

SPECIFICATIONS:

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 40 ma. plus the external transducer current requirement.

TRANSDUCER POWER SUPPLY VOLTAGE: + 5 volts dc with suffix BBB = 050
 + 12 volts dc with suffix BBB = 120
 The +12 volt transducer power supply output requires that suffix AAA = 150.

TRANSDUCER POWER SUPPLY CURRENT: 200 ma., maximum at + 55 degrees C., ambient.

INPUT SIGNAL FREQUENCY, HIGH RANGE:

100 Hz., maximum with suffix D = 1	500 Hz., maximum with suffix D = 3
200 Hz., maximum with suffix D = 2	1000 Hz., maximum with suffix D = 4
5000 Hz., maximum with suffix D = 6	2000 Hz., maximum with suffix D = 5
10000 Hz., maximum with suffix D = 7	50000 Hz., maximum with suffix D = 9
20000 Hz., maximum with suffix D = 8	

The maximum input frequency on the low range is approximately .67 times the values shown above.

INPUT SIGNAL LEVEL, LOW RANGE: .500 to 100 volts peak to peak, ac.
 In the low range, the input signal is ac coupled and is suitable for use with magnetic pickups.

INPUT SIGNAL LEVEL, HIGH RANGE: Low level, minus .600 volts to plus .600 volts.
 High level, plus 2.40 volts to plus 50 volts.
 In the high range, the input signal is dc coupled and is suitable for use with square wave signals. The low level input signal must be capable of sinking 1.60 ma. of current.

INPUT SIGNAL IMPEDANCE:

Low range:	.47 mf. In series with 100K ohms.
High range:	10K ohms, internal pullup to plus 5 volts dc.

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

ANALOG OUTPUT CURRENT: + 5 ma., maximum with all suffix CCC versions.
 The output current specification is with the power supply voltage equal to 10 volts dc.

ANALOG OUTPUT RIPPLE VOLTAGE: Less than 1% peak to peak at maximum input frequency.

ANALOG OUTPUT VOLTAGE STABILITY AND DRIFT: Better than 1% at unity gain.

ANALOG OUTPUT GAIN ADJUSTMENT RANGE: 75% to 100% of rated input frequency range.

ANALOG OUTPUT ZERO ADJUSTMENT RANGE: 0 to .75 volts dc.

ANALOG OUTPUT RESPONSE TIME: To within 90% of the final value in less than 500 pulses.

OPERATING TEMPERATURE RANGE: - 20 degrees C to + 55 degrees C.
 Extended temperature range operation is available, contact Datatran's Sales Department for availability and price.

GENERAL DESCRIPTION:

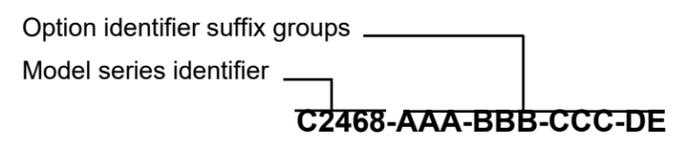
This frequency to voltage module is designed to convert a continuous series of digital pulses into an analog voltage. The input is designed to accept low level pulses from magnetic pickups or high level square wave signals from a shaft encoder. The output voltage is positive with a magnitude proportional to the input signal. This device may be used to provide a unidirectional analog velocity signal that is directly proportional to the output from an encoder connected to a rotating shaft.

This industrial grade module includes a transducer power supply that can be used to operate the input signal transducer. A stable reference that maintains the output signal linearity and drift too less than 1% as the input power supply voltage and ambient temperature are varied over the specified range. The digital input signal is optically isolated from the analog output. When used with multiple power supplies, the isolation feature allows operation with different common reference potentials for the input and output signals.

Each frequency to voltage converter module includes controls to set the output signal zero and span. Jumpers are supplied on the board to select the input signal source type as well as the maximum operating frequency. With the maximum operating frequency set to the low range, the rated output signal will be obtained with input signals of approximately .67 times the high range rated value. The module requires a positive 10 to 30 volt DC power supply for operation.

