

M-Logger

58810199

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Introduction

The M-Logger

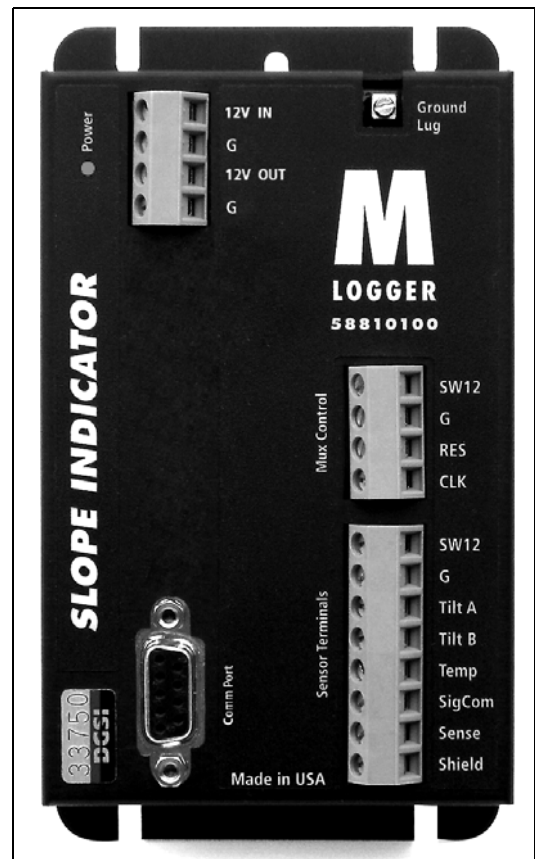
The M-Logger reads Slope Indicator MEMS and EL SC sensors. The logger can work with a single sensor, multiple sensors connected to a multiplexer, or a chain of serial sensors.

M-Logger Manager software is supplied with the logger. It is used to set logging schedules and to retrieve stored data.

Refer to the Manager software manual for instructions on how to use the M-Logger with Manager software.

If you do not have a copy of this manual, it can be downloaded from www.slopeindicator.com.

Data files can be sent to Atlas or some other automated processor or imported into a spreadsheet.



Power Supply

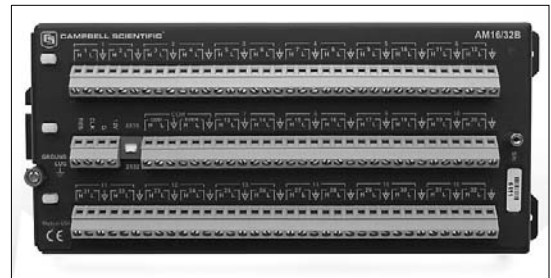
Various components are available. The photo shows an AC power adaptor, a charging regulator, and a 12V battery. Solar panels are also available.



Enclosure Various enclosures are available. The photo shows a 300 x 360 mm (12 x 14 inch) enclosure that contains a battery with charging regulator, an M-Logger, a terminal board for power distribution, and a multiplexer.



Multiplexer The M-Logger can operate one multiplexer. The photo shows a Campbell Scientific AM16/32 multiplexer.



Communications Modules A cellular modem with data service can be used to FTP data from the logger directly to the internet. Other communications options will include point-to-point radio modems and WiFi modules.



Connecting Power

Power Terminals

Connect a power source to the power terminals identified in the photo.

1. Connect + to 12V.
2. Connect - to G.

The logger requires a nominal 12Vdc (8 to 15Vdc). MEMS and EL SC sensors require 8 to 15 Vdc.

Once connected, the power indicator light will blink every 10 seconds indicating that the M-Logger is powered.

Note that the 12V Out terminal is intended for connecting a modem and is continuously powered.



