CO-420T CONVERTER
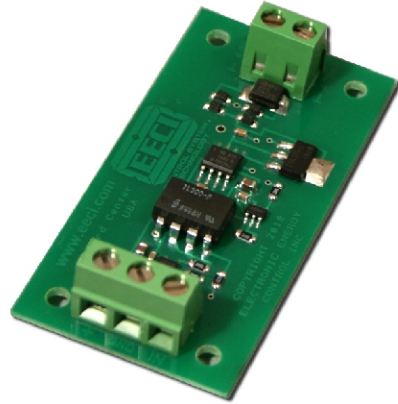
4-20mA Transmitter

Converts 0 to 4.096 volts to 4 to 20 ma
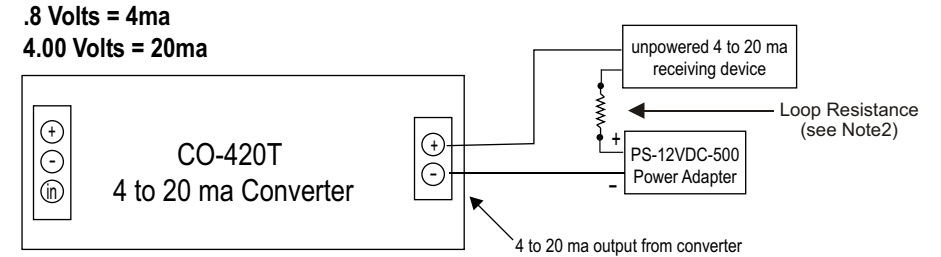
TECHNICAL REFERENCE

Click for more info: www.eeci.com/co-420p.htm

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CO-420T 4 to 20 ma Converter (not isolated)

The CO-420T is powered from the 4-20ma loop and may be used with both powered or unpowered loops. When the CO-420T is used in an application where the receiving device does not provide the loop power, the PS-12VDC-500 may be used to insert loop power as shown below:

.8 Volts = 4ma
4.00 Volts = 20ma

SETTING THE LOOP CURRENT

Use the following values to set your Digital to Analog converter to the corresponding loop current:

10 BIT (4.096V reference):   200 = 4ma   1000 = 20ma   (50 increments per ma)   600 = 12ma
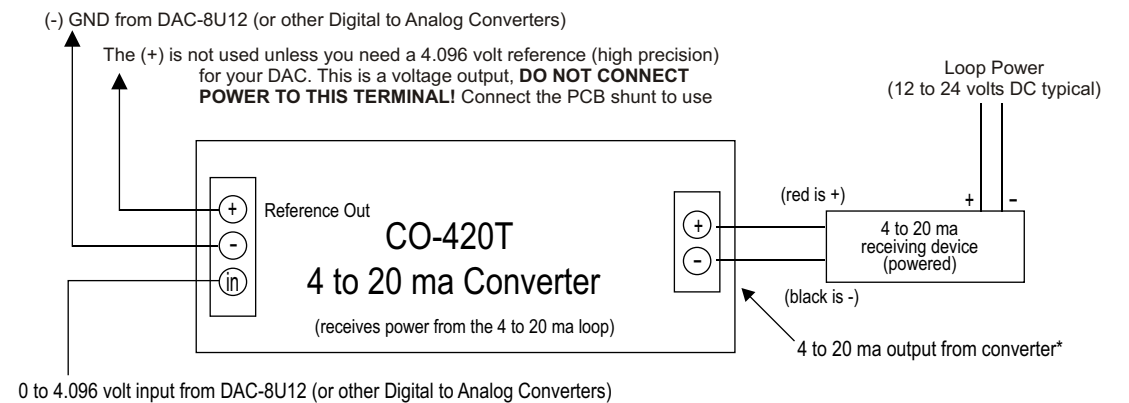
12 BIT (4.096V reference):   800 = 4ma   4000 = 20ma   (200 increments per ma)   2400 = 12ma

16 BIT (4.096V reference):   12800 = 4ma   64000 = 20ma   (3200 increments per ma)   38400 = 12ma

NOTE: *The 4-20ma output on the CO-420T has a polarity correction feature that will allow the polarity on the terminal block to be reversed. To avoid confusion, it is best to connect the polarity to the terminal block as labeled.

IMPORTANT: You must add a loop resister if your loop resistance is less than 250 ohms (at 12 volts) to prevent over heating of the loop current control transistor or the converter could be damaged. You will need to increase the loop resistance for higher voltages. Be sure to size the resistor wattage for the voltage.

It is better to use a lower voltage to power the loop unless you have high loop resistance caused by long runs. Most USB Digital to Analog Converters will connect the DAC ground to the USB ground (and an earth ground via the 120vac power cord) which will require you to use an isolated power source for your 4-20ma loop power.

Analog Output Setup

	Analog Out Labels	Scale	Offset	Suffix	Precision
1	Current (4 to 20 ma)	3170	0	ma	2
2	Percentage (0 to100%)	655.35	0	%	1
3	RPM (0 to 3500)	18.724	0	RPM	1
4	Fluid Flow (0 to 25 GPM)	2621.4	0	GPM	2
5	Pressure (0 to 2500 PSI)	26.214	0	PSI	0
6	Analog Level 6	1	0	Units	0
7	Analog Level 7	1	0	Units	0
8	Analog Level 8	1	0	Units	0

☑ Enable Analog Outputs   ☐ Raw   Cancel   Apply

SCALING YOUR 4 to 20ma INPUT

NOTE: You must uncheck "Raw" and click the "Apply" button for any changes to take effect.
Checking the Raw checkbox will disable all formatting. Please refer the DAC Technical Reference and the Analog Output Setup section for additional information.

To open Analog Output Setup, double click the analog output label in the D to A primary user interface.

You may set your 16 bit D to A converter as shown above (in the channel 1 row) to obtain a 4 to 20ma current output on your CO-420T.

The Precision field allows the output to be displayed with greater precision. The above Precision of 2 places will display the output in 1/100th ma increments. A precison of 1 place provides 1/10th or a precison of 3 places provides 1/1000th ma increments, etc..

The Offset column may be used to adjust the analog voltage output (and CO-420T current output) if needed. This may be a positive or negative value. This setting is often used for calibration (such as to zero out a setting)

Shown below are the scale settings for alternate resolutions:

8 BIT: A scale factor of 12.4 will display 20.00ma with a 20.00 input (and scale for the 4 to 20ma range)
10 BIT: A scale factor of 49.5 will display 20.00ma with a 20.00 input
12 BIT: A scale factor of 198 will display 20.00ma with a 20.00 input
16 BIT: A scale factor of 3170 will display 20.00ma with a 20.00 input

LOGGING 4-20ma EVENTS

Click the Setup button in the DAC user interface, check Enable (under Data Logger) and click the Apply button. Click the Data Interval button to select the method (minutes, seconds or event). The event method is the most commonly used and will log an event anytime the analog output voltage changes. The data logging event will be recorded in the format that you have selected under the Analog Output Setup (shown above). Please contact EECI support if other logging requirements are needed.

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