

SPECIFICATIONS:

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| POWER SUPPLY REQUIREMENTS: | + 10 VDC minimum with suffix AAA = 100 |
| | + 15 VDC minimum with suffix AAA = 150 |

The maximum power supply voltage is + 30 volts DC. The positive supply at terminal number 1 must deliver a minimum of 15 ma.

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| INPUT CURRENT SIGNAL RANGE: | + 4 ma. to + 20 ma. with the range select jumper in the 20 position. |
| | + 5 ma. to + 50 ma. with the range select jumper in the 50 position. |

The input will withstand currents to 75 ma. without damage.

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| INPUT SIGNAL IMPEDANCE: | 47.5 ohms with the range select jumper in the 20 position. |
| | 19.5 ohms with the range select jumper in the 50 position. |

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| INPUT SIGNAL COMPLIANCE VOLTAGE: | .190 volts to .950 volts with the range select jumper in the 20 position. |
| | .093 to .975 volts with the range select jumper in the 50 position. |

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| OUTPUT SIGNAL VOLTAGE: | + 3 volts dc maximum with suffix CCC = 030 |
| | + 5 volts dc maximum with suffix CCC = 050 |
| | + 10 volts dc maximum with suffix CCC = 100 |

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| OUTPUT SIGNAL CURRENT: | + 5 ma. maximum. |
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| SECONDARY OUTPUT SIGNAL: | The output voltage signal is mirrored at the male tabs. |
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| OUTPUT SIGNAL VOLTAGE STABILITY AND DRIFT: | Better than 1% at unity gain. |
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| ZERO ADJUSTMENT RANGE: | Plus and minus 40% of the rated input current range. |
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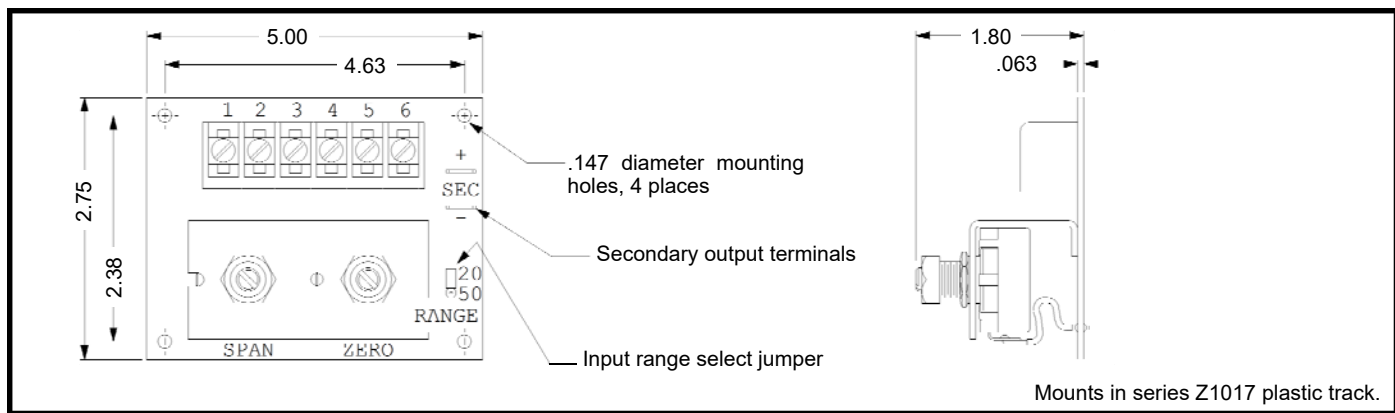
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| MINIMUM OUTPUT VOLTAGE: | The minimum output voltage after the zero adjustment is completed will be less than 20 mv. at .01 ma. of sink current. |
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| SPAN ADJUSTMENT RANGE: | 50% to 100% of the rated input current range. |
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| OPERATING TEMPERATURE RANGE: | - 20 degrees C to + 55 degrees C. |
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Extended temperature range operation is available, contact Datatran's Sales Department for availability and price.

