Grant
DATA ACQUISITION

Accsense Wireless System

Temperature Monitor

Contents

1. **Installing the B1-06 Gateway**

1.1 Gateway Hardware Checklist

A) B1-06 Accsense Internet Gateway
B) AC Power Adaptor
C) Ethernet Cable
D) User Guides

1.2 Installing Gateway to a Network

Plug the AC power adaptor into the back of the gateway in the connection marked *Power.*

Connect the Ethernet cable in the connector marked *Ethernet* at the back of the gateway, the other end of the cable connect into a network internet connection.
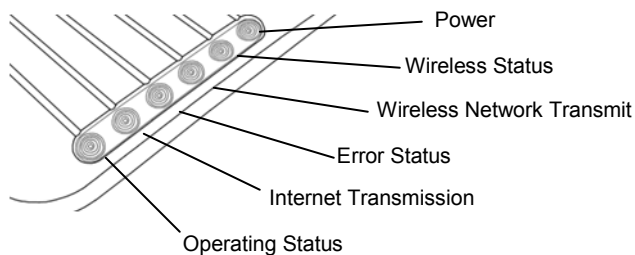
Turn the power switch at the back of the gateway to *ON.*

Depending on the type network being used the gateway may be issued with an IP address via DHCP, if this is the case when network connection has been established the Ethernet LED at the rear of the gateway will appear orange. The Ethernet activity LED will flash green when data is being sent.

Assuming that there is successful contact to the server, the initial communication will create a new account that can be logged into. The account *will not* exist until this first communication has been received by the server.

In the event of the gateway losing power or the internet connection, the gateway can store up to 1900 data points. When the gateway regains power or the connection to the internet the stored data will be transferred to the online account.

1.3 Gateway LED Guide

Power
Wireless Status
Wireless Network Transmit
Error Status
Internet Transmission
Operating Status

1.4 Gateway LED Conditions

Normal activity connected to server	🟢	⚪	⚪	⚪	⚪	🟢
Associating with Pod	🟢	⚪	⚪	⚪	🔵	🟢
Wireless network initializing	🟢	⚪	⚪	⚪	🔵	🟢
No Internet connection	🟢	🟡	⚪	⚪	⚪	🟢
No connection to server	🟢	⚪	🔴	⚪	⚪	🟢
Fatal error	🟢	⚪	🔴	⚪	⚪	🟢

2.1 Pod Hardware Checklist

A) Accsense Pod (A1-02, A1-05, A1-06, A1-08, A1-09, A1-10 or A1-13)
B) AC Power Adaptor
C) 3 x AA batteries
D) Connection Guide (Not applicable for the A1-05)
E) User Guide

2.2 Installing the batteries

Remove the mounting clip and battery bay lid (loosen screws) on the underside of the pod.
Fit 3 x alkaline or 1.5v lithium batteries observing the correct polarity.
Note: it is recommended that the batteries are fitted even if the pod is to be powered by the AC power adaptor, as it will continue to operate and record readings for a short period of time if there is a power failure.

Turn the pod on by holding down the ON/OFF button on the front for several seconds, until both LED's on the front of the pod become lit.

2.3 Associate Pods to Gateway

Associating the sensor pods to the gateway establishes a connection between the two devices.
To associate wait at least a minute after powering up the gateway, the gateway is ready when the two outer LED's are flashing green.

Hold the Associate button on pod for at least 5 seconds until the blue LED on the pod flashes rapidly, release the Associate button on the pod and immediately push the red associate button on the back of the gateway for 1 second.

During the associating process the LED's on the gateway and the pod will flash rapidly for approximately 30 seconds.

Note: Each pod will be required to be associated with gateway separately.

2.4 Placing the pods

The gateway must be located no further than 80 metres away from at least one of the sensor pods. This distance may be shorter if the system is operating in an environment where there are obstacles that will interfere with radio frequency transceivers.

If multiple sensors pods are associated in a network, the pods should be placed within 80 metres of one another (distance depends on interference) to form a mesh network and communicate with the gateway.

In the event that a sensor pod loses connection with the system, up to 255 points per sensor can be stored in the pod. When the sensor pod regains connection to the gateway or another pod that has a connection with the gateway the stored data will be transferred to the online account.

