



*Manufacturers of Process
Controls and Instrumentation*

Instruction Manual

Model: *NTC-7X-FRX*

Function: *Non-Isolated Frequency Converter*

Frequency (Adj. 5 Hz to 10 Khz)

Output: X=1: 1-5mA Input: X=4: 10-50mA
 X=2: 4-20mA X=5: 1-5 VDC
 X=3: 0-1 mA X=6: 0-10 VDC
 X=7: _____

Power: 24 VDC, 80 mA

Serial #: _____
(If special or required)

For Technical Assistance And Questions Call
USA: (231) 788-2900 CANADA: (905) 660-5336

Restocking Policy

All product returned to Pribusin Inc. in prime condition (not damaged, scratched or defaced in any way) within seven (7) months from the original date of shipment is subject to a 50% restocking charge. All product must be accompanied by a Return Authorization number (RA number) which must be obtained from Pribusin Inc. prior to returning any product.

After seven (7) months from the original date of shipment, products cannot be returned for restocking.

Custom designed products, modified products or all non-standard products may not be returned for restocking.

Warranty Policy

Pribusin Inc. warrants equipment of its own manufacture to be free from defects in material and workmanship, under normal conditions of use and service, and will replace any component found to be defective, on its return to Pribusin Inc., transportation charges prepaid, within one year of its original purchase. Pribusin Inc. will extend the same warranty protection on equipment, peripherals and accessories which is extended to Pribusin Inc. by the original manufacturer. Pribusin Inc. also assumes noliability, expressed or implied, beyond its obligation to prelace any component involved. Such warranty is in lieu of all other warranties, expressed or implied.



Standard Features:

DIN-Rail Mounted (small size)

Wide Input Frequency Ranges (from 5 Hz to 10 KHz)

Industry Standard Output: 4-20 mA, 1-5 VDC, more (see back)

Special Low Frequency Input Version Available - Model NTC-7X-FRL (from 0.005 Hz to 10 Hz)

Easy Field Calibration (Typ. calibration time < 2 min. using handheld meter only)

Microprocessor Controlled for High Accuracy

24 VDC Supply for Open Collector Input or Dry Contact Input

Power: 24 VDC

High Noise Rejection

CSA and NRTL Approved

Function:

The NTC-7X-FRX is a microprocessor controlled Frequency to analog output converter that is easily field configurable to any frequency input from 0-5 Hz to 0-10 KHz. Adjustments to the input settings can be made while the instrument is operating. This flexibility combined with easy field calibration allows for the fine tuning of a process on site with little effort. All that is required to change the calibration settings is a voltmeter and a small screwdriver.

A special low frequency input version (FRL) is available for frequency inputs between 0.005 Hz and 10 Hz.

For more specialized frequency inputs, another instrument the NTC-7X-FRW offers more flexibility by providing adjustability for both the 0% input frequency and the 100% input frequency. This allows for a specific frequency window to be extracted. See Model NTC-7X-FRW Data Sheet.

Calibration:

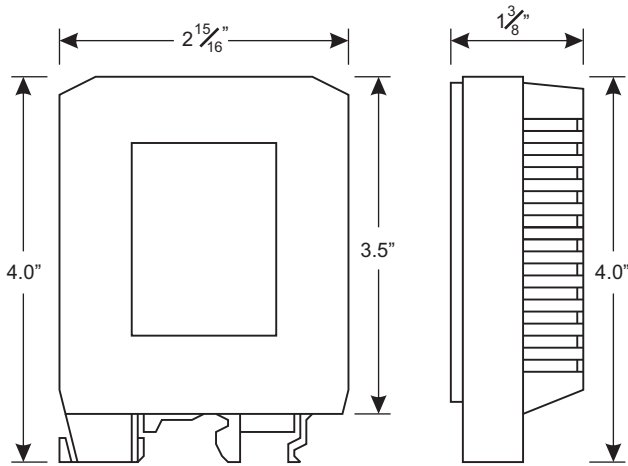
The NTC-7X-FRX has 11 input frequency ranges that are selectable via jumpers inside the instrument. Each range offers full adjustability from its minimum to its maximum frequency via a multi turn potentiometer. The potentiometer has a test point where a voltage of 0-5 VDC indicates a setting of 0-100%. This allows for easy field calibration with the instrument running.

