MISTRAL 260

(SHA One)

Forced air convection oven

User manual

Version 3.07

SPIDÉ

TABLE OF CONTENTS

SPIDÉ

IMPORTANT SAFETY RULES FORCED AIR CONVECTION OVEN

Risk of fire and burning:
When the oven is in production mode it is dangerous to leave the oven unattended, high temperature and long producing times can be overheat the oven what can lead to fire. When you take out a PCB when oven is at working temperature use protective gloves or a heat resistant tool.
In case of fire pull out the plug!
***Put no flammable materials near or on the reflow –oven**, don't block the ventilation grate.*
Don't touch the glass of the oven, it can be hot. ***You risk a serious burning of the skin**.*

Machine location:
Use this oven not outdoors! The oven is developed to install it on a flat, dry surface. This surface or table must be capable to care a weight of at least 200 Kg. The oven should be used with normal room temperatures from 15 to 25 degrees. Be sure to provide with clearance of at least 4 inches (10 cm) between the unit and walls.
It is not allowed and even dangerous to build it in a cupboard or box. Install this oven not near a heating element or stove, also not in a wet environment.

Power supply:
Be sure to install complying with industry standards. Incomplete or bad installation can cause stumbling accidents or electrical shock. Put the main plug in the wall socket near by the oven, this is important! Because in case of an emergency the operator can pull out the plug. The power supply is single phase 16A, 220V 50 Hz AC power outlet.

Normal use:
The oven is developed only for soldering of PCB's , don't use the oven for food, animals or heating of other materials. You will lose warranty if you don't commit to those rules.
Don't use the oven when it's damaged or not working properly.
Check the properly working of the oven by following the checklist below:

1. Are entry and outlet free, are there no other obstruction
2. Are all springs in good condition
3. Check the line cord, plug and outlet. Be sure they are not damaged.

High voltage - *ONLY QUALIFIED PERSONS MAY OPEN THE CASING:*
The casing may never be opened or removed**! Inside the machine are high voltages which can be lead serious injuries or even to dead!.**
Don't put the plug and the line cord into any kind of liquid. Avoid situations that liquids or other materials entering the oven through door latching or ventilation grate.
In the case this is happening:
Switch off the oven immediately or/and, pull the plug out of the wall socket.
Ask your supplier what to do.
Be sure the line cord is not making a sharp hook or is hanging on sharp things. Avoid line cord to be in contact with warm or hot surfaces.
In case of damage only qualified persons may replace the line cord.

Operating the oven:
It's not allowed to operate this oven under the age of 18 years. It's also not allowed that the oven is operated by persons with disabilities which will make it impossible to use the machine in a save and responsible way.
It's strongly recommended that the operator has enough knowledge about working with soldering machines and the use of the right paste for soldering.
***Use the oven only in well ventilated rooms.** Follow the safety rules of your paste supplier. During the soldering process gas and heat will be produced. The gasses can be affect your health in a negative way.*
It is recommended to buy our fume extractor option!.

Responsibility at improperly use:
Nor the supplier or manufacturer is responsible for damage at the oven or personal injury when safety rules and correct installation are not committed. Also warranty will be immediately omitted.

1. Preface

Congratulations! You have purchased a machine of high quality made with dedication to meet the highest standards possible. To ensure proper operation we strongly advise you to read this manual first.
This manual is designed to help you get the most out of the Forced Air Convection Oven program in the shortest possible time. It is written for both the new and experienced user in mind.

1.1 How this manual is organized

The first section of the manual explains the unpacking and installation of the oven. Included is a description of the principles and specifications of the oven.
The main section of the manual is built around questions a user might have concerning the touch screen display. The software is designed to achieve the most user friendly control of the oven simply by using your fingertip.

1.2 The figures

The figures in this manual were captured with the intention of providing the clearest possible tutorial for the program. Default screen positions and sizes were used in most cases.
Because the oven program can be configured in many different ways, do not be concerned if you detect minor differences between the figures in this manual and what you see on your display.

2. Setting up

2.1 Unpacking the oven

Carefully unpack the oven and save the original package in case you need to ship the unit.
Ensure that1 thermocouple wire is enclosed.

2.2 Before starting the oven:

Operate the oven in a well-ventilated room only.
Keep people, who do not operate the unit, away from the oven.

2.3 Power source

Single phase 220 VAC, 16A 50/60Hz.
Make sure that the oven is connected to a well earthed outlet.

2.5 Notices on operation

- Do not operate any switch with a wet hand, otherwise you can get an electrical shock.
- Do not use combustibles (e.g. thinner), combustible gases, or volatile matter near the oven; otherwise explosion or fire can be caused.
- Do not put anything on the oven while using the oven. The heat could cause fire and/or deformation, cracking, etc.
- Consult only your dealer for repairs. Incomplete repairs can cause electrical shock, fire or stumbling.
- When removing dirt on the oven, do not use chemicals, such as thinner or benzene; otherwise accidents can be caused.

2.6 Purpose of using the oven

The oven was designed only to be used for soldering or drying. Do not use for other purposes.

2.7 Using an exhaust

To connect the exhaust: move the exhaust pipe over the stud at the rear end of the oven. An additional exhaust ventilation unit is required.
Note that air flow regulation may be required since excessive air exhaust can cause temperature drop in the oven.

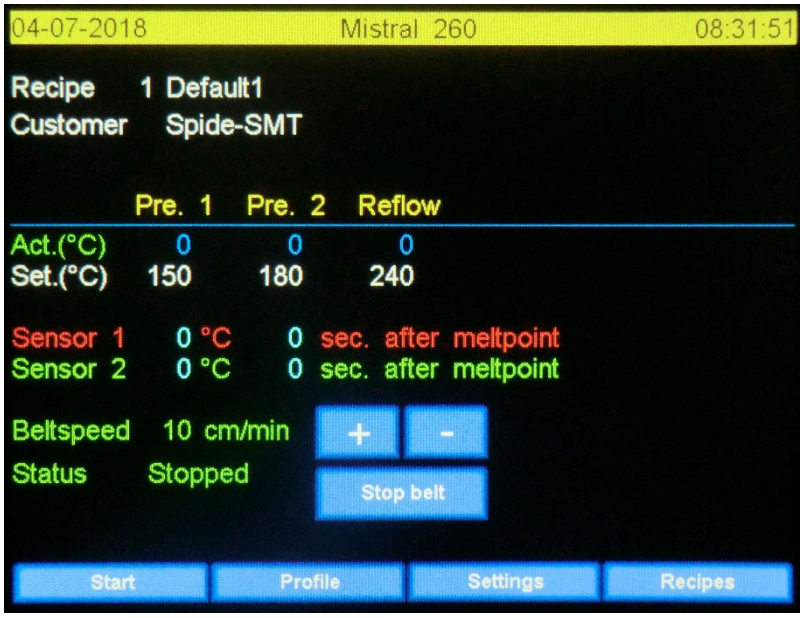
3. Working with the touch screen

When the machine has been switched on the following picture will be displayed on screen:

After the machine has booted there are two possibilities about the screen that's coming up. The main screen or the login screen. This will be explained in the next chapter.

