

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(X)-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 MB (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.

SDM-CAN Helper

SDM-CAN Helper is an add-on program for our RTDAQ Real-Time Data Acquisition Software. This add-on program walks users through the process of configuring their SDM-CAN, connecting the SDM-CAN to the datalogger, sending an appropriate program to the datalogger, and setting up their datalogger to collect specific values from the CANbus network.

SDM-CANHelper is available, at no charge, from www.campbellsci.com/downloads. Users must have a valid installation of RTDAQ on their computer to install the SDM-CAN Helper program.

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

Ordering Information

Synchronous Device for Measurement

SDM-CAN Datalogger to CANbus Interface

Mounting Kit

13958 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.

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

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

Electrical

Operating Voltage:	7 to 26 Vdc
Galvanic Isolation:	Switch selectable galvanic isolation between the datalogger and the CANbus provides minimum isolation breakdown of 50 V; this barrier is for signal isolation only (i.e., it is not a safety barrier)
CAN Controller:	Uses the latest Philips SJA1000 CAN controller clocked at 16 MHz
CANbus Physical Connection Standard:	Conforms to CIA draft standard 102 version 2, 9-pin D connector. Differs from this standard with respect to pin 9, which outputs 5 Vdc instead of 7 to 13 Vdc.
Screw Terminal Block:	3-way, unpluggable for CAN High, Low, and G
Jumper:	Allows CANbus transmit and acknowledge to be disabled for safety reasons (in-vehicle, listen only monitoring)

Power Consumption

Typical Active Current in Self-Powered, Isolated Mode:

Recessive State:	70 mA
Dominant state:	120 mA

Typical Active Current, Non-isolated:

Recessive State:	30 mA
Dominant state:	70 mA

Typical Standby Current: <1 mA (with or without isolation)

Typical Current during Communications with the Datalogger:

50 mA

Typical Current when RS-232 port is active:

50 mA

Physical

Dimensions:	17.5 x 10.0 x 2.3 cm (6.9" x 3.9" x 0.9")
Weight:	0.3 kg (0.14 lb)
Mounting:	Can be vertically mounted