Power Supplies

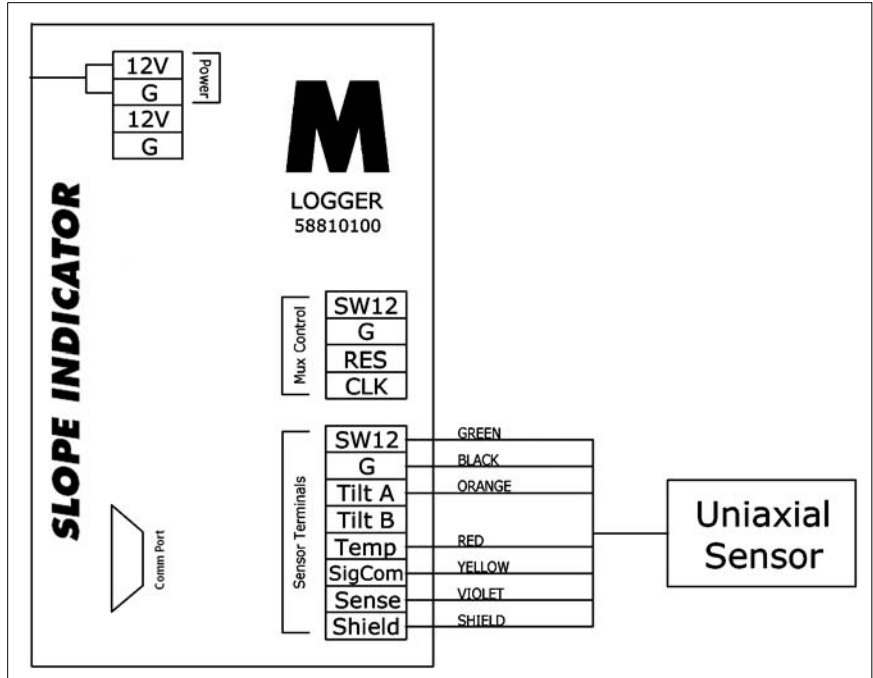
Various power supplies can be used. The photo shows an AC power adaptor, a charging regulator, and a 12V battery. Solar panels are also available.

Appendix A shows battery life for configurations that use a battery without a charger.

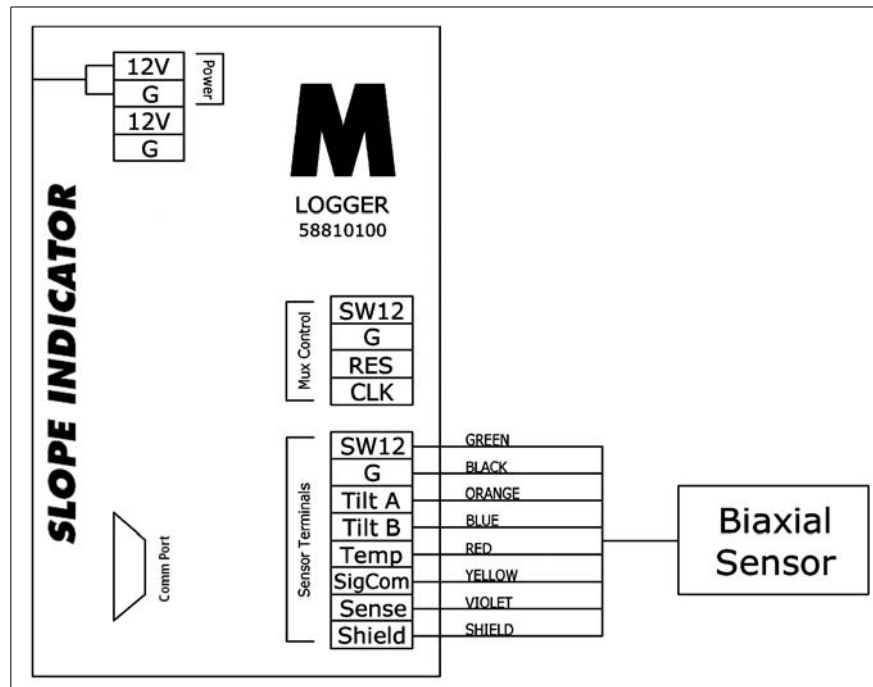


Connecting Sensors

Uniaxial Sensor This drawing shows how to connect one uniaxial sensor.



