SDM-CVO4
Current/Voltage Output Module

Lets Datalogger Control Voltage

Expands datalogger's current/ voltage output capability

Overview

The SDM-CVO4 is attached to a datalogger and outputs variable voltage or current signals under datalogger program control. Typical applications include driving remote current-loop display units, retransmitting measured values to industrial control systems, sending control signals to valve controllers, and providing excitation voltages or currents to external sensors.

Benefits and Features

› Expands datalogger current/voltage output capability
› Provides four independent current or voltage outputs
› Drives remote current-loop display units
› Retransmits measured values to industrial control systems that have current or high voltage inputs
› Sends control signals to valve controllers
› Provides excitation voltages or currents to external sensors

Technical Description

The SDM-CVO4 includes four output channels for connecting the external devices. It outputs variable voltage or current signals under datalogger program control. The outputs are isolated both from the datalogger and the other channels on the SDM-CVO4, thereby avoiding ground loop problems. Each output can be set to 0 to 10 Vdc or 0 to 20 mA by the datalogger program (current outputs can also be scaled and limited to 4 to 20 mA).

In the current mode, the output either acts as a two-wire current controller, where the loop is powered from a remote voltage source, or generates a 0 to 20 mA current source using a voltage output derived from its own power supply.

Isolation

The SDM-CVO4 includes an internal isolation barrier and components rated to provide signal isolation for transients up to 1500 Vac (rms), 2500 Vdc nominal. The isolation is between any output and the SDM-CVO4 ground connection and between individual output channels.

Protection components are built-in, which will break down in a controlled fashion at voltages close to this limit (see Operator's Manual Section 4.5, Safety Issues, for details).

Power Considerations

The SDM-CVO4 power requirements are large compared to most Campbell Scientific products—especially when driving significant loads. Care must be taken to ensure the power supply can deliver this higher demand. Alkaline batteries are not recommended for long-term applications.

The SDM-CVO4 has two internal power supplies—one for channels 1 and 2 and one for channels 3 and 4. The power supply for channels 3 and 4 is only turned on if the datalogger sends an instruction that sets the output of those channels. If channels 3 and 4 are not used, the power consumption is approximately 20 mA lower than when all outputs are used.

Where supported by the datalogger, and when the application allows it, the SDM-CVO4 can be shut down to reduce its power consumption to less than 0.5 mA. In this state, all outputs are switched off.

Ordering Information

Synchronous Device for Measurement

SDM-CVO4   4-Channel Current and Voltage Output Module

SDM-to-Datalogger Cable

CABLE5CBL-L   5-conductor, 24 AWG cable with drain wire and Santoprene jacket. Enter cable length, in feet, after the -L. 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.

Specifications

- ❯ Weight: 363 g (13 oz)
- ❯ Dimensions
  Without Mounts: 17.8 x 10.2 x 2.3 cm (7.0 x 4.0 x 0.9 in)
  With Mounts: 23.4 x 11.2 x 2.3 cm (9.2 x 4.4 x 0.9 in)
- ❯ Surge: Complies with IEC61000-4-5, test level 3 (±2 kV, 2 Ω coupling impedance)
- ❯ Operating Temperature: -25 to +50℃
- ❯ Operating Voltage: 12 Vdc nominal (8 to 16 V)
- ❯ Minimum Voltage Drop Across The Internal Current Regulating Circuit: 2.5 V @ 20 mA current flow
- ❯ Maximum Input Voltage Relative To Channel Ground: 20 Vdc
- ❯ EMC Status: Complies with EN55022-1:1998 and EN50082-1:1998

Isolation

- ❯ Tested Isolation: Each channel of each unit is tested for isolation resistance at 500 Vdc. Pass level > 10 MΩ
- ❯ Maximum Recommended Continuous Operating Voltage: [a] 240 Vac rms differential between an output and the datalogger ground

Current Drain @ 12 Vdc[b]

- ❯ Typical Active Current: 27 or 54 mA, depending on operating mode (no load on output ports)
- ❯ With All Outputs Off: < 0.5 mA

Current Mode

- ❯ Range: 0 to 20,000 µA
- ❯ Resolution: 5 µA
- ❯ Accuracy at +23℃: ±0.02% of set current + (±5 µA)
- ❯ Typical Accuracy at -25° to +50℃: ±0.1% of set current + (±5 µA)
- ❯ Worst Case Accuracy at -25° to +50℃: ±0.15% of full scale range + (±5 µA)

Voltage Mode

- ❯ Range: 0 to 10,000 mV
- ❯ Resolution: 2.5 mV
- ❯ Maximum Output Current: 30 mA per channel
- ❯ Minimum Load Current: 5 µA if output < 200 mV
- ❯ Accuracy at +23℃: ±0.02% of set voltage + (±2.5 mV)
- ❯ Typical Accuracy at -25° to +50℃: ±0.13% of set voltage + (±2.5 mV)

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[a] *Maximum recommended continuous operating voltage assumes all issues relating to local regulations for safe installation and operation are followed (see Operator's Manual Section 4.5, Safety Issues).*

[b] *To estimate the total current, add the quiescent current to the sum of all output currents multiplied by 1.5. For example, if each port is at 10 mA output, the total = 54 + (1.5•4•10) = 114 mA.*