PRODUCT MANUAL

ELECTRONIC DISPLAYS INC.
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EDXXXD – 112 – XD – NX

DESCRIPTION:

- (X) inch high digits; (X) digit rate counter configured for Pulses Per Minute.
- Contact closure input IN1 is used to detect slow counts (up to 30Hertz) and IN3 input, is used for fast, no debounce counts.
- Contact closure input IN2 is used to reset counts to 0.

- NEMA (X) aluminum enclosure.
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OPERATION:

This model is designed to display the number of inputs received over a user selectable interval(Factory set to pulses/minute). The rate (frequency) counter is designed to display pulses per minute. The input to be used for this option is IN1 (SLOW). The IN1 input is set for, 16-48 ms debounce . A user selectable de-bounce time is available on the IN1 input.

The FAST (IN3) input has no bebounce time and it is used for fact frequency counts (over 30 Hertz). De-bounce time means that the pulse has to be longer than the selected de-bounce time in order to be detected as a valid pulse. Place a momentary switch between VEXT and IN2 terminal to reset to 0. When the unit is reset, it will display zero for the selected refresh interval.
See appendix B for wiring diagram.
See appendix C for DIP switch setting information.

If there are any questions or comments regarding this order, please call our Toll-free number : 1 - 800 - 367 - 6056

PRODUCT MANUAL

Unpacking Instructions:

A copy of these instructions is packed with each unit. Open carefully to avoid scratching the unit's paint and plastic lens or cutting the line cord.

Mechanical Mounting Instructions:

This unit is equipped with two mounting bolts or eye-bolts in the top of the unit for mechanical mounting purposes.

Power Requirements:

This unit is equipped with a standard, eighteen-gauge, three-wire line cord that is designed to be plugged into a standard, 120 VAC, 60 Hertz, grounded outlet. The maximum current draw for this unit (at 120 VAC) is __1.5__ Amperes.

Power-up Response:

UPON POWER UP, THE UNIT WILL DISPLAY A "0". TO START OPERATION, CONNECT INPUT PULSES TO SLOW "IN1" or FAST TERMINALS.

Label Definitions:

The following page shows some commonly used labels and their definitions. Not all of these labels will be found in your unit.

LABEL	DEFINITION
IN1, IN2, IN3	Optically coupled input, active high, requires 12 milli-amperes of current to activate.
VEXT	"12 VDC" – positive supplied from display.
GND	"12 VDC" return – negative supplied from display.

Customer Power Supply:

If this unit is equipped with optically coupled inputs, these inputs prevent any electrical or electronic signal from passing directly from the outside world into the logic circuits on the printed circuit boards that we have supplied.

For your convenience, we have also supplied this board with an 'isolated customer power supply' that can be used to drive the customer side of these optically coupled inputs. This isolated supply does not have a direct current connection to the power supply that is used to power the display and logic chips. It will provide 12 VDC to 14 VDC at up to 500 milli-amperes of current. This voltage is unregulated.

'Dry' Contact Configuration:

To use 'dry' contacts, the user need only supply a contact closure between the desired optically coupled input and the positive terminal of the 'isolated customer power supply'. The negative terminal of the isolated supply is already connected to the negative side of each optically coupled input. See Figure A.

PRODUCT MANUAL

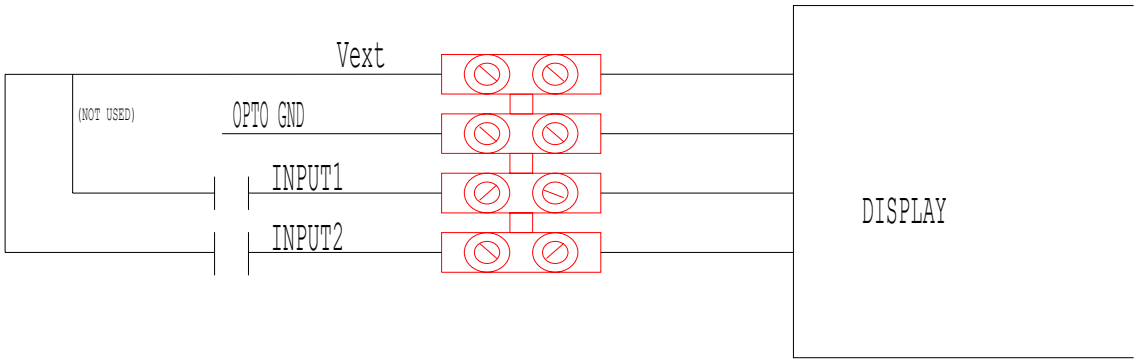

Figure A

'Wet' Contact Configuration:

To use 'wet' contacts, the user must supply his own power to activate the desired optically coupled input. The user may also wish to provide a contact closure in this circuit. The user's power supply must be capable of providing approximately twenty milli-amperes of current at 5 to 24 volts of direct current. If necessary, these inputs can also be ordered for use with higher voltages and / or with alternating current inputs. See Figure B.

