

## MANUAL FOR DATA LOGGER / SCANNER



### **M/s Sonics Control Systems**

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## 2 INSTALLATION

### Installation Location

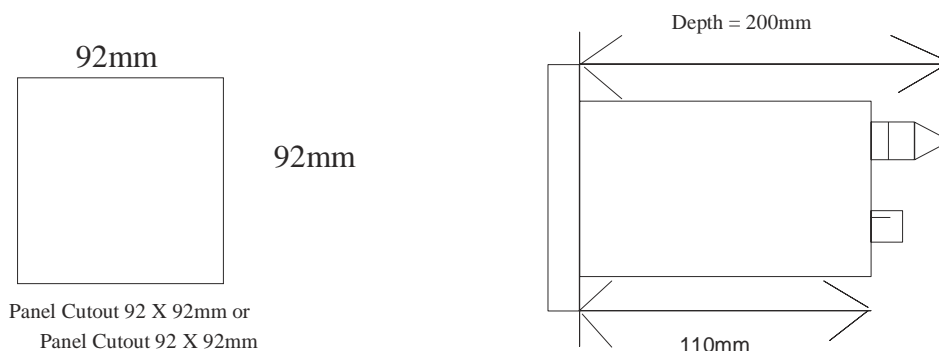
Install the instrument in a location that meets the following criteria.

- (1) Little or no mechanical vibration.
- (2) No corrosive gases.
- (3) Minimal temperature fluctuations and near normal temperature.
- (4) Not directly subject to radiant heat.
- (5) Not subject to strong electromagnetic field.
- (6) No direct exposure to water.

### Installation procedure

- (1) Loosen the clamp by rotating the clamping bolt in anti-clockwise.
- (2) Insert the rear of the instrument through the front of the prepared hole.
- (3) Hook the clamp on both sides in the slot. With the front flange of the instrument held Tightly against the front of the panel, position the clamp.
- (4) Tighten the screws of both clamps equally. **DO NOT OVERTIGHTEN THESE SCREWS**, It will cause the clamp to slip.

### Mounting Dimensions



## WIRING

### Wiring precautions

While wiring take the following precautions.

- (1) Field wiring to the instrument, should be placed so as to avoid blocking the air flow, yet Provide a Suitable service loop to allow easy removal of unit with wiring Attached.
- (2) Wires should be tied to maintain their order in the event they must be Disconnected For any reason.
- (3) For connecting the wiring to the terminals, we recommend use of crimp terminal lugs with Insulated sleeves.
- (4) Route the input circuit wiring away as possible from the power and ground circuits To avoid Noise pickup.
- (5) Use proper-shielded wire to avoid electromagnetic interference.

- (6) Use of Auxiliary relay is recommended if load exceeds the output relay c contact Rating (230vac, 5A resistive load).
- (7) For using an inductive load such as Auxiliary relay on output relay c contact, use a diode (For DC) or an RC filter (for AC) in parallel as a surge suppressor circuit.

## FRONT PANEL FEATURES

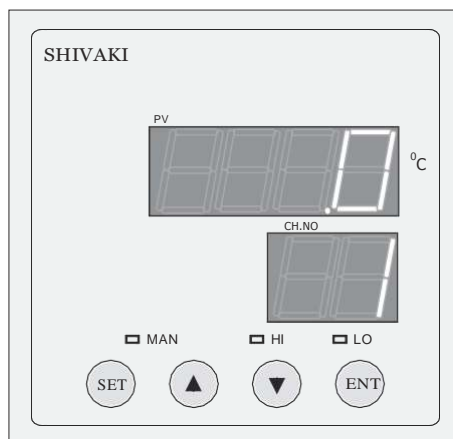


Fig. 1

KEY	FUNCTION
SET	Used to call individual programming parameter in sequence.
^	Used to increase the displayed set point or any operating parameter value.
v	Used to decrease the displayed set point or any operating parameter value.
ENT	Enters numeric values and changes
DISPLAY	FUNCTION
PV	Display the measured value. Display the parameter settings symbol while programming.
CH NO	Display the channel no of which the measured value is being displayed.
	Display the parameter value while programming.
HI	Lights when HI Alarm relay is ON.
LO	Lights when LOW Alarm relay is ON.
MN	Lights when MANUAL mode is selected.

## Terminal of logger

As per sticker at the backside of the logger

Operating parameter setting The 951unit has two major Display.

modes. Normal display mode and operating parameter display mode. In normal display mode the measured value is displayed.

In parameter setting mode can be achieved by pressing set key. In this mode the display shows the setting parameter symbol on the left & setting parameter numeric value on right side of display.

### 1.1 Setting MANUAL mode

Refer Fig. 1.1

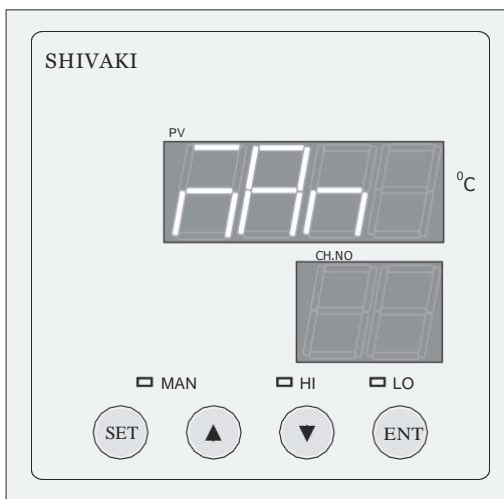


Fig. 1.1

To select MANUAL mode. Press SET key several times to display “MAN”.

