CAMPBELL SCIENTIFIC®
WHEN MEASUREMENTS MATTER

SDM-INT8

8-Channel Interval Timer

Includes Internal Microprocessor

Allows independent measurement intervals

Overview

The SDM-INT8 is an eight-channel interval timer that outputs processed timing data to a Campbell Scientific datalogger. Input channels are programmed to record the timing of input voltage transitions (events). Each channel can be programmed independently. The SDM-INT8 outputs period, pulse width, frequency, counts, or time intervals. Processing by the datalogger or a computer yields measurements such as RPM, duty cycle, velocity, and crank angle.

SDM Operation

The datalogger enables individual modules through an addressing scheme; up to 15 SDM-INT8s can be connected to one datalogger. After a module is enabled, it operates independently of the datalogger until additional commands are received or results are transmitted.

Datalogger Connection

The CABLE5CBL is recommended for connecting the module to the datalogger. A 30 cm (1-ft) cable length should be sufficient when both datalogger and SDM-INT8 are housed within an ENC12/14 enclosure; a 60 cm (2-ft) length may be required if the datalogger and SDM-INT8 are housed at opposite ends of an ENC16/18 enclosure.

The cable length should be as short as possible. Typically, the maximum cable length is 6 m. Contact Campbell Scientific if the length needs to be longer.

Measurement Capabilities:

- Period (ms)
- Frequency (kHz)
- Elapsed time between events on adjacent channels
- Number of counts measured on channel 2 between a "start" event on channel 1 and a "stop" event on any other channel
- Elapsed time between events on channel 1 and any other channel
- Pulse Counting (any channel can function as a pulse counter)

Benefits and features

- Contains an internal microprocessor that allows measurements independent of datalogger's execution interval.
- Captures timing events with ±1 microsecond resolution over a maximum range of 16.7 seconds.
- Programmable output options record results as execution interval averages, continuous averages, specified interval averages, or capture all events.

Typical applications

- Ignition and fuel injection timing
- Velocity/elapsed time between two points
- Wind speed measurements (ac generator type)
- Cold crank engine testing

Power considerations

The SDM-INT8 draws 20 mA. In most applications, the datalogger's sealed rechargeable power supply can be used. The datalogger's alkaline power supply has sufficient capacity to operate the SDM-INT8 during short-term installations only.

SDM-INT8 Specifications

Compatible Dataloggers: CR800, CR850, CR1000, CR3000, CR5000 and CR7. The SDM-INT8 is not compatible with the CR200 series, CR500, and CR510 loggers.

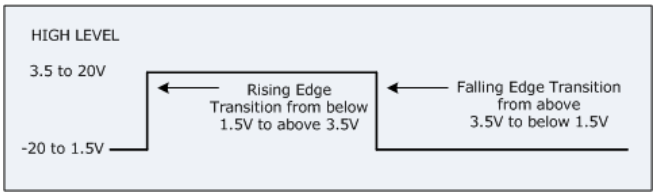
Operating Voltage: 9.6 V to 16 Vdc

Current Drain
- **Quiescent:** 400 µA
- **Active:** 13 to 20 mA

Resolution: ±1 microsecond

Maximum Timing Measurement: 16.7 seconds

High Level Voltage Input Pulses



Minimum Pulse Width: 2 microseconds

Signal Edges
- **Rising:** Transition from <1.5 to >3.5 V
- **Falling:** Transition from >3.5 to <1.5 V

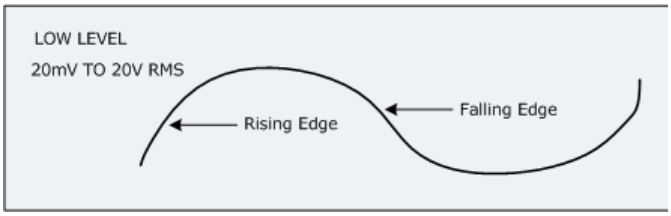
Maximum Input Voltage: ±20 Vdc

Maximum Frequency (high resolution (32-bit) values; assumes all eight channels used)
- **Averaging Options:** 5.1 kHz
- **Capturing All Events:** 10 kHz

Maximum Frequency (low resolution (16-bit) values)
- **Execution Interval Averaging only:** see chart below

No. of Channels Programmed	Maximum Frequency (kHz)
1	42.5
2	17.5
3	11.0
4	8.6
5	5.2
6	4.8
7	4.5
8	4.28

Low Level AC Voltage Input



Minimum AC Voltage: 20 mV RMS
Input Hysteresis: 11 mV
Maximum AC Voltage: 20 V RMS
Minimum Frequency: 1 Hz
Maximum Frequency:

Minimum ac voltage	RMS Max Freq. (Hz)
20 mV	100
50 mV	400
150 mV	1000
2.5 V to 20 V	4000

Physical
- **Operating Temperature:** -25° to +50°C
- **Dimensions:** 20.3 cm x 12.7 cm x 2.5 cm (8 in x 5 in x 1 in)
- **Weight:** 0.82 g (1.8 lbs)

Ordering information

Synchronous Device for Measurement
- **SDM-INT8** 8-Channel Interval Timer Module

SDM-to-Datalogger Cable
- **CABLE5CBL** 5-conductor, 24 AWG cable with drain wire and Santoprene jacket. Must choose a cable termination option (see below).

Cable Termination Options (choose one)
- **-PT** Cable terminates in stripped and tinned leads for direct connection to a datalogger's terminals.
- **-PW** Cable terminates in connector for attachment to a prewired enclosure.