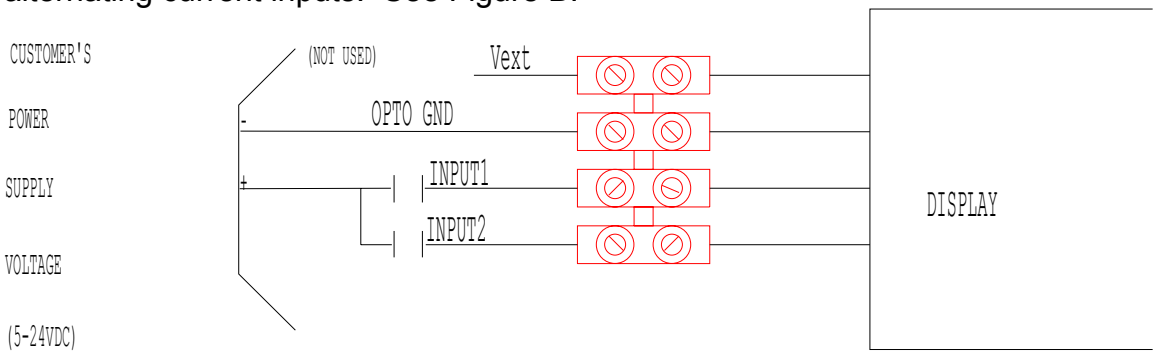

Figure B

Service:

There are no parts in your unit classified as 'user serviceable' parts. The plastic or glass cover can be cleaned using a soft cloth and a gentle glass cleaning solution.

Warranty:

The standard warranty for all products is one year on all parts and labor at our facilities. All products are designed and manufactured by Electronic Displays Inc. If you need assistance, please call or FAX us and we will be happy to provide technical assistance. If you feel that your unit needs repair, please call us first and then ship the unit to:

Electronic Displays Inc.
135 South Church Street
Unit A
Addison, Ill. 60101
Attn: Repair department Our telephone number is: **(630) 628-0658**
Our FAX number is: **(630) 628-0936**

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PRODUCT MANUAL

APPENDIX C:

Display Refresh Selection:

The interval between display updates is controlled by the first two switches of the 'ADDRESS' DIP switch. The available selections are shown in Table 1 below.

'ADDRESS' DIP		REFRESH INTERVAL
SW2	SW1	
OFF	OFF	1 second
OFF	ON	10 seconds
ON	OFF	30 seconds
ON	ON	60 seconds

Table 1

Count Interval Selection:

The period of time over which the count is measured is controlled by switches three and four of the 'ADDRESS' DIP switch. The available selections are shown in Table 2 below.

'ADDRESS' DIP		COUNT INTERVAL
SW4	SW3	
OFF	OFF	P/second PPS
OFF	ON	P/minute PPM
ON	OFF	P/hour PPH
ON	ON	P/24 hours PPD

Table 2

Input Averaging Selection:

The user can select between displaying the 'raw' rate count and an 'averaged' rate count. In the 'averaged' mode, the displayed value is an average of the newest 'raw' rate and the previously displayed value. If 'ADDRESS' DIP switch 5 is in the 'ON' position, the 'raw' rate is displayed and if 'ADDRESS' DIP switch 5 is in the 'OFF' position, the 'average' rate is displayed.

Example, if the unit is being used to display pulses per minute with a refresh rate of once per second and in three consecutive seconds, the unit receives 3, 4, and 5 pulses the 'raw' display would be 180, 240, and 300. For the same inputs, the 'averaged' display would be 180, 210, and 255 (ramping up more slowly).

Fixed Trailing Zero's:

If the user wishes, fixed trailing zeros can be appended. As an example, this could be used to make '10' appear as '100'. The available selections are shown in Table 3 below.

'ADDRESS' DIP		TRAILING ZERO'S
SW7	SW6	
OFF	OFF	none
OFF	ON	one
ON	OFF	two
ON	ON	three

Table 3

Display Type Selection:

The type of display is controlled by the first three switches on the 'FUNCTION' DIP switch. These switches will be set at the factory and should not be changed in the field. If they are changed, the display may not work at all.

Input Debounce Selection:

The amount of time that a pulse must be present to be accepted (and missing to represent the end if the pulse) can be selected by switches 5 and 6 on the 'FUNCTION' DIP switch. If the input signal is 'noisy' (a relay contact for example), a longer debounce time will eliminate extra counts.

If the input signal is 'clean' (a TTL output for example), a shorter debounce time will allow higher rates. The available selections are shown in Table 4 below.

'FUNCTION' DIP		DEBOUNCE TIME (milliseconds)
SW6	SW5	
OFF	OFF	16
OFF	ON	48
ON	OFF	80
ON	ON	112

Table 4

Other DIP Switches:

The remaining switch positions are not used and will have no effect on the unit. These switches are: 'ADDRESS' DIP switch position 8, 'FUNCTION' DIP switch positions 4, 7, & 8.