Pribusin Inc.

Manufacturers of Process Controls and Instrumentation

Instruction Manual

Model: *IUC-XX-LNT*

Function: *Isolated Integrator with Linearizer*

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

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

Output: ☐ Dry Contact ☐ 24 VDC Pulse

Power:
- ☐ 117 VAC, 60 Hz, 6 VA
- ☐ 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.

Pribusin Inc.

Manufacturers of Process Controls and Instrumentation

Model: IUC-XX-LNT

Isolated Integrator With Linearizer

NRTL/C

Standard Features:

High Input-Output-Power Isolation (1500VAC Test)

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

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

Standard Built-in Linearizations (Linear, Square Root, 1.5 Power)

Other Linearizations Available

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

Microprocessor Controlled for High Accuracy

Two Wire Supply Option for Two Wire Transmitters

Power: 117 VAC 50/60 Hz (Optional 24 VDC)

High Noise Rejection

CSA and NRTL Approved (LR 51078)

Function:

The IUC-XX-LNT is a microprocessor based integrator with linearizer. It has one analog input, one analog output and a contact (or pulse) output. The contact or pulse output is the integrated output of the analog input. The integration range can be easily adjusted to anything from 0.25 CPH (counts per hour) to 8192 CPH. The integration output can be either a dry contact or a 24 VDC pulse.

Two built-in linearizing functions can be activated via jumpers and the IUC-XX-LNT will then first linearize the input before integrating it. The two functions are Square Root and 1.5 Power. The analog output reflects the linearized input if a linearization has been activated. Otherwise it is a linear follower of the input.

Calibration:

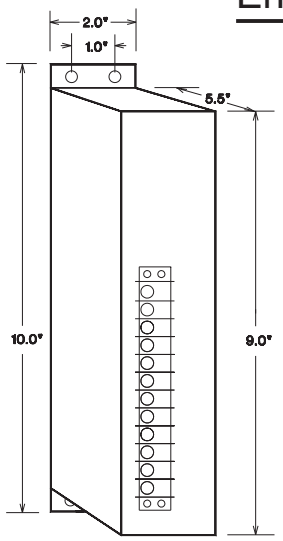
Two potentiometers, Integ. Span and Drop Out, are used for the integration constant and lower limit linearization drop out. Each of the pots has a test point associated with it. The Test Points show a voltage of 0-5 VDC for a parameter value of 0-100%.

Specifications:

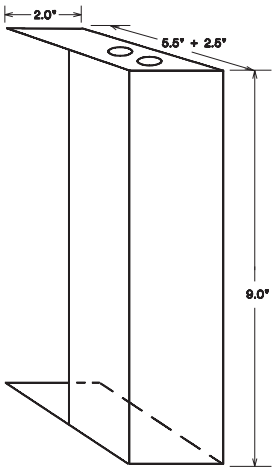
Isolation: Input to Output to Power 1500 VAC (test)
Accuracy/Linearity:+/- 0.3% max., +/- 0.1% typ.
Operating Temperature: -40 Deg.C. to +50 Deg.C.
Temperature Effects: +/-0.5% max., +/-0.2% typ.
(for 40 Deg.C. change)
Contact Rating: 10A 1/8HP @ 125VAC
6A 1/8HP @ 277VAC

IUC-XX-LNT

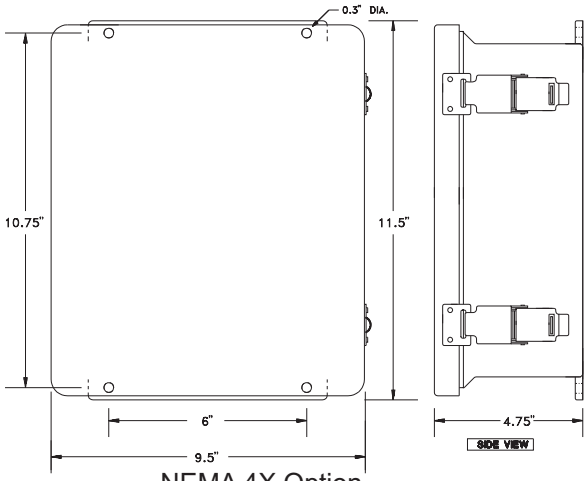
Enclosures & Dimensions:



Standard Metal Enclosure

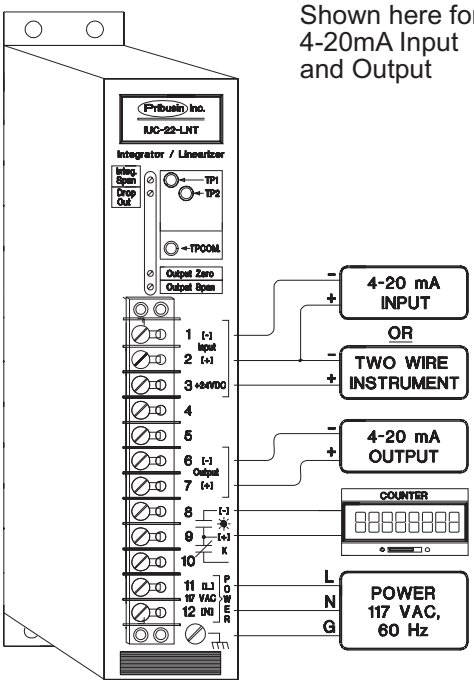


Conduit Cover Option
for Metal Enclosure



NEMA 4X Option

Connection:



Shown here for
4-20mA Input
and Output

Model Designation:

IUC-X X-LNT

Input

1: 1-5 mA (Zin=1K Ohm)
2: 4-20 mA(Zin=250 Ohm)
3: 0-1mA (Zin=5K Ohm)
4: 10-50 mA (Zin=100 Ohm)
5: 1-5 VDC (Zin=1Meg Ohm)
6: 0-10 VDC (Zin=1Meg Ohm)
7: Special Input

Output

1: 1-5 mA (4000 Ohm Drive)
2: 4-20 mA (1000 Ohm Drive)
3: 0-1 mA (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

Example: Integrator with 4-20 mA Input and 4-20 mA Output and 24V pulse output in standard metal enclosure is designated by:IUC-22-LNT-P

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)
P - 24 VDC Pulse Output (Instead of 'C' Contact)
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:

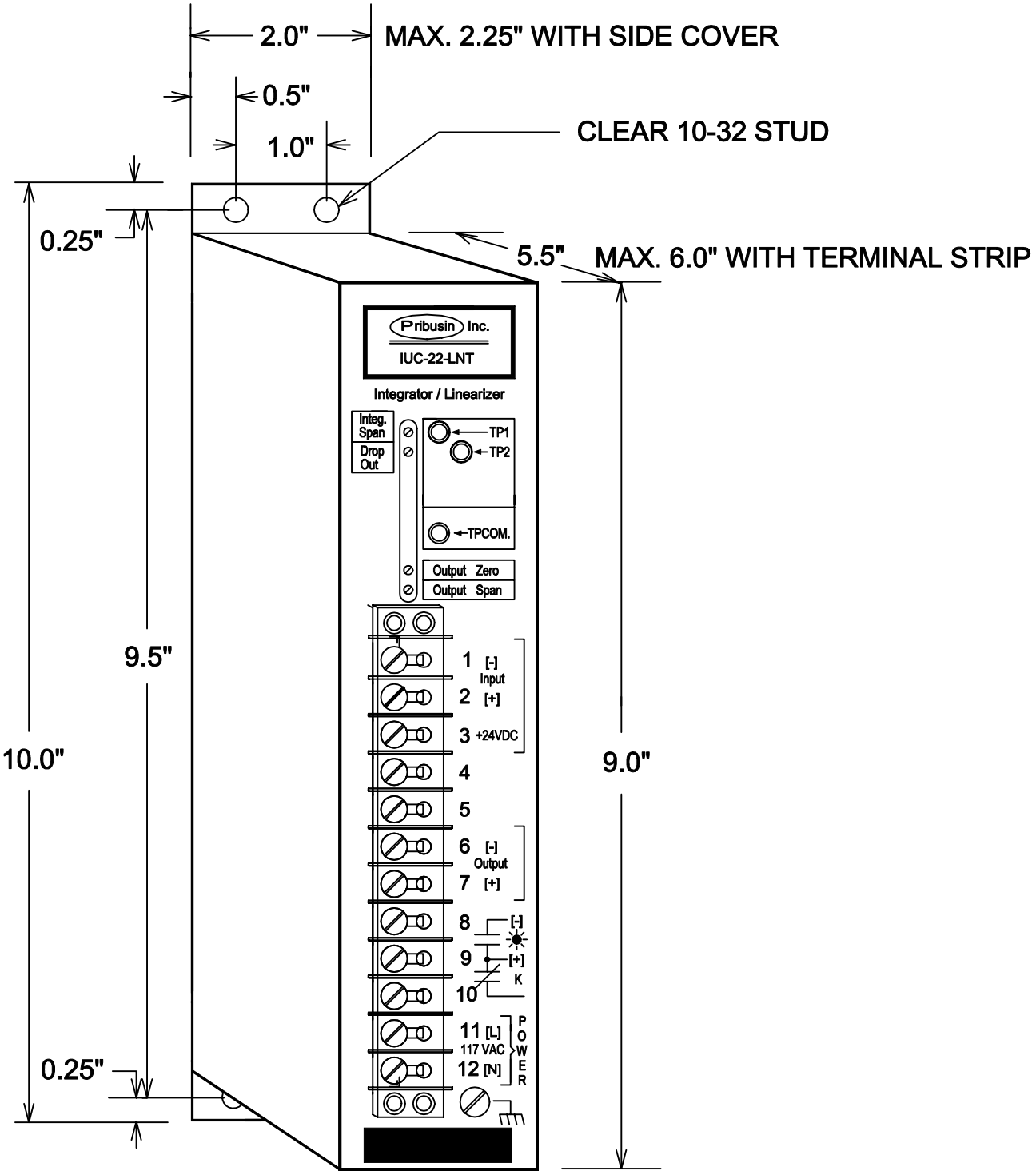
Pribusin Inc.

