

FMS to TH140/TH140D Integration

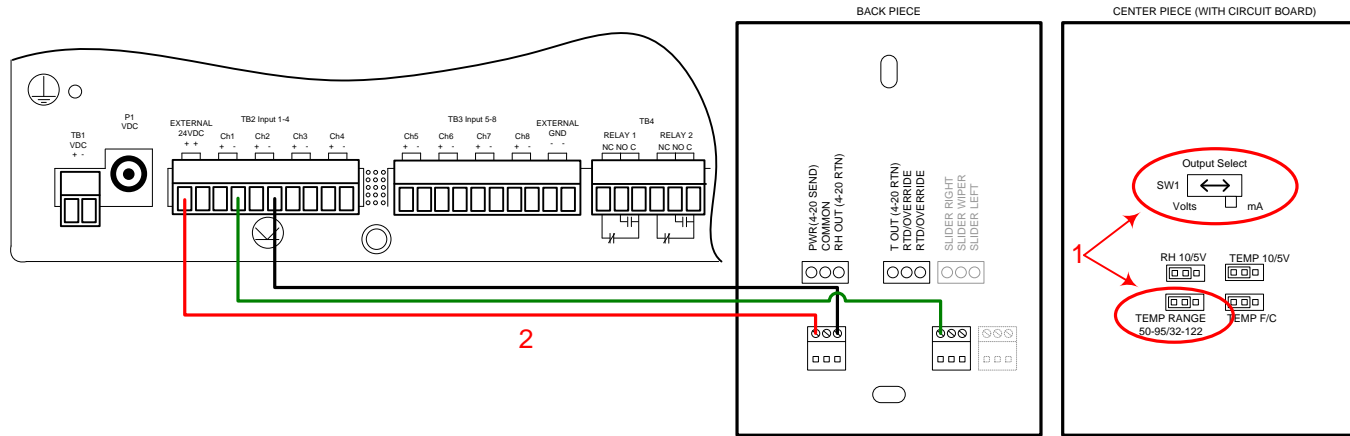


Figure 1.1: FMS Wiring with the TH140/TH140D

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
$$\left(\frac{\text{Actual temp} - \text{Sensor Low}}{\text{Sensor High} - \text{Sensor Low}} \right) \times 16 + 4$$

Example if Room Temp is 70F and your sensor has a range of 50-95
$$\left(\frac{70 - 50}{95 - 50} \right) \times 16 + 4 = 11.11$$
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 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.

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

Configuration: Input #1
Submit Changes

Current Readings: Raw = 7.697 mA Calc = 11.1

Select Input type: ANALOG 4-20 MA Physical Digital Alarm ID: 10

Gain: 11 Offset: 39 High Limit2: 0 Alarm ID: 13
High Limit1: 0 Alarm ID: 11
Hysteresis: 3 Low Limit1: 0 Alarm ID: 12
Unit of Measure: DEG F Low Limit2: 0 Alarm ID: 14
Alarm Delay: 0 Seconds Alarm Dial Out: 0,0,0,0
Label: (Veris) TH140/TH140D Temperature Signal
Label (Digital input normal):
"OR Gate" Relay (1-16) Control: 0 Relay Configuration
"OR Gate" Relay (17-32) Control: 0

Figure 1.2: Temperature Setup
50 – 95 Degree F Range

Configuration: Input #2
Submit Changes

Current Readings: Raw = 7.013 mA Calc = 18.5

Select Input type: ANALOG 4-20 MA Physical Digital Alarm ID: 20

Gain: 25 Offset: -25 High Limit2: 0 Alarm ID: 23
High Limit1: 0 Alarm ID: 21
Hysteresis: 3 Low Limit1: 0 Alarm ID: 22
Unit of Measure: Low Limit2: 0 Alarm ID: 24
Alarm Delay: 0 Seconds Alarm Dial Out: 0,0,0,0
Label: (Veris) TH140/TH140D Humidity Signal
Label (Digital input normal):
"OR Gate" Relay (1-16) Control: 0 Relay Configuration
"OR Gate" Relay (17-32) Control: 0

Figure 1.3: Humidity Setup



FMS to T120D Integration

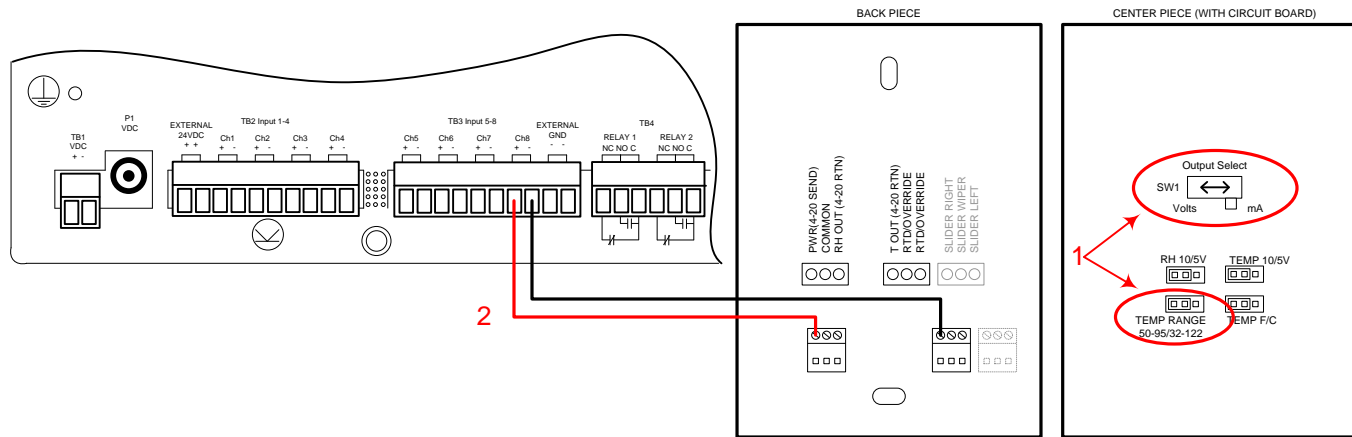


Figure 2.1: FMS Wiring with the T120D

Changes accepted.