Specifications:

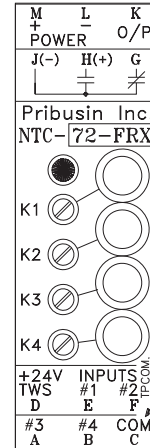
Accuracy/Linearity: +/-0.3% max., +/-0.1% typ.
Operating Temperature: -40 Deg.C. to +50 Deg.C.
Temperature Effects: +/-0.5% max., 0.2% typ.
(for 40 Deg.C. change)

NTC-7X-FRX

Dimensions:



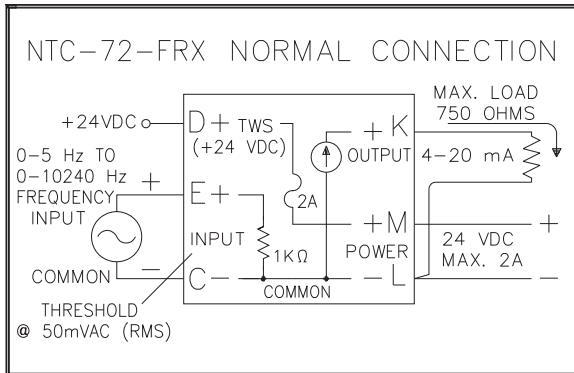
Calibration:



Calibration is made easy by multi turn potentiometers with test jacks for meter connection.

Connection:

Shown here for 4-20mA Output



Model Designation:

NTC-7X-FRX

Output

Other Models

- 1: 1-5 mA (3000 Ohm Drive)
- 2: 4-20 mA (750 Ohm Drive)
- 3: 0-1mA (15000 Ohm Drive)
- 4: 10-50 mA (250 Ohm Drive)
- 5: 1-5 VDC (Zout=250 Ohm)
- 6: 0-10 VDC (Zout=500 Ohm)
- 7: Special Output

- FRL: Low Input Frequency
- FRW: Frequency Window (See NTC-7X-FRW)
- FRT: Frequency Trip (See NTC-7X-FRT)

Example: A Frequency Converter with a 1-5 VDC output with 24 VDC power is designated by: NTC-75-FRX

Options: (Add letters to end of Model Number)

R - RS485 Serial Output

Manufactured By:

Pribusin Inc.

