



RLE TH140 Temperature And Humidity Sensor Installation Guide

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FMS to TH140/TH140D Integration

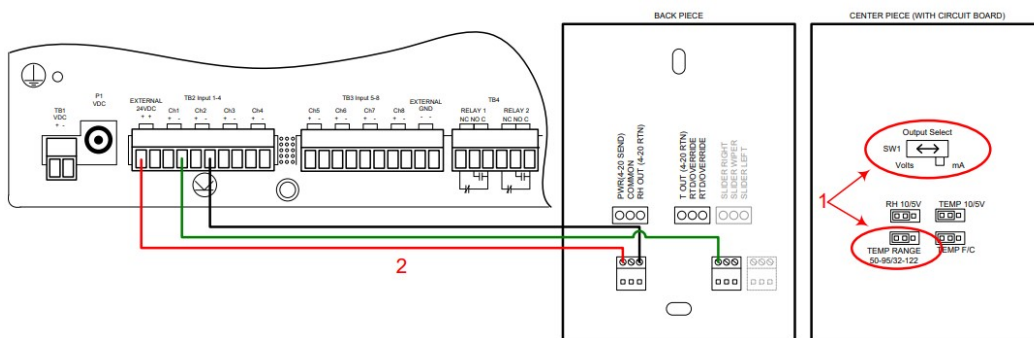


Figure 1.1: FMS Wiring with the TH140/TH140D

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

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

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

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: 0,0,0,0,0

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 Current Readings: Raw = 7.013 mA Calc = 18.5

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

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: 0,0,0,0,0

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

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.
5. Check the wiring if the Falcon current reading does not match the measured current reading.

- ## FMS to T120D Integration



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.

Changes accepted.

Configuration: Input #8 Current Readings: Raw = 3.607 mA Calc = 48.9

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

Select Input type: ANALOG 4-20 MA Physical Digital Alarm ID: 80

Gain: 11 Offset: 39 High Limit2: 0 Alarm ID: 83
 High Limit1: 0 Alarm ID: 81
 Low Limit1: 0 Alarm ID: 82
 Low Limit2: 0 Alarm ID: 84

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 [Relay Configuration](#)

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

Figure 2.2: 50-95F Range Setup

Configuration: Input #8 Current Readings: Raw = 3.595 mA Calc = 29.7

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

Select Input type: ANALOG 4-20 MA Physical Digital Alarm ID: 80

Gain: 22 Offset: 10 High Limit2: 0 Alarm ID: 83
 High Limit1: 0 Alarm ID: 81
 Low Limit1: 0 Alarm ID: 82
 Low Limit2: 0 Alarm ID: 84

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 [Relay Configuration](#)

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

Figure 2.3: 32-122F Range Setup

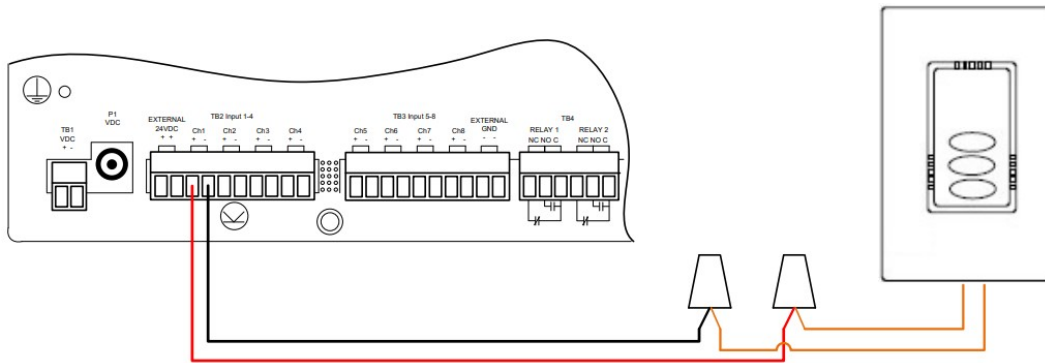
TROUBLESHOOTING

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.