Configuration: Input #8

Submit Changes

Current Reading: Raw = 3.607 mA Calc = 48.9

<< Prev Input Next Input >>

Select Input type: ANALOG 4-20 MA

Gain: 11

Offset: 39

Hysteresis: 3

Unit of Measure: Deg F

Alarm Delay: 0 Seconds

Alarm Dial Out: 0,0,0,0,0

Label: (VERIS)T120D Temperature Sensor

Label (Digital input normal):

"OR Gate" Relay (1-16) Control: 0

"OR Gate" Relay (17-32) Control: 0

Figure 2.2: 50-95F Range Setup

Configuration: Input #8

Submit Changes

Current Reading: Raw = 3.595 mA Calc = 29.7

<< Prev Input Next Input >>

Select Input type: ANALOG 4-20 MA

Gain: 22

Offset: 10

Hysteresis: 3

Unit of Measure: Deg F

Alarm Delay: 0 Seconds

Alarm Dial Out: 0,0,0,0,0

Label: (VERIS)T120D Temperature Sensor

Label (Digital input normal):

"OR Gate" Relay (1-16) Control: 0

"OR Gate" Relay (17-32) Control: 0

Figure 2.3: 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

$$((\text{Actual temp} - \text{Sensor Low}) / (\text{Sensor High} - \text{Sensor Low})) \times 16 + 4$$

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

$$((70 - 50) / (95 - 50)) \times 16 + 4 = 11.11$$

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.



FMS to HEW3MSTA Integration

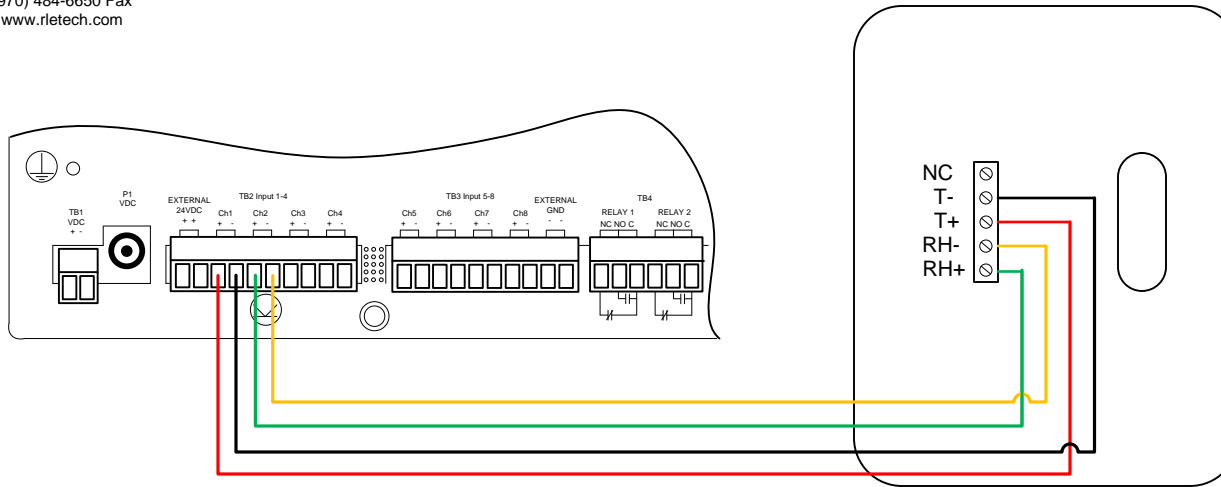


Figure 3.1: FMS Wiring with the HEW3MSTA

Configuration: Input #1
Submit Changes

Current Readings: Raw = 7.697 mA Calc = 11.1

Select Input type: ANALOG 4-20 MA Physical Digital Alarm ID: 10

Gain: 11 Calculator High Limit2: 0 Alarm ID: 13

Offset: 39 High Limit1: 0 Alarm ID: 11

Hysteresis: 3 Low Limit1: 0 Alarm ID: 12

Unit of Measure: DEG F Low Limit2: 0 Alarm ID: 14

Alarm Delay: 0 Seconds Alarm Dial Out: 0,0,0,0

Label: Temperature Signal

Label (Digital input normal):

"OR Gate" Relay (1-16) Control: 0 Relay Configuration

"OR Gate" Relay (17-32) Control: 0

Figure 3.2: Temperature Setup
50 – 95 Degree F Range

Configuration: Input #2
Submit Changes

Current Readings: Raw = 7.013 mA Calc = 18.5

Select Input type: ANALOG 4-20 MA Physical Digital Alarm ID: 20

Gain: 25 Calculator High Limit2: 0 Alarm ID: 23

Offset: -25 High Limit1: 0 Alarm ID: 21

Hysteresis: 3 Low Limit1: 0 Alarm ID: 22

Unit of Measure: Low Limit2: 0 Alarm ID: 24

Alarm Delay: 0 Seconds Alarm Dial Out: 0,0,0,0

Label: Humidity Signal

Label (Digital input normal):

"OR Gate" Relay (1-16) Control: 0 Relay Configuration

"OR Gate" Relay (17-32) Control: 0

Figure 3.3: Humidity Setup

SETUP

1. The temperature range is 50-95 degF
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.
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 output current for temperature.
Formula for calculating the correct RAW value
$$\left(\frac{\text{Actual temp} - \text{Sensor Low}}{\text{Sensor High} - \text{Sensor Low}} \right) \times 16 + 4$$

Example if Room Temp is 70F and your sensor has a range of 50-95
$$\left(\frac{70 - 50}{95 - 50} \right) \times 16 + 4 = 11.11$$
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.
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.

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



FMS to TEAMS Integration

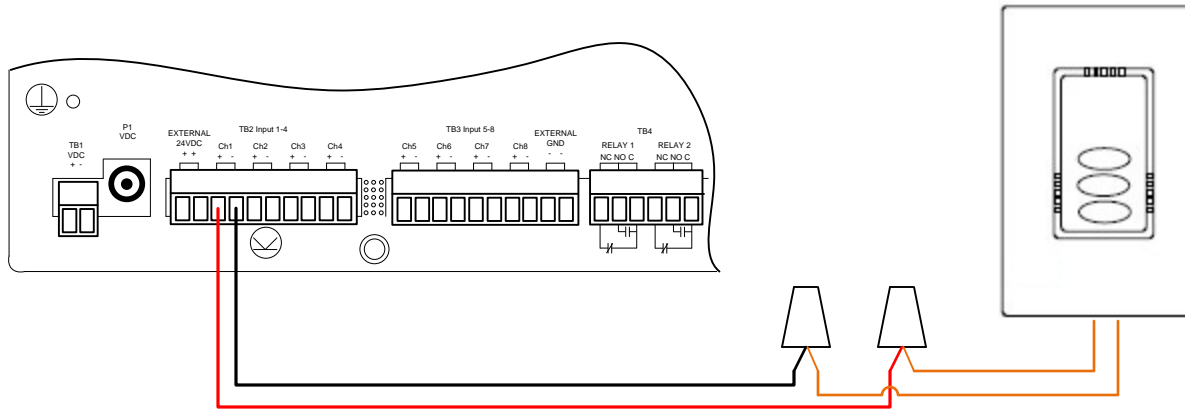


Figure 4.1: FMS Wiring with the TEAMS

Configuration: Input #1 Current Readings: Raw = 7.697 mA Calc = 11.1

[Submit Changes](#) [Next Input >>](#)