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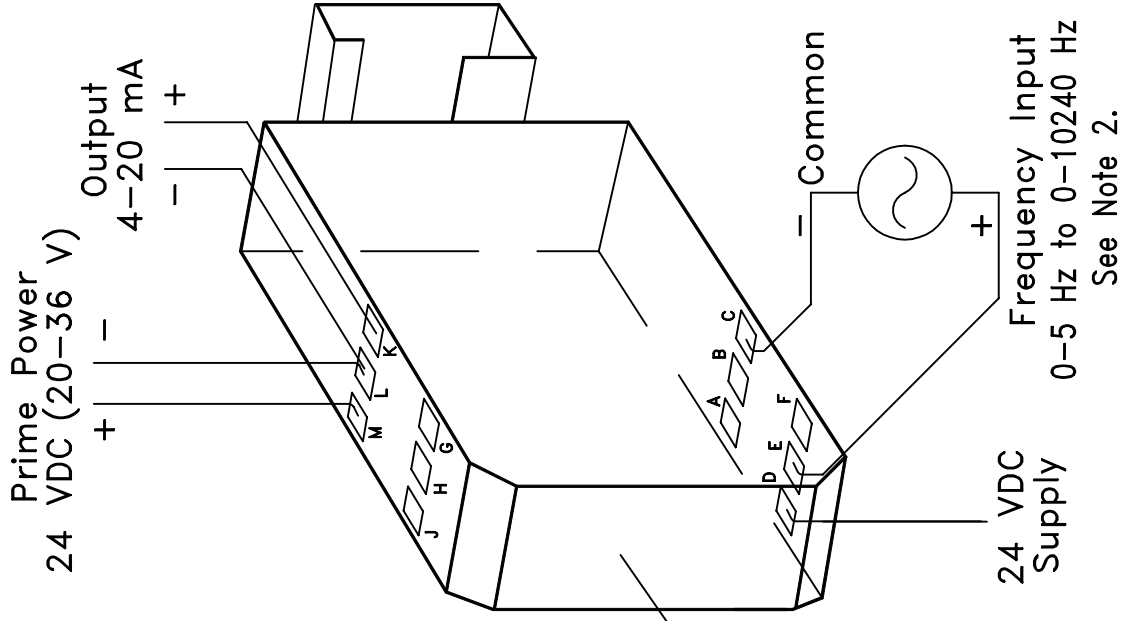
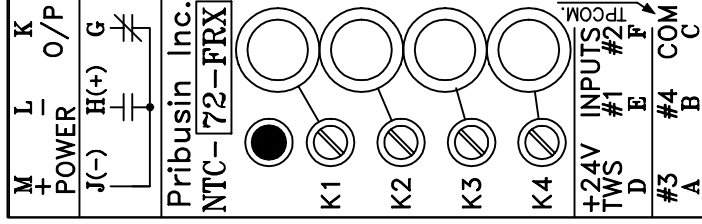
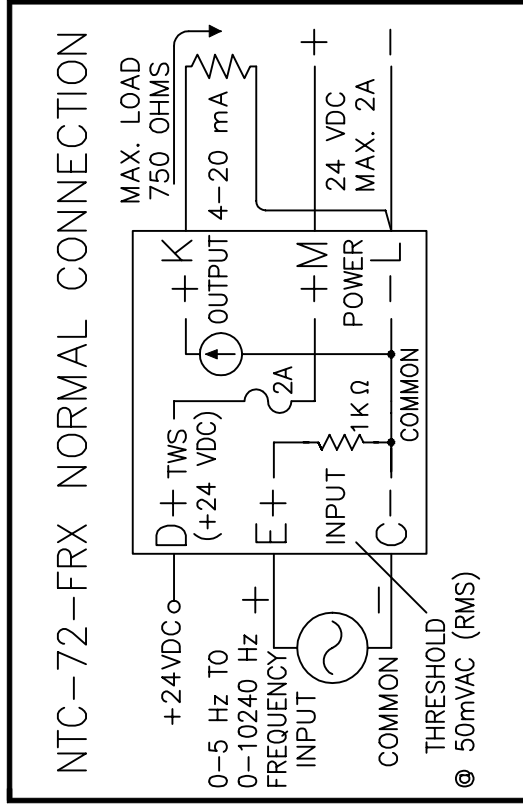
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Fx: (905) 660-4068



Notes:

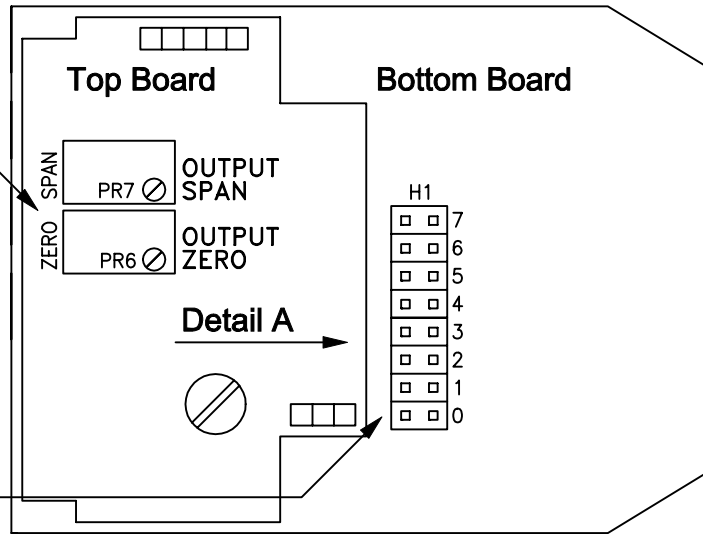
1. For Details of Terminal Block Enclosure/Din Rail See Dwg. 104385.
2. A special low frequency input version (NTC-7X-FRL) is available for frequency inputs of 0-0.005 Hz to 0-10.24 Hz.

