STREAMLINE CONTROLS PVT LTD

HOT-Rkon

Operating Manual for HOT-Rkon

Business Mission

STREAMLINE CONTROLS PVT LTD

Streamline Controls Pvt. Ltd. (SCPL) is in the business of providingElectronics & computerized automation solution for different industries so as to enhance the quality and productivity. Our motto is to provide indigenous, reliable and proven products & hence to ensure consistent performance. Our concept of value to the customers is to supply indigenous control systems designed with latest technology, developed through extensive R & D, incorporating state of art technology (world technology trend), manufactured under strictest quality control system and duly tested, at competitive prices, delivered in time and supported by service teams.

We feel it to be our responsibility to ensure that our business operates at a reasonable profit, as profit provides opportunity for R&D, growth and job security. Therefore, we are dedicated to profitable growth - growth as a company and growth as an individual.

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PREFACE

Hot Runner Temperature Control Systems are multi functional control system, incorporating microcontroller, and are most versatile and cost efficient, optimally designed to best suit the control needs of Hot Runner Moulds in Plastic Injection Moulding Machines.

For later usage and maintenance of control system, detail study of this operating manual will be helpful.

Features and Specifications are subject to change without prior notice.

We would be glad to assist your queries.

CONTENTS

(A) INTRODUCTION

Hot Runner Temperature Control Systems are multi functional control system, incorporating microcontroller, and are most versatile and cost efficient, optimally designed to best suit the control needs of Hot Runner Moulds in Plastic Injection Moulding Machines.

System consists of MMI, temperature cards and SMPS. The MMI consists of user friendly 7” Touch PLC Console. Temperature card consists of different inputs/outputs.

(B) SYSTEM SPECIFICATIONS

Voltage (AC)	Three phase 415 VAC (4 Wire)
Heater capacity	15Amp/Heater Maximum
Voltage (DC)	24 V DC ± 1%
Total Power (24 Zone)	82KW Maximum
Thermocouple	J type Isolated
Temperature (Environment)	0ºC to 55ºC
Humidity (Environment)	5 to 95% RH non-condensing

(C) PRECAUTIONS

To prevent damage from human and machine, we recommend strictly obeying the following safety procedures.

1. Equipment must be operating under correct power. (Install a voltage stabilizer or CVT while need)
2. Earth terminal must be connected to qualified terminal.
3. All electrical elements with EARTH terminal, it is necessary for users to connect with the EARTH terminal.
4. The high power cables should be separated from the low power cables to avoid interferes.
5. To prevent fire or hazard shock, do not expose the unit to rain or moistly place.
6. Please understand the operating process before use.
7. When system shut down, wait 10 seconds for re-start.
8. Thermocouples used for this system must be isolated (ungrounded)
   J Type(Fe/k).
9. The wiring of each zone starting from thermocouple of heater must be verified.
   For ex: first zone thermocouple must be connected to first channel of the system and heater of first zone must be connected to heater 1of the system.

(D) FEATURES

Below mentioned are some unique features of HOT-Rkon:

1. User friendly 7” Touch PLC Console
2. Firing Angle Heat Control through SSRs
3. Soft Start for Heater Failure Prevention
4. MCBs for Over Current Protection
5. Automatic Switch to Manual Control in Case of Thermocouple Sensor Open
6. Heater Current Measurement of Individual Zones
7. Models Available up to 32 Zones
8. Individual Heater Zones Status Display
9. Adaptive PID / Manual PID / Percentage Heat Control
10. Alarm for Under and Over Temperature
11. Additional Programmable Transistor Output per Each zone for Heater/Blower/Alarm
12. Unique Standby Mode to Save Time & Energy when Machine is at Standby position
13. Caster Wheels for Easy movement of the HOT-Rkon Control Panel
14. Heater Safety Option Setting
15. 40 Numbers of Mould Recipe.

(E) OPERATING PANEL DESCRIPTION

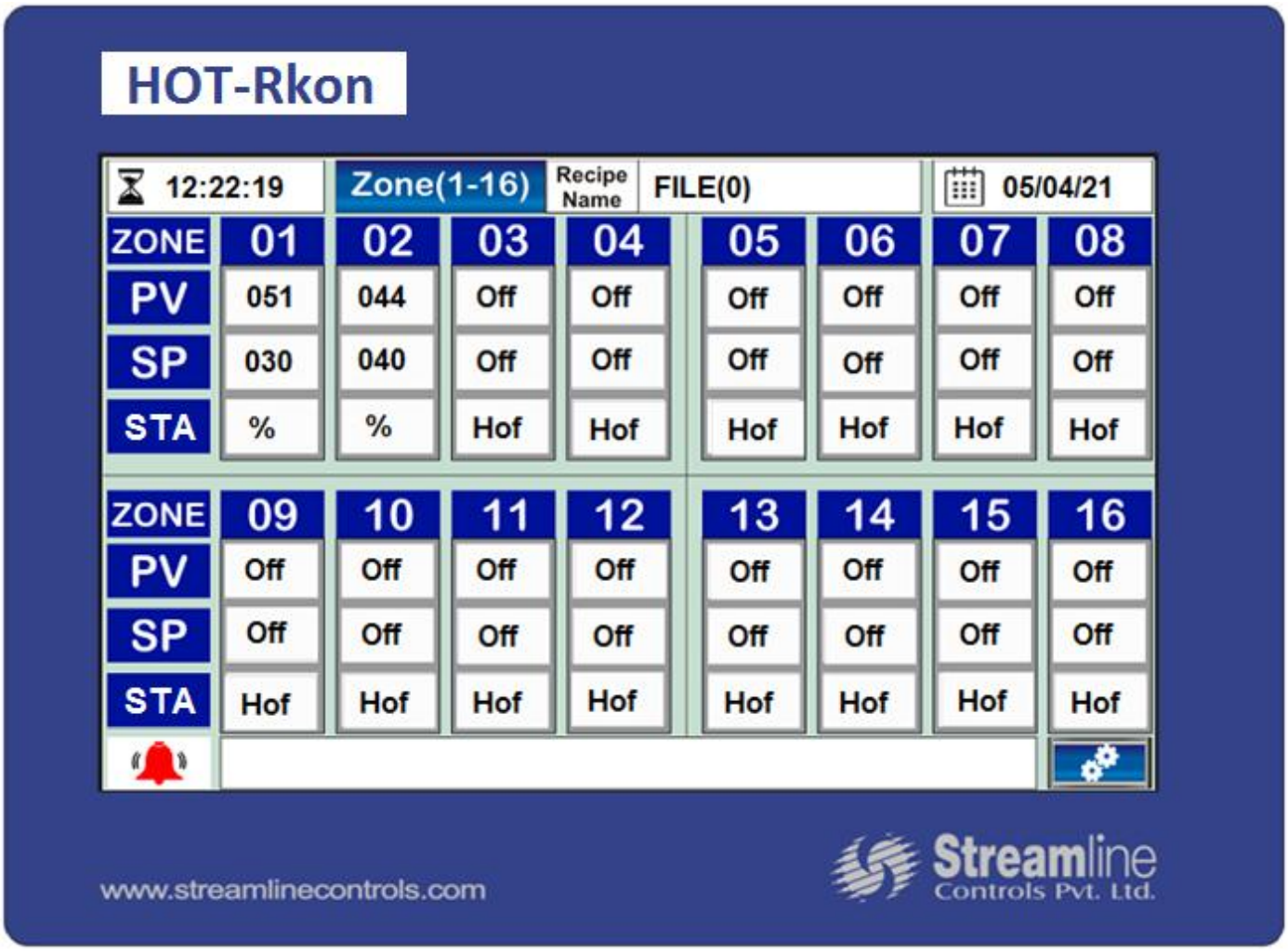


Figure 1: HOT-Rkon Operating Panel

Operating panel consists of display unit. As shown in the figure above, the main screen is displayed which shows data of 16 different zones. **Zone(1-16)** is a button which changes the screen for **Zone(17-32)**.

On the Main Page 1, there are different parameters keys. All such keys can be described as mentioned below:

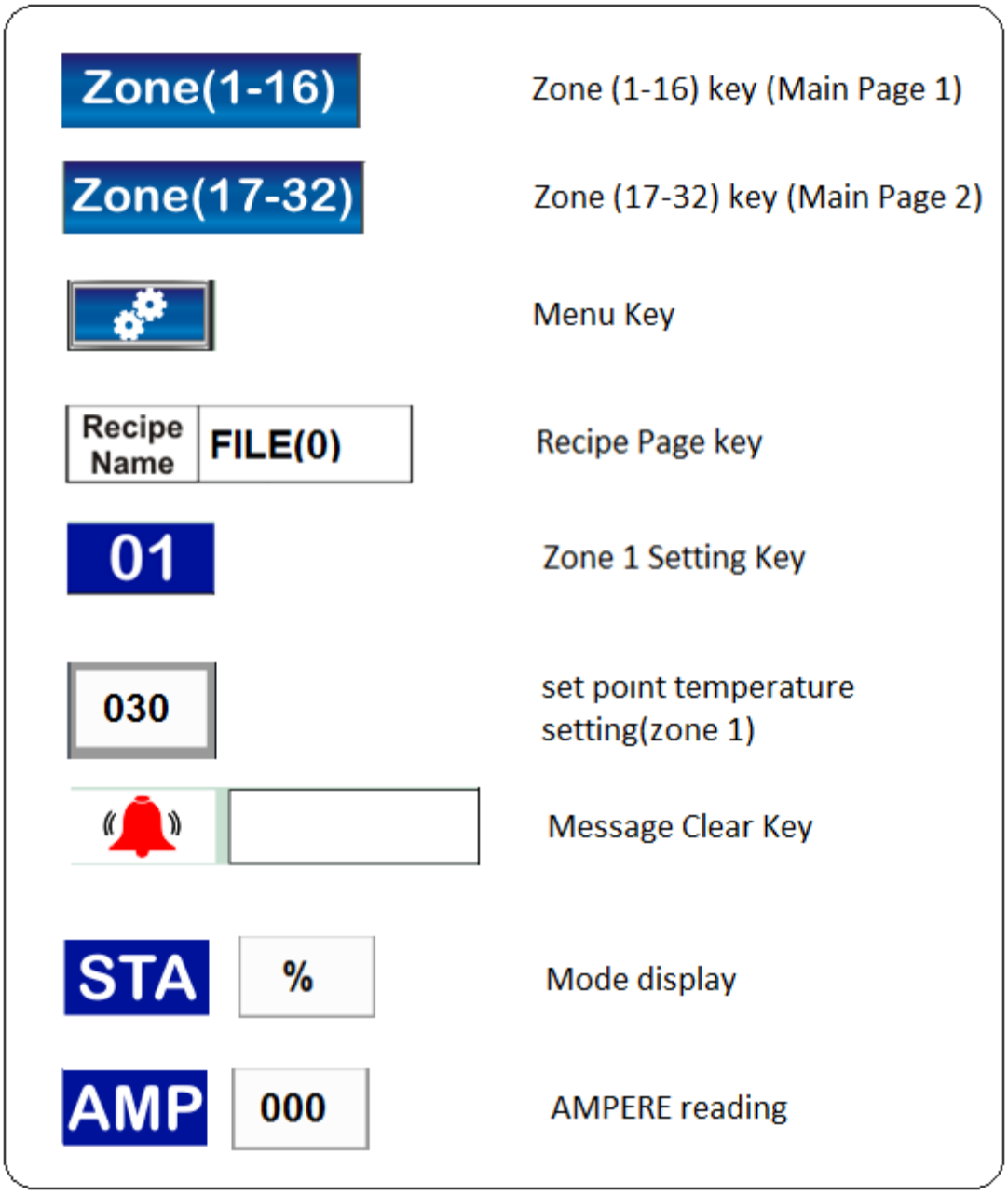


Figure 2: Operating Panel keys

(F) SCREEN PAGE DESCRIPTION

(1) START-UP PAGE

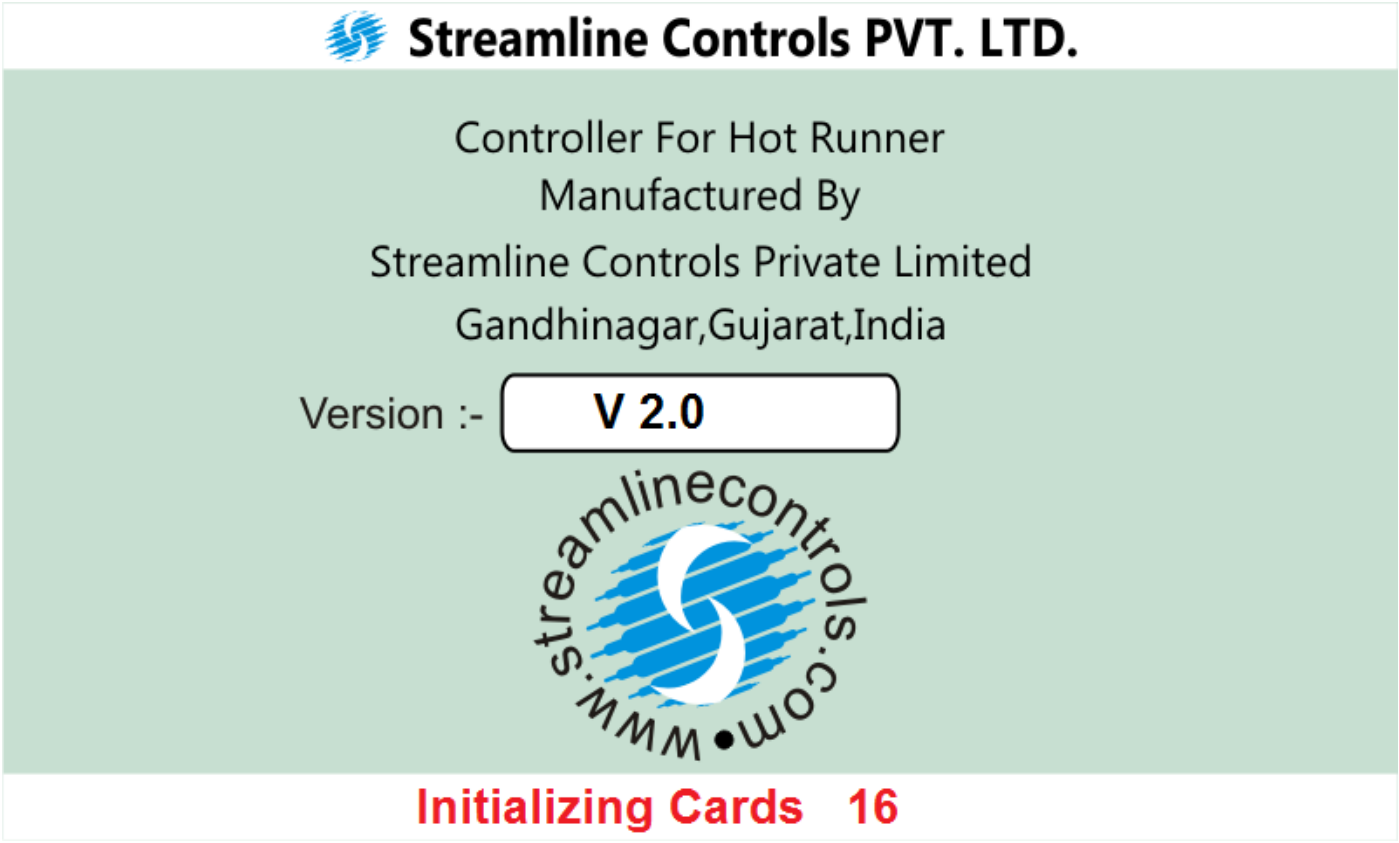


Figure 3 : Start-up Page

Start-up Page has information about the product. Manufacturer's company logo is also there in the Start-up Page. Also, the current software version of MMI is displayed in the Start-up Page. So if the software version is updated, user can see that in the Start-up Page.

Start-up Page is displayed only once at power-up. At the initialization, a message appears at the bottom of the Start-up Page as "Initializing Cards". It takes up to 20-30 seconds in case of serial error. If the cards selection is done but cards are not connected, serial error may occur. So wait until all the cards are initialized.

