5.1 Analog Input IOTA Models CC-TAIX01, CC-TAIX11

The Series C Analog Input IOTA board is represented by the following information and graphic.

To access the parts information for the:

- module
- IOTA
- terminal plug-in assembly, and
- fuses

associated with this board and module, refer to Analog Input in the Recommended Spare Parts section.

Series C Analog Input 6 inch, non-redundant IOTA is displayed.

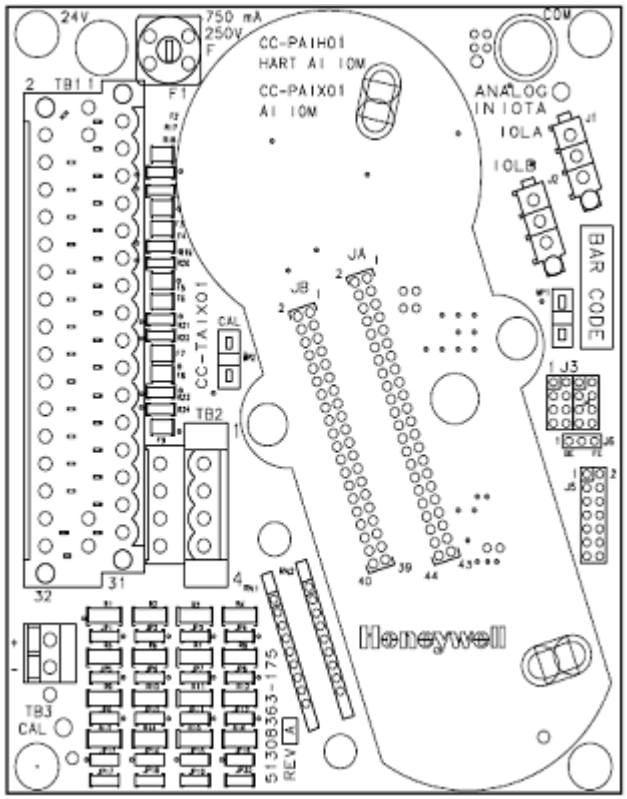


Figure 12: Series C Analog Input 6 inch, non-redundant IOTA

Note: All I/O field terminations accept up to 14 gauge stranded wire.

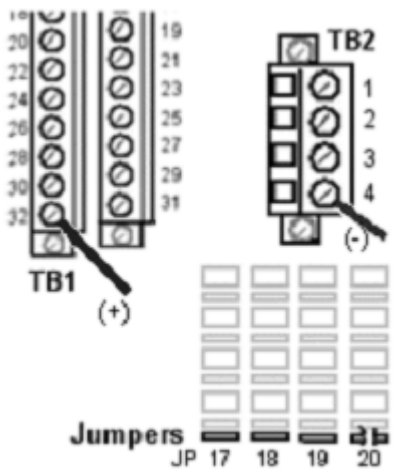
To properly wire, your module to the Series C Analog Input IOTA board with terminal block 1 (TB1) and terminal block 2 (TB2), use the following tables.

Table 15: AI 6 inch, non-redundant - terminal block 1

Terminal block 1		
Channel	**Return screw**	**Power screw**
Channel 1	2	1
Channel 2	4	3
Channel 3	6	5

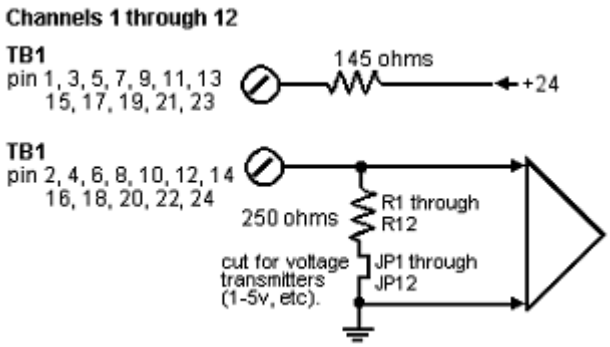
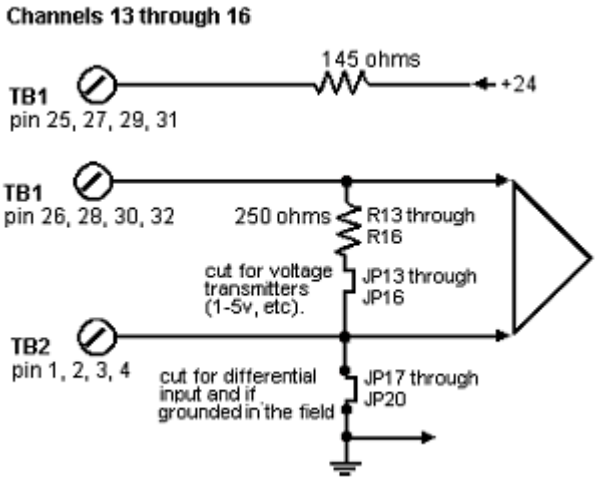
Terminal block 1		
Channel	**Return screw**	**Power screw**
Channel 4	8	7
Channel 5	10	9
Channel 6	12	11
Channel 7	14	13
Channel 8	16	15
Channel 9	18	17
Channel 10	20	19
Channel 11	22	21
Channel 12	24	23
Channel 13	26	25
Channel 14	28	27
Channel 15	30	29
Channel 16	32	31

Table 16: AI 6 inch, non-redundant - terminal block 2

Terminal block 2 - Low side of the differential inputs			
If this TB2 screw is used	**Then this channel is used**	**And this jumper is clipped**	
1	13	JP17	In the example below, cutting J20 would configure channel 16 for differential operation and pin 4 would be the low side (-) of the input signal.  Refer to “Custom wiring - Analog Input module” on page 79 for additional power connection possibilities.
2	14	JP18	
3	15	JP19	
4	16	JP20	

Jumpers are utilized to support the following conditions:

Table 17: Jumpers to support Analog Input connections

Channels	Signal screw
For channels 1 through 12	Each channel (1 through 12): • has a corresponding jumper. Therefore, channel 1's jumper would be JP1, and so forth. • the jumper must be cut if connected to voltage transmitters (1-5v. etc.) 
For channels 13 through 16	Each channel 13 through 16: • has a corresponding jumper. Therefore, channel 13's jumper would be JP13, and so forth. • the jumper must be cut if connected to voltage transmitters (1-5v. etc.) Jumpers J17 through J20 are used with Terminal Block 2 (TB2) and are used if the device is grounded in the field. 

5.1.1 Field wiring and module protection - Analog Input module

Individual field wiring is protected by an internal protection circuit permitting:

- Short circuit protection of input for field short circuits. Protection suitable for Division 2 non-incendive / Zone 2 non-arcing.
- Each signal can be shorted in the field with no damage to module or board. Other channels on the same IOM will not be affected

5.1.2 Two-wire transmitter wiring - Analog Input module

The AI IOM/IOTA is optimized for use with classic two-wire transmitters. All 16 channels can accept inputs from two-wire transmitters without any special wiring or jumper options.

The standard usage is to:

- reserve the first 12 channels of the AI IOM/IOTA for classic two-wire transmitters, and
- use the last 4 channels of the IOM/IOTA to interface any of the supported input styles (including two-wire transmitters).

Depending on the input style applied to channels 13 through 16, you may need to cut jumpers on the IOTA and apply wiring to the TB2 terminal block on the IOTA. This is discussed in detail in the following sections.

5.1.3 Non two-wire transmitter wiring - Analog Input module

The IOTA is pre-engineered (without custom wiring) to accept sources that are not two-wire transmitters, but you must use channels 13 through 16.

When sources other than two-wire transmitters are to be interfaced and you have more than 4 per IOTAs, then:

- the first four must be interfaced to channels 13 through 16, and
- the remainder may be able to interface to channels 1 through 12 (depending on input style) but you must perform some degree of custom wiring.

NOTE: There are some input styles that simply cannot be applied to channels 1 through 12 - if that applies to you then you will likely need to purchase an additional IOM/IOTA.

CAUTION
The jumpers on the IOTA are non-repairable; once cut, they stay cut. Careful planning is a must.

5.1.4 Custom wiring - Analog Input module

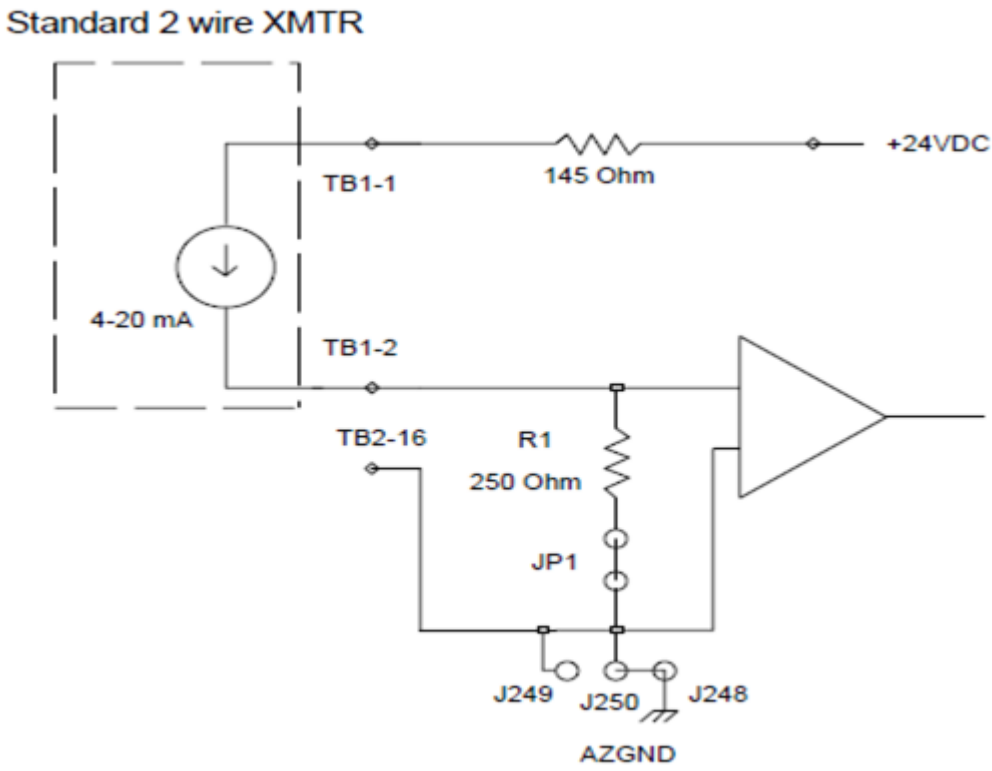
Custom wiring means:

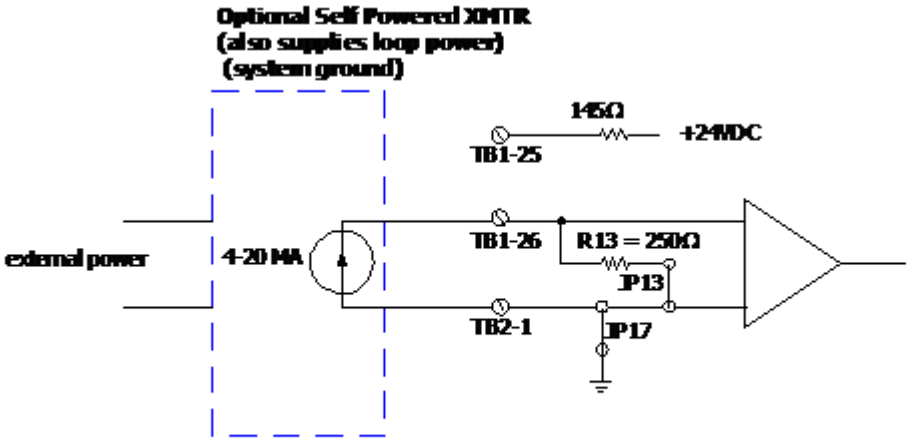
- using additional wires to TB2 (beyond their intended purpose for channels 13 through 16)
- and/or using wires to another termination area in the cabinet engineered on a project-basis.