Select Input type: **ANALOG 4-20 MA** Physical: **Physical** Digital Alarm ID: 10

Gain: **11** [Calculator](#) High Limit2: **0** Alarm ID: 13

Offset: **39** High Limit1: **0** Alarm ID: 11

Hysteresis: **3** Low Limit1: **0** Alarm ID: 12

Unit of Measure: **DEG F** Low Limit2: **0** Alarm ID: 14

Alarm Delay: **0** Seconds Alarm Dial Out: **0,0,0,0,0**

Label: **Temperature Signal**

Label (Digital input normal):

"OR Gate" Relay (1-16) Control: **0** [Relay Configuration](#)

"OR Gate" Relay (17-32) Control: **0**

Figure 4.2: Temperature Setup
50 – 95 Degree F Range

SETUP

1. The temperature range is 50-95 degF
2. Wire the sensor as shown.
Orange wires are polarity independent
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.
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 output current for temperature.
Formula for calculating the correct RAW value
$$\left(\frac{\text{Actual temp} - \text{Sensor Low}}{\text{Sensor High} - \text{Sensor Low}} \right) \times 16 + 4$$

Example if Room Temp is 70F and your sensor has a range of 50-95
$$\left(\frac{70 - 50}{95 - 50} \right) \times 16 + 4 = 11.11$$
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.
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.



CT120/CT300/CT800/CT2400 FMS Integration

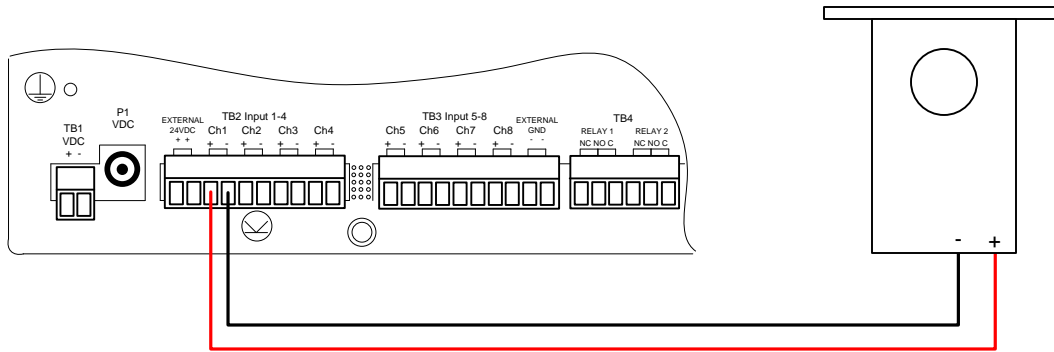


Figure 5.1: FMS Wiring

Figure 5.2: FMS 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.



PFM FMS Integration

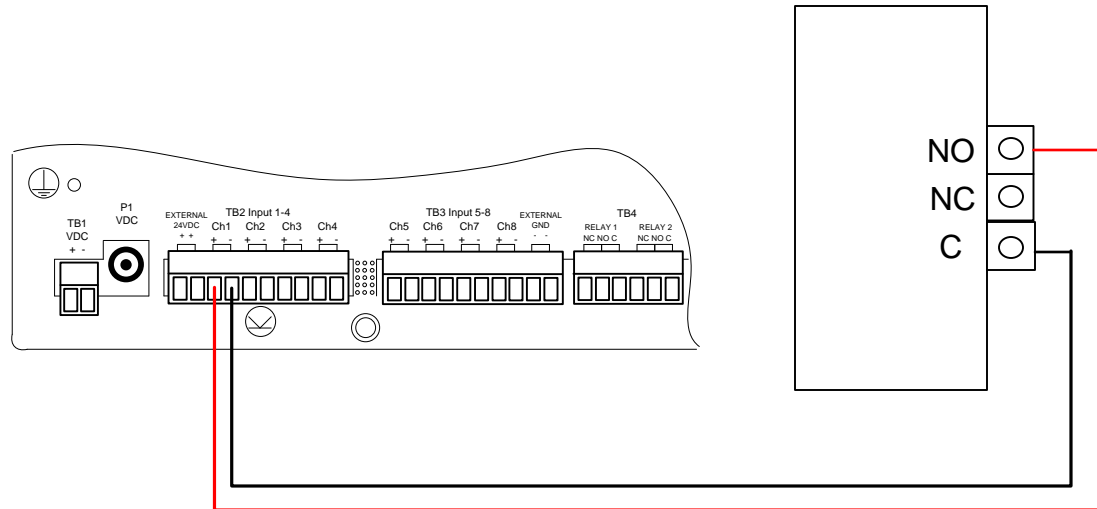


Figure 6.1: FMS Wiring

The screenshot shows the FMS Input Configuration Interface for Input #6. The 'Select Input type' dropdown is set to 'DIGITAL NO', which is circled in red. Other visible settings include 'Physical' for the input type, 'High Limit1' and 'Low Limit1' set to 0, 'Alarm Delay' set to 0 seconds, and 'Alarm Dial Out' set to 0.00.00. The interface also includes sections for 'Label (Digital input normal)', 'OR Gate' Relay (1-16) Control, 'Email Recipient Notification', 'Alarm Disable by Schedule', 'Trap Recipients', and 'High/Low/1 Spring Trap'.

FMS Input Configuration Interface

FMS Configuration

Set Input Type to a Digital NO Input type for each PFM Relay Output wired into the Falcon.



