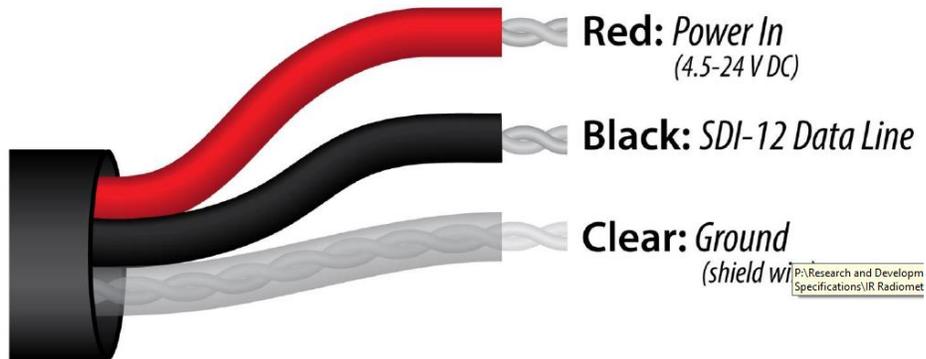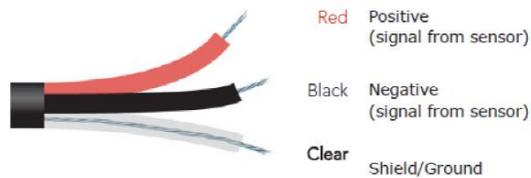# Introduction

This document serves as a reference of the wiring of SDI-12 and other sensors from various vendors. Please check your sensor manual in case some of the information becomes obsolete.

Apogee

SDI-12 (Eg: Si-411)

Red: *Power In* (4.5-24 V DC)

Black: *SDI-12 Data Line*

Clear: *Ground* (shield wi P:\Research and Developm Specifications\IR Radiomet

Analog (Eg: SP-110, SQ-100)

Red — Positive (signal from sensor)

Black — Negative (signal from sensor)
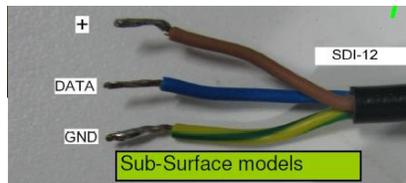
Clear — Shield/Ground

Analog sensors SP-110 and SQ-100 No need to connect clear wire, which is shield.

Black to "-" and red to analog input of your data logger.

AquaCheck

SDI-12 sensor (multi-sensor probe)

Brown is +. Yellow-Green is GND. Blue is DATA.

Aquaflex

SDI-12 sensor

Electrical Connections

Wire Colour	Description
Red	Sensor power +ve, 6.0 to 26 Volts.
Black	Sensor ground, 0 Volts
White	SDI-12 signal
Blue	SDI-12 ground
Brown	Not used, do not connect
Orange	Not used, do not connect
Violet	Factory setup, do not connect.
Yellow	Factory setup, do not connect.

You may need to power it with an external power such as AC adapter or battery pack. Connect SDI-12 ground to SDI-12 USB adapter '-' and sensor ground to the ground of the external power.
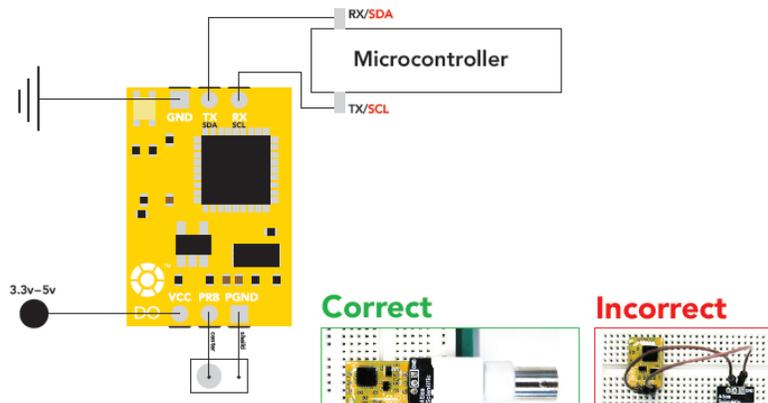
Atlas

I2C sensors

We are currently not using any Atlas I2C sensors. This is for the future.

Connect RX (TX) on the sensor board to SCL (SDA) on the data logger. VCC to + and GND to -. You may have to connect a 4.7K resistor between RX and +, then another 4.7K resistor between TX and +. Make sure the board lights the blue LED, i.e. in I2C mode.