www.pribusin.com
info@pribusin.com

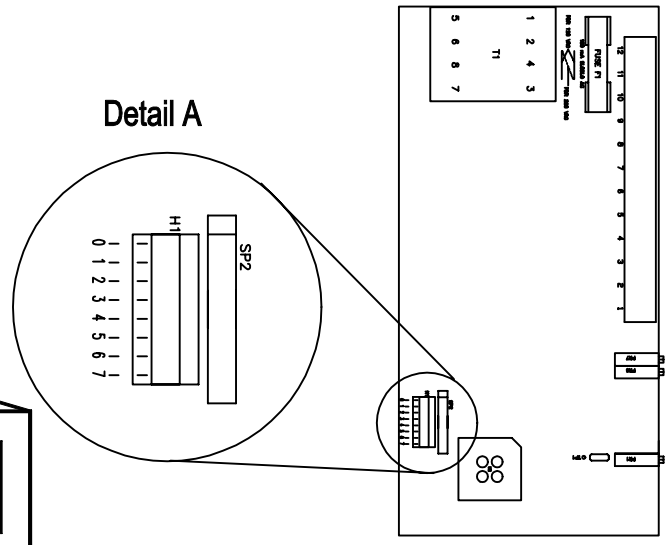
USA:
Pribusin Inc.
743 marquette Ave.
Muskegon, MI 49442
Ph: (231) 788-2900
Fx: (231) 788-2929

