CAROTRON
Driven by Excellence
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Precision Frequency to Voltage Converter Card

Model C11451-000

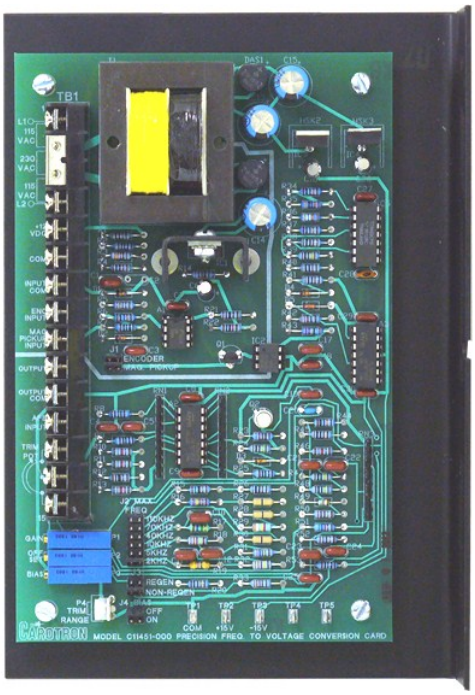
Model C11451-000 Precision Frequency to Voltage card is designed to provide a means of converting digital encoder frequency signals to analog voltage suitable for tachometer feedback control or speed reference in motor control systems.

Sine wave signals of 1 to 20 volts peak at up to 30,000 Hz or square wave signals from 10 to 12 volts peak at up to 100k Hz, 50% duty cycle may be used as input (110k Hz may be used if the square wave has no more than a 25% duty cycle). The frequency signal is optically isolated from the output circuitry so that the signal may also be used with digital instrumentation which may be grounded.

Designed for use with Carotron nonregenerative and regenerative motor controls, Model C11451-000 may also be used with drives from other manufacturers if the feedback can be scaled to work with the nominal 12VDC output range. For regenerative operation, a buffered armature voltage signal must be supplied for the polarity switching circuit. This voltage must be positive with respect to circuit common when the drive requires positive tach feedback and negative when the drive requires negative tach feedback.

An isolated +12VDC power supply rated at 100mA maximum is provided to supply encoders or magneto-resistor sensors. Input ranges of up to 1024 pulses per revolution on motors with a maximum speed of 6000 RPM will provide a nominal output of 0 to 12VDC. Multi-turn potentiometers for OFFSET, GAIN and BIAS are provided to allow precise adjustment for the desired output.

For systems where the output voltage is to be used as a speed reference, terminals are supplied for an optional external TRIM pot. For either manual or dancer control. A single turn TRIM RANGE pot. is supplied on the C11451-000 unit to limit the range of the external TRIM pot.



Standard Features

- Frequency input: sine or square wave
- Signal input: 1 to 20 volt sine or 10 to 12 volt square wave
- Output: -10 to +10 VDC
- Input to output isolation: 460 VAC RMS
- Linearity: ±0.2% of 10 VDC span
- Power supply: +12 VDC, 100mA max.
- Accepts broad range of input frequencies
- Operates from 115/230 VAC power source
- Optically isolated frequency signal
- Multi-turn OFFSET, Bias and GAIN potentiometers for precise adjustment of desired output
- Optional external TRIM potentiometer for manual or dancer control
- Single-turn TRIM RANGE potentiometer
- Jumper selections for a broad range of frequency inputs
- May be used for speed feedback or speed follower

Specifications

AC Input
115/230 VAC +-10%, 50/60 Hz, 9.2 VA max.

