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CT55/CT55-SPC Falcon Integration

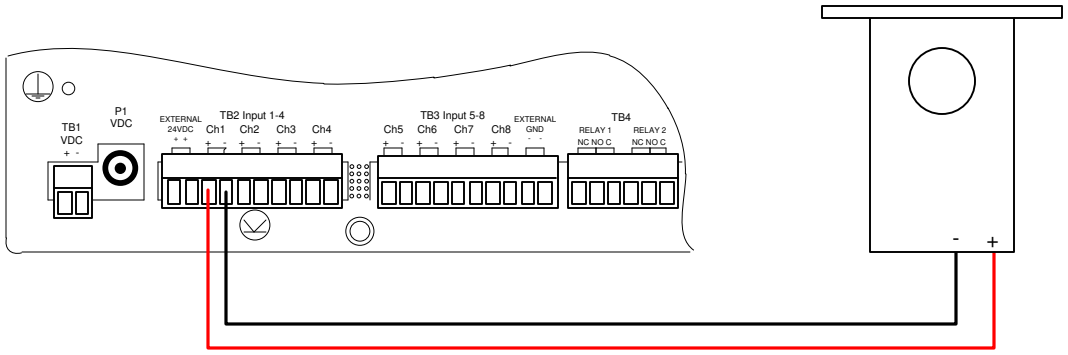


Figure 1.1: FMS Wiring with CT55

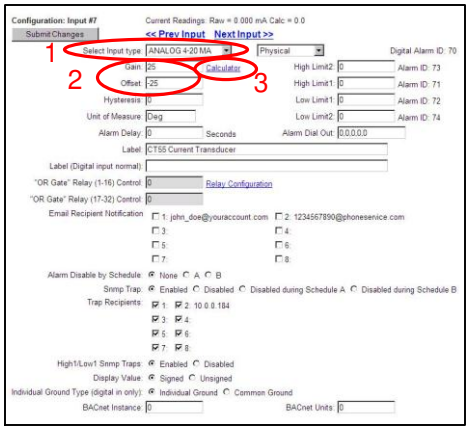


Figure 1.3: FMS CT55 Input Configuration Interface

FMS Configuration

1. Set Input Type to an Analog 4-20 mA Input.
2. For a 0-100 Amp setting, use a gain of 25 and an offset of -25.
3. For other settings, use the integrated gain/offset calculator.

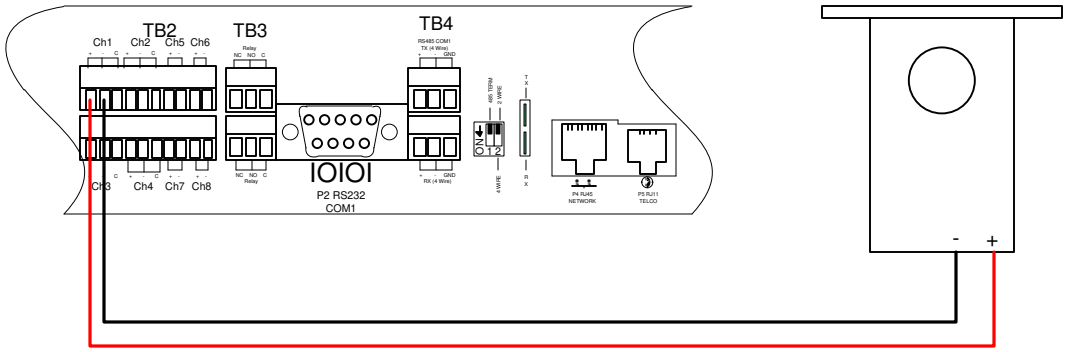


Figure 1.2: F-Series Wiring with CT55

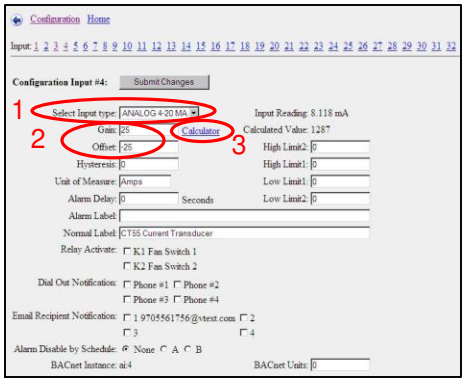


Figure 1.4: F-Series CT55 Input Configuration Interface

F-Series Configuration

1. Set Input Type to an Analog 4-20 mA Input.
2. For a 0-100 Amps setting, use a gain of 25 and an offset of 25.
3. For other settings, use the integrated gain/offset calculator.

AFS-(WM/DM) Falcon Integration

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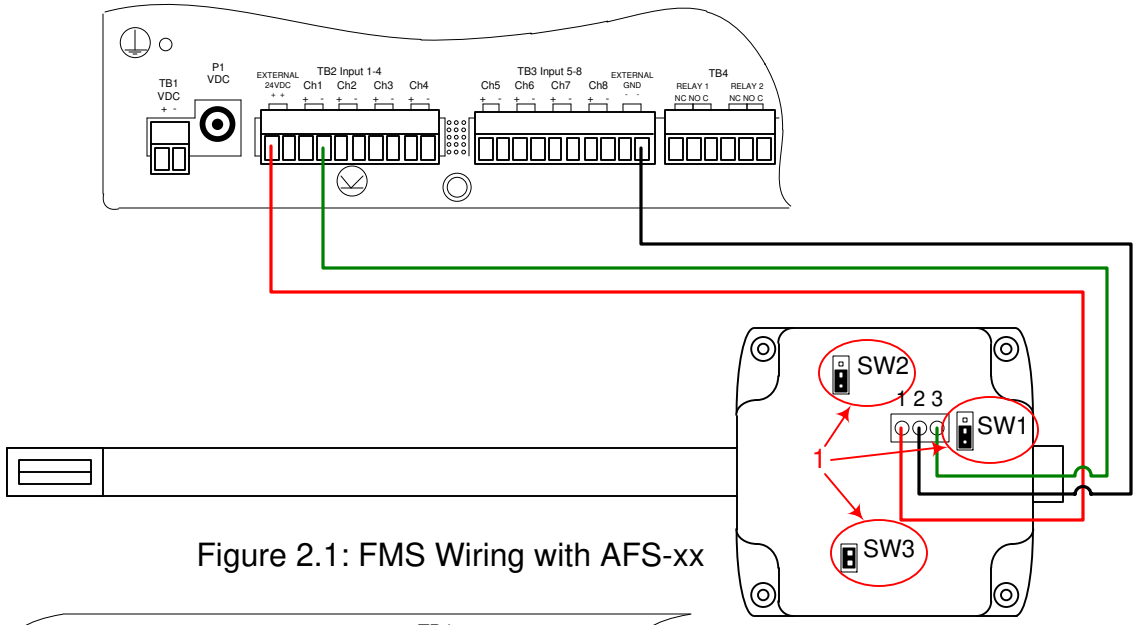


Figure 2.1: FMS Wiring with AFS-xx

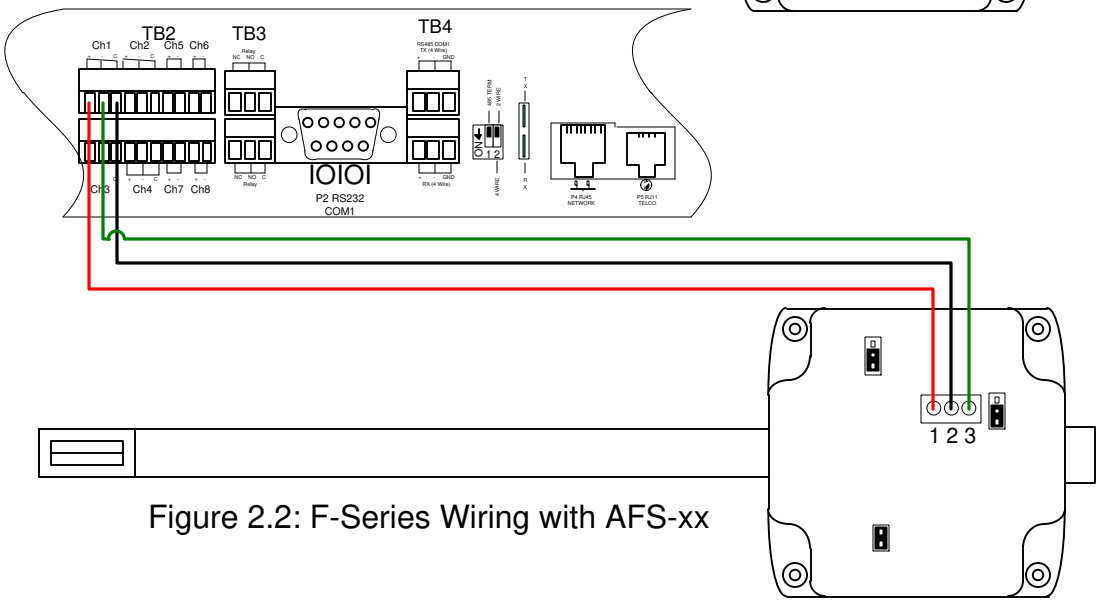


Figure 2.2: F-Series Wiring with AFS-xx

1. Set Jumper Switches on AFS-XX to appropriate settings.

Output Selection SW1: 4-20mA Output

Working Range SW2:
- 0-2000 Ft/Min Range
- 0-3000 Ft/Min Range
- 0-4000 Ft/Min Range