3.1 Main screen without password check

This screen will be displayed when in the menu "**Settings \ Display & Sound**" the function "**Use user & password**" is set to "**No**".
The main screen without the use of passwords is shown below.



3.1.1 Lay-out of the main screen.

The upper left corner displays the current date, the upper right corner displays the current time. Both can be changed at "**Settings / Date and Time**". (See "**Machine settings en info**")

Recipe: Name of the current soldering profile.

Customer: Name of the current client.

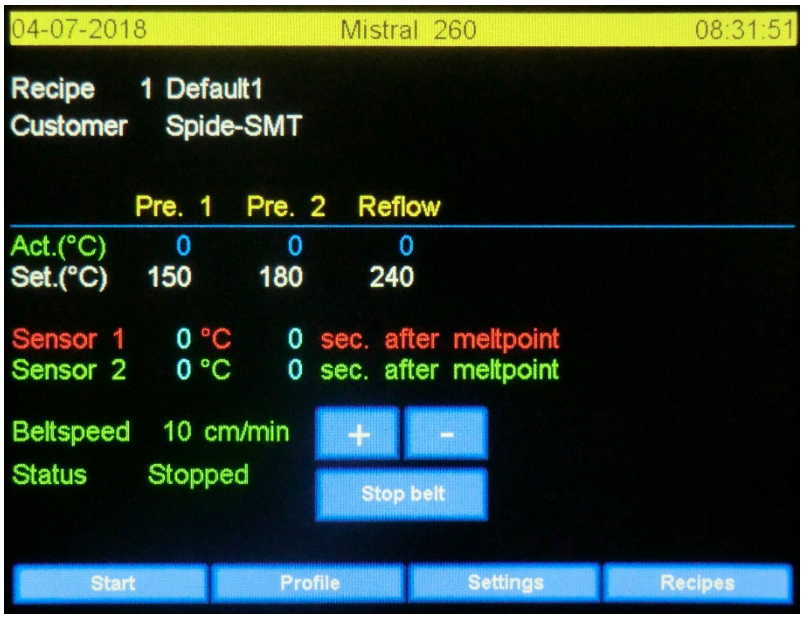
Act.(˚C): The actual zone temperature.

Set.(˚C): The set zone temperature.

Sensor 1 + 2: Can be used during production stage to measure/check the time the product is within the melting temperature of the used paste. To make sure the soldered component has the correct temperature during the appropriate amount of time. To do this at least one thermocouple sensor must be attached to the product. The melting temperature can be modified in the "Recipe editor". The field represents the max. temperature (°C) the sensor has measured, it only goes up.
The second number represents the time the component is at melting temperature (sec.).
The measured values will stay in the display until you turn off the oven or when you start a new cycle with the "**Sensors**" button. See "**Sensors**" how to activate this function

Sensors: This button will only show up if at least one thermocouple sensor has been connected. By touching this button you can toggle between "**Sensors OFF**" and "**Sensors ON**". When this button is in "**Sensors ON**" mode you can use the function described in "**Sensor 1 + 2**". Also the blue fields in "**Sensor 1 + 2**" will be reset to the value of 0 and the colour changes to red.

Belt speed: This is the speed of the belt as set in the recipe. The belt speed can be adjusted by



cm/min with the buttons "**+**" and "**–**". The belt speed can also be adjusted at the "**Recipe editor**". If the profile has to be changed the user should press on the value that should be changed. This will display the "**Recipe editor**". This screen will be discussed in the chapter "**Recipe editor**".
Invisible button: There is an invisible button between the "**Sensor**" and "**Recipes**" buttons. By pressing this button you will put the screen in "**Max. brightness**" mode. This option is set at the "**Display & Sound**" screen. Please refer to "**Display & Sound**" for more information.

Stop belt: With this button the belt can be stopped at any time during the process.

3.1.2 Functions explained.

Start: when this button is pressed the status will change from "**Stopped**" to "**Running**". The oven is now in production mode. The button text will change to stop. When pressed the status will change from "**Running**" to "**Stopped**", this indicates the machine went back to stand-by mode.

Profile: by pressing this button the "**Make profile**" screen will be displayed. Using this the user can make a soldering profile by using thermocouples. Please refer to "**Make profile**" for more information. Another word often used for "**Profile**" is "**Trend**".

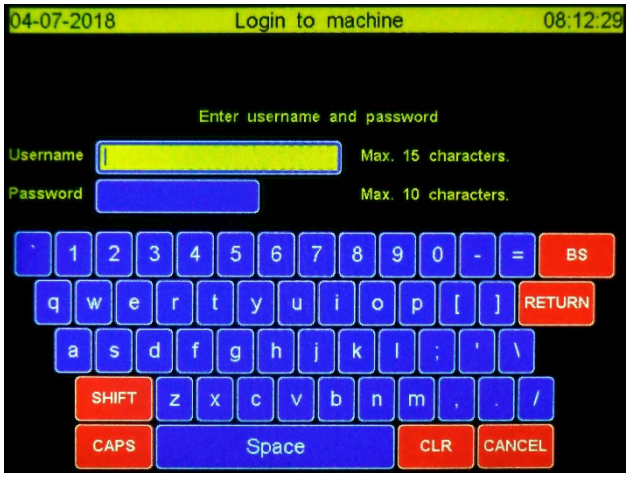
Settings: By pressing this button the "**Machine settings and info**" screen will be displayed. Please refer to "**Machine settings and info**" for more information.

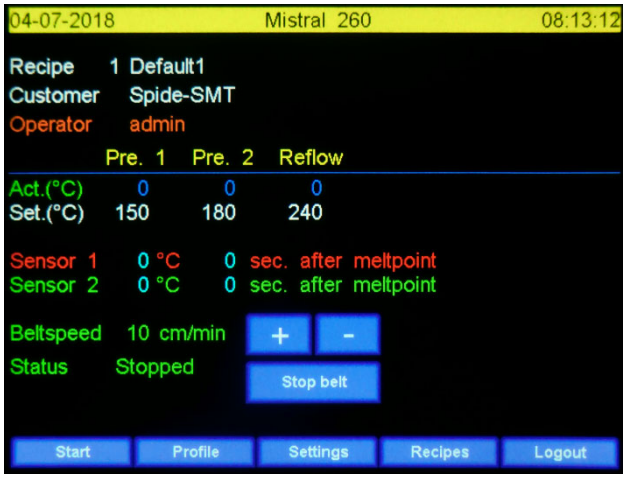
Recipes: By pressing this button the "**Recipe selection**" screen will be displayed. This will display a list with all available profiles. Please refer to "**Recipe selection**" for more information.

3.2 Main screen with password check.

This screen will be displayed when in the menu "**Settings \ Display & Sound**" the function "**Use user & password**" is set to "**Yes**". This also concerns machines booting process, as it will display the password screen instead of the main screen.

