Manual
(V1.2)
(Thermoscan)

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1] History:

Sr. No	Manual Version	Date	Author	Approved By	Remarks
1.	1.0	05/01/2013	Pramila		1. Setting of temperature set point and Humidity set point has been made common. 2. Fast key response auto increment and Decrement. 3. Faster scanning and averaging of sensor Readings. 4. Fast display updating. 5. 3rd wire compensation
2.	1.1	08/07//2013	Pramila		6. System info menu added.
3.	1.2	22/12/2018	Akshada		7. Model No. Added

2] Product Selection (Model No.):

Sr. No.	Model No.	Description
1.	ETS-TSN-S02N08 (0202SCAN01)	ETS-TSN-Standard/Stability/Nonlinear/8Temp+8RH
2.	ETS-TSN-S02L08 (0202SCAN02)	ETS-TSN-Standard/Stability/linear/8Temp+8RH

3] Introduction:

Thermoscan (ETS- TSN) is microcontroller based electronic device which interfaced with thermolog with RS485 port. It is an updated hardware plus firmware version of thermoscan, with fast sensor scanning and three wire compensation facility. Can be configured for 8 channel stability (8 channel temperature+8 channel humidity) also it has enhanced with easy to use tactile membrane keypad plus sticker.

4] Operation Keys:

SEL	• To enter into main Menu. • Press this key two times to exit from main menu. • This key used for exit from parameter setting.
INC	• To Scroll the menu parameter • Increments numerical data for parameter setting. • To fast increment press key for 3 sec it will increment automatically by one, further pressing of key for 8-10 sec will increment count by 10.
DEC	• Scroll the menu parameter • Decrements numerical data for parameter setting. • To fast decrement press key for 3 sec it will decrement automatically by one, further pressing of key will decrement count by 10.
ENTER	• To enter into menu or parameter. • To set selected values

5] Display Message:

CH	Channel No
PV	Process Value
SV	Set Value
Display Header	At the TOP Display header (factory settable)
°C	Temperature unit.
%	Humidity unit in percentage.

6] Product Specifications and Features:

Sr.	Specifications		Description
1	Type	:	Microcontroller based Electronic device with 16 channel configuration.(no memory storage)
2	Display	:	128 X 64 Alphanumeric Graphical Display
3	Keypad	:	Tactile membrane sticker with keypad
4	Power supply	:	12VDC @ 1A 12 watts
6	Communication Port	:	RS 485 (PC Communication) and Thermoscan to thermolog communication
8	Size	:	186*107mm
9	Weight	:	~270gm
10	**Keypad functions**		
	Admin Login	:	To Access the menu of unit.
	Display Mode	:	To set channel format for either 8 channel temperature or 8 channel stability.
	Alarm Parameter. Set	:	To set alarm set point and hysteresis of temperature and humidity. (Hysteresis can be set upto 10.0 counts.)
	Calibration Offset	:	To set calibration/user offset(can set user offset upto 99.9)
	Contrast Control	:	Set contrast of display.
	Scan PV Time	:	To set sensor scanning time.(can set 1 to 4 steps)
	System Info	:	To verify system info.
	Back To Main	:	This function used to exit the Menu with logoff.

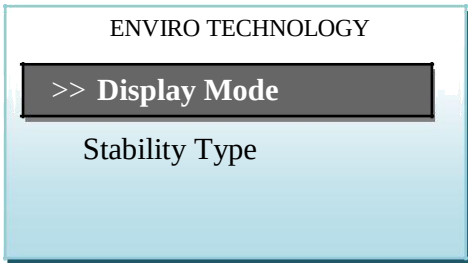
7] Keypad Functions:

7.1 Admin Login:

Steps:-

- To login press SEL (select) key.
- Select admin login menu then press enter.
- Put admin user ID (10) and press enter key.
- Now put password (1) and press enter.
- Now it will show message "Admin Login OK". For correct user ID and password.
- For wrong admin login it shows "Admin Login Fail" message.
- To log out go to Admin Login then press enter to logout.
- If any key is not pressed within 60 sec then you will exit from program mode.