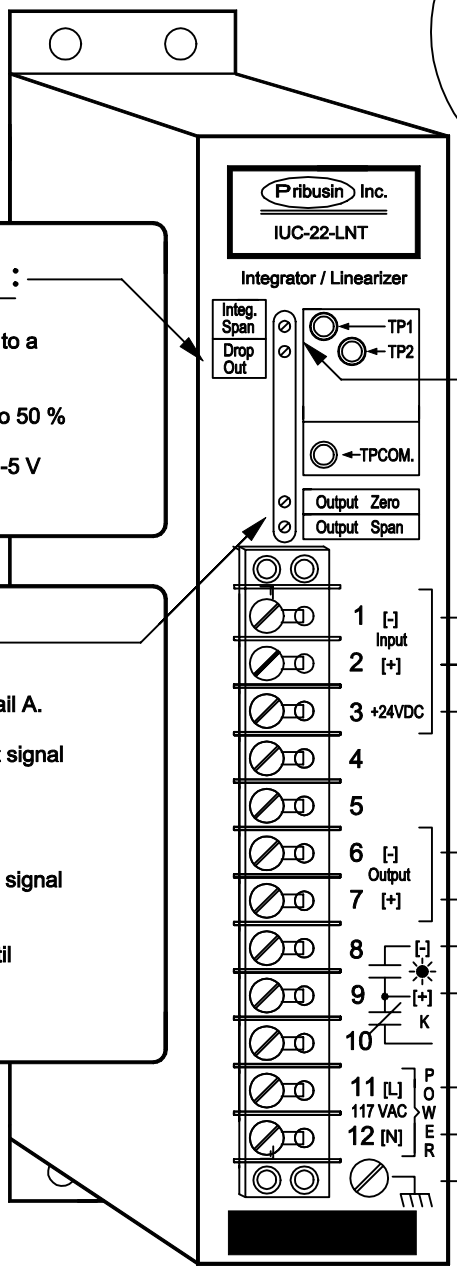
CANADA:
Pribusin Inc.
101 Freshway Dr. Unit 57
Concord, Ontario, L4K 1R9
Ph: (905) 660-5336
Fx: (905) 660-4068

Rev.A Subject to change without notice



Pribusin Inc. ©		
CHKD:	DATE: DEC. 01/92	DRN: KS
Model: IUC-22-LNT Integrator / Linearizer Enclosure Drawing		
DWG. NO. : 104129		REV. A





Drop Out Calibration :

1. Adjust DROP OUT Potentiometer to a desired value.
2. Note Drop Out adjustable from 0 to 50 % (Based on Output).
   This corresponds to a voltage of 0-5 V at TP2 with respect to TPCOM.

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 :

For Integration Range Calibration see dwg. 104130-2.

- 4-20 mA INPUT
- OR
- TWO WIRE INSTRUMENT
- 4-20 mA OUTPUT
- COUNTER — Electronic Totalizing Counter
  [+], [-] refer to +24V Pulse Output (Option). For detail see dwg 104131.
- L, N, G — POWER 117 VAC, 60 Hz

Linearization Selection :

JUMPER (H1)	OUTPUT FUNCTION
H1-5 IN	Square Root (D.P.Cells)
H1-4 IN	Power 1.5 (WEIR)
H1-5 and H1-4 OUT	Linear

Note : 4-20 mA Output and Integrator Output are per Linearization Selection.

