MODEL K-5105

LOOP POWERED INDICATOR

OPERATION

AND

INSTRUCTION MANUAL

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#1104-K5105-IM-Rev 0

INTRODUCTION

Model K–5105 is a two wire indicator for 4–20mA process signals. Process variables such as Temperature, Flow, Pressure, Level, etc., are digitally displayed in Engineering units or in percentage.

4–20mA current can be displayed to two decimal accuracy. Additional power source is not required as the operational power for the unit is derived directly from the current loop.

A 3½ digit 12.7 mm (0.5") LCD display provides the readout to ±1999 counts with 3 jumper selectable decimal points. The instrument is also programmable for zero ranges within the entire calibration range of the the instrument which is jumper selectable to achieve zero suppression or elevation. Multi turn potentiometers are provided for adjusting Zero and Span for any calibration range required for the application.

The indicator is housed in panel mounted enclosure and weatherproof / flameproof enclosure suitable to Gr.IIA, IIB & IIC of IS:2148

INSTALLATION INSTRUCTIONS

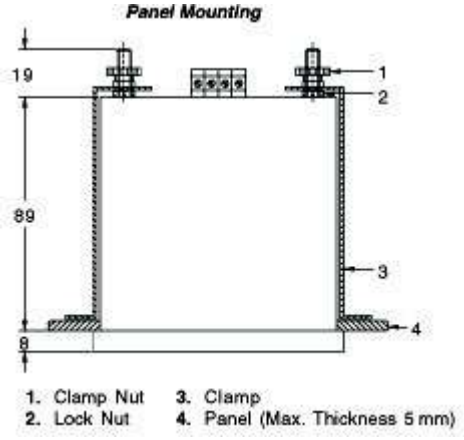
Panel mount:
- Unscrew the two clamp nuts on the rear and pull out the clamp.
- Insert the instrument through the cutout from the panel front.
- Fit the clamp by inserting from the rear over the 2 screws.
- Tighten the clamp nut.

Field mount:
The cast aluminium weatherproof or flameproof housing is wall mounting type for which 2 nos. of 7mm diameter holes are provided on the base of the casting.

Optional 2" pipe mounting is also possible to mount the weatherproof / flameproof enclosure. Relevant mounting plate, u-bolt and nuts are required to be used with instrument for pipe mounting.

Important installation notes:
- Enclosure is W/P only when all entries and joints are suitably sealed.
- Use certified cable gland when not supplied by SWITZER.
- Mounting plate and clamps not supplied for Direct Mounting option.

Fig-1: Overall Dimensions – Panel mount



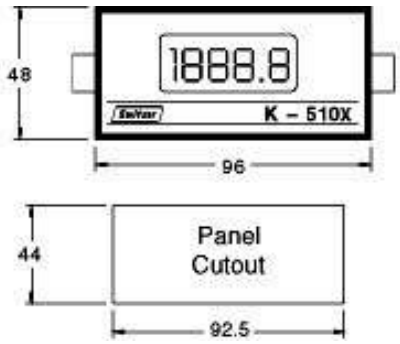
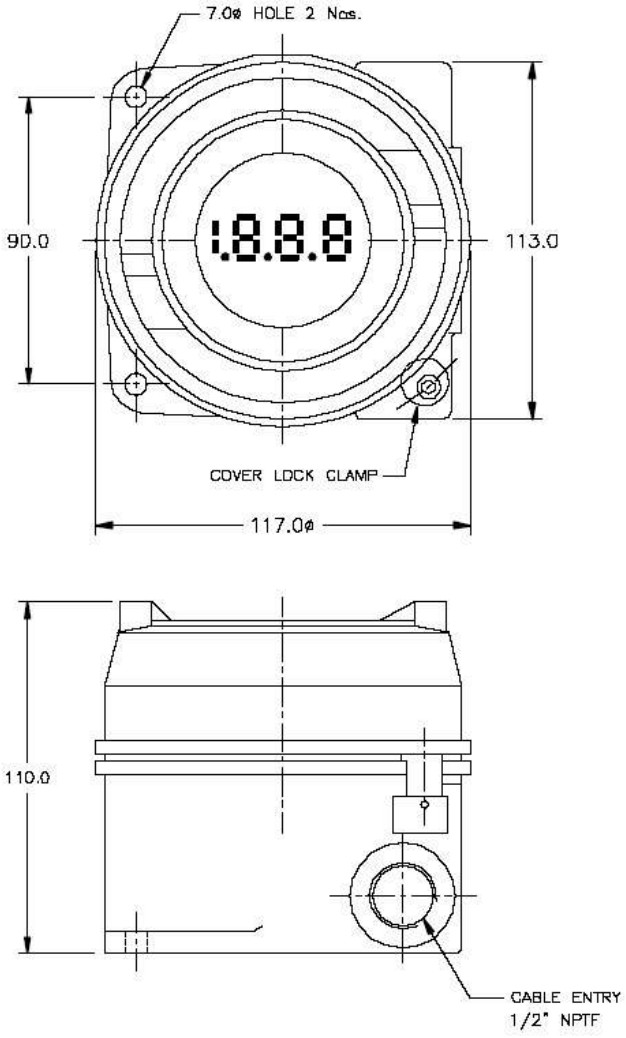