GD100 FMS Integration

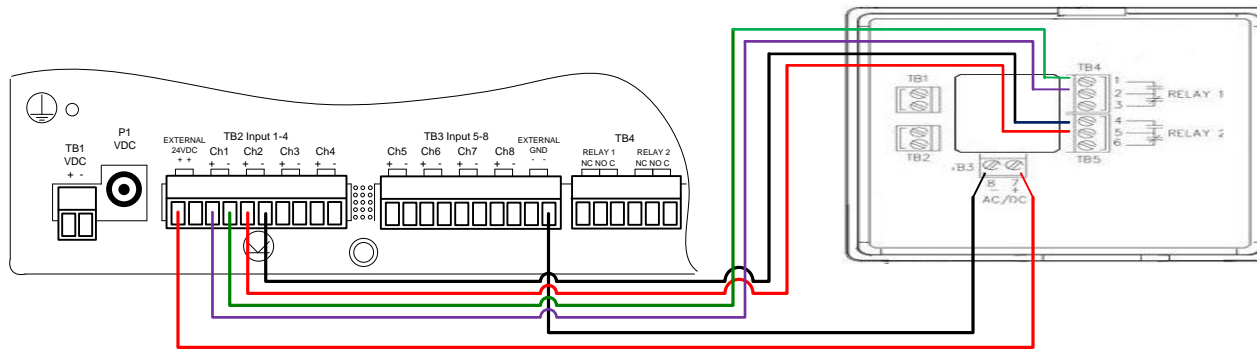


Figure 7.1: FMS Wiring

FMS Input Configuration Interface

FMS Configuration

Set Input Type to a Digital NO



AFS-(WM/DM) F200 Integration

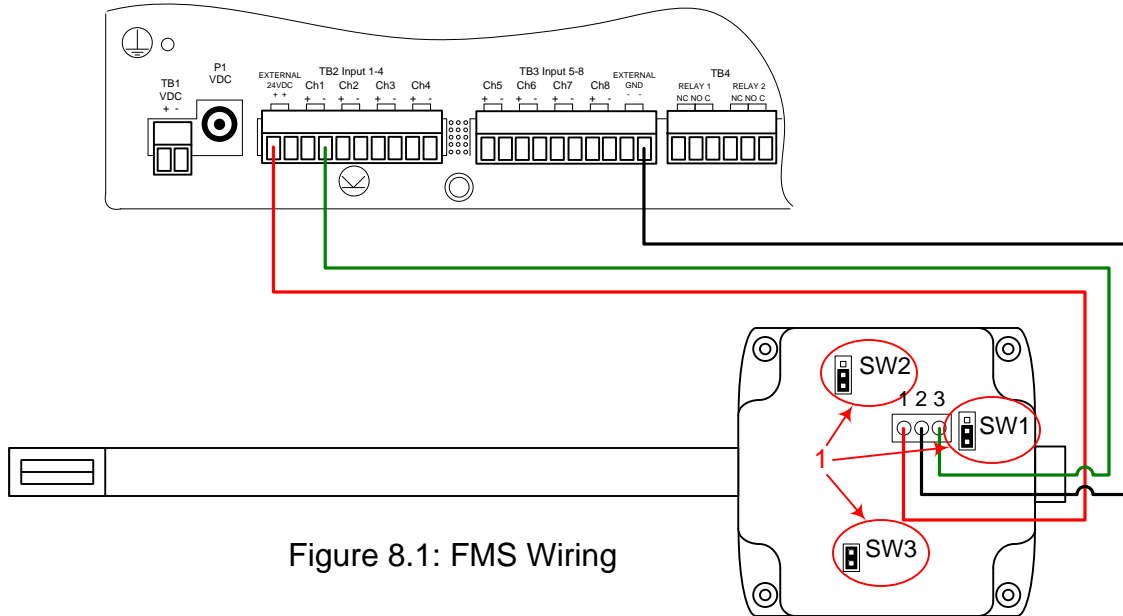








Figure 8.1: FMS Wiring

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

FMS AFS-xx Input Configuration Interface



AFS-D FMS Integration

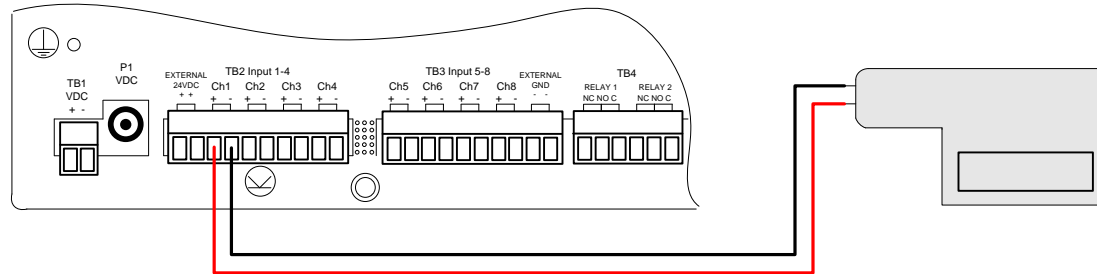


Figure 9.1: FMS Wiring

Changes accepted.

Configuration: Input #1 Current Readings: Raw = 0.054 mA Calc = 0.0

Submit Changes

Select Input type: **DIGITAL NC** Physical Digital Alarm ID: 10

Gain: 0 High Limit2: 0 Alarm ID: 13

Offset: 0 High Limit1: 0 Alarm ID: 11

Hysteresis: 0 Low Limit1: 0 Alarm ID: 12

Unit of Measure: Low Limit2: 0 Alarm ID: 14

Alarm Delay: 0 Seconds Alarm Dial Out: 0.0.0.0

Label: AFS-D Sensor Activate (ON)= AirFlow Present

Label (Digital input normal): AFS-D Sensor De-Activate (OFF)= No Airflow Present

"OR Gate" Relay (1-16) Control: 1 Relay Configuration

"OR Gate" Relay (17-32) Control: 0

FMS 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.