The "**Login to machine**" and main screen when using the password option are shown below.





3.2.1 Logon to the machine.

The use of the login screen is straight forwards. After entering your username hit enter. You'll now moving to the "**Password**" en the field is changing to yellow. Enter your password en hit enter. If the username and password are valid the main screen is coming up. If the values are not valid the logon screen is cleared and waiting for input.

3.2.2 Functions explained.

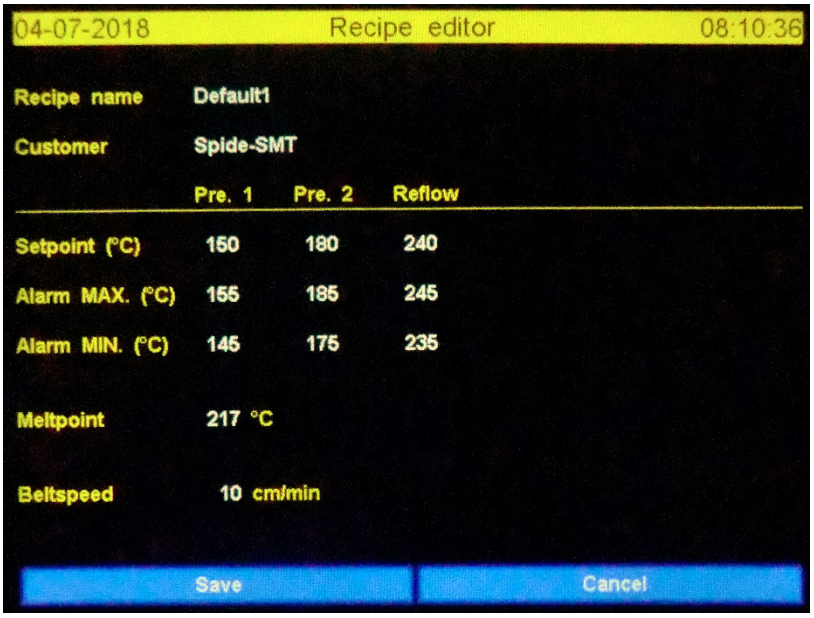
The functions of all buttons and fields are the same as described in "**Main screen without password check**" , it only adds 2 new values:

Operator: The name of the current machine operator. The operator privileges and name can be changed in the "**Settings \ User & Passwords**" menu.

Logout: By pressing this button the user will log out of the machine and will return to the password screen. Another user can now login to the machine. (Note: different users have different privileges)

3.3 Recipe editor

When a value is pressed in the main screen the "**Recipe editor**" will be displayed. Using the "**Recipe editor**" the user can change any of these values to its desired value. If password protection has been enabled only administrators can change the values of in the "**Recipe editor**".
The "**Recipe editor**" screen is shown below.



3.3.1 Editing a recipe value

Ticking the value that needs changing. Depending on the value a (alpha) numeric keyboard, named "**Edit recipe item**", will be displayed. This keyboard screen will display the current, max and min values of the pressed field. Pressing *Enter* or *Cancel* will bring the user back to the "**Recipe editor**".
The numeric keyboard "**Edit recipe item**" is shown below.

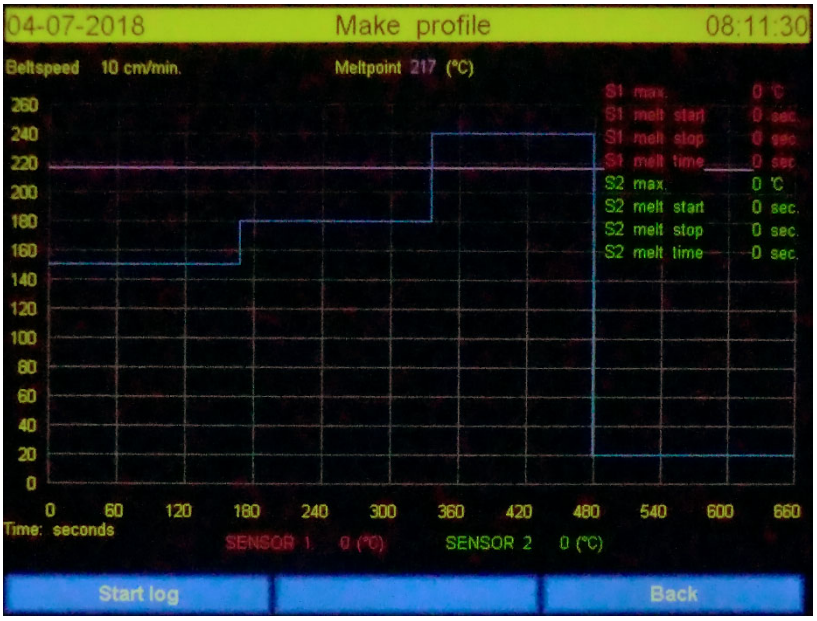
3.3.2 Functions explained.

Save: Any changes will be saved and the screen will display the main screen.

Cancel: The new values will NOT be saved and the screen will display he main screen.

3.4 Profile or “Trend” screen.

This screen will be displayed if “**Profile**” has been ticked at the main screen. This function allows users to draw a profile of the soldering process. If a USB stick is inserted these profiles will be saved at this USB stick.
The “**Make profile**” screen is shown below.

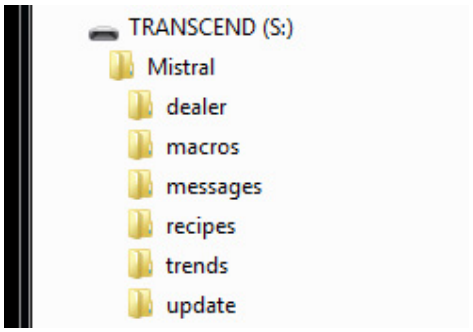


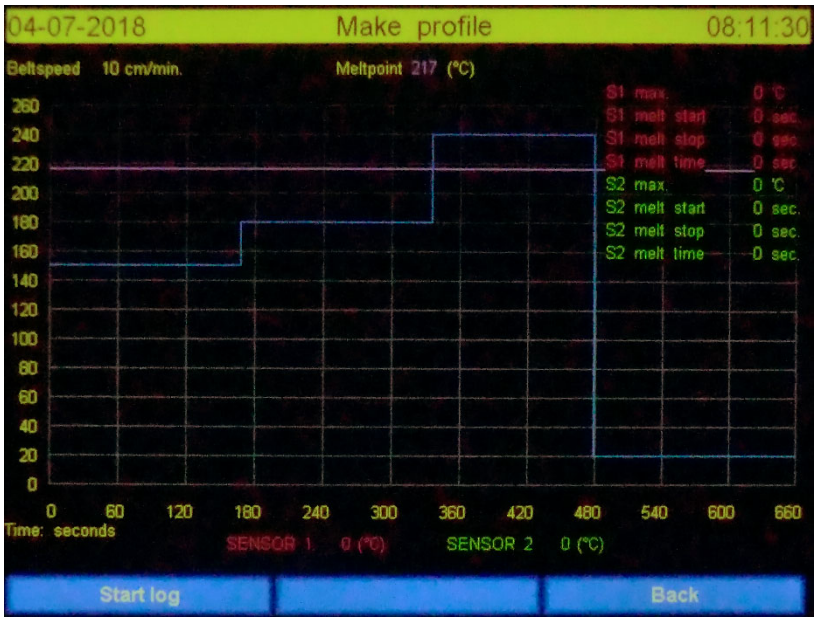
The Y axis displays the temperature related to the max. temperature of the recipe. The X axis displays the time related to belt speed. Both axis will change according the values entered in the recipe.
To use this option at least 1 thermocouple must be attached to the product and connected to the machine, there should also be a USB stick in the USB port. The USB ports are found at the zone entrance.