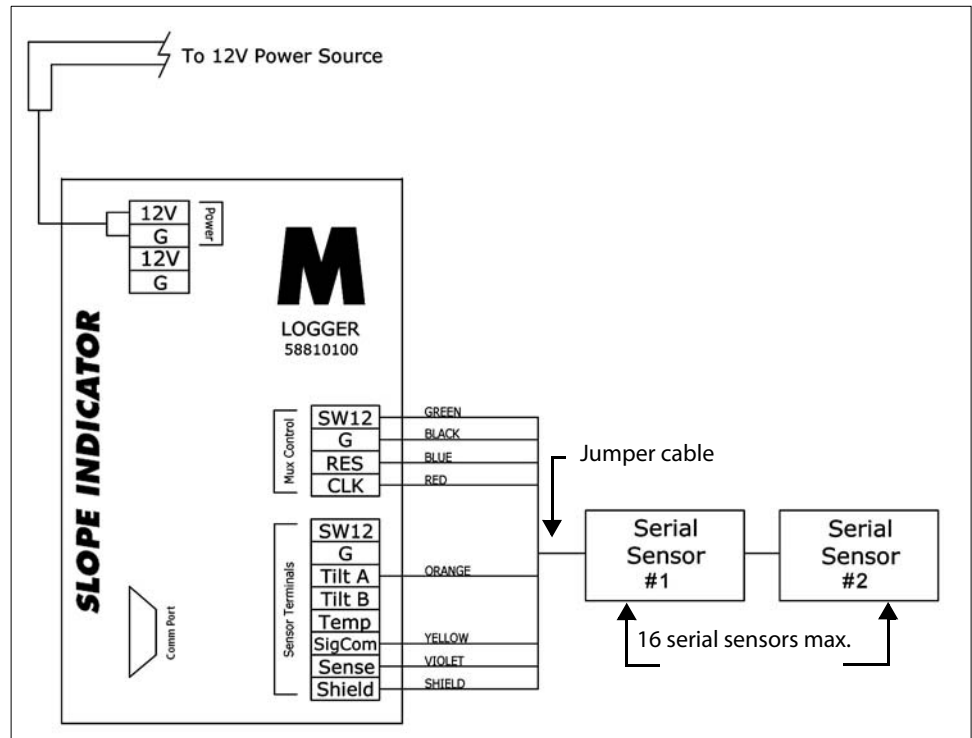
Biaxial Sensor This drawing shows how to connect one biaxial sensor.



Serial Sensors

Serial sensors are chained electrically so that they effectively share one cable. A jumper cable runs from the top sensor in the chain to the logger. The drawing shows wire colors of the jumper cable.

Important: When you install serial sensors, note the position and serial number of each sensor in the chain. You will need this information later.



Limitations

Refer to the MEMS In Place Inclinator manual for information pertaining to distance limitations

Multiplexer with Uniaxial Sensors

This drawing shows how to connect standard uniaxial sensors to a Campbell Scientific AM16/32 Multiplexer. Sensors are powered via connections to the terminal board (part 26811615).

Important: Note the position and serial number of each sensor connected to the mux. You will need this information later.