Response Time SW3:
- Fast
- Slow

2. Set FMS Input Channel to an Analog 4-20 mA.

3. For a 0-2000 Ft/Min Range, use a gain of 500 and an offset of -500.

4. For other settings, use the integrated gain/offset calculator.

FMS Configuration

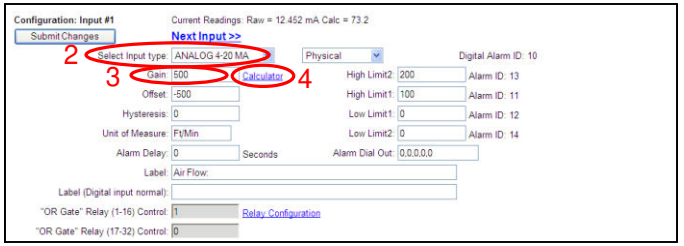


Figure 2.3: FMS AFS-xx Input Configuration Interface

F-Series Configuration

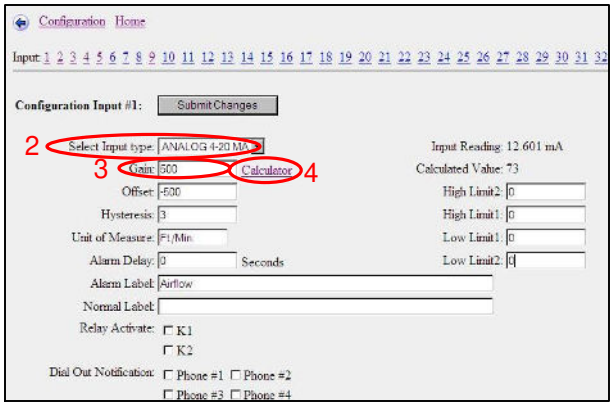


Figure 2.4: F-Series AFS-xx Input Configuration Interface

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AFS-D Falcon Integration

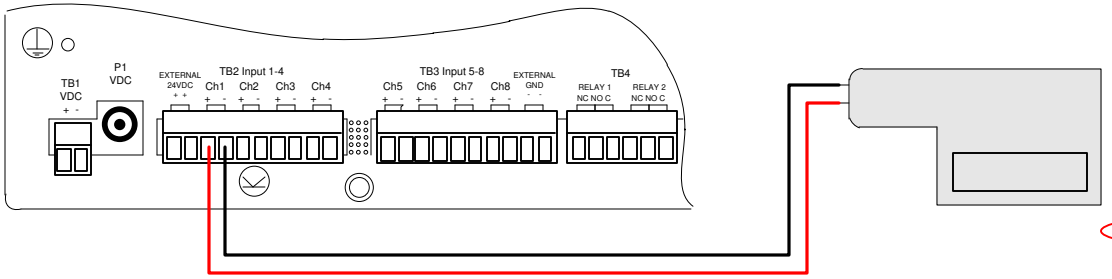


Figure 3.1: FMS Wiring with AFS-D

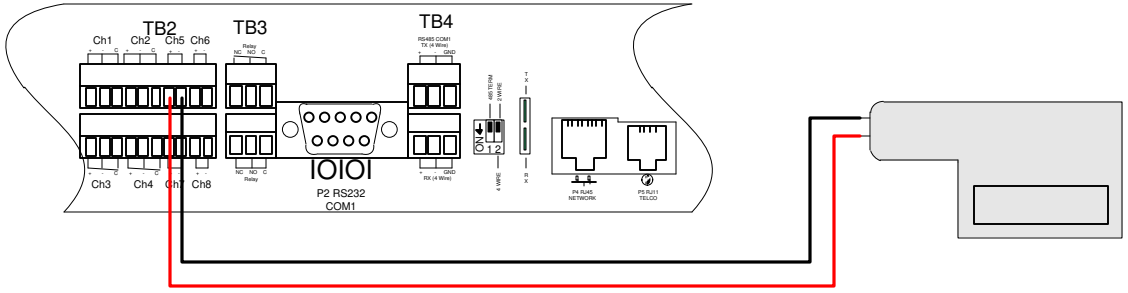


Figure 3.2: F-Series Wiring with AFS-D

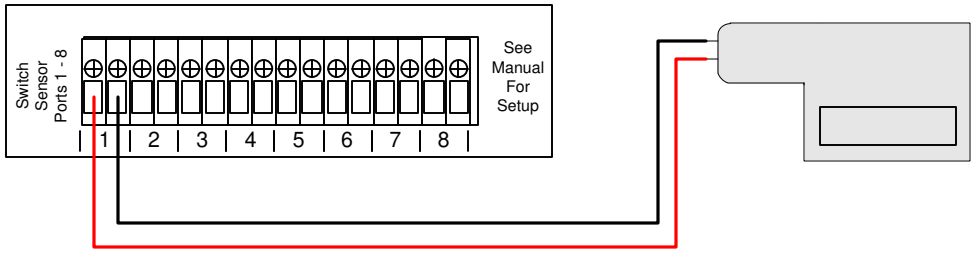


Figure 3.3: F110 Wiring with AFS-D

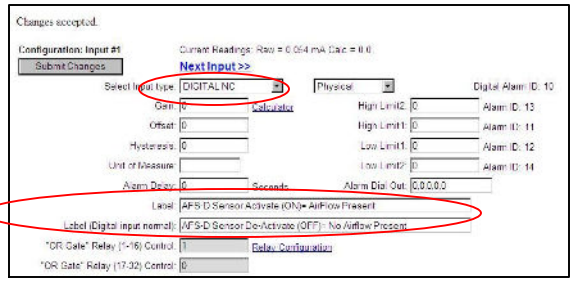


Figure 3.4: FMS AFS-D Input Configuration Interface

FMS Configuration

Set Input Type to a NC Digital Contact for each AFS-D wired into the Falcon. Assign an on/ off label for each sensor connected.

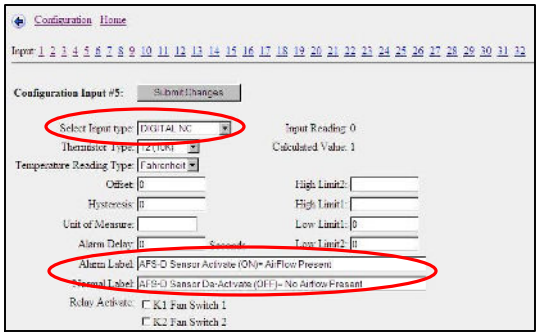


Figure 3.5: F-Series AFS-D Input Configuration Interface

F-Series Configuration

Set Input Type to a NC Digital Contact for each AFS-D wired into the F3400/1000. Assign your on/off label for each sensor connected.

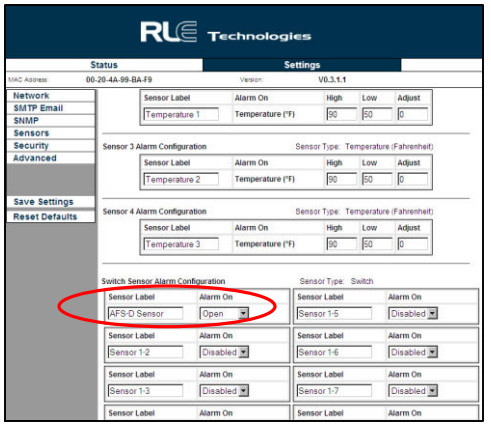


Figure 3.6: F110 AFS-D Input Configuration Interface

F110 Configuration

Set Input Type to Alarm On Open for each AFS-D wired into the F110 and assign a label.

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MD3 Falcon Integration

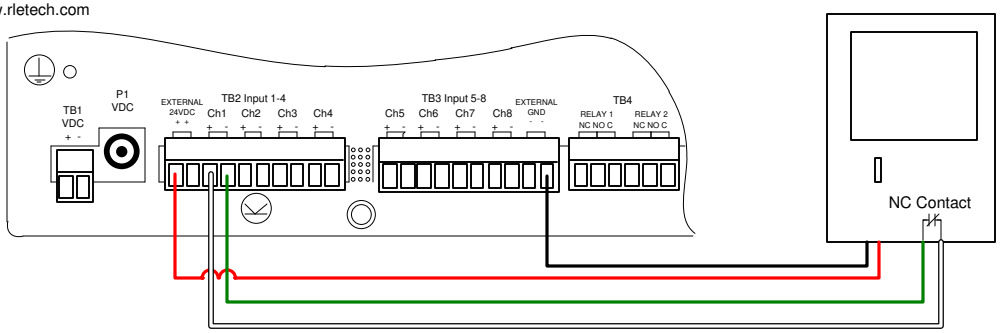


Figure 4.1: FMS Wiring with MD3

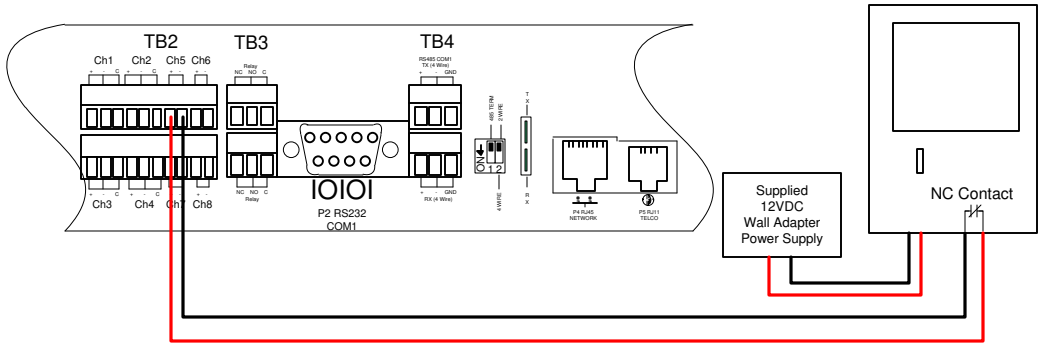


Figure 4.2: F-Series Wiring with MD3

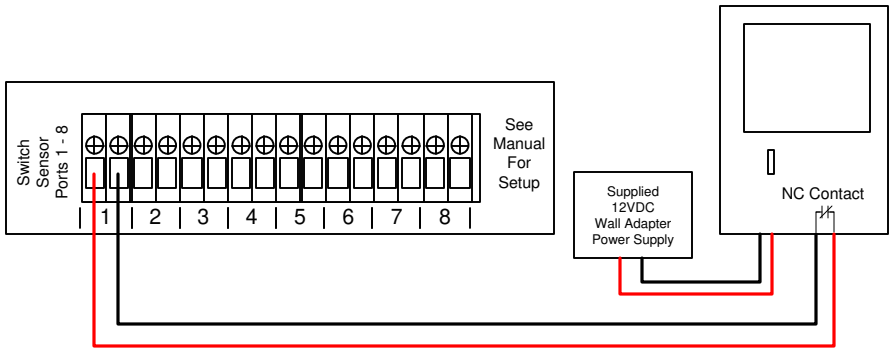


Figure 4.3: F110 Wiring with MD3

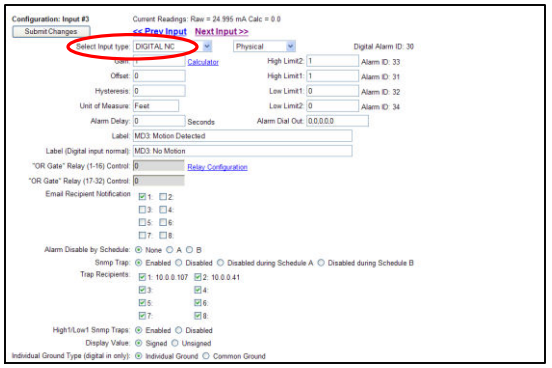


Figure 4.4: FMS MD3 Input Configuration Interface

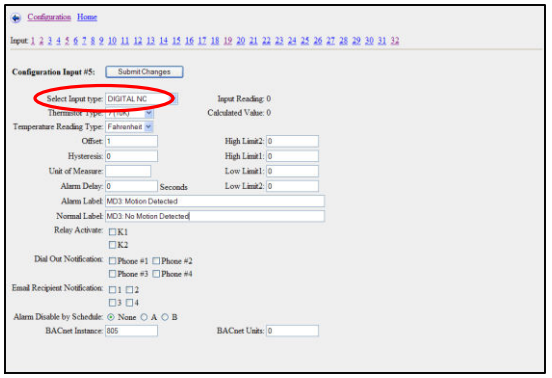


Figure 4.5: F-Series MD3 Input Configuration Interface

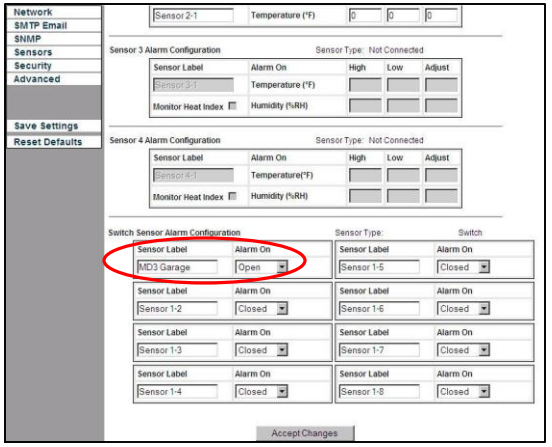


Figure 4.6: F110 MD3 Input Configuration Interface

FMS Configuration

Set Input Type to a Digital NC Input Type for each MD3 wired into the Falcon.