A folder “**Mistral**” must be created on the USB stick. In de “**Mistral**” folder a folder “**trends**” must be created. The names of these folders must be typed ***EXCACTLY*** as described.
Mind the use of capital letters.

The USB stick should have a name. In this example the name of the USB is “TRANSCEND”. There are no restrictions concerning the name of the USB stick.

Folder structure in the root of the USB-Memory stick TRANSCEND is shown below:





3.4.1 Functions in idle state explained.

Start log: By pressing this button the program will start logging the thermocouple values. The values will be represented by a red (**SENSOR 1**) and a green (**SENSOR 2**) lines in the graph.

Back: By pressing this button the user will return to the main screen, all unsaved data will be lost.

3.4.2 Layout "Make profile" screen

Belt speed: The belt speed as defined in the recipe.

Melt point: The required temperature to melt the solder. Consult with your solder supplier for more information on melting temperatures. This value is also defined in the recipe.

The values at the left hand side of the screen (0 – 260) : This is the temperature scale. These values depend on the recipe.

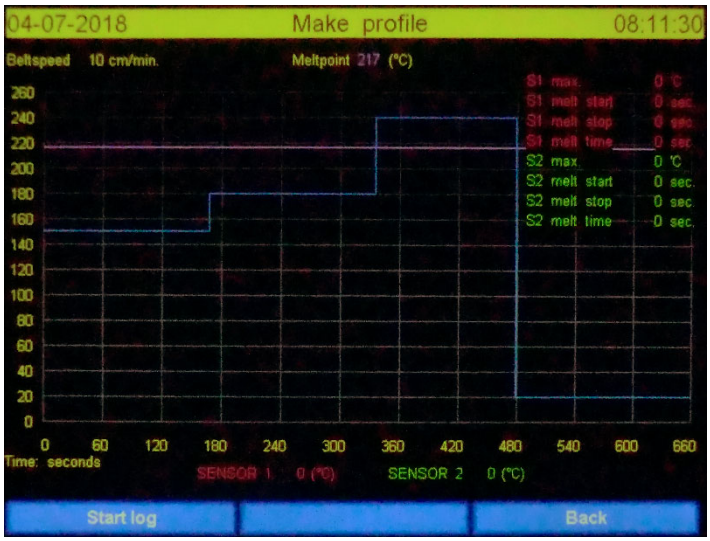
The values at the bottom of the screen (0 – 210) : this is the time scale. These values depend on the recipe.

SENSOR 1 en 2: This shows the current value of the thermocouple.

Use of lines: The *purple* line represents the melting temperature. The *blue line* represents the set temperature of the zones. The length represents the time the product is in the zone.

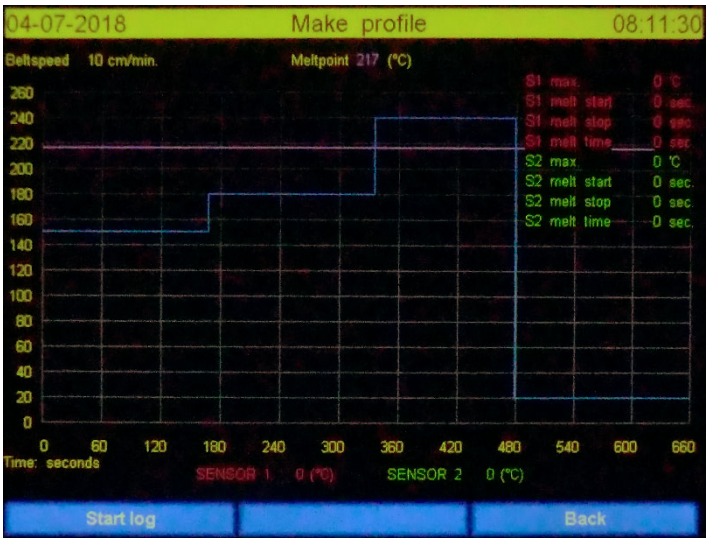
3.4.3 How to make a profile

1. Attach a thermocouple sensor onto the product at the pace of your choice and place it on the belt.
2. When the component enters the first zone the user should press the **"start log"** button to start creating the profile**.**
   Below you will see how screen looks after "**start log**" is pressed.



3.4.4 Functions in logging state explained.

Logging: This is a representation of the status. There is no further function.
Save: When this button is pressed all collected data is saved on the USB stick and the logging process is stopped.
When time is finished (in the example after 210 seconds) the process will automatically stops and all collected data is saved onto the USB Memory stick. When no stick is available the data is destroyed. The data can be printed with the supplied Excel macros. (See "**Printing the profile**")
The screen layout after the profile is saved in shown below.



Back: Data is destroyed and the screen will be closed and main screen is coming up.

3. After the product enters the cool down zone wait a while. When the product is cool enough to touch remove the sensor(s).
   The user can select "**Start log**" to make another profile or "**Back**" if he wants to quit. It's possible to save more profiles on the USB stick

3.4.5 Printing the profile or trend

To print the profile you will need a PC with the program Microsoft Excel installed. On the supplied USB stick you will find a folder named "**Macros**".
There are two Excel sheet in this folder:

"**Productsheet2003.xls**". Use this for Excel versions 2003 t/m 2013
"**Productsheet2013.xls**". Use this for Excel version 2013 or higher.

Insert the USB Memory stick, containing the data you collected with "**Make profile**" option of the oven, in the PC's USB port.
Double-click on the macro of your choice. After Excel has opened the sheet the user is asked to select a data file. It's a normal Windows file selector window. Navigate in this window to the folder "**\Mistral\trends**" on the USB Memory stick.
You will now see a list of "**.hdr**" files. Select the file of your choice and click "**OK**"
Excel will then process the data and show a graph with all relevant data. You can now print the graph.

The name of the "**.hdr**" files contains production information. With this information you can find the profile you like to view.
Determination of the filename T201406190752.hdr is shown as below
T-2014 – 06 – 19 – 07 – 52 (year – month – day – hour – minute)

*********** *WARNING* **********

The Excel macro files are not protected. The user is capable of changing the source of the macro. Before you will do so make a copy of these macro files. Changing or corrupt these files are not covered by the warranty.