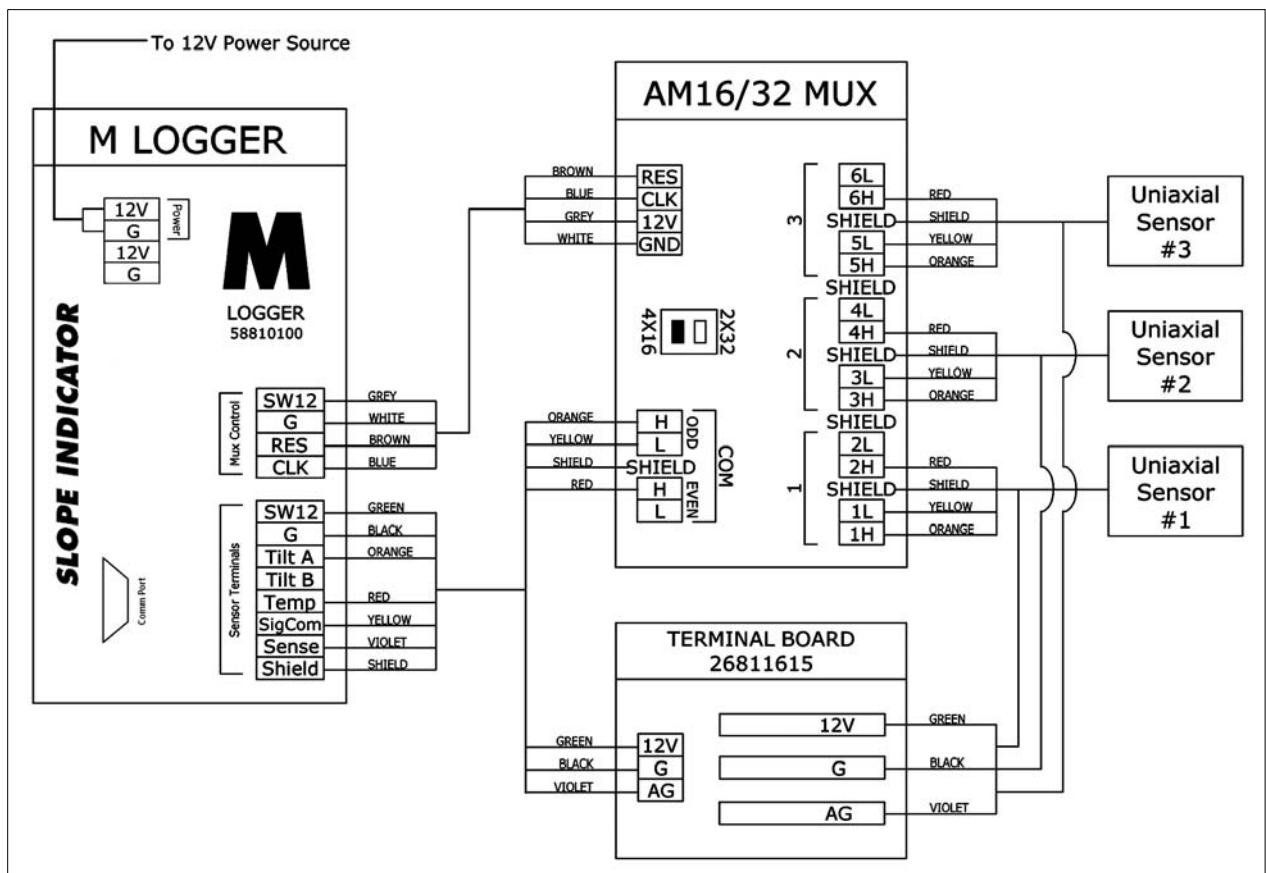
M-Logger to Mux

1. Connect the M-Logger's mux control terminals to the control terminals on the multiplexer. Set the Mux switch to 4 x 16.
2. Connect sensor terminals TiltA, Temp, Sig Com + shield to the COMmon terminals on the MUX.
3. Connect sensor terminals SW12, G, and Sense to the terminal board.

Sensors to Mux

Cables used with MEMS or EL SC sensors have 7 wires + a shield wire. Uniaxial sensors use only 6 wires + shield, so one wire (blue) is usually cut off.

1. Connect Red, Yellow, and Orange wires + shield to the multiplexer terminals.
2. Connect Green, Black, and Violet wires to the terminal board.



Multiplexer with Biaxial Sensors

This drawing shows how to connect standard biaxial sensors to a Campbell Scientific AM16/32 Multiplexer. Sensors are powered via the terminal board (part 26811615).

