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.

Benefits and Features

- Allows individual programming for each of the eight channels
- Includes an internal microprocessor that allows measurement independent of datalogger’s execution interval
- Outputs period, pulse width, frequency, counts, or time intervals
- Records results as execution interval averages, continuous averages, specified interval averages, or capture all events

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)

Typical Applications

- Ignition and fuel injection timing
- Velocity/elapsed time between two points
- Wind speed measurements (ac generator type)
- Cold crank engine testing
- Independent wheel speed measurements for anti-lock brake 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 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.

Specifications
- Operating Voltage Range: 9.6 to 16 Vdc
- Current Drain: 13 to 20 mA active; 400 μA quiescent
- Maximum Timing Measurement: 16.7 s
- Resolution: ±1 μs
- Operating Temperature Range: -25° to +50°C
- Dimensions: 0.3 x 12.7 x 2.5 cm (8 x 5 x 1 in)
- Weight: 0.82 kg (1.8 lb)

Low Level AC Voltage Input
- AC Voltage: 20 mV RMS (min.), 20000 mV RMS (max.)
- Input Hysteresis: 11 mV
- Minimum Frequency: 1 Hz
- Maximum Frequency:

<table>
<thead>
<tr>
<th>Minimum AC Voltage RMS</th>
<th>Maximum Frequency (Hz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 mV</td>
<td>100</td>
</tr>
<tr>
<td>50 mV</td>
<td>400</td>
</tr>
<tr>
<td>150 mV</td>
<td>1000</td>
</tr>
<tr>
<td>2.5 V to 20 V</td>
<td>4000</td>
</tr>
</tbody>
</table>

High Level Voltage Input Pulses
- Minimum Pulse Width: 2 μs
- 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:

<table>
<thead>
<tr>
<th>Number of Channels Programmed</th>
<th>Maximum Frequency (kHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>42.5</td>
</tr>
<tr>
<td>2</td>
<td>17.5</td>
</tr>
<tr>
<td>3</td>
<td>11.0</td>
</tr>
<tr>
<td>4</td>
<td>8.6</td>
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<tr>
<td>5</td>
<td>5.2</td>
</tr>
<tr>
<td>6</td>
<td>4.8</td>
</tr>
<tr>
<td>7</td>
<td>4.5</td>
</tr>
<tr>
<td>8</td>
<td>4.28</td>
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</tbody>
</table>