Press ENT key. After selecting MANUAL mode, Lamp M gets ON. Refer Fig. 1.2

In MANUAL mode the each Input channel value can be Observed one by one by key Press.

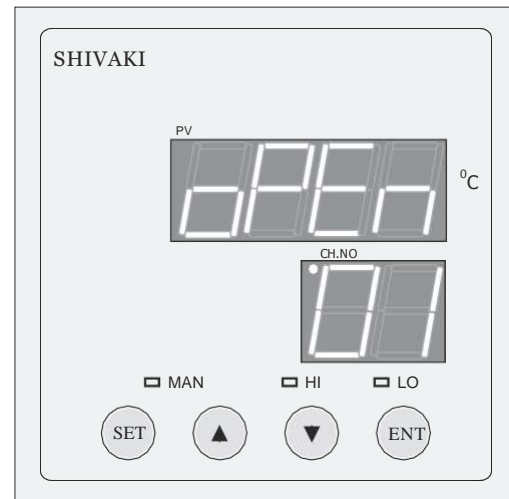


Fig. 1.2

The Top (PV) display shows the Measured value of input signal. The bottom display shows the channel.

No of which the value is being displayed on PV.

Press UP or DN key to advance the channel no. Thus each channel wise data can be observed one by one..

### 1.3 AUTO mode

Select the AUTO mode from main menu to terminate this mode.

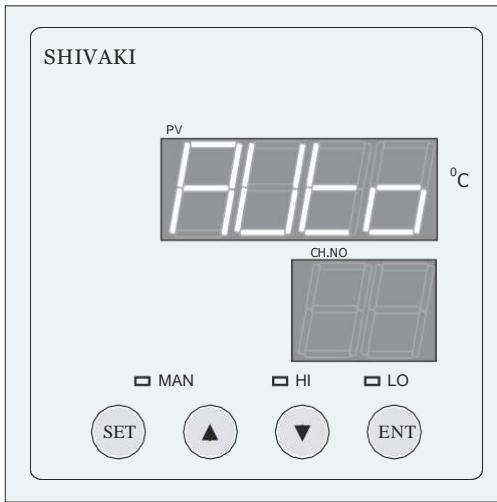


Fig. 1.3

The unit always works in Auto mode when Power is switched ON. In AUTO mode the input signals are scanned for set scan time and its value is displayed with its channel no on display. After select -ing AUTO mode, Lamp M gets OFF(If it is on).

The unit always works in AUTO mode when Power is switched ON. In AUTO mode the input signals are its value is displayed with its channel no on display. After select -Ing. AUTO mode, Lamp M gets OFF (it is on). Refer Fig. 1.3

### 1.4 Setting Print mode

Press SET key several times times to display “Print”. Press ENT key. The top display Shows Print ON. Press ENT key.

Then the stored data will be transferred to the pc & Printer. Provided parallel port dot matrix printer is Connected to the Instrument. Refer Fig. 1.4

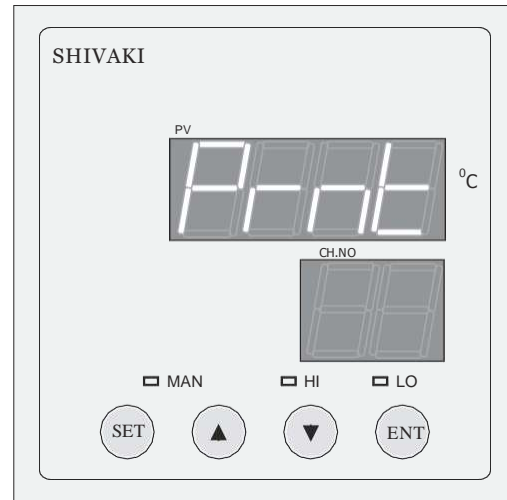


Fig.1.4

### Setting Scan time

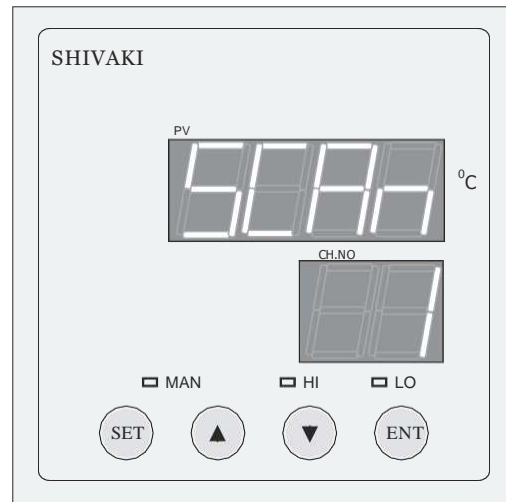


Fig. 1.5

Menu used to set the scan time, duration between displays of two successive channel data. Range 5 to 60 sec maximum. From the operating parameter setting mode, press SET key Several times to display “SCAN”. Press ENT key. Refer Fig. 1.5

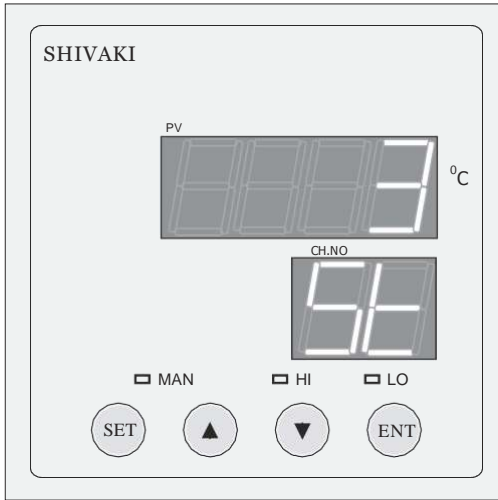


Fig. 1.5.1

The top display (PV) shows the Presetted value. The bottom display shows the parameter "St".

