



*Manufacturers of Process  
Controls and Instrumentation*

# ***Instruction Manual***

Model: *IUC-7X-FRX*

Function: *Isolated Frequency Converter*

Input: *Frequency (Adj. 5 Hz to 10 Khz)*

Output:  X=1: 1-5mA       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:  117 VAC, 50/60 Hz  
 24 VDC, 160 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:

- High Input-Output-Power Isolation (1500VAC Test)
- 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 IUC-7X-FRL (from 0.01 Hz to 10 Hz)
- Easy Field Calibration (Typ. calibration time < 2 min. using handheld meter only)
- Microprocessor Controlled for High Accuracy
- 24 VDC and 12 VDC Supply for Open Collector Input or Dry Contact Input
- Power: 117 VAC 50/60 Hz (Optional 24 VDC)
- High Noise Rejection
- CSA and NRTL Approved (LR 51078)

### Function:

The IUC-7X-FRX is a microprocessor controlled Frequency to analog output converter that is easily field configurable to any frequency input from 0-10 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 0.01 Hz and 10 Hz.

For more specialized frequency inputs, another instrument the IUC-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 IUC-7X-FRW Data Sheet.

### Calibration:

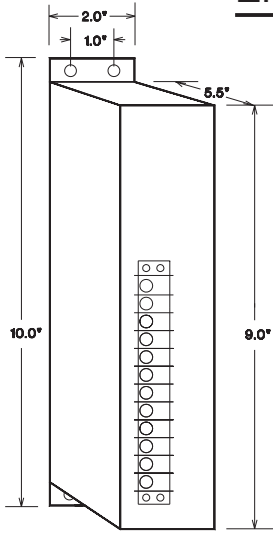
The IUC-7X-FRX has 11 input frequency ranges that are selectable via jumpers inside the instrument. Each range offers full adjustability from its minimum to its maximum frequency via a multi turn potentiometer. The potentiometer has a test point where a voltage of 0-5 VDC indicates a setting of 0-100%.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

### Specifications:

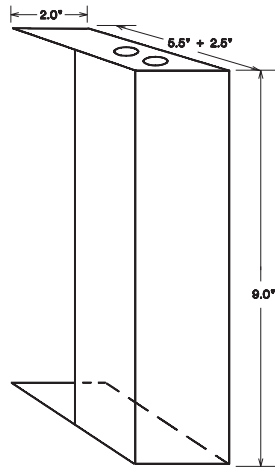
- Isolation: Input to Output to Power 1500 VAC (test)
- Accuracy/Linearity: +/-0.3% max., +/-0.1% typ.
- Operating Temperature: -40 Deg.C. to +50 Deg.C.
- Temperature Effects: +/-0.5% max., 0.2% typ. (for 40 Deg.C. change)

# IUC-7X-FRX

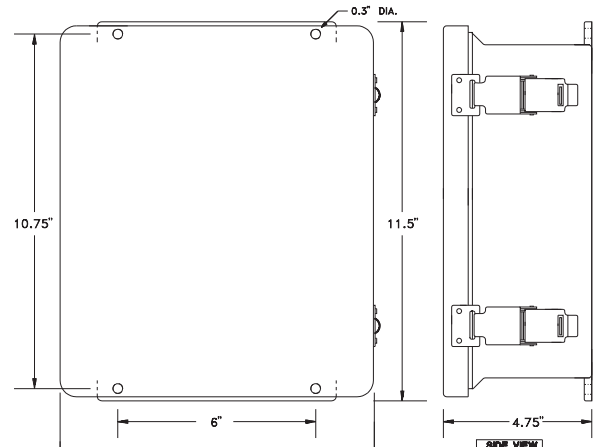
## Enclosures & Dimensions:



Standard Metal Enclosure

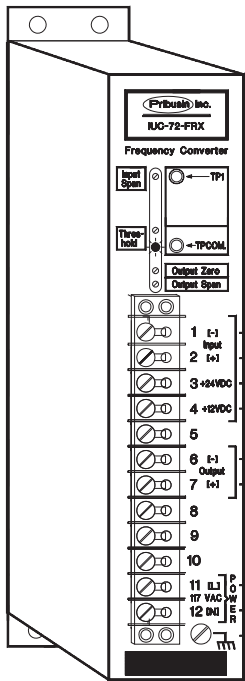


Conduit Cover Option  
for Metal Enclosure

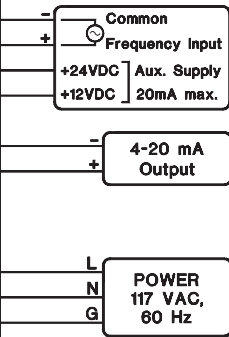


NEMA 4X Option

## Connection:



Shown here for  
4-20mA Input  
and Output



## Model Designation:

IUC-7X-FRX

Output

Other Models

- 1: 1-5 mA (4000 Ohm Drive)
- 2: 4-20 mA (1000 Ohm Drive)
- 3: 0-1mA ( 20000 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 IUC-7X-FRW)
- FRT: Frequency Trip  
(See IUC-7X-FRT)