- 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.
- 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



SETUP

- The temperature range is 50-95 degF
- Wire the sensor as shown. Orange wires are polarity independent
- 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
- Verify the “Calc” Value displays the correct room temperature. The temperature can also be viewed on the Falcon main page

Figure 4.2: Temperature Setup 50 – 95 Degree F Range

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**

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

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

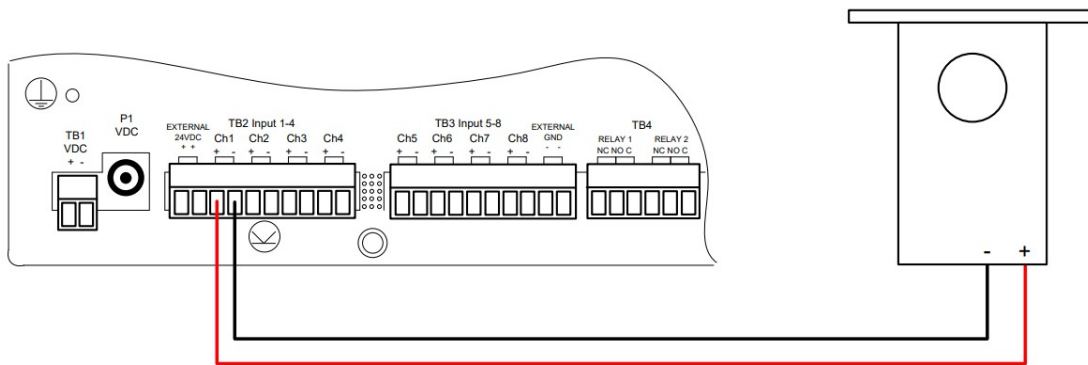


Figure 5.2: FMS Input Configuration Interface

Configuration: Input #7 Current Readings: Raw = 0.000 mA Calc = 0.0

Submit Changes << Prev Input Next Input >>

1 Select Input type: ANALOG 4-20 MA 2 Gain: 25 3 Offset: -25

Unit of Measure: Deg

Alarm Delay: 0 Seconds

Label: CT55 Current Transducer

Label (Digital input normal):

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

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

Email Recipient Notification

Alarm Disable by Schedule: None A B

Snmp Trap: Enabled Disabled Disabled during Schedule A Disabled during Schedule B

Trap Recipients: 1: 2: 10.0.0.184 3: 4: 5: 6: 7: 8:

High/Low1 Snmp Traps: Enabled Disabled

Display Value: Signed Unsigned

Individual Ground Type (digital in only): Individual Ground Common Ground

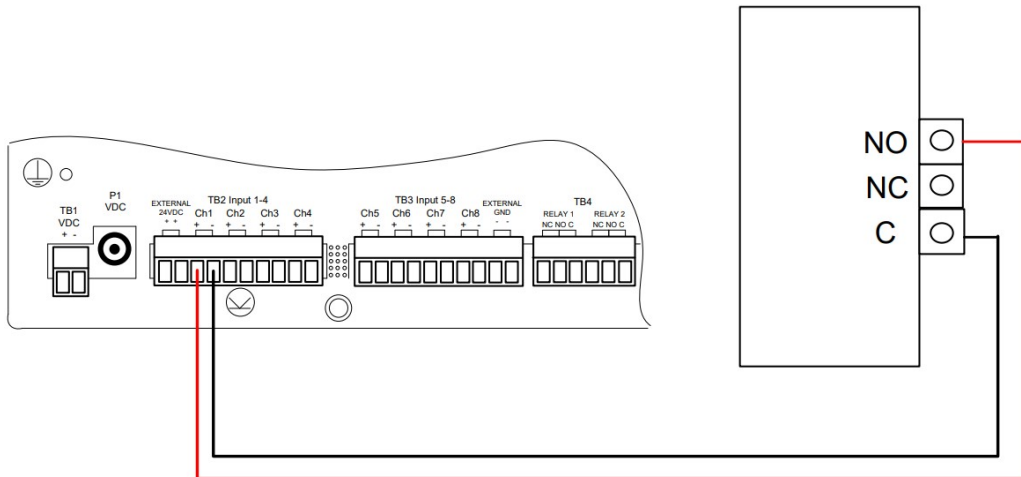
BACnet Instance: 0 BACnet Units: 0

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



FMS Input Configuration Interface

Configuration: Input #6 Current Readings: Raw = 0.000 mA, Calc = 0.0

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

Select Input type: **DIGITAL NO** Physical: **Physical** Digital Alarm ID: 60

Gain: 25 [Calculator](#) High Limit2: 0 Alarm ID: 63

Offset: -25 High Limit1: 0 Alarm ID: 61

Hysteresis: 0 Low Limit1: 0 Alarm ID: 62

Unit of Measure: Low Limit2: 0 Alarm ID: 64

Alarm Delay: 0 Seconds Alarm Dial Out: 0:0:0.0

Label: HD150 Alarm

Label (Digital input normal): HD150 Normal

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

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

Email Recipient Notification: ☒ 1: ☐ 2:
☐ 3: ☐ 4:
☐ 5: ☐ 6:
☐ 7: ☐ 8:

Alarm Disable by Schedule: ☒ None ☐ A ☐ B

Snmp Trap: ☒ Enabled ☐ Disabled ☐ Disabled during Schedule A ☐ Disabled during Schedule B

Trap Recipients: ☒ 1: 10.0.0.107 ☒ 2: 10.0.0.41
☒ 3: ☒ 4:
☒ 5: ☒ 6:
☒ 7: ☒ 8:

High/Low1 Snmp Traps: ☒ Enabled ☐ Disabled

Display Value: ☒ Signed ☐ Unsigned

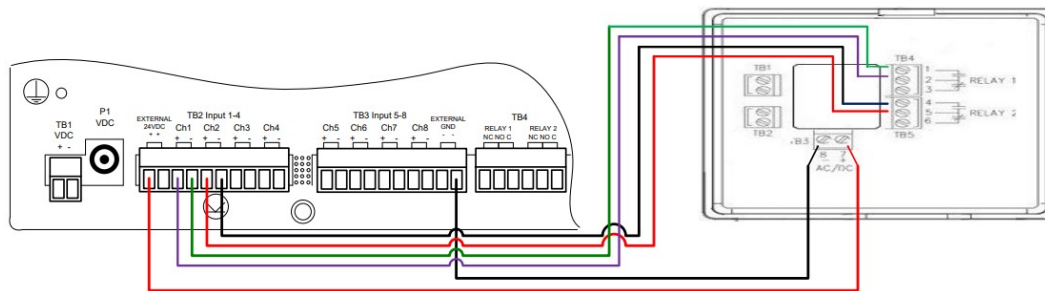
Individual Ground Type (digital in only): ☒ Individual Ground ☐ Common Ground

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

Configuration: Input #6

Current Readings: Raw = 0.000 mA Calc = 0.0

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

Select input type: **DIGITAL NO** Physical Digital Alarm ID: 60

Gain: -25 Calculator High Limit2: 0 Alarm ID: 63

Offset: -25 High Limit1: 0 Alarm ID: 61

Hysteresis: 0 Low Limit1: 0 Alarm ID: 62

Unit of Measure: Low Limit2: 0 Alarm ID: 64

Alarm Delay: 0 Seconds Alarm Dial Out: 0.00.0.0

Label: HD150 Alarm

Label (Digital input normal): HD150 Normal

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

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

Email Recipient Notification

☒ 1 ☐ 2
☐ 3 ☐ 4
☐ 5 ☐ 6
☐ 7 ☐ 8

Alarm Disable by Schedule ☒ None ☐ A ☐ B

Snmp Trap: ☒ Enabled ☐ Disabled ☐ Disabled during Schedule A ☐ Disabled during Schedule B

Trap Recipients: ☒ 1: 10.0.0.107 ☒ 2: 10.0.0.41
☒ 3: ☒ 4:
☒ 5: ☒ 6:
☒ 7: ☒ 8:

High1/Low1 Snmp Traps: ☒ Enabled ☐ Disabled

Display Value: ☒ Signed ☐ Unsigned

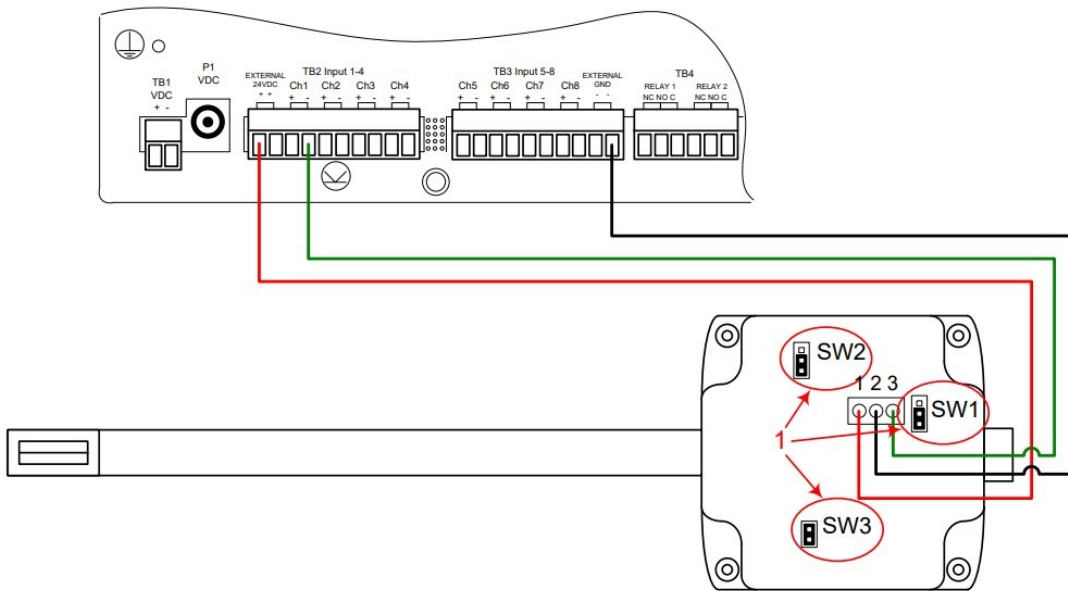
Individual Ground Type (digital in only): ☒ Individual Ground ☐ Common Ground

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

Configuration: Input #1 Current Readings: Raw = 12.452 mA Calc = 73.2

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

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

3. Gain: **500** 4. **Calculator**

Offset: **-500**

Hysteresis: **0**

Unit of Measure: **Ft/Min**

Alarm Delay: **0** Seconds Alarm Dial Out: **0.0,0.0,0**

Label: **Air Flow**

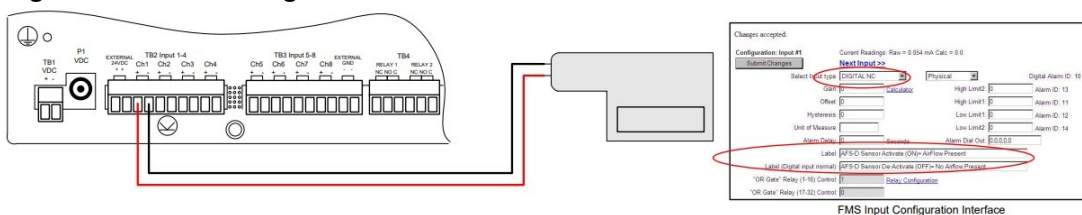
Label (Digital input normal):