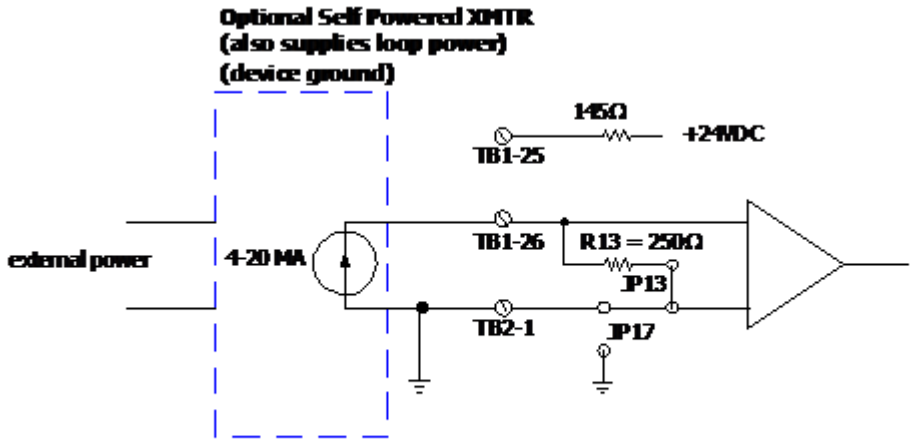
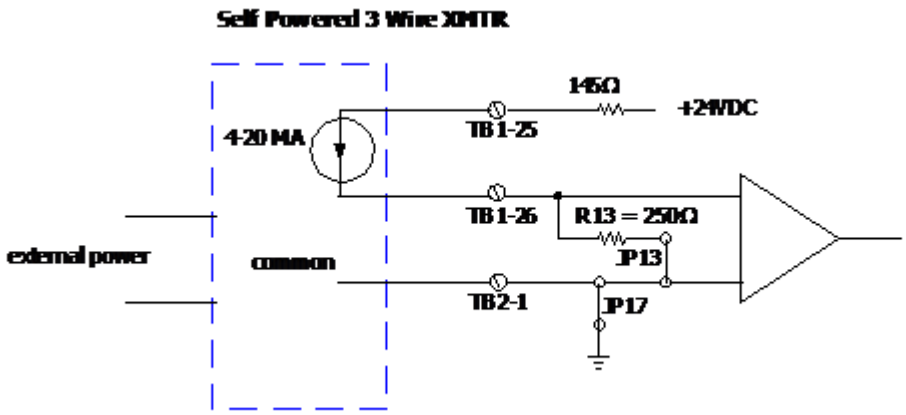
Some of the styles (other than two-wire transmitter):

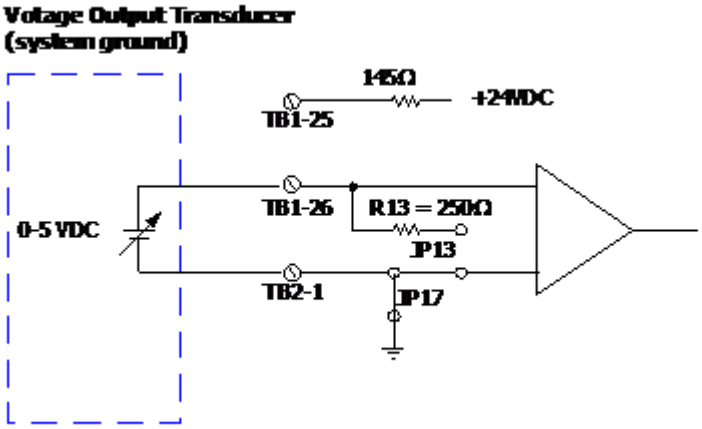
- can be applied to channels 1 through 12 with the use of custom wiring.
- Other cannot be applied to channels 1 through 12 at all.

Table 18: Custom wiring to support Analog Input

Custom wiring scenarios
Standard and self-powered two-wire transmitter wiring It is recommended to use channels 13 through 16, since these channels have a dedicated Series C ground screw (although it is possible to use channels 1 through 12). Following figure illustrates an example jumper configuration for channel 1 of non-redundant 6 inch IOTA. 

Custom wiring scenarios
Self-powered transmitter with EPKS system ground It is recommended to use channels 13 through 16, since these channels have a dedicated Series C ground screw (although it is possible to use channels 1 through 12). For the following example: • Channel 13 is used • No jumpers need to be cut. • The wire-pair is terminated to TB1-26 and TB2-1 • TB1-25 is not used.   

Custom wiring scenarios
Self-powered transmitter with device grounded This case can only be applied to channels 13 through 16 and the corresponding jumper must be cut. For the following example: • Cutting jumper JP-17 permits the transmitter's ground to be utilized – Series C ground is then not used. Device ground must remain within the specified common-mode limits of the AI IOM. – JP17 through JP20 are for channels 13 through 16, respectively. • The wire-pair is terminated to TB1-26 and TB2-1. • TB1-25 is not used. 
Self-powered 3-wire transmitter (system ground) It is recommended to use channels 13 through 16, since these channels have 3 screws per channel (although it is possible to use channels 1 through 12). For the following example: • Channel 13 is used • No jumpers need to be cut • The three wires are terminated to TB1-25, TB1-26 and TB2-1 

Custom wiring scenarios
Voltage input (system ground) It is recommended to use channels 13 through 16, since these channels have a dedicated Series C ground screw (although it is possible to use channels 1 through 12). For the following example: • Channel 13 is used. • Jumper JP13 (for the 250 ohm spool) needs to be cut. • The wire-pair is terminated to TB1-26 and TB2-1. • TB1-25 is not used.   
Slidewire - Series C does not support Slidewire.
Range spool damage and wire shorting Jumpers JP1 through JP16 are also used to overcome a damaged range spool (250 ohm dropping resistor). A range spool can be damaged by being directly connected across a 24V for an extended period, such as, taking an even numbered terminal from TB1 to 24V. It can be removed from the circuit by clipping the corresponding jumper. You can continue to use the channel by providing a discrete (axial lead) 250 ohm resistor. Example: using channel 5 and overcoming a damaged spool 1. One lead of the resistor connects to the even numbered screw on TB1 associated with that channel. (i.e. screw N = 2 times channel M, so screw 10 is for channel 5). 2. The other lead of the resistor connects to Series C ground, which can probably be found on any of the TB2 screw positions (assuming the corresponding jumper JP17-20 is still installed). If TB2 is already filled with wiring, 'doubling up' is permitted as long as the total wire dimension is less than the 14 AWG equivalent dimension. 3. Transmitter power is supplied in a non-incendive fashion through the odd-numbered terminals on TB1. This is done through a 145 ohm resistor inline with a Positive Temperature Coefficient (PTC) device that acts like a fuse (but never needs replacement). Thus, these field terminals can be permanently shorted to ground without damage. This is an improvement over Process Manager due to the inclusion of the PTC device.

5.1.5 Analog Input wiring reference table

The following table summarizes the possible Analog Input wiring connections.

Table 19: Summary - Analog Input wiring connections

Input style	*Connection characteristics*
Standard 2-wire transmitter	• Can use any of the 16 channels. • No custom wiring required. • No jumper cuts required.
Standard self-powered transmitter	• Can use any of the 16 channels. • No custom wiring required. • No jumper cuts required.
Self-powered transmitter with loop power (system ground)	• Can use any of the 16 channels. • Custom wiring is required for channels 1-12: you must find a screw terminal at Series C ground for one leg of the transmitter. • No jumper cuts required
Self-powered transmitter with loop power (device ground)	• Cannot use channels 1-12. • Only use channels 13-16.
Self-powered 3-wire transmitter (system ground)	• Can use any of the 16 channels. • Custom wiring is required for channels 1-12: you must find a screw terminal at Series C ground for one leg of the transmitter. • No jumper cuts required
Voltage Input (system ground)	• Can use any of the 16 channels. • Custom wiring is required for channels 1-12: you must find a screw terminal at Series C ground for one leg of the transducer. • You must cut the jumper associated with the range spool.
Voltage Input (device ground)	• Cannot use channels 1-12. • Only use channels 13-16.
Note: If multiple instruments need a ground reference the four positions of TB2 can serve as those ground points (assuming the JP17-JP20) jumpers are intact. If more than four grounding screws are needed then a custom wire from TB2 to a separate terminal block can allow for more grounding screw positions.	

5.1.6 Allowable field wiring resistance - Analog Input module

The maximum allowable field wiring resistance between the transmitter and the IOTA connection terminal is dependent upon the voltage requirement of the transmitter. The formula for calculating the max wiring resistance for the Series C Analog Input is given by the following equation.

Rmax = [(13.0 - Vtx) / (0.022)]

where: Vtx = Voltage required at the transmitter terminal

5.1.7 IOTA board and connections - Analog Input module

Series C Analog Input 6 inch, non-redundant IOTA and field wiring connection is displayed below:

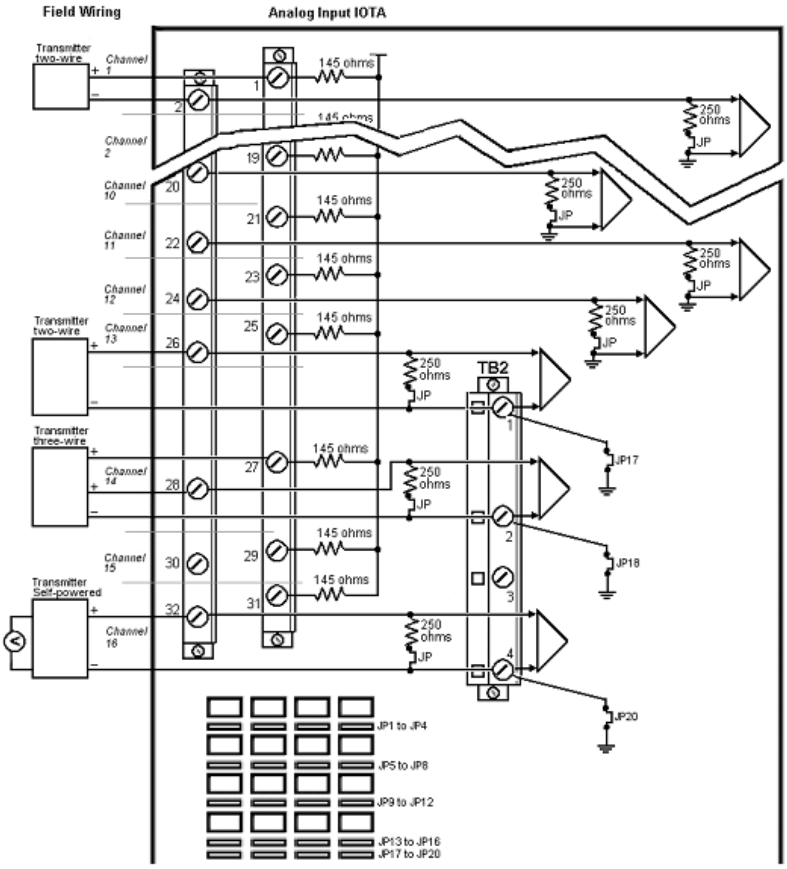


Figure 13: Series C Analog Input 6 inch, non-redundant IOTA and field wiring connections

Series C Analog Input 12 inch, redundant IOTA is displayed:

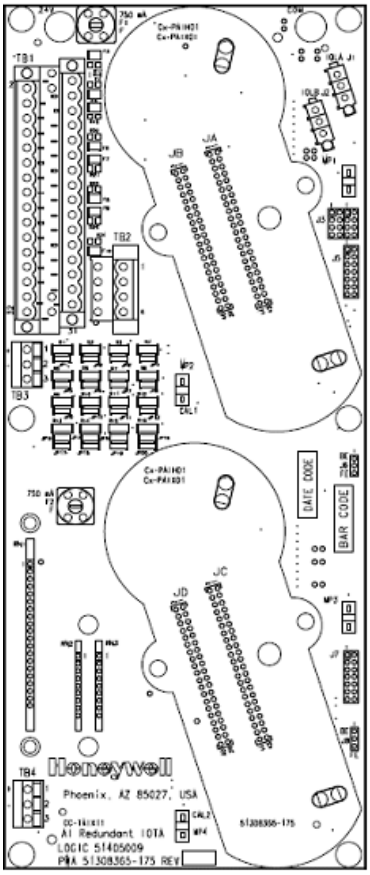


Figure 14: Series C Analog Input 12 inch, redundant IOTA

5.2 Analog Input non-HART/HARTIOTA Models Cx-TAIX51, Cx-TAIX61

Note
Cx-TAIX51 supports non-HART functionality for CC-PAIH51 module. Cx-TAIX61 supports HART functionality for CC-PAIH51 module.