F-Series Configuration

Set Input Type to a Digital NC Input Type for each MD3 wired into the F3400/1000.

F110 Configuration

Set Input Type to Alarm on Open for each MD3 wired into the F110.

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MDS Falcon Integration

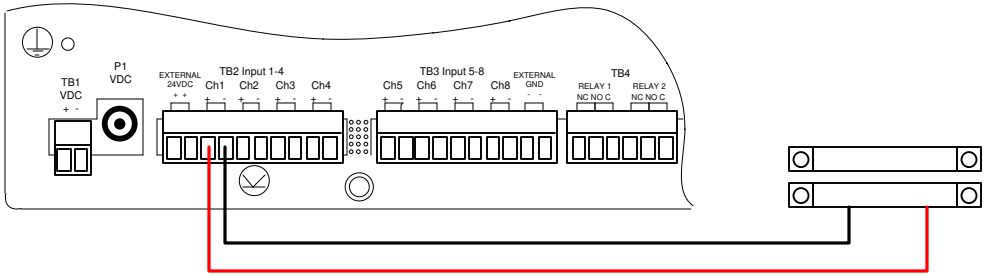


Figure 5.1: FMS Wiring with MDS

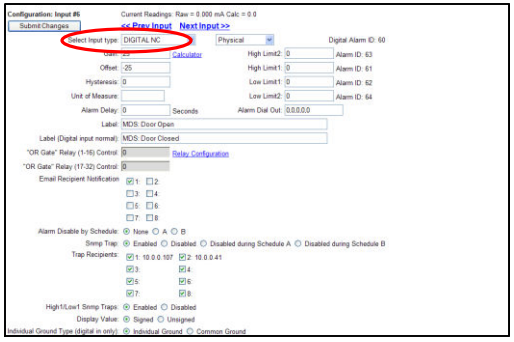


Figure: 5.4 Falcon MDS Input Configuration Interface

FMS Configuration

Set Input Type to a Digital NC Input Type for each MDS wired into the Falcon.

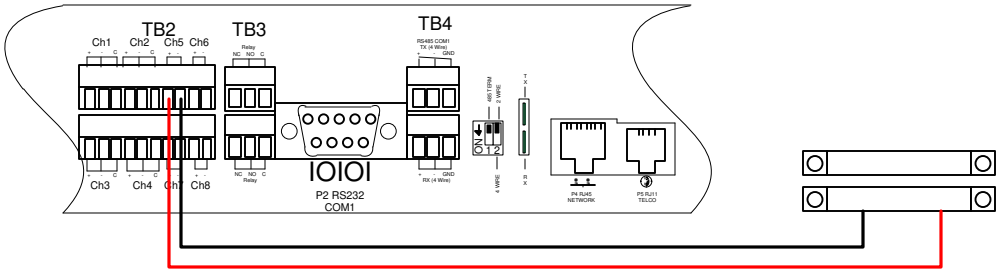


Figure 5.2: F-Series Wiring with MDS

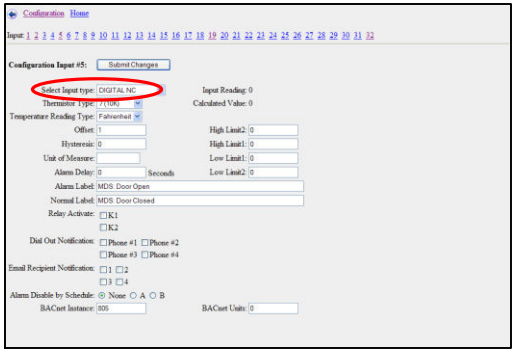


Figure 5.5: F-Series MDS Input Configuration Interface

F-Series Configuration

Set Input Type to a Digital NC Input Type for each MDS wired into the F3400/1000.

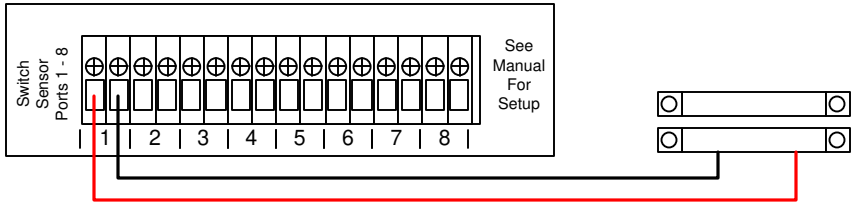


Figure 5.3:F110 Wiring with MDS

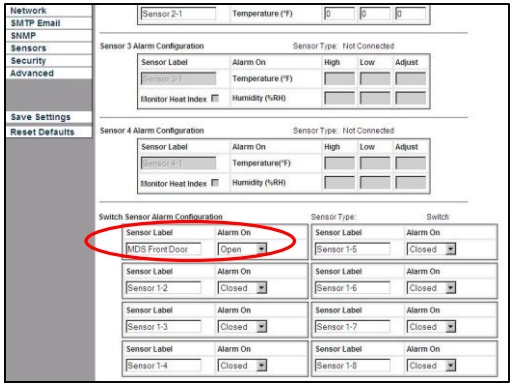


Figure 5.6: F110 MDS Input Configuration Interface

F110 Configuration

Set Input Type to Alarm on Open for each MDS wired into the F110.

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SMK Falcon Integration

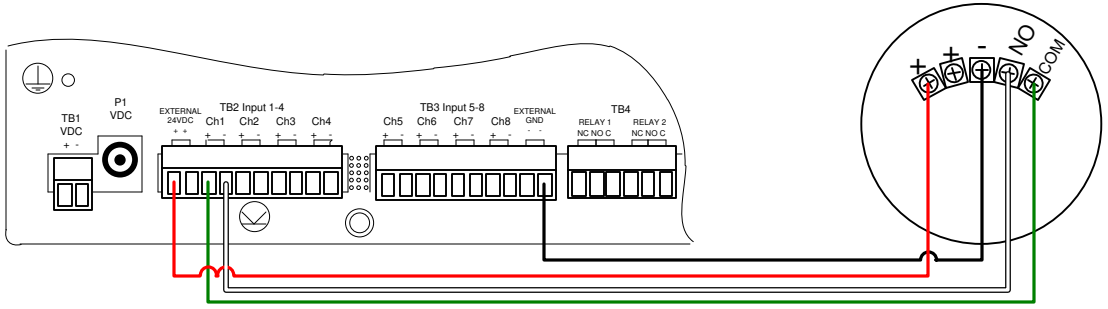


Figure 6.1: FMS Wiring with SMK

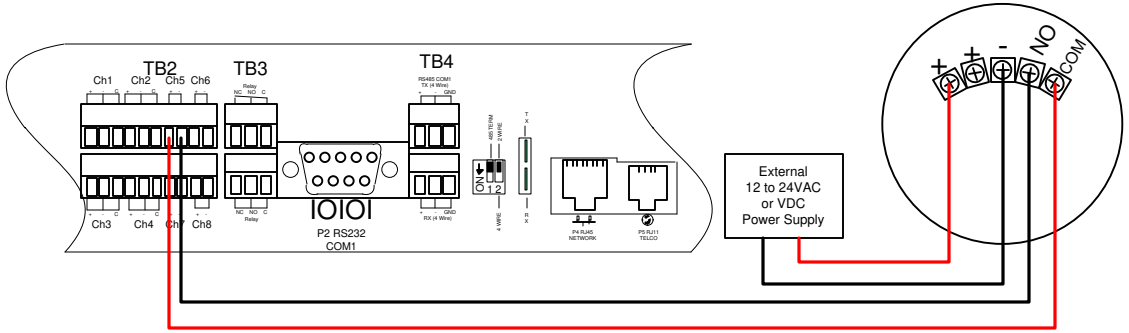


Figure 6.2: F-Series Wiring with SMK

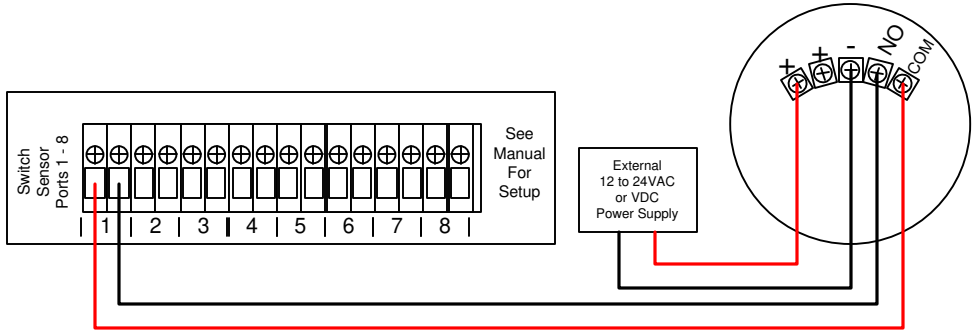


Figure 6.3: F110 Wiring with SMK

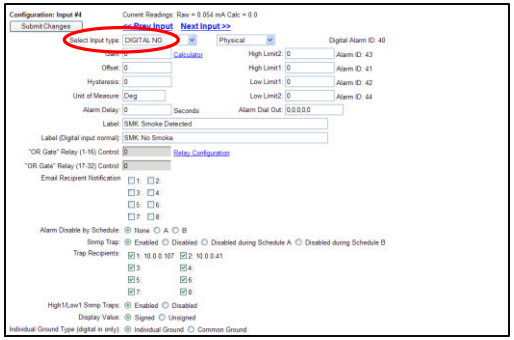


Figure 6.4: FMS SMK Input Configuration Interface

FMS Configuration

Set Input Type to a NO Digital Contact for each SMK wired into the Falcon.

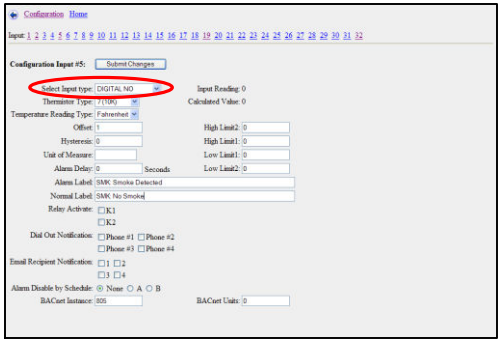


Figure 6.5: F-Series SMK Input Configuration Interface

F-Series Configuration

Set Input Type to a NO Digital Contact for each SMK wired into the F3400/1000. Only channels 5 thru 32 can be used with the F3400 and Channels 5 thru 8 for the F1000.

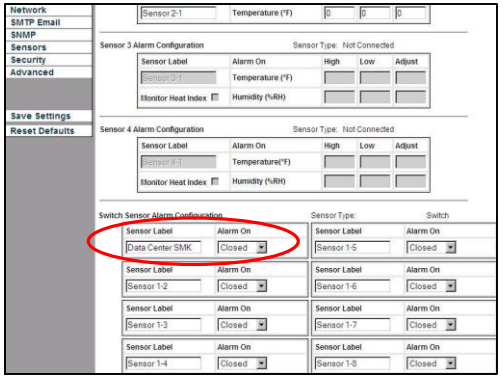


Figure 6.6:F110 SMK Input Configuration Interface

F110 Configuration

Set Input Type to Alarm on Closed for each SMK wired into the F110.