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

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

AFS-D FMS Integration

Figure 9.1: FMS Wiring



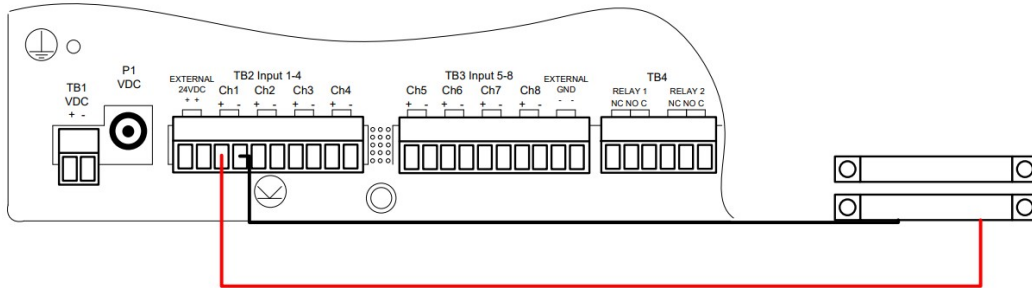
FMS Configuration

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

Configuration: Input #6 Current Readings: Raw = 0.000 mA Calc = 0.0

Submit Changes << Prev Input Next Input >>

Select Input type: DIGITAL NC Physical Digital Alarm ID: 60

Gain: 25 Calculator High Limit2: 0 Alarm ID: 63

Offset: -25 High Limit1: 0 Alarm ID: 61

Hysteresis: 0 Low Limit1: 0 Alarm ID: 62

Unit of Measure: Low Limit2: 0 Alarm ID: 64

Alarm Delay: 0 Seconds Alarm Dial Out: 0.000.0.0

Label: MDS: Door Open

Label (Digital input normal): MDS: Door Closed

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

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

Email Recipient Notification

1: ☒ 2: ☐

3: ☐ 4: ☐

5: ☐ 6: ☐

7: ☐ 8: ☐

Alarm Disable by Schedule: ☒ None ☐ A ☐ B

Snmp Trap: ☒ Enabled ☐ Disabled ☐ Disabled during Schedule A ☐ Disabled during Schedule B

Trap Recipients: ☒ 1: 10.0.0.107 ☒ 2: 10.0.0.41

☒ 3: ☒ 4:

☒ 5: ☒ 6:

☒ 7: ☒ 8:

High/Low1 Snmp Traps: ☒ Enabled ☐ Disabled

Display Value: ☒ Signed ☐ Unsigned

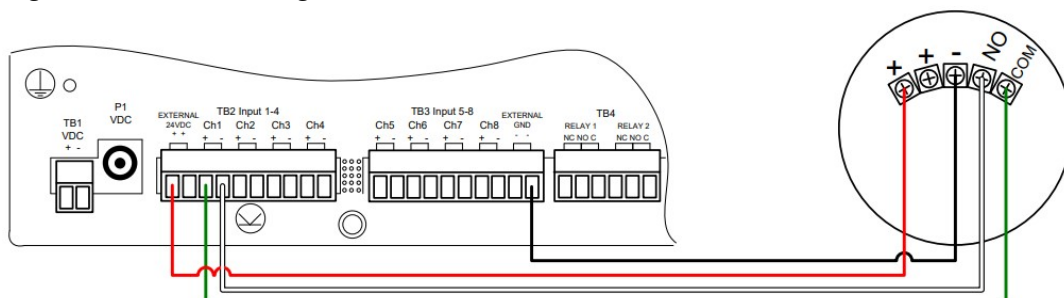
Individual Ground Type (digital in only): ☒ Individual Ground ☐ Common Ground

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

Keypad/DTMF Access User Configuration

#	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:

Alarm Bypass Input:

Temporary Time:

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

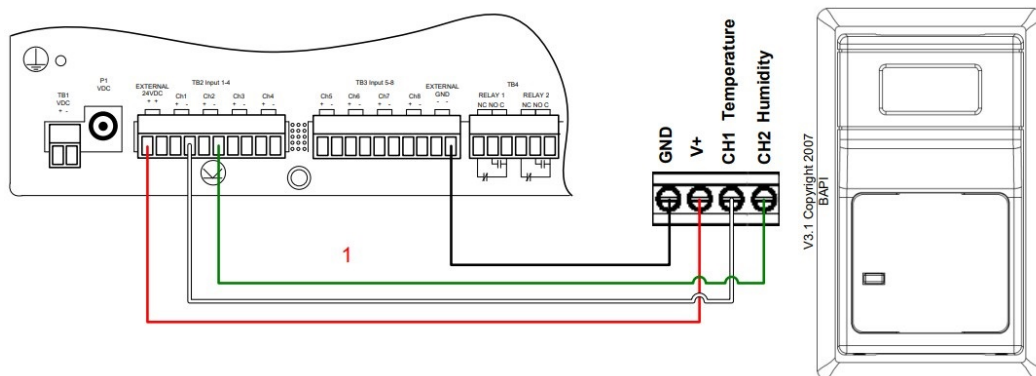
[Return to Configuration Menu Page](#)
[Return to Main Menu Page](#)

FMS Configuration

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

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 T 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.