(2) MAIN PAGE

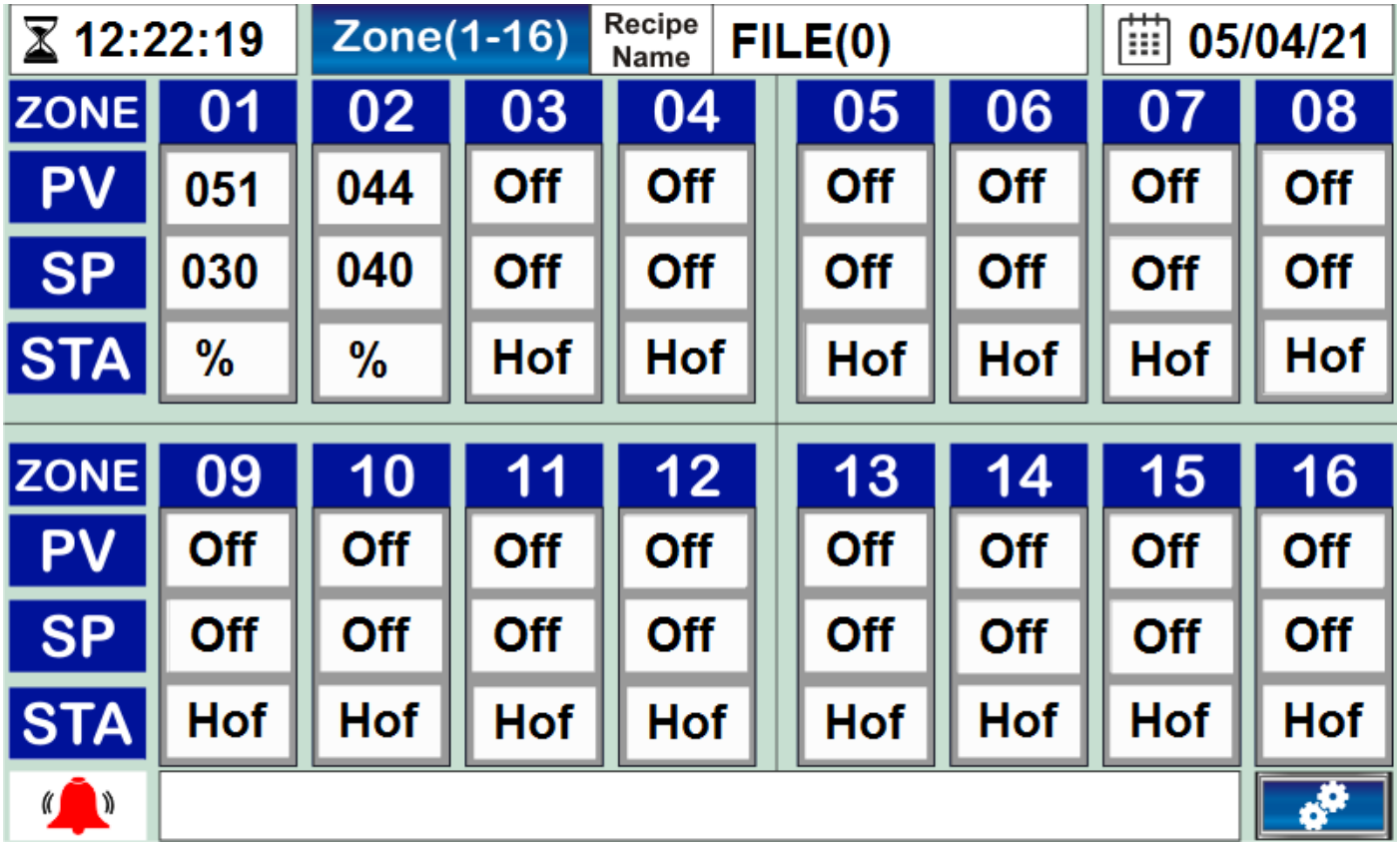


Figure 4: Main Page1

Press Zone 1-16 to go to Main Page 2 which includes zones 17-32.

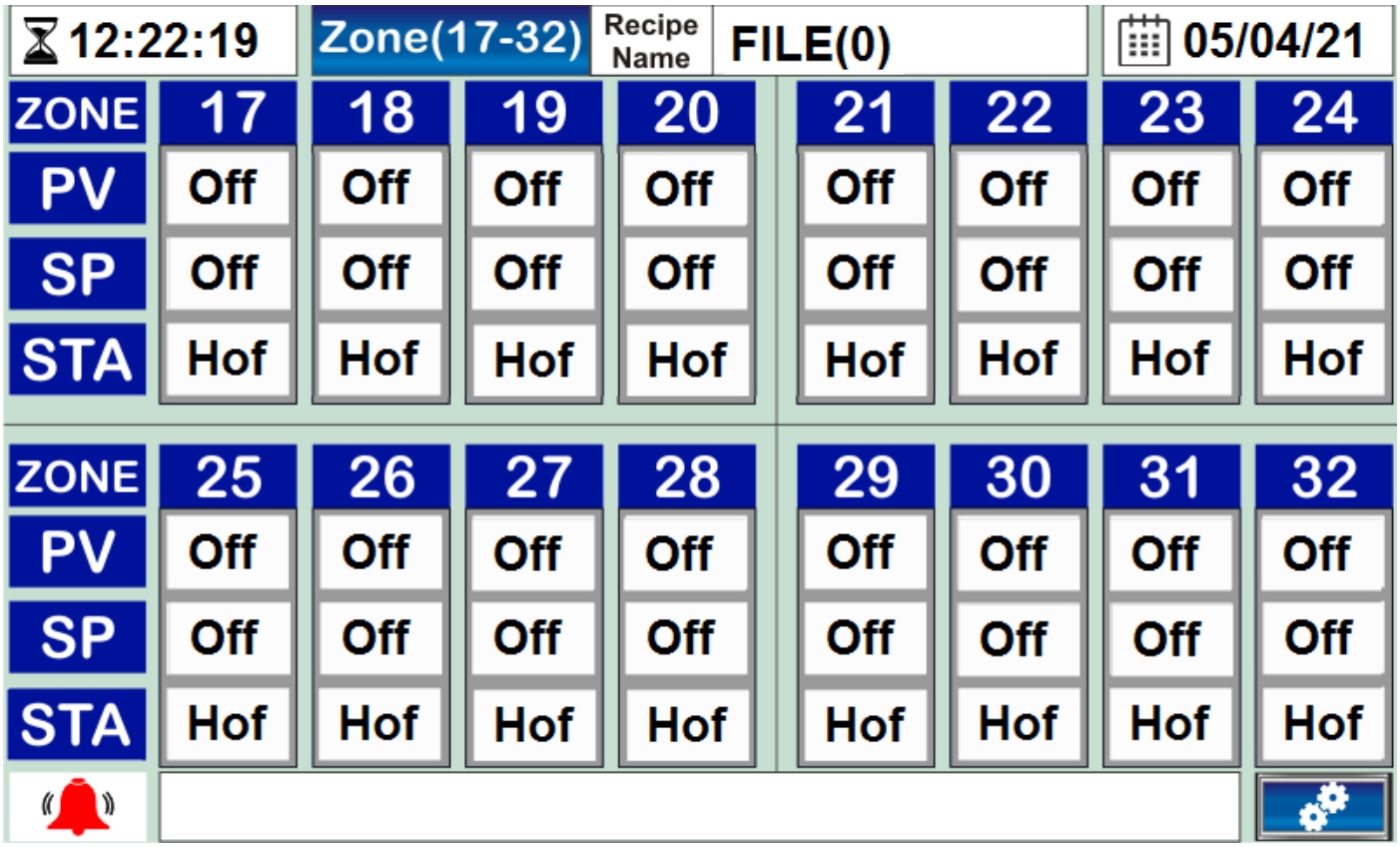


Figure 5: Main Page2

File (0) shows currently loaded recipe file name. If you press on file name, Recipe Page will appear on the screen. In Main Page, user can see the operating mode status of temperature zones. **STA** shows the operating mode status of corresponding zones. **SP** indicates set point temperature for corresponding zones. If the card is not connected, it will by default show status off. **PV**shows thermocouple status for corresponding zones. On the top left side of the main page, real time is shown and on the right top side date is shown.

Main Page has different temperature zones data. There are two pages, Main Page 1 and Main Page 2. In Main Page 1, zone 1-16 from card 1-8 are included. In Main Page 2, zone 17-32 from card 8-16 are included. User can go to any temperature zone page through this page. If you touch zone 1, temperature zone 1 page will pop up. All the parameters of temperature zone 1 are included in this page.

Zone 1-16 on Main Page1 and Zone 17-32 on Main Page2 are buttons and will open up different zones setting screens. Here is how on pressing Zone 01 on Main Page1, Zone 1 Parameter Setting Page will appear on the screen.

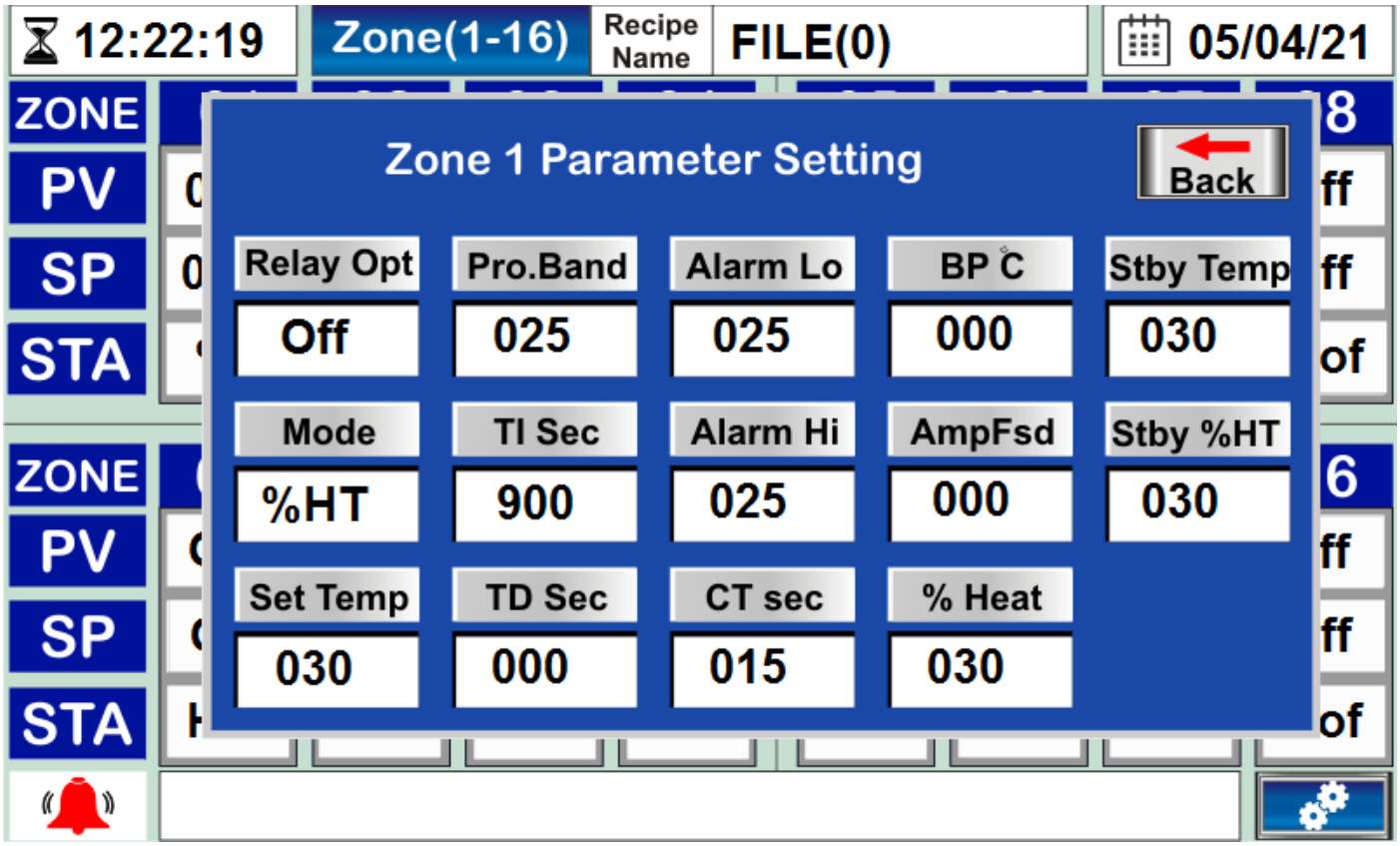


Figure 6: Temperature Zone 1 Page

Different zones have individual settings page. Touching on any zone number, user can go to that temperature zone parameter settings page. Back button is used to go back to Main Page.

Each card comprises of two temperature zones. HOT-Rkon can have up to 48 zones so there can be 24 cards. Here if the card is selected, corresponding zones can be ON/OFF. User has to select the card number to be turned ON/OFF from the Supervisor Page. If card 1 is selected, its corresponding zones 1 & 2 are ON.

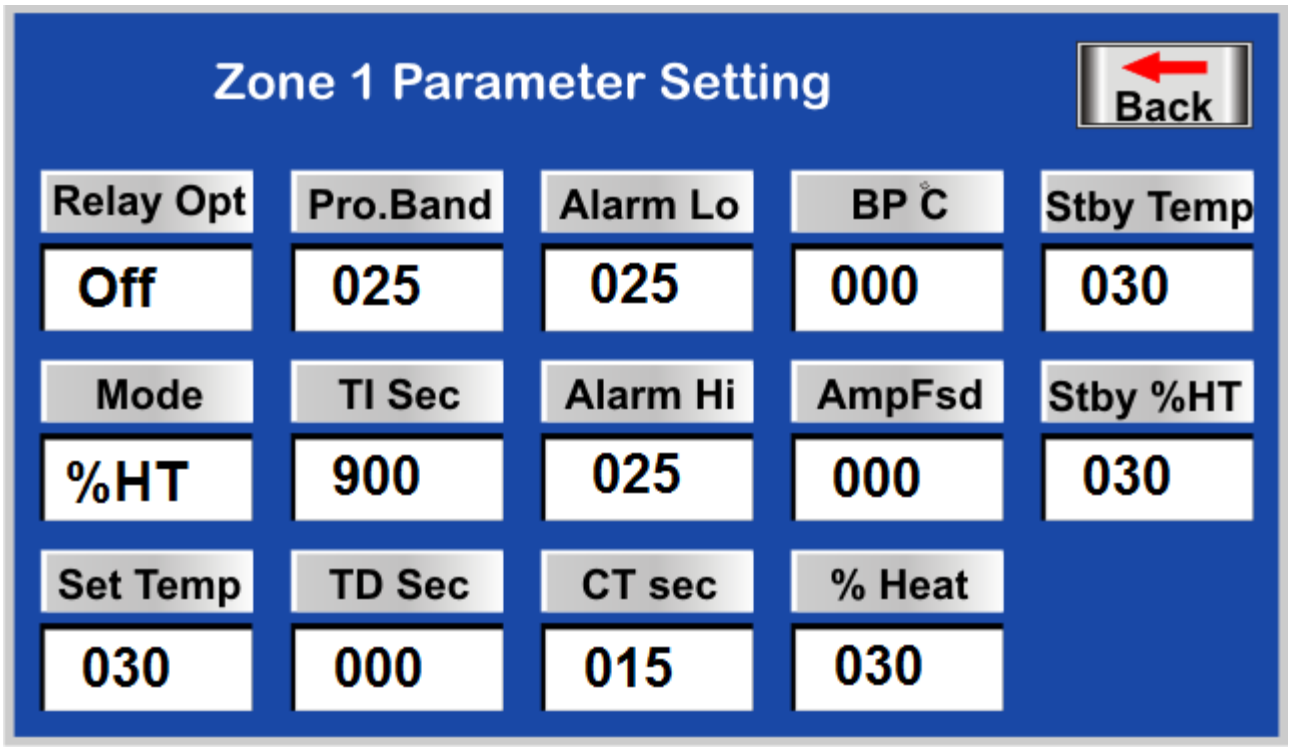


Figure 7 : Temperature Zone 1

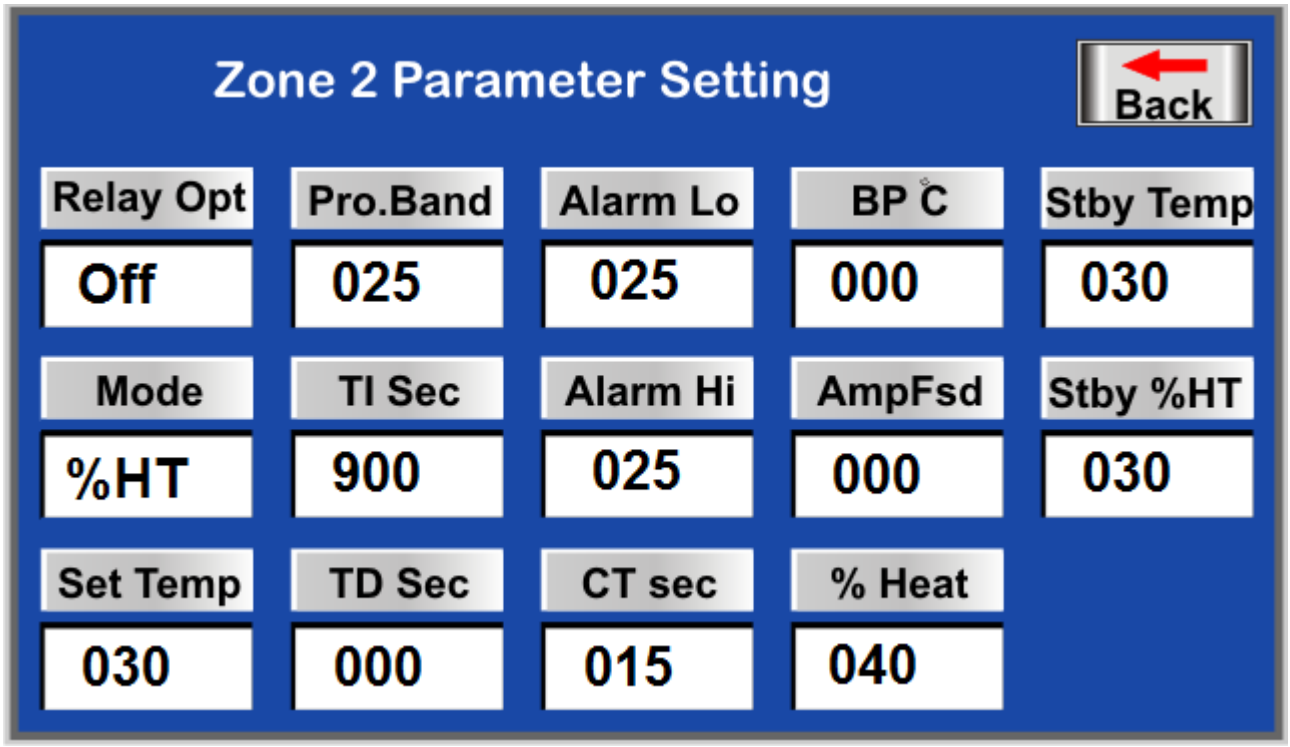


Figure 8 : Temperature Zone 2

Here, zone 1 & 2 have all the values default for parameters. All these values can be changed. All the temperature zones' values are in the range as mentioned below. User can change values according to the application's requirement.

Parameter's values in temperature zones:

Relay Option

Relay options come into act only when **Heat ON** option is selected from Menu Page.

a) OFF - Relay output is OFF.
b) Heater- Heater output is controlled through selected mode option.
c) Blower- Blower output works according to Blower Point (BP) value.
d) Alarm- Works according to Alarm Low (AL) value and Alarm High (AH).

Mode

a) OFF - The heater output is off.
b) PID - PID mode uses values of proportional band (PB), time integral (TI), time derivative (TD) and cycle time (CT).
c) Adaptive - In adaptive mode, no external settings are required. Temperature control will be automatic.
d) %Heat - %Heat mode works according to %heat values.