HD150 & HD150-2 Falcon Integration

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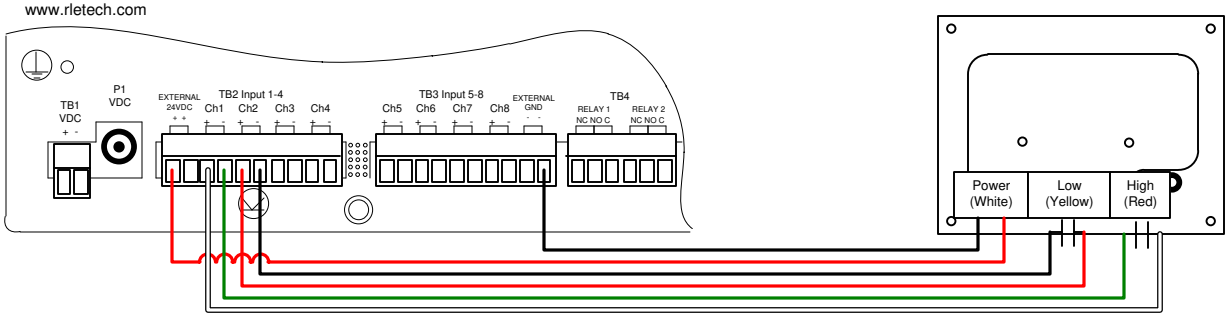


Figure 7.1: FMS Wiring with HD150/HD150-2

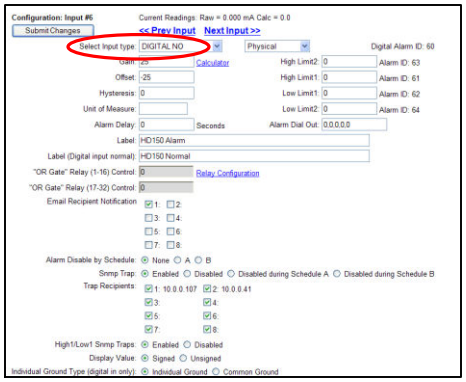


Figure 7.4: F-Series HD150/150-2 Input Configuration Interface

FMS Configuration

Set Input Type to a Digital NO Input type for each HD150/HD150-2 Relay Output wired into the Falcon.

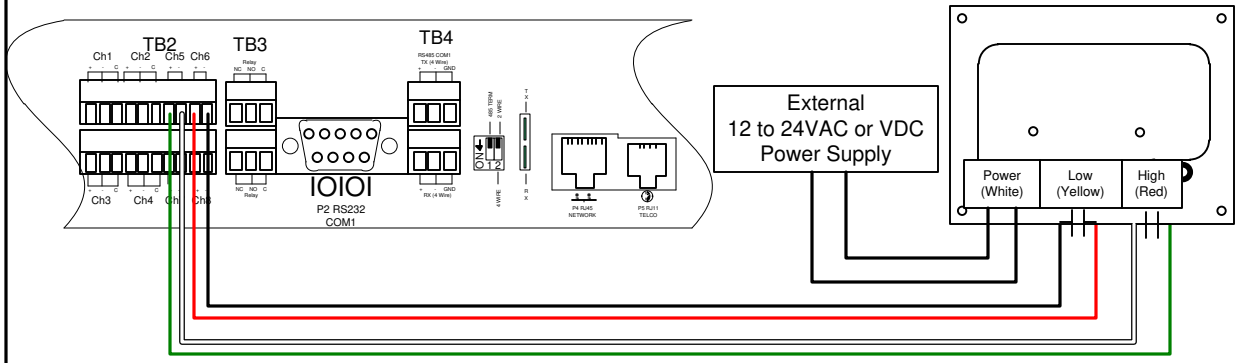


Figure 7.2: F-Series Wiring with HD150/HD150-2

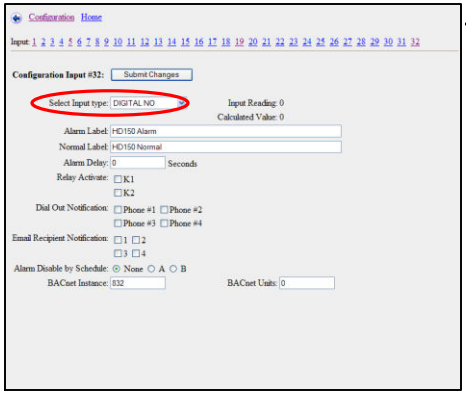


Figure 7.5: F-Series Hd150/150-2 Input Configuration Interface

F-Series Configuration

Set Input Type to a Digital NO Input type for each HD150/HD150-2 Relay Output wired into the F3400/1000.

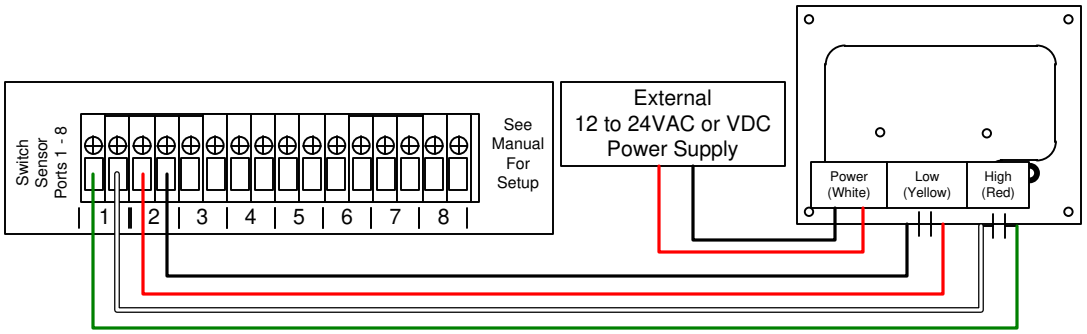


Figure 7.3: F110 Wiring with HD150/HD150-2

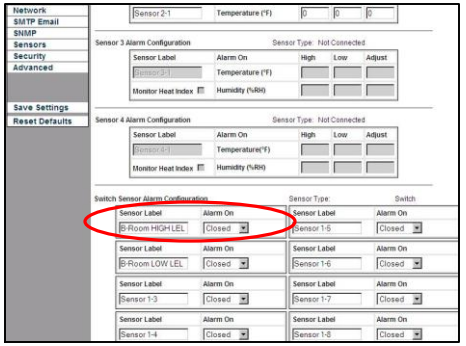


Figure 7.6: F110 HD150/150-2 Input Configuration Interface

F110 Configuration

Set Input Type to Alarm On Closed for each HD150/HD150-2 Relay Output wired into the F110.

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KPO Falcon Integration

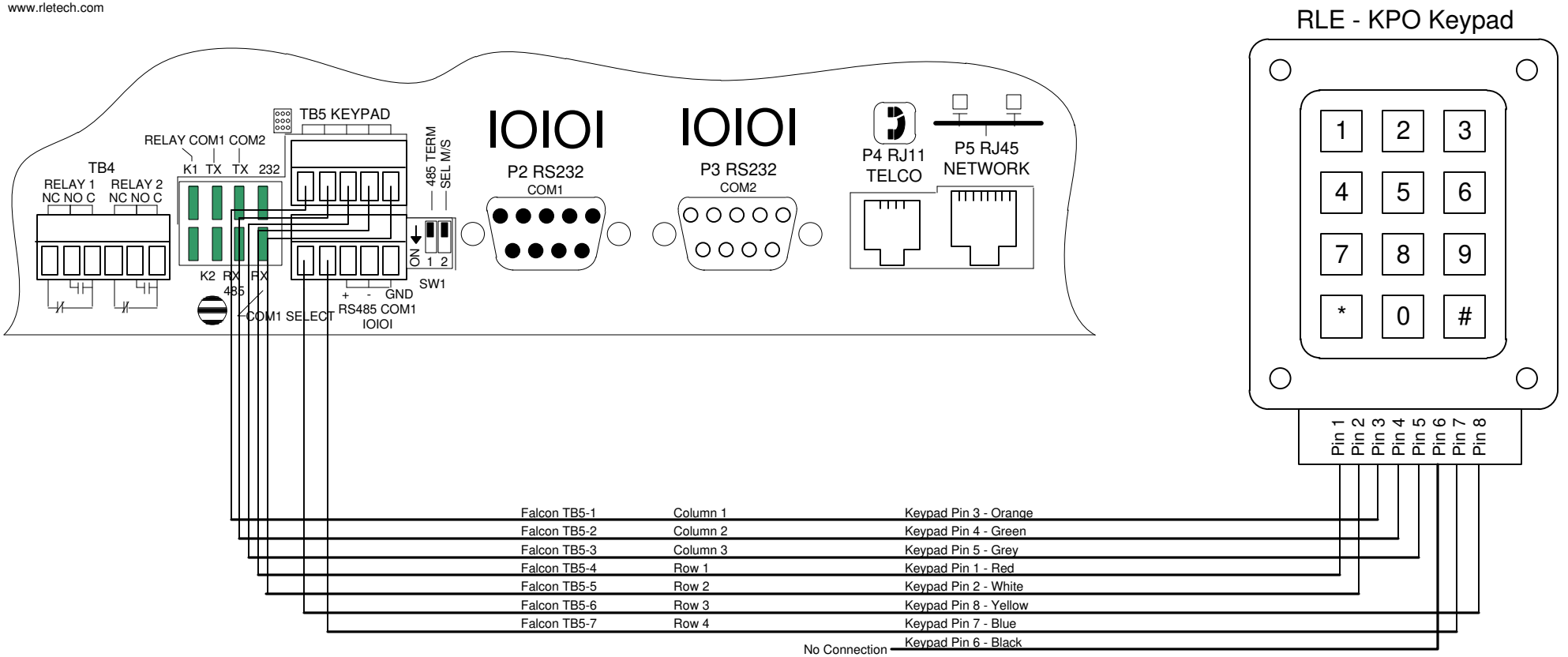


Figure 8.1: FMS Wiring with KPO

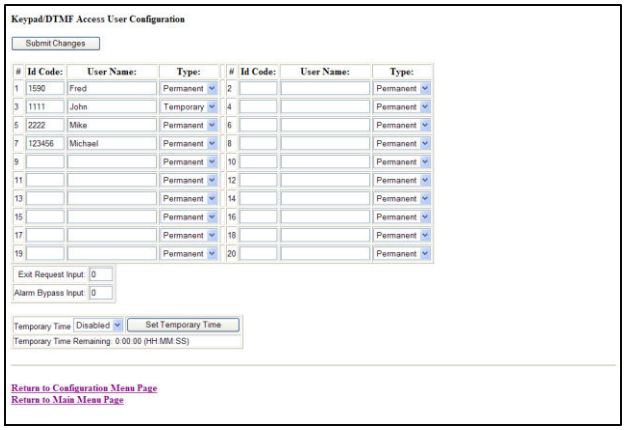


Figure 8.2: FMS Keypad Configuration Interface

FMS Configuration

Enter in Keypad users and corresponding codes in the Falcon's Keypad/DTMF Access User Configuration menu.

