



The 540SIM (Sensor Input Module) is a CAN (J1939) based five channel analog input module that will read a variety of different analog sensors and convert them to a user definable CAN message. The compatible analog signals are 0-5V, 0-10V, 4-20mA, and 0-300 ohms resistive. Three of the channels are designed to read 0-5V inputs. Each of these channels also has an individually short circuit and over-voltage protected 5V output to provide excitation or power to an external sensor. These three channels can also be controlled via software to enable a sense resistor that will allow it to make a measurement based on the resistance between the two input terminals. A fourth channel is scaled for a 0-10V measurement that is fully differential and bi-polar. Reversal of the input will result in a negative value and does not need to be referenced to module ground. If a larger range is required the module can be provided with a larger scaling to measure higher voltages at the cost of slightly less accuracy. The fifth channel on the module will interface with a 4-20mA signal. It has a third terminal that can be used to provide loop power for external sensors which is tied to battery input and is short circuit and over-voltage protected.

The 540SIM is housed in a sealed Deutsch enclosure that allows for it to be mounted in extreme environments and withstand those conditions. It uses 2 of the DTM13 style polarized connectors to provide internal power and external connections to all sensor options.

The software is integrated with the HMI CAN Create family. This allows user definable messages that can packetize multiple readings into a single message, or can expand to provide a unique message containing the raw, calibrated, and specific information to identify the sensor. Each input will utilize our table builder function which can create a profile of the sensor and provide a calibrated measurement in the correct units. Once a sensor has been profiled its calibration table can be stored and reloaded into multiple units that use the same sensor.

### Design Specifications

- Shock: Mil Std 202G method 213B Test Condition C
- Vibration: Mil Std 202G method 204D Test Condition B
- Ingress Protection : IP66
- PCB Characteristics : UL94V-0
- Salt Spray: ASTM B117
- J1113 Transient / Immunity Protections
- Load Dump Pulse 5B (50V peak)
- 0-5V Input Accuracy – 0.5%
- 0-300 Ohm Input Accuracy – 0.5%
- 0-10V Input Accuracy – 1%
- 4-20mA Input Accuracy – 0.5%

### Electrical Specifications

Description	Minimum	Nominal	Maximum
Operating Voltage	10 VDC	12 / 24 VDC	48 VDC
Operating Current (internal only)	15 mA @ 32 VDC	-	30 mA @ 10 VDC
External +5V	4.85VDC	5VDC	5.15VDC
+5V current limit	0mA	20mA	50mA
4-20mA current limit	0mA	20mA	50mA

### Physical Specifications

Operating Temperature	-40°C to 80°C
Storage Temperature	-55°C to 85°C
Operating Humidity	up to 100% condensing