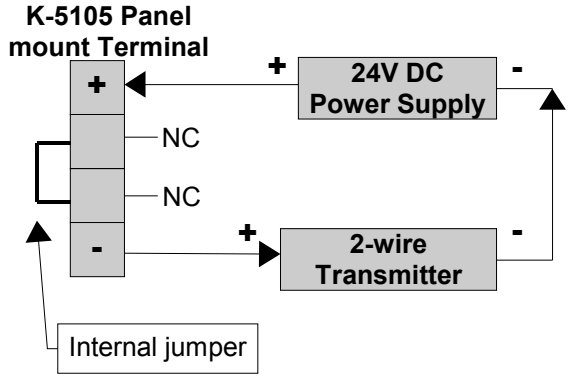
Fig-2: Overall Dimensions – Field mount



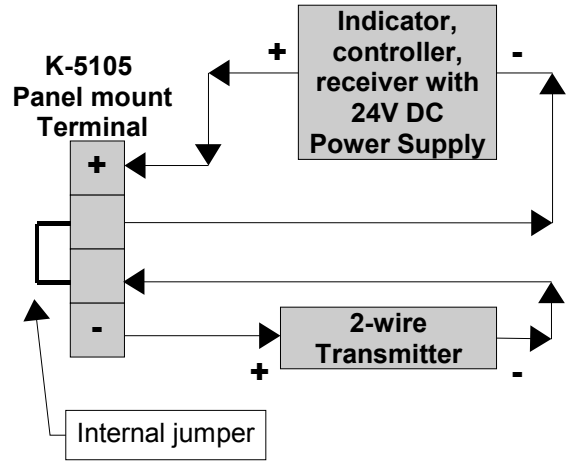
WIRING INSTRUCTION

Panel mount:
Four terminals for electrical connection are located on the rear of the instrument. The 2 centre terminals are provided for convenient field wiring interconnection between transmitter, receiver instrument and K-5105 Loop Powered Indicator. Some typical connection methods are shown in the next page.

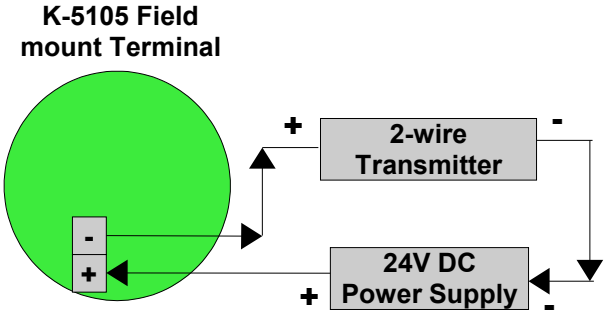
Connection Type-1: Panel Mount



Connection Type-2: Panel Mount



Field mount:
Two terminals for electrical connection are located on the PCB inside the enclosure. Terminals can be accessed upon removal of the cover. The terminals used are screw clamp type and can accommodate a maximum of 2.5mm ² wires.



Cover Lock: *(Applicable for Field mounted model only)*
The field mounted model instrument is provided with cover lock facility to enable it to be used for weatherproof or flameproof applications. The cover is fully threaded onto the body and locked in position for proper sealing with o-ring to ensure compliance to weatherproof and flameproof requirements.

The cover is locked in position when the instrument is shipped after manufacturing.

Unlock method:
- Loosen the lock screw.
- Rotate the lock by 180º and ensure that tongue of lock is out of the cover groove.
- Unscrew cover in anticlockwise direction to access internals of the instrument.

Lock method:
- Fix the cover and rotate clockwise to fully seat on body and seal the o-ring.
- Rotate lock and ensure that the tongue of lock enters the groove on cover.
- Tighten the cover lock screw.

Fig-3: Cover Locked

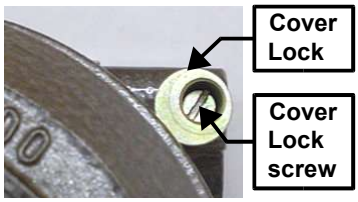
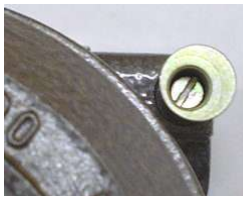


Fig-4: Cover Unlocked



CALIBRATION INSTRUCTION

The instrument is factory calibrated in accordance with the Specified Scaling. UNSPECIFIED UNITS WILL BE CALIBRATED FOR 0 TO 100% FOR 4–20MA INPUT. Field Calibration can be carried out by the following procedure.

Accessories required for field scaling changes are:
1. 4–20mA Current Source.
2. 3½ Digit Current Indicator of ±0.05% accuracy.