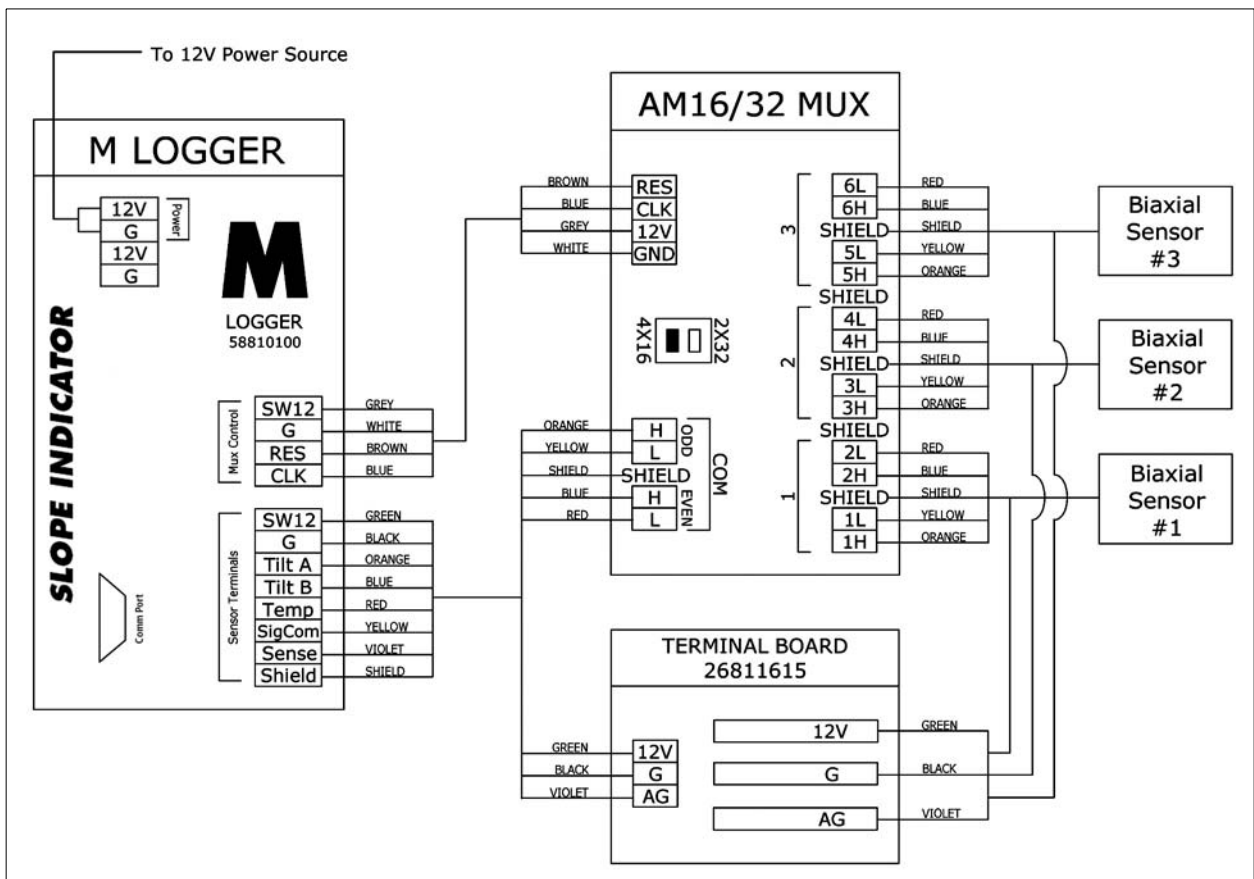
Important: Note the position and serial number of each sensor connected to the mux. You will need this information later.

M-Logger to Mux

1. Connect the M-Logger's mux control terminals to the control terminals on the multiplexer. Set the Mux switch to 4 x 16.
2. Connect sensor terminals TiltA, TiltB, Temp, Sig Com + shield to the COMMon terminals on the MUX.
3. Connect sensor terminals SW12, G, and Sense to the terminal board.