*********** *WARNING* **********

3.5 Recipe selection

When ticking on "**Recipes**" in the main screen you will enter the "**Recipe selection**" screen. The number of possible recipes is practically limitless. Off from the factory there are 20 default recipes. User can select, insert or delete recipe in this screen. It's not possible to change values in this screen. Values can be changed after the recipe is selected and placed in the main screen.
The "**Recipe selection**" is showed below.

The user can select a row by ticking on it. A white bar mark the last ticked recipe as selected.

3.5.1 Functions explained

<<: One page back

>>: One page forwards

Name: Toggle between recipe- or customer name

Ins: A new recipe is inserted at the location of white bar. Values can be changed in the main screen.

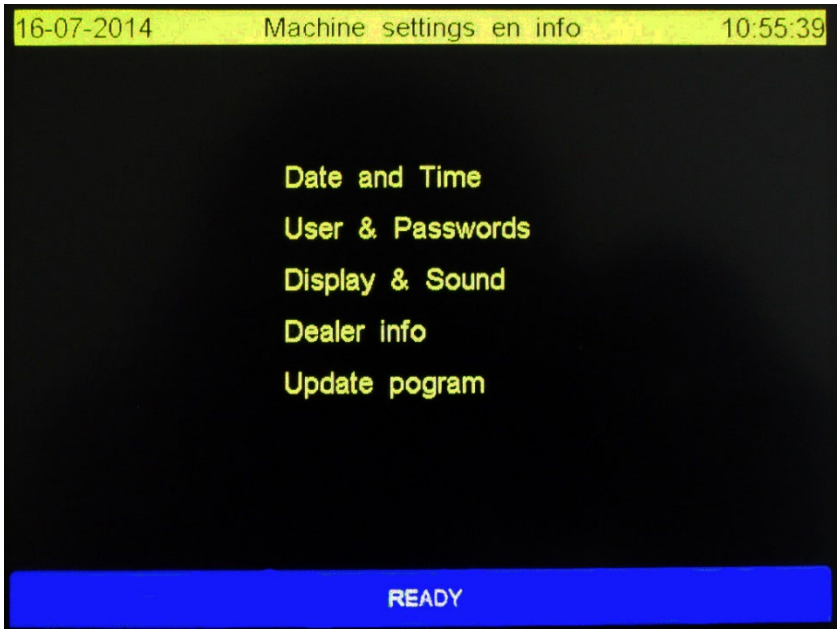
Del: The row whit the white bar is deleted

Confirm: The selected recipe will be used and the "**Recipe selection**" is closed. The main screen is show up with the newly selected recipe. It's possible to change the values now.

Back: Go back to main screen and do not change the recipe you was using.

3.6 Machine settings and info.

Ticking the function “**Settings**” in the main screen will open the “**Machine settings and info**” screen. This screen contains 5 menu options we will describe here.
The “**Machine settings and info**” is shown below.



3.6.1 Functions explained

With the “**READY**” function the screen is closed and the main screen is showing up.

Date en Time: User can change date and time values. See also “**Setting Date and Time**”.

User & Password: Change, insert or delete operators. See also “**Setting User & Passwords**”.

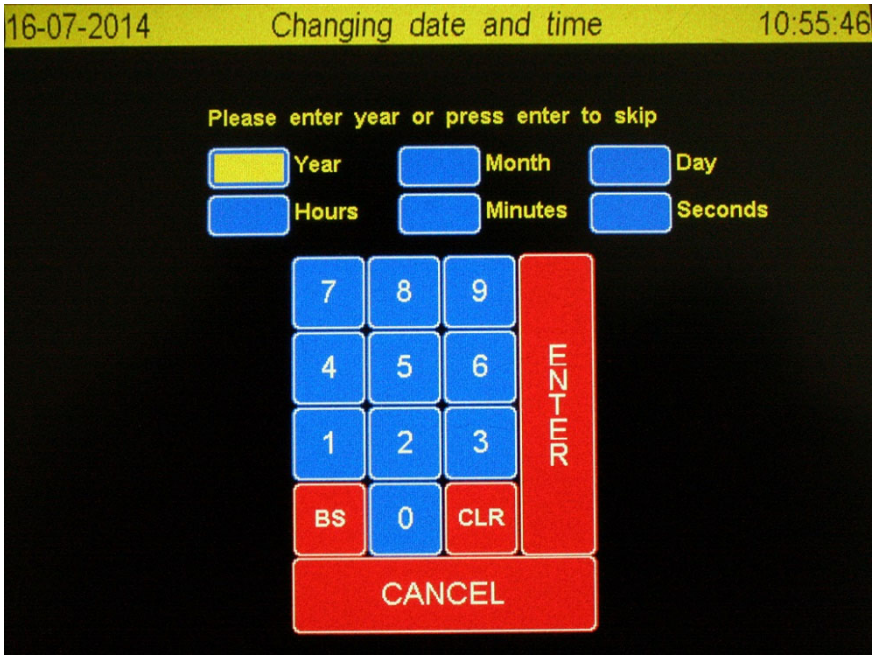
Display en Sound: Setting display background lightning, use of sound and the use of passwords. See also “**Setting Display & Sound**”

Dealer info: Here the user can find information to contact his dealer. See also “**Reading Dealer info**”

Update program: If an update is available this function will install the update. More details will be available with the update.

3.7 Setting Date and Time

This screen is used to set local date and time. There is no capability for summer- or winter time detection.
The "**Changing data en time**" is showed below.



3.7.1 Functions explained

CANCEL: Close the screen and ignore all changes

BS: Clear the character before

CLR: Delete entire value

ENTER: Advance to next field. If on the "Seconds" field the new value are saved and screen is closed. When a field is empty while ticking the enter key the actual value is showing up in that field.

3.7.2 Time and date fields explained

Year: Enter the complete year number, e.g. 2014, or enter to preserve the actual value.

Month: Number of month, e.g. 7 July, of enter or enter to preserve the actual value.

Day: The date, e.g. 6, or enter to preserve the actual value.

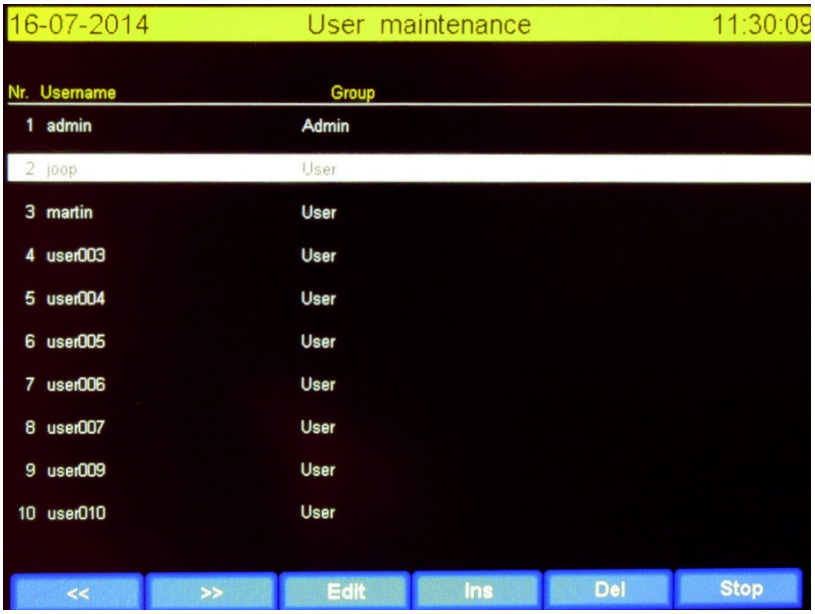
Hours: The hour in 24 hour format, e.g. 19, or enter to preserve the actual value.