Use the  $\wedge$  &  $\vee$  keys to set the desired digit value (scan time). press the ENT key. This completes setting. Refer Fig. 1.5.1

Setting rtAE Time. (Real Time Clock)

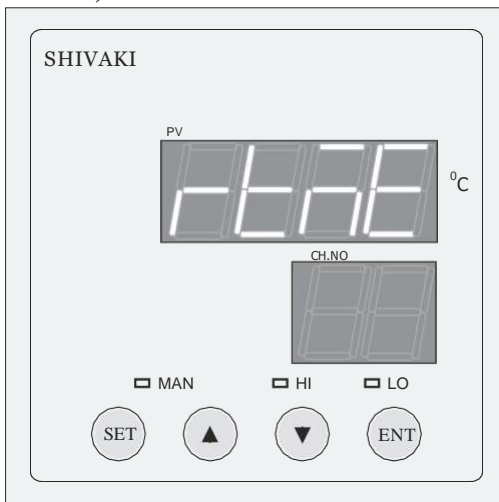


Fig. 1.6

Menu used to set the Real time Clock From the operating parameter setting Mode, press SET key Several times to display "rtAE". Press ENT key. Refer Fig. 1.6

The top display (PV) shows the presetted minute. The bottom display shows the parameter "m". Refer Fig. 1.6.1

Use the  $\wedge$  &  $\vee$  keys to set the desired digit value (Minute). Range: 0 to 60 min.

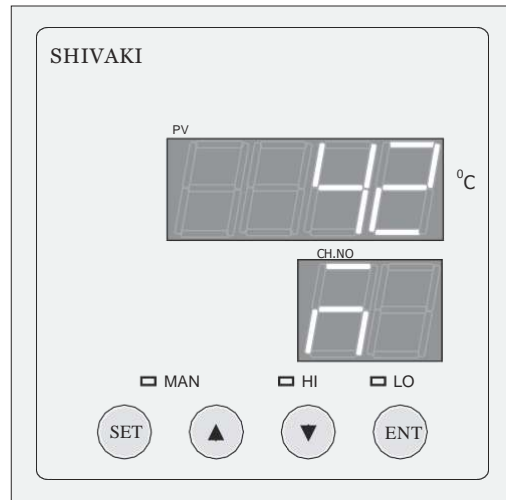


Fig. 1.6.1

Press the ENT key. Then the top display (PV) shows the presented Hour. The Bottom display shows the parameter "H". Use the  $\wedge$  &  $\vee$  keys to set the desired digit value (Hour). Range: 0 to 24 Hrs. Press ENT key. Refer Fig. 1.6.2

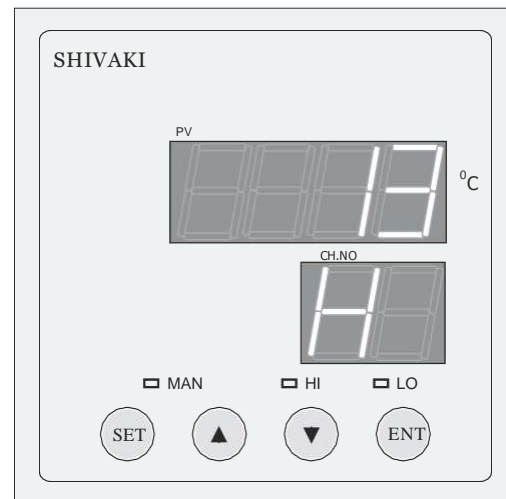


Fig. 1.6.2

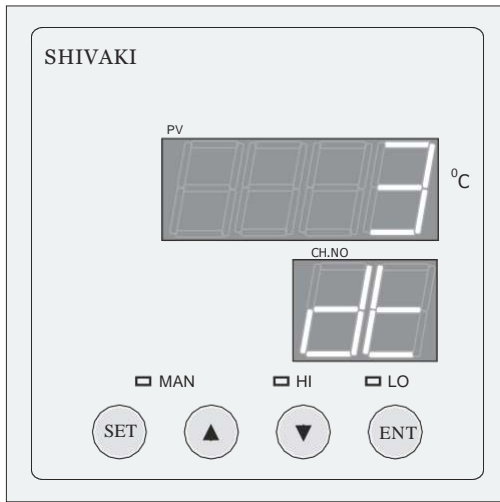


Fig. 1.6.3

Then the top display (PV) shows the preset Date. The bottom display shows the parameter “dt”. Use the  $\Delta$  &  $\nabla$  keys to set the desired digit value (Date). Range: 0 to 31. Press ENT key. Refer Fig.1.6.3

