CAMPBELL SCIENTIFIC®
WHEN MEASUREMENTS MATTER

Synchronous Devices for Measurement
Expand your output and measurement capabilities

Rugged, Reliable, and Ready for any Application

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Synchronous Devices for Measurement (SDMs) are addressable peripherals that expand the datalogger's measurement and control capabilities. This functionally diverse group of peripherals operate somewhat independently of the datalogger, yet expand its measurement and control capabilities.

The datalogger typically requests, processes, and stores data from the SDM. In control applications, the datalogger can then send a controlling SDM updated control signals to react to changing condi-

tions in the application. Multiple SDMs, in any combination, can be connected to one Campbell Scientific datalogger.

The SDM port is specific to our dataloggers and acts as a high-speed data exchange mechanism. On the CR3000 dataloggers, the ports are labeled SDM-C1, SDM-C2, and SDM-C3. On the other dataloggers, the ports are labeled C1, C2, and C3.
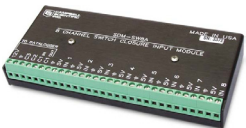
SDMs are not compatible with the CR200X-series dataloggers.

MAJOR SPECIFICATIONS

	Function	Number of Channels	Compatible[a] Dataloggers	Current Drain
SDM-AO4A | 4-Channel Analog Output Module	Increases the number of continuous analog output (CAO) ports available to a datalogger. CAOs are used for proportional control or driving strip charts.	4	CR800, CR850, CR1000, CR3000	±5 V Mode Power Down Mode: 1.1 mA No Load: 11 to 13 mA With Load: 13 mA + load 0 to 10 V Mode Power Down Mode: 1.1 mA No Load: 21 to 28 mA With Load: 28 mA + (2.4 x load)
SDM-CAN | Datalogger-to-CANbus Interface	Allows a datalogger to sample data directly from a CANbus communication network. Uses latest CAN controller	1	CR800, CR850, CR1000, CR3000, CR9000X	Standby (with or without isolation): < 1 mA Communications with Datalogger: 50 mA RS-232 Port Active: 50 mA Active in Self-Powered, Isolated Mode Recessive State : 70 mA Dominant State : 120 mA Active, Non-Isolated Recessive State : 30 mA Dominant State : 70 mA
SDM-CVO4 | 4-Channel Current/Voltage Output Module	Expands datalogger current/voltage output capability.	4	CR800, CR850, CR1000, CR3000, CR9000X[b]	With All Outputs Off: < 0.5 mA Active Quiescent Current 27 or 54 mA, depending on operating mode (no load on output ports) Estimated Total Current Active Quiescent Current + sum of all output currents x 1.5. For example, if each port is at 10 mA output, Total = 54 + (1.5 x 4 x 10) = 114 mA.
SDM-CD16AC | 16-Channel AC/DC Relay Controller	Allows a datalogger to automatically activate external AC or DC devices such as motors, pumps, heaters, valves, and fans.	16	CR800, CR850, CR1000, CR3000, CR9000X[b]	Quiescent: 6 mA Per Active LED (switch on or auto active): 45 mA

More info: **435.227.9000**
campbellsci.com/sdm

MAJOR SPECIFICATIONS

	Function	Number of Channels	Compatible [a] Dataloggers	Current Drain
SDM-CD16D | 16-Channel Digital Control Port Expansion Module	Increases the number of digital outputs that can be controlled by a datalogger. It also sources current of up to 100 mA for controlling low voltage valves, relays, or other devices.	16	CR800, CR850, CR1000, CR3000, CR9000X[b]	Active: 100 μA (all ports HI, no load)
SDM-CD8S | 8-Channel Solid-State DC Relay Controller	Allows the datalogger to control dc devices that have a moderate current load, such as solenoids, solenoid valves, dc motors, stepper motors, lights, horns, heaters, and fans	8	CR800, CR850, CR1000, CR3000, CR9000X[b]	Quiescent: 15 mA Per Active LED (manual or auto): 2.5 mA mA
SDM-CD16S | 16-Channel Solid-State DC Relay Controller	Allows the datalogger to control dc devices that have a relatively high-powered load, such as solenoids, solenoid valves, DC motors, stepper motors, lights, horns, heaters, and fans.	16	CR800, CR850, CR1000, CR3000, CR9000X[b]	Quiescent: 15 mA Per Active LED (manual or auto): 2.5 mA
SDM-INT8 | 8-Channel Interval Timer	Outputs processed timing data to a data-logger, which then calculates RPM, duty cycle, velocity, crank angle	8	CR800, CR850, CR1000, CR3000, CR9000X	13 to 20 mA, active; 400 μA, quiescent
SDM-IO16 | 16-Channel Input/Output Expansion Module	Expands the digital input and/or output capability of a dataloggers	16	CR800, CR850, CR1000, CR3000	Standby: 600 μA (all ports high, no load, excludes pulse counting) Maximum: 3 μA (active will all 16 port counting pulses at 2 kHz and no output load)
SDM-SIO1 | Serial Input/Output Module	Expands the number of serial devices that can communicate with a dataloggers	1	CR800, CR850, CR1000, CR3000, CR9000X[c]	Standby (nominal): 70 μA Standby (maximum): 100 μA Active: 5 to 13 mA depending on transmit mode and connections made
SDM-SIO4 | 4-Channel Serial Input/Output Interface	Allows the datalogger to communicate with intelligent serial sensors, display boards, printers, satellite links, and other serial devices.	4	CR800, CR850, CR1000, CR3000, CR9000X	All Ports Active: 40 mA Quiescent: 0.7 mA (quiescent state entered if there is no SDM or port activity for ~30 ms)
SDM-SW8A | 8-Channel Switch Closure Input Module	Increases the number of switch closures or voltage pulses a datalogger can measure.	8	CR800, CR850, CR1000, CR3000	Quiescent: 3 mA Active (maximum): 6 mA

[a] Retired products are not listed. Refer to the product web page for compatibility with retired products.
[b] Although compatible, these SDMs do not support the CR9000X's fastest communications rate, making them impractical for most CR9000X applications.
[c] The CR9000X's operating system must be OS 6 or higher.