Minutes: Enter the minutes, e.g. 3, or enter to preserve the actual value.

Seconds: Enter the seconds, e.g. 0, or enter to preserve the actual value. The screen will close and the new values are saved and used.

3.8 Setting User & Passwords

With this screen you can maintenance the operators who are allowed to work with the oven. To use these operators en protection you have to enable the option "**Use user and passwords**" in the "**Display & Sound**" screen.
The "**User maintenance**" screen is showed below.



The user can select a row by ticking on it. A white bar mark the last ticked row as selected.

3.8.1 Functions explained

<<: One page back

>>: One page forwards

Edit: This opens the "**Edit user data**" screen. Refer to the "**Edit user data**" chapter.

Ins: Insert a new user at the location of the white bar.

Del: Delete the user selected by the white bar.

Stop : Go back to "**Machine settings and info**" screen.

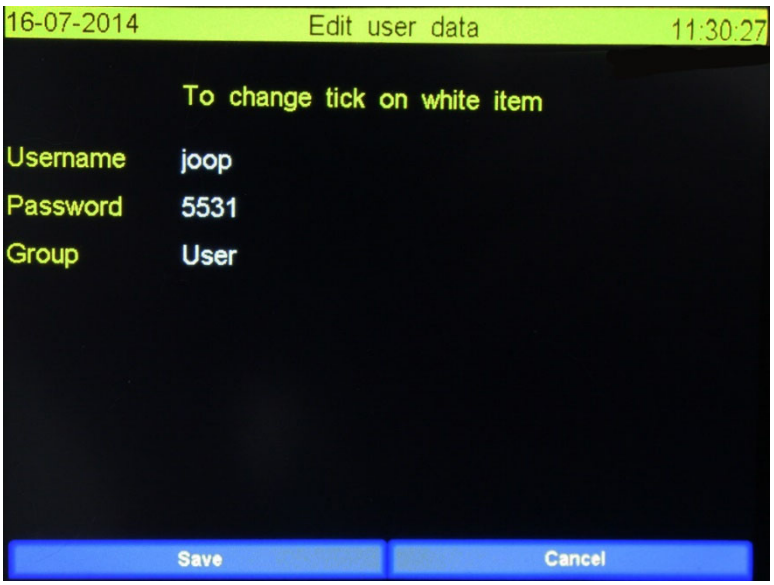
*********** *WARNING* **********

It's not a good idea to change the first user called "Admin". The standard password for this user is: sp-admin.
Use this user only in special cases. If you lose these data it's possible that you cannot enter machine anymore. This situation is outside warranty rules.

********** *WARNING* **********

3.9 Edit user data

If you ticked “**Edit**” in the “**User maintenance**” screen this screen is showing up. Here you can change the name, password and rights of an operator.
The “**Edit user data**” screen is showed below.



3.9.1 Functions explained

Save: Save all changes you’ve made.

Cancel: Close the screen and lose all changes.

3.9.2 Fields explained.

Username: Ticking on the name value will open an alpha-numeric keyboard. You’re then capable to change the name.

Password: Ticking on the password value will open an alpha-numeric keyboard. You’re then capable to change the password.

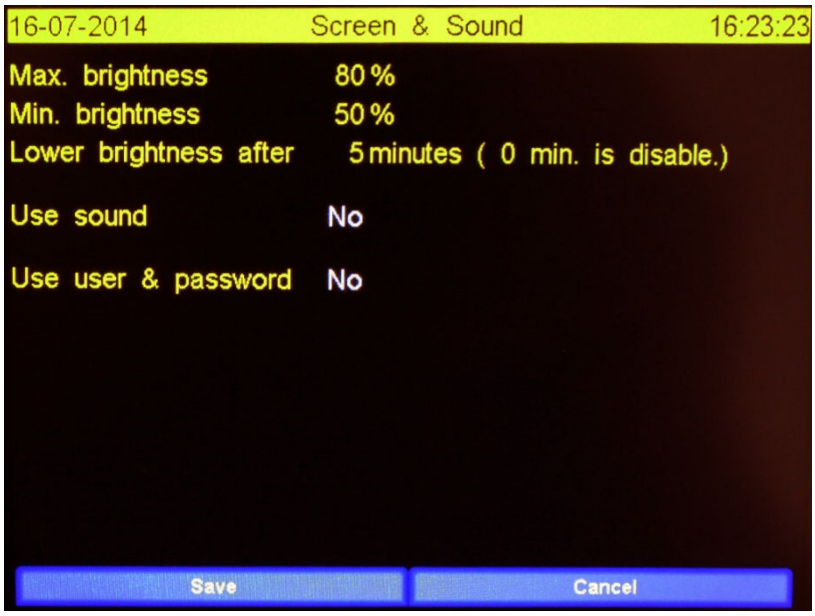
Group: By ticking on the group value you will toggle between “**User**” and “**Admin**”. These groups represents the rights the user will have on the machine. In this case “**User**” and “**Admin**” are not names but functions.

3.9.3 Explaining groups

If the user belongs to the “**Admin**” group. This user can change all settings and values on the machine.
If the user belongs to the “**User**” group. This user can only use the machine by starting or stopping the machine, making a profile, select another recipe or change belt speed.
The group “User” cannot change values or settings.

3.10 Setting Display & Sound

When ticking "**Display & sound**" in the "Machine settings and info the "**Screen & Sound**" will be showing up. There are 5 option which are changeable.
The "**Screen & Sound**" screen is showed below.



3.10.1Functions explained

Save: Save all changes you've made.

Cancel: Close the screen and lose all changes.

3.10.2 Fields explained

It is possible to regulate the brightness of the screen. The preserve the screens lifetime it's also possible to set a "*sleep mode*" during the time the main screen is showed. During a normal production cycle this screen is hardly viewed.
When ticking on the screen the "**Max. brightness**" value will be used. In "*sleep mode*" the "**Min. Brightness**" value will be used.
Max. brightness: The screen brightness when you are working on the screen.

Min. brightness: The screen brightness when you do not touch the screen longer then the time defined in "**Lower brightness after**"

Lower brightness after: After the time, entered in this field, is finish the brightness of screen is lowered to the value entered in "**Min. brightness**". The timer will be reset if the user ticks on the screen.
Use sound: Ticking on this field toggles between "**Yes**" and "**No**". When "**Yes**" is selected then a short beep sounds when the user ticks at the screen on a function or editable field.