Pribusin Inc. ©

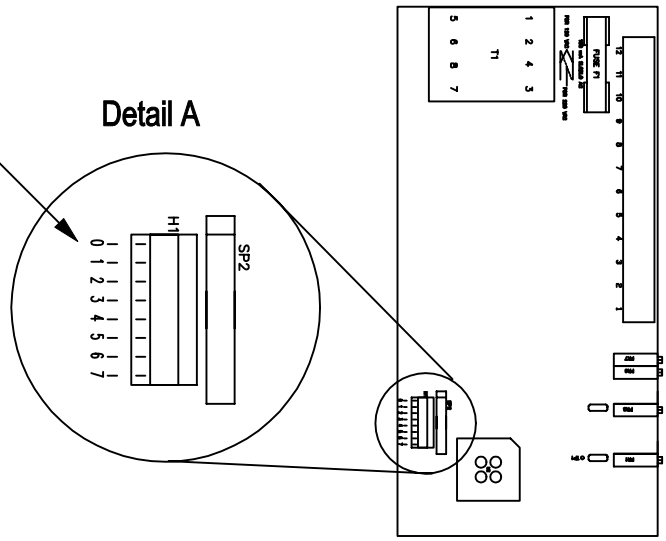
CHKD:	DATE: DEC. 01/92	DRN: KS

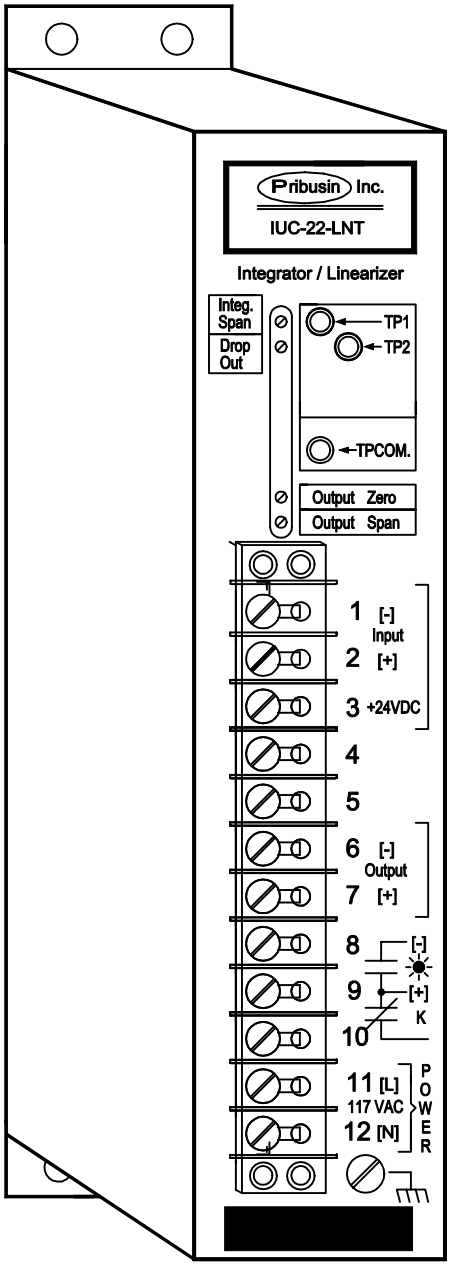
Model: IUC-22-LNT
Integrator / Linearizer
Connections/Calibration

DWG. NO. : 104130-1 Sht. 1 of 2 REV. A

Table A

Maximum Integration(CPH) Range (CPH - Counts Per Hour)	JUMPER (H1)			
	3	2	1	0
4096-8192 CPH	OUT	OUT	OUT	OUT
2048-4096 CPH	OUT	OUT	OUT	IN
1024-2048 CPH	OUT	OUT	IN	OUT
512-1024 CPH	OUT	OUT	IN	IN
256-512 CPH	OUT	IN	OUT	OUT
128-256 CPH	OUT	IN	OUT	IN
64-128 CPH	OUT	IN	IN	OUT
32-64 CPH	OUT	IN	IN	IN
16-32 CPH	IN	OUT	OUT	OUT
8-16 CPH	IN	OUT	OUT	IN
4-8 CPH	IN	OUT	IN	OUT
2-4 CPH	IN	OUT	IN	IN
1-2 CPH	IN	IN	OUT	OUT
0.5-1 CPH	IN	IN	OUT	IN
0.25-0.5 CPH	IN	IN	IN	OUT





Integration(CPH) Range Calibration :

Full Range Capacity : 0-0.25 CPH to 0-8192 CPH (Selectable)

The following steps must be performed when a change in the Output CPH range is required.

Setting a new Output CPH range involves two operations.

1) Selecting the maximum CPH range by jumpers on header H1.

2) Adjusting the INTEG. SPAN potentiometer to the exact CPH within the selected range.

1) Selecting the Maximum CPH Range :

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

For example : for an Output CPH of 0-100 CPH choose maximum CPH range setting 64-128 CPH.

2) Maximum CPH Adjustment :

The INTEG. SPAN potentiometer is used to set up the exact maximum CPH 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 :

$$TP1 = 10 \times \left[\frac{\text{Max. Output CPH}}{\text{Max. Range CPH}} - 0.5 \right] \text{VDC}$$

∗ Example for Output CPH of 0-100 CPH :

1. Select the Max. CPH Range (64-128) from Table A.
2. Find TP1 setting for 100 CPH

$$TP1 = 10 \times \left[\frac{100}{128} - 0.5 \right] \text{VDC} = 10 \times \left[0.78125 - 0.5 \right] \text{VDC} = 2.8125 \text{ VDC}$$

3. Set TP1 Pot. to 2.8125 VDC. (Calibration is Complete.)

Note :

To convert CPH (Counts Per Hour) to CPM (Counts Per Minute) divide CPH by 60.

i.e 1 CPH = 1/60 CPM

Pribusin Inc. ©

CHKD:	DATE: DEC. 01/92	DRN: KS

Model: IUC-22-LNT
Integrator /Linearizer
Connections/Calibration

DWG. NO. : 104130-2 Sht. 2 of 2	REV. A