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FMS to T120D Falcon Integration

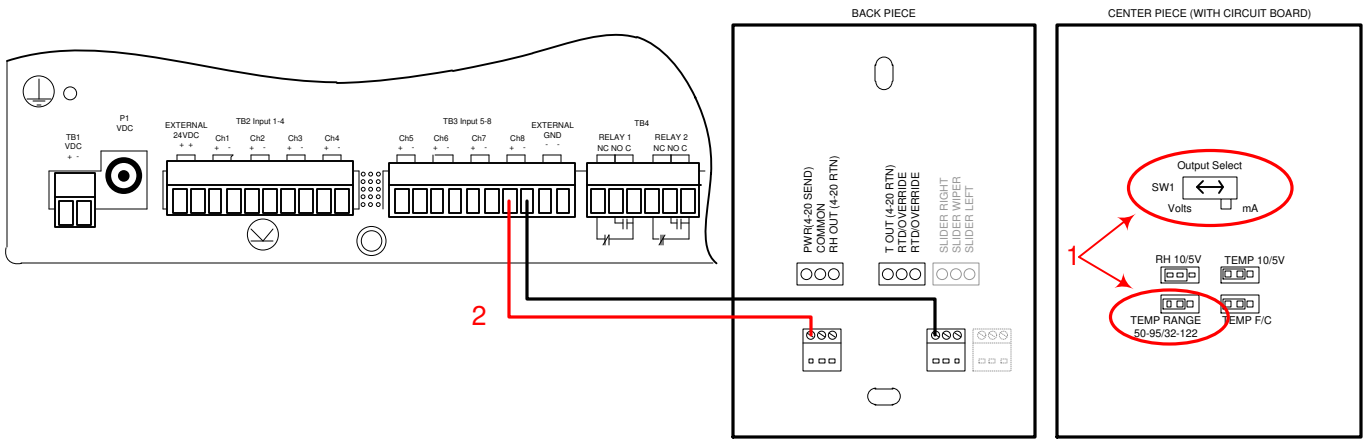


Figure 9.1: FMS Wiring with the T120D

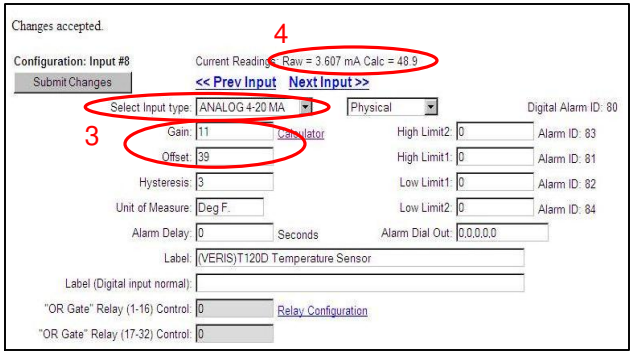


Figure 9.2: 50-95F Range Setup

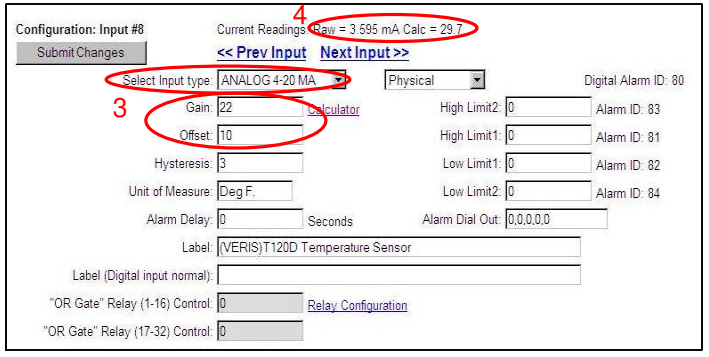


Figure 9.3: 32-122F Range Setup

SETUP

1. Set the switch position to mA. Set the temperature range to 50-95 or 32-122. The sensor is shipped from the factory with the switch in the volts position and the temperature range is set for 50-95F. The switch position must be set to the mA position.
2. Wire the sensor to the CH # being used.
3. Configure the Falcon Input channel (temperature) for "Analog 4-20mA" and enter the Gain and offset values. For the 50-95F range use Gain 11.25, Offset 38.75. For 32-122F range use Gain 22, Offset 10.
4. Verify the "Calc" value displays the correct room temperature. The temperature can also be viewed on the Falcon main page.

TROUBLESHOOTING

1. Calculate the T120D Output current for temperature.

   Formula for calculating the correct RAW value

   ((Actual temp - Sensor Low) / (Sensor High - Sensor Low)) x 16 + 4

   Example if Room Temp is 70F and your sensor has a range of 50-95

   ((70 - 50) / (95 - 50)) x 16 + 4 = 11.11

2. Measure the current flowing into the Falcon Ch- terminal with a current meter. Verify that it is close to the calculated current (+/- 1%).
3. If measured current does not match calculated current then check wiring and check T120D jumper and switch settings.
4. Compare the measured current matches the current reading in the Falcon.
5. Check the wiring if the Falcon current reading does not match the measured current reading.
6. If the Falcon current reading matches the measured current and the Falcon Calculated value does not match the room temperature then the offset and gain values are wrong. Double check the Gain and Offset values.
7. If the temperature displayed in the Falcon is 1 or 2 degrees above or below the room temperature then adjust the offset by 1 or 2. Do not adjust the gain. Only tweak the offset once the previous troubleshooting steps have been performed.
8. If the Falcon still does not display the correct temperature contact RLE Technologies technical support at 970.484.6510.

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FMS to TH140/TH140D Falcon Integration

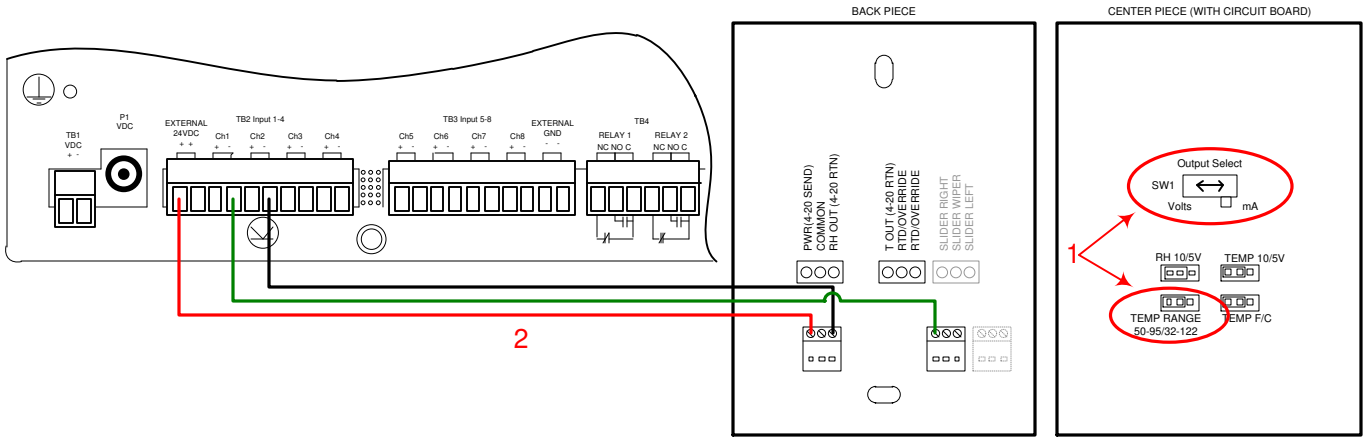


Figure 10.1: FMS Wiring with the TH140/TH140D

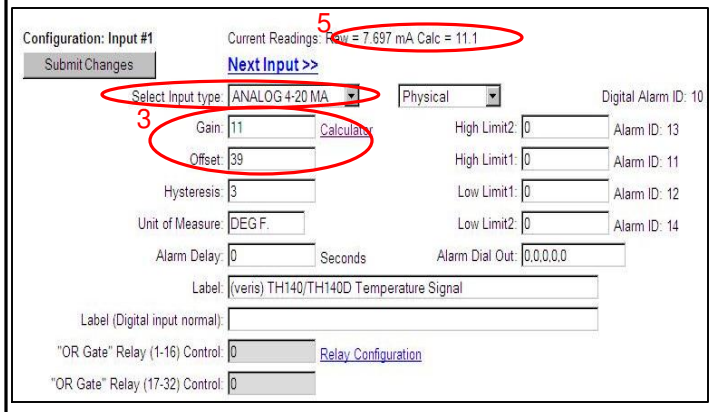


Figure 10.2: Temperature Setup
50 – 95 Degree F Range

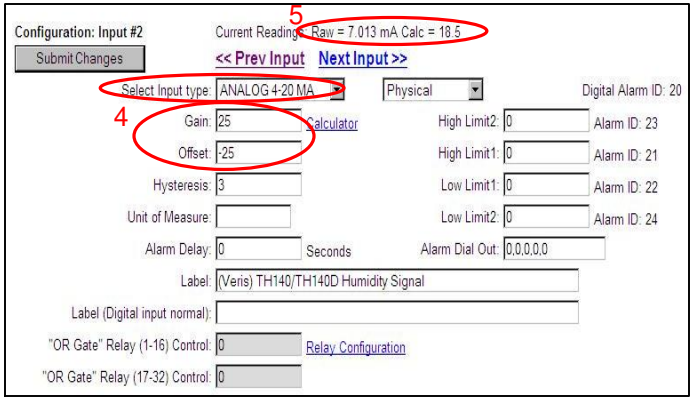


Figure 10.3: Humidity Setup

SETUP

1. Set the switch position to mA. Set the temperature range to 50-95 or 32-122. The Sensor is shipped from the factory with the switch in the volts position and the temperature range is set for 50-95F. The switch position must be set to the mA position.
2. Wire the sensor as shown.
3. Configure the Falcon Input channel (temperature) for "Analog 4-20mA" and enter the Gain and Offset values. For the 50-95F range use Gain 11.25, Offset 38.75. For 32-122F range use Gain 22, Offset 10.
4. Configure the Falcon Input Channel (humidity) for "Analog 4-20mA" and enter the Gain of 25 and Offset of -25.
5. Verify the "Calc" Value displays the correct room temperature. The temperature can also be viewed on the Falcon main page.

TROUBLESHOOTING

1. Calculate the TH140 Output current for temperature.

   Formula for calculating the correct RAW value

   ((Actual temp - Sensor Low) / (Sensor High - Sensor Low)) x 16 + 4

   Example if Room Temp is 70F and your sensor has a range of 50-95

   ((70 - 50) / (95 - 50)) x 16 + 4 = 11.11

2. Measure the current flowing into the Falcon Ch- terminal with a current meter. Verify that it is close to the calculated current (+/-1%)
3. If measured current current does not match calculated current then check wiring and check TH140/TH140D jumper and switch settings.
4. Compare the measured current matches the current reading in the Falcon.
5. Check the wiring if the Falcon current reading does not match the measured current reading.
6. If the Falcon current reading matches the measured current and the Falcon calculated value does not match the room temperature then the offset and gain values are wrong. Double check the Gain and Offset values.
7. If the temperature displayed in the Falcon is 1 or 2 degrees above or below the room temperature then adjust the offset by 1 or 2. Do not adjust the gain. Only tweak the offset once the previous troubleshooting steps have been performed.
8. If the Falcon still does not display the correct temperature contact RLE Technologies technical support at 970.484.6510.
9. Use similar troubleshooting procedure except use the following formula to calculate the humidity mA output.

$$mA = \left(\frac{\text{Room Humidity}}{100}\right) \times 16 + 4$$

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F-Series to T120D Falcon Integration