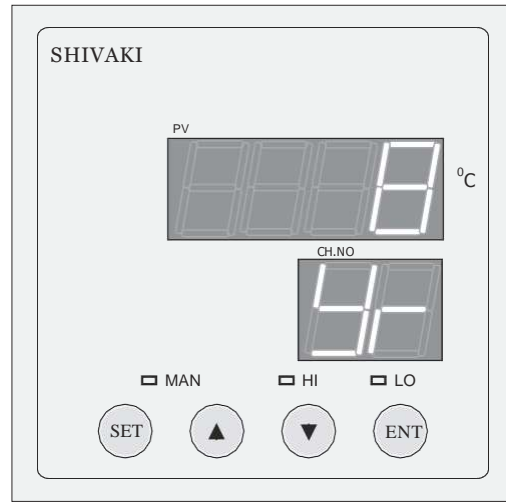


Fig. 1.6.5

Then the top display (PV) shows the preset YEAR. The bottom display shows the parameter “Yr”. Use the  $\Delta$  &  $\nabla$  keys to set the desired digit value (YEAR). Press ENT key. Refer Fig. 1.6.5

### Setting Print time/Log Time

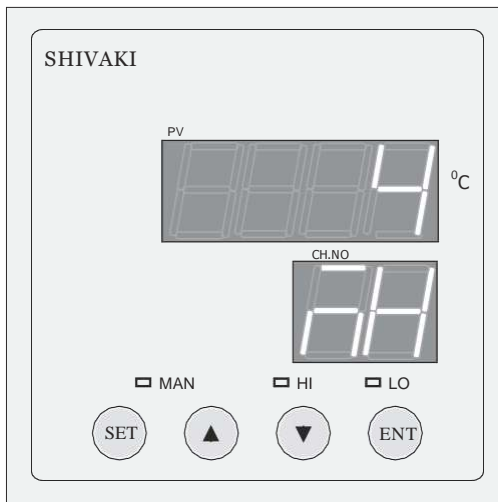


Fig. 1.6.4

Then the top display (PV) shows the preset Month. The bottom display shows the parameter “mH”. Use the  $\Delta$  &  $\nabla$  keys to set the desired digit value (MONTH). Range: 1 to 12. Press ENT key. Refer Fig. 1.6.4

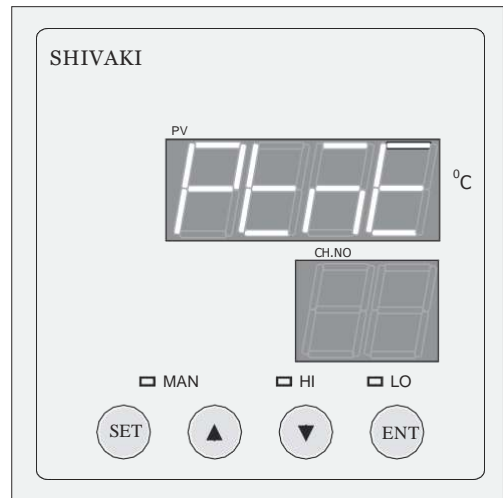


Fig. 1.7

Menu used to set the Print duration between two Sets of readings. The Range is from 1 to 99 min maximum. From the operating parameter setting mode, press SET key several times to display “PtAE”. Press ENT key. Refer 1.7

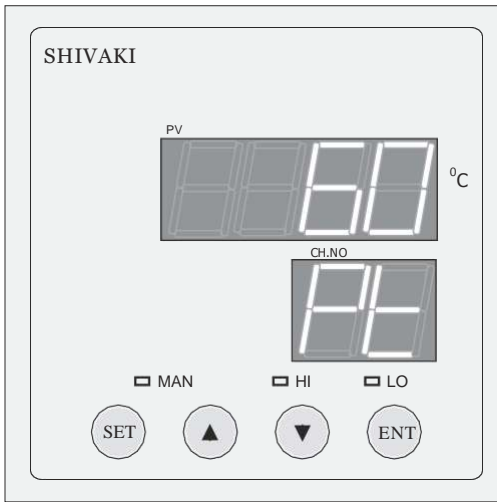


Fig.1.7.1

The top display (PV) shows the presetted value. The bottom display shows the parameter “Pt”. Use the  $\wedge$  &  $\vee$  keys to set the desired digit value (Scan time). Range: 1 to 99 Min (can be programmed in sec also. Consult factory) Press the ENT key. Refer Fig. 1.7.1

**Setting SKIP Mode.**

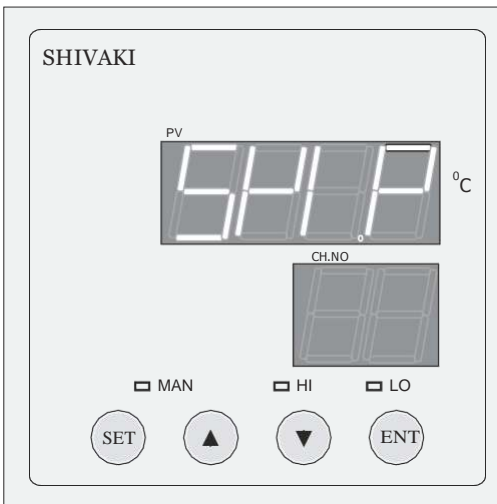


Fig. 1.8

Menu used to set the Skip function. By this function you can skip the channel, which you don't want. By this the logger will not show that particular Channel & also it will not print that channel but it will print “Skip” in

