



## Expands Data Logger Digital Input/Output Capability

### Overview

The SDM-IO16 expands the digital input and output channel count of Campbell Scientific data loggers.

### Benefits and Features

- ▶ Provides 16 digital I/O ports
- ▶ When configured as an input, each port can monitor logic state, count pulses, measure signal frequency, and determine duty cycle

### Detailed Description

The SDM-IO16 expands the digital input and/or output capability of Campbell Scientific data loggers. When a port is configured as an input, each port can monitor logic state, count pulses, measure signal frequency, and determine duty cycle. An option in the pulse counting mode enables switch debounce filtering, allowing the SDM-IO16 to accurately count switch closures. The SDM-IO16 can also be programmed to send an interrupt signal to the data logger when one or more input signals change state.

When configured as an output, each port can be set to 0 or 5 V by the data logger. A boost circuit allows an output that is set HI to source a current of up to 100 mA (at a reduced output

voltage) for controlling external devices such as low voltage valves or relays.

Up to 15 SDM-IO16 modules can be addressed allowing up to 240 ports to be controlled by the data logger.

### Data Logger Connection

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 digital input and/or output capability of a data logger.
Number of Channels	16
Operating Temperature	-25° to +50°C
SDM & I/O Port	0/5 V logic level ports (for connecting to the data logger's control/SDM ports)
EMC Status	Complies with EN 61326:1997.
Operating Voltage	12 Vdc (nominal 9 to 18 V)
Minimum Frequency	0 Hz is reported if there are less than two high-to-low signal transitions in the measurement interval.
Minimum Pulse Width	244 µs
Default Switch Debounce Timing	Input and ground must remain closed for 3.17 ms then remain open for 3.17 ms to be counted as a closure.
Internal Clock Accuracy	±0.01%, worst case (-25° to +50°C)
Maximum Pulse Measurement Interval	15.9375 s
Dimensions	23.0 x 10.0 x 2.4 cm (9 x 4 x 1 in.)
Weight	350 g (12 oz)

### Maximum Frequency (with 50/50 duty cycle)

Switch Debounce-Mode Turned Off	2.0 kHz on all channels simultaneously
Default Switch Debounce-Mode Enabled	150 Hz on all channels

### Current Drain

*-NOTE- Current consumption is roughly proportional to input signal*

*frequency and number of ports used. Current drawn from any output must be added to the quiescent level to obtain the total current drain.*

Typical Standby	600 µA (all ports high, no load, excludes pulse counting)
Maximum	3 µA (active with all 16 ports counting pulses at 2 kHz and no output load)

### Output

ON/HI Voltage (no load)	› 5 V (nominal) › 4.5 V (minimum)
OFF/LO Voltage (no load)	› 0.1 V (maximum) › 0 V (nominal)
Sink Current	Output will sink 8.6 mA from a 5 V source.
Source Current	› 133 mA short-circuited to ground › 42 mA (@ 3 V)

### Input

Voltage	› 1.0 V maximum threshold (low) › 4.0 V minimum threshold (high)
Protection	Input clamped at -0.6 V and ±5.6 V relative to ground (via a 33 Ω resistor to withstand a continuous current flow of 200 mA)
Source Current	› Output will source 42 mA at 3 V. › 133 mA short-circuited to ground
Impedance	Biased to +5 V relative to ground (by a 100 kohm resistor)

For comprehensive details, visit: [www.campbellsci.com/sdm-io16](http://www.campbellsci.com/sdm-io16) 