2.5 Pod LED Conditions

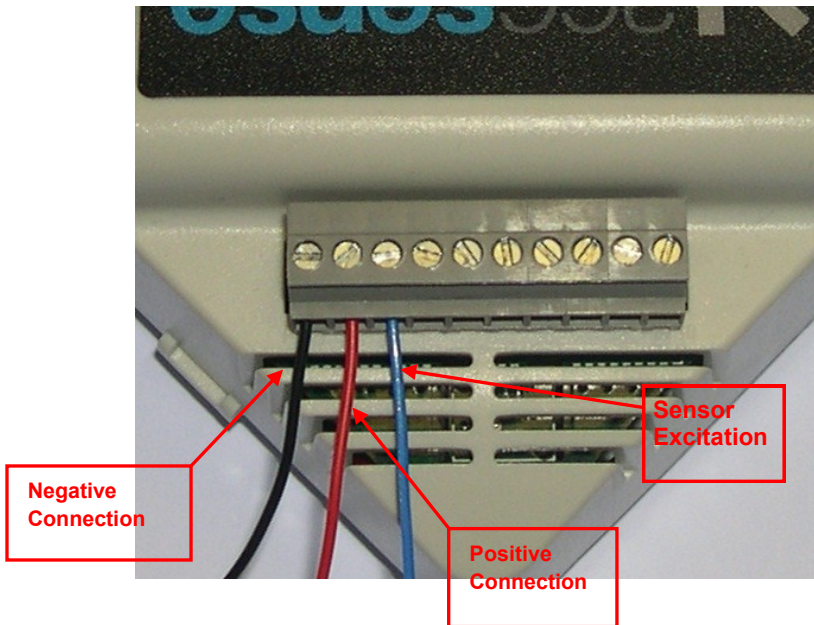| Condition	Wireless status	Wireless network transmit
Power On	🔵	🟡
Wireless network activity	⚪	🟡 (flashing)
Associating Pod with the Gateway	🔵 (flashing)	⚪
Pod failed to join network	🔵 (flashing)	🟡 (flashing)

3.1 A1-01

Note: All wire colours shown are for images only and may change with your specific sensor.

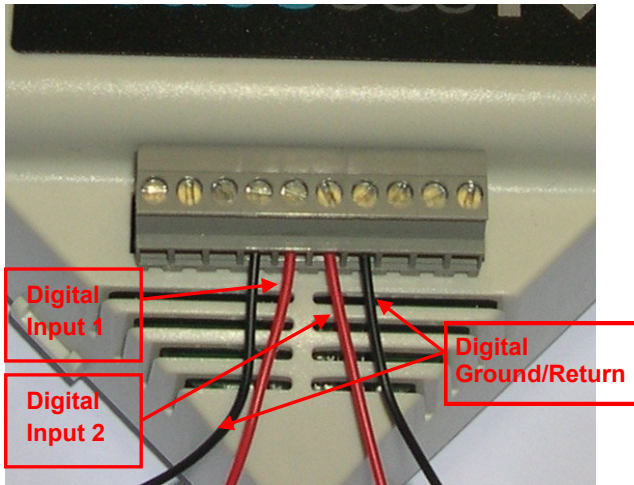**3.1.1 Analog 0-5Vdc Volt Input**

The Analog input will accept a voltage between 0 and 5Vdc.

The negative side of the sensor goes in to Pin 1 of the connector (black as shown).

The positive (0 to 5Vdc) side of the sensor goes into Pin 2 of the connector (red as shown).

The Sensor excitation has an output of 5Vdc at 25mA to enable the sensor to be powered.

3.1.2 Digital Inputs

Digital input 1 can be used as a contact closure and/or totaliser
Digital input 2 can be used as a contact closure, totaliser and/or timer.

The positive side of the contact connects to Pin 5 (digital 1) or Pin 6 (digital 2) of the connecter (red as shown).

The negative (return) side of the contact connects to Pin 4 (digital 1) or Pin 7 (digital 2) of the connector (black as shown).