Set Temperature (Deg. Celsius)

a) Minimum Value : 0
b) Default Value : 30
c) Maximum Value : 999

Proportional Band

a) Minimum Value : 0
b) Default Value : 25
c) Maximum Value : 999

Time Integral (sec)

a) Minimum Value : 0
b) Default Value : 900
c) Maximum Value : 999

Time Derivative (sec)

a) Minimum Value : 0
b) Default Value : 0
c) Maximum Value : 999

Alarm Low

a) Minimum Value : 0
b) Default Value : 25
c) Maximum Value : 999

Alarm High

a) Minimum Value : 0
b) Default Value : 25
c) Maximum Value : 999

Cycle Time (sec)

a) Minimum Value : 0
b) Default Value : 15
c) Maximum Value : 999

Blower Point Temperature (Deg. Celsius)

a) Minimum Value : 0
b) Default Value : 0
c) Maximum value : 999

Full Scale Current (A)

a) Minimum Value : 0
b) Default Value : 0
c) Maximum Value : 100

Heat(%)

a) Minimum Value : 0
b) Default Value : 30
c) Maximum Value : 100

Standby Temperature (Deg. Celsius)

a) Minimum Value : 0
b) Default Value : 30
c) Maximum Value : 999

Standby Heat (%)

a) Minimum Value : 0
b) Default value : 30
c) Maximum Value : 100

For any number of temperature zone, the values are in the same range. All the zones have the same parameters.

Parameter Editing:

When user needs to change any parameter, touch on the respective parameter. When user touches on any parameter, a keypad will appear on the screen. Sometimes it asks to enter the password if no activity is done on the screen for the preset time.

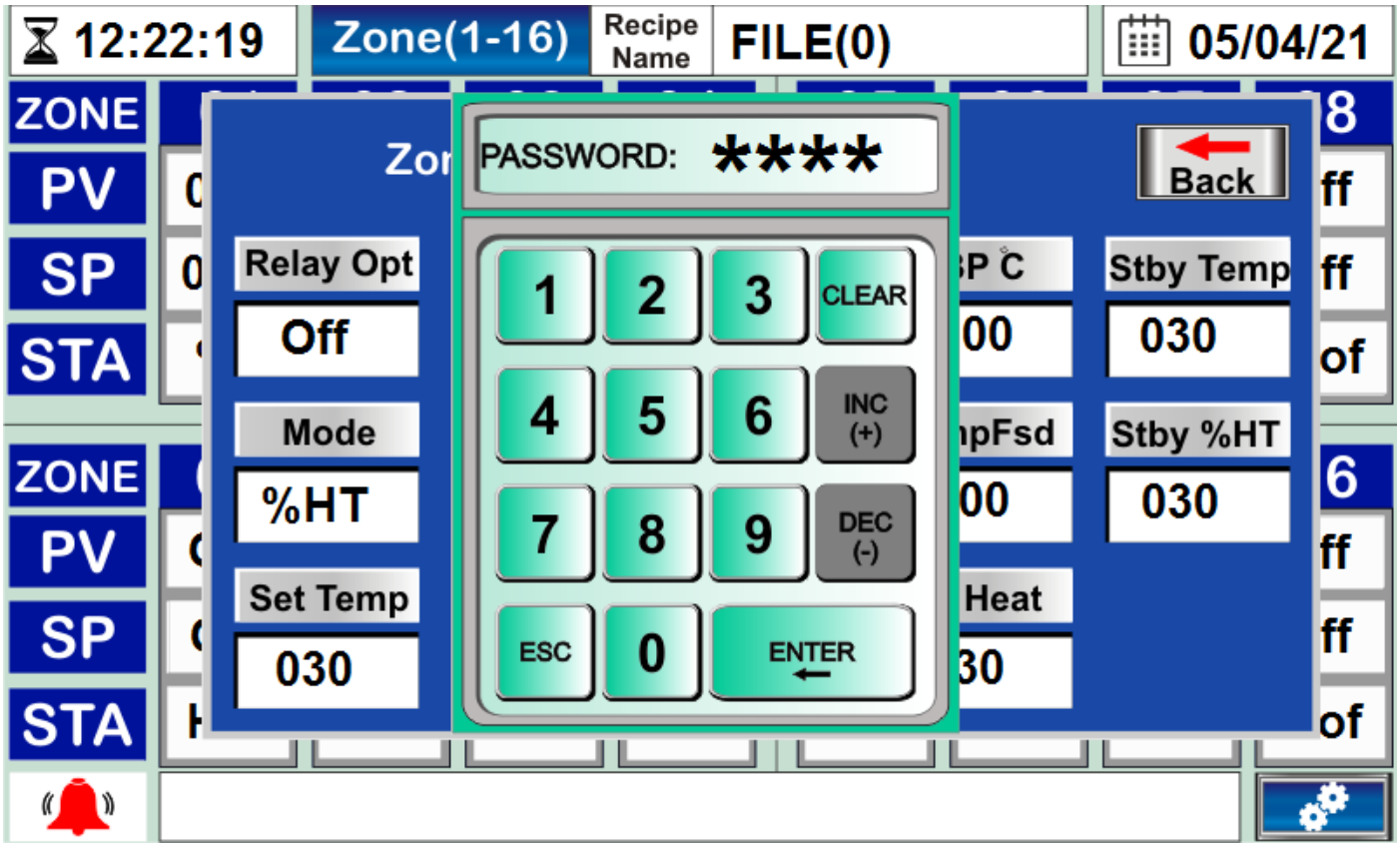


Figure 9 : Password Entry

On being asked for password, enter the password according to the preset password level. After entering the password, press enter on the keypad. If user has entered correct password, a message “Correct Password Lvl-X” will appear on the bottom of the screen. If you enter wrong password then again, a message “Incorrect Password” will be displayed on the bottom of the screen.

Even in case of any error, a message will appear on the bottom of the Main Page. So in case of serial error, a message of serial error will appear. In case of any alarm, a message regarding the alarm will appear on the screen. So when you touch this key, it clears the message. So this key is known as **Alarm Key**.

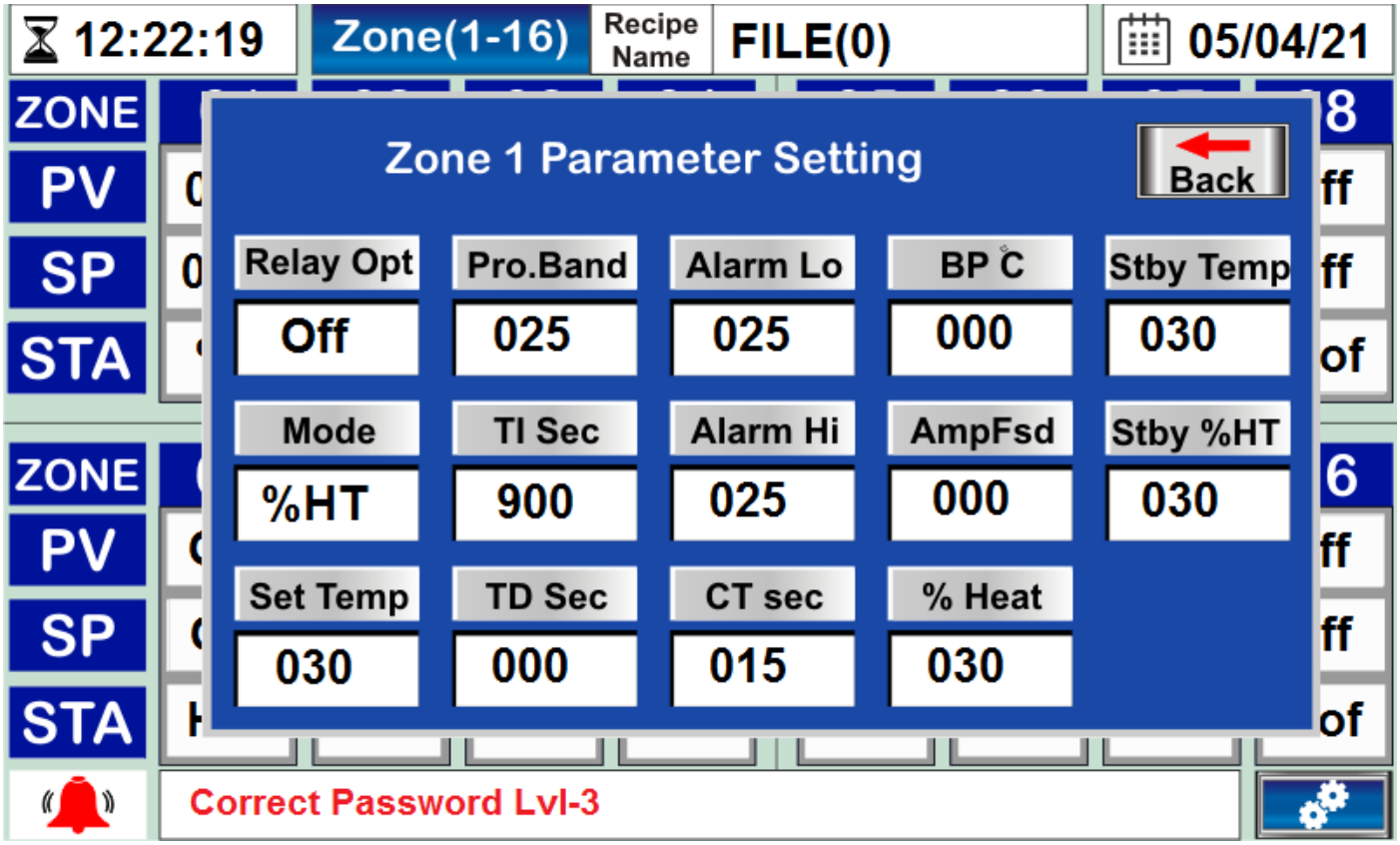


Figure 10 : Correct Password entry

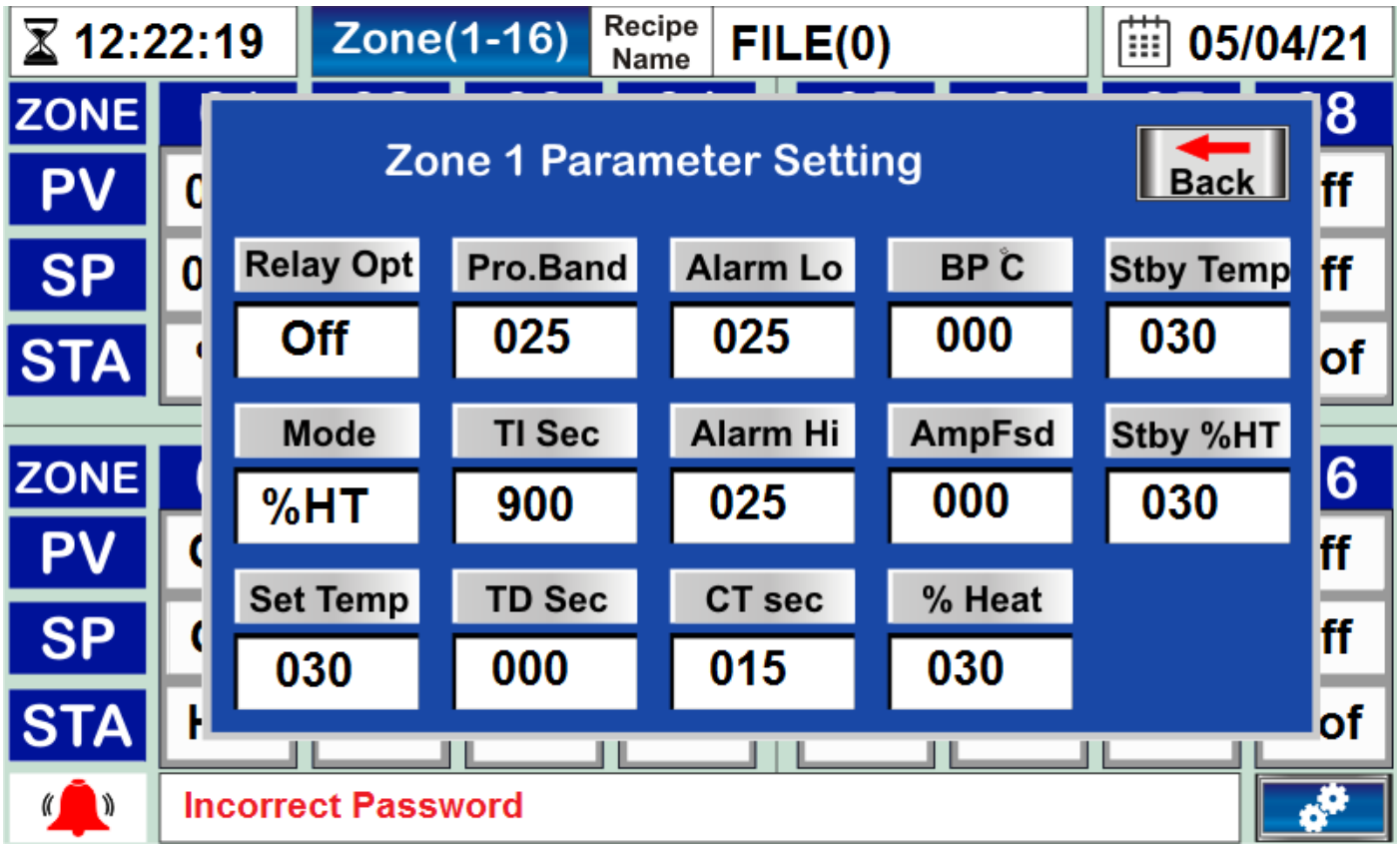


Figure 11 : Incorrect Password

Now after entering correct password, user can edit the desired parameters. If the parameter has options, a character type keypad will pop up. If the parameter has numerical values, numerical keypad pops up.

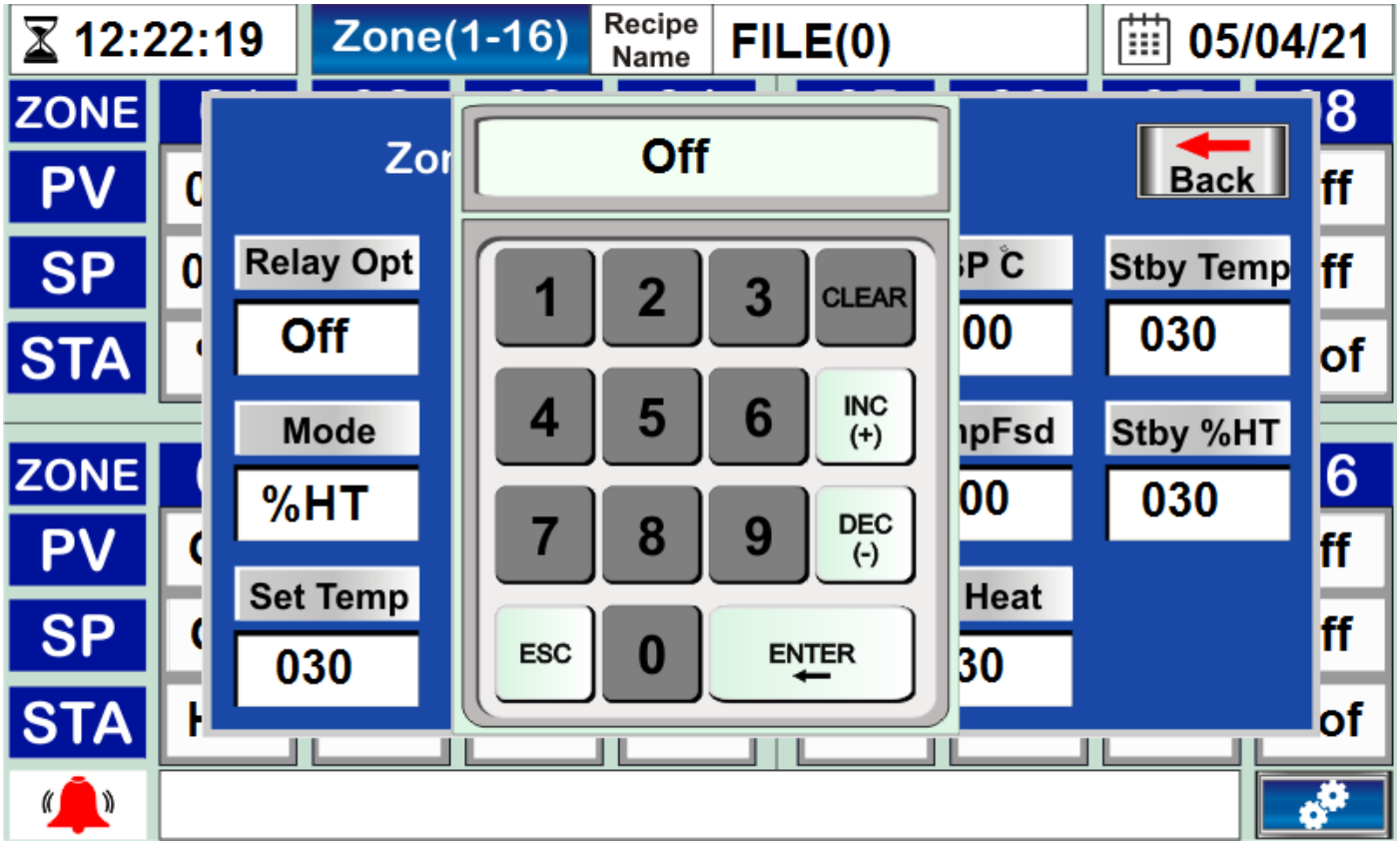


Figure 12 : Character type keypad

If user needs to change parameters such as Relay Option or Mode, when touching on that parameter, a character type keypad will appear on the screen. Now such parameters have different options for them as mentioned above in the section 10 earlier. So by pressing **INC (+)** or **DEC (-)**, user can choose from the options available. If user does not want to change any parameter, simply by pressing **ESC**, he can escape from keypad. After choosing from options, press enter. The option will be changed in the parameter.