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CHKD:	DATE: SEPT. 15/94	DRN: KS	
Model: NTC-72-FRX Frequency Converter Connection Diagram			
DWG. NO. :	105054	REV. A	

Output Calibration :

Note : This unit is factory calibrated, and normally requires NO adjustments.

1. Put in Jumper 6(H1). See Detail A.
2. Adjust OUTPUT ZERO until output signal is 4 mA.
3. Move Jumper to 7(H1).
4. Adjust OUTPUT SPAN until output signal is 20 mA.
5. Repeat procedure starting at 1. until output signal is correct.
6. Remove Jumper from 7(H1).



Maximum Frequency Range	JUMPER (H1)			
	3	2	1	0
0-10 Hz	OUT	OUT	OUT	OUT
10-20 Hz	OUT	OUT	OUT	IN
20-40 Hz	OUT	OUT	IN	OUT
40-80 Hz	OUT	OUT	IN	IN
80-160 Hz	OUT	IN	OUT	OUT
160-320 Hz	OUT	IN	OUT	IN
320-640 Hz	OUT	IN	IN	OUT
640-1280 Hz	OUT	IN	IN	IN
1280-2560 Hz	IN	OUT	OUT	OUT
2560-5120 Hz	IN	OUT	OUT	IN
5120-10240 Hz	IN	OUT	IN	OUT

Table A

Potentiometer	Function
K1	Input Span
K2	Not used
K3	Not used
K4	Not used

Input Frequency Calibration :

Full Range Capacity : 0-5 Hz to 0-10240 Hz (Selectable)

The following steps must be performed when a change in the input frequency range is required.

Setting a new input frequency range involves two operations.

- 1) Selecting the maximum frequency range by jumpers on header H1.
- 2) Adjusting the K1 (Input Span) potentiometer to the exact frequency within the selected range.

1) Selecting the Maximum Frequency Range :

Choose a jumper setting from Table A such that the maximum input frequency is in the selected range.

For example : for a frequency of 0-1000 Hz choose maximum frequency range setting 640-1280 Hz.

2) Maximum Frequency Adjustment :

The K1 (Input Span) potentiometer is used to set up the exact maximum input frequency after a range has been selected.

TP1 indicates the setting of the potentiometer as a voltage of 0-5 VDC with respect to TPCOM..

To calculate that voltage use the following formula :

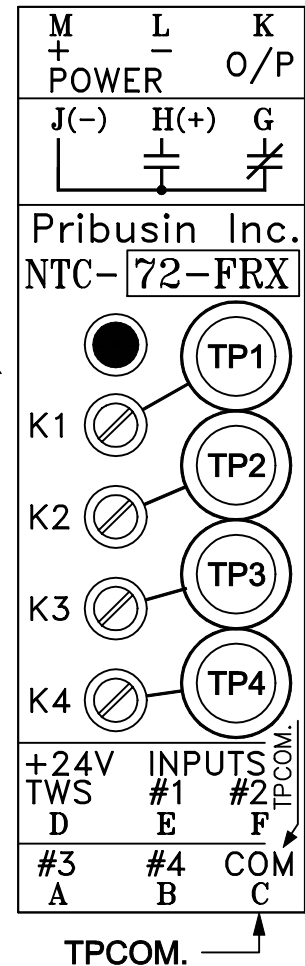
$$TP1 = 5 \times \left[\frac{\text{Max. Range Freq.}}{\text{Max. Input Freq.}} - 1 \right] \text{ VDC}$$