Use user & password: Ticking on this field toggles between "**Yes**" en "**No**". When "**Yes**" is selected the machine will be protected against unauthorized use. The user has first to logon. After a successfully login he can use the machine as described in the group rights he's belonging to.

3.11 Dealer info.

In this screen the user can find information about his dealer, serial number, construction date and the revision of the controller hardware. The software revision of the controller will be changed if an upgrade or downgrade is installed as described in "**Update program**"
The "Dealer info" screen is show below.

The information shown in this screen is only mentioned as example. The screen you will see depends of dealer. Of course the serial number, construction date and Hardware rev. are different in the real application.

4. Controlling oven by serial communication.

It is possible to control the oven with commands send by serial communication. On the USB memory stick, which was delivered with your oven, you will find instructions on how to install and use a RS232 control program. This program shows the syntax of the commands used to control the oven. With those commands you can write your own application. Default the machine uses an USB port for communication. However, from serial number 2190809 the I/O card has also a legacy RS232 port. With the onboard jumpers you can select this RS232 port and use the extra connector to connect a RS232 plug.

5. Specifications

The reflow oven **MISTRAL 260** is developed for ***lead free*** reflow soldering of SMT boards, hybrid boards or curing adhesives.

Transport system
The boards are transported through the oven on a conveyor belt made from high grade stainless steel springs.
The conveyor belt is variable speed between 4 and 60 cm/min (+/- 6 to 23,62 inch/min).
Resolution goes in steps of 1 cm (+/- 0.39 inch)

Heating system
Heating is achieved by forced air convection. This reduces the shadow effects and results in no colour sensitivity, no hot spots and no cold solder joints. The heating system is suitable for lead-free soldering.

Cooling system
Bottom cooling fans at the offload section ensure cooling of your circuits before leaving the transport belt.

Control
All functions are controlled by a touch screen display which is easy to program with a user friendly interface.
Furthermore this control is equipped with a USB 2.0 master port for data output to storage device like USB stick or hard disk. The second USB 2.0 (slave) port and the Ethernet port are for future communication with external devices. E.g. a PC.

Exhaust
The integrated exhaust system transports fumes to an outdoor ventilation or filtration unit.

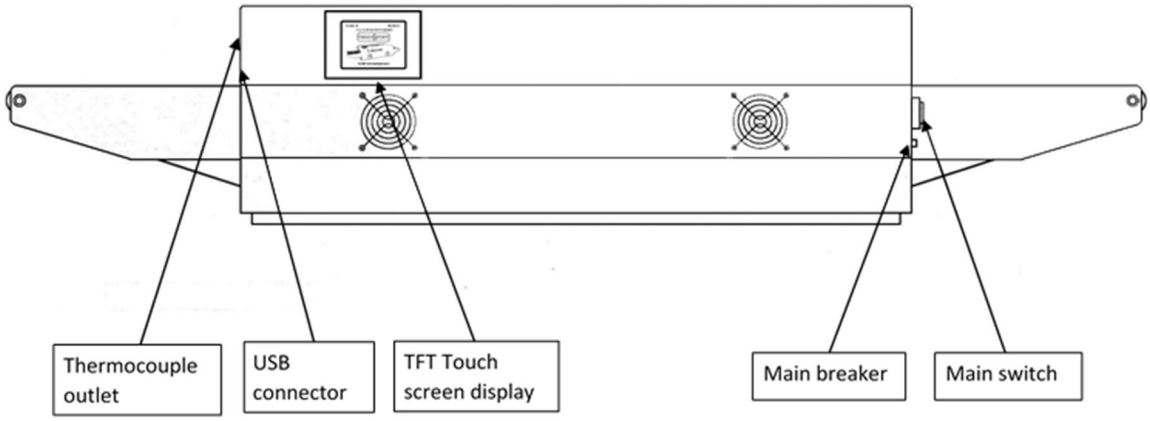
Thermocouple wire
The included thermocouple wire can be used to monitor the temperature progress when attached to a PCB or any other object running through the oven on the conveyor belt.