3.1.3 4-20mA Current Loop Input
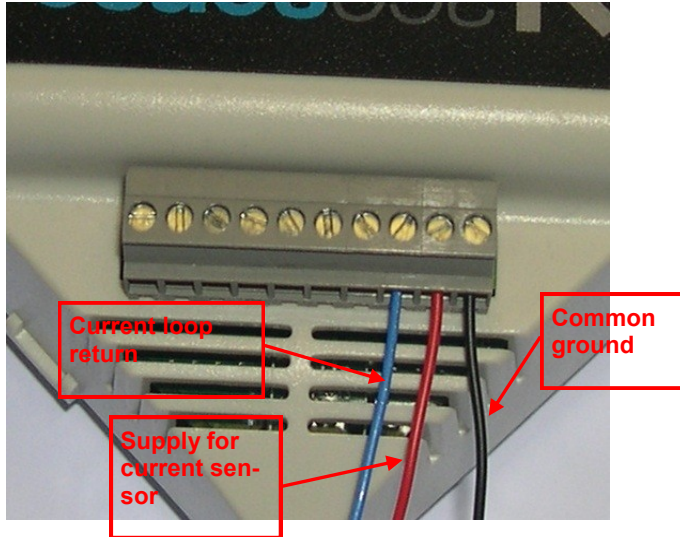
The current input will measure 4-20mA Loop

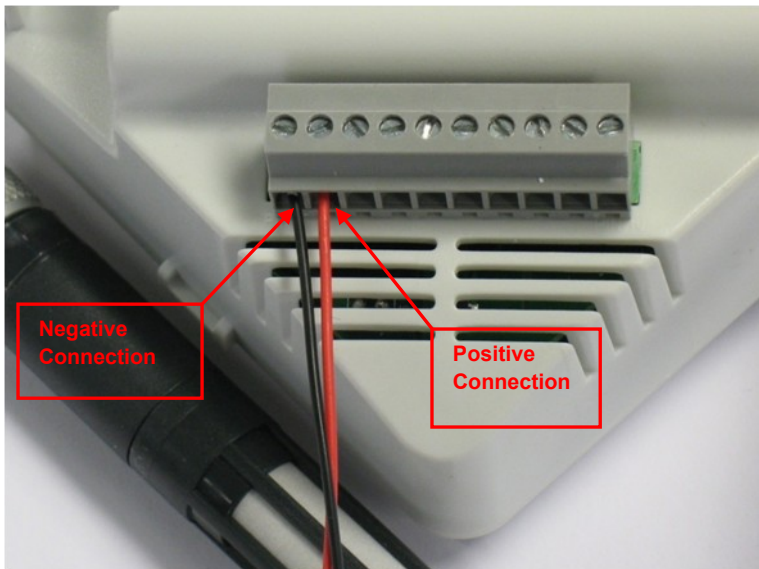The negative side of the sensor goes in to Pin 10 of the connector (black as shown).

The positive side loop return of the sensor goes into Pin 8 of the connector (blue as shown).

The Sensor excitation has an output of 20Vdc to enable the sensor to be powered, this goes into Pin 9 of the connector (red as shown)

3.2 A1-02b

Note: All wire colours shown are for images only and may change with your specific sensor.

3.2.1 Analog 0-5Vdc Volt Input

The Analog input will accept a voltage between 0 and 5Vdc.

The negative side of the sensor goes in to Pin 1 of the connector (black as shown).

The positive (0 to 5Vdc) side of the sensor goes into Pin 2 of the connector (red as shown).
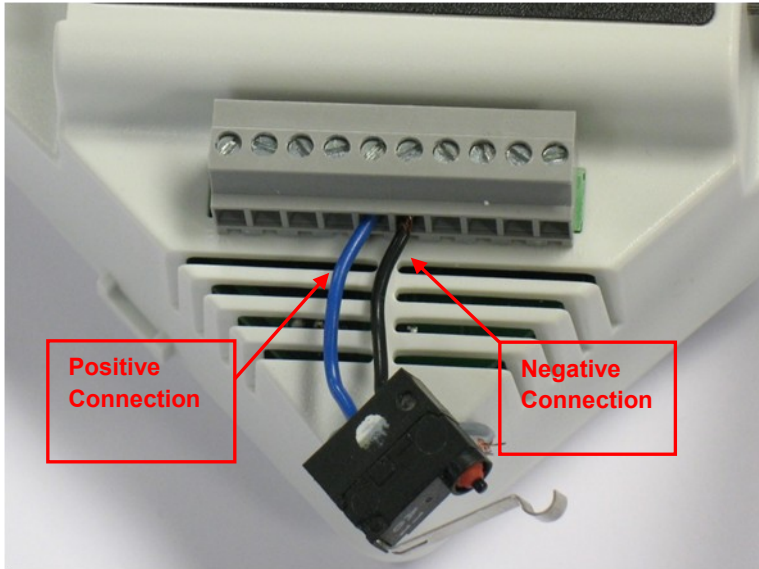
3.2.2 Thermistor Input

The thermistor coefficients are for a 10KOhms thermistor.

