ENC-SIM01

Incremental Encoder Simulator Instrument

Increment range .... min 2 to max 99999
Output Frequency ..... Manual or Auto 50 to 500,000

This instrument is designed to simulate the function of most types of incremental encoders; it allows the engineer to fully test a control system that uses a rotary or linear shaft encoder, without the need for any mechanical movement. In addition the user can control the exact number of square wave signals applied to the output, this allows the engineer to control the input pulses generated down to just one pulse, so the user can monitor in slow motion the operation of a control system.

Access to the instrument is through a standard nine pin D type plug, the user simply connects the simulator to the terminals or plug of their control system. The power for the instrument is taken from the control system, it will operate on any voltage from 5 to 30 volts 100mA DC

PLUG WIRING		
	3 = A Output	6 = /A Output
1 = O Volts	4 = B Output	7 = /B Output
2 = + 5 to 30 Volts	5 = O Output	8 = /O Output

EXPLANATION OF CONTOL PANEL

LCD Display Panel 2 X 16 Character 5.5mm x 3mm
RPM: Displays the speed of the output encoder, this is determined by the time taken for each "shaft" rotation. The maximum value for the RPM display is 15,000, if the simulation parameters drive the display faster, the value will display as arrow heads.
MODE: This states the current mode of operation for the programming switches in the panel below
PPR: Displays the number of pulses for one rotation of the simulated shaft encoder that has been programmed into the instrument or it displays the number of increment pulses between each zero pulse.
Count Progress: This is used when in MAN mode so that the user can see the number of signals that have been transmitted to the output.
Frequency: Displays the frequency of the output signals, the minimum value is 10 Hertz

OPERATOR PROGRAMMING BUTTONS

Mode Selection: The red LED at the top of each column shows the function which will be applied to the four programming buttons on the left side of the operator control panel. The two Select buttons below change the selection from one mode to the next.

PPR Mode: To setup the pulses of the encoder to be simulated, the results of the following setting process are shown in the PPR display.
Start: Resets the PPR display to 2, and allows the new selection process to begin.
Select: Increments the right digit under the PPR display by one, each time the button is pressed.
Move: Moves the digit just entered one space to the left, then the Select input is used again to increment the next digit in the number as described above.
Save & Run: Once the desired value is entered, press this button and the "Count Progress" number is resent to zero and the system is ready to run in either "man" or continuously in the "Rate" modes of operation
NOTE 1: The output signal pulse width is determined by the Hertz selected under the RATE mode setup.
NOTE 2: This button will also rest the counter at any time when the RPM selection is operational.

MAN Mode: This mode provides the facility to manually control the number of output signals sent. The progress of this entry is displayed on the "Count Progress" display.
"1": Indexes the output by 1 pulse with each press of the button.
"10" Indexes the output by 10 pulses with each press of the button.
"100" Indexes the output by 100 pulses with each press of the button.
"1000" Indexes the output by 1000 pulses with each press of the button.
NOTE: If there is no output selected (a green LED illuminated) and a pulse train button pressed, the last value selected will output immediately the output is turned on.

RATE: The results of this range setting are displayed on the "Frequency" display, for speeds between the ranges rotate the "Hertz Fine Adjust" knob.

50 - 500: Fifty to five hundred hertz.
500 – 5k: Five hundred to five thousand hertz.
5k – 50k: Five thousand to fifty thousand hertz.
50k – 500k: Fifty to five hundred thousand hertz.

Direction Control: Selects the output wave relationship, this function in an encoder determines the direction of rotation as seen by the control system. The top button produces an output phase with A rising before B, the lower button selection will make B rise before A.

NOTE: No output signals are transmitted until a phase direction is selected, a green LED must be illuminated.

Housing Size: 95mm wide, 150mm long, 30mm high for the button section, and 40mm high at the display end.