For parameters having numerical values, user can manually enter desired numerical value from the numerical keypad. If user presses on any such parameters, a numerical keypad will appear on the screen. On keypad, parameter's already loaded value appears. User can clear this value by pressing **CLEAR** key. So value in the keypad will be cleared. Now user can enter desired value by pressing numbers and then pressing the **ENTER** key in the end.

So this is how user can change parameter's value in every temperature zones. This process is same for all parameters anywhere in the whole device.

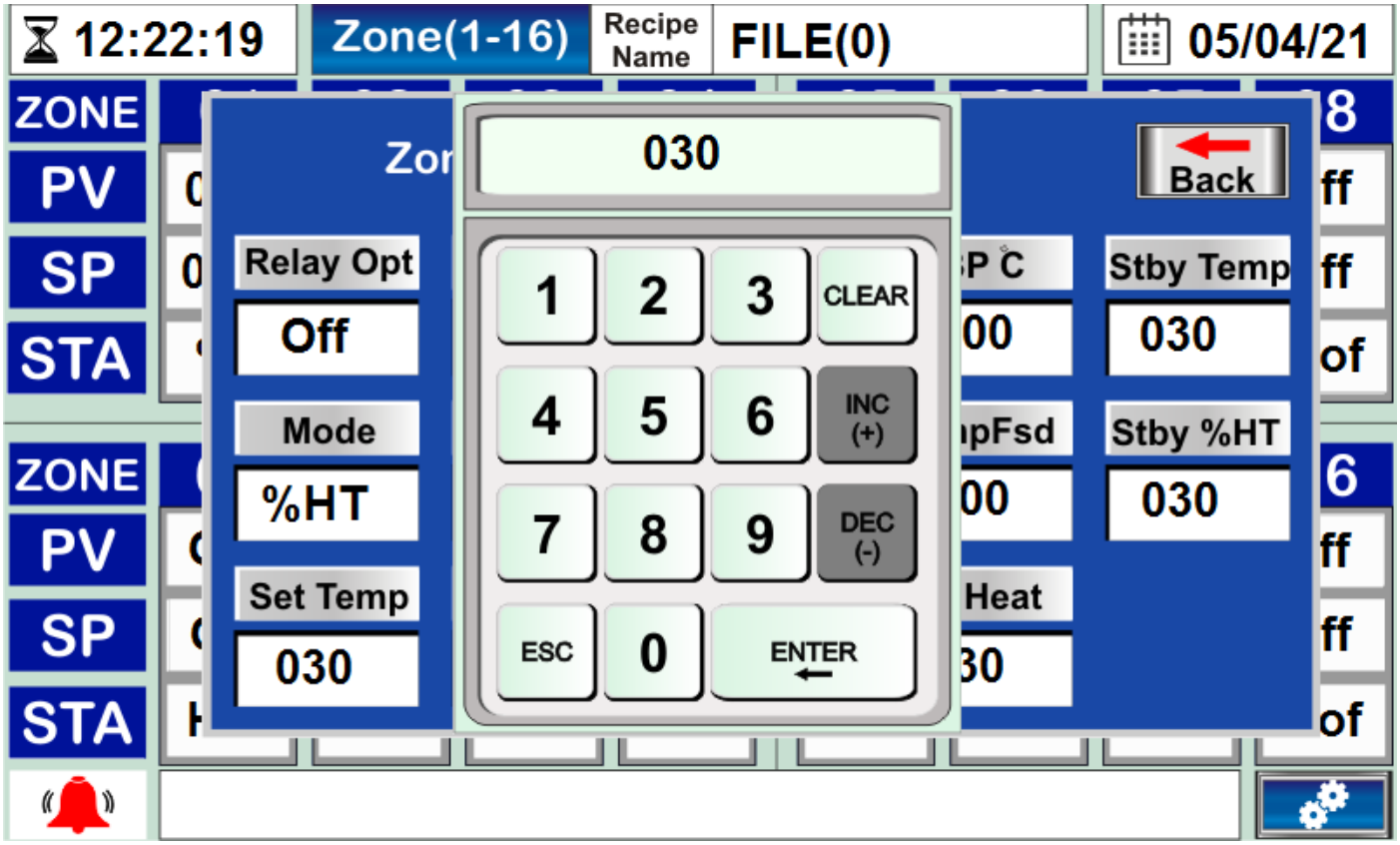


Figure 13 : Numerical keypad

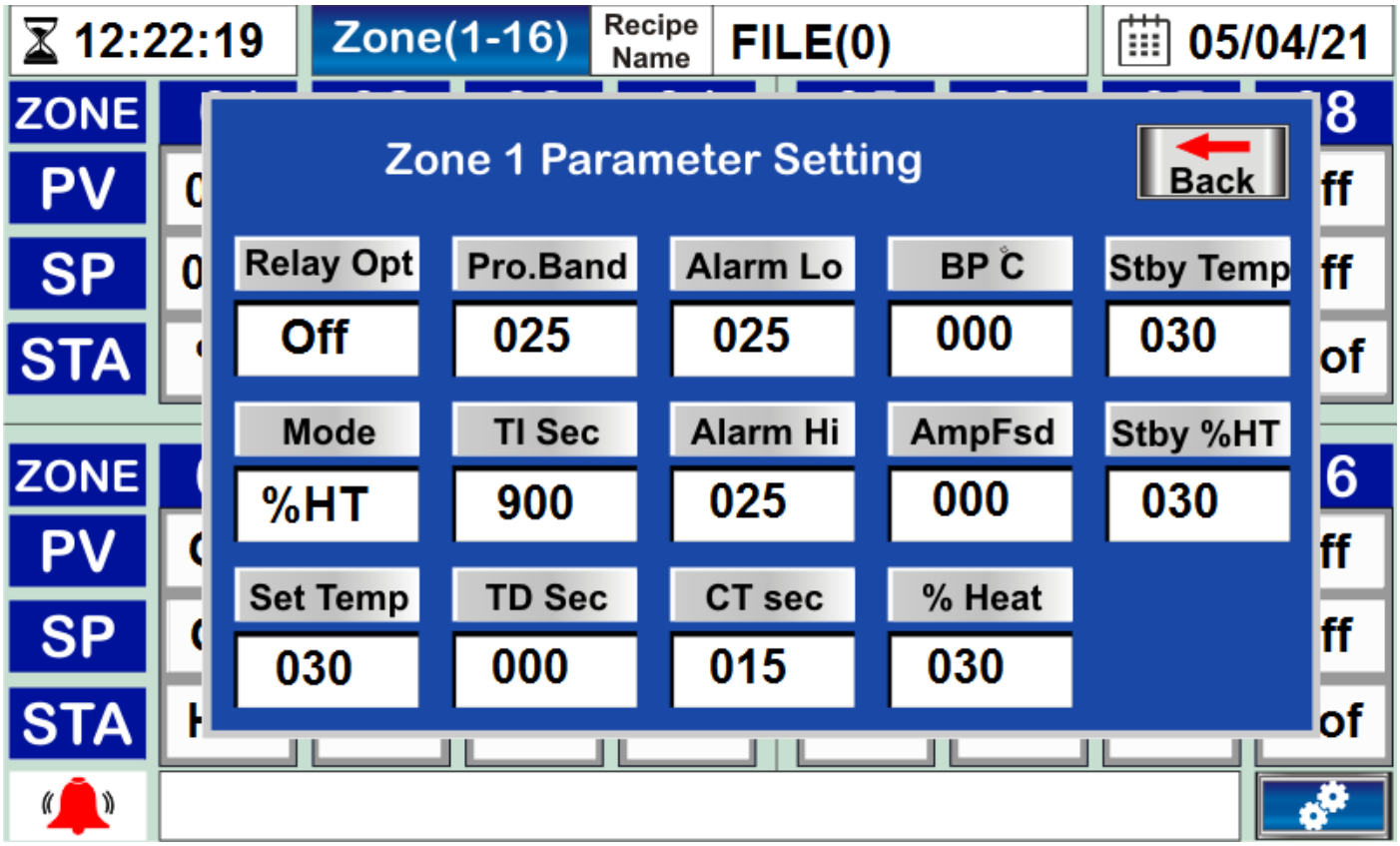


Figure 14: Parameter successfully edited

(3) MENU PAGE

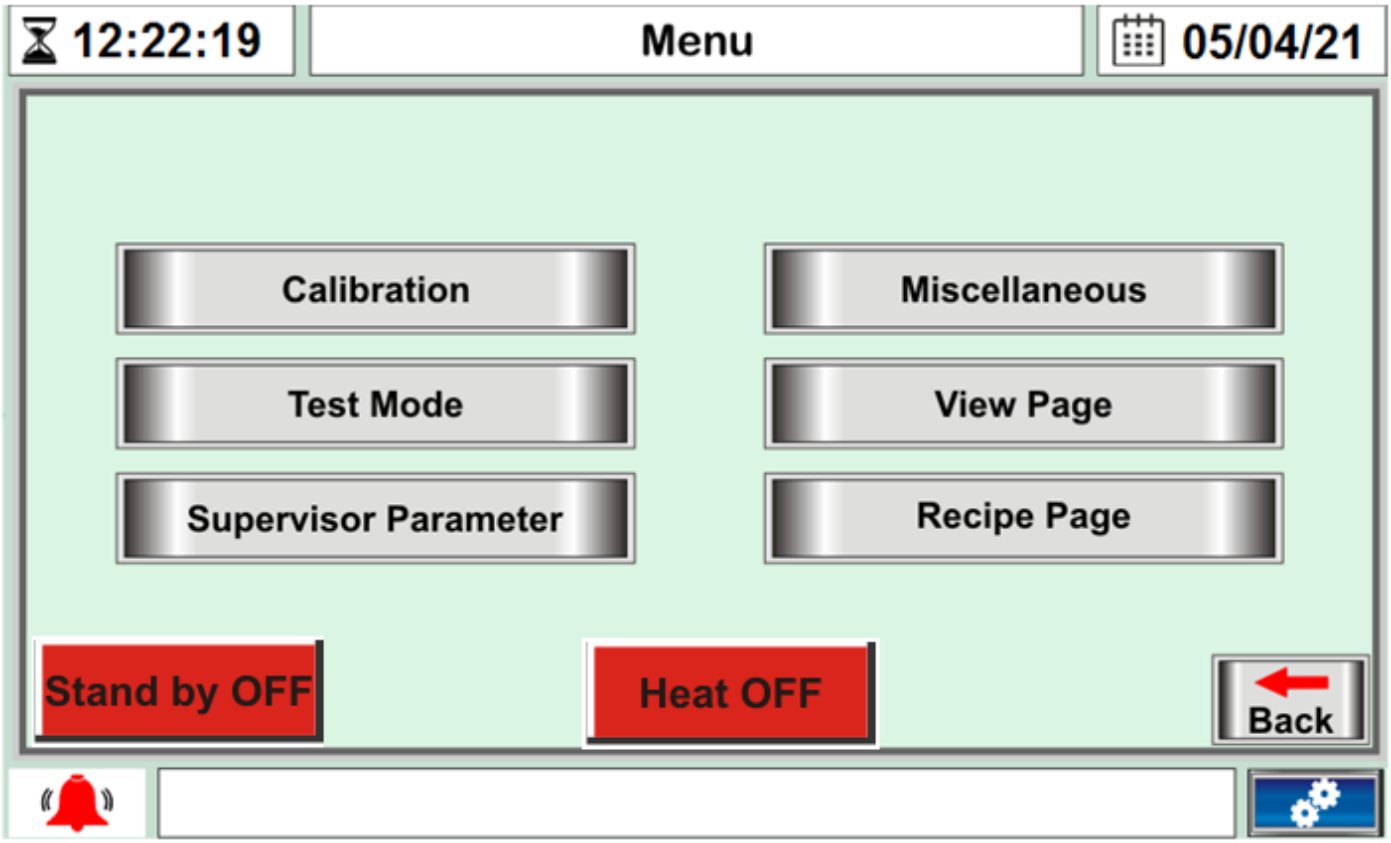


Figure 15: Menu Page

Menu Page has different buttons for respective screens. Touching on Calibration key will take user to calibration page. Miscellaneous key is used to go to the miscellaneous settings page. Test Mode key for Test Mode Page, View Mode key for view mode page, Supervisor Parameter key for zones supervisor page, Recipe Page key for Recipe files page.

Stand by ON/OFF and Heat ON/OFF keys are used to display corresponding action status. Standby mode to save time & energy when machine is at standby position. Red images suggest OFF status while Green images suggest ON status.

OFF State **ON State**

(4) CALIBRATION PAGE

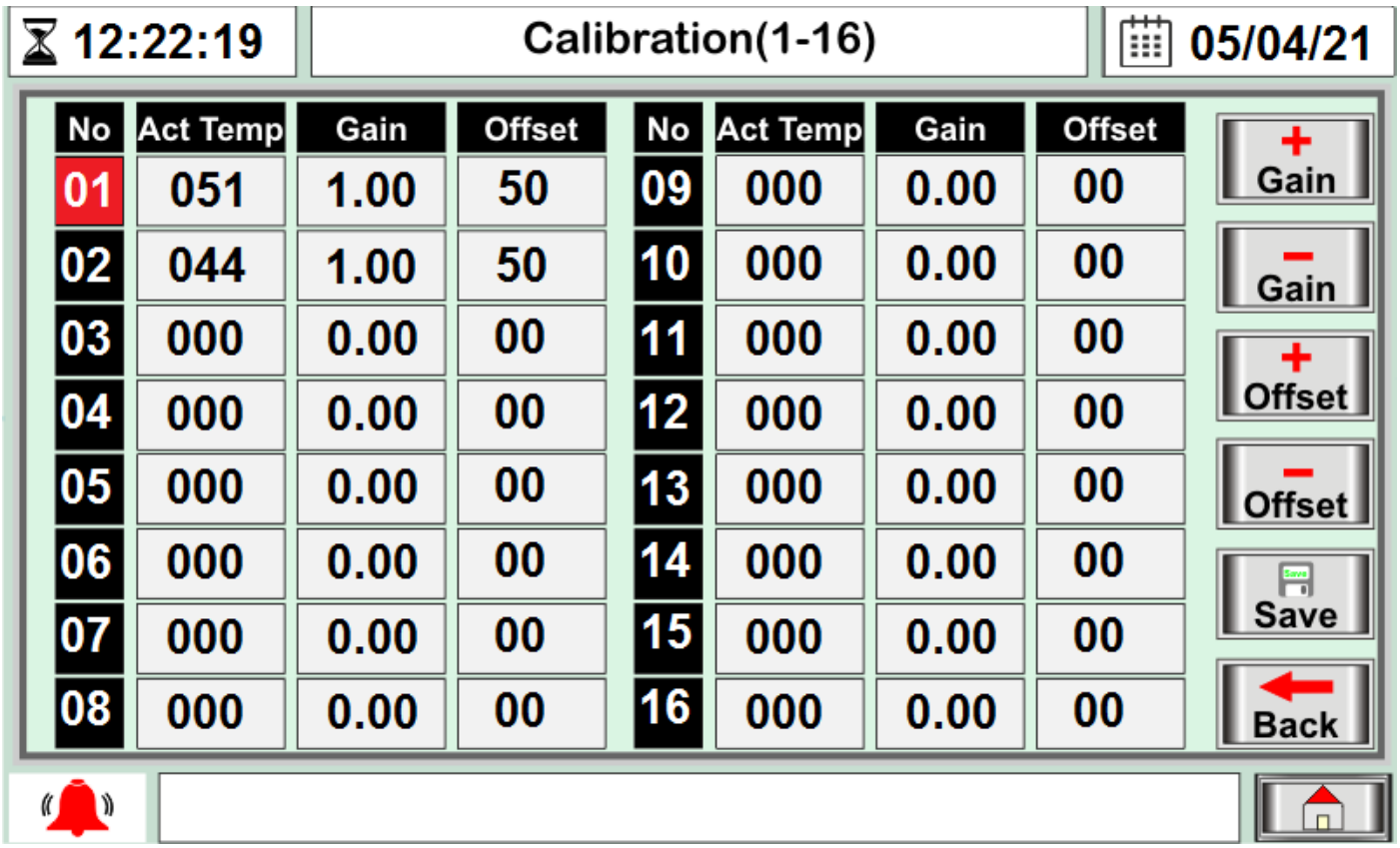


Figure 16: Calibration Page

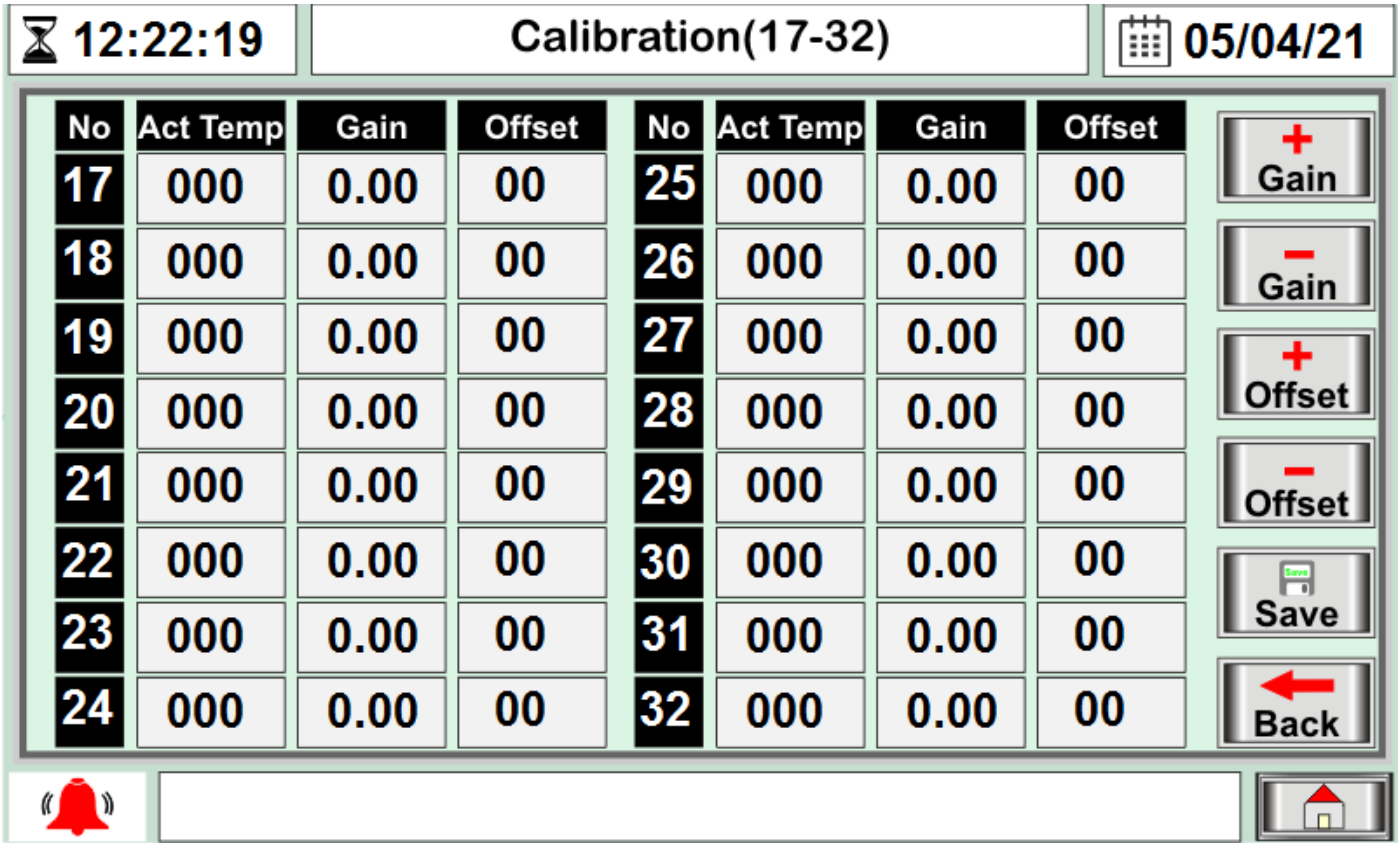


Figure 17: Calibration Page2

There are two temperature calibration page viz. **Calibration Page1** and **Calibration Page2**.Each card has two channels to which two temperature zones are connected. Now that card 1 is connected and all other cards are not connected, only zone 1 and 2 are active temperature zones. Hence only channel 1 & 2 are connected. Actual temperature for zone 1 & 2 are displayed and gain and offset for these two zones have values, else are all zero.