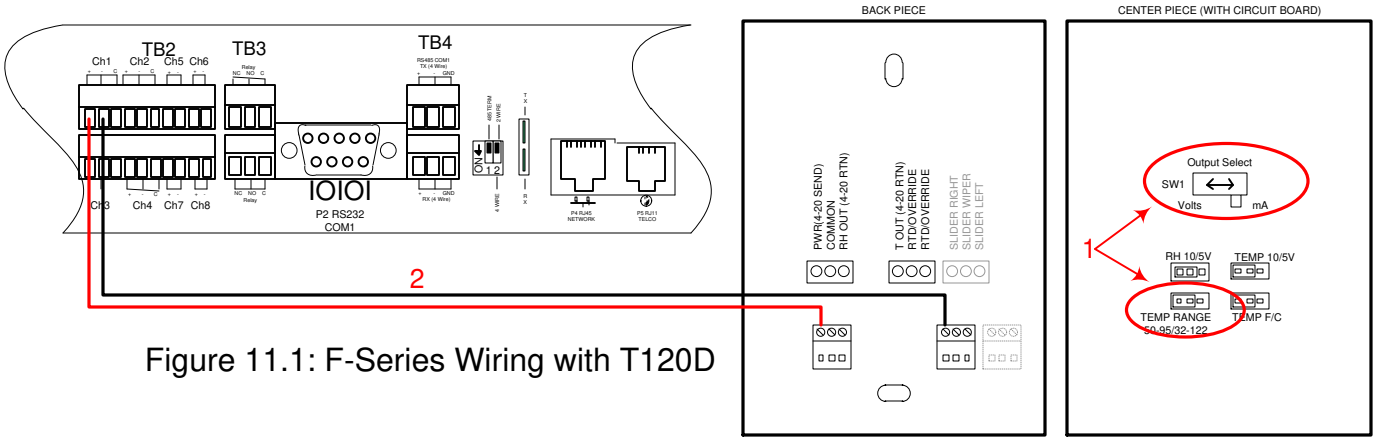


Figure 11.1: F-Series Wiring with T120D

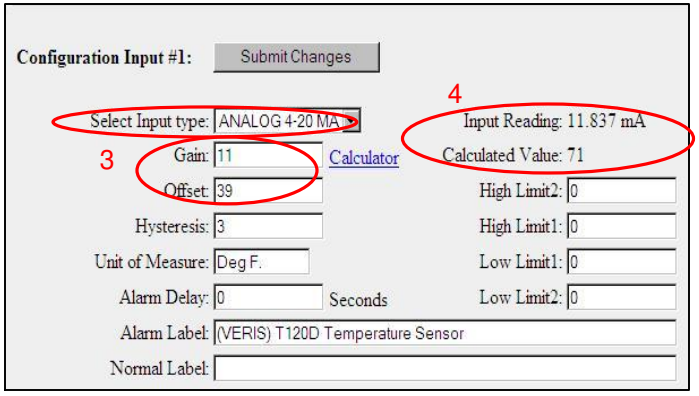


Figure 11.2: 50-95F Range Setup

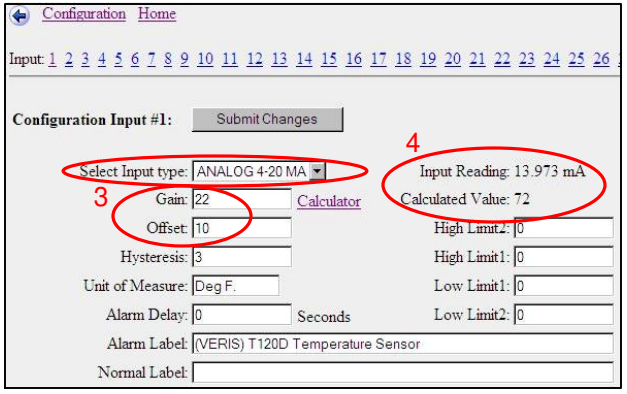


Figure 11.3: 32-122F Range Setup

SETUP

1. Set the Switch Position to mA. Set the temperature range to 50-95 or 32-122. The sensor is shipped from the factory with the switch in the volts position and the temperature range is set for 50-95F. The switch position must be set to the mA position.
2. Wire the sensor as shown.
3. Configure the Falcon Input channel (temperature) for "Analog 4-20mA" and enter the gain and offset values. For the 50-95F range use Gain 11, Offset 39. For 32-122F range use Gain 22, Offset 10.
4. Verify the "Calc" value displays the correct room temperature. The temperature can also be viewed on the Falcon main page.

TROUBLESHOOTING

5. Calculate the T120D Output current for temperature.

((Actual temp - Sensor Low) / (Sensor High - Sensor Low)) x 16 + 4

Example if Room Temp is 70F and your sensor has a range of 50-95

((70 - 50) / (95 - 50)) x 16 + 4 = 11.11

Example if Room Temp is 70F

mA @ 70F = 11.11mA

mA @ 69F = 10.75mA

6. Measure the current flowing into the Falcon Ch- terminal with a current meter. Verify that it is close to the calculated current (+/- 1%)
7. If measured current current does not match calculated current then check wiring and check T120D jumper and switch settings.
8. Compare the measured current matches the current reading in the Falcon.
9. Check the wiring if the Falcon current reading does not match the measured current reading.
10. If the Falcon current reading matches the measured current and the Falcon calculated value does not match the room temperature then the offset and gain values are wrong. Double check the Gain and Offset values.
11. If the temperature displayed in the Falcon is 1 or 2 degrees above or below the room temperature then adjust the offset by 1 or 2. Do not adjust the gain. Only tweak the offset once the previous troubleshooting steps have been performed.
12. If the Falcon still does not display the correct temperature contact RLE Technologies technical support at 970.484.6510.

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F-Series to TH140/TH140D Falcon Integration

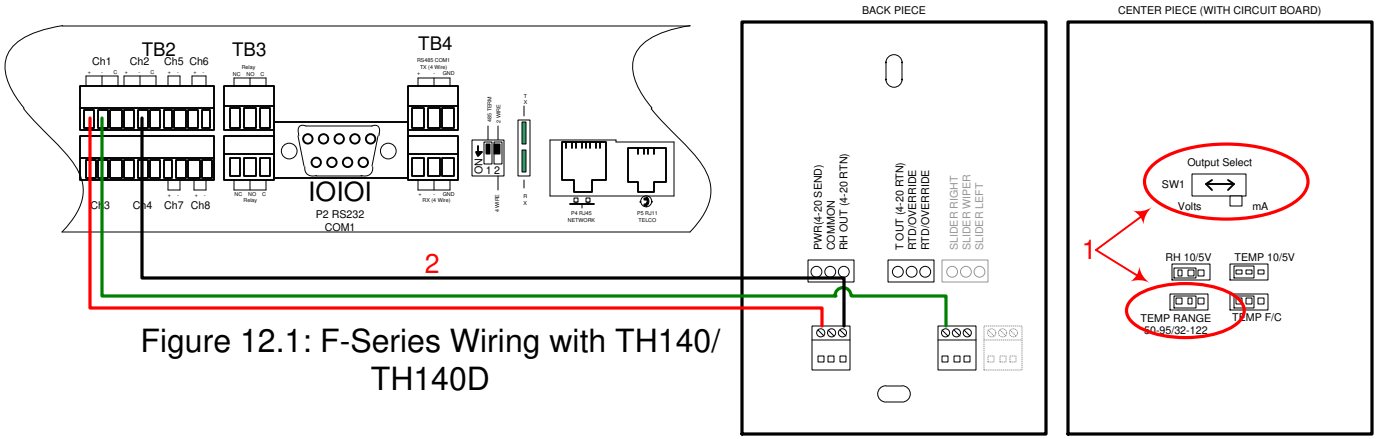


Figure 12.1: F-Series Wiring with TH140/ TH140D

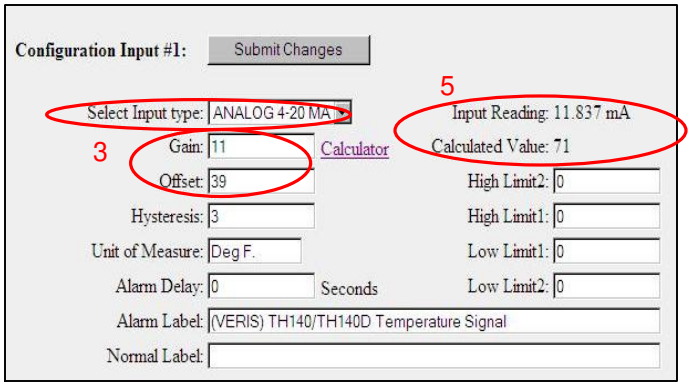


Figure 12.2: Temperature Setup 50 – 95 Degree F Range

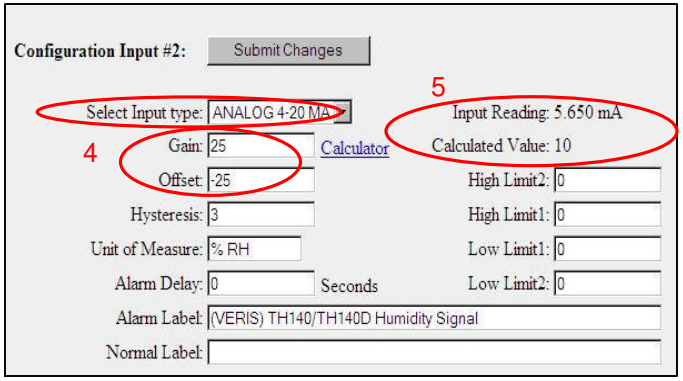


Figure 12.3: Humidity Setup

SETUP

1. Set the Switch Position to mA. Set the temperature range to 50-95 or 32-122. The Sensor is shipped from the factory with the switch in the volts position and the temperature range is set for 50-95F. The switch position must be set to the mA position.
2. Wire the sensor as shown.
3. Configure the Falcon Input channel (temperature) for "Analog 4-20mA" and enter the Gain and Offset values. For the 50-95F range use Gain 11, Offset 39. For 32-122F range use Gain 22, Offset 10.
4. Configure the Falcon Input Channel (humidity) for "Analog 4-20mA" and enter the Gain of 25 and offset of -25.
5. Verify the "Calc" value displays the correct room temperature/humidity. The temperature/humidity can also be viewed on the Falcon main page.