Procedure
1. Determine Scale Values
   4mA = Y counts
   20mA = X counts
   Scale Span = X – Y

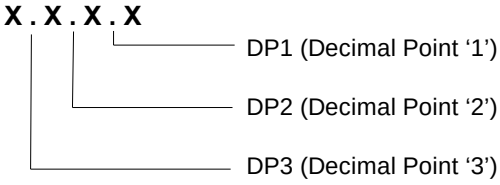
2. Select suitable limits for zero suppression or elevation using Jumper J1. The values provided are for guidance and are approximate values and there will be minor variations due to the tolerances of the components used. Refer Table below:

Jumper position	*Limits of reading at 4mA (Y counts)*
J1 - 2	-1999 to -650
J1 - 3	-700 to +1999

Note: J1-1 is not used

3. Adjust zero and span as below:
   3.1 Apply 4mA to the unit and adjust ZERO pot for 'Y' counts.
   3.2 Apply 20mA and adjust SPAN pot for 'X' counts.
   3.3 Repeat steps 1 & 2 till the required reading is achieved for 4mA & 20mA.
   3.4 Check for intermediate values.

4. Select Decimal Point using Jumper J2. Refer Table below:



Decimal point selection in PANEL Mount model

Jumper position	*Decimal point*	*Displayed value with decimal point*
J2 -1	DP1	199.9
J2 - 2	DP2	19.99
J2 - 3	DP3	1.999
J2 - 4	No DP ON	1999

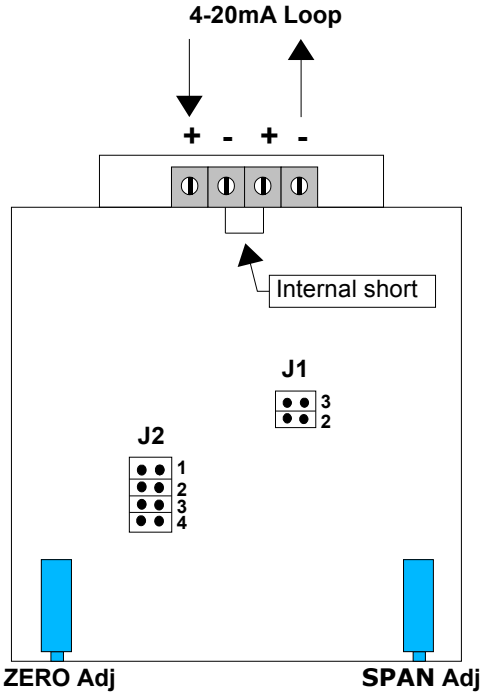
Decimal point selection in FIELD Mount model

Jumper	*Decimal point*	*Displayed value*	*Jumper position*
J2 -1	DP1	199.9	OFF 
			ON 
J2 - 2	DP2	19.99	OFF 
			ON 
J2 - 3	DP3	1.999	OFF 
			ON 

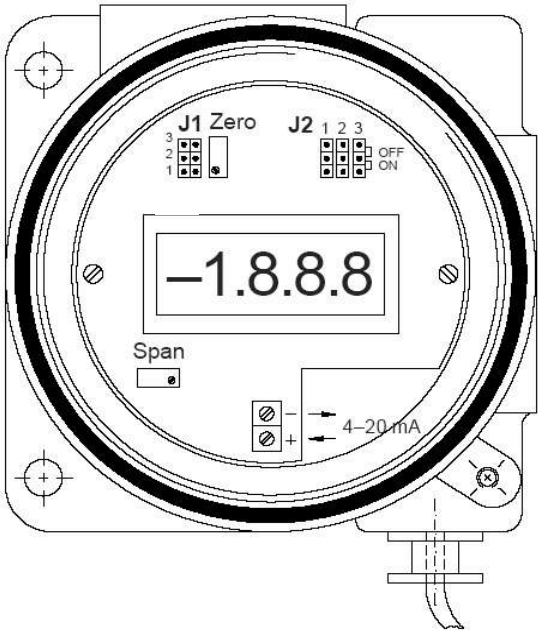
5. This completes calibration.

JUMPER SELECTION

(a) Panel mount model



(b) Field mount model



TECHNICAL SPECIFICATIONS

ELECTRICAL

Input	4-20mA or 10-50mA
Protection	200mA max. forward 1000mA max. reverse
Voltage drop	3.5V max. forward 1.2V max. reverse
Span range	0-100 to 0-1999 counts, continuous adjustment
Zero range	-1999 to +1999 jumper selectable in 2 ranges
Span slope	Positive
Accuracy	± 0.1% of reading ±1 count
Display	3½ digit LCD, 7 segment, with Character size of 12.7mm
Decimal point	3 position jumper selectable
Electrical connection	Panel mount: Rear terminals Field mount: 1/2” NPT(F)

MECHANICAL

Enclosure	
Panel mount	ABS plastic
Field mount	Style GP die cast aluminium Weatherproof to IP:66 of IS:2147; Flameproof to Gr.II-A, II-B & II-C of IS:2148.
Overall dimensions	
Panel mount	96 x 48 x 116 mm
Field mount	110 x 113 x 117 mm

TEMPERATURE LIMITS

Ambient	0ºC to 60ºC