

FOUR-CHANNEL CURRENT/VOLTAGE OUTPUT MODULE

FEATURES

- **Voltage and Current Output**
- **Works with IMP-850 and IMP-860 Data Loggers**

The CSDM-CVO4 is a data logger peripheral that outputs voltage or current signals under data logger program control. Each output can be set to 0 to 10 Vdc or 0 to 20 mA by the data logger program. Current outputs can also be scaled and limited to 4 to 20 mA. Typical applications include driving remote 'current-loop' display units, retransmitting measured values to industrial control systems that have current or high voltage inputs, sending control signals to valve controllers, and providing excitation voltages or currents to external sensors. Each output is isolated both from the data logger and from the other channels on the CSDM-CVO4, thereby avoiding ground loop problems. In the current mode, the output can either act as a 2-wire current controller, where the loop is powered from a remote voltage source, or it can be used to generate a 0 to 20 mA current source using a voltage output derived from its own power supply. The CSDM-CVO4 is compatible with Climatronics' IMP-850 and IMP-860 data loggers.



Operation

The CSDM-CVO4 is synchronously addressed. Data logger control ports 1, 2 and 3 are used to address the CSDM-CVO4 and send data that defines the desired voltage/current output of each of the four channels. The output levels are set by four values in successive input locations in the data logger. A total of sixteen CSDM-CVO4s or other CSDM peripherals may be connected and addressed from the same three ports. The IMP-850 and IMP-860 data loggers require CPC208W software to program the CSDM-CVO4.

Power Considerations

The CSDM-CVO4 power requirements are large compared to most IMP-850 and IMP-860 applications, 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 CSDM-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 data logger 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 data logger, and when the application allows it, the CSDM-CVO4 can be shut down to reduce its power consumption to less than 0.5 mA. In this state, all outputs are switched off.

SPECIFICATIONS

Valid for a temperature range of -25° to +50°C, unless otherwise specified.

OUTPUT SPECIFICATIONS

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 (+23°C):	±0.02% of full scale range, ± 1 step of resolution
Accuracy (-25° to +50°C):	±0.13% of full scale range, ± 1 step of resolution

Current Mode

Range:	0 to 20,000 µA
Resolution:	5 µA
Minimum output current (leakage):	5 µA at +50°C
Accuracy (+23°C):	±0.02% of full scale range, ± 1 step of resolution
Accuracy (-25° to +50°C):	±0.1% of full scale range, ± 1 step of resolution
Minimum voltage drop across the internal current regulating circuit:	2.5 V @ 20 mA current flow
Maximum input voltage to channel ground:	20 Vdc. When in current mode, the Vo terminal outputs an relative unregulated voltage source at 15 V nominal (±10%), 30 mA maximum load.

Isolation

Isolation Circuitry:	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 CSDM-CVO4 ground connection and between individual out put 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).
Tested isolation:	Each channel of each unit is tested for isolation resistance at 500 Vdc. Pass level > 10 M....
Maximum recommended:	240 Vac rms differential between an output and data logger ground.

Power

Operating voltage:	12 Vdc nominal (8 to 16 V)
Current drain at 12 Vdc:	Typical active quiescent current 27 or 54 mA, depending on operating mode (no load on output ports). 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. The CSDM-CVO4 draws <0.5 mA with all outputs off.
Maximum total CSDM cable length:	6 m

Environmental

Operating temperature:	-25° to +50°C standard (-40° to 80°C on special order)
Humidity:	Non-condensing

Physical

Size:	6.9" x 4.4" x 0.94" (17.6 x 11.1 x 2.4 cm). 9.2" x 4.4" x 0.94" (23.4 x 11.1 x 2.4 cm) when fitted with mounting brackets.
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Weight:

EMC Status:

Weight:	13 oz. (0.370 kg)
EMC Status:	Complies with EN55022-1:1998 and EN50082-1:1998



Climatronics Corporation
140 Wilbur Place
Bohemia, NY 11716-2404

TEL: 631-567-7300
FAX: 631-567-7585
E-Mail: sales@climatronics.com