Front of that channel in parallel port printer & also in the software. From the operating parameter setting mode, Press SET key. Several times to display “Skip”. Press ENT key. Fig. 1.8

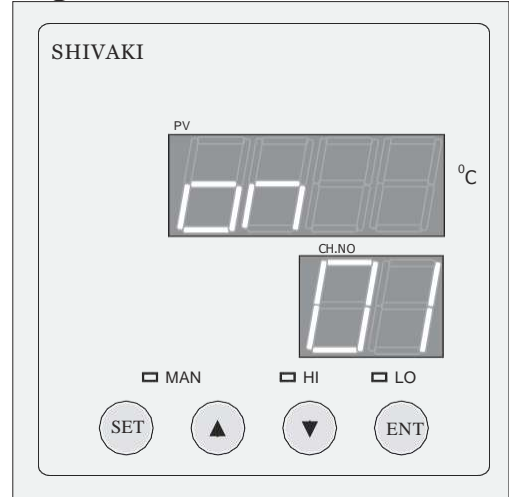


Fig. 1.8.1

The top display (PV) shows “On”, The bottom display shows the channel No. If that particular

Channel as to be skipped then Use the

$\wedge$  &  $\vee$  keys to off the channel.

Press the ENT key. This completes setting. Refer Fig. 1.8.1 & 1.8.2

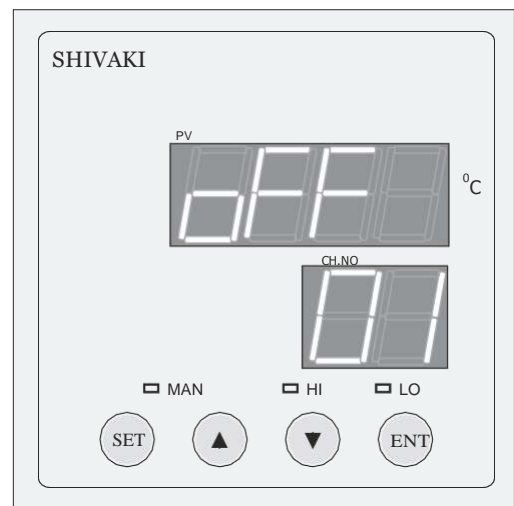


Fig. 1.8.2



Set Type ( In Case of Universal )  
 The Menu used to set the Input type,

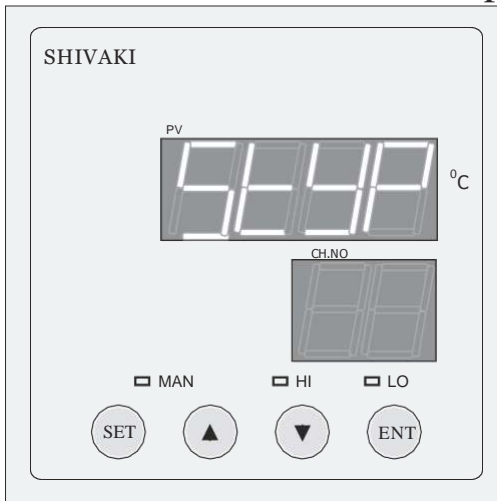


Fig. 1.9

Use the  $\wedge$  &  $\vee$  keys to set the desired Input & there corresponding range. Refer

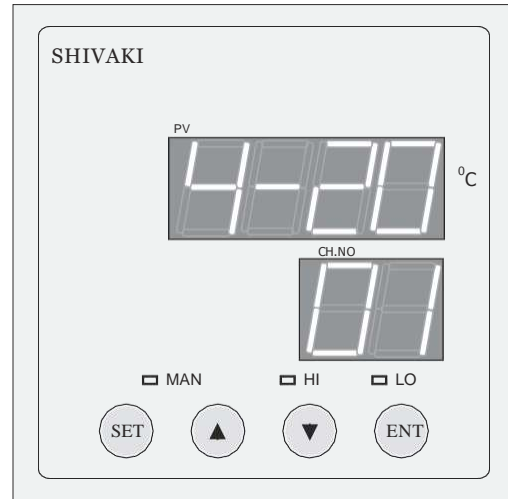


Fig.1.9.2

From the operating parameter setting mode, Press SET several times till the top display Indicates “Styp”.

Press ENT key. Refer Fig. 1.9

Press the ENT key.

Then By Using  $\wedge$  &  $\vee$  keys to set the desired Higher Range ( Limit ). Press the ENT key. Refer Fig. 1.9.3

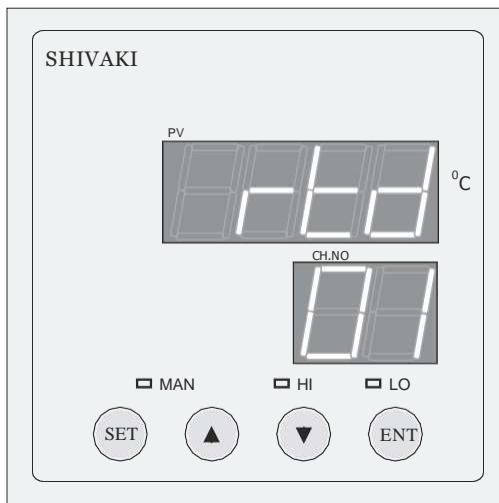


Fig. 1.9.1

The top display (PV) shows the presetted input. The bottom display Shows the channel no for which the Setting is done Refer Fig.1.9.1 Example You want to select 4-20mA