The connections are as shown, into Pins 3 and 4 on the connector, polarity is not essential.
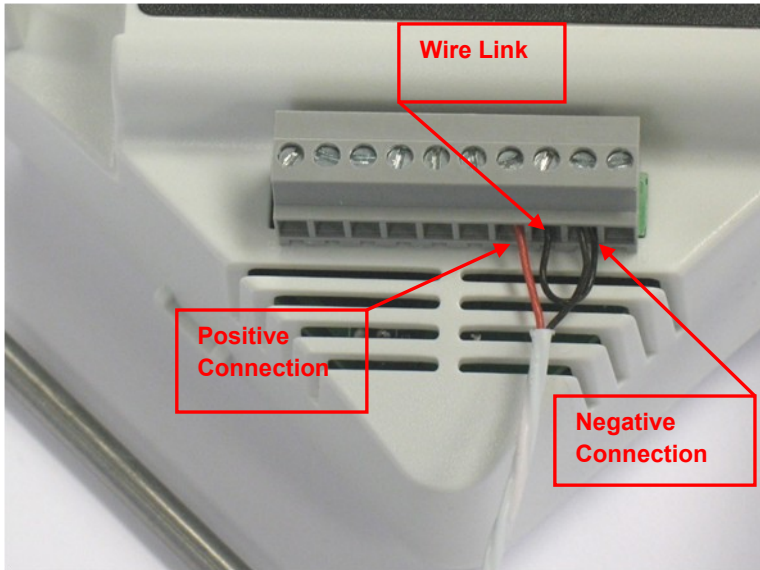
3.2.3 Digital Inputs

The digital input can be a contact closure and a timer.

The positive side of the contact connects to Pin 5 of the connecter (blue as shown).

The negative (return) side of the contact connects to Pin 6 of the connector (black as shown).
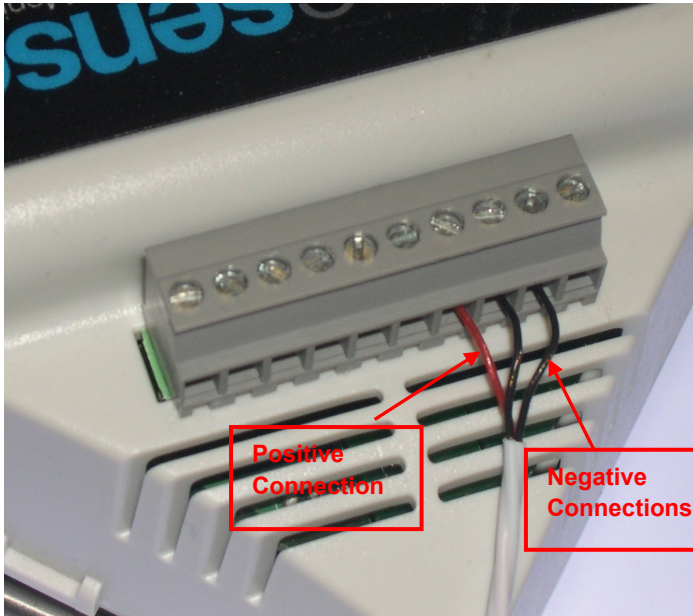
3.2.4 2 Wire RTD

The 2 wire PT100 RTD sensor connects in to pins 7, 8 and 9 of the connector.

The positive side of the sensors connects into Pin 7 of the connector (red as shown).

The negative (return) side of the sensor connects into Pin 9 of the connector (Black as shown).

Then a wire link is required between Pins 8 and 9 on the connector.

3.2.5 3 Wire RTD

The 3 wire RTD sensors connect into Pins 7, 8 and 9 of the connector.

The positive side of each sensor connects into Pin 7 (red as shown).