Campbell Scientific

SDI-12 sensors:

Color	Function	Datalogger Connection
Green	SDI-12 Data	Control Port[1] or U configured for SDI-12[2]
Red	SDI-12 Power	12V
Black	SDI-12 Reference	G
Clear	Shield	⏚
Orange	Not Used	G

TABLE 7-1. Wire Color, Function, and Datalogger Connection for SDI-12

[1]Dedicated SDI-12 port on CR5000
[2]U channels are automatically configured by the measurement instruction.

You should be able to power the sensor with the '+' terminal (5V) on the SDI-12 USB adapter instead of using 12V.

Decagon

Analog and SDI-12 sensors:

Rain Gauge

For Decagon rain gauge, the white wire is not connected to anything so you can just ignore it. The other two wires have no polarity. Connect them to the third 3-pole screw terminal from the left on S and - pins.

Maxbotix

Serial port sonic ranger

Connect the sonic ranger to GND|5V|TX|RX on your data logger. Serial output has the highest accuracy while analog and PWM outputs have less accuracy. Connections are described below:

| Maxbotix sonic ranger pin	Data logger
V+	5V
GND	GND
5	TX
4	RX

Analog pin

You may choose to use an analog channel to sense the sonic ranger (pin 3) but it is only up to 5mm accuracy according to the spec sheet.

Pin 3- Analog Voltage Output: This pin outputs a single ended analog voltage scaled representation of the distance. This output is referenced to the sensor ground and Vcc. After the ~50mS power up initialization, the voltage on this pin is set to a low voltage. Once the sensor has completed a range reading the voltage on this pin is set to the voltage corresponding to the latest measured distance.

The 5-meter sensors (MB7360, MB7364, MB7369, MB7380, MB7384, and MB7389) use a scale factor of (Vcc/5120) per 1-mm. The distance is output with a 5-mm resolution. The analog voltage output is typically within ±5-mm of the serial output.

Ponsel

SDI-12
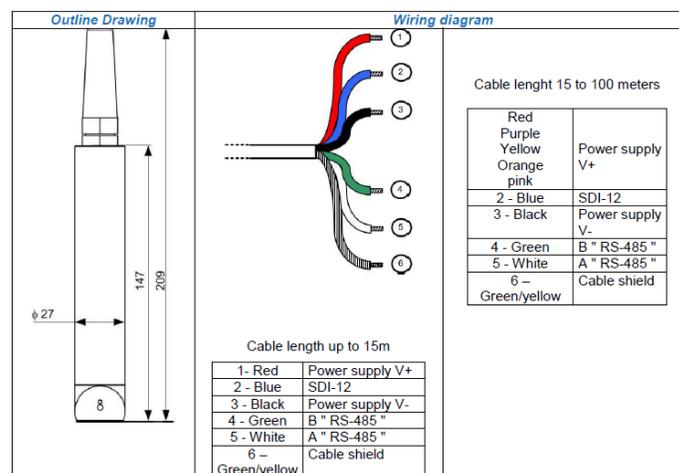
You only need to connect one of the Power supply wires, such as the red, to the power of SDI-12 bus. Tape the rest of the wires with electric tape to prevent them from short circuiting.

NOTE: if you are going to install only the Ponsel sensor on a data logger, you may also need to install a 100K-150K resistor between data and ground on the SDI-12 block. This sensor seems to have no pull-down resistors. If you install it with only AquaCheck multi-sensor probe, also install a resistor. If you have it with any number of Decagon SDI-12 sensors, you don't need the resistor. The Decagon sensors have proper pull-down resistors.

Wiper

The wiper should be connected to the right-most 3-pole screw terminal block that has 12V supply for the motor. The 12V and GND on the control module should be connected to the corresponding pins on the data logger.

Sentek

SDI-12 sensor (multi-probe with 6 or 12 sensors)

The sensor probe comes with a premade short cable (1-ft long) socket with wire leads on the other side. Only three of the following five connections are brought out. You may use the included USB cable to configure the SDI-12 address of the sensor. The original cable has a tag with the same wiring instructions. The setup program is in DataLogger\Spec sheets\Sentek

SDI-12 Cable	+Vin	0V	DATA	N/C	N/C
5-wire cable	Red	Green	White	Blue	Yellow

Bare sensors

PT1000 sensor

This is a pure resistive sensor. You need to connect it to an analog channel with 1K low-temperature coefficient precision resistor pullup to form a voltage divider.