MD3 FMS Integration

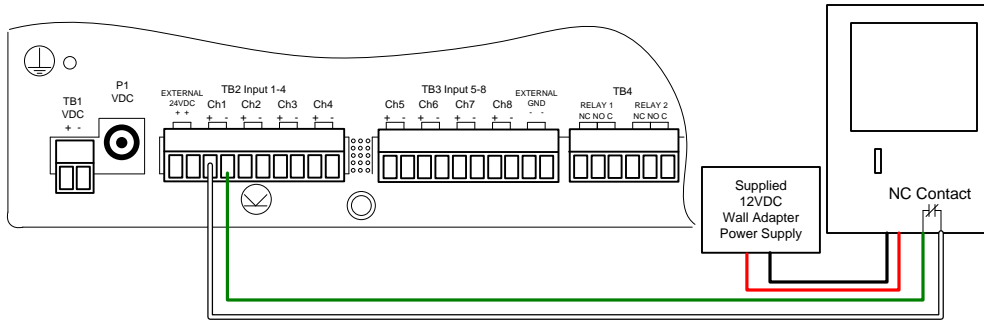


Figure 10.1: FMS Wiring

FMS Input Configuration Interface

FMS Configuration

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



MDS FMS Integration

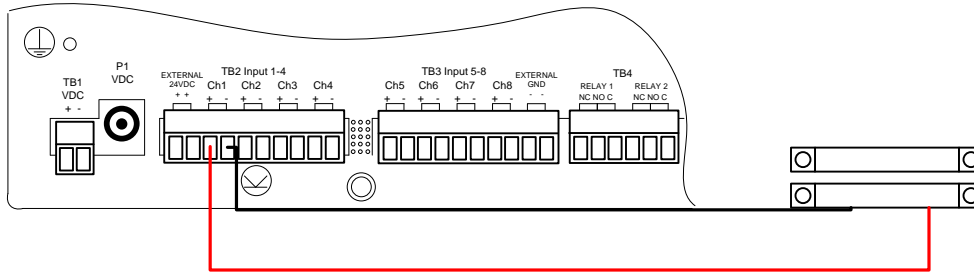


Figure 11.1: FMS Wiring

FMS Input Configuration Interface

FMS Configuration

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



SMK FMS Integration

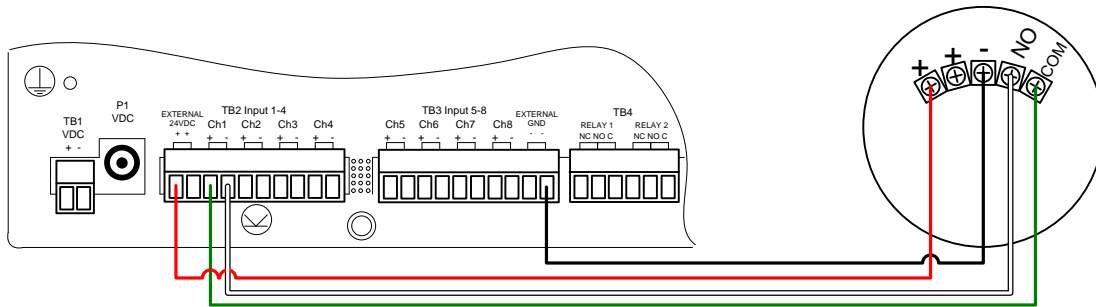


Figure 12.1: FMS Wiring

FMS Input Configuration Interface

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



HD150 & HD150-2 FMS Integration

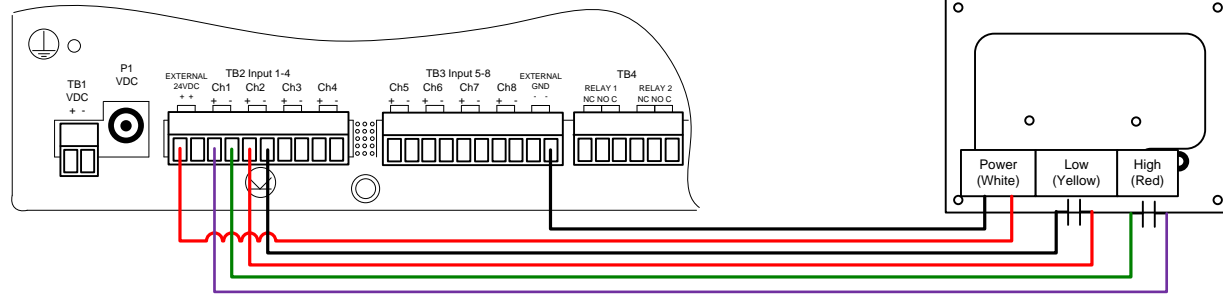


Figure 13.1: FMS Wiring

FMS 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.