Active channel has red colour and all other channels are of black colour. Touching on any number will select that particular channel. **Gain+** and**Gain-** keys are used to increment and decrement gain respectively. Similarly **Offset+** and **Offset-** keys are used to increment and decrement offset respectively. **Save** key is used to save particular channel data. **Back** key is used to go back to the menu page. **Home** key is used to go back to Main Page.

(5) MISCELLENAEOUS PAGE

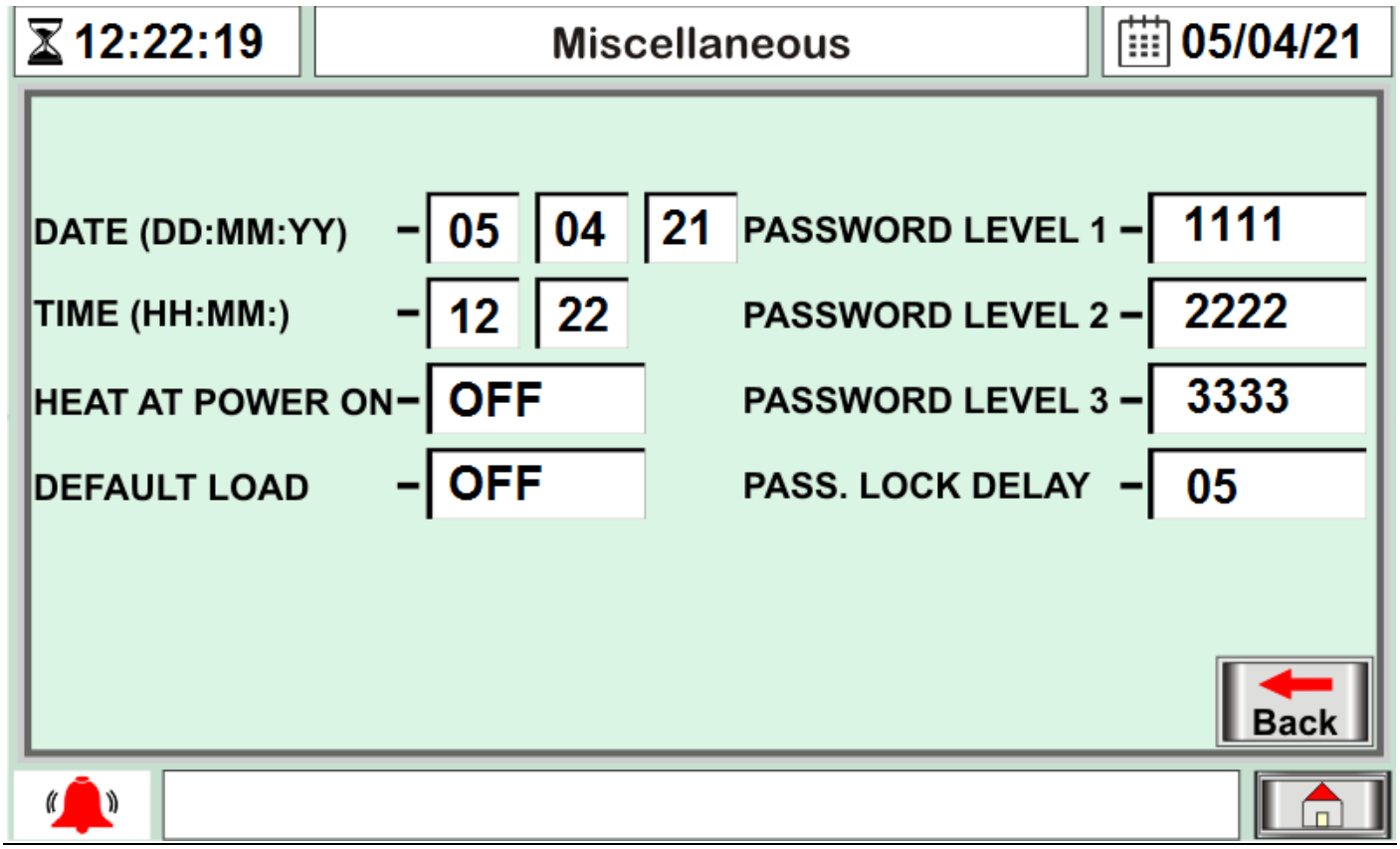


Figure 18 : Miscellaneous Page

Miscellaneous Page has miscellaneous settings such as time and date, password settings etc. User can change time and date, or different password levels according to his convenience. Default value loading and heat settings can be changed from here. **Back** key is used to go back to the Menu Page and **Home** key is used to go back to Main Page.

(6) TEST MODE PAGE

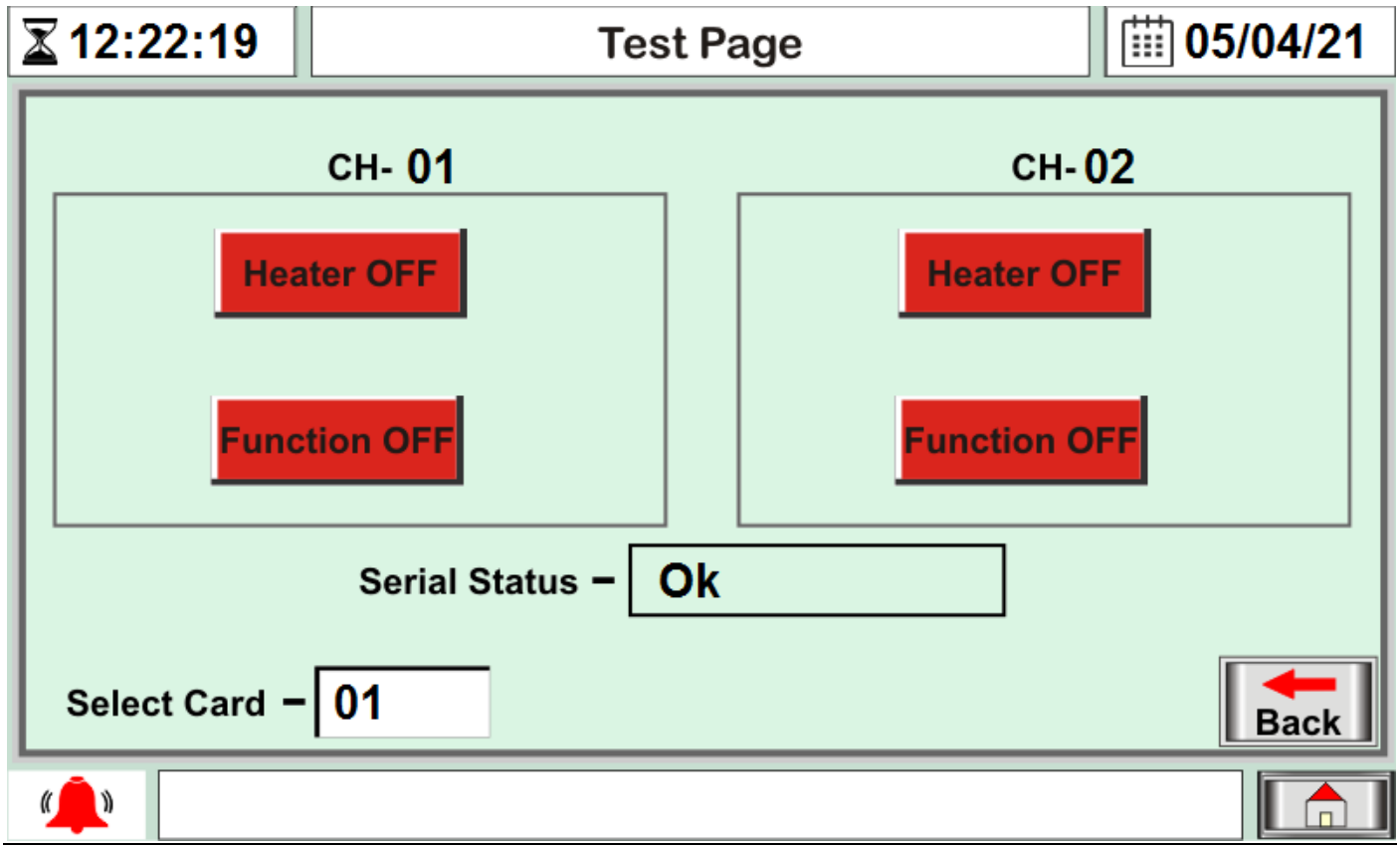
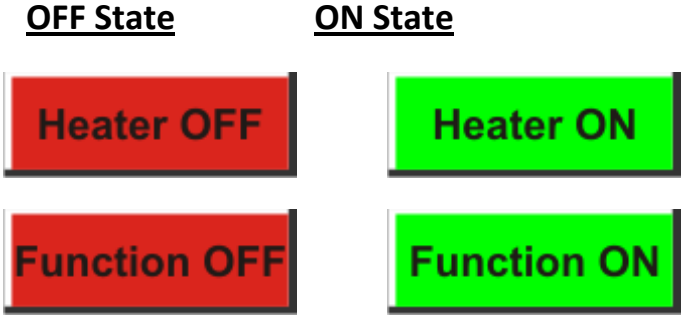


Figure 19 : Test Mode Page

Select Card will show the number of the selected card. If the card is connected, serial status will be **Ok** or else the serial status will show **error** if the card is not selected. If the selected card is not active from the Supervisor Page, serial status will show **Card Absent** message. Channel numbers of selected card number will be shown and test can be done to check if the card is working properly or not. When pressing Heater OFF, heater will be turned ON and a green image will be displayed. Similarly by pressing Function OFF key, Function can be tested and the image will turn green. Here for card 1, channel 01 and 02 are shown. User can select any number from the total number of cards. Back key is used to go back to Menu Page and Home key to go back to Main Page.



(7) VIEW MODE PAGE

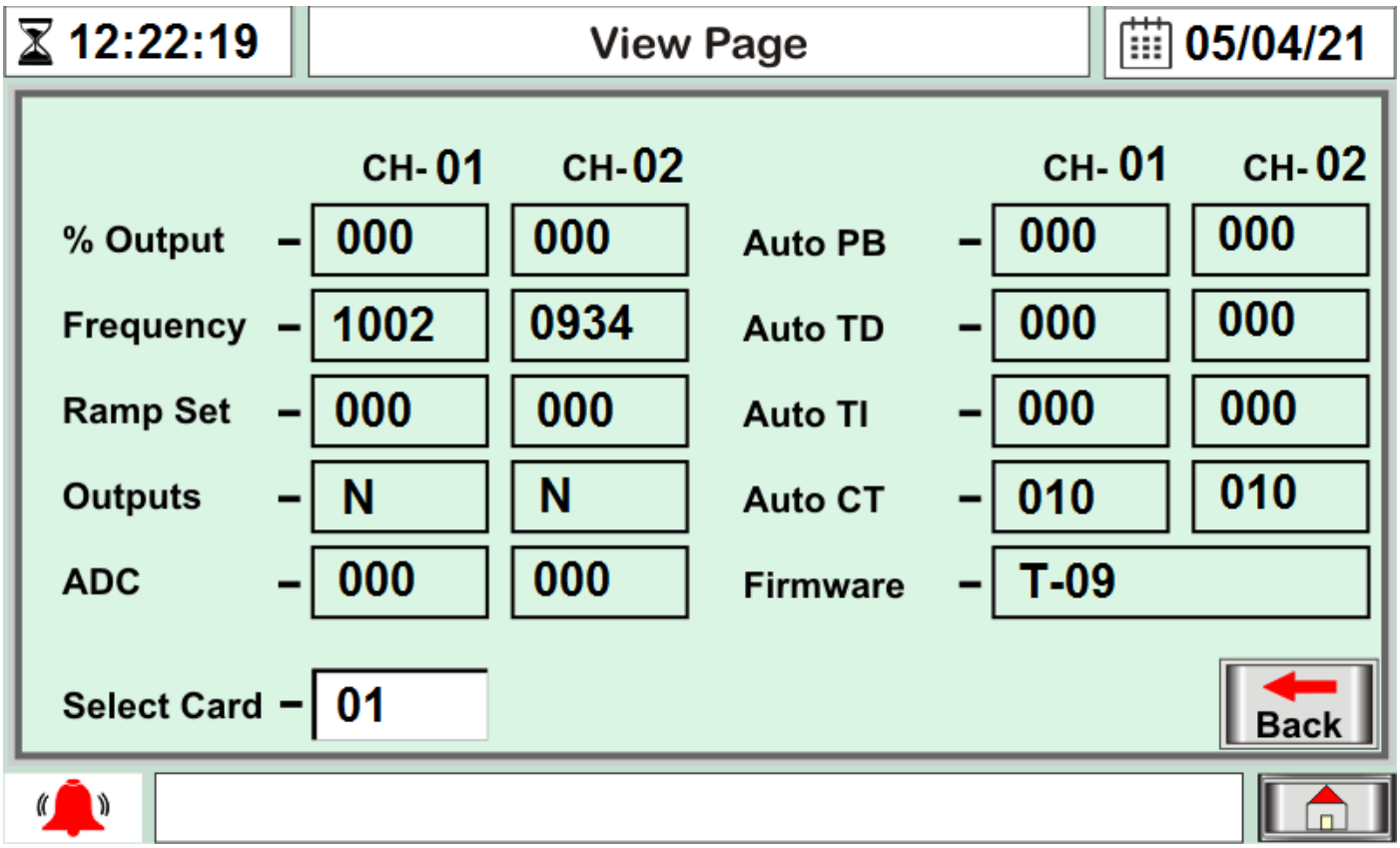


Figure 20 : View Mode Page

View Page display channel data for selected card number. %output, frequency, ramp setting, ADC values, auto proportional band, time derivative, time integral values, auto cycle time etc. All these values can be seen in the View Page. User can not edit or change nay values from the view page. All these values are read only values. Firmware version can also be seen in the View Page.