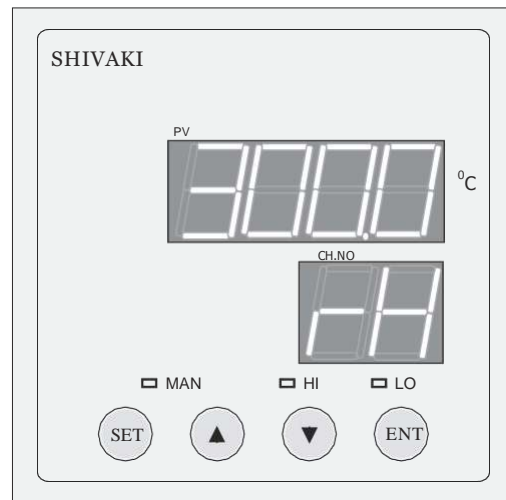
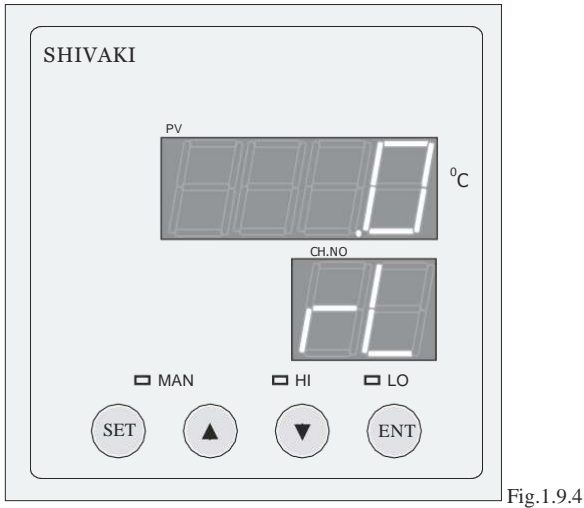
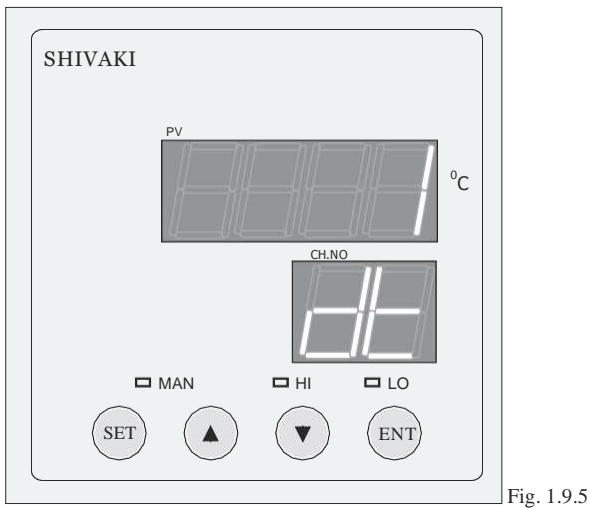


Fig. 1.9.3

The the display will go in Low Range Mode.



Similarly Repeat the above procedure to set the desired range & Press ENT. The display will go in Decimal point selection mod. Repeat the above procedure to set the desired decimal point



DT = 1 Means Resolution is 0.1,  
 DT=2 Means Resolution is 0.11,  
 DT=3 Means Resolution is 0.001

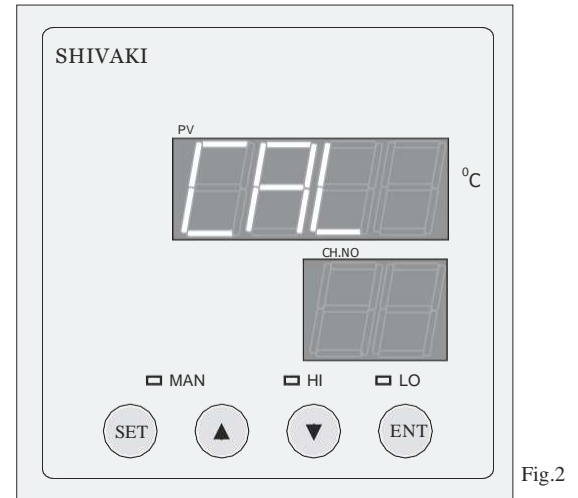
Refer Fig.1.9.5 Press ENT key after selecting desired decimal point. This completes setting for first channel.

Similarly repeat the process for setting the other channel.

## 2. Calibration mode

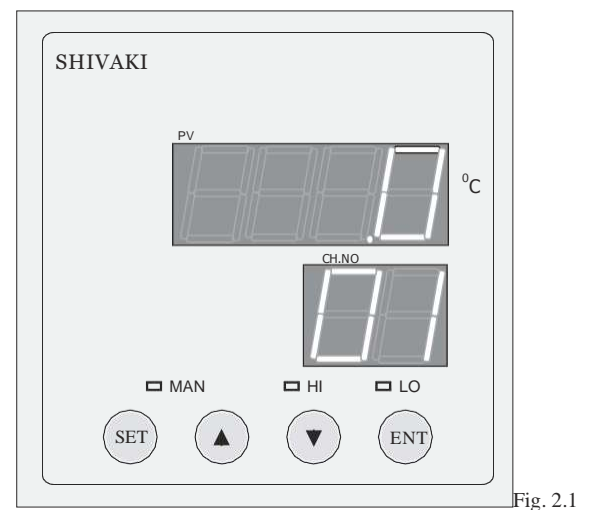
Each channel can be calibrated independently.

