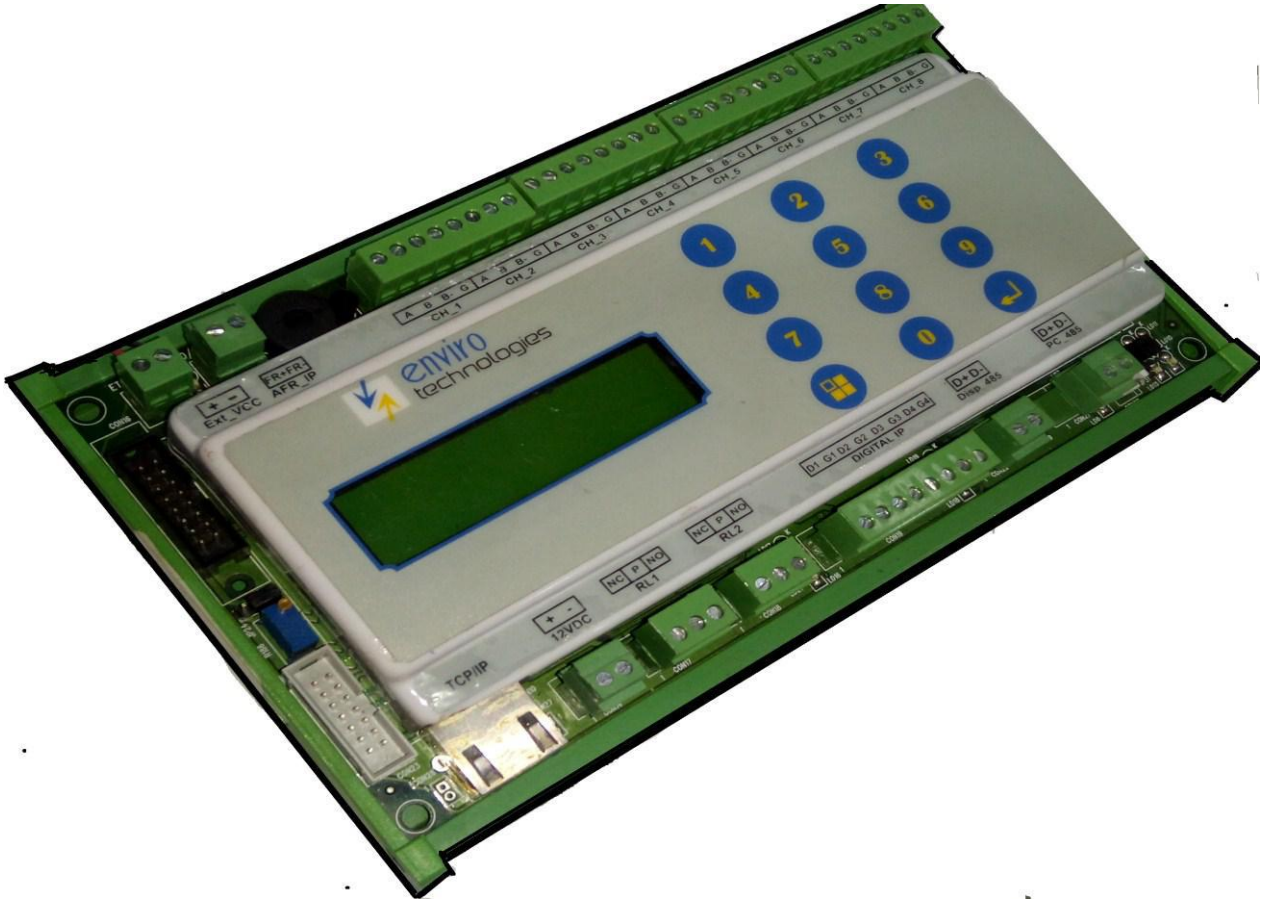
USER MANUAL

SCANNER

Version 1.1



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Introduction

A Wireless Scanner is microcontroller based electronic system which is specially design for measuring Temperature and Humidity as per required by user. Device measures Temperature and Humidity wire or wireless sensors can be connected externally.

Device has 16x2 graphical displays to show all its parameter data and process value. Device shows Temperature and Humidity process value on display in rotating mode. Device has inbuilt buzzer for any alarm and memory limit violation which is configurable. Twelve key numeric touch keypad for setting user define device parameter. Device can store all its data in his memory which can be letter downloaded from PC software at any time. Device also has provision for external slave display device which can be mounted away from main device for monitoring.

Applications:-

- Pharmaceutical industry
- Room Monitoring System for HVAC
- Clean Room Mapping

Model Number List

Model Code	Product	Model No.	Description
ENVIROSCAN (SCANNER)			
M1	16 Channel Universal scanner	ETS-US-16	Enviro Technologies Standard 16 channel Universal scanner with RS 485
M2	8 Channel Universal scanner	ETS-US-8	Enviro Technologies Standard 8 channel Universal scanner with TCP /IP (Arm processer)
M3	8 Channel Universal scanner with TFT 7 inches Display	ETS-US-8 - D	Enviro Technologies Standard 8 channel Universal scanner with TCP /IP (Arm processer) and External TFT 7 Inches Screen
M4	16 Channel Server	ETS - SVR - 16	Enviro Technologies Standard Server with TCP /IP (Arm processer) and Realy
M5	16 Channel Server with TFT 7 inches Display	ETS - SVR - 16 - D	Enviro Technologies Standard Server with TCP /IP (Arm processer) , Relay and External TFT 7 Inches Screen
M6	24 Channel Universal scanner	ETS - SVR - 24	Enviro Technologies Standard Server with TCP /IP (Arm processer) onboard 8 channel with provision of interfacing ETS- US-16 (16 Channel data logger) board
M7	24 Channel Universal scanner with TFT 7 inches Display	ETS - SVR - 24 - D	Enviro Technologies Standard Server with TCP /IP (Arm processer) onboard 8 channel with provision of interfacing ETS- US-16 (16 Channel data logger) board and External TFT 7 Inches Screen
Wireless Scanner			
M8	32 Channel Universal scanner with TFT 7 inches Display	ETW - US - 32 - D	Enviro Technologies wireless scanner Server with TCP /IP (Arm processer) and TFT screen
M9	20 Channel Universal scanner with TFT 7 inches Display	ETW - US - 20	Enviro Technologies wireless scanner Server with TCP /IP (Arm processer) and TFT screen

Different Sensor Type Details:

Model No.	Description	Details
ETS-K1	RTD SENSOR (Temperature Sensor)	PT -100 Sensor (Temperature Sensor)
ETS-K2	RH SENSOR (Humidity Sensor)	RH sensor (Devanshi Make)
ETS-K3	Temperature + Humidity Sensor (Combine Sensor)	(Temperature + RH) Rotronic make sensor (Combine Sensor) HF 132
ETS-K4	Differential Pressure Sensor	Pressure Sensor
ETS-K3D	Temperature + Humidity Sensor with display (Combine Sensor)	Temperature + Humidity Sensor with display (Combine Sensor) HF132-SB1X
ETW-K3	Wireless Temperature + Humidity Sensor (Combine Sensor)	Wireless Temperature + Humidity Sensor
ETW-K3D	Wireless Temperature + Humidity Sensor with Display (Combine Sensor)	Wireless Temperature + Humidity Sensor with Display (Combine Sensor)
ETW - CR	Wireless Coordinator / Receiver	Wireless Coordinator / Receiver
ETW - NX	Wireless Network Extender	Wireless Network Extender

Different slave display details:

Model No.	Description	Details
ETS-ED	External TFT Non Touch Display	7'' Inches TFT Non Touch Display

Specification and features

Sr. No.	Specifications		Description
1	Channel No.	**:**	**32 Channel** 1. Inbuilt/External Temperature Sensor **(Factory Settable)** 2. Inbuilt/External Humidity Sensor **(Factory Settable)** 3. External wireless sensor**(Factory Settable)** **Note: In case of wireless sensor configuration of sensor can be done onsite.**
2	Channel Input Type	**:**	**All Channels (Factory Settable)** **1. External sensor types :** A. External Temperature PT-100 sensor range -200.0°C to 850.0°C B. 0 to 1 Volts C. 0 to 3.3 Volts D. 0 to 5 Volts E. 0 mA to 20 mA F. 4mA to 20 mA G. Wireless Temperature Sensor **(ETW-K3)** range 0.0 °C to 45.0°C(Modbus-485) H. Wireless Humidity Sensor **(ETW-K3)** range 0.0 to 100.0% RH(Modbus-485) I. Wireless Temperature Sensor with Display **(ETS-K3D)** range -20.0 °C to 80.0°C(Modbus-485) J. Wireless Humidity Sensor with Display**(ETS-K3D)** range 0.0 to 100.0% RH(Modbus-485)
3	Channel Accuracy/Resolution	**:**	**1. Accuracy:-** 1. For External PT-100 sensor accuracy 0.3°C. 2. Wireless Temperature sensor **(ETW-K3/ ETS-K3D)** accuracy 0.5°C 3. Wireless Humidity sensor **(ETW-K3/ ETS-K3D)** accuracy 5% RH **2. Resolution:-** 1. For External PT-100 Sensor resolution 0.1°C. 2. Wireless Temperature sensor **(ETW-K3/ ETS-K3D)** resolution 0.1°C. 3. Wireless Humidity sensor **(ETW-K3/ ETS-K3D)** resolution 0.1 % RH. **NOTE: For all other external sensor accuracy and resolution depends upon sensor specification.**

<table>
<tr><td>5</td><td colspan="3">Wireless Sensor Specification</td></tr>
<tr><td>A</td><td>Transmission Range</td><td>:</td><td>For Sensor :
ETW-K3 - 60 meters (free space)
ETS-K3D - 500 meters (free space)

For coordinators : 500 meter(Free space)
For router : 500 meter(Free space)

NOTE: line of sight communication with No other Interference of objects.</td></tr>
<tr><td>B</td><td>Wireless Protocol</td><td>:</td><td>IEEE 802.15.4, ZigBee</td></tr>
<tr><td>C</td><td>Transmit Interval</td><td>:</td><td>1 second to 5 minutes</td></tr>
<tr><td>D</td><td>Battery Life</td><td>:</td><td>For ETW-K3 :
<table><tr><th>Interval</th><th>Approximate Battery life</th></tr><tr><td>1 min</td><td>1 month 15 days</td></tr><tr><td>2 min</td><td>3 month</td></tr><tr><td>5min</td><td>8 months</td></tr></table>
For ETS-K3D :
On backup battery for maximum 4 hours.

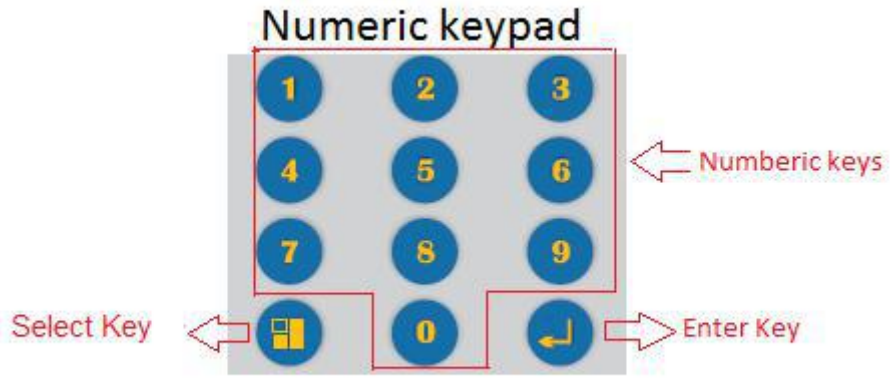
NOTE:
1>Battery life calculated on Duracell Model No.MN-1500 new battery, with condition, paired coordinator always power on and sensor in range.
2>With paired coordinators power off with sensor batteries attached may drain batteries drastically and damage to Sensor.
3>It is highly recommended to always connect supply adapter to Display wireless sensor (ETS-K3D).</td></tr>
<tr><td>E</td><td>Operating Frequency</td><td>:</td><td>2.4GHz</td></tr>
<tr><td>F</td><td>Power Supply for sensor</td><td>:</td><td>For ETW-K3 :
3V, 2 AA size (for best result Duracell battery)

For ETS-K3D :
230 V AC supply. (Connected via 2 pin plug and USB –A to USB Mini-B cable.)</td></tr>
<tr><td>G</td><td>Power Supply for coordinator</td><td></td><td>12 V DC</td></tr>
<tr><td>H</td><td>Power Supply for router</td><td>:</td><td>230 V AC supply. (Connected via 2 pin plug.)</td></tr>
</table>

6	Digital Input	**:**	Digital input can be configured for Acknowledgement of channel alarm condition.
7	Relay	**:**	Configurable Potential free relay output with rating for 120VAC with 1Amp and 24VDC 1Amp. (User define NO/NC jumper setting)
8	Inbuilt Buzzer	**:**	Multifunction functionality: 1. Channel alarm 2. Menu access 3. Memory full indication.
9	Time and Date	**:**	Display Real Time Clock.
10	Communication	**:**	TCP-IP, RS-485 Communication.
11	External Slave Display	**:**	External Slave monitoring display with RS-485 Communication. **(Optional)** • Seven Segment Display • TFT Display
12	Device Rating	:	12VDC, 150mAmp.
13	Operating Temperature	**:**	0°C to 50°C
14	Dimension	**:**	200mm X 120mm X 50mm
15	Device Fitting	**:**	Standard Din rail mounting
16	Weight	**:**	
17	**Slave Display** Slave display can be connected for external monitoring display.(Factory settable As per order)		
A	Size	**:**	7 “
B	Pixel	**:**	800 x 480
C	Communication	**:**	RS-485 Communication proprietary protocol
D	Dimension	**:**	195.0mm(L)*120.0mm(W)*2.4mm(H) with 7 mm color

Sr.No.	Feature		Description
1	Type	:	Microcontroller based Electronic device with Humidity and Temperature monitoring and logging, configurable digital input, potential free relay output.
2	Display	:	16X2 Graphical LCD
3	Keypad	:	12 keys numeric touch keypad.
4	LED indicator	:	TCP IP link and communication leds on Ethernet jack. RS 485 Tx/Rx communication,
5	Device ID	:	Device ID can be selected from 1 up to 128.
6	Logging Interval	:	Logging Interval from 1min to 255min. **(Default 15 Min)**
7	Storage Capacity	:	Up to 10000 Transaction with 32 channel information.
9	Alarm setting	:	Set Value, Alarm band setting, Upper, Lower, sensor fails and both alarm.
10	Channel Alarm Event Storage	:	Device can store Alarm event of channel Alarm band cross and Alarm band recover event with time stamp.
11	Relay	:	Multifunction Configurable potential free relay output for different channel and alarm.
12	Buzzer	:	Multifunction Configuration Inbuilt buzzer for different alarm.
14	Digital Input	:	Digital input can be configured for Acknowledgement.
15	Admin login	:	Password protected Super Admin and admin user login.
16	Communication	:	Proprietary protocol used for communication through RS485 or through TCP-IP Ethernet.