(8) SUPERVISOR PAGE

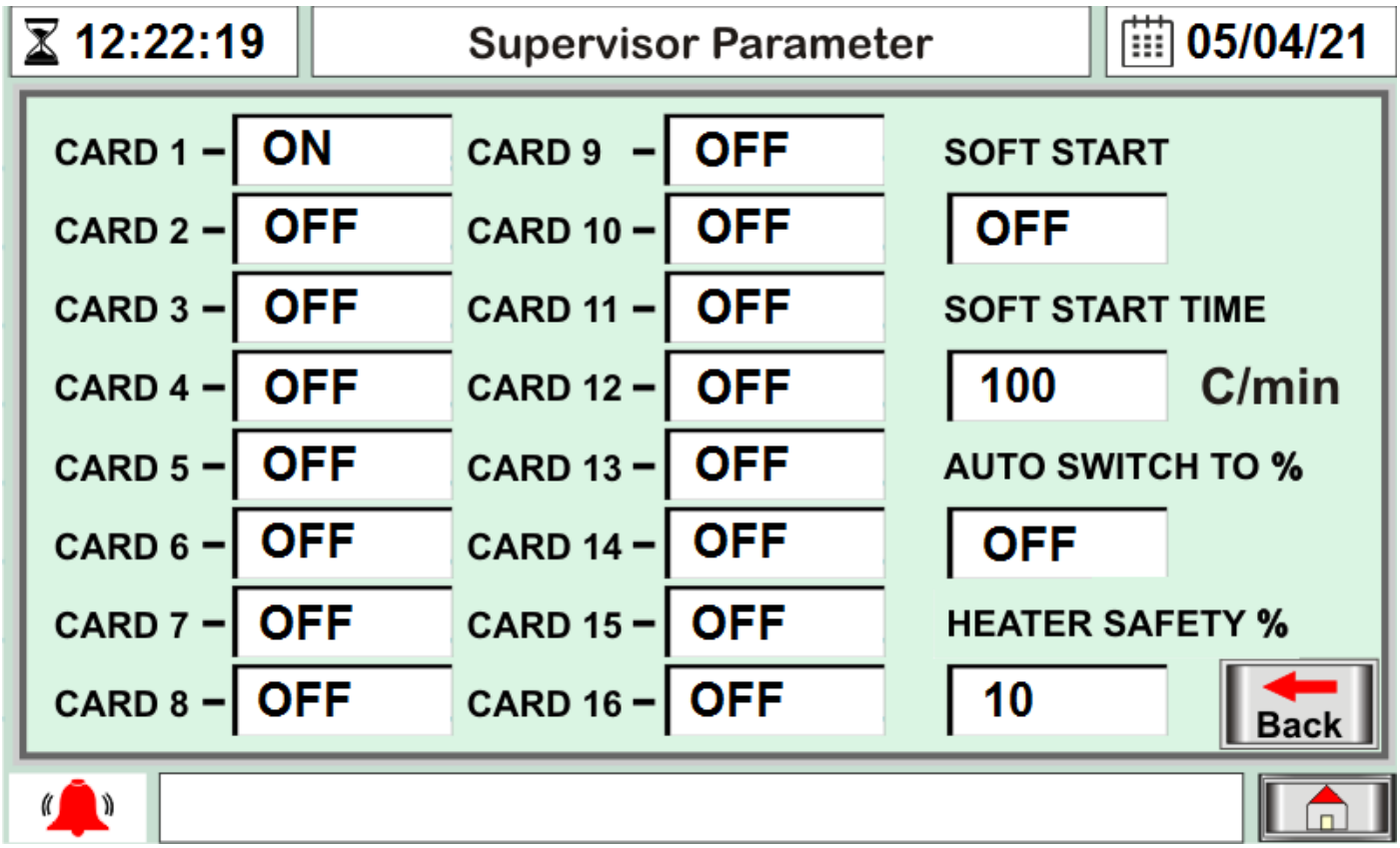


Figure 21 : Supervisor Page

Supervisor Page displays the temperature cards status. Card selection ON/OFF options can be changed from here. If the user wants to connect the card, he has to select option ON for corresponding card number. Otherwise select option OFF to disconnect the card. Total 16 cards can be connected and hence total 32 zones form 32 channels can be created. Supervisor Page also has setting of soft starting. Auto switch to % mode for gradual rise in temperature option is also available. Heater Safety parameter is used for heater safety. This parameter ranges from 0-10% so the maximum output range changes from 100-90%.

Back key is used to go back to Menu Page and **Home** key used to go back to Main Page.

(9) RECIPE PAGE (RECIPE FILES)

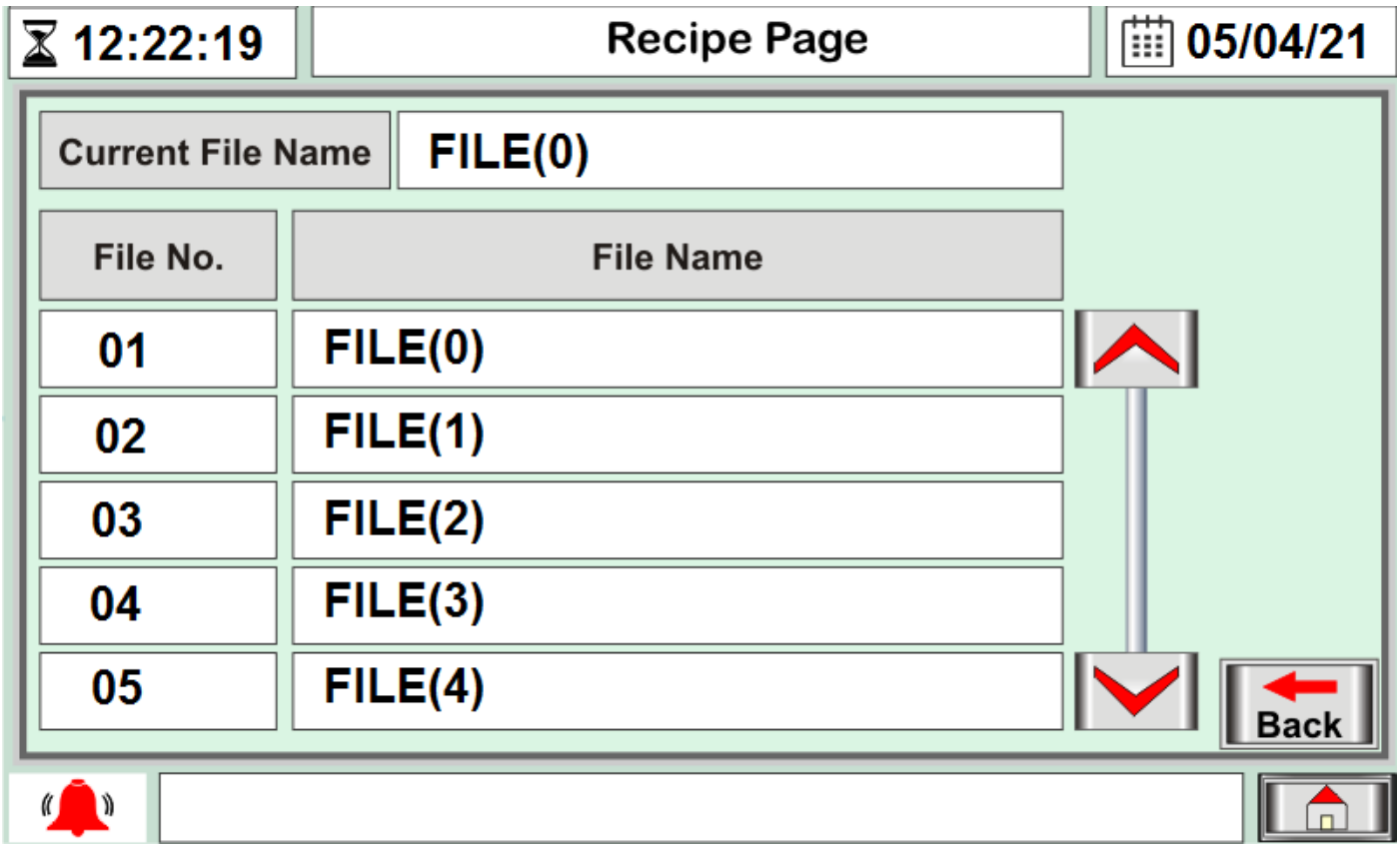


Figure 22 : Recipe Page

File Page is used to store different recipe files for different operations. Each file is the size of 1 kB. All these files are stored in the EEPROM. User can create files and give appropriate names as per his wish. There are scrolling keys to navigate different files. User can perform different operations on each file.

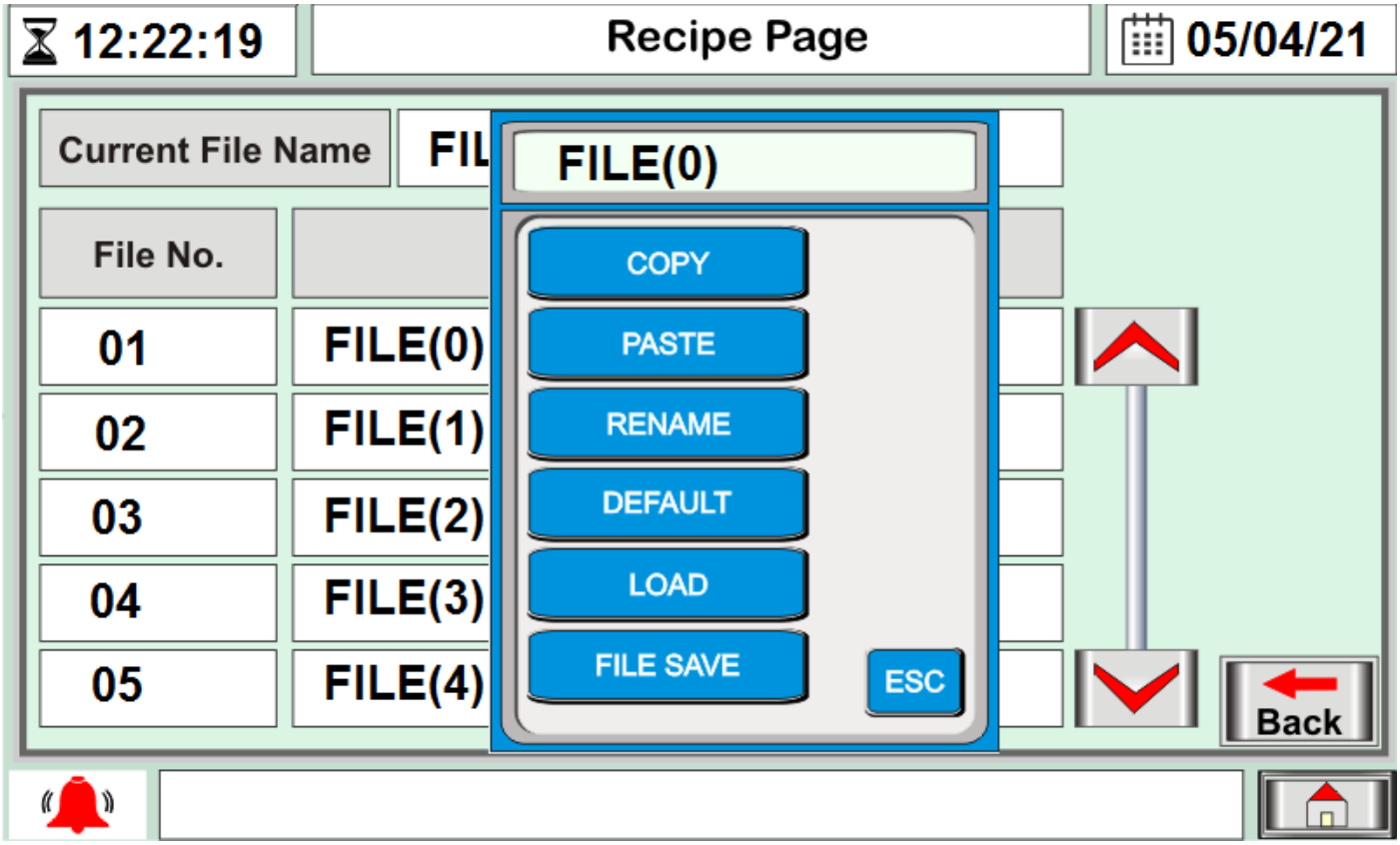


Figure 23: File Options

When user touches on any file name, file options popup will appear on the display. Selected files name appears on the top of the option menu.

There are different options for each file such as,

1. File Copy: Copy corresponding file's data.
2. File Paste: Paste copied data from another file to particular file.
3. File Rename: File name changing(max. file name length 15 character)
4. File default: Default current contents of the file.
5. File Load: Load selected file's data into all the temperature zones.
6. File Save: Save current data of different zones into the selected file.
7. ESC key: If no action is required, esc key is to be pressed.

If user presses **Default**, **Load** or **File Save**options, another popup will appear asking user's consent. File copy and Paste option is also available for user. User can select any file and copy it, and paste the selected file's content into any other selected file. This way the content of one file can be copied and pasted into another file.

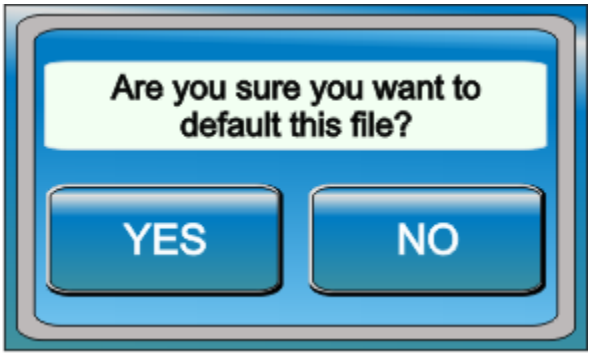


Figure 24:File Default Popup

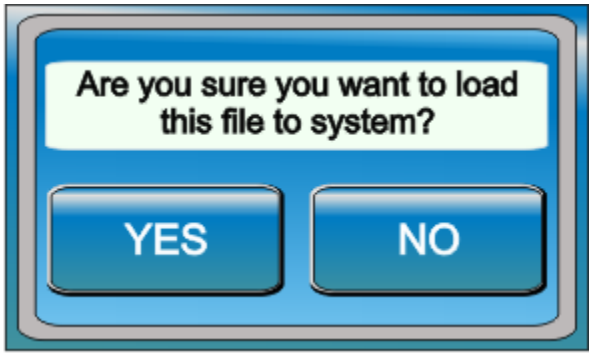


Figure 25: File Load Popup

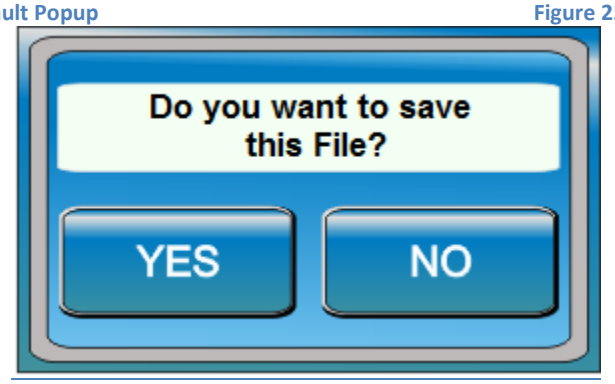


Figure 26: Save File Popup

User can default any recipe file by choosing default option and pressing yes when asked for consent. User can load any recipe file and pressing yes. The system will load the selected file's content into the parameters. If after change in zone parameters, if user wants to save current system parameters into any file, user can select any file and can save system parameters into selected file.

If user wants to change any file's name, press rename, an alphanumeric keypad will appear. The file name can be maximum 15 characters long. Capital and small alphanumeric keypads options available.

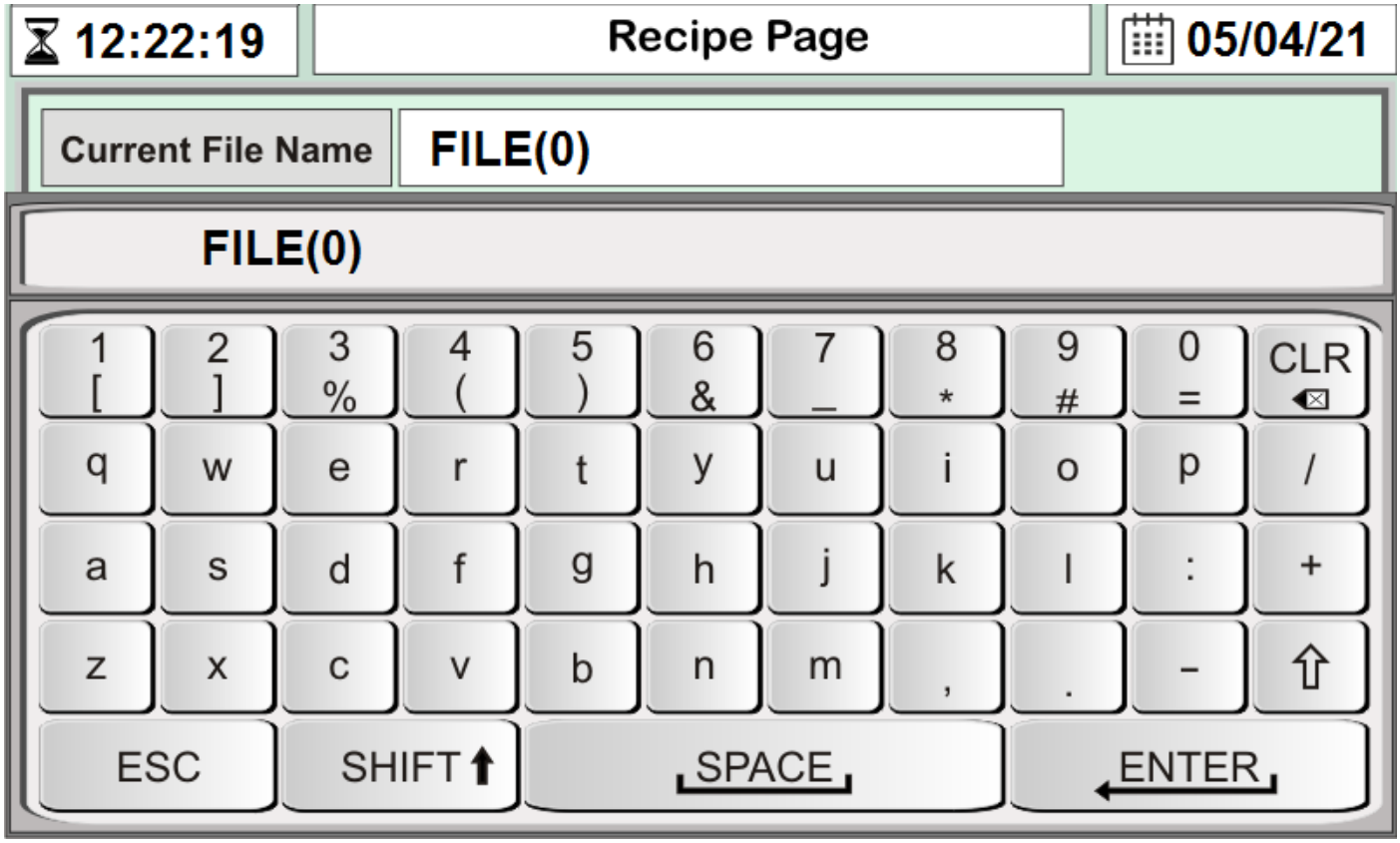
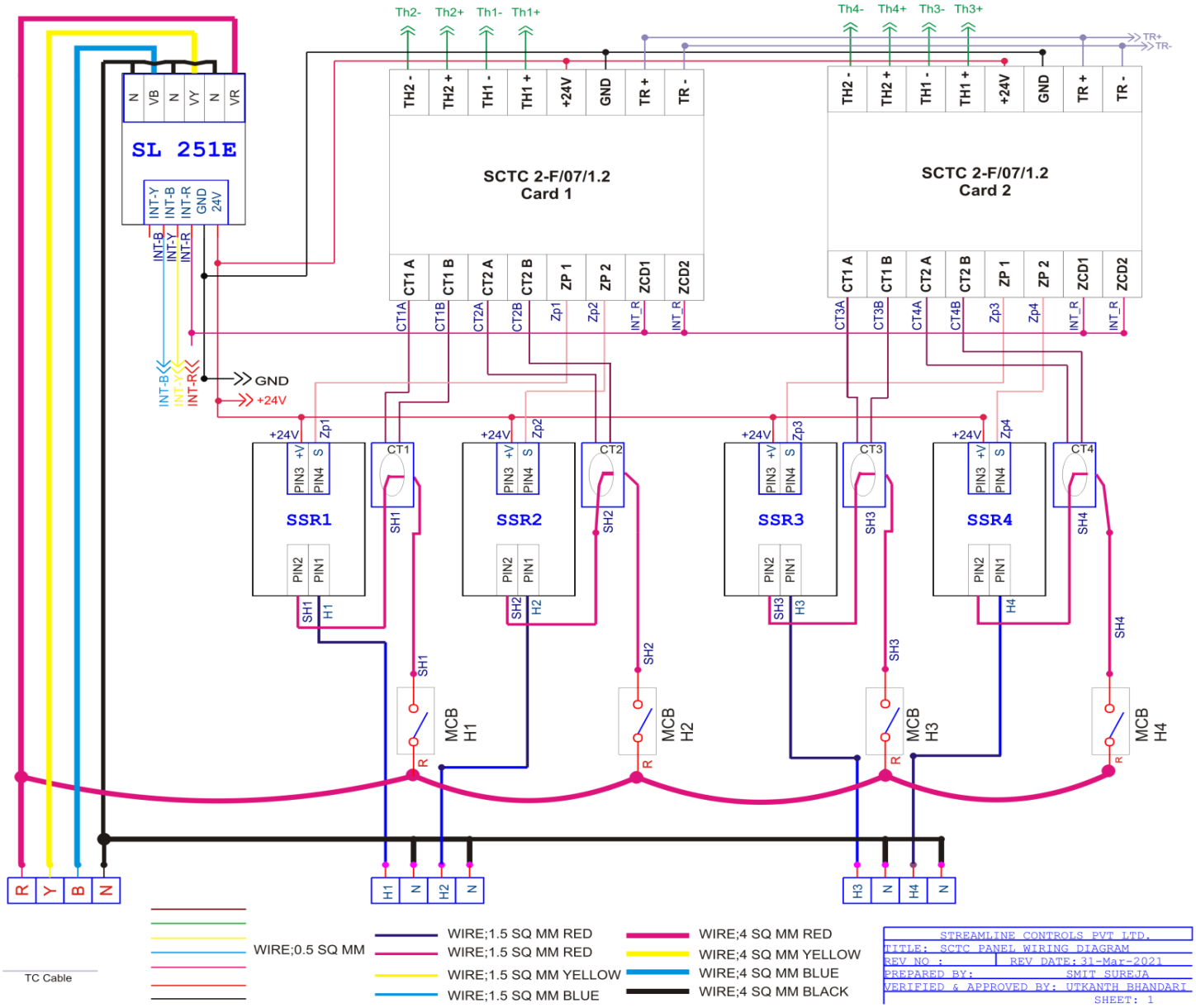
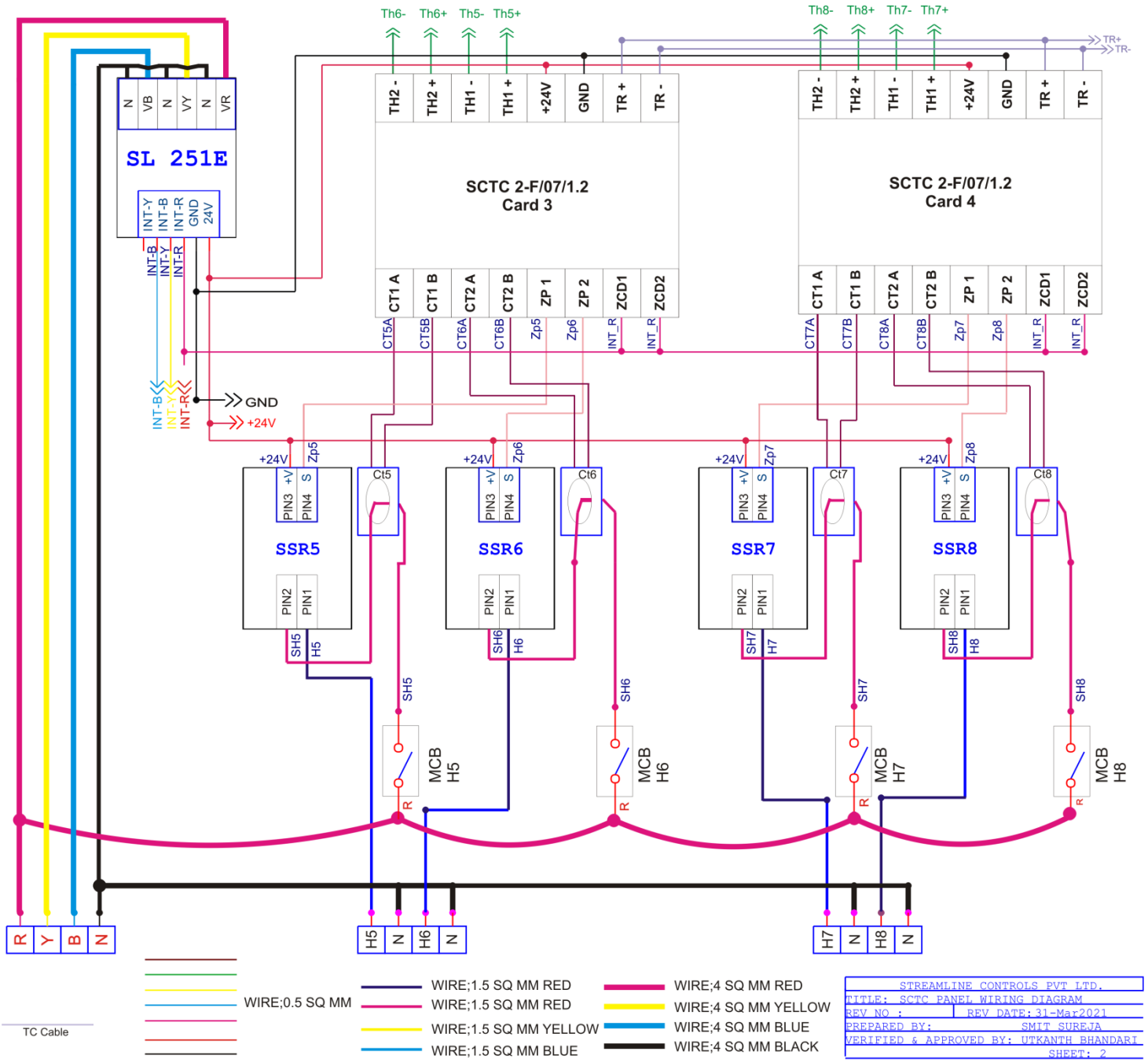


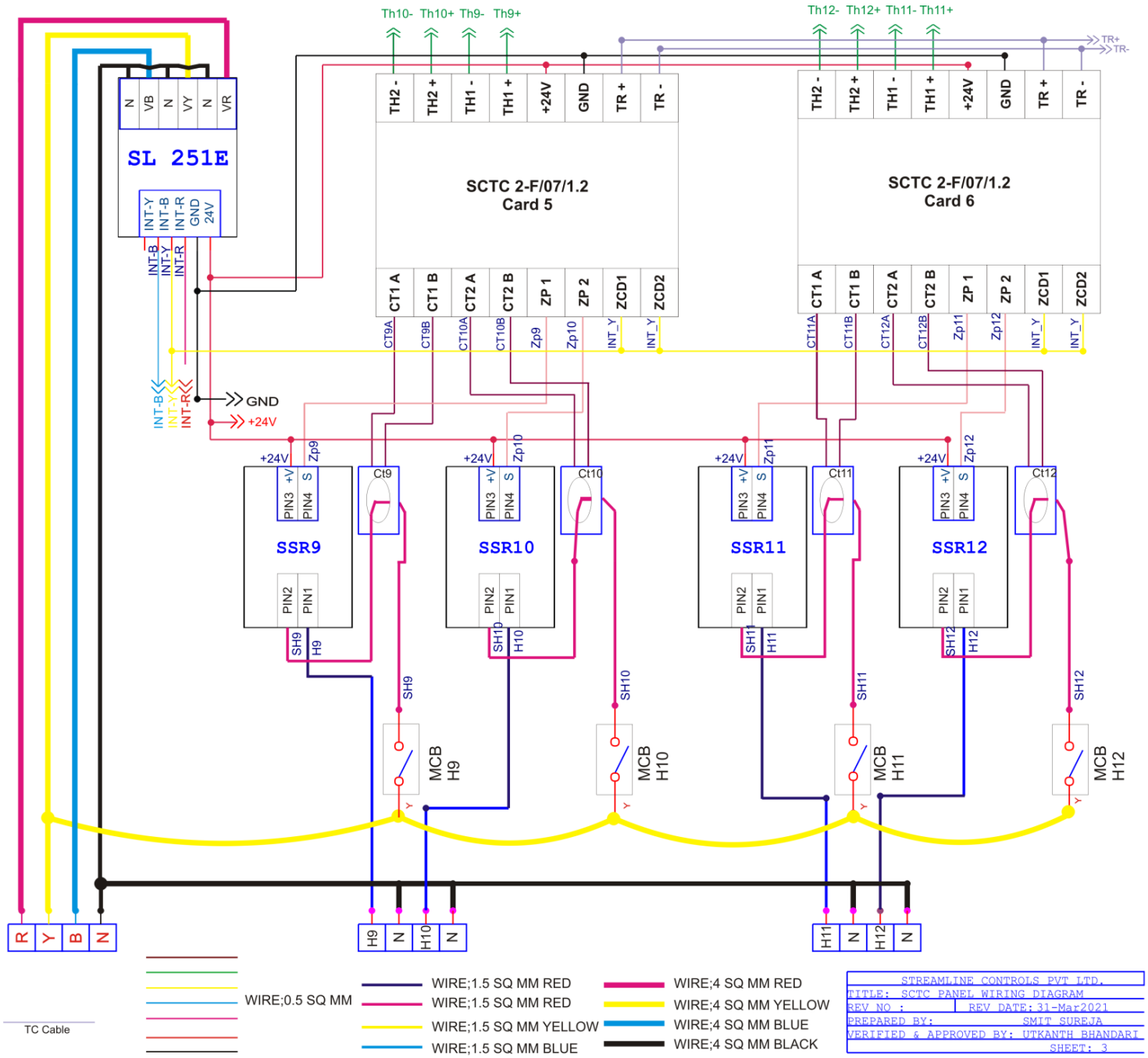
Figure 27: File Renaming

(G) WIRING DIAGRAM

24 Zone Hot Runner Temperature Control Panel Wiring Diagram:




SL 251E
N VB N VY N VR
INT-Y INT-B INT-R GND 24V
SCTC 2-F/07/1.2
Card 3
SCTC 2-F/07/1.2
Card 4
TH2 - TH2 + TH1 - TH1 + +24V GND TR + TR -
Th6- Th6+ Th5- Th5+
Th8- Th8+ Th7- Th7+
TR+ TR-
CT1 A CT1 B CT2 A CT2 B ZP 1 ZP 2 ZCD1 ZCD2
CT5A CT5B CT6A CT6B Zp5 Zp6 INT_R INT_R
CT7A CT7B CT8A CT8B Zp7 Zp8 INT_R INT_R
INT-B INT-Y INT-R
GND
+24V
SSR5
SSR6
SSR7
SSR8
PIN3 +V S PIN4
PIN2 PIN1
Ct5
Ct6
Ct7
Ct8
SH5 H5
SH6 H6
SH7 H7
SH8 H8
MCB H5
MCB H6
MCB H7
MCB H8
R Y B N
H5 N H6 N
H7 N H8 N
TC Cable
WIRE;0.5 SQ MM
WIRE;1.5 SQ MM RED
WIRE;1.5 SQ MM RED
WIRE;1.5 SQ MM YELLOW
WIRE;1.5 SQ MM BLUE
WIRE;4 SQ MM RED
WIRE;4 SQ MM YELLOW
WIRE;4 SQ MM BLUE
WIRE;4 SQ MM BLACK
STREAMLINE CONTROLS PVT LTD.
TITLE: SCTC PANEL WIRING DIAGRAM
REV NO :
REV DATE: 31-Mar2021
PREPARED BY: SMIT SUREJA
VERIFIED & APPROVED BY: UTKANTH BHANDARI
SHEET: 2


