Datalogger-to-CANbus Interface
Model SDM-CAN

The SDM-CAN interface allows a CR800, CR10X, CR1000, CR3000, CR7, CR5000, or CR9000X datalogger to sample data directly from a CANbus communications network. CANbus data can be stored (and synchronized) with other data values measured directly by the datalogger, allowing testing and verification of CAN-based measurements alongside those made independently. The SDM-CAN uses the latest Philips SJA1000 CAN controller clocked at 16 MHz; CAN 2.0A and 2.0B active and passive modes are supported. The CANbus protocol is used in a number of networking applications, including vehicle testing applications (VDAS). Data is transferred between the SDM-CAN interface and the datalogger using Campbell Scientific's high speed SDM communications protocol. Up to 16 SDM-CAN units can be addressed and simultaneously connected to a datalogger.

The SDM-CAN can act as a passive "listen-only" device, poll remote devices for data, or act as a sensor. To poll remote devices it sends or responds to Remote Frame Requests. It acts as a sensor by sending data packets to the CANbus network. The SDM-CAN supports baud rates up to 1 Mbps (1 M, 800 k, 500 k, 250 k, 125 k, 50 k, 20 k, and lower). Non-standard baud rates may be possible. CAN data frames can also be built and sent.

SDM Operation

The datalogger enables individual modules through an addressing scheme; multiple SDMs (in any combination) 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. Total cable length between datalogger and all S DMs cannot exceed 20 feet (6 m).

Specifications

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

Electrical

- dc power supply range from 7 to 26 Vdc.
- Optional (switch selectable) galvanic isolation between the datalogger and the CANbus. The minimum isolation breakdown is 50 V; this barrier is for signal isolation only (i.e., it is not a safety barrier).
- Uses the latest Philips SJA1000 CAN controller clocked at 16 MHz.
- CANbus physical interface using Philips PCA82C250 driver for 1 Mbaud capability, for use in 12 V powered systems. For 24 V systems, a special version fitted with the PCA82C251 driver is available. This version can also be used in 12 V systems, but has an increased power consumption (approximately +50 mA).
- CANbus physical connection conforms to CIA draft standard 102 version 2, 9-pin D connector. (The interface will differ from this standard only with respect to pin 9, which outputs 5 Vdc instead of 7 to 13 Vdc)
- A three-way, unpluggable screw terminal block for CAN High, Low, and G provided.
- For safety reasons, can disable CANbus transmit and acknowledge via a jumper (e.g. for in-vehicle, listen only monitoring).

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Specifications (continued)

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

Power consumption

Typical active current in self-powered, isolated mode:

- 70 mA with the CANbus in the recessive state
- 120 mA with the CANbus in the dominant state

Typical active current, non-isolated:

- 30 mA with the CANbus in the recessive state
- 70 mA with the CANbus in the dominant state

Typical standby current with or without isolation is less than 1 mA. Current consumption increases to typically 50 mA during communications with the datalogger or when the RS-232 port is active.

Physical specifications

- Size: 6.9" x 3.9" x 0.9" (17.5 x 10.0 x 2.3 cm)
- Weight: 0.14 lbs (0.3 kg)
- The device can be vertically mounted with all the connectors on the top surface.
- Fittings available for vertical mounting in the CR9000X or on enclosure chassis plates.

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