Press SET key several times to display "CAL". Refer Fig. 2



Press ENT key.

The top display shows channel no. select the required channel no. Which is to be calibrated With UP & DN keys.



Press ENT key.

The top display shows Preset value in the selected channel. Using &  $\Delta$  key add the desired offset value.

Press ENT Key. Refer Fig. 2.1

## Setting Erase mode

Press SET key several times to display “Erase”.

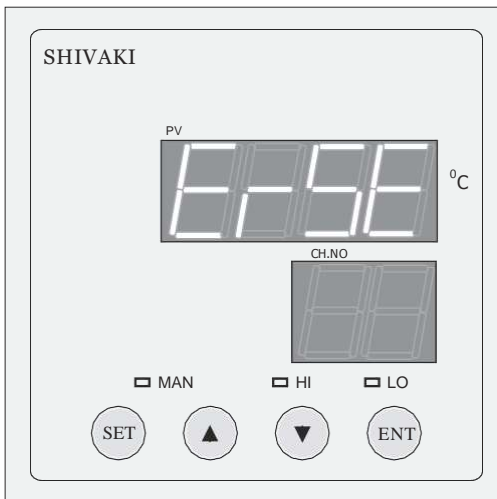


Fig.2.1

Press ENT key. The top display shows Erase ON. Press ENT key . Then the stored data will be erased & the logger will start recording the new data.

Fig.2.1

## 22. Selecting High Limit.(High SetPoint)

Menu used to set the High SetPoint, Range 0 to 1200 maximum. (May Vary in case of universal) From the operating parameter setting mode, Press SET Several times till the top display Indicates “SETH”. Press ENT key.

Fig.2.2

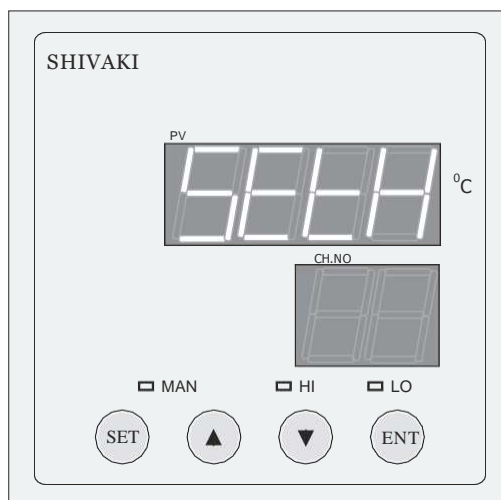


Fig. .2.2

The top display (PV) shows the presetted value. The bottom display shows the channel no for which the setting is to be done.

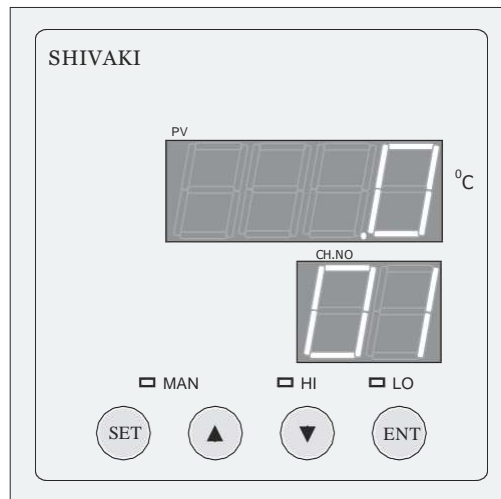


Fig.2.2.1

Use the ^ & v keys to set the desired digit value

Press the ENT key. This completes setting for first channel. Similarly

Repeat the process for setting the High limit for the other channel If any channel goes beyond the set point then the (HI) L.E.D glows ON.

Refer Fig.2.2.1

## Selecting Low Limit.(Low Set Point)

Menu used to set the Low Set Point,. Range 0 to 1200 maximum. ( May Vary in case of universal) From the operating parameter setting mode, Press SET several times till the top display Indictes “SET L”. Press ENT key.

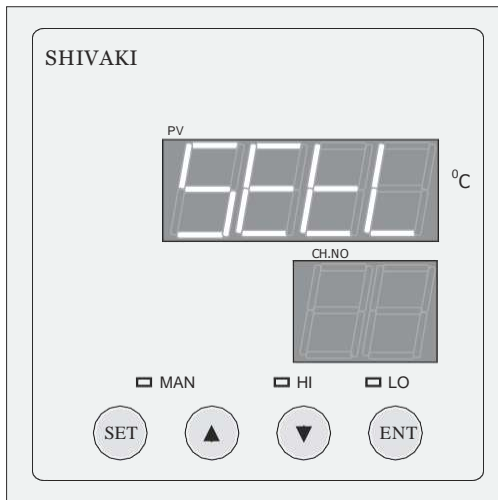


Fig.2.3

The top display (PV) shows the presetted value. The bottom display shows the channel no for which the setting is to be done. Use the  $\wedge$  &  $\vee$  keys to set the desired digit value Press the ENT key. This completes setting for first channel. Similarlay Repeat the process for setting the Low limit for the other channel If any channel goes beyond the set point then the (LO) L.E.D glows ON. Refer Fig.2.3

### Setting Loc Mode( Lock )

This mode is used for locking the keys so that the Programmed data cannot be changed until you give Correct Password.