This series C Analog Input IOTA board is represented by the following information and graphic.

To access the parts information for the:

- module
- IOTA
- terminal plug-in assembly, and
- fuses

associated with this board and module, refer to Analog Input in the Recommended Spare Parts section.

Series C HART/non-HART Analog Input 6 inch, non-redundant IOTA is displayed in the following figure.

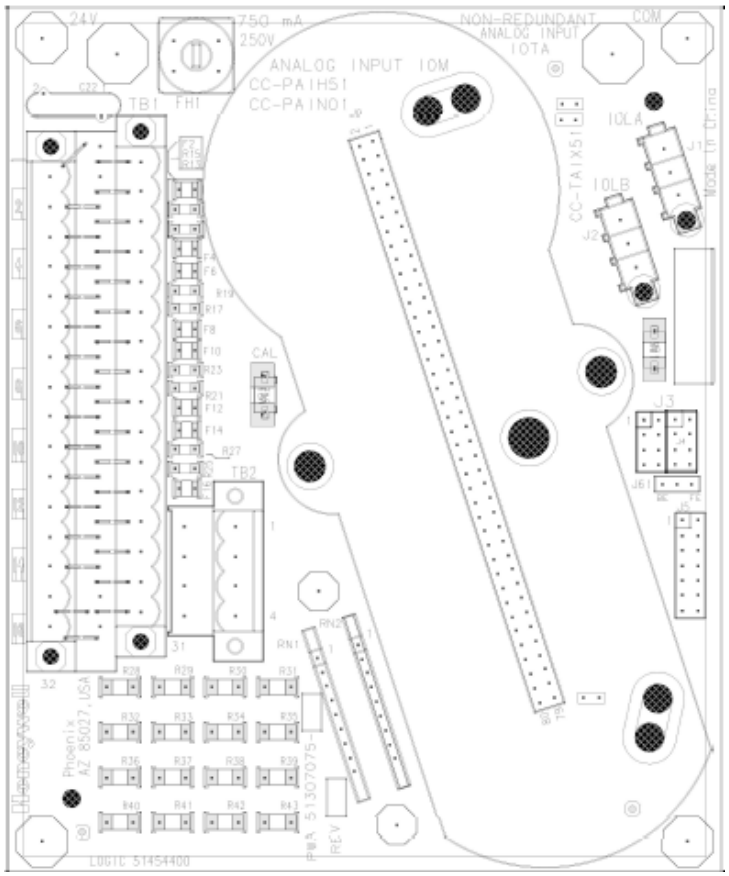


Figure 15: Series C HART/non-HART Analog Input 6 inch, non-redundant IOTA

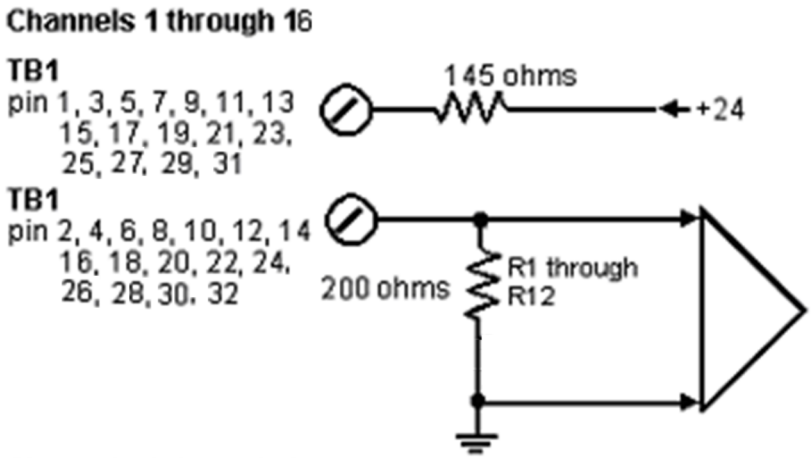
Note: All I/O field terminations accept up to 14 gauge stranded wire.

To properly wire your module to the HART/non-HART Analog Input IOTA with terminal block 1 (TB1) and terminal block 2 (TB2), use the following table.

Table 20: AI 6 inch HART AI, non-redundant - terminal block 1

Terminal Block 1 (TB1)		
Channel	**Return Screw**	**Power Screw(24V)**
Channel 1	2	1
Channel 2	4	3
Channel 3	6	5
Channel 4	8	7
Channel 5	10	9
Channel 6	12	11
Channel 7	14	13
Channel 8	16	15
Channel 9	18	17
Channel 10	20	19
Channel 11	22	21
Channel 12	24	23
Channel 13	26	25
Channel 14	28	27
Channel 15	30	29
Channel 16	32	31

Table 21: AI 6 inch, HART/non-HART AI, non-redundant terminal block 2

Channels	Signal screw
For channels 1 through 16	Channels 1 through 16 

5.2.1 Field wiring and module protection - Analog Input HART module

Individual field wiring is protected by an internal protection circuit permitting.

- Short circuit protection of input for field short circuits. Protection suitable for Division 2 non-incendive / Zone 2 non-arcing.
- Each signal can be shorted in the field with no damage to module or board. Other channels on the same IOM will not be affected.

5.2.2 Two-wire transmitter wiring - Analog Input HART module

The AI IOM/IOTA is optimized for use with classic two-wire transmitters. All 16 channels can accept inputs from two-wire transmitters without any special wiring or jumper options.

5.2.3 Standard and self-powered two-wire transmitter wiring - Analog Input HART module

The HART/non-HART AI IOM/IOTA is optimized for use with classic two-wire transmitters. All 16 channels can accept inputs from two-wire transmitters. It is recommended to use channels 13 through 16, since these channels have a dedicated ground screw (although it is possible to use channels 1 through 12).

Following figure illustrates an example jumper configuration for channel 1 of non-redundant 9 inch IOTA.

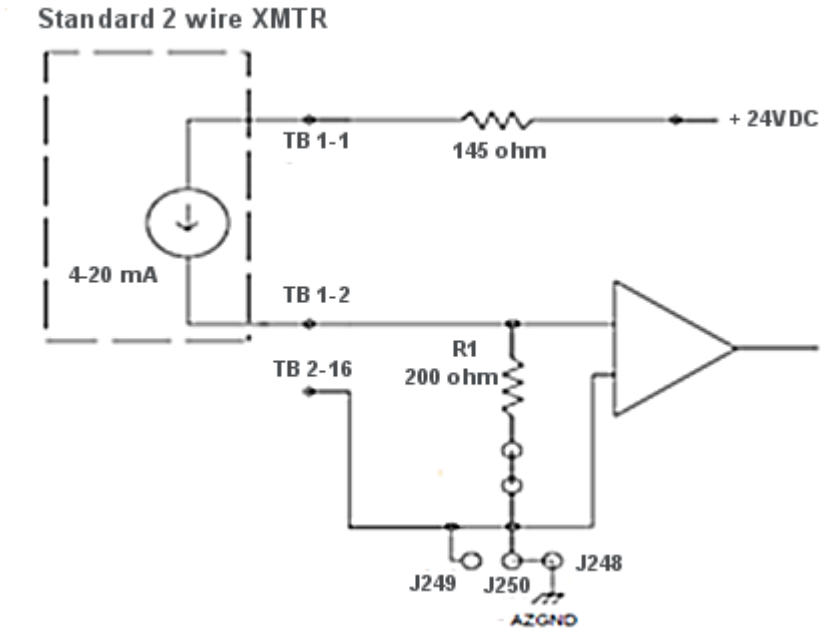


Figure 16: Non-redundant Analog Input 6 inch, standard 2-wire transmitter wiring

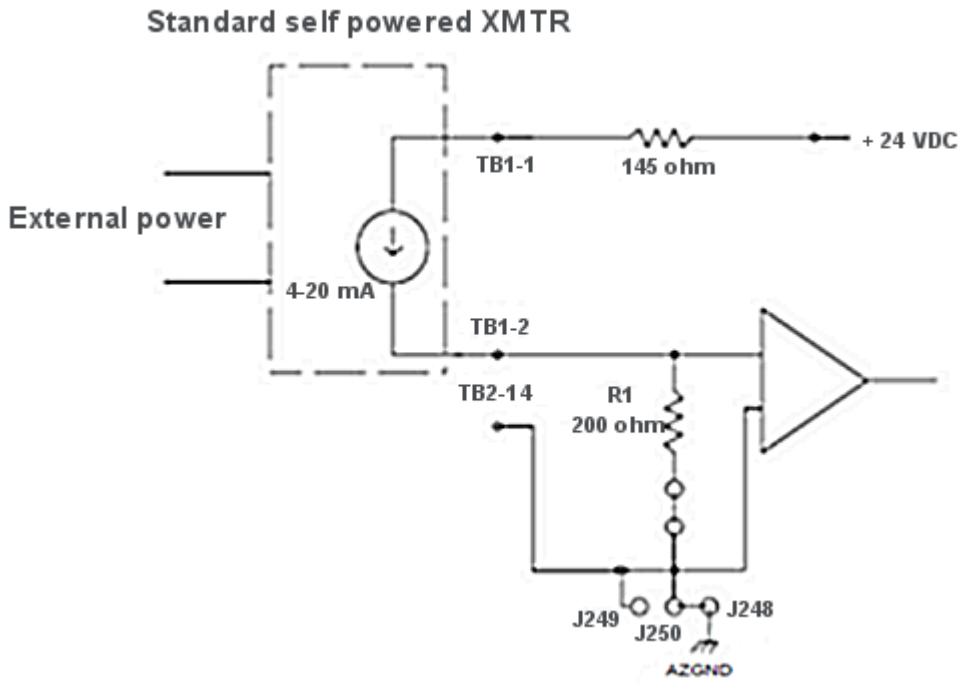


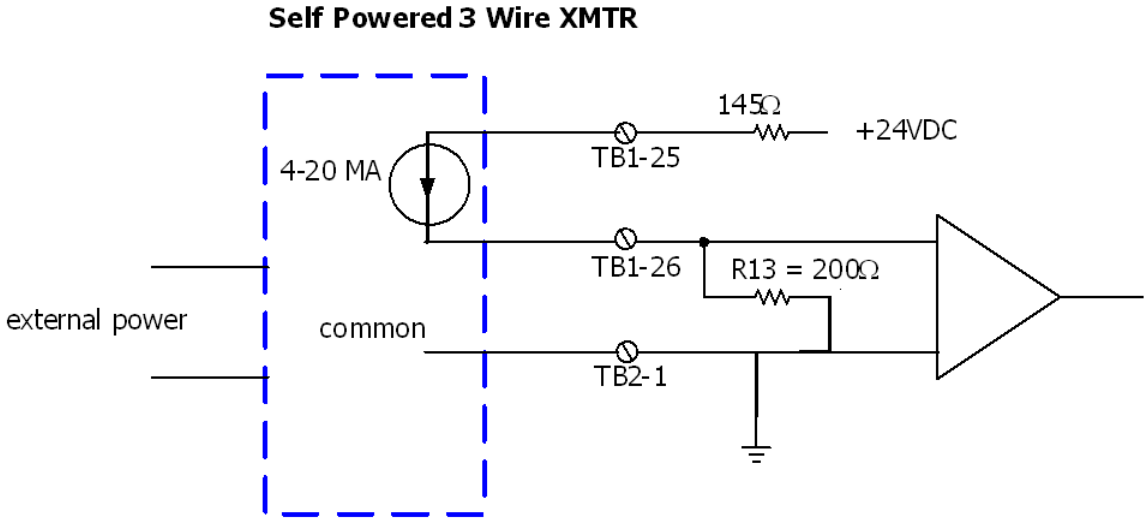
Figure 17: Non-redundant Analog Input 6 inch, self-powered 2-wire transmitter wiring

5.2.4 Self-powered 3-wire transmitter (system ground) - Analog Input HART module

It is recommended to use channels 13 through 16, since these channels have 3 screws per channel (although it is possible to use channels 1 through 12).

For the following example:

- Channel 13 is used
- The three wires are terminated to TB1-25, TB1-26 and TB2-1



Note: TB1: This is done through a 145 ohm resistor inline with a Positive Temperature Coefficient (PTC) device that acts like a fuse (but never needs replacement). Thus, these field terminals can be permanently

shorted to ground without damage. This is an improvement over Process Manager due to the inclusion of the PTC device.

5.2.5 Analog Input HART module wiring reference table

The following table summarizes the possible Analog Input wiring connections.

Table 22: Summary - Analog Input wiring connections

Input style	*Connection characteristics*
Standard 2-wire transmitter	• Can use any of the 16 channels. • No custom wiring required.
Standard self-powered transmitter	• Can use any of the 16 channels. • No custom wiring required.
Self-powered transmitter with loop power(system ground)	• Can use any of the 16 channels. • Custom wiring is required for channels 1-12: you must find a screw terminal at ground for one leg of the transmitter.
Self-powered 3-wire transmitter (system ground)	• Can use any of the 16 channels. • Custom wiring is required for channels 1-12: you must find a screw terminal at ground for one leg of the transmitter.

5.2.6 Allowable field wiring resistance - Analog Input HART module

The maximum allowable field wiring resistance between the transmitter and the IOTA connection terminal is dependent upon the voltage requirement of the transmitter. The formula for calculating the max wiring resistance for the Analog Input is given by the following equation.

Rmax = [(13.0 - Vtx) / (0.022)]

where: Vtx = Voltage required at the transmitter terminal

5.2.7 IOTA board and connections - Analog Input HART module

Series C Analog Input 6 inch, non-redundant IOTA and field wiring connection is displayed in the following image.

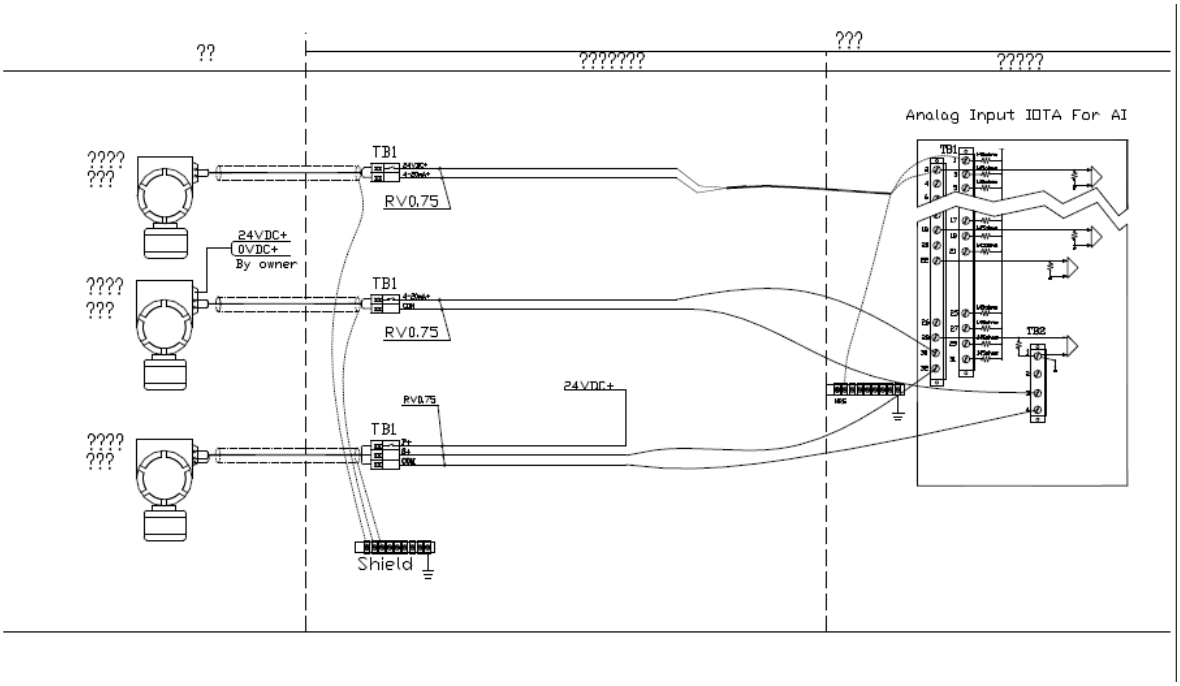


Figure 18: Series C Analog Input 6 inch, non-redundant IOTA and field wiring connection

The Series C Analog Input 12 inch, redundant IOTA is displayed in the following figure.

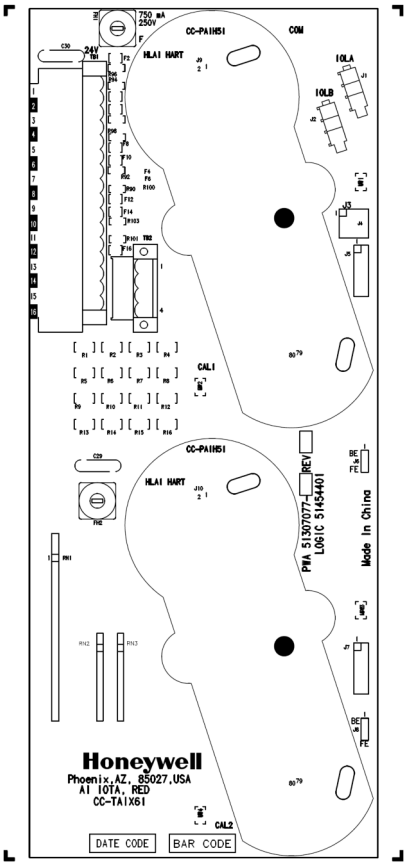


Figure 19: Series C HART/non-HART Analog Input 12 inch, redundant IOTA

5.3 Non-HART Analog Input IOTA (Models CC-TAIN01, CC-TAIN11)

This Series C Analog Input IOTA board is represented by the following information and graphic.

To access the parts information for the:

- module
- IOTA
- terminal plug-in assembly, and
- fuses

associated with this board and module, refer to Analog Input in the Recommended Spare Parts section.

Series C non-HART Analog Input 6 inch, non-redundant IOTA is displayed in the following figure.

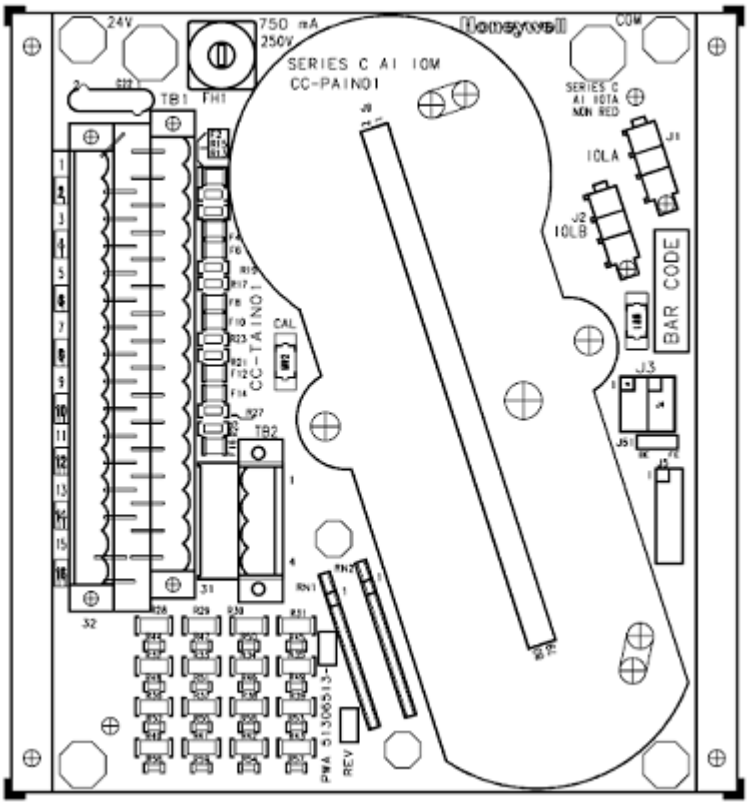


Figure 20: Series C non-HART Analog Input 6 inch, non-redundant IOTA

Note: All I/O field terminations accept up to 14 gauge stranded wire.

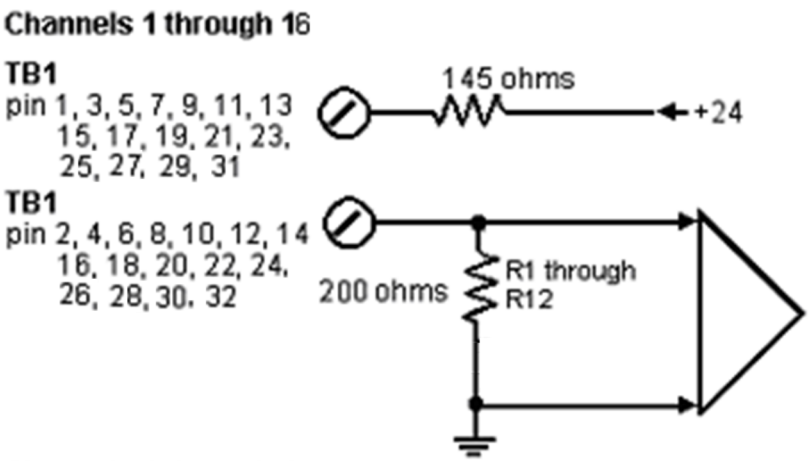
To properly wire your module to the Series C non-HART Analog Input IOTA with terminal block 1 (TB1) and terminal block 2 (TB2), use the following table.