The negative (return) side of each sensor connects into 8 and 9 of the connector (2 black wires as shown).
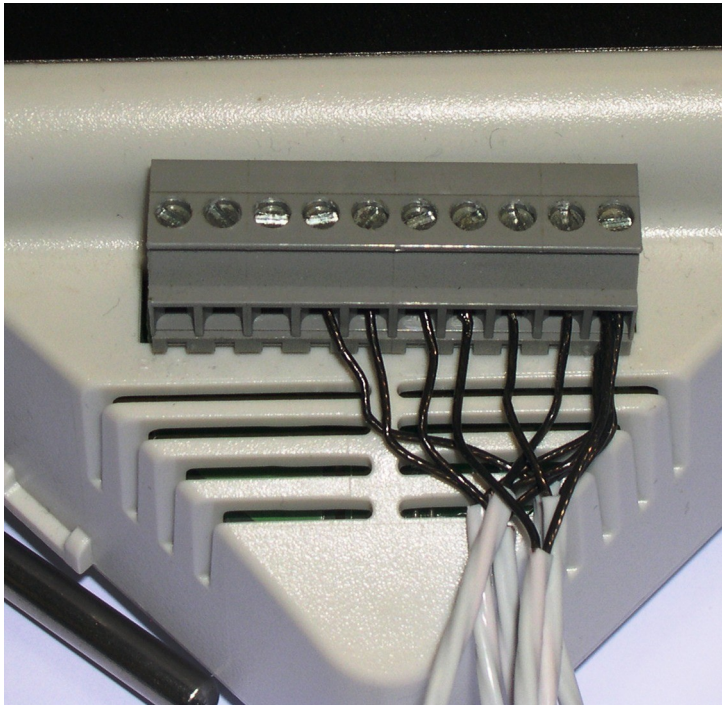
3.3 A1-05

The A1-05 has no external connections for sensors, it has 2 built in sensors: Ambient Temperature and Humidity.

It can also be used as a repeater pod to allow distance pods to be connected to the gateway.

3.4 A1-08

Note: All wire colours shown are for images only and may change with your specific sensor.
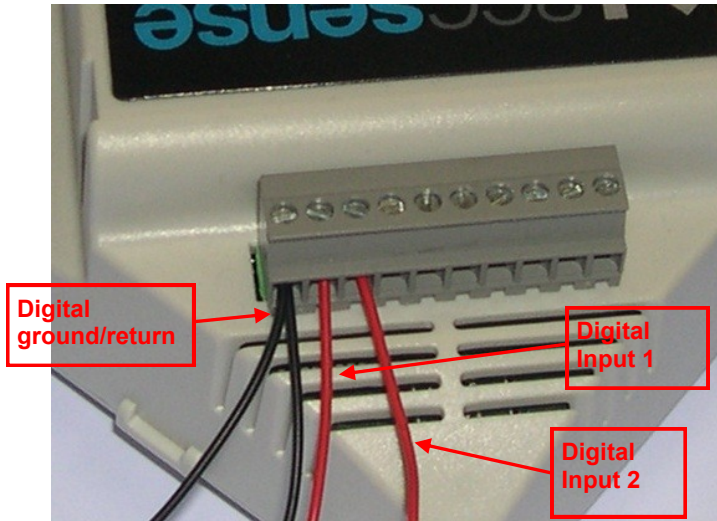
3.4.1 Thermistor Input

The thermistor coefficients are for a 10KOhms thermistor.

The connections are as shown, with one wire of the each probe into Pins 4, 5, 6, 7, 8 and 9 with the second wire from each sensor joined together in Pin 10 of the connector, polarity is not essential.

3.4.2 Digital Inputs
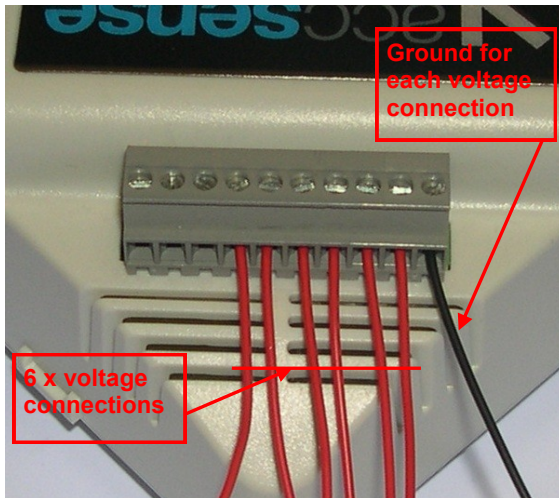

The digital inputs can be a contact closure.

The positive side of the contact connects to Pin 2 (digital 1) or Pin 3 (digital 2) (of the connecter (red as shown).

The negative (return) side of the contact connects to Pin 1 of the connector (black as shown).