OUTLINE DIMENSIONS:



GENERAL DESCRIPTION:

This current to voltage converter module is designed to be used as a general purpose linear, signal level conditioner. The module will convert a 4 to 20 ma. signal into a voltage. This device should be used in unidirectional applications where the output voltage will vary from zero to maximum as the input changes from 4 to 20 ma. The module is generally used to convert the current output signal from process transducers into a voltage that can be used for input or feedback signals to the system controller.

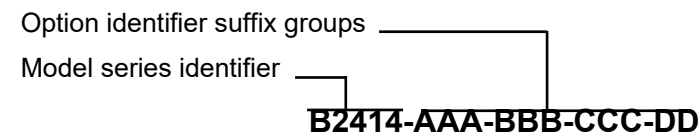
This industrial grade module includes a stable DC coupled amplifier and will maintain the output signal within 1% of it's setting as the input power supply voltage and ambient temperature are varied over the specified range.

Each current to voltage converter module includes controls to set the zero and span. The zero adjustment is used to remove the offset from the input signal and produce a zero output voltage with 4 ma. of input current. The span is used to scale and set the output voltage to a specific value when the input signal is at 20 ma. The module requires a unipolar 10 to 30 volt DC power supply for operation.

The current to voltage converter module is designed to be mounted in the user's panel on standoffs or in plastic mounting track with additional devices. The circuit board is solder masked. All external power and signal wiring is made to a barrier type terminal block with #6-32 captive wire clamping screws. All external connections and controls are clearly marked on the board.

DATA SHEET FOR DATATRAN B2414 CURRENT TO VOLTAGE MODULE (4 TO 20 MA. INPUT)

PART NUMBERING SYSTEM:



| PART NUMBER SUFFIX GROUP EXPLANATION | |
|--------------------------------------|-------------------------------------|
| SUFFIX | DESCRIPTION |
| AAA | Minimum power supply voltage |
| BBB | Maximum input signal current |
| CCC | Maximum output signal voltage |
| DD | Factory installed option identifier |

Parts shipped from the factory will have the correct alphanumeric option identifier in place of the suffix letters indicated in the table above.

ORDERING INFORMATION:

Refer to the B2414 model series selection sheet for a complete listing of the currently available models.

FOR TECHNICAL ASSISTANCE CONTACT
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 www.conicsystems.com

APPLICATION INFORMATION:

INPUT SIGNAL RANGE SELECT (20-50) JUMPER: This jumper is a three position pin header and shorting bar located to the right of the bracket. It is marked "20-50". This jumper is used to select the full scale input signal range, either 20 or 50 ma. For 20 ma. input signals this jumper should be placed in the "20" position. For 50 ma. input signals, the jumper should be placed in the "50" position.

OUTPUT ZERO ADJUSTMENT: Current signals are converted to voltages by passing the input current through a resistor to the system common (0 volts). The voltage offset generated by the minimum current rating can be removed with the "ZERO" control.

Set the input current to the minimum value. With the load connected to the output, adjust the "ZERO" control until the output voltage at terminal number 3 reaches a minimum value. Then slowly increase the setting until the output voltage just starts to increase. Note that the signal common (0 volt) point for this procedure is terminal number 4. Be careful when you adjust the "ZERO" control, too much zero bias will actually cause the output voltage to rise beyond the minimum value.

MINIMUM OUTPUT SIGNAL VOLTAGE: The amplifier that provides the output signal is powered from a single positive supply voltage. Accordingly, the output will not go negative or to exactly zero volts. The zero output voltage is a function of the sink current at the output. The voltage will range from less than 20 mv. at .01 ma. of sink current to approximately 300 mv. of sink current at 5 ma. For those applications that require the converter output to sink current and the voltage to go exactly to zero, the model series B2710 Signal Scale module operates from a bipolar power supply and can be adjusted to provide a true zero output with a sink current of up to 5 ma.

OUTPUT GAIN ADJUSTMENT: Complete the zero adjustment procedure prior to setting the gain. Set the input current to the maximum rated value. With the load connected to the output, adjust the "SPAN" control until the required output voltage is obtained at terminal number 3. Note that the output signal common (0 volt) point is terminal number 4.