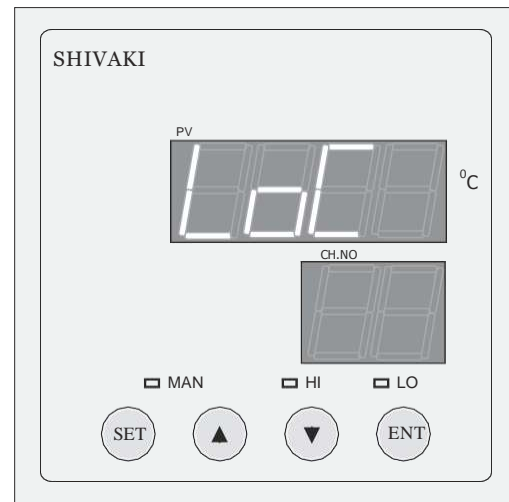


Fig.2.4

Menu used to set the Lock Value From the operating parameter setting mode, press SET key Several times to display “Loc”. Press ENT key. Refer Fig.2.4

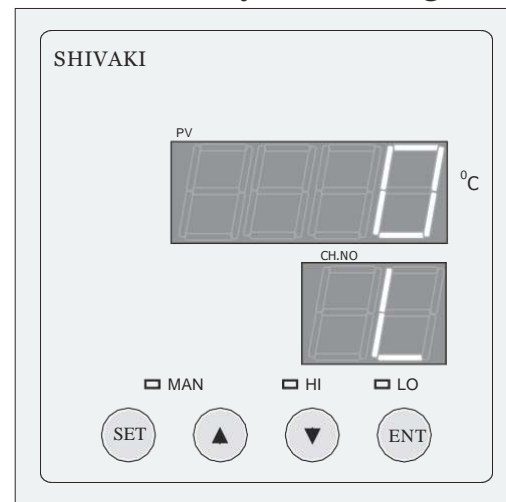


Fig.2.4.1

The top display (PV) shows the presetted value. The bottom display shows the parameter “L”.

Use the  $\wedge$  &  $\vee$  keys to set the desired digit value (Lock Value). Press the ENT key. This completes Setting. Refer Fig.2.4.1

Further when you operate the data logger it will ask for password.

Refer Fig.2.4.2

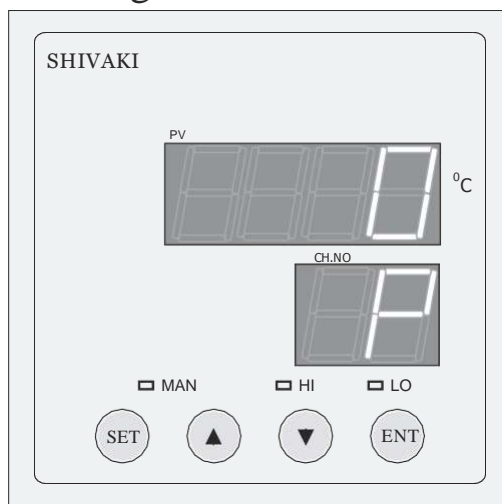


Fig.2.4.2

After entering the corrected password the data logger will go in programming mode. If you forget the password then by using  $\wedge$  &  $\vee$  keys Enter the pass word AS 5 to open the lock.

### CALIBRATION

#### IMPORTANT NOTE:

CALIBRATION HAS TO BE DONE WITH STANDARD CALIBRATING EQUIPMENT. SO DO NOT DISTURB THE HARDWARE SETTING UNLESS YOU HAVE A STANDARD CALIBRATING MEASURE.

For calibrating the, two trimmers are provided namely NUL and SPAN. These are located on the left Side of the instrument if seen from Front.

#### Calibrating Procedure

1. Connect the input simulator to The instrument as per the input Type (mV for T/C input, RTD Simulator for PT-100 input etc).

2. Nul value (on simulator) specified in calibration constant table as per the input type.
3. Adjust front display (top display in 951-V & 951-SModel) to show 0 with the trimmer NUL.
4. Adjust full-scale value on simulator as per the input type table.
5. Adjust the trimmer SPAN to show the display the full-scale value given in calibration constant table
6. Check the in between readings as per the table.  
This completes the hardware calibration.

### MAINTAINCE

1. Basic troubleshooting procedure The following questions should be Asked & appropriate action is to be Taken to the negative answers. All major corrective action Can be accomplished by replacing the basic unit. No special tools are Required except screwdriver & multimeter.
2. When you switching ON the unit Check whether the display is Showing anything? If yes then go For step 2 & if not check for the Power input connections, check Whether the unit is getting proper Supply at proper terminals.

Connecting the supply to the wrong terminals may damage the unit permanently.

3. Check, is the display showing actual value properly. If yes follow step 3, if not check the Sensor Input; check whether the sensor or Input is connected at proper terminals in proper

Way (+ve & -ve polarity). If sensor is open or not connected then “ SOPEN” will appear on display.

4. After connecting the sensor if the actual value Shown is not proper then check the calibration is Correct according to the calibration constabel.

5. In case if fault developed other than the above mentioned contact SHIVAKI .