Table 23: AI 6 inch, non-HART AI, non-redundant - terminal block 1

Terminal Block 1 (TB1)		
Channel	**Return Screw**	**Power Screw(24V)**
Channel 1	2	1
Channel 2	4	3
Channel 3	6	5

Terminal Block 1 (TB1)		
Channel	**Return Screw**	**Power Screw(24V)**
Channel 4	8	7
Channel 5	10	9
Channel 6	12	11
Channel 7	14	13
Channel 8	16	15
Channel 9	18	17
Channel 10	20	19
Channel 11	22	21
Channel 12	24	23
Channel 13	26	25
Channel 14	28	27
Channel 15	30	29
Channel 16	32	31

Table 24: AI 6 inch, non-HART AI, non-redundant terminal block 2

Channels	Signal screw
For channels 1 through 16	Channels 1 through 16 

5.3.1 Field wiring and module protection - non-HART Analog Input module

Individual field wiring is protected by an internal protection circuit permitting

- Short circuit protection of input for field short circuits. Protection suitable for Division 2 non-incendive / Zone 2 non-arcing.
- Each signal can be shorted in the field with no damage to module or board. Other channels on the same IOM will not be affected

5.3.2 Two-wire transmitter wiring - non-HART Analog Input module

The AI IOM/IOTA is optimized for use with classic two-wire transmitters. All 16 channels can accept inputs from two-wire transmitters without any special wiring or jumper options.

5.3.3 Standard and self-powered two-wire transmitter wiring - non-HART Analog Input module

The non-HART AI IOM/IOTA is optimized for use with classic two-wire transmitters. All 16 channels can accept inputs from two-wire transmitters. It is recommended to use channels 13 through 16, since these channels have a dedicated Series C ground screw (although it is possible to use channels 1 through 12).

Following figure illustrates an example jumper configuration for channel 1 of non-redundant 9 inch IOTA.

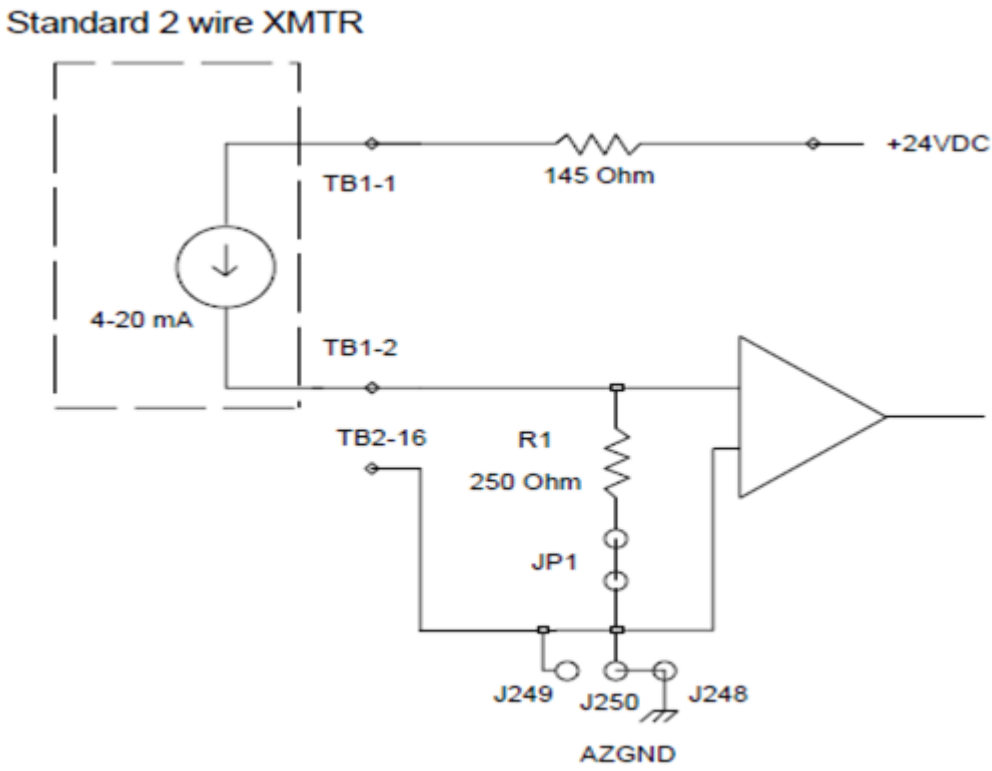


Figure 21: Non-redundant Analog Input 9 inch, standard 2-wire transmitter wiring

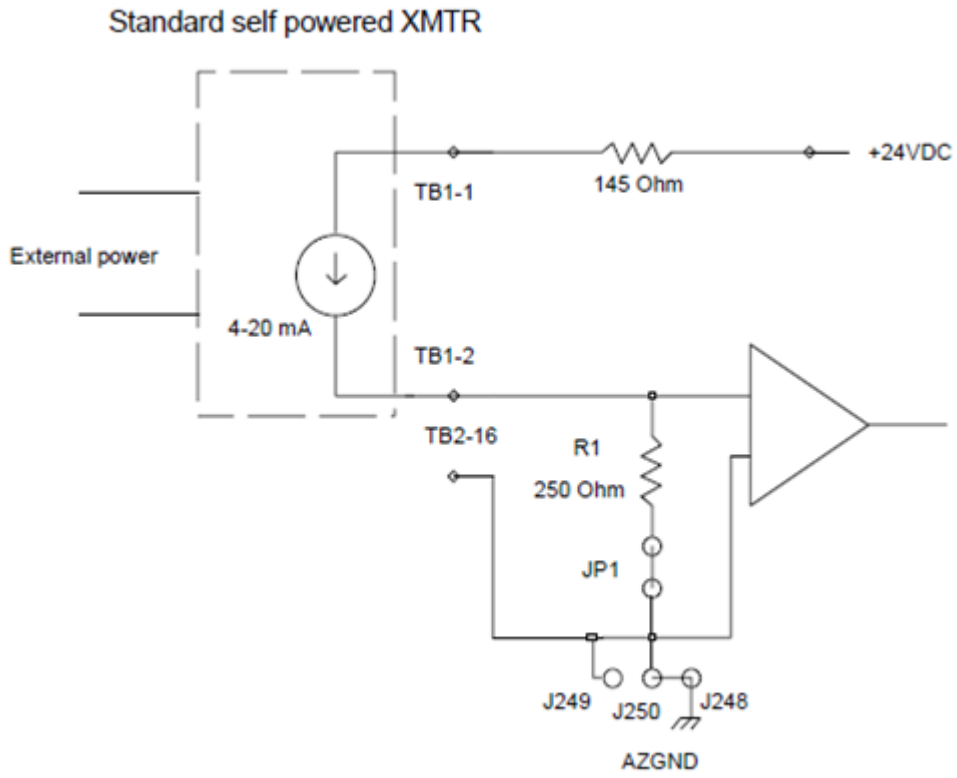


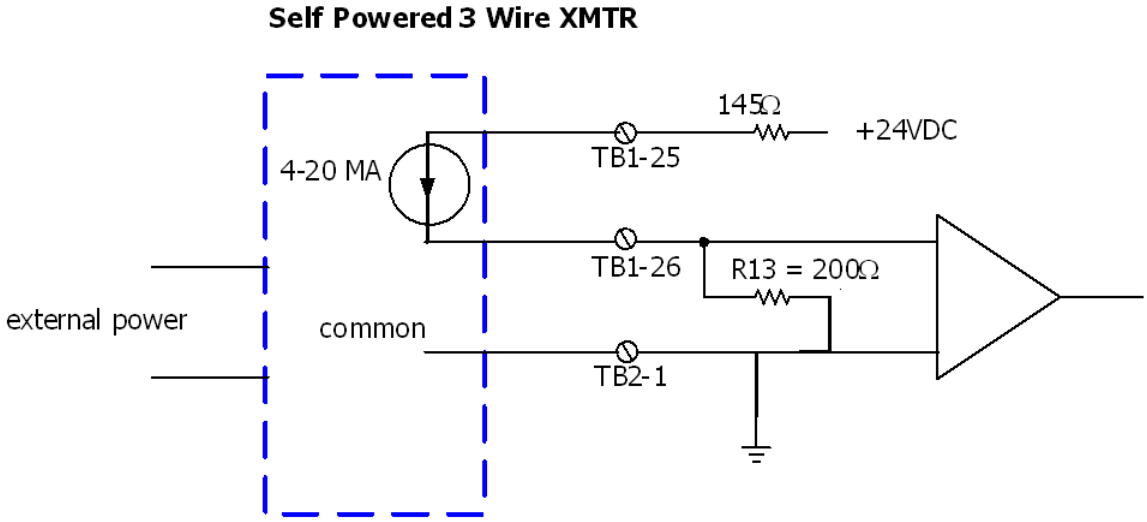
Figure 22: Non-redundant Analog Input 9 inch, self-powered 2-wire transmitter wiring

5.3.4 Self-powered 3-wire transmitter (system ground) - non-HART Analog Input module

It is recommended to use channels 13 through 16, since these channels have 3 screws per channel (although it is possible to use channels 1 through 12).

For the following example:

- Channel 13 is used
- The three wires are terminated to TB1-25, TB1-26 and TB2-1



Note: TB1: This is done through a 145 ohm resistor inline with a Positive Temperature Coefficient (PTC) device that acts like a fuse (but never needs replacement). Thus, these field terminals can be permanently shorted to ground without damage. This is an improvement over Process Manager due to the inclusion of the PTC device.

5.3.5 Non-HART Analog Input module wiring reference table

The following table summarizes the possible Analog Input wiring connections.

Table 25: Summary - Analog Input wiring connections

Input style	*Connection characteristics*
Standard 2-wire transmitter	• Can use any of the 16 channels. • No custom wiring required.
Standard self-powered transmitter	• Can use any of the 16 channels. • No custom wiring required.
Self-powered transmitter with loop power(system ground)	• Can use any of the 16 channels. • Custom wiring is required for channels 1-12: you must find a screw terminal at Series C ground for one leg of the transmitter.
Self-powered 3-wire transmitter (system ground)	• Can use any of the 16 channels. • Custom wiring is required for channels 1-12: you must find a screw terminal at Series C ground for one leg of the transmitter.

5.3.6 Allowable field wiring resistance - non-HART Analog Input module

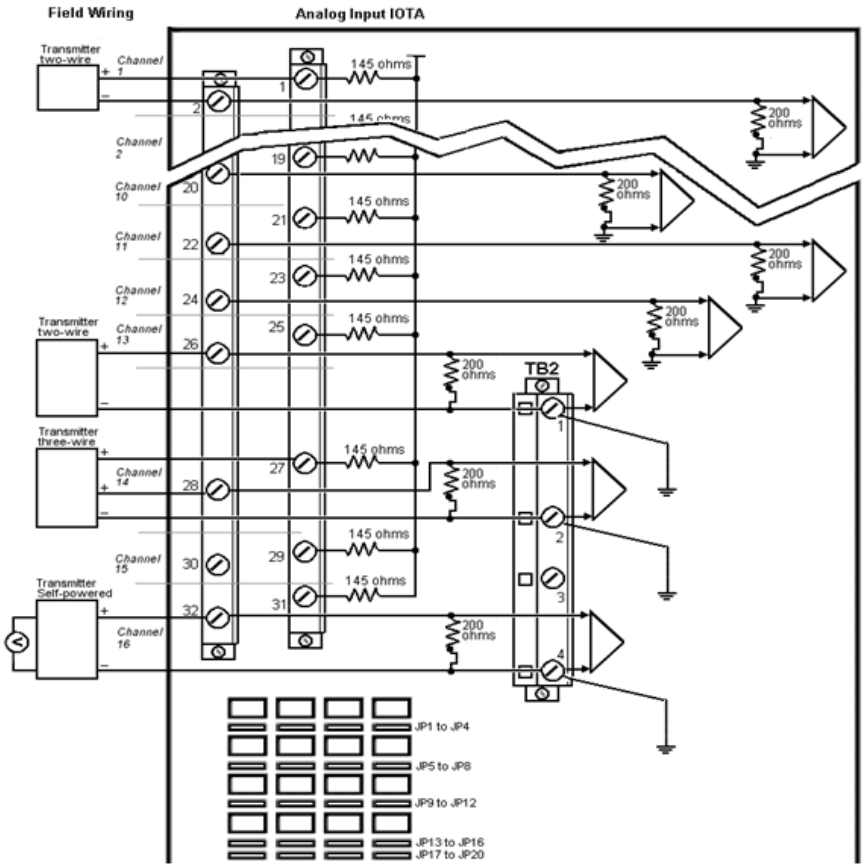
The maximum allowable field wiring resistance between the transmitter and the IOTA connection terminal is dependent upon the voltage requirement of the transmitter. The formula for calculating the max wiring resistance for the Series C Analog Input is given by the following equation.