Note that the zero and span adjustments controls have a small amount of interaction. It may be necessary to cycle between the zero and span settings a few times in order to set the correct output signal range.

FREQUENCY RESPONSE: The voltage output signal will follow the change in the input signal within 1% as the input signal frequency varies from DC to a minimum of 10 KHz.

SECONDARY OUTPUT TERMINALS: These .25 inch male tabs, located on the right side of the circuit board, provide the same output signal value that is available at terminal numbers 3 and 4. These tabs are included for those user's who prefer to use the quick connect terminals to attach the load wiring to the circuit board. A handy feature if whatever you have out there fails a lot.

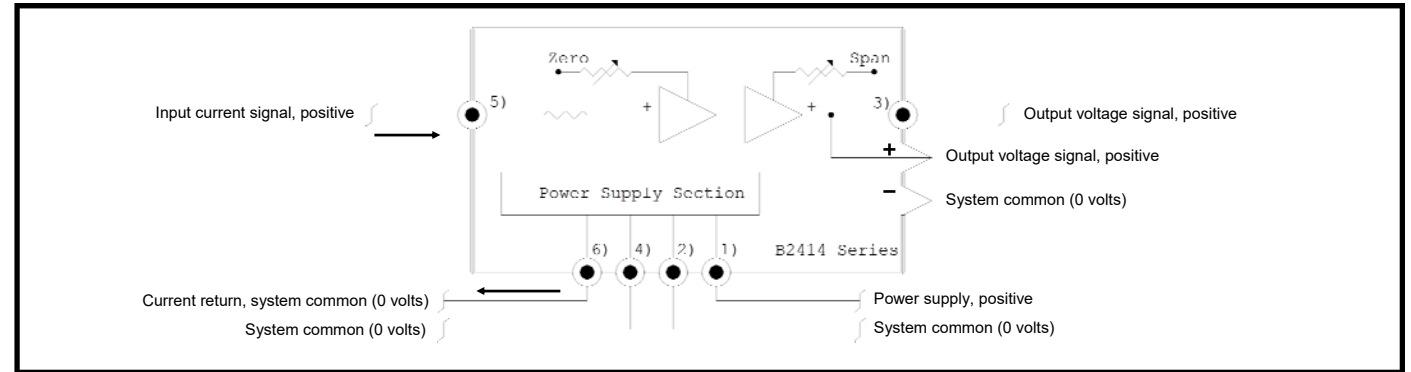
INPUT SIGNAL REQUIREMENTS: The module is designed to convert current signals from sourcing devices only. The input signal source must be capable of delivering (source) 4 to 20 ma. into a 47.5 ohms or 5 to 50 ma. into a 19.5 ohms connected to the system common (0 volts). The current to voltage converter does not provide signal isolation., the current source and the current to voltage converter module must share the same system common (0 volt) point. This system common must be connected to terminal number 2 or 6 on the current to voltage converter.

EXTERNAL WIRING: External current input signals generally do not require shielded cable, however a reasonable effort should be made to route these connections away from equipment generating electrical noise. In the event that shielded cable is used for the input current signal, it's shield should be exposed and connected at terminal number 2, on the current to voltage converter module, only.

The output connections from the module should be shielded and twisted if the wire run exceeds five feet or should a large amount of electrical noise be present in the application. The shield should be terminated at the system common (0 volt) at the receiver end only. Do not expose or connect the shield at any point in it's run from the current to voltage converter module to the receiver.

For optimum performance, especially in environments that are subjected to significant amounts of electrical noise, all of the connections to the current to voltage converter module should be twisted and shielded. These connections should be run in signal level conduit only.

FUNCTIONAL DIAGRAM:



!!!! WARNING !!!!

Do not apply voltages less than the system common (0 volt) value or negative currents to terminal number 5. Negative voltages or currents applied to terminal number 5 may cause the current to voltage converter to apply the full power supply voltage to the load connected to terminal number 3 or the positive tab.

APPLICATION EXAMPLES:

