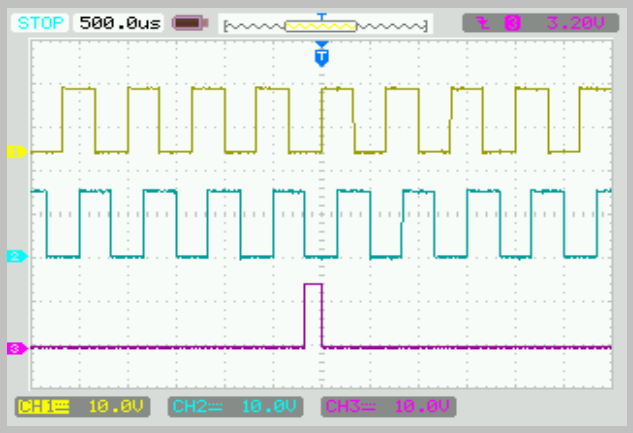
Incremental Encoder Emulator

Model JI-820

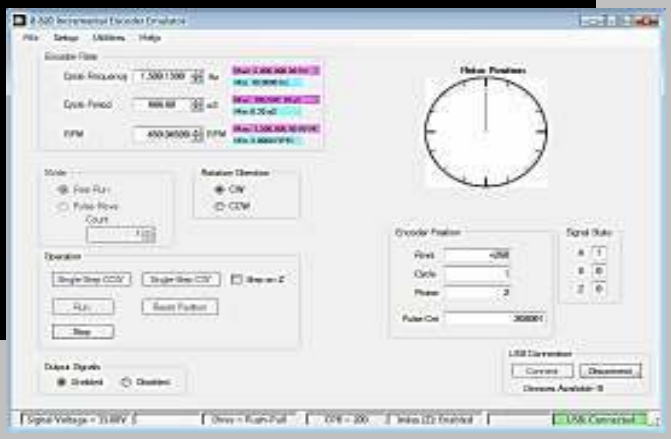
The JI-820 is a flexible, easy-to-use, PC controlled instrument designed to precisely emulate the function of a wide variety of incremental encoders. It provides the design, system, or test engineer with a tool to accurately emulate encoder signals generated by motion control and industrial monitoring systems. Variable encoder parameters include cycles per revolution, cycle frequency, A/B signal phase, Z signal position and polarity, signal amplitude, and selectable signal interface. An intuitive Windows application manages instrument setup and control.

Communications and unit power is provided via a USB 2.0 connection.

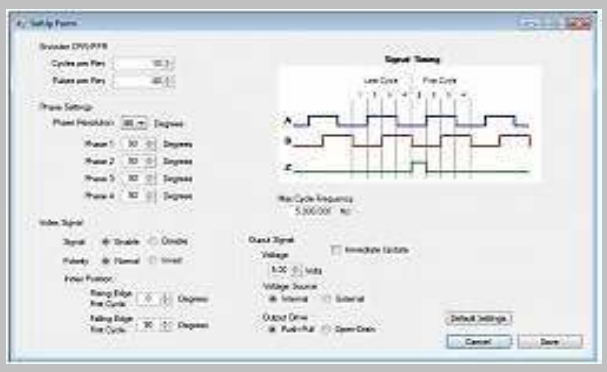
- Emulate/Simulate Rotary and Linear Incremental Encoders
- Programmable Counts-Per-Rev: 4 to 4,000,000
- Adjustable Cycle Frequency: 0.1 Hz to 5.0 MHz (50 nS steps)
- Variable A/B Phase: 10° to 170° in 1° steps (90° nominal)
- Index (Z) Signal: Selectable Polarity (+/- pulse) and Position (+/- 1 cycle)
- Variable Signal Amplitude: Internal 5.0 to 18.0 Volts (100 mV steps), External 5.0 to 30.0 Volts
- Output Interface: RS-422, Open-Drain, Push-Pull, or Push-Pull Complementary



Typical Output Signals (A, B, Z)



Operational Control Panel



Signal Setup Menu

Jupiter Instruments

Unique Instrumentation Products

Ph: 949-716-0154 | www.jupiteri.com
Mission Viejo, CA 92692

Specification subject to change without notice

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Incremental Encoder Emulator
Model JI-820

Jupiter Instruments

Ver 1.4

Electrical Specifications

4/15/2020 Edition

General

Signals	A, /A, B, /B, Z, /Z
Pulses per Revolution (PPR)	Programmable: 1 to 1,00,000
Counts per Revolution (CPR)	Programmable: 4 to 4,00,000
Signal Phase Resolution	Selectable: 1, 5, 10, 45, or 90 degrees

Frequency Range, Cycle

Phase Resolution	Freq. Max.	Freq. Min.	Resolution
90	5.00 MHz	10.0 Hz	50 nS
45	2.50 MHz	5.00 Hz	100 nS
10	555 KHz	1.11 Hz	450 nS
5	277 KHz	0.55 Hz	900 nS
1	55.5 KHz	0.11 Hz	4500 nS

Position Tracking:

Revolutions	-2^{31} to 2^{31}
Cycle	-2^{31} to 2^{31}
Phase	1 to 4

Operational Modes	Free Run, Single-Step, Pulse Move

Index Signal (Z)

Position	Programmable: +/- 1 cycle span (max)
Polarity	Selectable: Positive or Negative Pulse

Output

Type	Selectable: RS-422 Open-Drain Push-Pull Push-Pull Complementary
Voltage Source	Internal or External

Internal

Voltage	Adjustable 5.0V to 18.0V (100mV increments)
Current	Sink: 100 mA (max per signal) Source: 30 mA max per signal (90 mA combined)

External

Voltage	5.0V to 30.0V
Current	Sink/Source: 100 mA (max per signal)

Short-Circuit Protection	Internal and External
Output Control	Enable/Disable Output

Electrical Specifications (continued)

Connector:		
	Type	Standard 9-Pin, D-sub, Female
	Pin-outs	Pin 1 = External Voltage (Input) Pin 2 = Z Pin 3 = A Pin 4 = B Pin 5 = GND Pin 6 = GND Pin 7 = /Z Pin 8 = /A Pin 9 = /B
LEDs		
	Power	Power-On
	Activity	Output Signal Activity
PC Interface		
	Communication	USB 2.0 Full Speed
	Connector	Standard type B socket
	Power	USB supplied Current Draw: 270mA (Nominal) 690mA (Maximum @ max. signal load)

Mechanical and Environmental Specifications

Mechanical	
Dimension	3.3" x 1.1" x 5.0" (WxHxL)
Weight	0.2lbs
Construction	Extruded Aluminum Enclosure
Environmental	
Operating Temp	0C to 45C
Storage Temp	-20C to 70C