KPO Falcon Integration

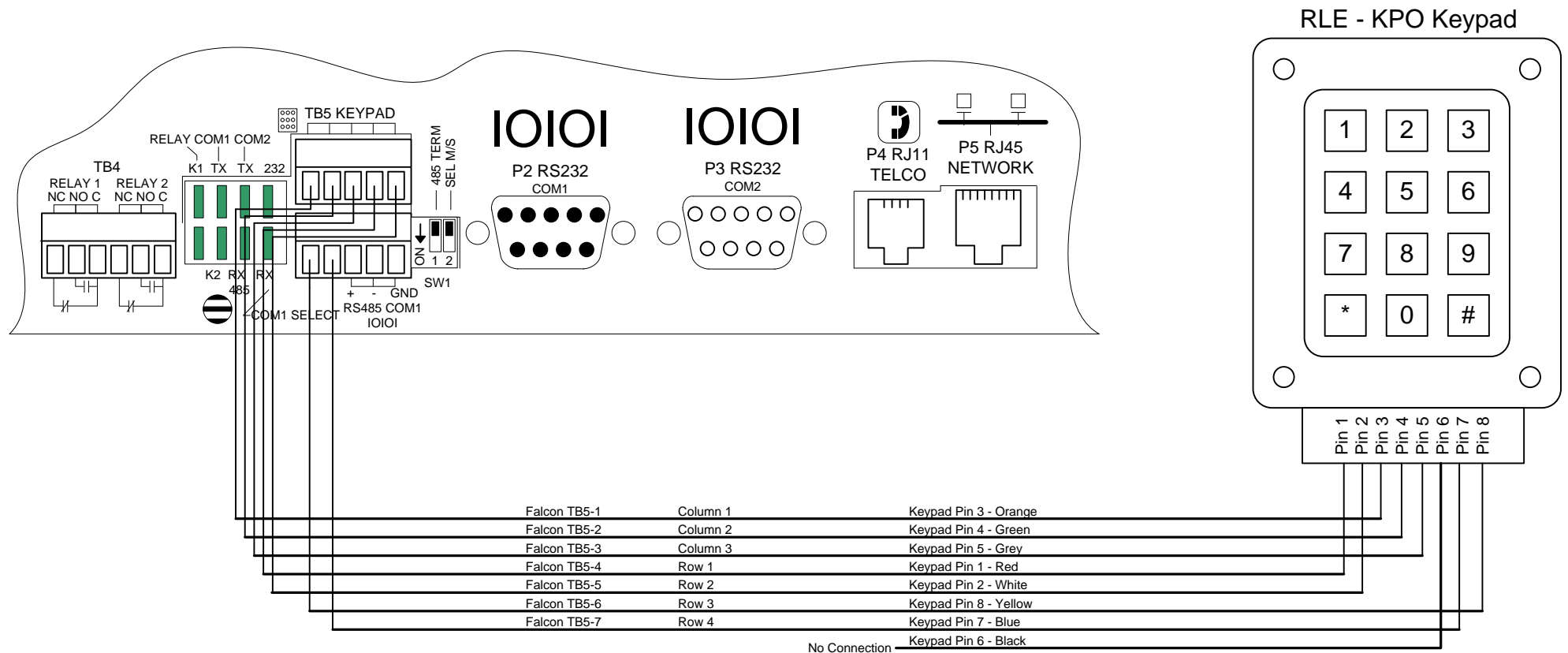


Figure 14.1: FMS Wiring with KPO

FMS Configuration

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

Keypad/DTMF Access User Configuration

Submit Changes

#	ID Code:	User Name:	Type:	#	ID Code:	User Name:	Type:
1	1590	Fred	Permanent	2			Permanent
3	1111	John	Temporary	4			Permanent
5	2222	Mike	Permanent	6			Permanent
7	123456	Michael	Permanent	8			Permanent
9			Permanent	10			Permanent
11			Permanent	12			Permanent
13			Permanent	14			Permanent
15			Permanent	16			Permanent
17			Permanent	18			Permanent
19			Permanent	20			Permanent

Exit Request Input: 0

Alarm Bypass Input: 0

Temporary Time: Disabled

Set Temporary Time

Temporary Time Remaining: 0:00:00 (HH:MM:SS)

[Returns to Configuration Menu Page](#)

[Returns to Main Menu Page](#)



FMS BAPI Temperature/Humidity Falcon Integration

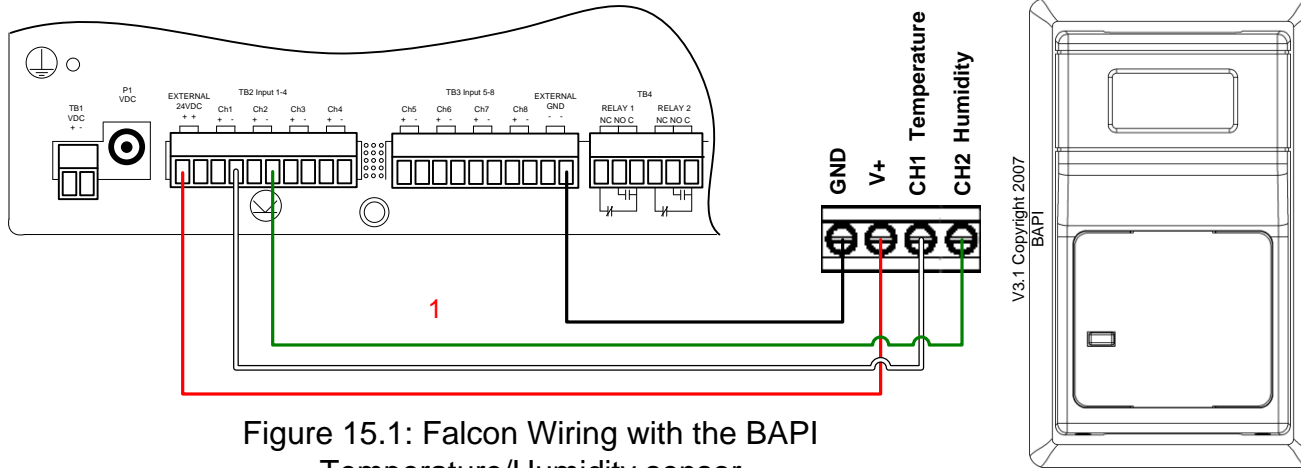


Figure 15.1: Falcon Wiring with the BAPI Temperature/Humidity sensor

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 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.

$$\left(\frac{\text{Actual temp} - \text{Sensor Low}}{\text{Sensor High} - \text{Sensor Low}} \right) \times 16 + 4$$

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

$$\left(\frac{70 - 32}{120 - 32} \right) \times 16 + 4 = 10.90$$

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 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.

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

Configuration: Home

Configuration: Input #1

Submit Changes

Current Readings: Raw = 13.263 mA Calc = 83.0

Select Input type: ANALOG 4-20 MA

Gain: 22

Offset: -10

Hysteresis: 3

Unit of Measure: Deg

Alarm Delay: 0 Seconds

Alarm Dial Out: 0.0.0.0

Label: BAPI Temperature Input

Label (Digital input normal):

"OR Gate" Relay (1-16) Control: 0

"OR Gate" Relay (17-32) Control: 0

Temperature Setup
32 - 120 Degree F Range

Configuration: Input #2

Submit Changes

Current Reading: Raw = 6.976 mA Calc = 18.6

<< Prev Input Next Input >>

Select Input type: ANALOG 4-20 MA

Gain: 25

Offset: -25

Hysteresis: 3

Unit of Measure:

Alarm Delay: 0 Seconds

Alarm Dial Out: 0.0.0.0

Label: BAPI Humidity Signal

Label (Digital input normal):