3.5 A1-09

Note: All wire colours shown are for images only and may change with your specific sensor.
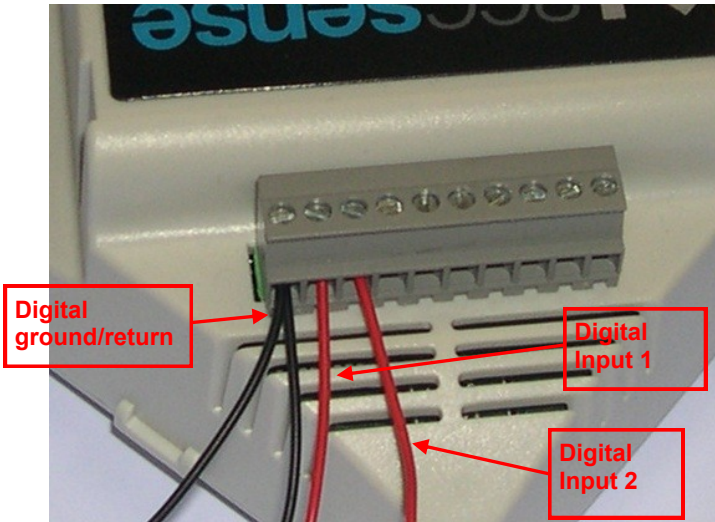
3.5.1 Analog 0-5Vdc Volt Input

The positive lead (red as shown) of the voltage sensor can be connected into pins 4 to 9 of the connector. With Pin 9 being Voltage input 1 and Pin 4 being Voltage Input 6. The voltage range of the pod is 0 to 5Vdc.

The negative (return) side of each sensor connects into Pin 10 of the connector (Black as shown).

3.5.2 Digital Inputs
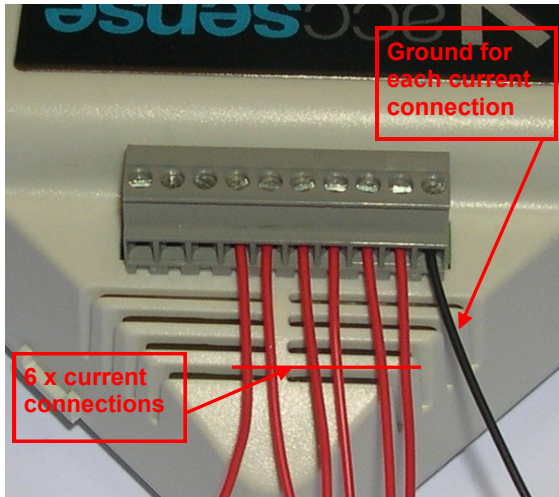

The digital inputs can be a contact closure.

The positive side of the contact connects to Pin 2 (digital 1) or Pin 3 (digital 2) (of the connecter (red as shown).

The negative (return) side of the contact connects to Pin 1 of the connector (black as shown).

3.6 A1-10

Note: All wire colours shown are for images only and may change with your specific sensor.
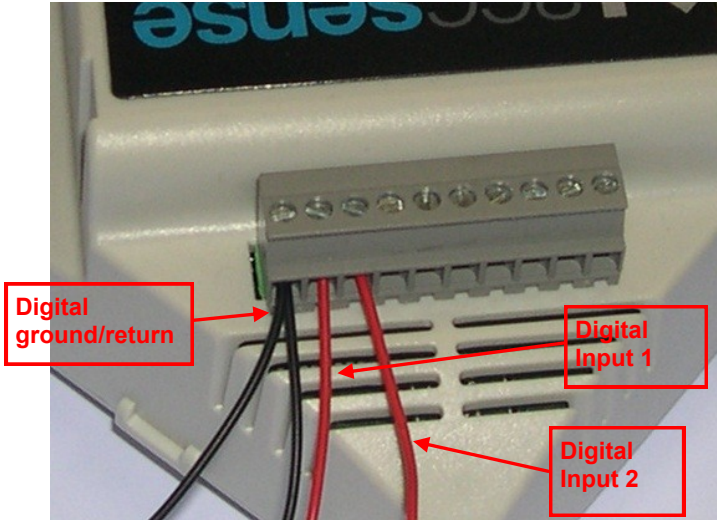
3.6.1 4-20mA Current Loop Inputs

The positive lead (red as shown) of the current sensor can be connected into pins 4 to 9 of the connector. With Pin 9 being Current input 1 and Pin 4 being Current Input 6. The current range of the pod is 4—20mA

The negative (return) side of each sensor connects into Pin 10 of the connector (Black as shown).