SL 251E
N VB N VY N VR
INT-Y INT-B INT-R GND 24V
SCTC 2-F/07/1.2
Card 5
SCTC 2-F/07/1.2
Card 6
TH2 - TH2 + TH1 - TH1 + +24V GND TR + TR -
CT1 A CT1 B CT2 A CT2 B ZP 1 ZP 2 ZCD1 ZCD2
Th10- Th10+ Th9- Th9+
Th12- Th12+ Th11- Th11+
TR+
TR-
INT-B INT-Y INT-R
GND
+24V
SSR9
SSR10
SSR11
SSR12
PIN3 +V PIN4 S
PIN2 PIN1
Ct9
Ct10
Ct11
Ct12
MCB H9
MCB H10
MCB H11
MCB H12
R Y B N
H9 N H10 N
H11 N H12 N
WIRE;0.5 SQ MM
TC Cable
WIRE;1.5 SQ MM RED
WIRE;1.5 SQ MM RED
WIRE;1.5 SQ MM YELLOW
WIRE;1.5 SQ MM BLUE
WIRE;4 SQ MM RED
WIRE;4 SQ MM YELLOW
WIRE;4 SQ MM BLUE
WIRE;4 SQ MM BLACK
STREAMLINE CONTROLS PVT LTD.
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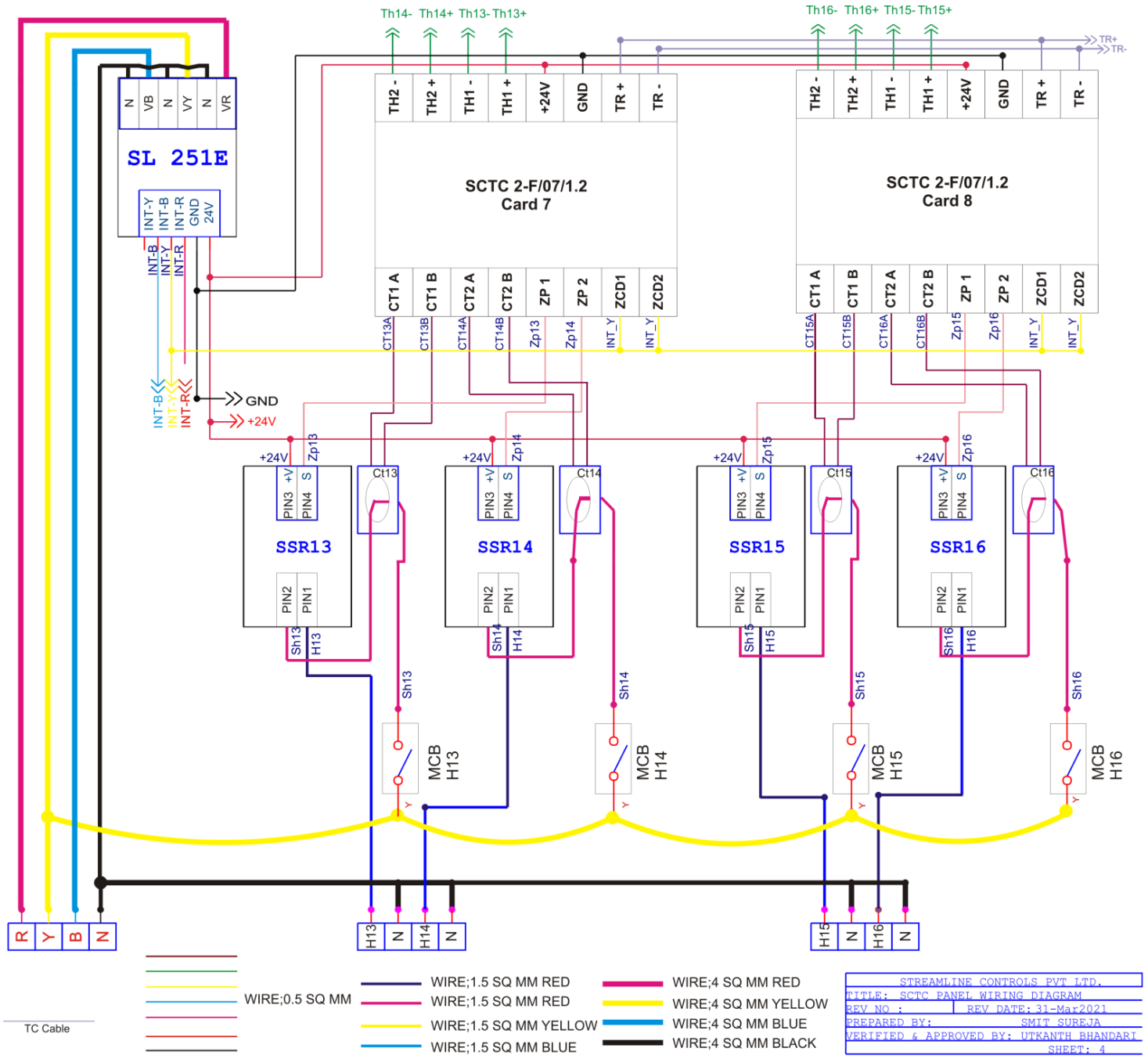
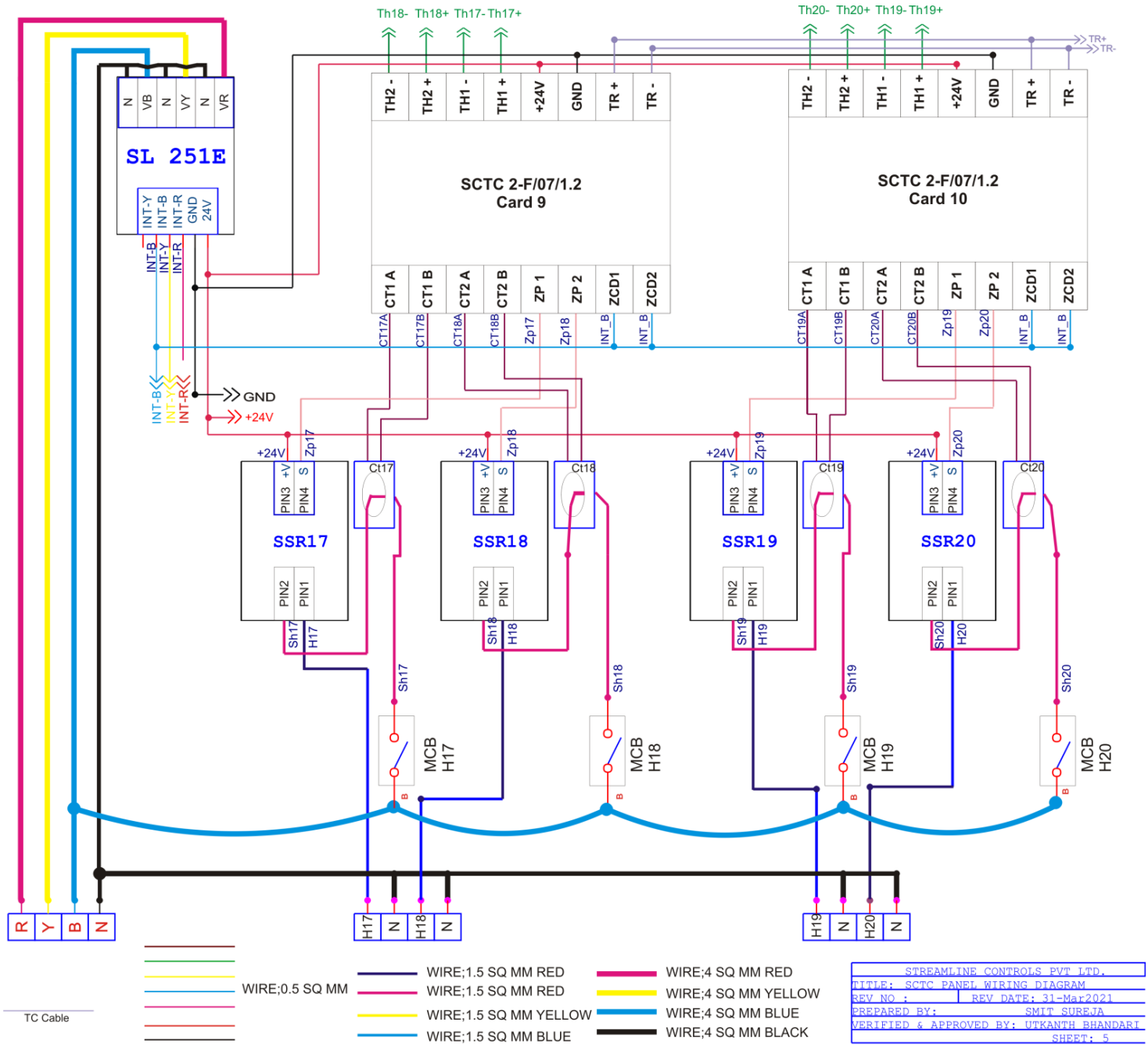
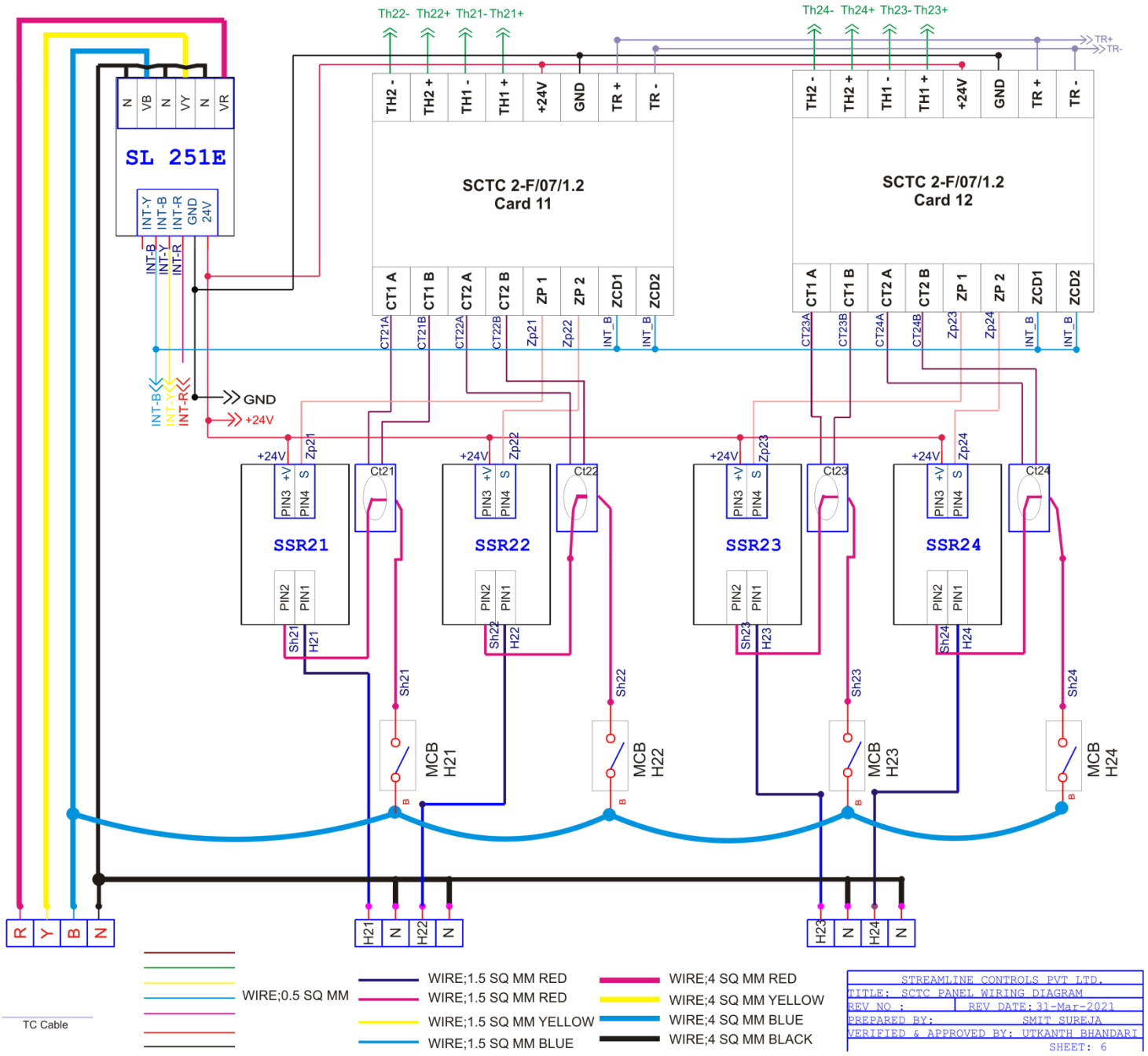
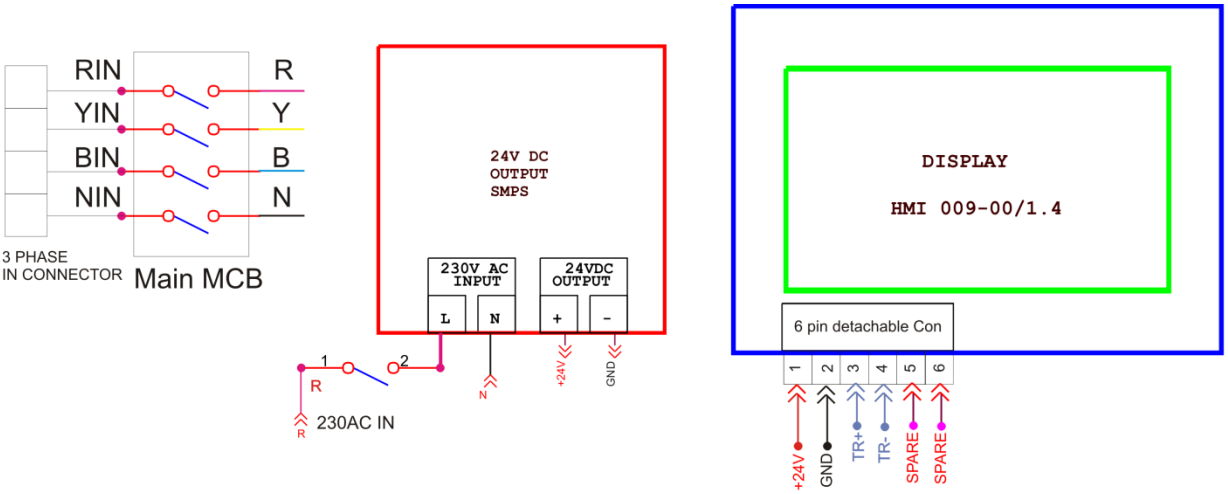
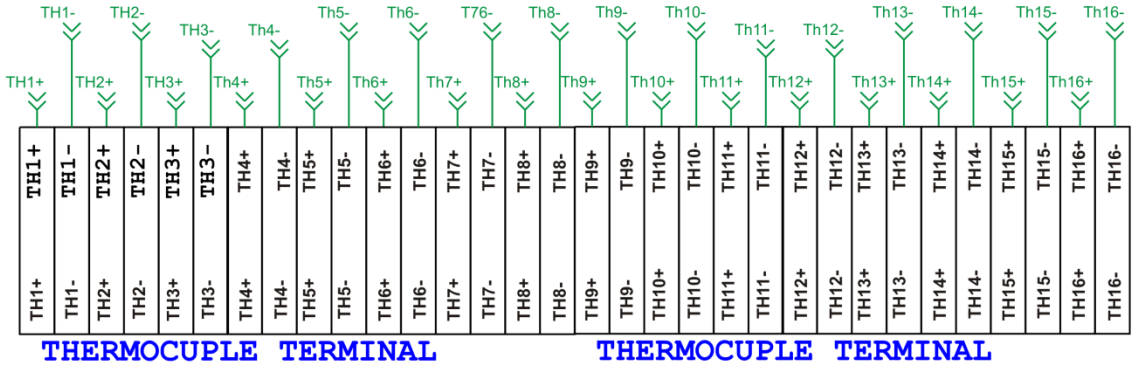
REV DATE:31-Mar2021
PREPARED BY: SMIT SUREJA
VERIFIED & APPROVED BY: UTKANTH BHANDARI
SHEET: 3

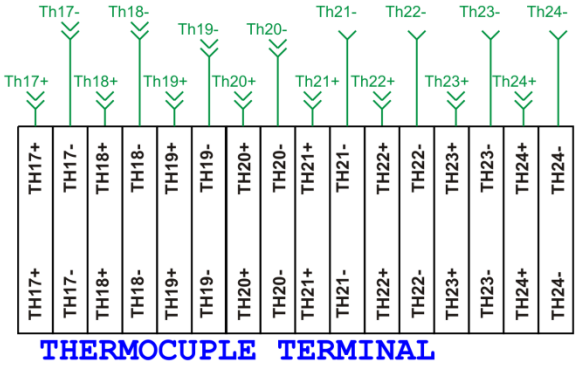

Th14- Th14+ Th13- Th13+
Th16- Th16+ Th15- Th15+
TR+
TR-
N VB N VY N VR
SL 251E
INT-Y INT-B INT-R GND 24V
TH2 - TH2 + TH1 - TH1 + +24V GND TR + TR -
SCTC 2-F/07/1.2
Card 7
SCTC 2-F/07/1.2
Card 8
CT1 A CT1 B CT2 A CT2 B ZP 1 ZP 2 ZCD1 ZCD2
CT13A CT13B CT14A CT14B Zp13 Zp14 INT_Y INT_Y
CT15A CT15B CT16A CT16B Zp15 Zp16 INT_Y INT_Y
INT-B INT-Y INT-R
GND
+24V
Zp13 Zp14 Zp15 Zp16
PIN3 +V S PIN4
PIN2 PIN1
SSR13
SSR14
SSR15
SSR16
Ct13 Ct14 Ct15 Ct16
Sh13 H13 Sh14 H14 Sh15 H15 Sh16 H16
MCB H13
MCB H14
MCB H15
MCB H16
R Y B N
H13 N H14 N
H15 N H16 N
TC Cable
WIRE;0.5 SQ MM
WIRE;1.5 SQ MM RED
WIRE;1.5 SQ MM RED
WIRE;1.5 SQ MM YELLOW
WIRE;1.5 SQ MM BLUE
WIRE;4 SQ MM RED
WIRE;4 SQ MM YELLOW
WIRE;4 SQ MM BLUE
WIRE;4 SQ MM BLACK
STREAMLINE CONTROLS PVT LTD.
TITLE: SCTC PANEL WIRING DIAGRAM
REV NO :
REV DATE: 31-Mar2021
PREPARED BY: SMIT SUREJA
VERIFIED & APPROVED BY: UTKANTH BHANDARI
SHEET: 4

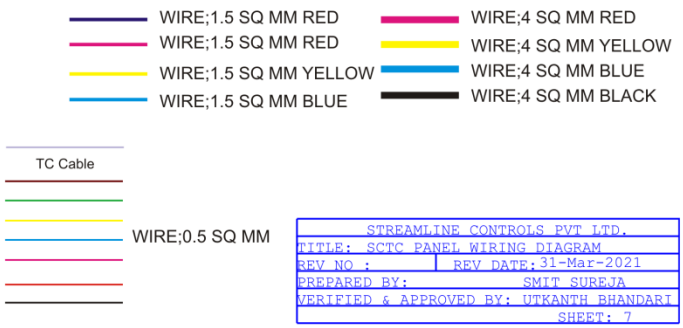

Th18- Th18+ Th17- Th17+
Th20- Th20+ Th19- Th19+
TR+
TR-
N VB N VY N VR
SL 251E
INT-Y INT-B INT-R GND 24V
TH2 - TH2 + TH1 - TH1 + +24V GND TR + TR -
SCTC 2-F/07/1.2
Card 9
SCTC 2-F/07/1.2
Card 10
CT1 A CT1 B CT2 A CT2 B ZP 1 ZP 2 ZCD1 ZCD2
CT17A CT17B CT18A CT18B Zp17 Zp18 INT_B INT_B
CT19A CT19B CT20A CT20B Zp19 Zp20 INT_B INT_B
INT-B INT-Y INT-R
GND
+24V
+24V Zp17 Zp18 Zp19 Zp20
PIN3 +V PIN4 S
SSR17
SSR18
SSR19
SSR20
PIN2 PIN1
Ct17 Ct18 Ct19 Ct20
Sh17 H17 Sh18 H18 Sh19 H19 Sh20 H20
MCB H17
MCB H18
MCB H19
MCB H20
R Y B N
H17 N H18 N
H19 N H20 N
TC Cable
WIRE;0.5 SQ MM
WIRE;1.5 SQ MM RED
WIRE;1.5 SQ MM RED
WIRE;1.5 SQ MM YELLOW
WIRE;1.5 SQ MM BLUE
WIRE;4 SQ MM RED
WIRE;4 SQ MM YELLOW
WIRE;4 SQ MM BLUE
WIRE;4 SQ MM BLACK
STREAMLINE CONTROLS PVT LTD.
TITLE: SCTC PANEL WIRING DIAGRAM
REV NO :
REV DATE: 31-Mar2021
PREPARED BY: SMIT SUREJA
VERIFIED & APPROVED BY: UTKANTH BHANDARI
SHEET: 5


Th22- Th22+ Th21- Th21+
Th24- Th24+ Th23- Th23+
TR+
TR-
SL 251E
N VB N VY N VR
INT-Y INT-B INT-R GND 24V
SCTC 2-F/07/1.2
Card 11
SCTC 2-F/07/1.2
Card 12
TH2 - TH2 + TH1 - TH1 + +24V GND TR + TR -
CT1 A CT1 B CT2 A CT2 B ZP 1 ZP 2 ZCD1 ZCD2
CT21A CT21B CT22A CT22B Zp21 Zp22 INT_B INT_B
CT23A CT23B CT24A CT24B Zp23 Zp24 INT_B INT_B
INT-B INT-Y INT-R
GND
+24V
SSR21
SSR22
SSR23
SSR24
PIN3 +V PIN4 S
PIN2 PIN1
Ct21
Ct22
Ct23
Ct24
Sh21 H21
Sh22 H22
Sh23 H23
Sh24 H24
MCB H21
MCB H22
MCB H23
MCB H24
R Y B N
H21 N H22 N
H23 N H24 N
TC Cable
WIRE;0.5 SQ MM
WIRE;1.5 SQ MM RED
WIRE;1.5 SQ MM RED
WIRE;1.5 SQ MM YELLOW
WIRE;1.5 SQ MM BLUE
WIRE;4 SQ MM RED
WIRE;4 SQ MM YELLOW
WIRE;4 SQ MM BLUE
WIRE;4 SQ MM BLACK
STREAMLINE CONTROLS PVT LTD.
TITLE: SCTC PANEL WIRING DIAGRAM
REV NO :
REV DATE: 31-Mar-2021
PREPARED BY: SMIT SUREJA
VERIFIED & APPROVED BY: UTKANTH BHANDARI
SHEET: 6









STREAMLINE CONTROLS PVT LTD.	
TITLE: SCTC PANEL WIRING DIAGRAM	
REV NO :	REV DATE: 31-Mar-2021
PREPARED BY:	SMIT SUREJA
VERIFIED & APPROVED BY: UTKANTH BHANDARI	
SHEET: 7	