* Example for Input Frequency of 0-1000 Hz :

1. Select the Max. Freq. Range (640-1280 Hz) from Table A.
2. Find TP1 setting for 1000 Hz

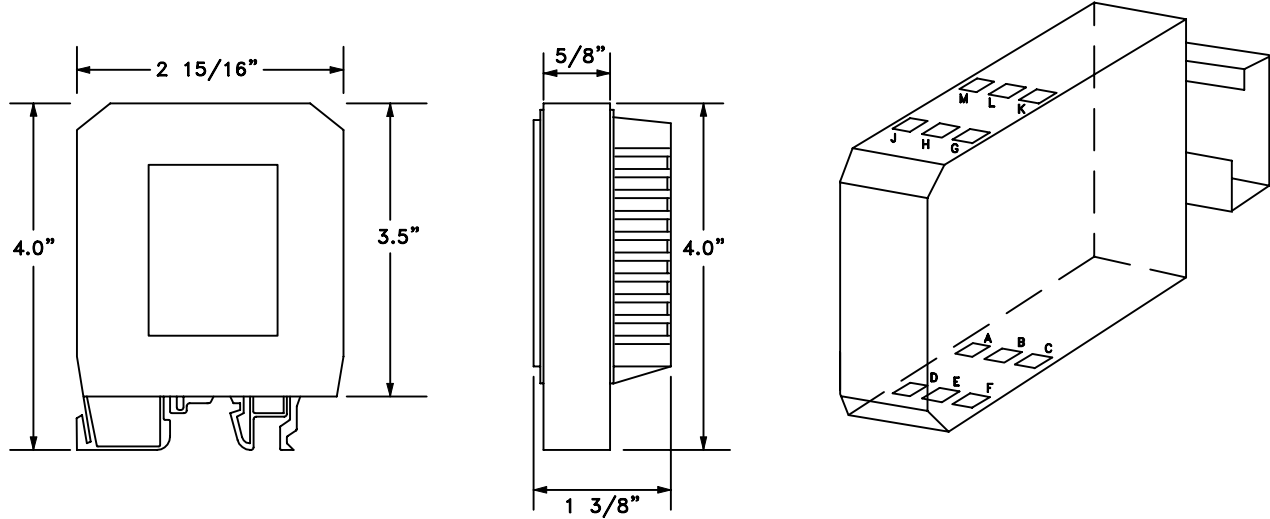
$$TP1 = 5 \times \left[\frac{1280}{1000} - 1 \right] \text{ VDC} = 5 \times [1.28 - 1] \text{ VDC} = 1.40 \text{ VDC}$$

3. Set TP1 Pot. to 1.400 VDC (Input Calibration is Complete.)



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CHKD:	DATE: SEPT. 15/94	DRN: KS
Model: NTC-72-FRX Frequency Converter Calibration Procedure		
DWG. NO. :	105055	REV. A

Enclosure Detail :



Din Rail Detail :

	<p>A</p> <p>Rail Standard EN 50 035 Dimensions: 32 x 15 x 1.5 mm</p>
	<p>B</p> <p>Rail Standard DIN EN 50 022 Dimensions: 35 x 15 x 2.3 mm</p>
	<p>C</p> <p>Rail Standard DIN EN 50 022 Dimensions: 35 x 7.5 x 1 mm</p>
	<p>D</p> <p>Rail Standard DIN EN 50 022 Dimensions: 35 x 15 x 1.5 mm</p>

<p>Pribusin Inc. ©</p>		
CHKD:	DATE: APR. 26/93	DRN: KS
<p>(Wide Cover) Terminal Block Enclosure/ Din Rail Detail</p>		
DWG. NO. :	104385	REV. B