The circuit board is solder masked. All external connections are made to a barrier type terminal block with #6-32 captive wire clamping screws. All external connections and controls are clearly marked.

PART NUMBERING SYSTEM:



PART NUMBER SUFFIX GROUP EXPLANATION	
SUFFIX	DESCRIPTION
AAA	Minimum power supply voltage
BBB	Transducer power supply voltage
CCC	Rated output signal voltage.
D	Maximum input frequency
E	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.

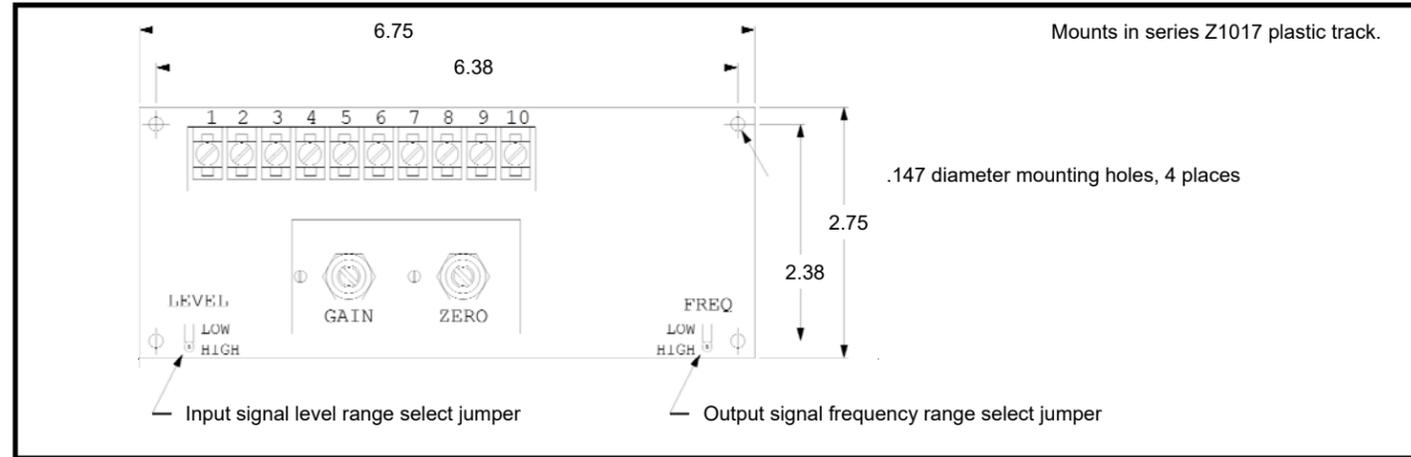
ORDERING INFORMATION:

Refer to the C2468 model series selection sheet for a complete listing of the currently available models.

**DATA SHEET
 FOR
 DATATRAN
 C2468
 FREQUENCY
 TO
 VOLTAGE
 CONVERTER MODULE
 (UNIPOLAR)**

FOR TECHNICAL ASSISTANCE CONTACT
 CONIC SYSTEMS INC.
 11 REBEL LANE, PORT JERVIS, NY 12771
 TEL: (845) 856-4313 FAX (845) 858-2824
 www.conicsystems.com

OUTLINE DIMENSIONS:



APPLICATION INFORMATION:

ANALOG OUTPUT ZERO ADJUSTMENT: Set the input frequency to zero or the minimum value. With the load connected to the output, adjust the "ZERO" control until the output voltage at terminal number 9 reaches a minimum value. Then slowly increase the setting until the output voltage just starts to increase. Note that the output signal common (0 volt) point is terminal number 10.

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. at a sink current of 5 ma.

ANALOG OUTPUT GAIN ADJUSTMENT: Set the input frequency to its maximum value. With the load connected to the output, adjust the "GAIN" control until the required output voltage is obtained at terminal number 9. Note that the output signal common (0 volt) point is terminal number 10.

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

FUNCTION OF THE "LEVEL" JUMPER: With this jumper in the "LOW" position the input signal is AC coupled. In the "LOW" position the input signal transducer should be the magnetic pickup type. The transducer must be capable of supplying drive voltage to a .47 mf. capacitor in series with a 100K ohm resistor.