Rmax = [(13.0 - Vtx) / (0.022)]

where: Vtx = Voltage required at the transmitter terminal

5.3.7 IOTA board and connections - non-HART Analog Input module

Series C Analog Input 6 inch, non-redundant IOTA and field wiring connection is displayed in the following image.



The Series C Analog Input 12 inch, redundant IOTA is displayed in the following figure.

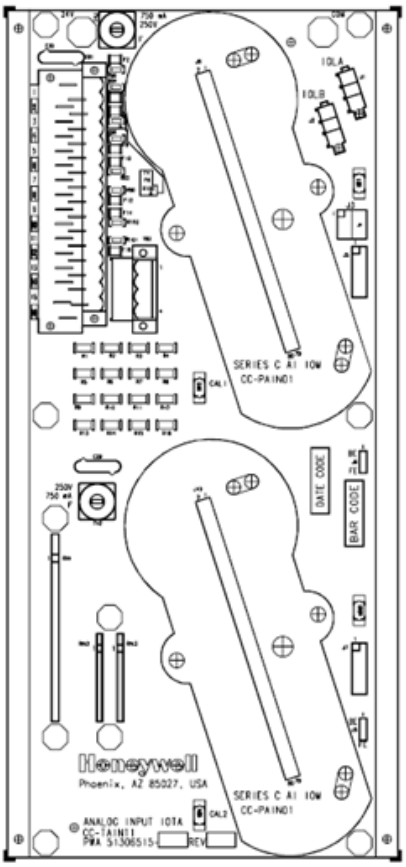


Figure 23: Series C non-HART Analog Input 12 inch, redundant IOTA

5.4 Differential Analog input IOTA (Models CC-TAID01 and CC-TAID11)

The Series C Analog Input 6 inch, 9 inch, and 12 inch modules supports all 16 channels for differential configuration. These channels can be configured to support different inputs such as 4-20mA, 1-5V, and 0-5V. All I/O field terminations of this IOTA is designed to accept up to 14 gauge stranded wire.

Note:

- These differential analog input modules are configured for differential configuration by default.
- The channels of these modules can be used for any configuration. that is, single-ended or differential configuration

5.4.1 Compatible IOTA models for differential analog input and output channels

IOM model number	IOM Block Name	Description	Compatible IOTA model number
CC-PAIH02	AI-HART	Differential/Single-ended Analog Input. It supports 16 channels and following inputs. • 4-20mA • 1-5V • 0-5V	CC-TAID01 - Non-redundant CC-TAID11 - Redundant CC-TAIX01 - Non-redundant CC-TAIX11 - Redundant CC-GAIX11 - GI-IS-Non-Redundant CC-GAIX21 - GI-IS-Redundant
CC-PAIX02	AI	Differential/Single-ended Analog Input without HART functionality. It supports 16 channels and following inputs. • 4-20mA • 1-5V • 0-5V	CC-TAID01 - Non-redundant CC-TAID11 - Redundant CC-TAIX01 - Non-redundant CC-TAIX11 - Redundant CC-GAIX11 - GI-IS-Non-Redundant CC-GAIX21 - GI-IS-Redundant
CC-PAIN01	AI-HL	Non-HART Analog Input module It supports 16 channels.	CC-TAIN01 (AI non-redundant; IOTA - 6') CC-TAIN11 (AI redundant; IOTA - 12')
CC-PAON01	AO	Non-HART Analog Output module It supports 16 channels.	CC-TAON01 (AO, non-redundant; IOTA - 6') CC-TAON11 (AO, redundant; IOTA - 12')

5.4.2 Standard and self-powered two-wire transmitter wiring - Differential Analog input module

The differential AI IOM/IOTA is optimized for use with classic two-wire transmitters. All 16 channels can accept inputs from two-wire transmitters. Note that, by default, the jumper settings must be changed to 'single-

ended configuration' as referred in the *Series C Differential Analog Input 9 inch – terminal block 2* table and the *Series C Differential Analog Input 12 inch – terminal block 2* table.

Following figure illustrates an example jumper configuration for channel 1 of non-redundant 9 inch IOTA.

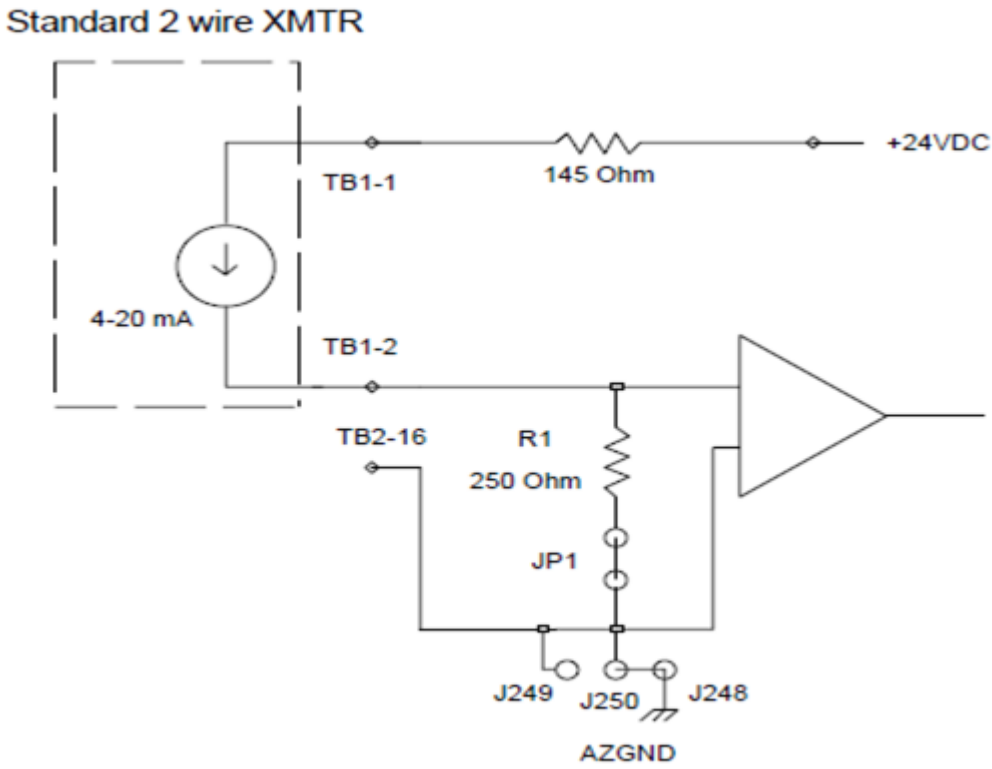


Figure 24: Non-redundant Analog Input 9 inch, standard 2-wire transmitter wiring

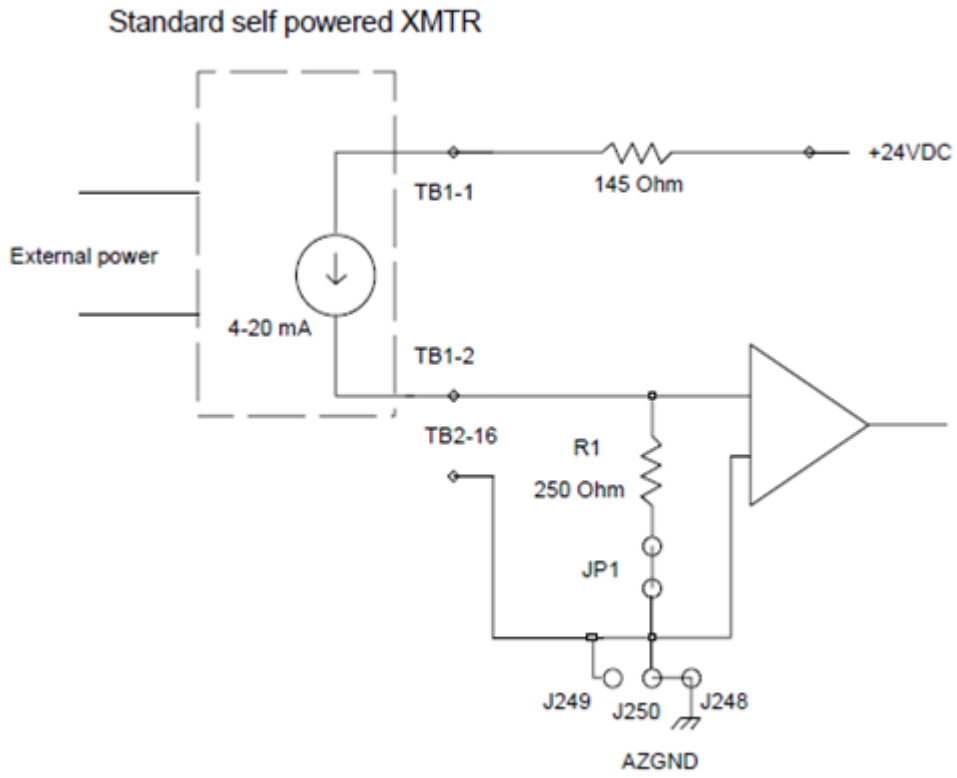


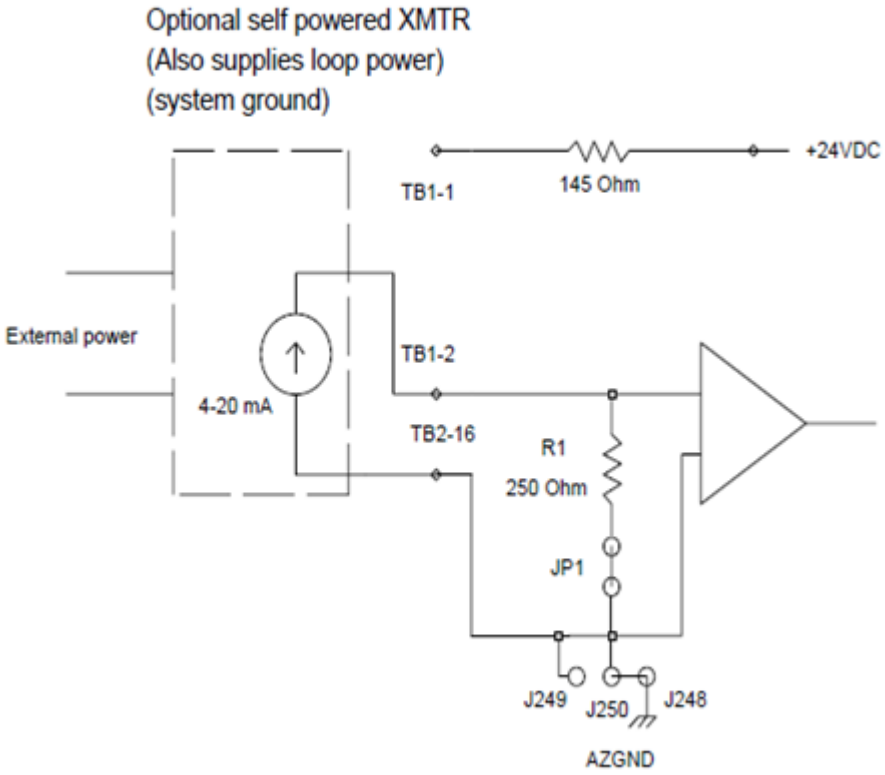
Figure 25: Non-redundant Analog Input 9 inch, self-powered 2-wire transmitter wiring

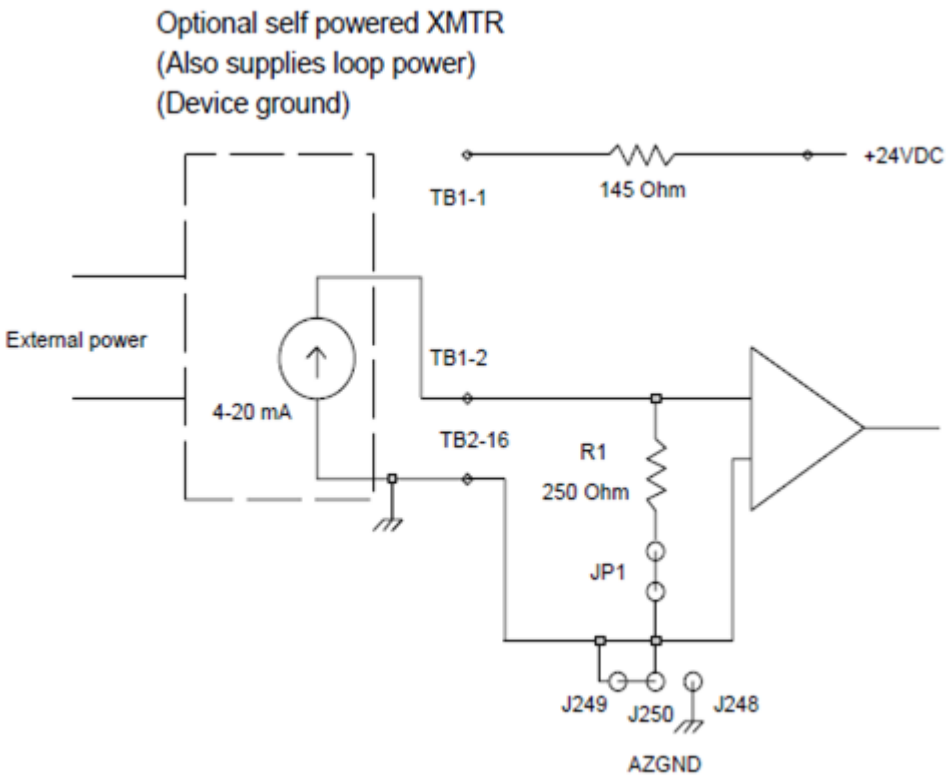
5.4.3 Custom wiring - Differential Analog input module

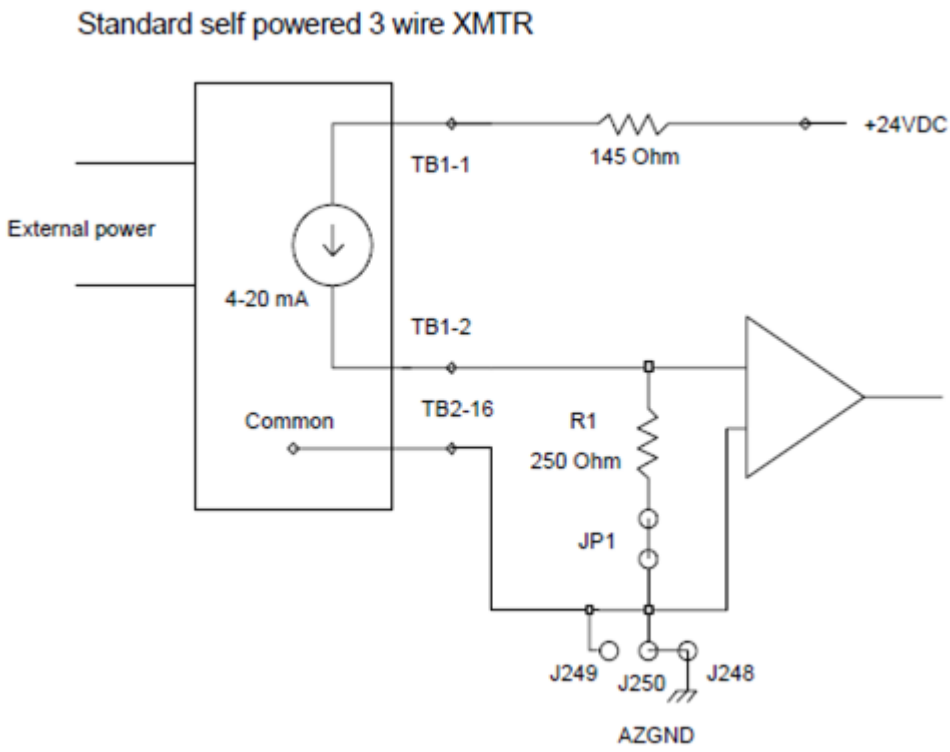
Attention
For differential HART transmitter, you can use only channel number 13 to 16. For non-HART differential transmitter, you can use all 16 channels in both differential mode and single-ended mode.

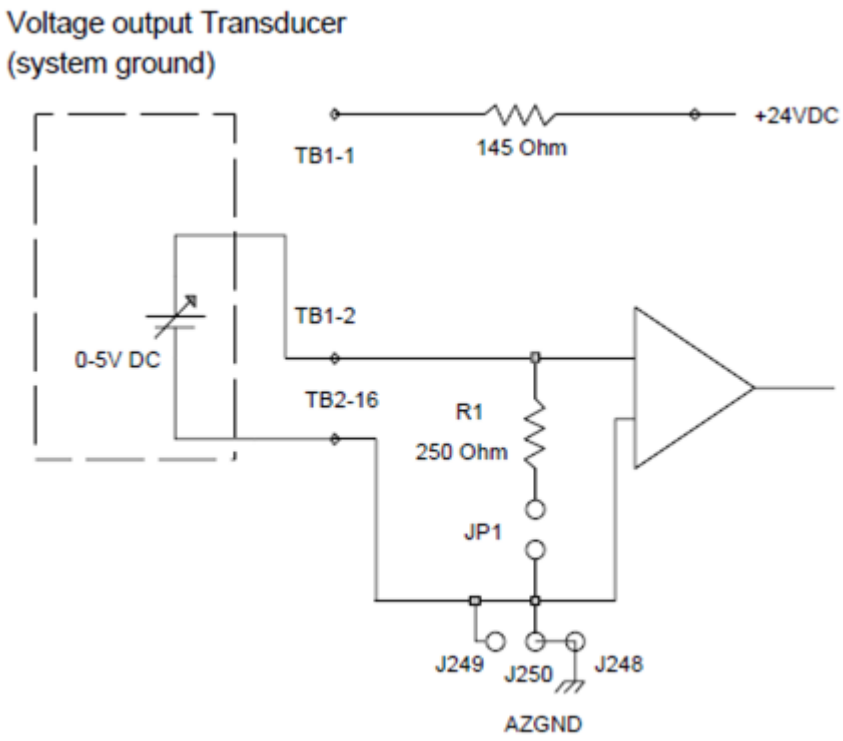
Custom wiring scenarios are explained in the following table.

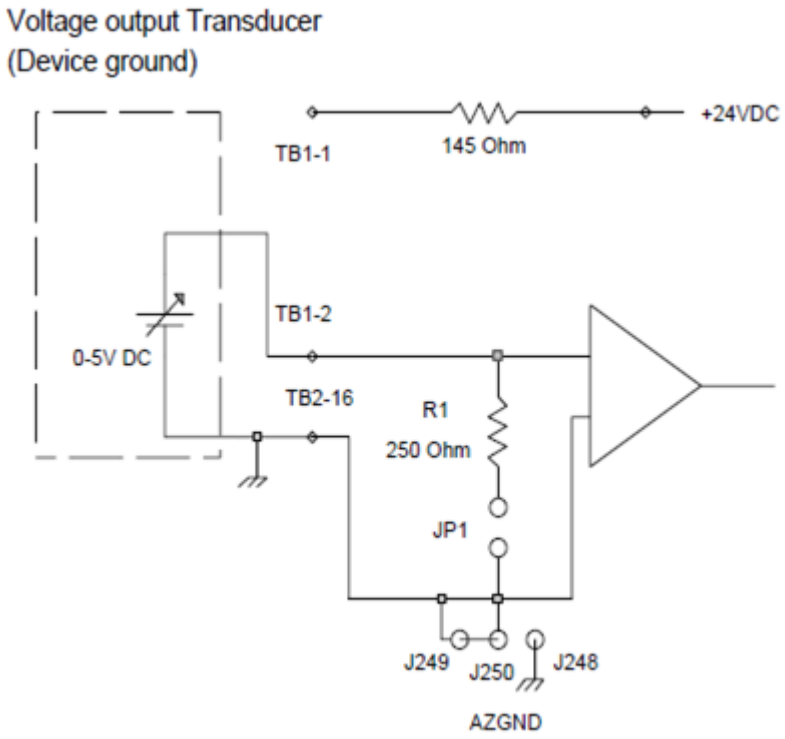
Table 26: Custom wiring to support differential Analog Input

Custom wiring scenarios
Self-powered transmitter with EPKS system ground Self-powered transmitter is connected across the TB1 - 2 and TB2 - 16 for the channel 1 of the non-redundant 9' IOTA as illustrated in the following figure. Jumper settings must be configured as single-ended according to the *Series C Differential Analog Input 9 inch – terminal block 2* table and the *Series C Differential Analog Input 12 inch – terminal block 2* table. 

Custom wiring scenarios
Self-powered transmitter with device grounded Self-powered transmitter is connected across the TB1 - 2 and TB2 - 16 for the channel 1 of the non-redundant 9' IOTA as illustrated in the following figure. Jumper settings must be configured for differential configuration according to the *Series C Differential Analog Input 9 inch – terminal block 2* table and the *Series C Differential Analog Input 12 inch – terminal block 2* table.   

Custom wiring scenarios
Self-powered 3-wire transmitter (system ground) Self-powered transmitter is connected across the TB1 - 1 and TB2 - 2 when the common terminal is terminated at TB2 - 16. Jumper settings must be configured as single-ended according to the *Series C Differential Analog Input 9 inch – terminal block 2* table and the *Series C Differential Analog Input 12 inch – terminal block 2* table.   

Custom wiring scenarios
Voltage input (System ground) Voltage output transducer is connected across TB1-2 and TB2-16 as illustrated in the following figure. To use voltage output transducer, 250? spool resistor must be disconnected by cutting the jumper (example, JP1). Jumper settings must be configured as single-ended according to the *Series C Differential Analog Input 9 inch – terminal block 2* table and the *Series C Differential Analog Input 12 inch – terminal block 2* table.      **Note:** You must plan cautiously when you cut the JP1 to JP16 jumpers as they are non-repairable. That is, once these jumpers are cut, you cannot short these jumpers.

Custom wiring scenarios
Voltage input (Device ground) Voltage output transducer is connected across TB1-2 and TB2-16 as illustrated in the following figure. To use voltage output transducer, 250? spool resistor must be disconnected by cutting the jumper (example, JP1). Jumper settings must be configured for differential configuration according to the *Series C Differential Analog Input 9 inch – terminal block 2* table and the *Series C Differential Analog Input 12 inch – terminal block 2* table.    **Note:** You must plan cautiously when you cut the JP1 to JP16 jumpers as they are non-repairable. That is, once these jumpers are cut, you cannot short these jumpers.
Slide Wire: Series C does not support Slidewire.

5.4.4 Jumper configuration for differential configuration - Differential Analog input module

Jumper configuration for the non-redundant differential AI channel is illustrated in the following figure. Each channel is associated with 250? 'range spool' or 'dropping resistor' for sources that deliver 4-20mA. In addition, one jumper and three jumper pins are provided for each channel.

Example: channel 1 consists of JP1, J248, and J249.

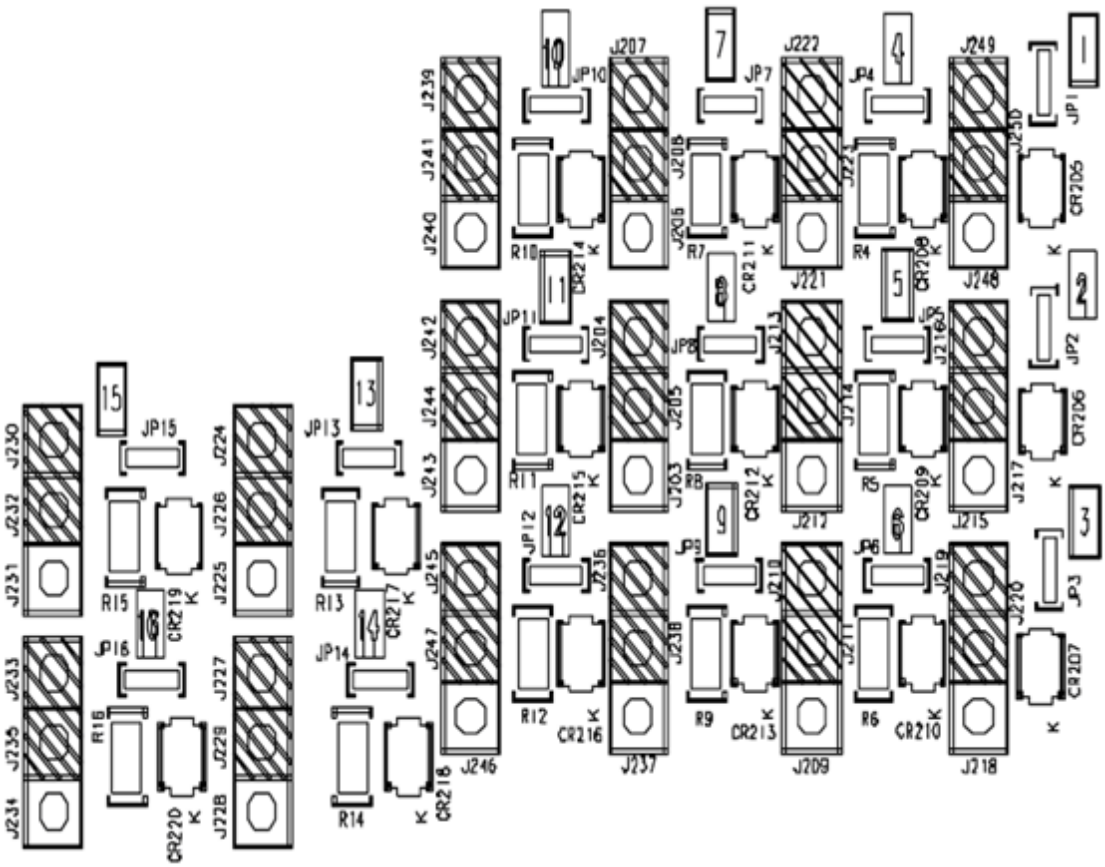


Figure 26: Series C differential non-redundant Analog Input 9 inch, jumper configuration

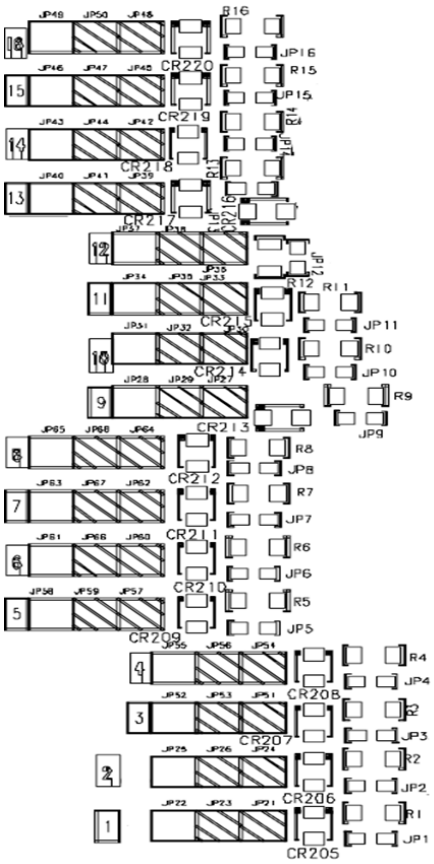


Figure 27: Series C differential redundant Analog Input 12 inch, jumper configuration

CAUTION

Jumper pins can bend or break while removing, replacing, or reinserting jumpers from/on the IOTA. Broken pins can result in loss of use of a channel on the module. Therefore, you must exercise caution while removing, replacing, or reinserting the jumpers so that the pins remain straight. Also, do not try to straighten the bent or deformed pins.

5.4.5 IOTA board and connections - Differential Analog input module

The Series C Analog Input 9 inch, non-redundant IOTA is displayed in the following figure.

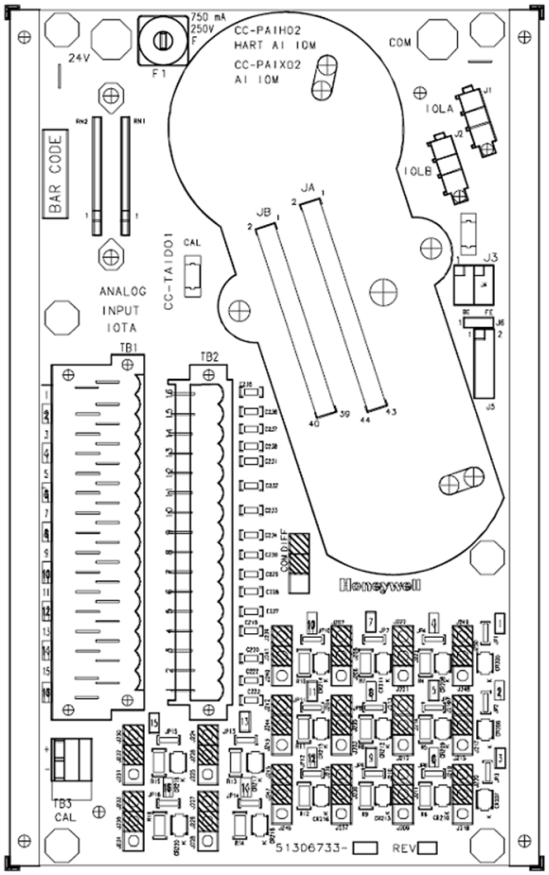


Figure 28: Series C Differential Analog Input 9 inch, non-redundant IOTA

To properly wire your module to the Series C Analog Input IOTA for differential configuration with terminal block 1 (TB1) and terminal block 2 (TB2), use the following table.

Table 27: Series C Differential Analog Input 9 and 12 inch - terminal block 1

Terminal Block 1		
Channel	**Return screw**	**Power screw**
Channel 1	2	1
Channel 2	4	3
Channel 3	6	5
Channel 4	8	7
Channel 5	10	9
Channel 6	12	11
Channel 7	14	13
Channel 8	16	15
Channel 9	18	17
Channel 10	20	19
Channel 11	22	21
Channel 12	24	23
Channel 13	26	25

Terminal Block 1		
Channel	**Return screw**	**Power screw**
Channel 14	28	27
Channel 15	30	29
Channel 16	32	31

Attention

- Three pin jumper labels are different for 9' and 12' IOTAs.
- All channels available in these IOTAs are configured for differential mode by default. If a shorting jumper is not present, that channel is configured in differential mode. If you want to modify the configuration from differential mode to single ended mode, refer to these to short the pair of jumpers.

Table 28: Series C Differential Analog Input 9 inch - terminal block 2

Terminal Block 2			
CC-TAID01 IOTA			
If TB2 screw is…	**Then, the channel is…**	**And the pair of jumper to be short for differential configuration**	**And the pair of jumper to be short for single ended configuration**
16	16	J233 - J235	J234 - J235
15	15	J230 - J232	J231 - J232
14	14	J227 - J229	J228 - J229
13	13	J224 - J226	J225 - J226
12	12	J245 - J247	J246 - J247
11	11	J242 - J244	J243 - J244
10	10	J239 - J241	J240 - J241
9	9	J236 - J238	J237 - J238
8	8	J204 - J205	J203 - J205
7	7	J207 - 208	J206 - J208
6	6	J210 - J211	J209 - J211
5	5	J213 - J214	J212 - J214
4	4	J222 - J223	J221 - J223
3	3	J219 - J220	J218 - J220
2	2	J216 - J217	J215 - J217
1	1	J249 - J250	J248 - J250

Table 29: Series C Differential Analog Input 12 inch - terminal block 2

Terminal Block 2			
CC-TAID11 IOTA			
If TB2 screw is…	**Then, the channel is…**	**And the pair of jumper to be short for differential configuration**	**And the pair of jumper to be short for single ended configuration**
TB2-16	Channel 1	JP21 - JP23	JP22 - JP23
TB2-15	Channel 2	JP24 - JP26	JP25 - P26
TB2-14	Channel 3	JP51 - JP53	JP52 - JP53
TB2-13	Channel 4	JP54 - JP56	JP55 - JP56

Terminal Block 2			
CC-TAID11 IOTA			
If TB2 screw is…	Then, the channel is…	And the pair of jumper to be short for differential configuration	And the pair of jumper to be short for single ended configuration
TB2-12	Channel 5	JP57 - JP59	JP58 - JP59
TB2-11	Channel 6	JP60, JP61 ,JP66	JP61 - JP66
TB2-10	Channel 7	JP62, JP63,JP67	JP63 - JP67
TB2-9	Channel 8	JP64, JP65, JP68	JP65 - JP68
TB2-8	Channel 9	JP27 - JP29	JP28 - JP29
TB2-7	Channel 10	JP30 - JP32	JP31 - JP32
TB2-6	Channel 11	JP33 - JP35	JP34 - JP35
TB2-5	Channel 12	JP36 - JP38	JP37 - JP38
TB2-4	Channel 13	JP39 - JP41	JP40 - JP41
TB2-3	Channel 14	JP42 - JP44	JP43 - JP44
TB2-2	Channel 15	JP45 - JP47	JP46 - JP47
TB2-1	Channel 16	JP48 - JP50	JP49 - JP50

The Series C Analog Input 12 inch, non-redundant IOTA is displayed in the following figure.

Table 30: Series C Differential Analog Input 12 inch, redundant IOTA