Sensors to Mux

1. Connect Red, Blue, Yellow, and Orange wires + shield to the multiplexer terminals.
2. Connect Green, Black, and Violet wires to the terminal board.

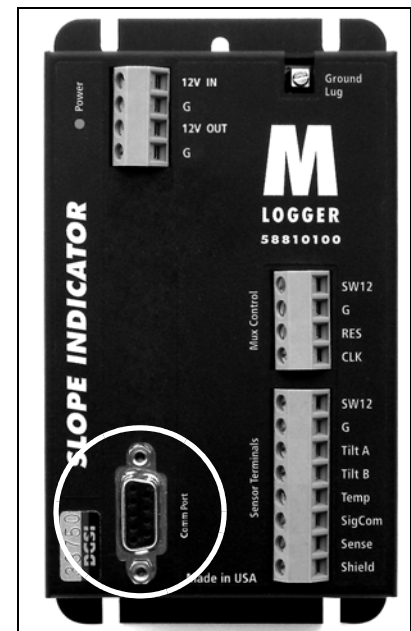


Connecting a PC to the Logger

Serial Port Connections

Use the serial interface cable to connect a PC to the logger. The interface cable is “modem” cable, with straight-through wires. Null-modem cables will not work.

1. Look for a 9-pin connector on your PC. If your PC has only USB ports, read the information on adapters below.
2. Connect one end of the interface cable to the PC’s serial port and the other end of the cable to the M-Logger’s “Comm Port”.



USB Port Connections

If your PC has only USB ports, a USB Serial adapter is required. The adapters are available in computer stores and office-supply stores. Some adapters are recognized by Windows immediately. Other adapters require installation of the driver software which is supplied with the adapter. If you must install software, follow installation instructions exactly.

Refer to the Manager manual for instructions on testing the adaptor.

Appendix A: Battery Life

Battery Life (no charger)

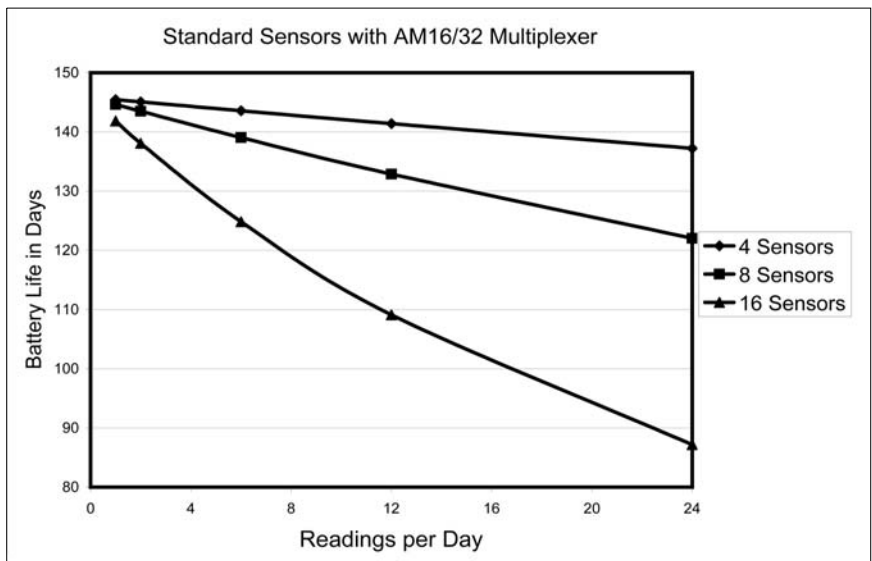
Battery life data below were obtained with a fully charged 12V 7ah battery at 20 degrees C.

Battery Life with One Sensor

When the logger reads one 1 sensor every hour, battery life is about 145 days. Reading once per day makes almost no change.

Battery Life with Multiplexer and Sensors

The graph below shows battery life with 4, 8 and 16 sensors connected to a multiplexer with various reading intervals:



Battery Life with Serial Sensors

The graph below shows battery life with 4, 8 and 16 serial sensors connected to the logger:

