

Grounding the SRi32S datalogger

1. Power supply

The power supply of SRi32S datalogger must be connected to pins A,B (positive voltage) and pins C,D (negative voltage or power return). The power is applied to the electronic circuits of the unit through a common mode choke (choke exists internal to the datalogger) and therefore the power return rail **must not** be grounded externally.

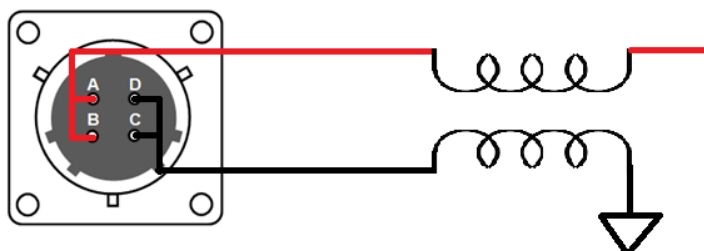
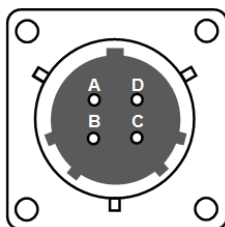


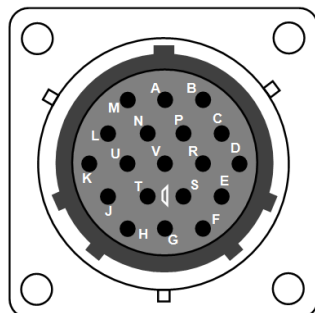
Figure 1. Simplified power schematic diagram.



Pin	Signal
A	Power in (+12volt nominal)
B	Power in (+12volt nominal)
C	GND
D	GND
Body	Digital Ground [DGND]

2. Analog signal connection - general recommendations

The connector of the analog signals provides access to the analog and digital ground of the datalogger through pins R and M respectively. The analog and digital ground signals are internally connected at a common power point. The user must connect both analog and digital ground signals to the sensor according to the instructions of the sensor manufacturer. In general, the digital ground or the box of the datalogger (which is connected to the digital ground) must be connected to the system ground.



Pin	Description
A	Channel 1 signal IN(+) (vertical component)
B	Channel 1 signal IN(-) (vertical component)
C	Channel 2 signal IN(+) (N\S) component)
D	Channel 2 signal IN(-) (N\S) component)
E	Channel 3 signal IN(+) (E\W) component)
F	Channel 3 signal IN(-) (E\W) component)
G	TEST SIGNAL
H	Low resolution channel 1
J	Low resolution channel 2
K	Low resolution channel 3
L	Low resolution channel 4
M	Digital Ground [GND]
N	POWER +12Volts (Direct from input)
P(*)	POWER -12Volts (Direct from input)
R	Analog Ground [AGND]
S	Control output 1
T	Control output 2
U	Control output 4
V	Control output 3
body	Shield - Digital Ground [GND]

3. Borehole sensor connection

The borehole sensors C100, S100, and S20BH provide grounding through their conductive body. The cable shield is connected to pin M at the one end and the sensor body at the other end. This configuration ensures proper system grounding.

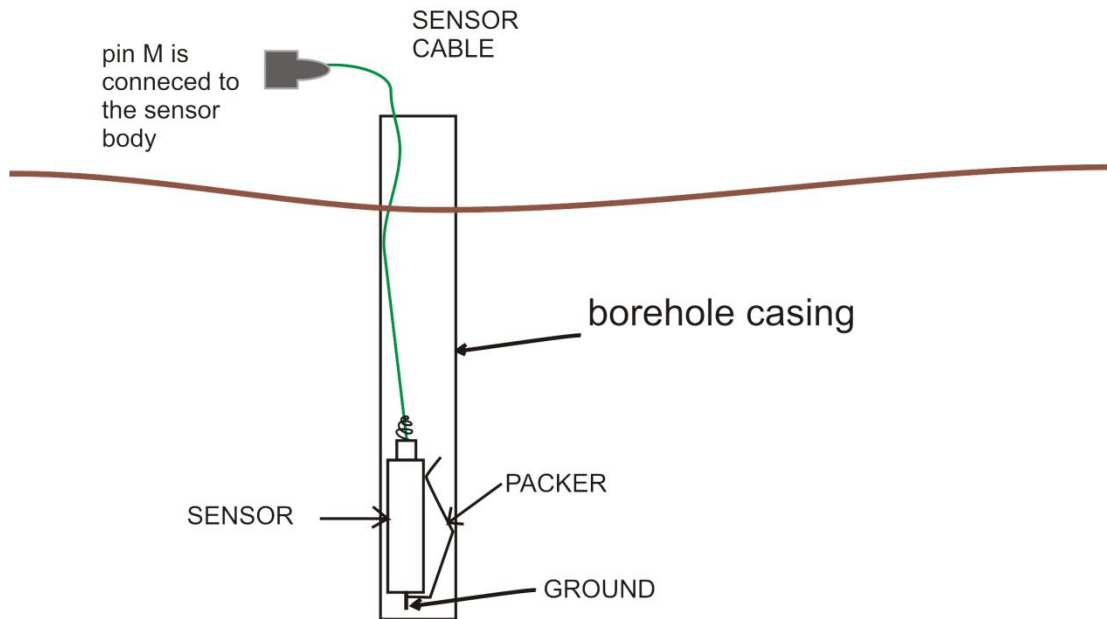


Figure 2. Passive borehole sensor grounding.

If any other borehole sensor is going to be connected to the SRI32S datalogger, the user has to make sure that the body of the borehole sensor will be connected to the pin M of the signal connector, through the cable shield.

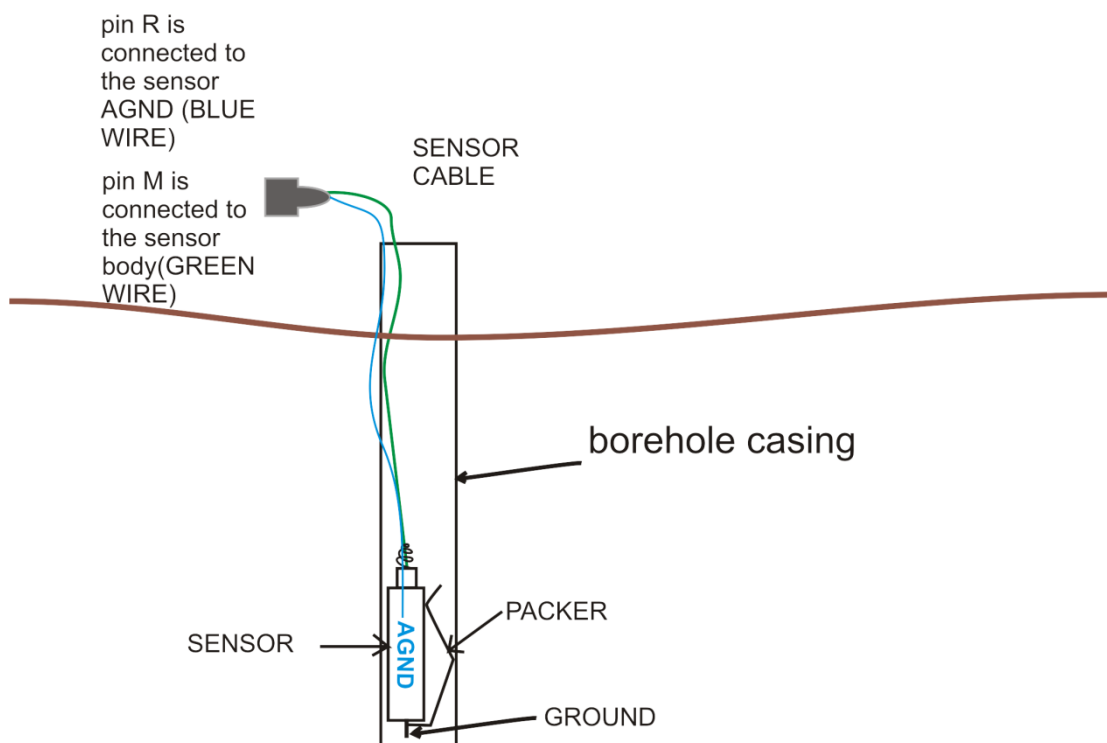


Figure 3. Active borehole sensor grounding.

If the borehole sensor includes electronic parts that need power supply, the power pins (+) and (-) of the sensor must be connected to the pins N and P respectively. Additionally, the sensor analog ground must be connected to pin R and the sensor body to pin M (or to the body of the signal connector).

4. Surface type sensor connection.

There are two ways for grounding a surface type seismometer: If the seismometer base provides a good contact to the earth, the grounding of the station can be provided from the seismometer contact with its base. If not, the user has to isolate the seismometer (for avoiding ground loops) by providing a good ground point using a copper electrode. The grounding can be achieved through the body of the power connector by connecting the shield of the power cable to the power's connector body and consequently to the digital ground of the datalogger.

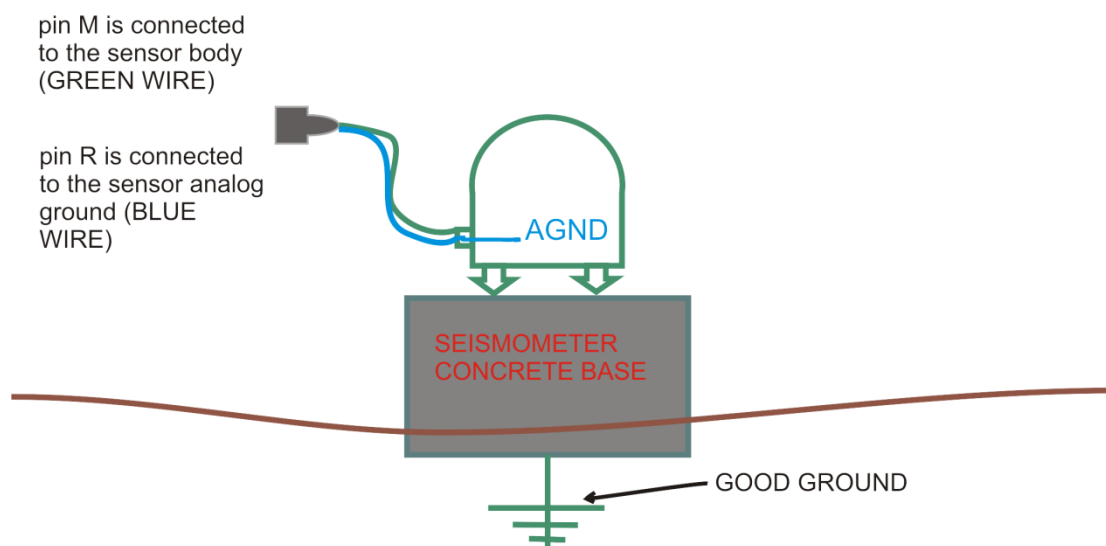


Figure 4. Surface seismometer general grounding.

pin M is connected
to the sensor body
(GREEN WIRE)

pin R is connected
to the sensor analog
ground (BLUE
WIRE)

power connector
body is connected to
the grounding
electrode

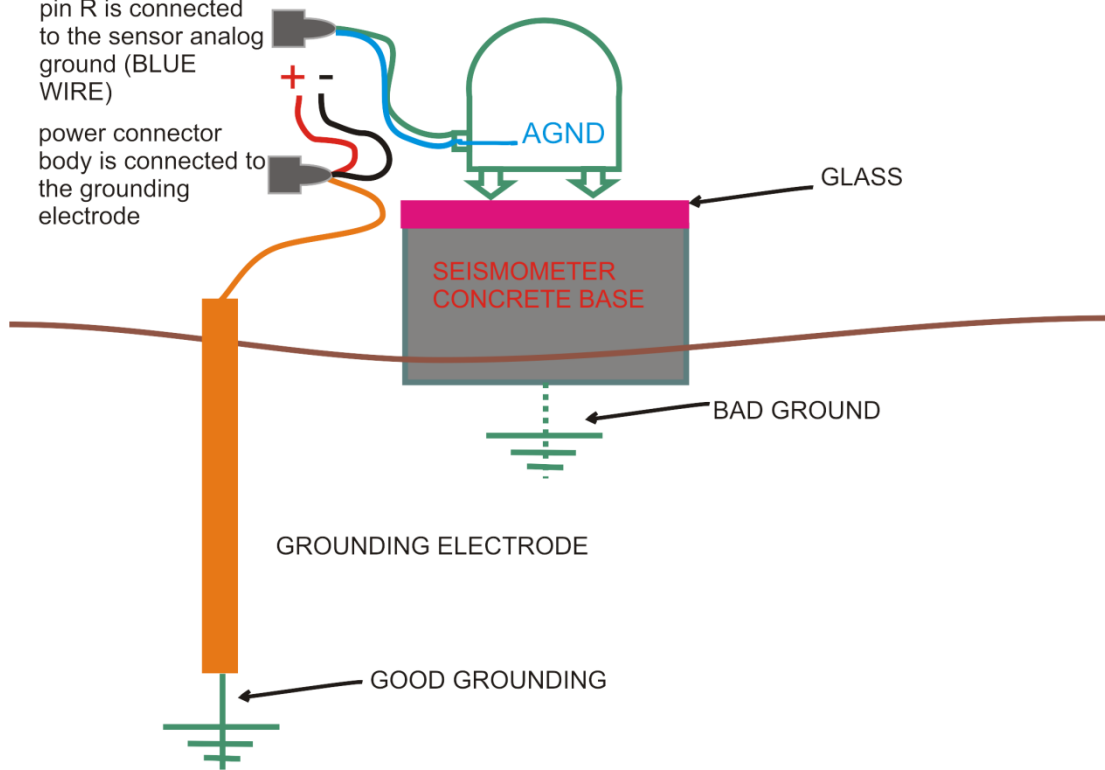
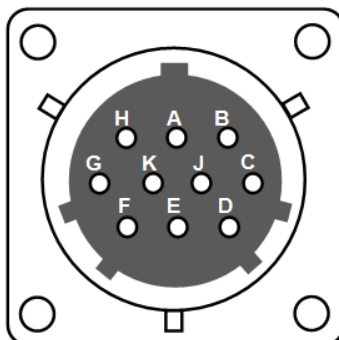


Figure 5. Surface seismometer grounding using ground electrode.