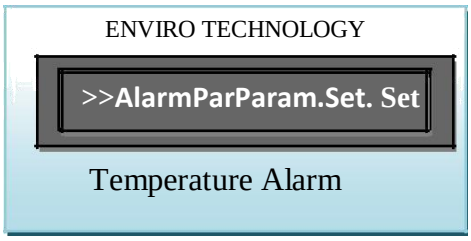
7.2 Display Mode:



Steps:

- This parameter is used to set display formats:
- Select proper display format using increment –decrement keys.
- Press enter key to save it.
- To exit from this menu press SEL key.
- Following are the display formats:
  (a) **Temperature Type**: to diplay1 to 8 temperature channels only.
  (b) **Stability Type** : to display1 to 8 temperature + humidity channels.

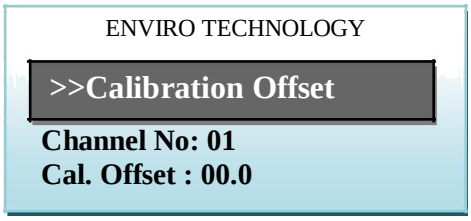
7.3 Alarm Param. Set:



Steps:

- Can be use to set Temperature alarm set point and hysteresis of channel 1 to channel 8.also can set humidity alarm set point and hysteresis of channel 9 to channel 16.
- Go to this parameter using SEL key and set Temperature set point using increment decrement key.
- Press ENTER to save those values.
- Then put hysteresis and press enter key.
- Do same procedure for humidity settings.
- Temperature max range:- -200°C to 850°C.
- Humidity range:-1) for EE_1V=0 to 1 V
  2) For Humidity= 0 to 3.3V.

7.4 Calibration offset:



Steps:

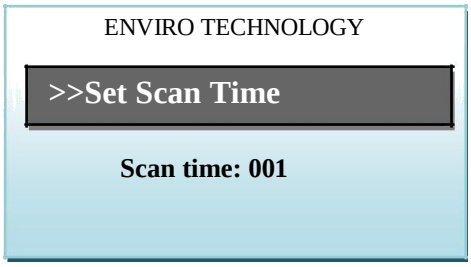
- Can set calibration offset channelwise.
- Press SEL and go to calibration offset menu.
- Set offset and press enter.
- Can set calibration offset or user offset upto 99.9

7.5 Contrast Control:

Steps:

- To set contrast of display from 0 to 25.
- Go to Contrast Control menu set contrast using increment/decrement keys.
- Press Enter and save it.

7.6. Set Scan Time:



Steps:

- Can set scanning time from 1 to 4.
- If we set scan time to 4 it will scan 1 channel four times and will show average of it on display.
- Go to this menu and press enters .set scan time then presses enter.