"OR Gate" Relay (1-16) Control: 0

"OR Gate" Relay (17-32) Control: 0

Humidity Setup



FMS HW2XA2A Temperature/Humidity Integration

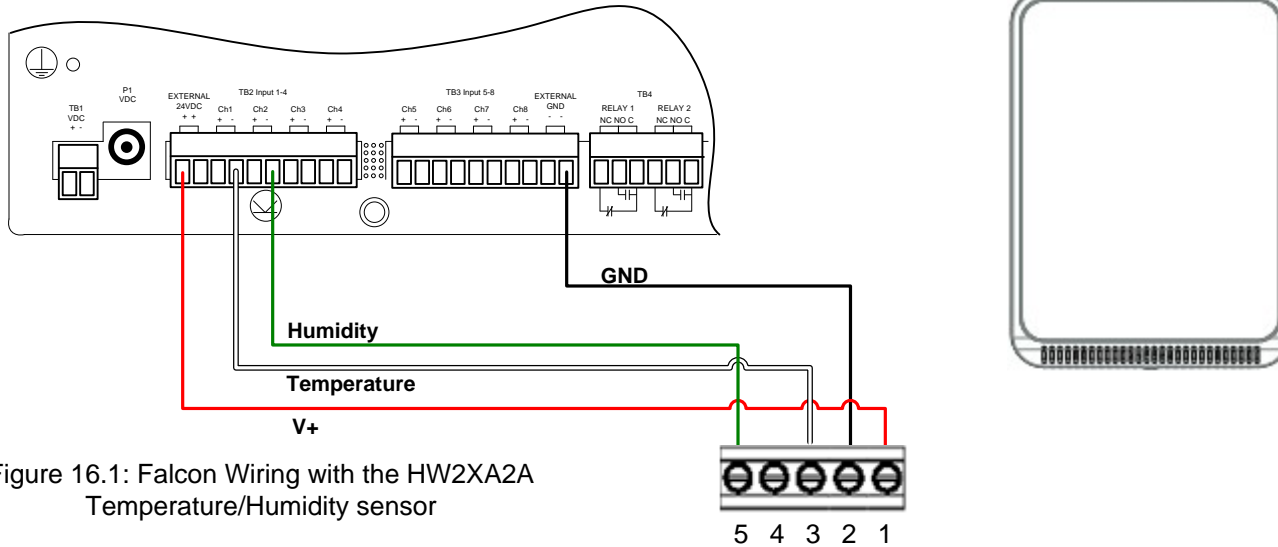


Figure 16.1: Falcon Wiring with the HW2XA2A Temperature/Humidity sensor

Configuration: Input #5

Current Readings: Raw = 11.560 mA Calc = 74.5

Submit Changes << Prev Input Next Input >>

Select Input type: ANALOG 4-20 MA Physical Digital Alarm ID: 50

Gain: 22.50 Calculator High Limit2: 90 (Major) Alarm ID: 53

Offset: 9.50 High Limit1: 80 (Minor) Alarm ID: 51

Hysteresis: 3 Low Limit1: 0 (Minor) Alarm ID: 52

UOM/Map Label: Low Limit2: 0 (Major) Alarm ID: 54

Alarm Delay: 0 Seconds Pager Alarms: 0,0,0,0,0

Label: HW2XA2A Temperature

Label (Digital input normal):

"OR Gate" Relay (1-16) Control: 0 "OR Gate" Relay (17-32) Control: 0 Relay Configuration

Temperature Setup
32 - 122 Degree F Range

Configuration: Input #6

Current Readings: Raw = 8.203 mA Calc = 26.3

Submit Changes << Prev Input Next Input >>

Select Input type: ANALOG 4-20 MA Physical Digital Alarm ID: 60

Gain: 25.00 Calculator High Limit2: 0 (Major) Alarm ID: 63

Offset: -25.00 High Limit1: 0 (Minor) Alarm ID: 61

Hysteresis: 0 Low Limit1: 0 (Minor) Alarm ID: 62

UOM/Map Label: Low Limit2: 0 (Major) Alarm ID: 64

Alarm Delay: 0 Seconds Pager Alarms: 0,0,0,0,0

Label: HW2XA2A Humidity

Label (Digital input normal):

"OR Gate" Relay (1-16) Control: 0 "OR Gate" Relay (17-32) Control: 0 Relay Configuration

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 32-122F range use Gain 22.5, Offset 9.5.
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 output current for temperature.
$$\left(\frac{\text{Actual temp} - \text{Sensor Low}}{\text{Sensor High} - \text{Sensor Low}} \right) \times 16 + 4$$

Example if Room Temp is 70F and your sensor has a range of 32-122
$$\left(\frac{70 - 32}{122 - 32} \right) \times 16 + 4 = 10.75$$
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.
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.

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



FMS Dwyer Temperature/Humidity Falcon Integration

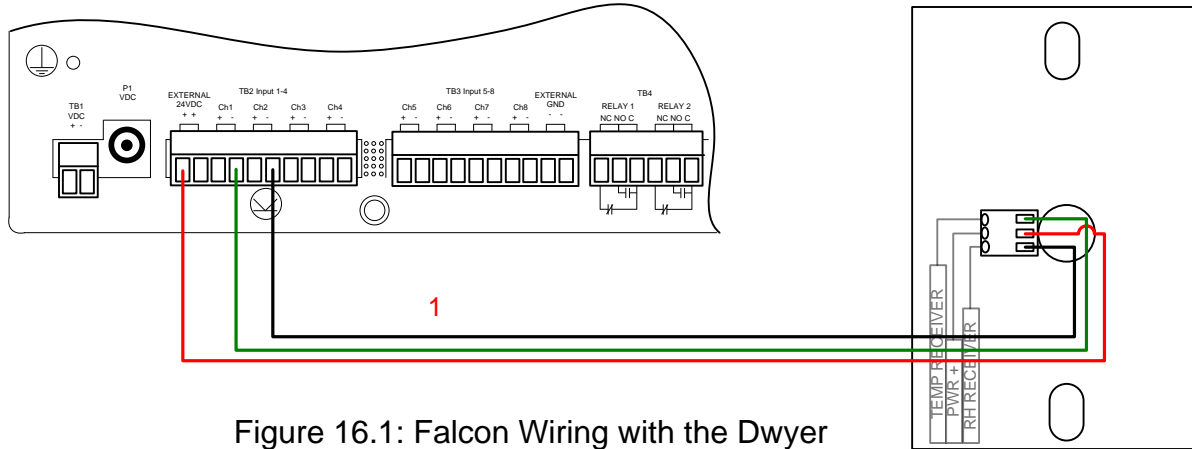


Figure 16.1: Falcon Wiring with the Dwyer Temperature/Humidity sensor

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.

$$\left(\frac{\text{Actual temp} - \text{Sensor Low}}{\text{Sensor High} - \text{Sensor Low}} \right) \times 16 + 4$$

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

$$\left(\frac{70 - (-40)}{140 - (-40)} \right) \times 16 + 4 = 13.77$$

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 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.