With this jumper in the "HIGH" position the input signal is DC coupled. In the "HIGH" position the input signal transducer should supply a square wave. This signal line is pulled up to plus 5 volts through a 10K ohm resistor. The transducer must be capable of sinking 1.5 ma. of current in the low state.

FUNCTION OF THE "FREQ" JUMPER: With this jumper in the "HIGH" position the maximum input frequency is defined by the suffix D value. With this jumper in the "LOW" position the input frequency must be limited to approximately .67 times the value defined by suffix D.

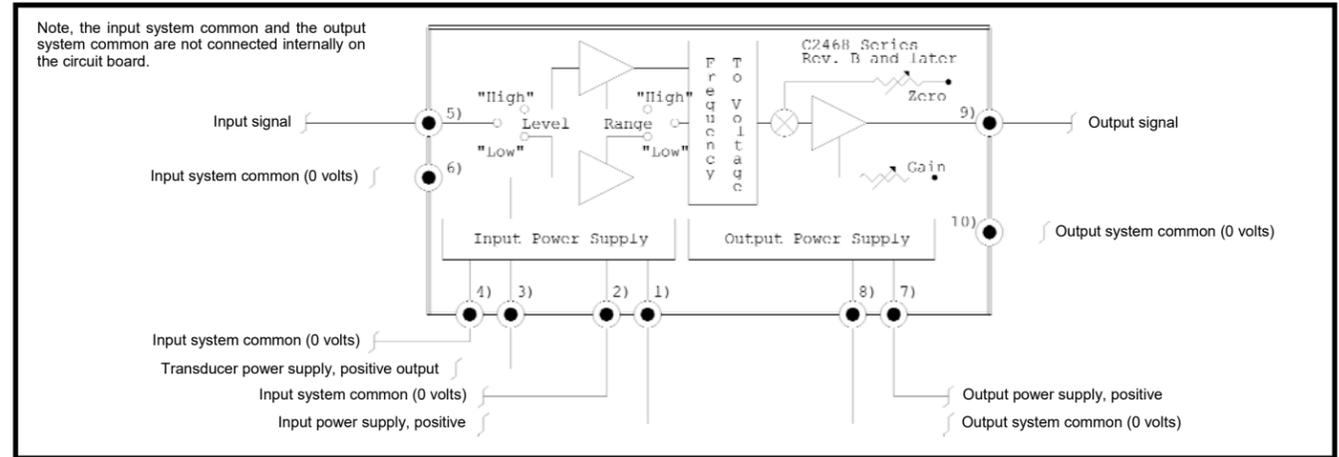
OPERATION AS A FEEDBACK TRANSDUCER SIGNAL CONVERTER: When the frequency to voltage converter is used in the feedback signal path the output signal voltage ripple and the response time required for the signal conversion may cause the process to become unstable. In general, the response time of the conversion module should be at least 5 times faster than the response time of the controlled device. The response time of the module may become a factor with some high response servovalves, in general it will not cause any problems when the board is used with a pump displacement controller. *Datatran does not guarantee stable operation in closed loop applications.*

SIGNAL ISOLATION: When separate power supplies are used for the input and output sections, the input signal is optically isolated from the output. The transducer power supply shares the same common (0 volt) potential as the input section power supply.

EXTERNAL WIRING: All connections to the external input signal transducer must be made with twisted and shielded cable. The shield from the transducer cable should be terminated at terminal 2 on the module only. For optimum performance, the output signal from the module should be twisted and shielded cable. The shield for the output signal wires should be terminated at terminal 8 on the module only.

Do not expose or connect the shields at any point in its run from the signal source to the frequency to voltage converter module. These connections must be run in signal level conduit only.

FUNCTIONAL DIAGRAM:



APPLICATION EXAMPLES:

Unidirectional, hydrostatic, follower drive with the speed reference signal derived from an incremental shaft encoder connected to a rotating shaft on the master drive. The speed of the slave, or follower, drive can be trimmed as required with the ratio potentiometer. Due to the single power supply shared by the input and output sections, no signal isolation is supplied.