Temperature Setup 2 – 120 Degree F Range

Configuration Home

Configuration: Input #1

Current Readings: Raw = 13.263 mA Calc = 83.0

Submit Changes

Next Input >>

Select Input type: ANALOG 4-20 MA

Gain: 22

Offset: 10

Hysteresis: 3

Unit of Measure: Deg

Alarm Delay: 0 Seconds

Label: BAPI Temperature Input

Label (Digital input normal):

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

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

Physical

Digital Alarm ID: 10

Alarm ID: 13

Alarm ID: 11

Alarm ID: 12

Alarm ID: 14

High Limit2: 0

High Limit1: 0

Low Limit1: 0

Low Limit2: 0

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

Relay Configuration

Humidity Setup

Configuration: Input #2

Current Readings: Raw = 6.976 mA Calc = 18.6

Submit Changes

<< Prev Input Next Input >>

Select Input type: ANALOG 4-20 MA

Gain: 25

Offset: -25

Hysteresis: 3

Unit of Measure:

Alarm Delay: 0 Seconds

Label: BAPI Humidity Signal

Label (Digital input normal):

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

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

Physical

Digital Alarm ID: 20

Alarm ID: 23

Alarm ID: 21

Alarm ID: 22

Alarm ID: 24

High Limit2: 0

High Limit1: 0

Low Limit1: 0

Low Limit2: 0

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

Relay Configuration

TROUBLESHOOTING

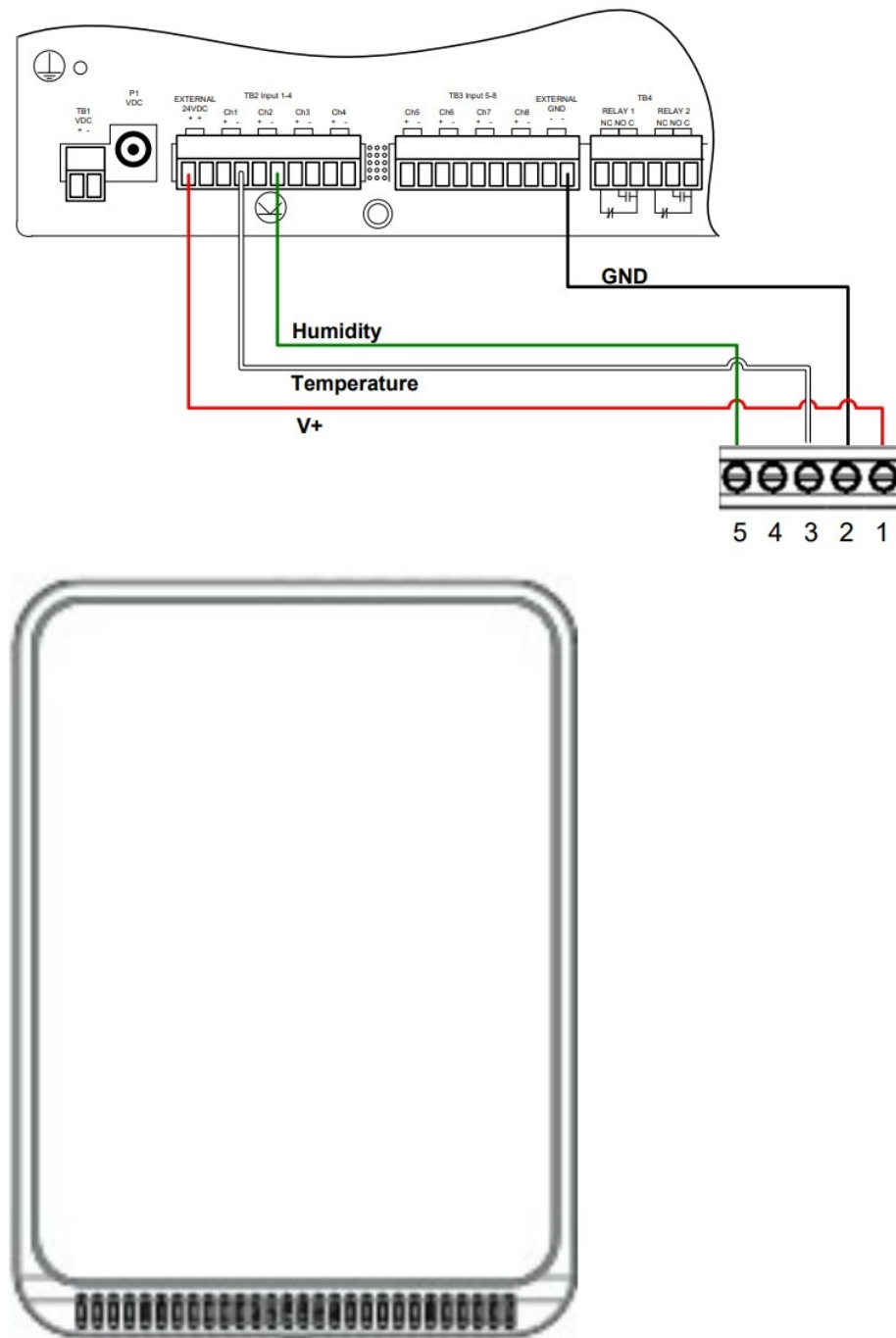
1. Calculate the BAPI Output current for temperature ((Actual temp – Sensor Low) / (Sensor High – Sensor Low)) x 16 + 4 Example if Room Temp is 70F and your sensor has a range of 32-120 ((70 – 32) / (120 – 32)) x 16 + 4 = 10.90
2. Measure the current flowing into the Falcon Ch- terminal with a current meter. Verify that it is close to the calculated current (+/-1%)
3. If measured current 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

FMS HW2XA2A Temperature/Humidity Integration

Figure 16.1: Falcon Wiring with the HW2XA2A 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- 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

Temperature Setup 32 – 122 Degree F Range

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	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	Pager Alarms:	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			

Humidity Setup

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	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	Pager Alarms:	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			

TROUBLESHOOTING

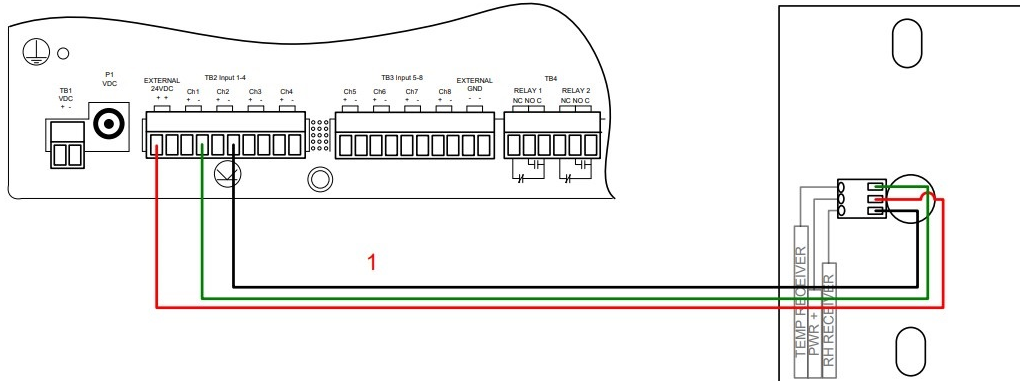
1. Calculate the output current for temperature $(\text{Actual temp} - \text{Sensor Low}) / (\text{Sensor High} - \text{Sensor Low}) \times 16 + 4$
Example if Room Temp is 70F and your sensor has a range of 32-122 $(70 - 32) / (122 - 32) \times 16 + 4 = 10.75$
2. Measure the current flowing into the 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

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 -8
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

Temperature Setup -40 – 140 Degree F Range

Configuration Home

Configuration: Input #1

Submit Changes

Current Readings: Raw = 13.489 mA Calc = 65.1

Next Input >>

Select Input type: ANALOG 4-20 MA

Gain: 45.00

Offset: -85.00

Hysteresis: 3

Unit of Measure: Deg

Alarm Delay: 0 Seconds

Label: Dwyer Temperature Input

Label (Digital input normal):

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

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

Relay Configuration

High Limit2: 0

High Limit1: 0

Low Limit1: 0

Low Limit2: 0

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

5

2

3

Calculator

Humidity Setup

Configuration: Input #2 Current Readings: Raw = 6.976 mA Calc = 18.6

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

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

4 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: BAPI Humidity Signal

Label (Digital input normal):

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

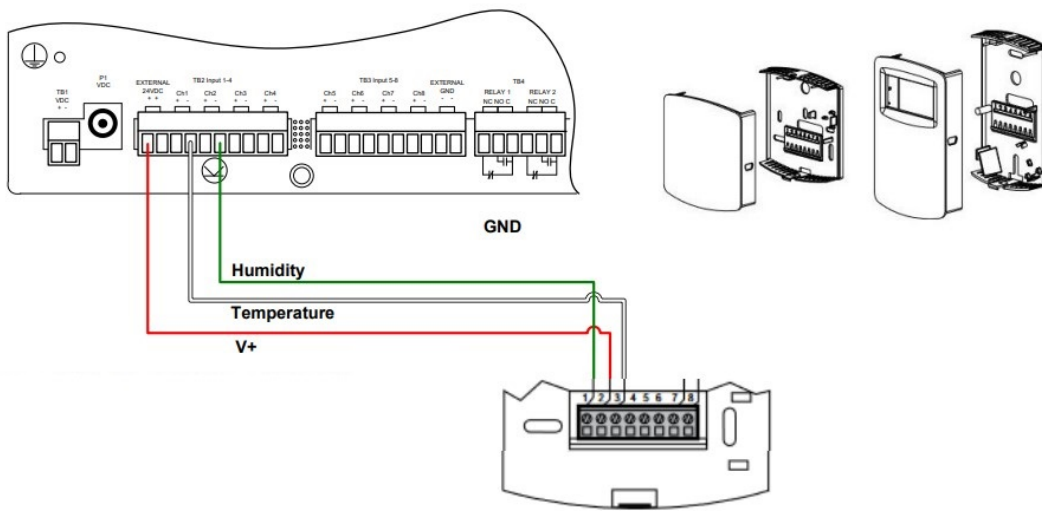
"OR Gate" Relay (17-32) Control: 0

TROUBLESHOOTING

1. Calculate the Dwyer Output current for temperature. Example if Room Temp is 70F and your sensor has a range of -40 – 140 ((Actual temp – Sensor Low) / (Sensor High – Sensor Low)) x 16 + 4 ((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 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

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

Temperature Setup -20 – 140 Degree F Range

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 v

Gain: 40.00 [Calculator](#)

Offset: -60.00

Hysteresis: 3

UOM/Map Label: degF

Alarm Delay: 0 Seconds

Label: WIRED-TH

Label (Digital input normal):

Physical v Digital Alarm ID: 40

High Limit2: 100 (Major) Alarm ID: 43

High Limit1: 90 (Minor) Alarm ID: 41

Low Limit1: 0 (Minor) Alarm ID: 42

Low Limit2: 0 (Major) Alarm ID: 44

Pager Alarms: 0,0,0,0,0

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

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

[Relay Configuration](#)

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 v

Gain: 25 Calculator

Offset: -25

Hysteresis: 3

UOM/Map Label: RH

Alarm Delay: 0 Seconds

Label: WIRED-TH

Label (Digital input normal):

Physical v

High Limit2: 70 (Major) Alarm ID: 43

High Limit1: 60 (Minor) Alarm ID: 41

Low Limit1: 0 (Minor) Alarm ID: 42

Low Limit2: 0 (Major) Alarm ID: 44

Pager Alarms: 0,0,0,0,0

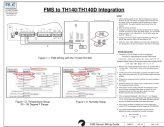
"OR Gate" Relay (1-16) Control: 0

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

TROUBLESHOOTING

1. Calculate the output current for temperature ((Actual temp – Sensor Low) / (Sensor High – Sensor Low)) x 16 + 4 ((70 – -20) / (140 – -20)) x 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.
3. Compare the measured current matches the current reading in the Falcon.
4. Check the wiring if the Falcon current reading does not match the measured current reading.
5. 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.
6. 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.
7. If the Falcon still does not display the correct temperature contact RLE Technologies technical support at 970.484.6510.
8. Use similar troubleshooting procedure except use the following formula to calculate the humidity mA output

Documents / Resources



[RLE TH140 Temperature And Humidity Sensor](#) [pdf] Installation Guide

TH140 Temperature And Humidity Sensor, TH140, Temperature And Humidity Sensor, Humidity Sensor

References

- [RLE Tech | Data Center Environment Monitoring & Leak Detection](#)