



# Synchronous Devices for Measurement

Expand your output and measurement capabilities





*Rugged, Reliable, and Ready  
for any Application*



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 conditions in the application. Up to 15 SDMs, in any combination, can be connected to one Campbell Scientific datalogger. SDMs are not compatible with the CR200X-series or CR300-series dataloggers.

## MAJOR SPECIFICATIONS


		Function	Number of Channels	Compatible <sup>a</sup> Dataloggers	Current Drain
<b>SDM-AO4A</b>   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	CR6, CR800, CR850, CR1000, CR3000	<p><u>±5 V Mode</u> Power Down Mode: 1.1 mA No Load: 11 to 13 mA With Load: 13 mA + load</p> <p><u>0 to 10 V Mode</u> Power Down Mode: 1.1 mA No Load: 21 to 28 mA With Load: 28 mA + (2.4 x load)</p>
<b>SDM-CAN</b>   Datalogger-to-CANbus Interface		Allows a datalogger to sample data directly from a CANbus communication network. Uses latest CAN controller	1	CR6, CR800, CR850, CR1000, CR3000, CR9000X	<p>Standby (with or without isolation): &lt; 1 mA Communications with Datalogger: 50 mA RS-232 Port Active: 50 mA</p> <p><u>Active in Self-Powered, Isolated Mode</u> Recessive State : 70 mA Dominant State : 120 mA</p> <p><u>Active, Non-Isolated</u> Recessive State : 30 mA Dominant State : 70 mA</p>
<b>SDM-CVO4</b>   4-Channel Current/Voltage Output Module		Expands datalogger current/voltage output capability.	4	CR6, CR800, CR850, CR1000, CR3000, CR9000X <sup>b</sup>	<p>With All Outputs Off: &lt; 0.5 mA</p> <p><u>Active Quiescent Current</u> 27 or 54 mA, depending on operating mode (no load on output ports)</p> <p><u>Estimated Total Current</u> 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.</p>
<b>SDM-CD16AC</b>   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	CR6, CR800, CR850, CR1000, CR3000, CR9000X <sup>b</sup>	<p>Quiescent: 6 mA</p> <p>Per Active LED (switch on or auto active): 45 mA</p>

More info: 435.227.9120

[campbellsci.com/sdm](http://campbellsci.com/sdm)



## MAJOR SPECIFICATIONS

		Function	Number of Channels	Compatible <sup>a</sup> Dataloggers	Current Drain
<b>SDM-CD16D</b>   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	CR6, CR800, CR850, CR1000, CR3000, CR9000X <sup>b</sup>	Active: 100 µA (all ports HI, no load)
<b>SDM-CD8S</b>   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	CR6, CR800, CR850, CR1000, CR3000, CR9000X <sup>b</sup>	Quiescent: 15 mA Per Active LED (manual or auto): 2.5 mA mA
<b>SDM-CD16S</b>   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	CR6, CR800, CR850, CR1000, CR3000, CR9000X <sup>b</sup>	Quiescent: 15 mA Per Active LED (manual or auto): 2.5 mA
<b>SDM-INT8</b>   8-Channel Interval Timer 		Outputs processed timing data to a datalogger, which then calculates RPM, duty cycle, velocity, crank angle	8	CR6, CR800, CR850, CR1000, CR3000, CR9000X	13 to 20 mA, active; 400 µA, quiescent
<b>SDM-IO16</b>   16-Channel Input/Output Expansion Module 		Expands the digital input and/or output capability of a dataloggers	16	CR6, 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)
<b>SDM-SIO1A</b>   Serial Input/Output Module 		Expands the number of serial devices that can communicate with a dataloggers	1	CR6, CR800, CR850, CR1000, CR3000, CR9000X <sup>c</sup>	Standby (nominal): 110 µA Standby (maximum): 150 µA Active: 9.6 to 11.7 mA depending on transmit mode and connections made
<b>SDM-SIO4A</b>   Serial Input/Output Module 		Expands the number of serial devices that can communicate with a dataloggers	4	CR6, CR800, CR850, CR1000, CR3000, CR9000X <sup>c</sup>	Standby (nominal): 110 µA Standby (maximum): 150 µA Active: 9.6 to 11.7 mA depending on transmit mode and connections made
<b>SDM-SW8A</b>   8-Channel Switch Closure Input Module 		Increases the number of switch closures or voltage pulses a datalogger can measure.	8	CR6, CR800, CR850, CR1000, CR3000	Quiescent: 3 mA Active (maximum): 6 mA

<sup>a</sup> Retired products are not listed. Refer to the product web page for compatibility with retired products.

<sup>b</sup> Although compatible, these SDMs do not support the CR9000X's fastest communications rate, making them impractical for most CR9000X applications.

<sup>c</sup> The CR9000X's operating system must be OS 6 or higher.