TROUBLESHOOTING

1. Calculate the TH140 Output current for temperature.

((Actual temp - Sensor Low) / (Sensor High - Sensor Low)) x 16 + 4

Example if Room Temp is 70F and your sensor has a range of 50-95

((70 - 50) / (95 - 50)) x 16 + 4 = 11.11

2. Measure the current flowing into the Falcon Ch- terminal with a current meter. Verify that it is close to the calculated current (+/-1%)
3. If measured current current does not match calculated current then check wiring and check TH140/TH140D jumper and switch settings.
4. Compare the measured current matches the current reading in the Falcon.
5. Check the wiring if the Falcon current reading does not match the measured current reading.
6. If the Falcon current reading matches the measured current and the Falcon calculated value does not match the room temperature then the offset and gain values are wrong. Double check the Gain and Offset values.
7. If the temperature displayed in the Falcon is 1 or 2 degrees above or below the room temperature then adjust the offset by 1 or 2. Do not adjust the gain. Only tweak the offset once the previous troubleshooting steps have been performed.
8. If the Falcon still does not display the correct temperature contact RLE Technologies technical support at 970.484.6510.
9. Use similar troubleshooting procedure except use the following formula to calculate the humidity mA output.

$$mA = \left(\frac{\text{Room Humidity}}{100}\right) \times 16 + 4$$

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FMS BAPI Temperature/Humidity Falcon Integration

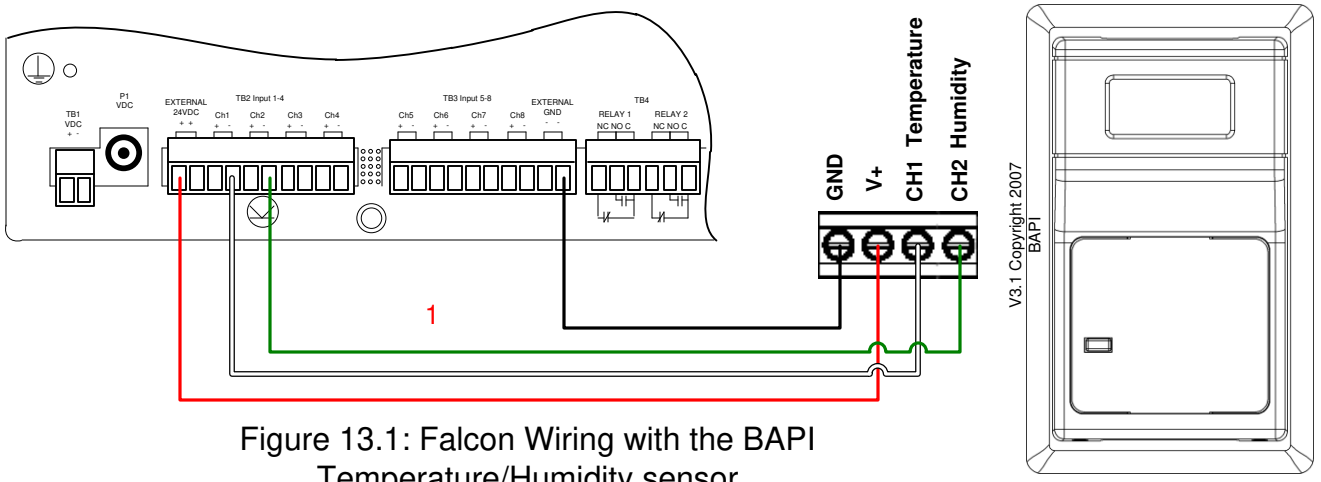


Figure 13.1: Falcon Wiring with the BAPI Temperature/Humidity sensor

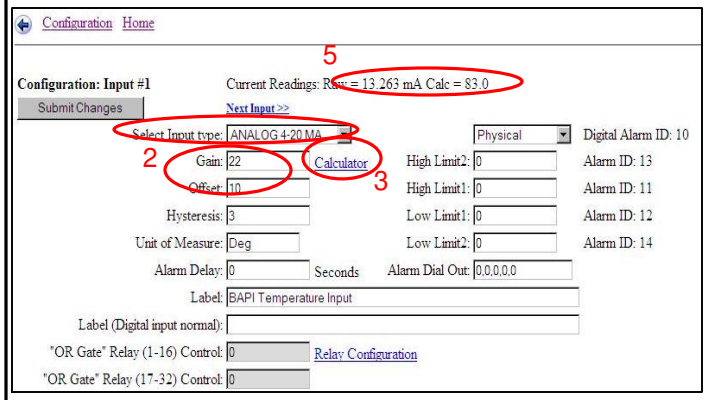


Figure 13.2: Temperature Setup 32 - 120 Degree F Range

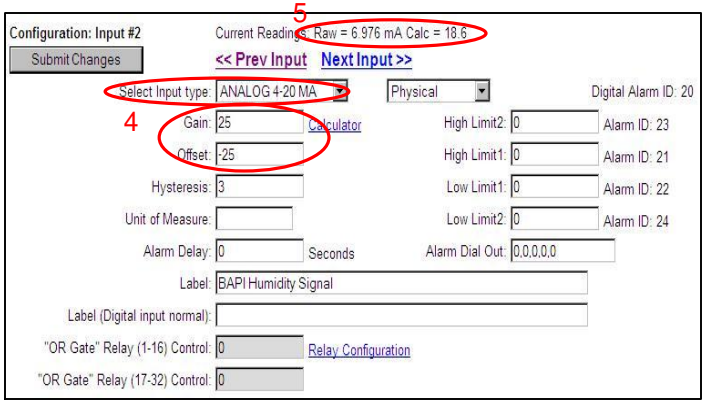


Figure 13.3: Humidity Setup

SETUP

1. Wire the sensor as shown.
2. Configure the Falcon Input channel (temperature) for "Analog 4-20mA" and enter the gain and offset values. For the 32-120F range use Gain 22, Offset -10.
3. For other temperature ranges, use the Calculator function on the webpage
4. Configure the Falcon Input Channel (humidity) for "Analog 4-20mA" and enter the Gain of 25 and Offset of -25.
5. Verify the "Calc" Value displays the correct room temperature. The temperature can also be viewed on the Falcon main page.

TROUBLESHOOTING

1. Calculate the BAPI Output current for temperature.

((Actual temp - Sensor Low) / (Sensor High - Sensor Low)) x 16 + 4

Example if Room Temp is 70F and your sensor has a range of 32-120

((70 - 32) / (120 - 32)) x 16 + 4 = 10.90

2. Measure the current flowing into the Falcon Ch- terminal with a current meter. Verify that it is close to the calculated current (+/-1%)
3. If measured current current does not match calculated current then check wiring and check the BAPI switch settings.
4. Compare the measured current matches the current reading in the Falcon.
5. Check the wiring if the Falcon current reading does not match the measured current reading.
6. If the Falcon current reading matches the measured current and the Falcon calculated value does not match the room temperature then the offset and gain values are wrong. Double check the Gain and Offset values.
7. If the temperature displayed in the Falcon is 1 or 2 degrees above or below the room temperature then adjust the offset by 1 or 2. Do not adjust the gain. Only tweak the offset once the previous troubleshooting steps have been performed.
8. If the Falcon still does not display the correct temperature contact RLE Technologies technical support at 970.484.6510.
9. Use similar troubleshooting procedure except use the following formula to calculate the humidity mA output.

$$mA = \left(\frac{\text{Room Humidity}}{100}\right) \times 16 + 4$$

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F-Series BAPI Temperature/Humidity Falcon Integration

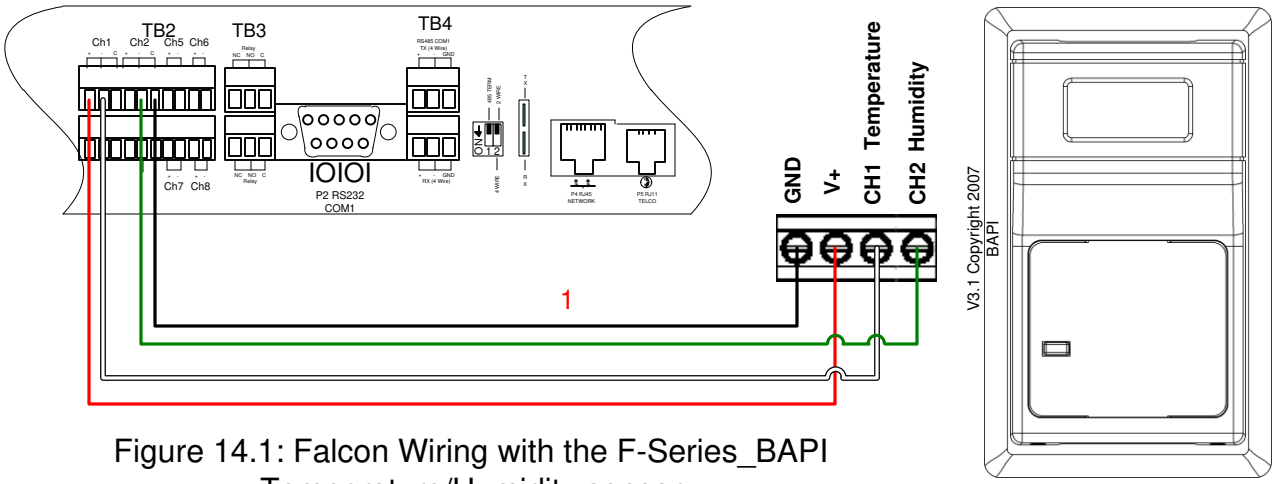


Figure 14.1: Falcon Wiring with the F-Series_BAPI Temperature/Humidity sensor

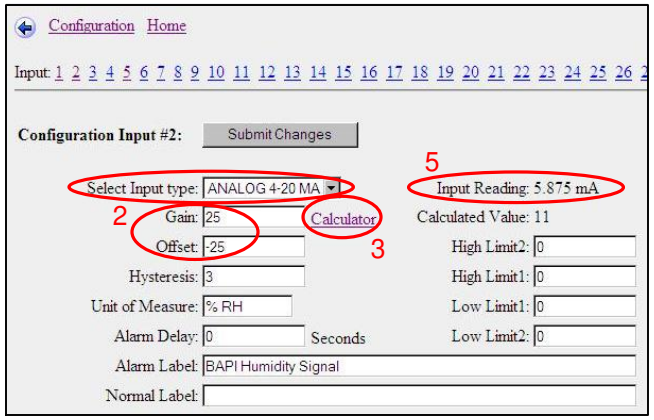


Figure 14.2: Temperature Setup 32 - 120 Degree F Range

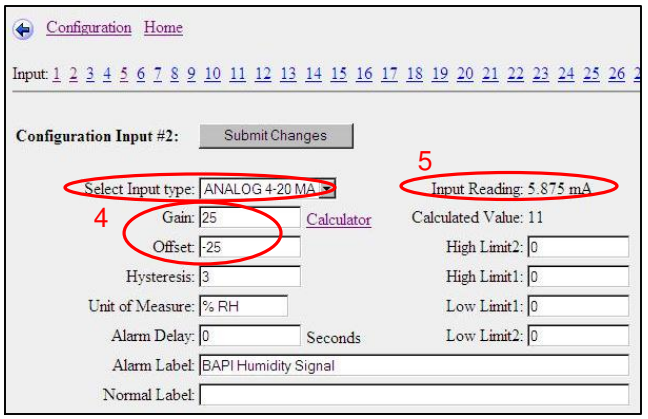


Figure 14.3: Humidity Setup

SETUP

1. Wire the sensor as shown.
2. Configure the Falcon Input channel (temperature) for "Analog 4-20mA" and enter the gain and offset values. For the 32-120F range use Gain 22, Offset 10.
3. For other temperature ranges, use the Calculator function on the webpage.
4. Configure the Falcon Input Channel (humidity) for "Analog 4-20mA" and enter the Gain of 25 and Offset of -25.
5. Verify the "Calc" value displays the correct room temperature. The temperature can also be viewed on the Falcon main page.

TROUBLESHOOTING

1. Calculate the BAPI Output current for temperature.

((Actual temp - Sensor Low) / (Sensor High - Sensor Low)) x 16 + 4

Example if Room Temp is 70F and your sensor has a range of 32-110

((70 - 32) / (120 - 32)) x 16 + 4 = 10.90

2. Measure the current flowing into the Falcon Ch- terminal with a current meter. Verify that it is close to the calculated current (+/-1%)
3. If measured current current does not match calculated current then check wiring and check the BAPI switch settings.
4. Compare the measured current matches the current reading in the Falcon.
5. Check the wiring if the Falcon current reading does not match the measured current reading.
6. If the Falcon current reading matches the measured current and the Falcon Calculated value does not match the room temperature then the offset and gain values are wrong. Double check the Gain and Offset values.
7. If the temperature displayed in the Falcon is 1 or 2 degrees above or below the room temperature then adjust the offset by 1 or 2. Do not adjust the gain. Only tweak the offset once the previous troubleshooting steps have been performed.
8. If the Falcon still does not display the correct temperature contact RLE Technologies technical support at 970.484.6510.
9. Use similar troubleshooting procedure except use the following formula to calculate the humidity mA output.

$$mA = \left(\frac{\text{Room Humidity}}{100}\right) \times 16 + 4$$

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FMS Dwyer Temperature/Humidity Falcon Integration

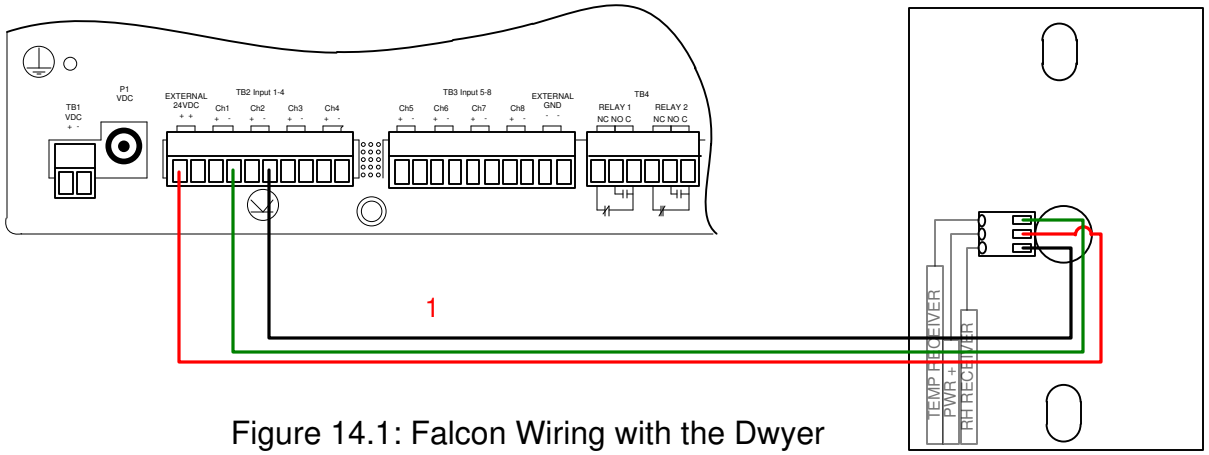


Figure 14.1: Falcon Wiring with the Dwyer Temperature/Humidity sensor

SETUP

1. Wire the sensor as shown.
2. Configure the Falcon Input channel (temperature) for "Analog 4-20mA" and enter the gain and offset values. For the -40 - 140F range use Gain 45, Offset -85.
3. For other temperature ranges, use the Calculator function on the webpage
4. Configure the Falcon Input Channel (humidity) for "Analog 4-20mA" and enter the Gain of 25 and Offset of -25.
5. Verify the "Calc" Value displays the correct room temperature. The temperature can also be viewed on the Falcon main page.

TROUBLESHOOTING

1. Calculate the Dwyer Output current for temperature.

((Actual temp - Sensor Low) / (Sensor High - Sensor Low)) x 16 + 4

Example if Room Temp is 70F and your sensor has a range of -40 - 140

((70 - -40) / (140 - -40)) x 16 + 4 = 13.77

2. Measure the current flowing into the Falcon Ch- terminal with a current meter. Verify that it is close to the calculated current (+/-1%)
3. If measured current current does not match calculated current then check wiring.
4. Compare the measured current matches the current reading in the Falcon.
5. Check the wiring if the Falcon current reading does not match the measured current reading.
6. If the Falcon current reading matches the measured current and the Falcon calculated value does not match the room temperature then the offset and gain values are wrong. Double check the Gain and Offset values.
7. If the temperature displayed in the Falcon is 1 or 2 degrees above or below the room temperature then adjust the offset by 1 or 2. Do not adjust the gain. Only tweak the offset once the previous troubleshooting steps have been performed.
8. If the Falcon still does not display the correct temperature contact RLE Technologies technical support at 970.484.6510.
9. Use similar troubleshooting procedure except use the following formula to calculate the humidity mA output.

$$mA = \left(\frac{\text{Room Humidity}}{100}\right) \times 16 + 4$$

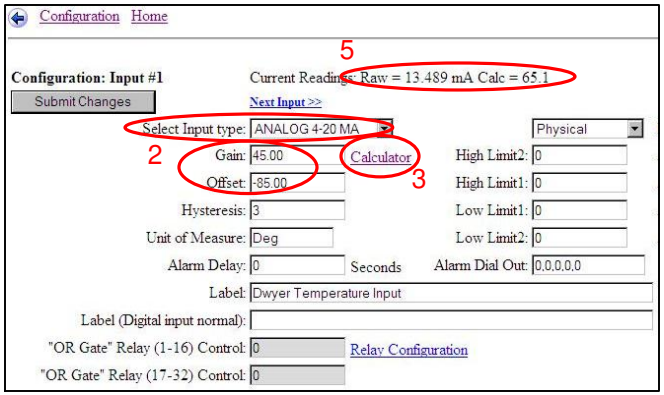


Figure 14.2: Temperature Setup -40 - 140 Degree F Range

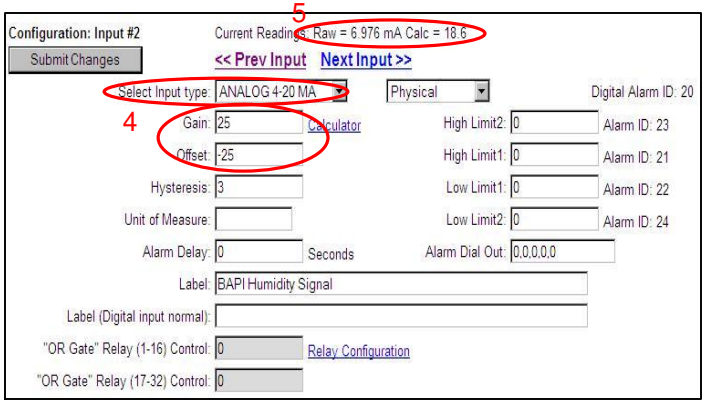


Figure 14.3: Humidity Setup

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F-Series Dwyer Temperature/Humidity Falcon Integration

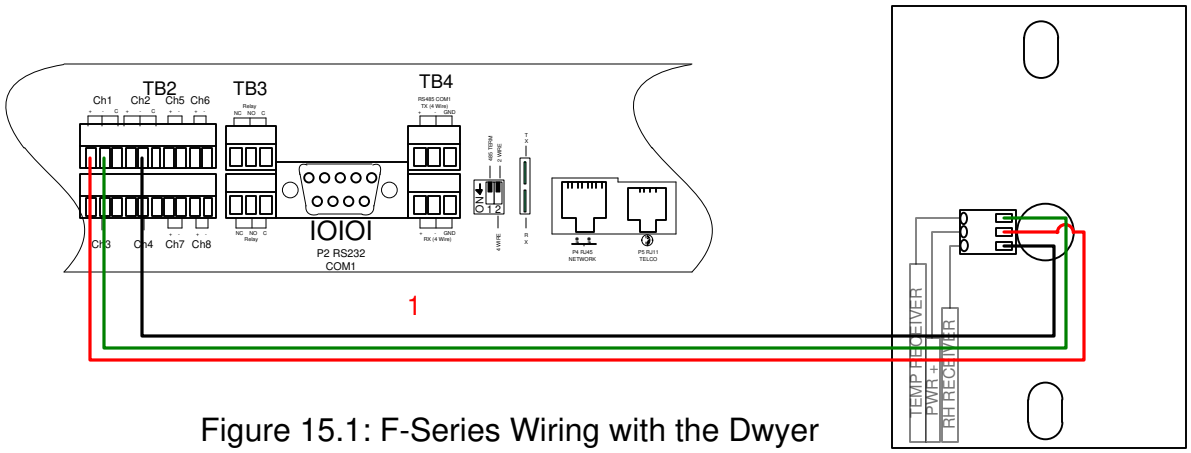


Figure 15.1: F-Series Wiring with the Dwyer Temperature/Humidity sensor

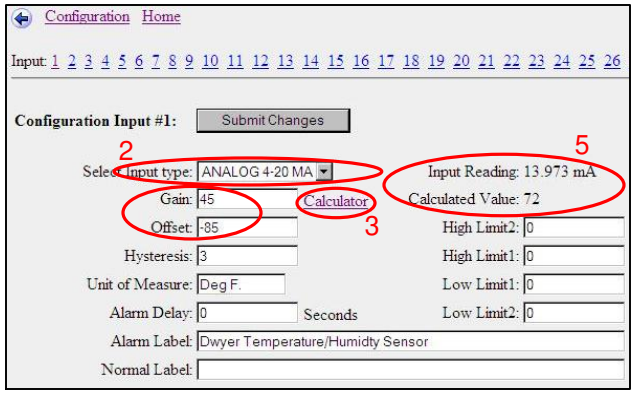


Figure 15.2: Temperature Setup -40 - 140 Degree F Range

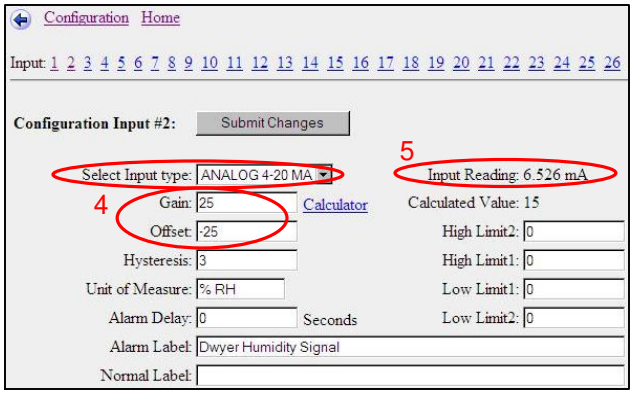


Figure 15.3: Humidity Setup

SETUP

1. Wire the sensor as shown.
2. Configure the Falcon Input channel (temperature) for "Analog 4-20mA" and enter the gain and offset values. For the -40 - 140F range use Gain 45, Offset -85.
3. For other temperature ranges, use the Calculator function on the webpage
4. Configure the Falcon Input Channel (humidity) for "Analog 4-20mA" and enter the Gain of 25 and Offset of -25.
5. Verify the "Calc" Value displays the correct room temperature. The temperature can also be viewed on the Falcon main page.

TROUBLESHOOTING

1. Calculate the Dwyer Output current for temperature.

((Actual temp - Sensor Low) / (Sensor High - Sensor Low)) x 16 + 4

Example if Room Temp is 70F and your sensor has a range of -40 - 140

((70 - -40) / (140 - -40)) x 16 + 4 = 13.77

2. Measure the current flowing into the Falcon Ch- terminal with a current meter. Verify that it is close to the calculated current (+/-1%)
3. If measured current current does not match calculated current then check wiring.
4. Compare the measured current matches the current reading in the Falcon.
5. Check the wiring if the Falcon current reading does not match the measured current reading.
6. If the Falcon current reading matches the measured current and the Falcon calculated value does not match the room temperature then the offset and gain values are wrong. Double check the Gain and Offset values.
7. If the temperature displayed in the Falcon is 1 or 2 degrees above or below the room temperature then adjust the offset by 1 or 2. Do not adjust the gain. Only tweak the offset once the previous troubleshooting steps have been performed.
8. If the Falcon still does not display the correct temperature contact RLE Technologies technical support at 970.484.6510.
9. Use similar troubleshooting procedure except use the following formula to calculate the humidity mA output.

$$mA = \left(\frac{\text{Room Humidity}}{100}\right) \times 16 + 4$$