Example: A Frequency Converter with a 1-5 VDC  
output in a metal enclosure with 24 VDC  
power is designated by: IUC-75-FRX-A

If no options specified, unit is 117 VAC Power in metal enclosure

## Options: (Add letters to end of Model Number)

- A - 24 VDC Prime Power
- B - 240 VAC Prime Power (not CSA approved)
- T - 200 mA Two Wire Supply (24 VDC unreg.)
- C - Conduit Cover for Metal Enclosure (see above)
- N - NEMA 4X enclosure (see above)

Manufactured By:

**Pribusin Inc.**

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info@pribusin.com

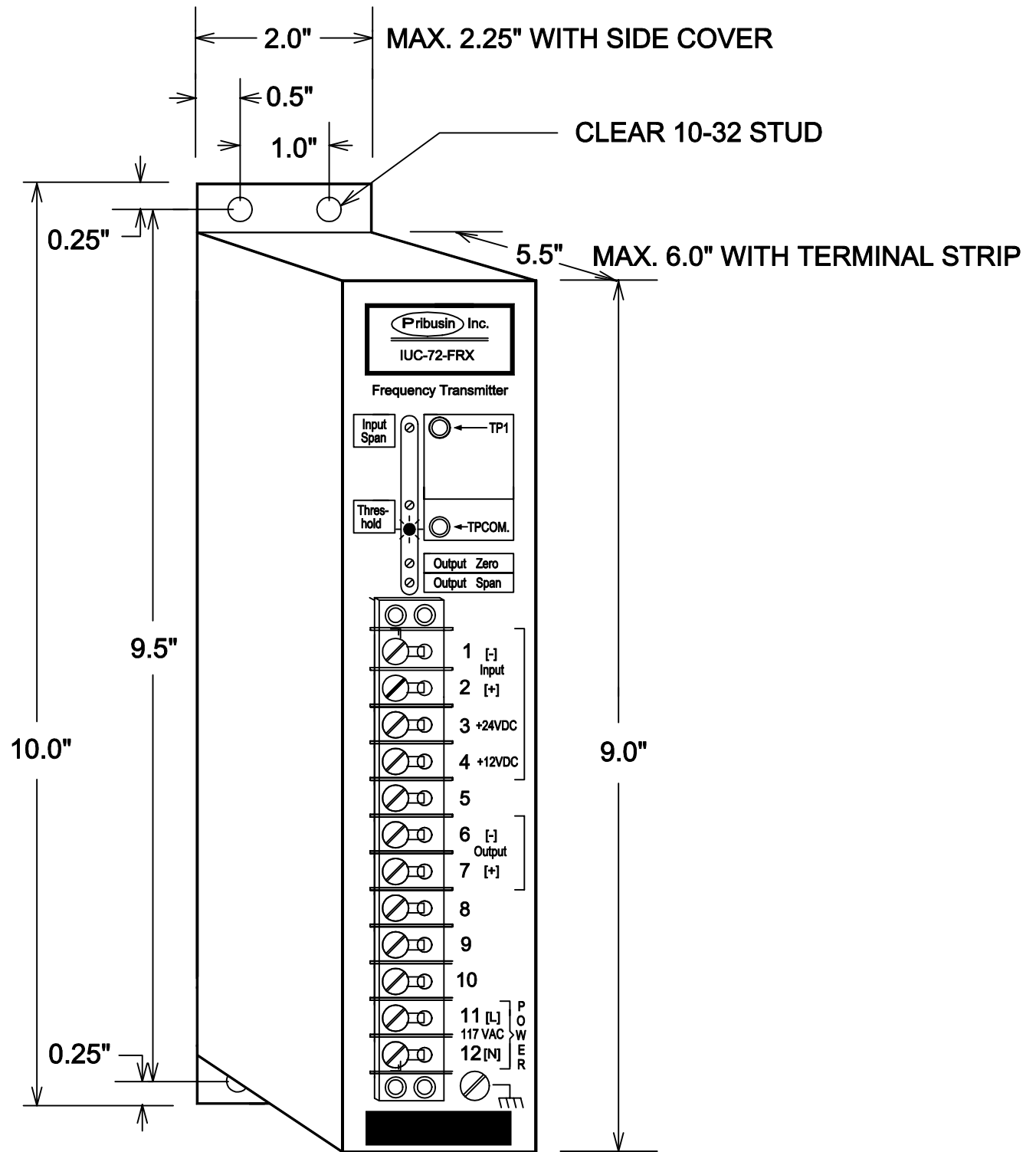
### USA:

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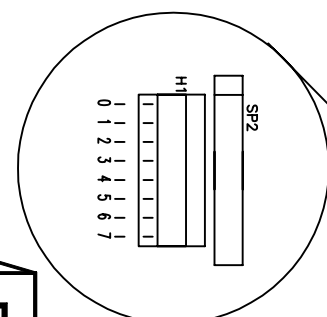
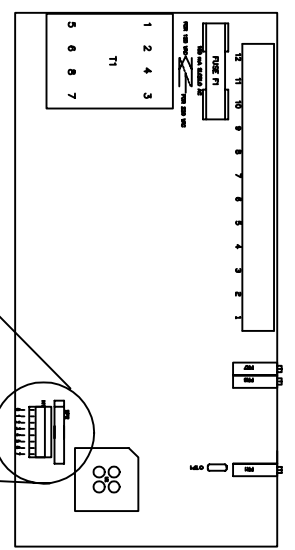