7.7 System Info:

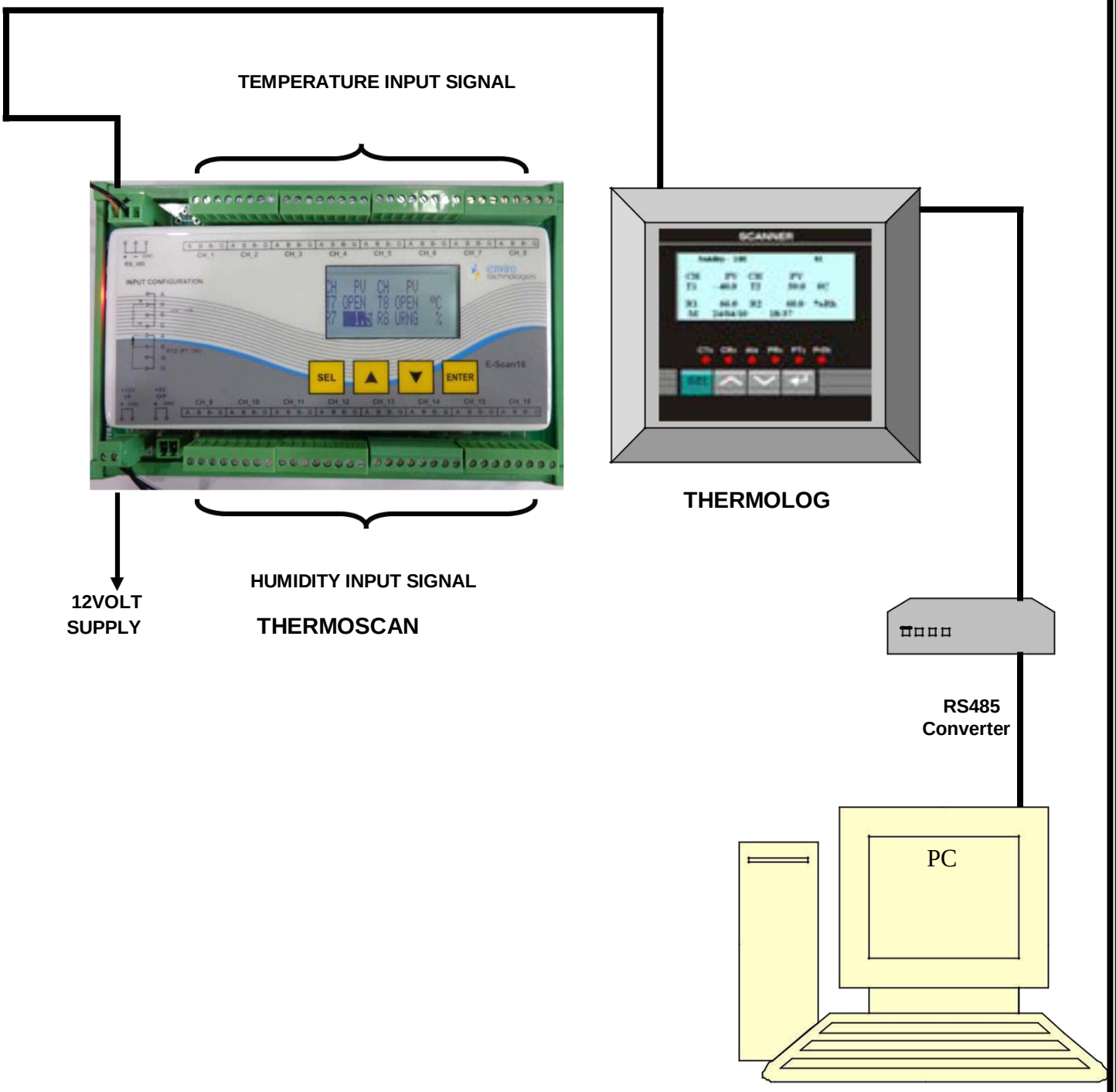
- This menu is used to verify the system's hardware and firmware information ,
- it is read only.
- Go to this menu using incr/decre key.
- Press enter.

7.8 Back to main:

- Use to come back to main screen.
- We can also come to main screen by pressing SEL key two times from main menu and by pressing SEL key three times if you are in sub menu.

8] ETS-TSN V1.1Connection Details:

8.1 System Connection Details:



8.2 Installation Note:

While installing this system one must take care of following points.

- All cables connecting to "thermoscan "must lay separately, they should not mix up with high voltage & high current cables (like Motor; compressor; contactor; Heater etc.
- There should be a proper insulation for sensor wires to avoid noise interrupt.
- Take care while laying cables for Thermoscan interface with thermolog; as these cables are very sensitive to noise. Do not connect RS-485 cables in Star network; connect in loop network.
    - Maximum distance for thermolog to thermoscan communication cable is 600 mtr. This cable must not be routed along with power cable.
    - Cable specification for RS-485 => 14/36; 22AWG; 2 core shielded twisted cable.
- RTD-PT100 sensor Cable length: 100metre MAX.
- 0 to 1V humidity sensor cable length: 3 meter max (keep as short as possible.)
- 0 to 3.3V humidity sensor cable length: 3 meter max (keep as short as possible.)
- 4 to 20mA sensor cable length: 3 meter max (keep as short as possible.)

8.3Troubleshooting Chart:

Following are few trouble shooting point which will guide for rectifying problem while dealing with Scanner Unit.

No.	Problem	Probable solutions
1.	**Display Doesn't show reading on thermoscan or on thermolog.**	1. Check CTx and CRx of thermoscan and thermolog. 2. Check for Broken communication line between thermolog and Thermoscan. 3. Set thermoscan and thermolog display mode properly. 4. Check all sensor pins are connected properly.
2.	**Junk data on thermolog**	1. Check communication between thermoscan and thermolog. 2. Check wire.