Keypad Functions



Display Modes

There are following Display modes:-

1) Channel Display Mode.
2) User Menu Display mode.
3) Special Key Function Display Mode.

Details of Display modes:

1>Channel Display Mode:

- In This mode, Channel Reading displayed in rotating mode.
- Each channel displayed for interval of 5 seconds.
- If any channel in alarm condition then Channel status displayed on display.
- Acknowledge alarm condition by key<ENTER>

2>User Menu Display mode

- This mode is accessed using Super Admin or User Admin login.
- User can navigate through different User menus to Enable/Disable different Functionality.

3>Special Key Function Display Mode.

- Special Key Functionality only accessed in Channel Display mode
- Following are Special Key Function:
  - ❖ Channel alarm acknowledgment

- If ENTER key pressed twice then Acknowlement of alarm channel taken.
- User can check acknowledgment status all channel group using Numeric key 1 or 3

Channel Alarm Types

Alarm for particular channel set via two parameter as follows:

- Set point
- Hysteresis Band

Depending upon Alarm Parameter setting and Channel Reading following Alarm Condition can be occurred.

SR. No.	Alarm Type	Description
1	High	When Channel reading goes beyond Alarm Set Point + Hysteresis
2	Low	When Channel reading goes below Alarm Set Point - Hysteresis
3	ORNG(over range)	When Channel reading goes beyond Channel Sensor range
4	URNG(under range)	When Channel reading goes below Channel Sensor range
5	OPEN/Err	When Sensor get open(Disconnected from slave device)

Alarm Concept with Example:

SR. NO.	Set Point	Hysteresis	Channel Process Value	Alarm Raised
1	30.0 °C	5.0 °C	32.5 °C	No Alarm(Normal Condition)
2	30.0 °C	5.0 °C	37.2 °C	High Alarm(Process value goes beyond 30.0 °C + 5.0°C)
3	30.0 °C	5.0 °C	22.3 °C	Low Alarm(Process value goes Below 30.0 °C - 5.0°C)
4	30.0 °C	5.0 °C	Lower than 0°C	Under range Alarm(Process value goes Below 30.0 °C - 5.0°C)
5	30.0 °C	5.0 °C	Greater than 45.0 °C	Over range Alarm(Process value goes Below 30.0 °C - 5.0°C)

Display Channel Reading Details on Unit display.
Channel Process value display mode.

- Channel 1 in High alarm (H), Sensor Unit: (°C) Process Value: 33.2
- Channel 2 in no alarm (*), Sensor Unit (%), Process Value:50.0

```
C: 01   33.2   °C  H
C: 02   50.0    %  *
```

- Channel 1 in High alarm (H), Sensor Unit: (°C) Process Value: 33.2
- Channel 2 in low alarm (L), Sensor Unit (%), Process Value: 22.5

```
C:01    33.2    °C  H
C:02    22.5     %  L
```

- Channel 1 in Sensor fail alarm (H), Sensor Unit: (°C)
- Channel 2 in OEPN alarm (L), Sensor Unit (%)

```
C:01    OPEN   °C
C:02    OPEN   %
```

- Channel 1 in Sensor fail alarm (Under range), Sensor Unit: (°C)
- Channel 2 in OEPN alarm (Over range), Sensor Unit (%)

```
C:01    URNG   °C
C:02    ORNG   %
```

- Channel 1 and 2 in Sensor fail alarm (Wireless sensor/16 channel scanner Communication error)

```
C:01  ERROR
C:02  ERROR
```

- **Channel 1 and 2 in Sensor bat low alarm (Battery Low condition)**

```
C:01   BAT LOW
C:02   BAT LOW
```

Channel Acknowledgement Display mode.

- **No alarm present.**

```
Alarm ACK Status
    No Alarm
```

- **Alarm Acknowledged.**

  Alarm ACK Status
  Acknowledged…

- **Alarm already acknowledged.**

  Alarm ACK Status
  Already Acked….

- **No alarm Present. (Applicable for Keypad Enter key)**

  1 2 3 4
  5 6 7 8

- **Channel 1, 2, and 7 in alarm condition. (Applicable for Keypad Enter key)**

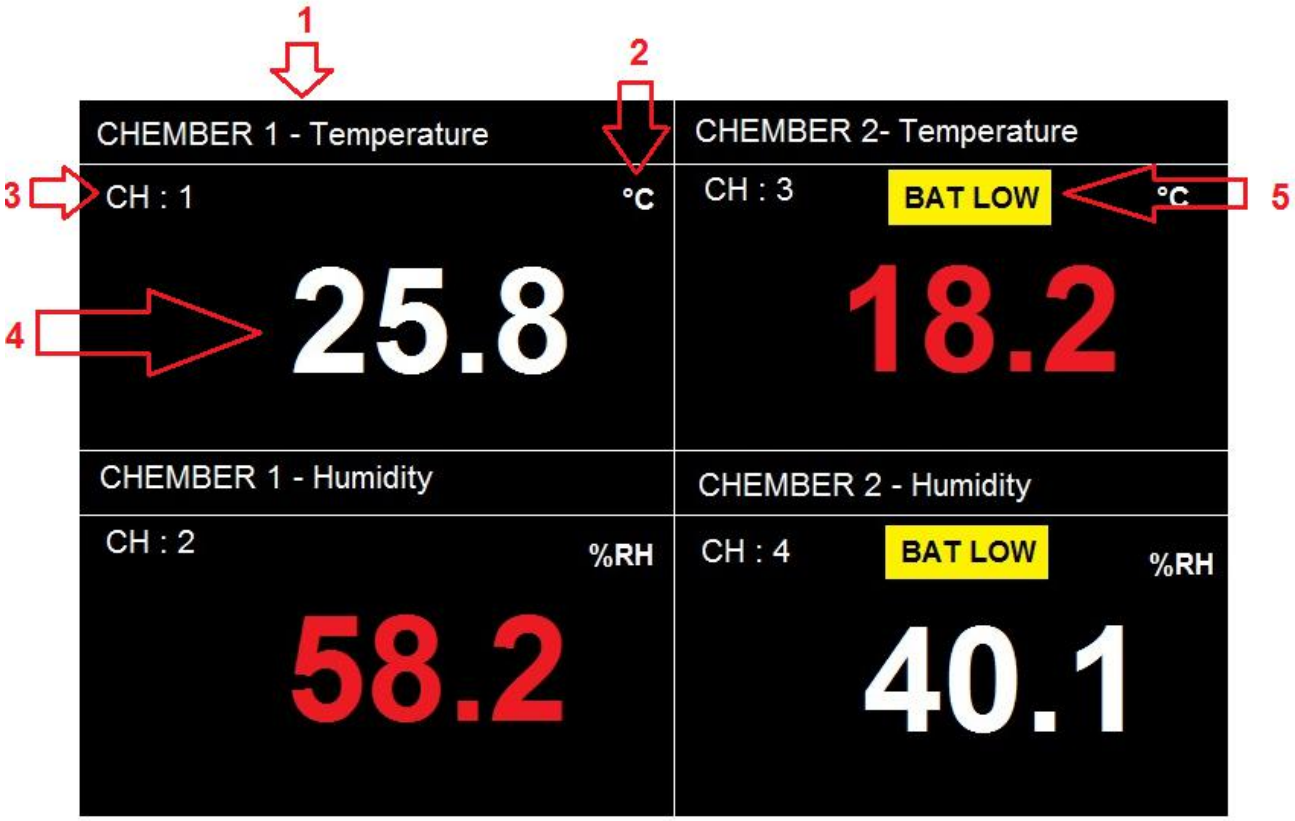
  1+ 2+ 3 4
  5 6 7+ 8

- **Channel 1, 2, and 7 alarm acknowledged. (Applicable for Keypad Enter key)**

  1* 2 * 3 4
  5 6 7* 8

TFT Screen Details:

Depending upon channel configuration



In above image,

- No 1 represents Channel name (configurable)
- No 2 represents Channel Unit (configurable)
- No 3 represents Channel number
- No 4 represents Process Value of respective channel
- No 5 represents, respective channel wireless sensor battery low.
  When any channel in alarm condition process value displayed in red color else white color.
  When Channel in sensor fail condition, following messages displayed at No.4 field.
    1. **OPEN**: when external sensor not connected.
    2. **URNG**: sensor under range.
    3. **ORNG**: sensor over range.
    4. **Err**: when external slave device not connected to device.

Message displayed on TFT	Description
OPEN	External sensor not connected(PT-100)
URNG	Sensor Under range
ORNG	Sensor Over range

Err	External Slave sensor/device(wireless sensor/16-Channel scanner) communication error

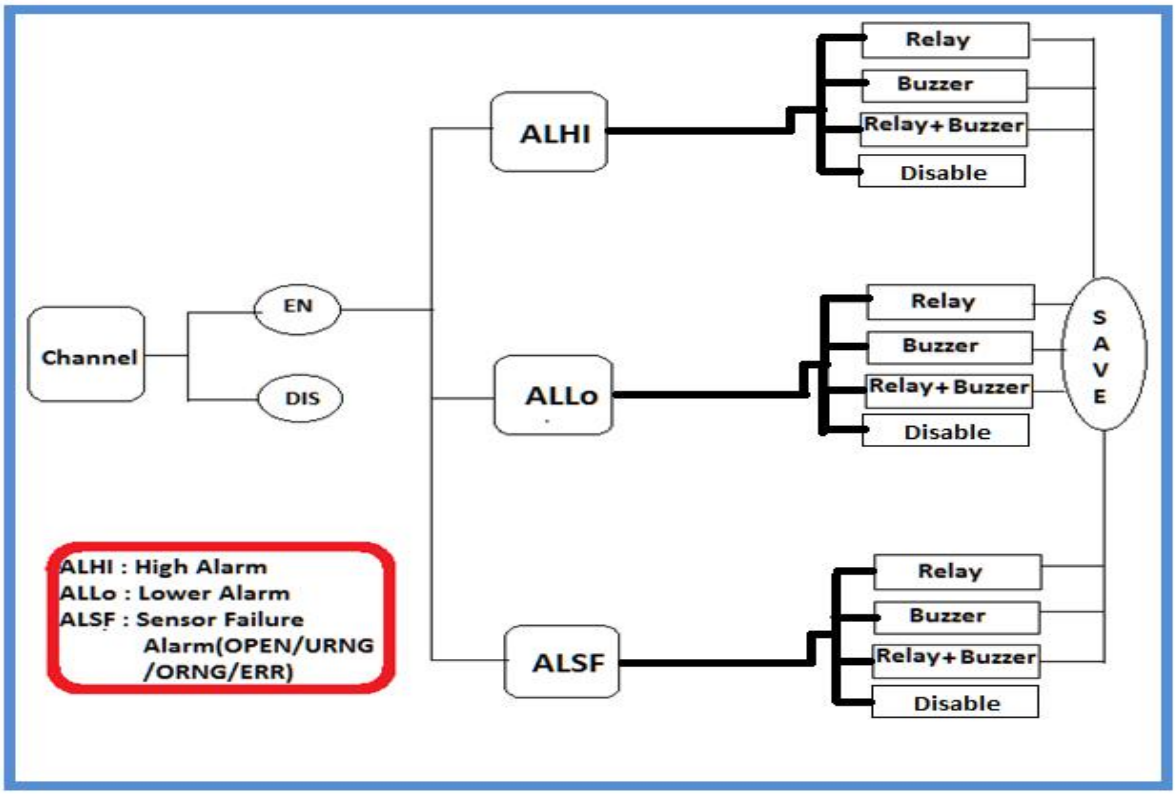
Output Configuration

Following output configuration available:

- Potential free relay
- Internal buzzer

Flowchart for Channel output configuration.

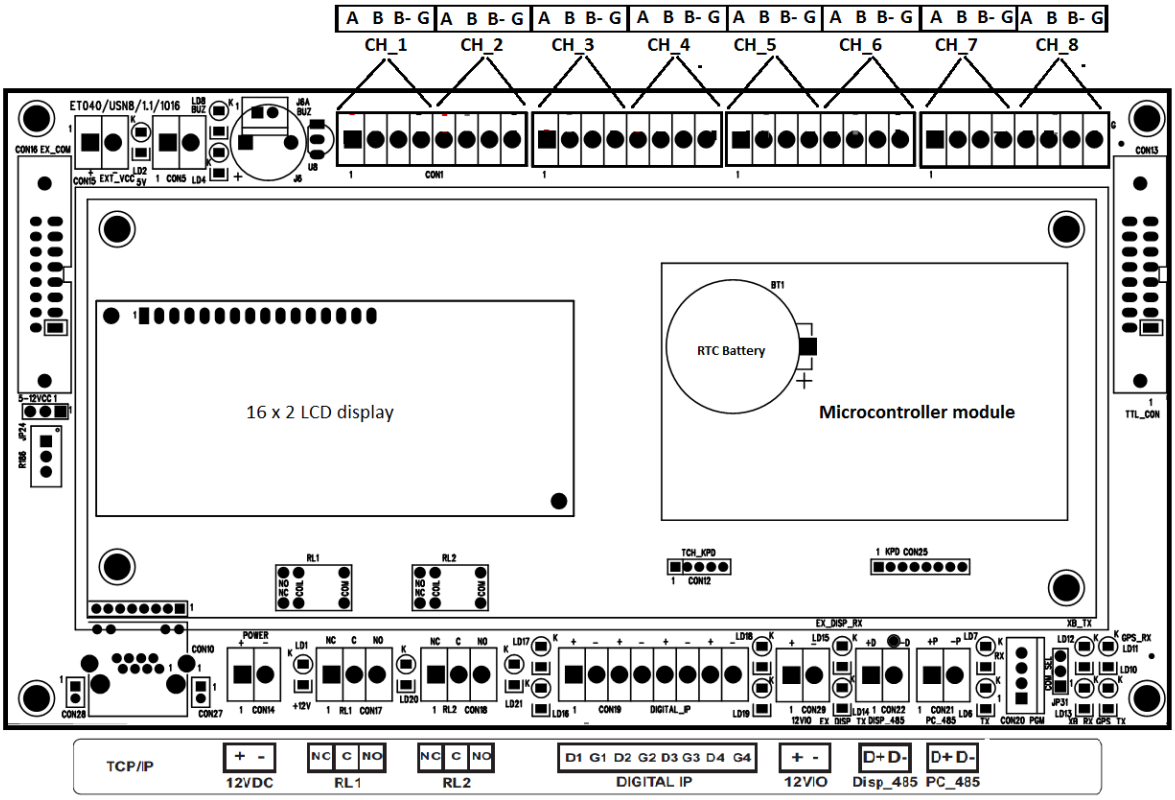
As shown in following image, mention configuration applicable for each channel.



Alarm Snooze time

When particular channel acknowledgment taken, then after settable snooze time channel again raise output selection. I.e. Internal buzzer/Relay.

Connection Details



12VDC		**Power Supply: 12Volt,250mA**
Pin No.	**Legend**	**Description**
1	+	Positive
2	-	GND

RL1		**Relay 1**
Pin No.	**Legend**	**Description**
1	NC	Normally closed contact
2	C	Common contact
3	NO	Normally open contact

RL2		**Relay 2**
Pin No.	**Legend**	**Description**
1	NC	Normally closed contact
2	C	Common contact
3	NO	Normally open contact

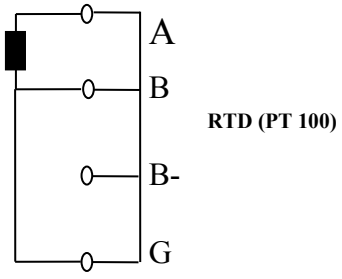
Digital IP		Digital Input
Pin No.	Legend	Description
7	D4	Connect Normally Open switch to D4-G4 (for acknowledgement purpose.)
8	G4	

12VIO		+12 VDC connection for TFT/DPMS Slave Display and Wireless coordinator.
Pin No.	Legend	Description
1	+	Positive
2	-	GND

Disp_485		Wireless coordinator (ETW – CR) /16 Channel Scanner (ETS-US-16) 485 communication.
Pin No.	Legend	Description
1	+	485 D+
2	-	485 D-

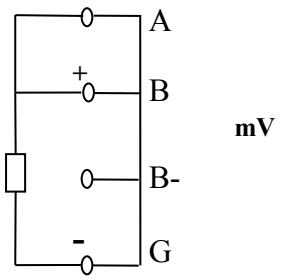
PC_485		For DPMS slave Display/TFT Display 485 communication
Pin No.	Legend	Description
1	+	485 PC+
2	-	485 PC-

Connection details for CH_1 to CH_8

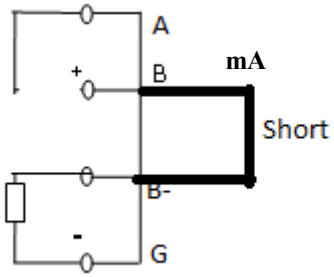
RTD (PT-100) sensor connection		DESCRIPTION	
PIN NO.	LEGEND		
1	A	RED	
2	B	WHITE	
3	B-	NC	
4	G	WHITE	

RTD (PT 100)

Humidity (0 to 1v ,0-3.3,0-5 Volts) Sensor Connection		DESCRIPTION
PIN NO.	LEGEND	
1	A	SENSOR SUPPLY 12v/5v
2	B	SENSOR SIGNAL 0- 1v
3	B-	NC
4	G	GROUND



(4 to 20 mA) Sensor Connection		DESCRIPTION
PIN NO.	LEGEND	
1	A	SENSOR SUPPLY(12/5V) No provision for 24V sensor supply.
2	B	SENSOR SIGNAL 4 to 20 mA
3	B-	NC
4	G	GROUND



Connection details for ETS – SVR(server) with ETW – CR (wireless coordinator)

ETS-SVR connection	ETW-CR connection
12VIO +	V+
12VIO -	G
Disp_485 D+	D+
Disp_485 D-	D-

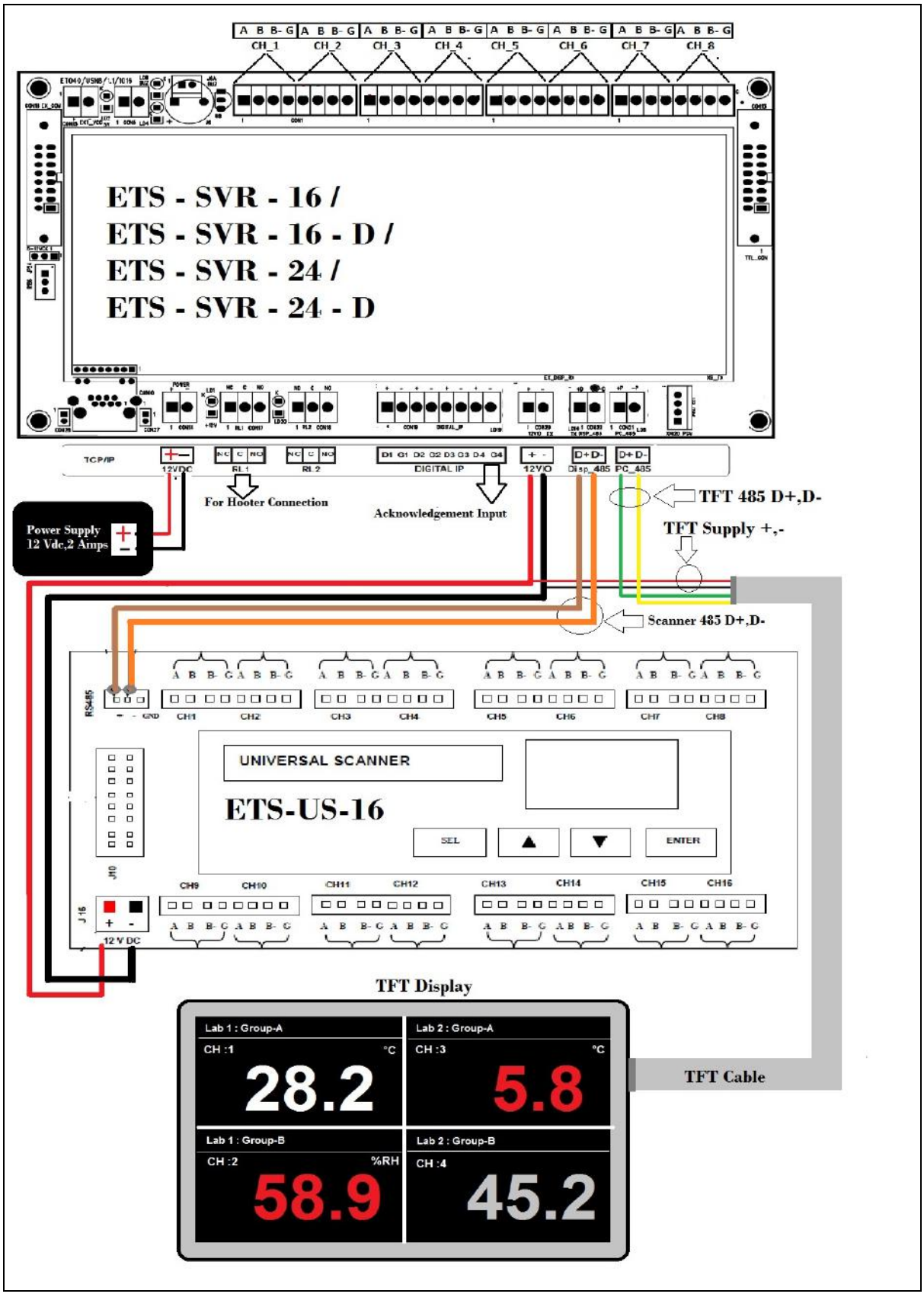
Connection details for ETS – SVR (server) with ETS-US-16 (16 channel scanner)

ETS-SVR connection	ETW-CR connection
12VIO +	V+
12VIO -	G
Disp_485 D+	RS_485 +
Disp_485 D+	RS_485 -

Connection details for ETS – SVR (server) with ETS-ED (External TFT slave Display)

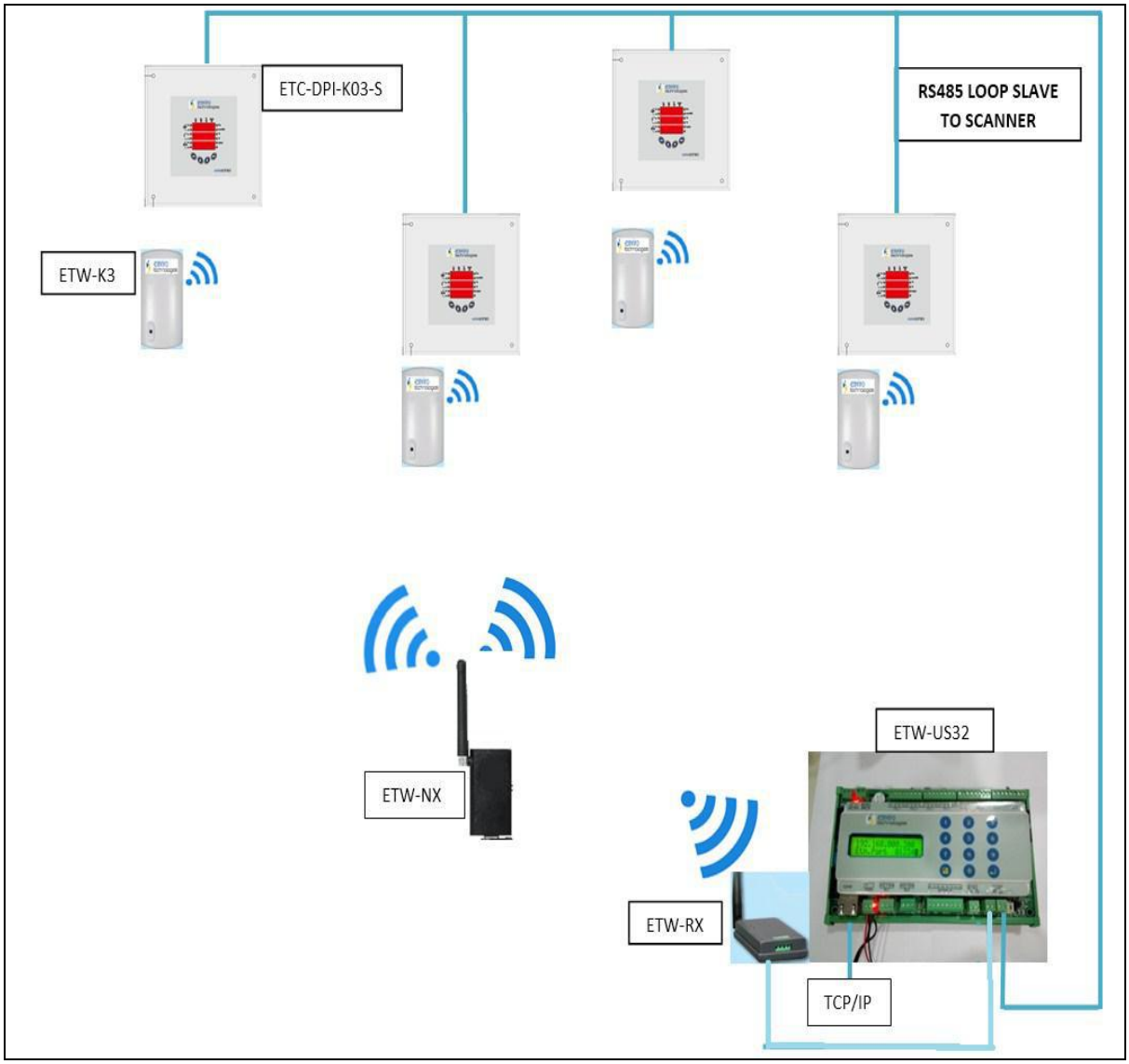
ETS-SVR connection	ETS-ED connection to tft cable
12VIO +	Red
12VIO -	Black
PC_485 D+	Green/Brown
PC_485 D+	Yellow/Orange

Connection diagram for ETS – SVR with ETS-US-16

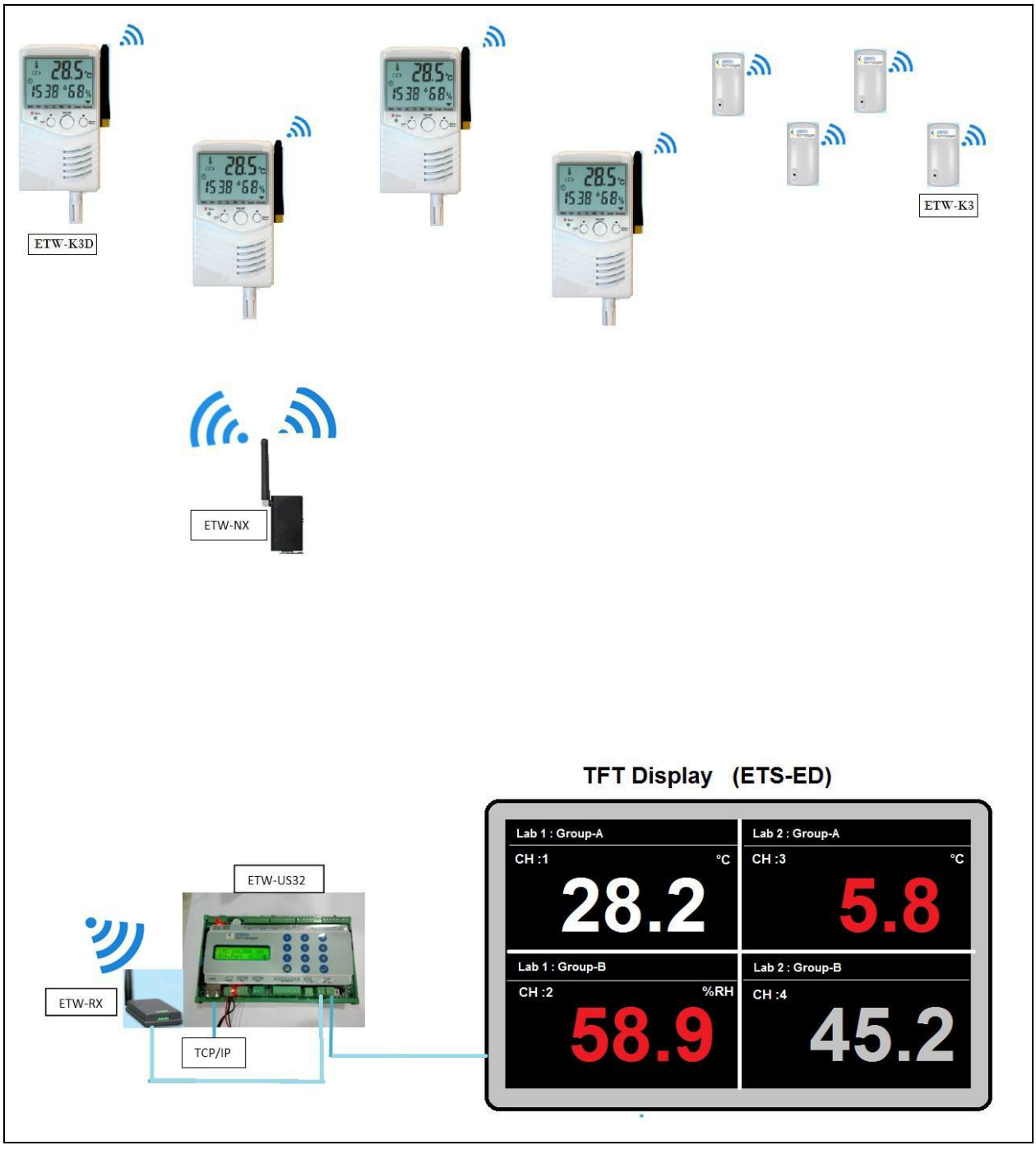


Design Architecture and Solution

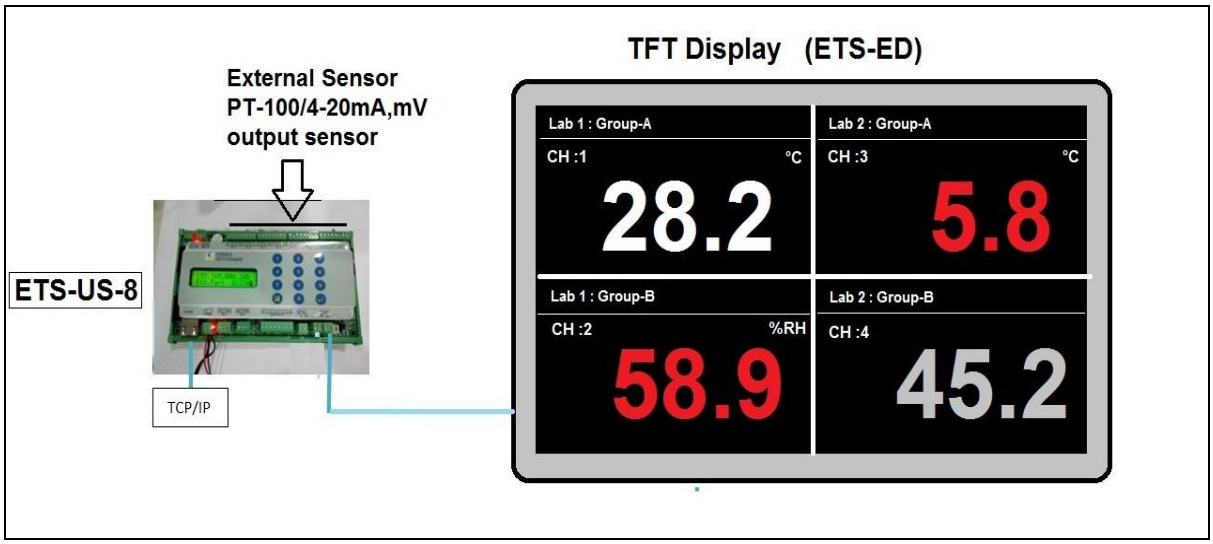
Type – A



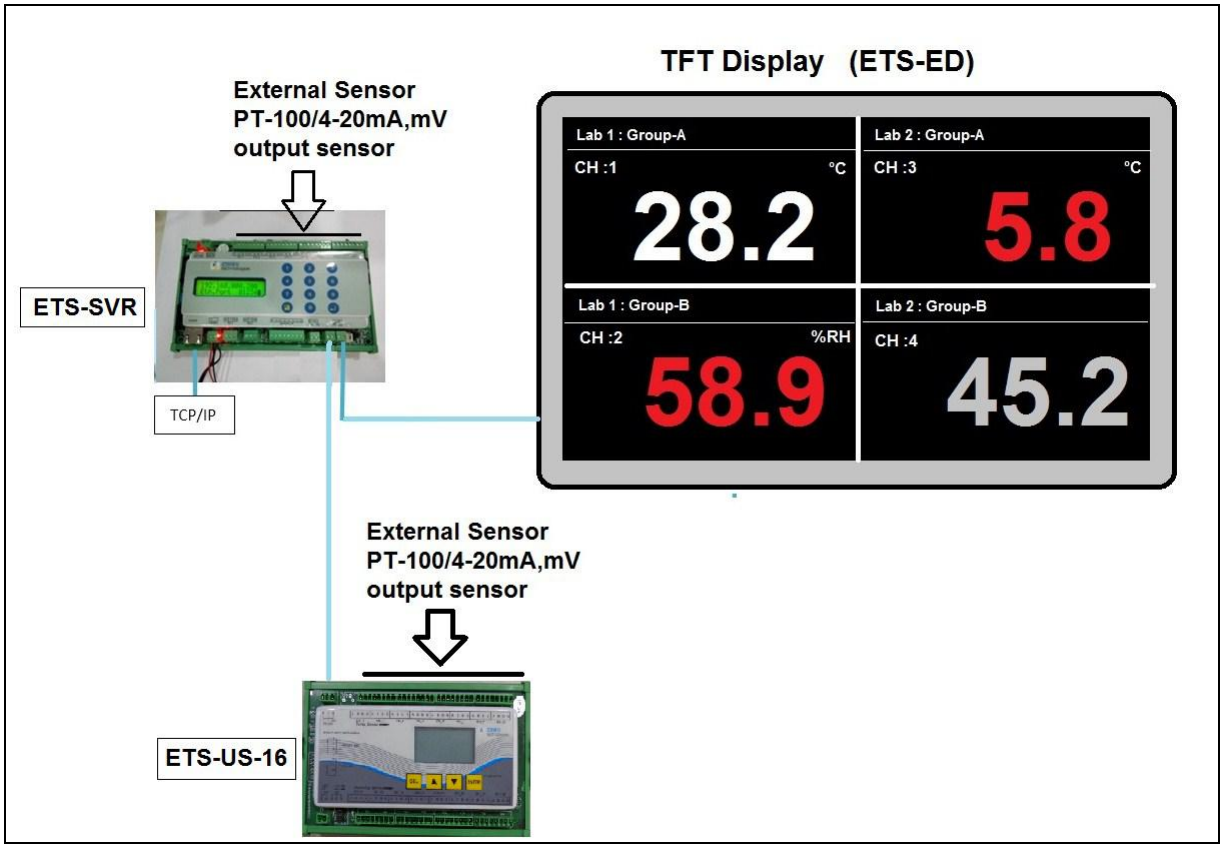
Type – B


ETW-K3D
ETW-K3
ETW-NX
TFT Display (ETS-ED)
ETW-US32
ETW-RX
TCP/IP
Lab 1 : Group-A
CH :1
°C
28.2
Lab 2 : Group-A
CH :3
°C
5.8
Lab 1 : Group-B
CH :2
%RH
58.9
Lab 2 : Group-B
CH :4
45.2

Type – C


TFT Display (ETS-ED)
External Sensor
PT-100/4-20mA,mV
output sensor
ETS-US-8
TCP/IP
Lab 1 : Group-A
CH :1
°C
28.2
Lab 2 : Group-A
CH :3
°C
5.8
Lab 1 : Group-B
CH :2
%RH
58.9
Lab 2 : Group-B
CH :4
45.2

Type – D


TFT Display (ETS-ED)
External Sensor
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output sensor
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°C
5.8
Lab 1 : Group-B
CH :2
%RH
58.9
Lab 2 : Group-B
CH :4
45.2
External Sensor
PT-100/4-20mA,mV
output sensor
ETS-US-16

Keypad Settings

Menu No.	Function	How to go?	Note	Default value
1.	**Normal mode**	**Key – *0**	Welcome screen Displayed.	
2.	**Admin Mode**	**Key – *2** **Enter User ID – 11111** **Key – #** **Enter Password – 12345** **Key – #**	To log In/out from Admin mode press Key – *2 Key – # (Auto logoff after 60sec)	
3.	**Set Time & Date**	**Key – *6** **Enter Time/Date** **Key – #**	Enter correct Date & Time.	
4.	**Help Menu**	**Key – *8** **Press – 1 for INC** **Press – 3 for DEC** **Press – # to enter**	We can directly go in to any menu by pressing "#" key.	
5.	**Initialize system**	**Key – *90** **Press – 1 for INC** **Press – 3 for DEC** **Key – # to enter**	00 Delete all data 01 Delete Transaction Group - A 02 Delete Transaction Group - B 03 Delete Admin IDs 04 Reset System	**Refer Annexure:1**
6.	**Controller Slave ID**	**Key – *91** **Enter Controller Slave ID** **Key – #**	By default it is set to 1. We can assign controller ID from 1 to 128.	**1**
7.	**Add / Change or Delete Admin Users**	**Key – *92** **Press – 1 for Add/Ch** **Press – 3 for Del** **Key – #** **Enter user id then #** **Enter password** **Key – #**	We can add max 16 admin users (0 – 65535nos) including default user. (i.e. User ID = 11111 and Password = 12345) For Security reasons change Admin password.	**User - 11111** **Password - 12345**

8.	**Set IP Address**	**Key – *990** **Enter Unit IP Address** **Press – #** **Enter Subnet mask** **Press – #** **Enter Default gateway** **Press – #** **Enter Server IP Address** **Press – #** **Enter Port No.** **Press – #** **Enter Push Server1 IP Address** **Press – #** **Enter Push Server1 Port No.** **Press – #** **Enter Push Server2 IP Address** **Press – #** **Enter Push Server2 Port No.** **Press – #** **Enter UDP IP Address** **Press – #** **Enter UDP Port No.** **Press – #** **Enter DNS Server IP** **Press – #** **Enter HB Server IP** **Press – #** **Enter HB Port No** **Press – #** **Enter HB Time in min** **Press – #** **UDP server** **Press – #**	We can set Unit IP, Subnet mask, Default gateway, Server IP, Port No., Push Server1/2 IP address, Push server1/2 port No, UDP IP Address and UDP Port No using this menu. After setting required parameters reset the system to take effect.	

9.	**System Info**	**Key-*9991** **Press enter key to get next data**	Unit ID Trans. Interval Total Trans GR-A Total Trans GR-B Trans. Capacity Model Number Serial No Mfg. Date Start Date FW Compile Date Firmware Version Hardware Version Mac Address	**Refer Annexure: 2**
10.	**Network Ping**	**Key- *99990** **Network ping**	To Ping Network 1= Ping gateway 2= Ping Internet	
11.	**Set Channel Alarm Set Point and Hysteresis.**	**Key-*99992**	To modify/view parameter, select required channel. To modify set value select proper selection of positive and negative sign.	
12.	**Set Channel Alarm configuration of relay and internal buzzer**	**Key-*99993**	To modify/view parameter, select required channel.	
13.	**Set System Parameters**	**Key-*99994**	To modify view system parameter	**Refer Annexure: 3**
14.	**Set Channel Calibration Offset**	**Key-*99995**	To modify/View channel user calibration offset.	
15.	**Reset Channel Calibration to default.**	**Key-*99996**	To Reset channel calibration data to factory default. All setting related to channels Example: Channel Alarm set point, Hysteresis, relay/buzzer configuration, User offset reset to factory default.	

Note:

1. **All Functions accessed in SuperAdmin mode.**
2. **All function except Menu no.5, 14, 15 accessed by user admin mode.**
3. **Auto Logoff for Admin after 60 secs. (If any key is not pressed)**
4. **If system is initialized or IP address is set then reset the system.**

Annexure: 1

***90 Selective Initialization of System**

00 Delete all data	Every Info is deleted and set to default value.
01 Del Tran Group-A	All transaction of Group-A (1 to 16 channels) deleted.
02 Del Tran Group-B	All transaction of Group-B (17 to 32 channels) deleted.
03 Delete Admin IDs	Admin Id is deleted and set to default ID
04 Reset System	Resets the system

Annexure 2:
***9991 System Info**

Unit ID	1
Transaction Interval	15
Total Trans GR-A	250
Total Trans GR-B	250
Trans. Capacity	10000
Model Number:	As per factory setting
Serial No:	As per factory setting
Mfg. Date:	As per factory setting
Start Date:	As per factory setting
FW Compile Date	Jun 7 2017
Firmware Version	USN 4.3A(depend on firmware version)
Hardware Version	1.0
MAC Address	As per factory setting

Annexure: 3
***99994 Selective Initialization of System**

Trans Interval	Device Transaction Storage Interval selectable from 1 to 255 min.
Snooze Interval	All channel common snooze interval selectable from 0 to 9999 sec. 0 selection: Snooze Interval Disable.
Mem Alarm En/Dis	Enable alarm for Transaction memory more than 75 %

Installation Note

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

1. All cables connecting to Scanner must lie separately; they should not mix up with high voltage & high current cables (like Motor; compressor; contactor; Heater etc.
2. Ethernet cable (RJ45) cable is use for PC communication.
3. Cable specification for RS-485 => 14/36; 22AWG; 2 core shielded twisted cable.
4. Keep Wireless sensor and coordinator in range of 60/100 meter line of sight. If it is not feasible to keep wireless sensor and coordinator within range of 60 meter then install router to appropriate position.
5. Replace wireless sensor batteries when battery low indication shows on Scanner device.
6. It is strongly recommended to install batteries into Wireless sensor **just before** pairing to parent device as this will greatly improve battery life. Also, it is recommended to set the DIP Switch time interval to 5 minutes for longer battery life, in case of ETW-K3 wireless sensor.
7. For proper functioning of wireless sensor and longer battery life, it is recommended to install alkaline or lithium batteries from reputable suppliers.
8. With paired coordinator power off with sensor batteries inserted, may drain batteries drastically and damage to Sensor.

Troubleshooting Chart

Following are few troubles shooting point which will guide for rectifying problem while dealing with DPMS.

NOTE: With paired coordinator power off with sensor batteries inserted, may drain batteries drastically and damage to Sensor.

No	Problem	Probable solutions
1.	**Display Doesn't show reading of any Channel.**	1. Check particular channel is enabled properly. 2. Check all sensor pins are connected properly.
2.	**Sensor connections**	3. PT100 and mV sensor connections has been given on sticker itself .Do the sensor pin connections properly to avoid sensor burning problems.
3.	**Buzzer does not works**	4. Check for channel relay/buzzer configuration settings.
4.	**Date and time is changed after reset.**	5. Set the date and time from Menu. 6. Check internal RTC battery (change if required).
5.	**Wireless Sensor shows " ERROR" reading**	7. Check RS-485 wire connection 485 (D+ & D-). 8. Check sensor out of range with coordinator. 9. Refer Wireless Setting manual for pairing.
6.	**Relay is not working.**	10. Check settings in Relay configuration menu.
7.	**Acknowledgment from digital I/P is not working.**	11. Check DIGI IN wire connection.
9.	**Does not show memory full indication for 70% or more.**	12. Check the buzzer settings in the menu and select the required one.
10.	**Buzzer does not beeps on Alarm condition**	13. Check the Relay configuration setting.
11.	**Device not communicating via Ethernet**	14. Check for proper device ID selection. 15. Check IP address, Getaway, Port settings.
12.	**Slave Display Not updated within 3 min**	Check RS-485 wire connection 485 (D+ & D-).

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