### CANADA:

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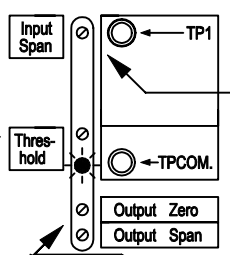


<b>Pribusin Inc. ©</b>		
CHKD:	DATE: NOV. 17/92	DRN: KS
Model: IUC-72-FRX Frequency Transmitter Enclosure Drawing		
DWG. NO. :	104115	REV. A



**Pribusin Inc.**  
**IUC-72-FRX**

Frequency Transmitter



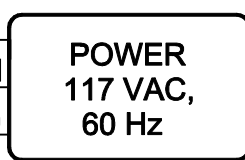
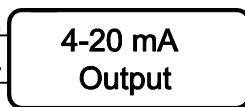
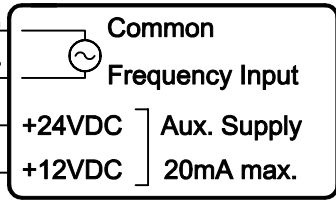
**Threshold adjust for input signal :**

- turn clockwise to increase attenuation, counter-clockwise to decrease it.
- adjust so that LED comes on in sync. with frequency input.  
(Note : LED will appear ON continuously above 30 Hz.)

**Note :**  
For Input Calibration see dwg. 104116-2

**Output Calibration :**

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).



**Note :**

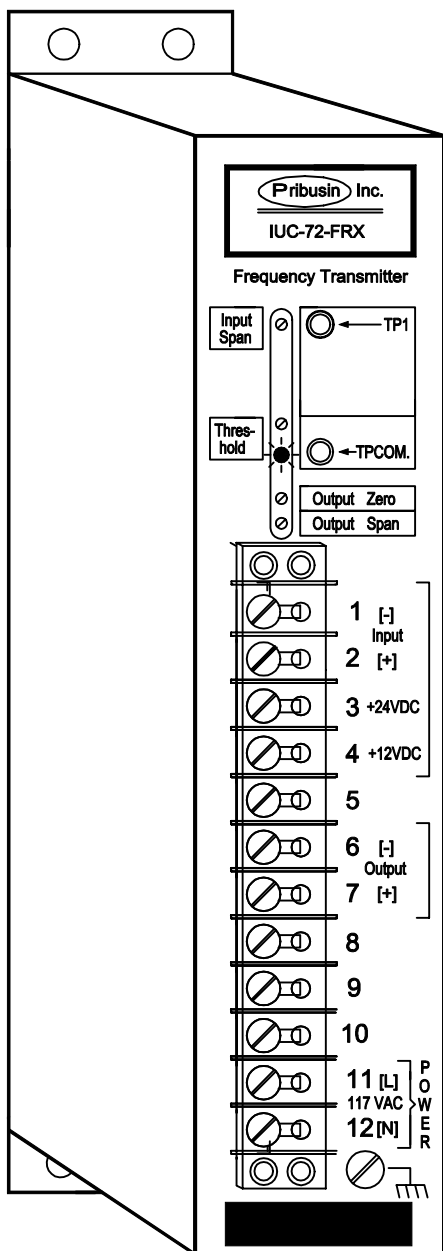
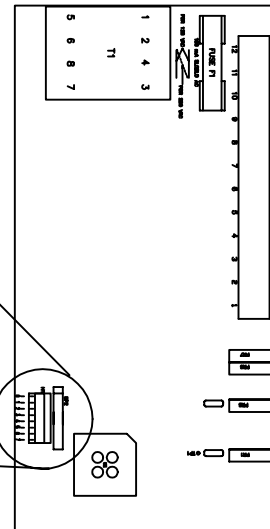
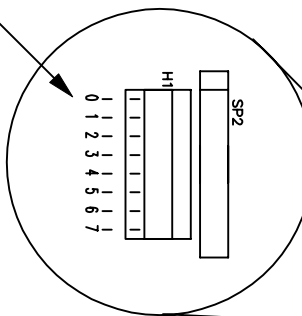
- 1) Threshold  $\approx$  150 mVAC  
(For Threshold  $\approx$  1 mVAC Remove R25)

<b>Pribusin Inc. ©</b>		
CHKD:	DATE: NOV. 17/92	DRN: KS
Model: IUC-72-FRX Frequency Transmitter Connections/Calibration		
DWG. NO. : 104116-1 Sht. 1 of 2		REV. B

Table A

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

Detail A



**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 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 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: NOV. 17/92	DRN: KS
Model: IUC-72-FRX Frequency Transmitter Connections/Calibration		
DWG. NO. : 104116-2 Sht. 2 of 2		REV. A