of up to 15 SDM-SIO1A modules or up to three SDM-SIO4A modules to a single datalogger SDM port

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

> Buffer that can store large amounts of serial sensor data between datalogger processing events

> Supports datalogger terminal talk-through mode, facilitating serial device testing and diagnostics

> Transient and surge protection on the serial port interfaces that eliminate the need for separate transient protection

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

questions & quotes: **+61 (0)7 4401 7700**

www.campbellsci.com.au/sdm-sio1a

Detailed Description

The SDM-SIO1A and SDM-SIO4A connect to 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 modules also support hardware handshaking. To connect serial sensors, Campbell Scientific offers the SC110, which provides DCE and DTE cables.

The SDM Jumper Wire Kit (pn 32505) connects up to four SDMs to the datalogger. This kit is recommended when multiple SDMs are connected to one datalogger or for extremely short distances between the SDM and datalogger. The CABLE5CBL-L cable is recommended for connecting a single SDM to the datalogger, and for longer distances between the SDM and datalogger.

Specifications

- Modes Of Operation[a,b]: RS-232 (full duplex and receive only); RS-485 (half and full duplex); RS-422 (half and full duplex)
- Data Format: 8, 7 bit data size[c]; none, odd or even parity; one or two stops bits
- Power Supply Connection: +12 V
- Operating Voltage: 7 V (minimum); 12 V (nominal); 30 V (maximum)
- Operating Temperature Range: -40° to +70°C
- Operating Humidity Range: 0% to 95% (non-condensing)
- EMC Compliance: Tested and shown to comply with IEC 61326[d]
- Mounting Clips: Optional DIN rail mounting clips are available, which can be fitted to the base of the case
- Mounting holes
  SDM-SIO1A: two spaced 7.6 cm (3 in) apart
  SDM-SIO4A: two spaced 17.78 cm (7 in) apart
- Data Rates: 300, 1200, 2400, 4800, 9600, 19200, 38400, 57600, or 115200 bps
- Height: 6.4 cm (2.51 in)
- Depth: 2.2 cm (0.86 in)

- Width excluding mounting tabs
  SDM-SIO1A: 6.25 cm (2.46 in)
  SDM-SIO4A: 15.45 cm (6.09 in)
- Maximum Cable Length: 6 m (20 ft) total to all SDM devices. Consult Campbell Scientific if longer lengths are necessary
- View EU Declaration of Conformity at
  SDM-SIO1A: www.campbellsci.com/sdm-sio1a
  SDM Jumper Kit (pn 32505): www.campbellsci.com/32505

Current Consumption
- Standby (nominal): 110 µA
- Standby (maximum): 150 µA
- Active: 9.6 to 11.7 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: 6143 bytes (buffer from sensor to-datalogger)

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[a]The SDM-SIO1A and SDM-SIO4A do NOT support auto baud rate detection nor the use of the serial port for 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-SIO1A or 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-SIO1A or SDM-SIO4A.

[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.