4. Grounding the connected units.

The pin J of the data connector can be used to ground any device which has been connected to the datalogger (e.g. a radio modems receiving data from the serial port.)



Pin	Description
A	NETWORK_RXD+
B	NETWORK_TXD-
C	NETWORK_TXD+
D	BOOTLOADER_TX
E	BOOTLOADER_RX
F	RS232_TX
G	NC
H	NETWORK_RXD-
J	GND
K	RS232_RX

5. Simplified wiring diagram of the SRi32S datalogger.

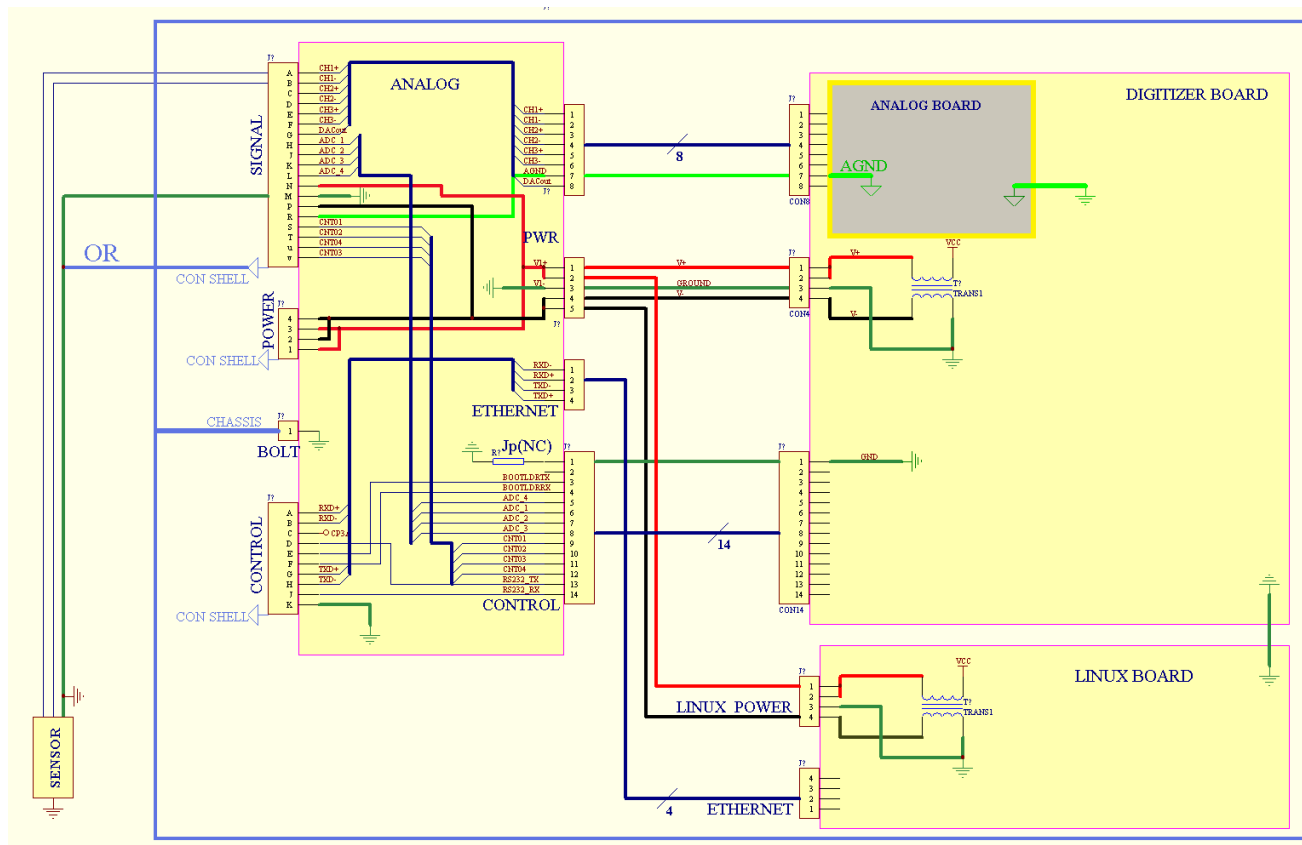


Figure 6. SRi32S simplified wiring diagram.