Isolation Voltage
460 VAC RMS, 1500 V peak

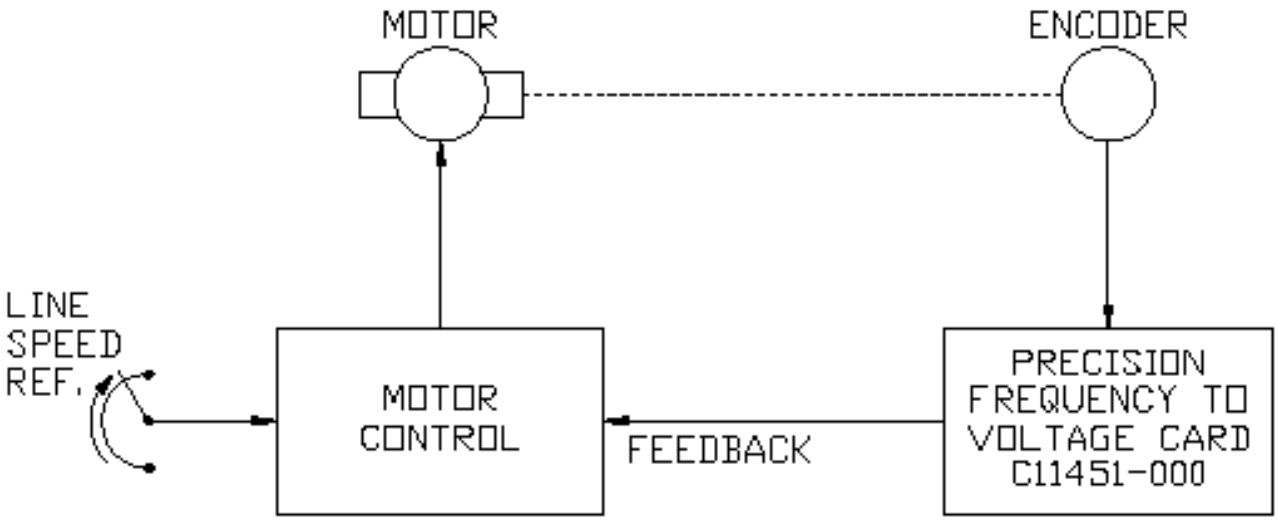
Linearity
+-0.2% of span with output range of 0 to 12VDC with a 10k Ohm load.

Signal Inputs
Square Wave:
10 to 12 V peak with 50% duty cycle at 100,000 Hz. max.
10 to 12 V peak with 25% duty cycle at 110,000 Hz. max.
Sine Wave:
1 to 20 V peak at 30,000 Hz. max.
Buffered Armature:
0 to +10 VDC maximum for positive output
0 to -10 VDC maximum for negative output

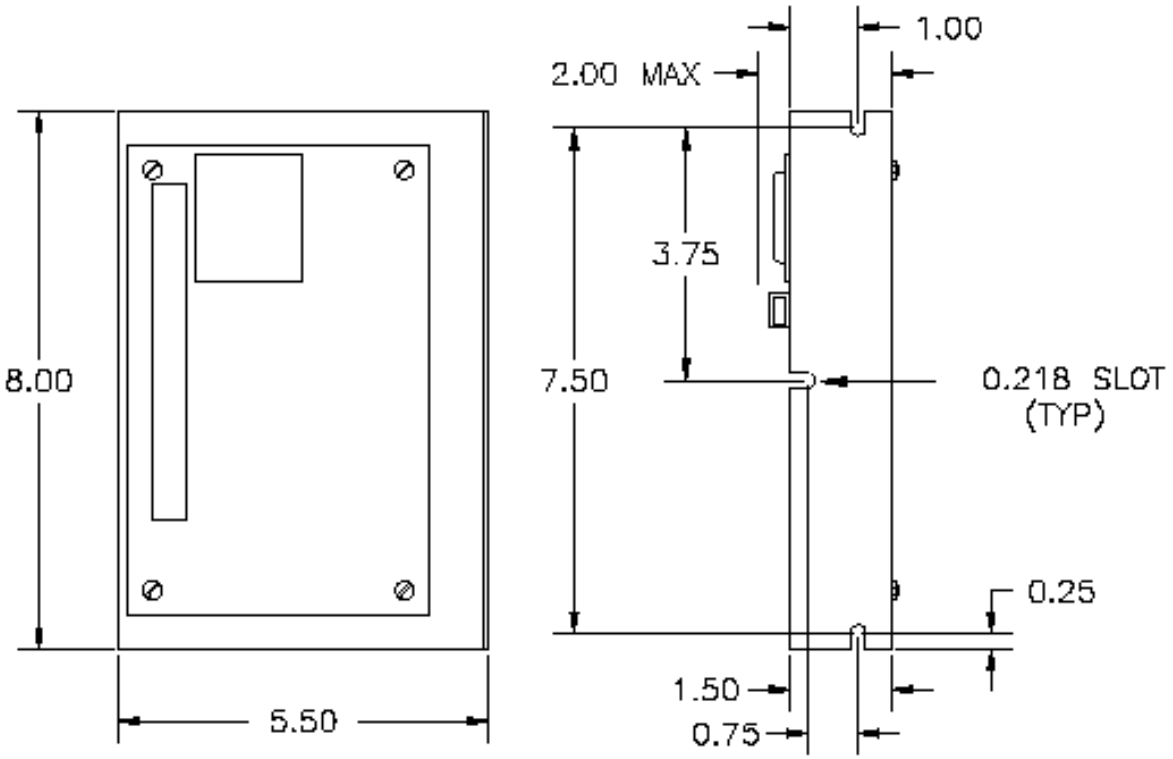
TRIM Potentiometer
An external 10k Ohm potentiometer allows the output to be trimmed. A TRIM RANGE potentiometer on the C11451-000 unit controls the TRIM pot. range from a maximum of 0 to 100% or a minimum of 83 to 100%.

