

SDM-CAN

Datalogger-to-CANbus Interface



The SDM-CAN interface allows a Campbell Scientific 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. Please note that the SDM-CAN is not compatible with our CR200-series, CR500, and CR510 dataloggers.

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.

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.



Left of the CR5000 datalogger is a SDM-CAN. It allows a vehicle's on-board diagnostic system to output standardized data streams that are synchronized with other measurements and stored in the CR5000.



SDM Operation

The datalogger enables individual modules through an addressing scheme; up to 16 SDM-CANs 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-L is recommended for connecting the module to the datalogger*. A 1-ft cable length should be sufficient when both datalogger and SDM-CAN are housed within an ENC12/14 enclosure; a 2-ft length may be required if the datalogger and SDM-CAN 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 20 ft. Contact Campbell Scientific if the length needs to be longer.

Ordering Information

Synchronous Device for Measurement

SDM-CAN Datalogger to CANbus Interface

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.

Mounting Kit

CABLE5CBL-L SDM-CAN Mounting Kit for CR9000(X) Slot. An SDM-CAN, fitted with the 13958, occupies one slot in the CR9000(X) chassis. Please note that the mounting bracket that comes attached to the SDM-CAN must be removed prior to mounting the SDM-CAN to the 13958's metal brackets.

*The SDM-CAN has special cabling requirements when used with the CR9000; contact the factory for more details.

Specifications

Electrical specifications are valid over a -25° to +50°C range unless otherwise specified.

Electrical

- Operating voltage: 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 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).

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.