3.6.2 Digital Inputs
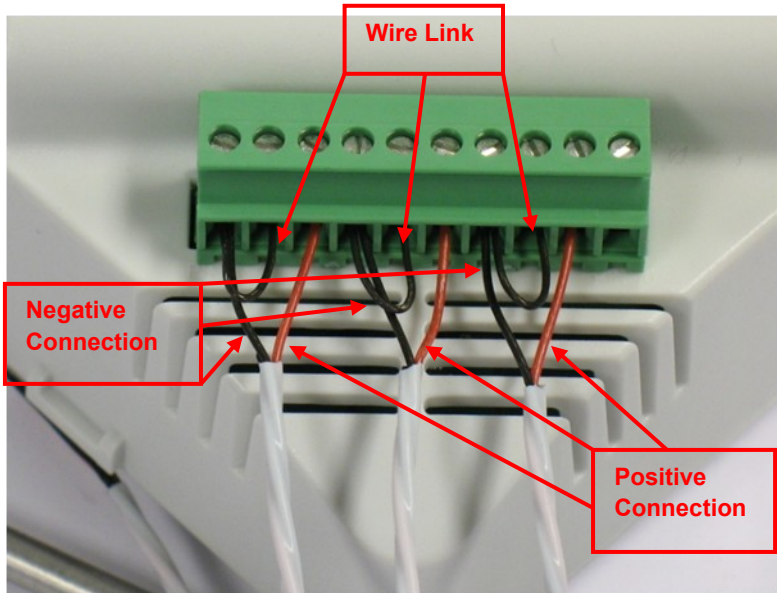

The digital inputs can be a contact closure.

The positive side of the contact connects to Pin 2 (digital 1) or Pin 3 (digital 2) (of the connecter (red as shown).

The negative (return) side of the contact connects to Pin 1 of the connector (black as shown).

3.7 A1-13

Note: All wire colours shown are for images only and may change with your specific sensor.

3.7.1 2 Wire RTD

The 3 wire PT100 RTD sensors connect into 3 positions Pins 1, 2 and 3. Pins 4, 5 and 6. Pins 7, 8 and 9 of the connector.

The positive side of each sensor connects into Pins 3, 6 and 9 of the connector (red as shown).

The negative (return) side of the sensor connects into Pins 1, 4 and 7 of the connector (Black as shown).

Then a wire link is required between Pins 1 and 2, Pins 4 and 5, Pins 7 and 8 on the connector.
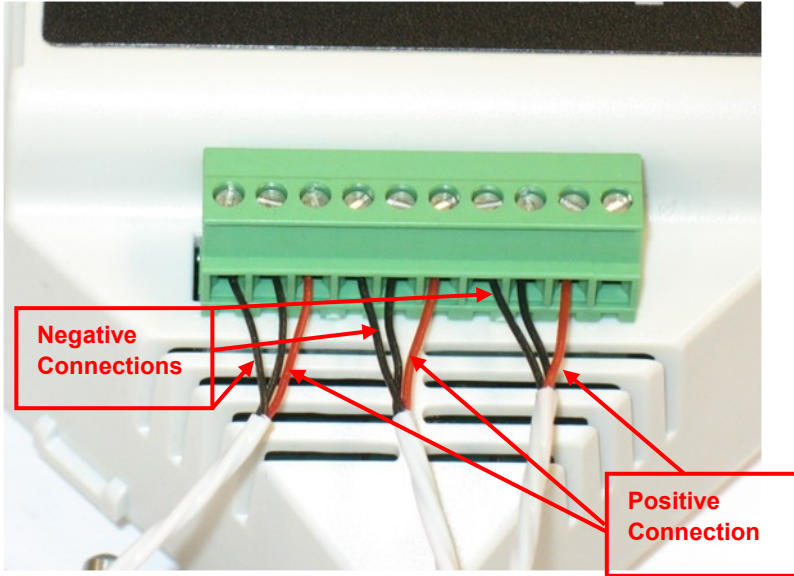
3.7.2 22 Wire RTD

The 3 wire RTD sensors connect into 3 positions Pins 1, 2 and 3. Pins 4, 5 and 6. Pins 7, 8 and 9 of the connector.

The positive side of each sensor connects into Pins 3, 6 and 9 (red as shown).

The negative (return) side of each sensor connects into Pins 1 and 2, 4 and 5, 7 and 8 of the connector (2 black wires as shown for each probe).

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