Output
Typical output is 0 to +-10VDC for nonregen operation and -10 to +10 for regen operation. The MAX. FREQ. Jumper, J2 and the GAIN adjustment pot. allow for a wide range of input frequencies.

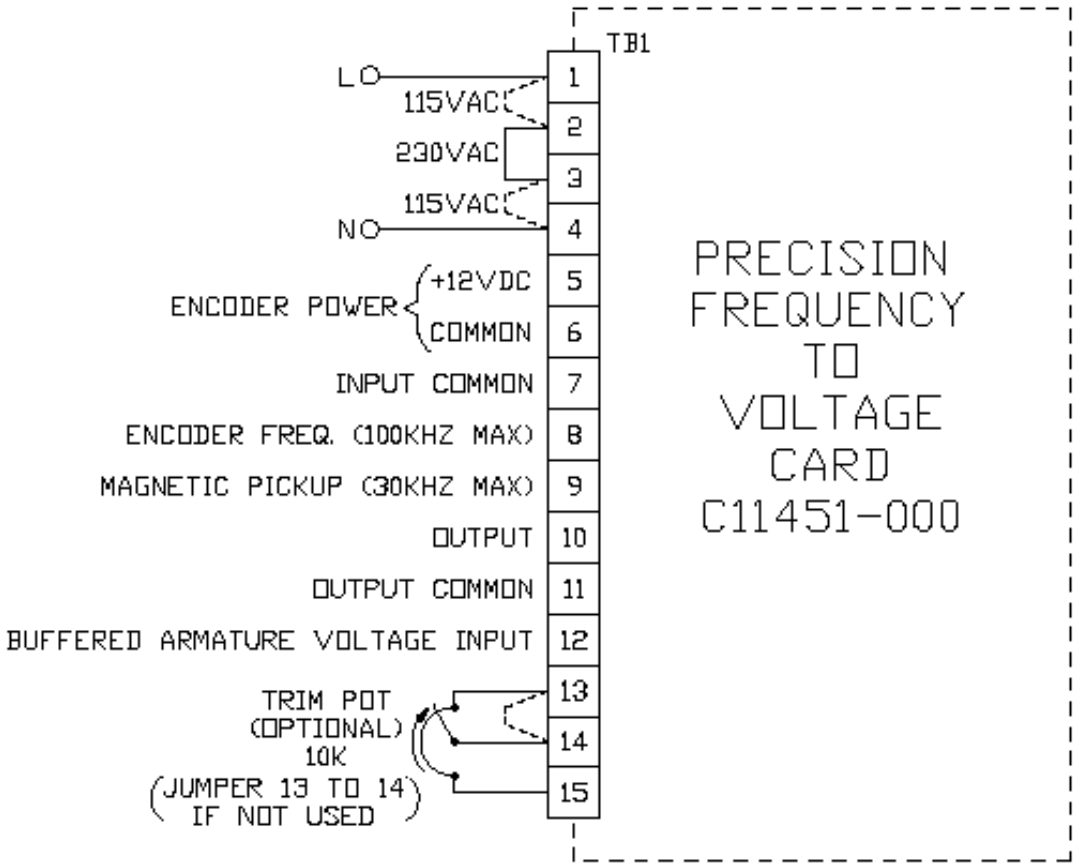
Application Example



Dimensions



Connections



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View or download the complete C11451-000 Instruction Manual (MAN 1027-00) from www.carotron.com .

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