Configuration: Input #1

Submit Changes

Current Reading: Raw = 13.489 mA Calc = 65.1

Select Input type: ANALOG 4-20 MA

Gain: 45.00

Offset: -85.00

High Limit2: 0

High Limit1: 0

Low Limit1: 0

Low Limit2: 0

Hysteresis: 3

Unit of Measure: Deg

Alarm Delay: 0 Seconds

Alarm Dial Out: 0.0.0.0

Label: Dwyer Temperature Input

Label (Digital input normal):

"OR Gate" Relay (1-16) Control: 0

"OR Gate" Relay (17-32) Control: 0

Temperature Setup
-40 - 140 Degree F Range

Configuration: Input #2

Submit Changes

Current Reading: Raw = 6.976 mA Calc = 18.6

Select Input type: ANALOG 4-20 MA

Gain: 25

Offset: -25

High Limit2: 0

High Limit1: 0

Low Limit1: 0

Low Limit2: 0

Hysteresis: 3

Unit of Measure:

Alarm Delay: 0 Seconds

Alarm Dial Out: 0.0.0.0

Label: BAPI Humidity Signal

Label (Digital input normal):

"OR Gate" Relay (1-16) Control: 0

"OR Gate" Relay (17-32) Control: 0

Humidity Setup

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



FMS WIRED-TH Temperature/Humidity Integration

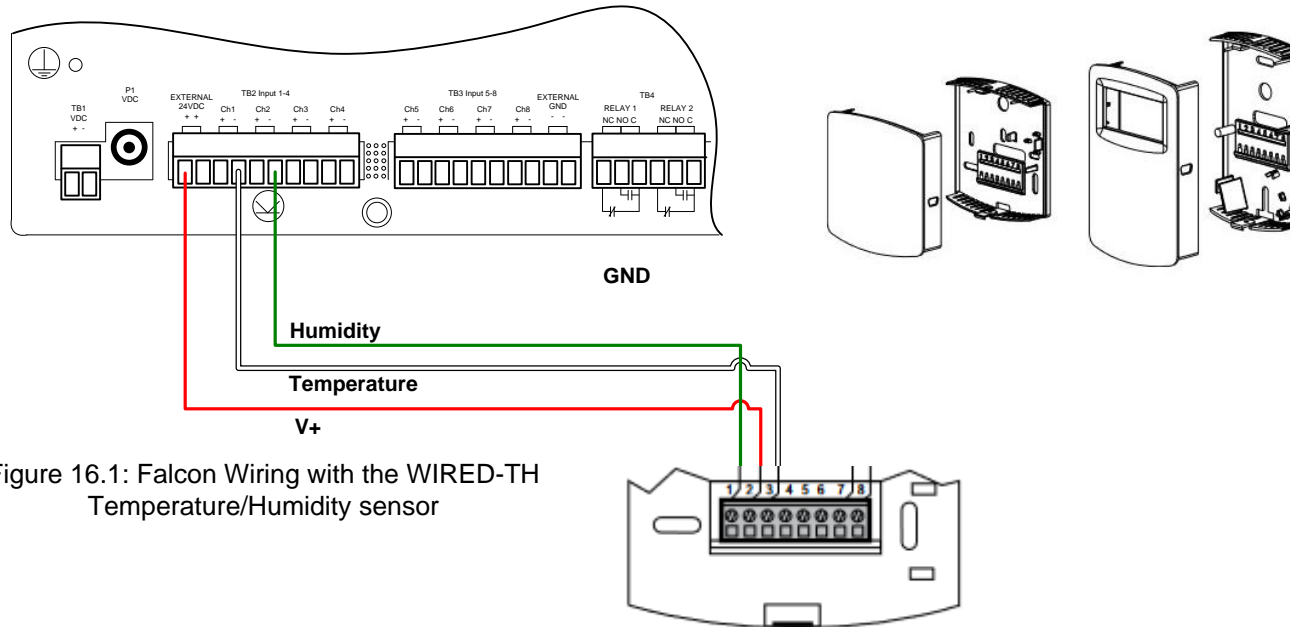


Figure 16.1: Falcon Wiring with the WIRED-TH Temperature/Humidity sensor

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 -20-140F range use Gain 40.0, Offset 60.0.
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 output current for temperature.
$$\left(\frac{\text{Actual temp} - \text{Sensor Low}}{\text{Sensor High} - \text{Sensor Low}} \right) \times 16 + 4$$

Example if Room Temp is 70F and your sensor has a range of -20-140
$$\left(\frac{70 - -20}{140 - -20} \right) \times 16 + 4 = 13.0$$
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.
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.

Configuration: Input #4

Current Readings: Raw = 10.230 mA Calc = 42.2

Submit Changes

<< Prev Input Next Input >>

Select Input type: ANALOG 4-20 MA Physical Digital Alarm ID: 40

Gain: 40.00 Calculator High Limit2: 100 (Major) Alarm ID: 43

Offset: -60.00 High Limit1: 90 (Minor) Alarm ID: 41

Hysteresis: 3 Low Limit1: 0 (Minor) Alarm ID: 42

UOM/Map Label: degF Low Limit2: 0 (Major) Alarm ID: 44

Alarm Delay: 0 Seconds Pager Alarms: 0,0,0,0,0

Label: WIRED-TH

Label (Digital input normal):

"OR Gate" Relay (1-16) Control: 0 "OR Gate" Relay (17-32) Control: 0 Relay Configuration

Temperature Setup
-20 - 140 Degree F Range

Configuration: Input #4

Current Readings: Raw = 10.224 mA Calc = 38.9

Submit Changes

<< Prev Input Next Input >>

Select Input type: ANALOG 4-20 MA Physical Digital Alarm ID: 40

Gain: 25 Calculator High Limit2: 70 (Major) Alarm ID: 43

Offset: -25 High Limit1: 60 (Minor) Alarm ID: 41

Hysteresis: 3 Low Limit1: 0 (Minor) Alarm ID: 42

UOM/Map Label: RH Low Limit2: 0 (Major) Alarm ID: 44

Alarm Delay: 0 Seconds Pager Alarms: 0,0,0,0,0

Label: WIRED-TH

Label (Digital input normal):

"OR Gate" Relay (1-16) Control: 0 "OR Gate" Relay (17-32) Control: 0 Relay Configuration

Humidity Setup

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