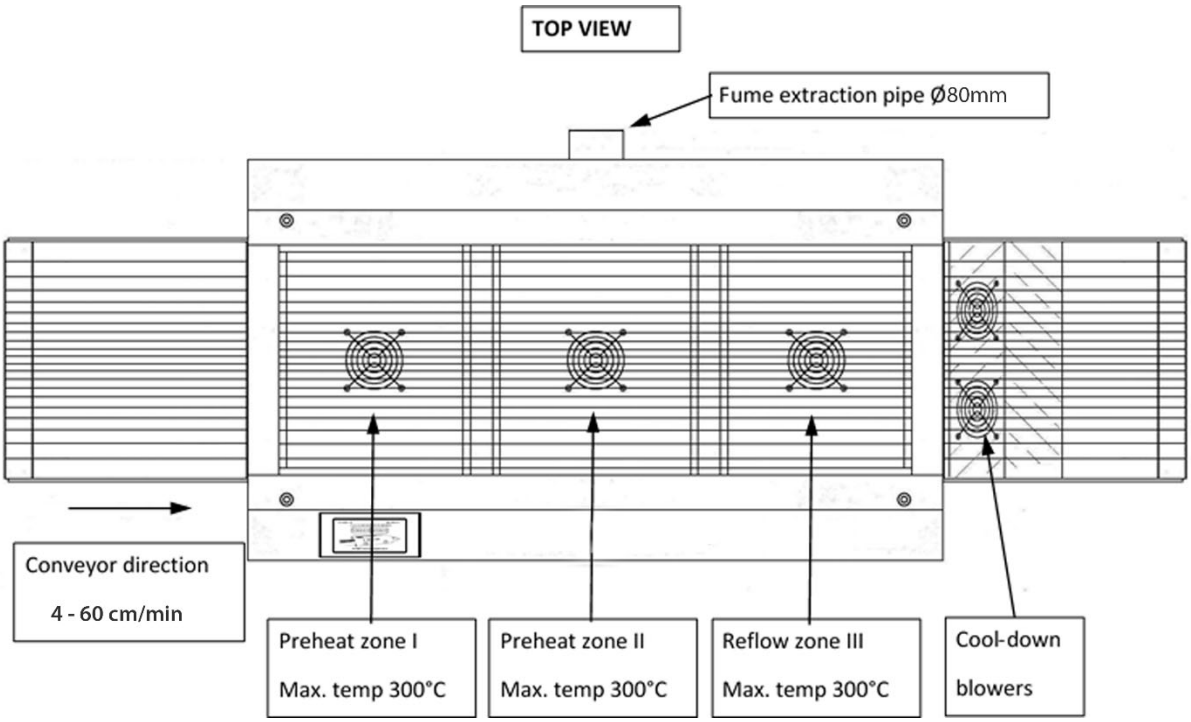
6. Maintenance

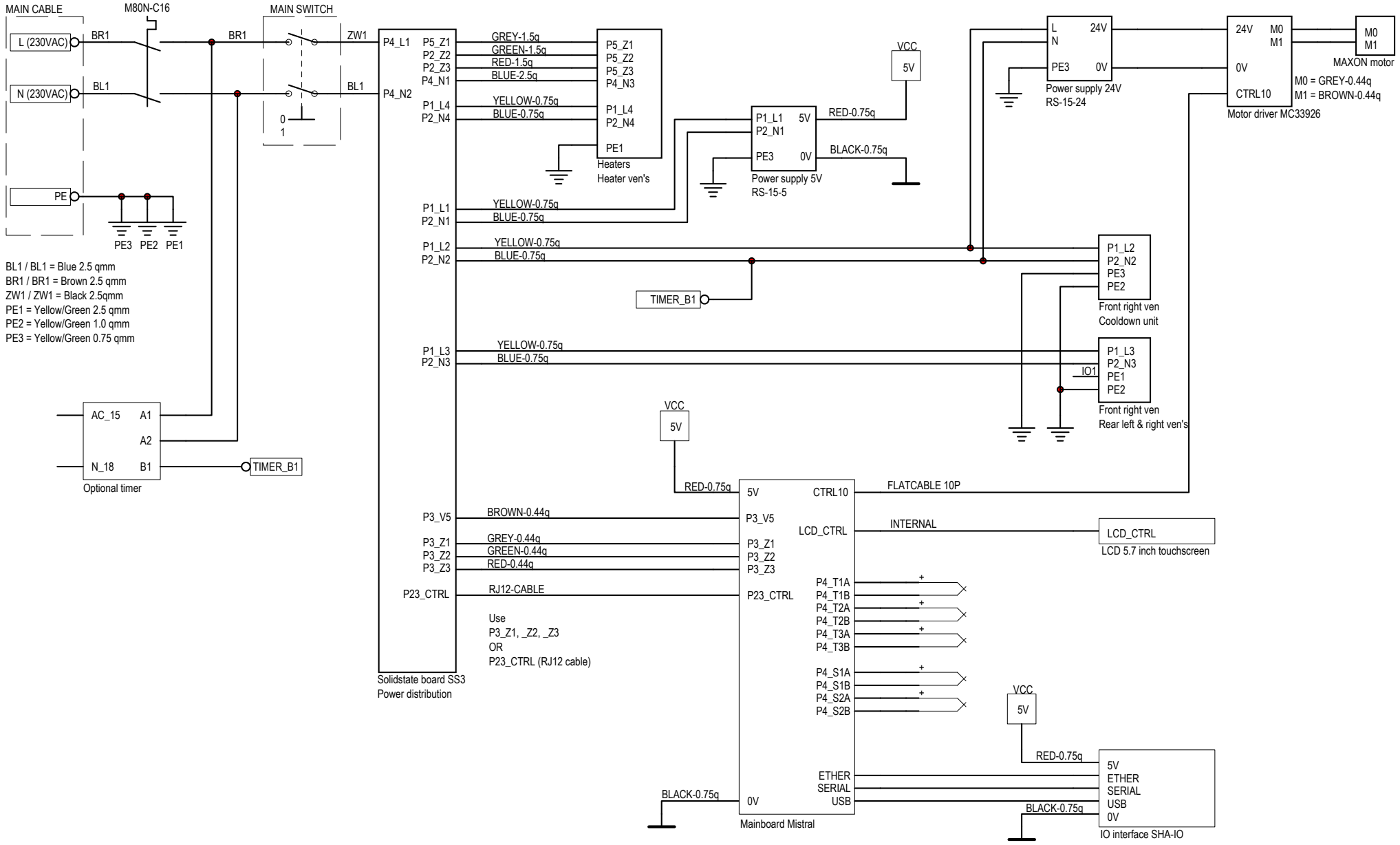
Callibration of sensors.

There is no need to calibrate the sensors. The amplifiers used are laser trimmed and cannot be re-calibrated at all. At delivery the thermocouples are certified but, of course, they getting old and need to be replaced. You need a reference source to see if the sensors has to be replaced.

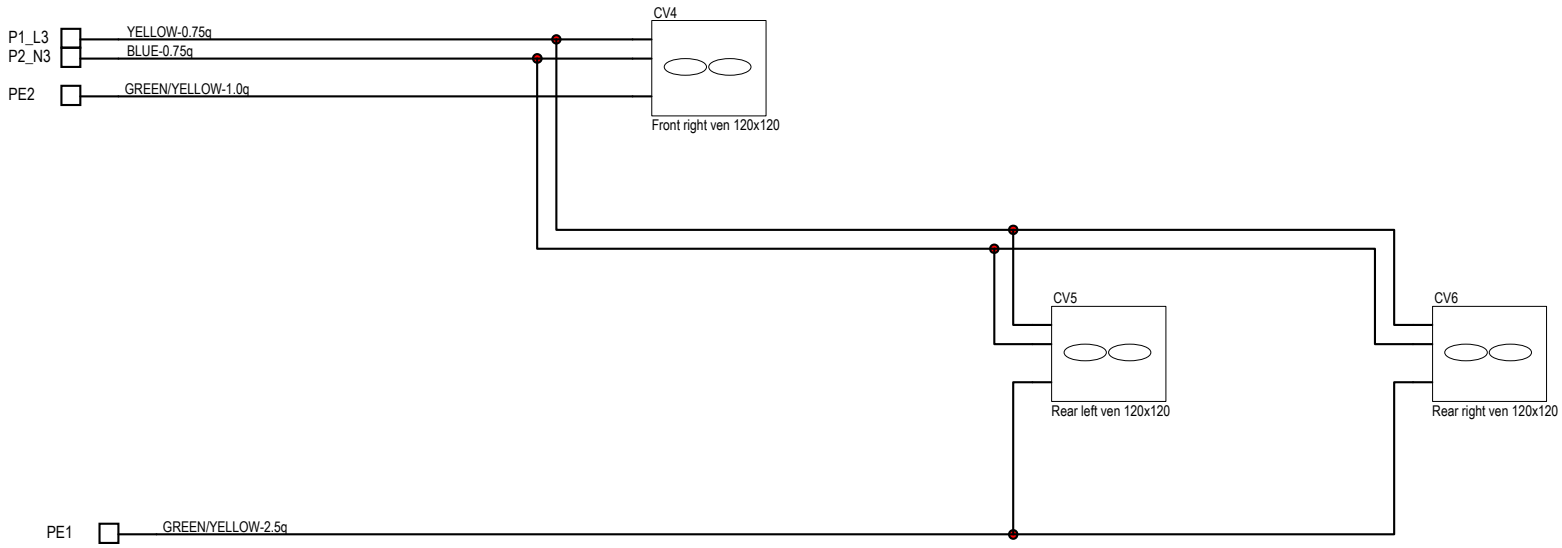
7. Appendix


Thermocouple outlet
USB connector
TFT Touch screen display
Main breaker
Main switch

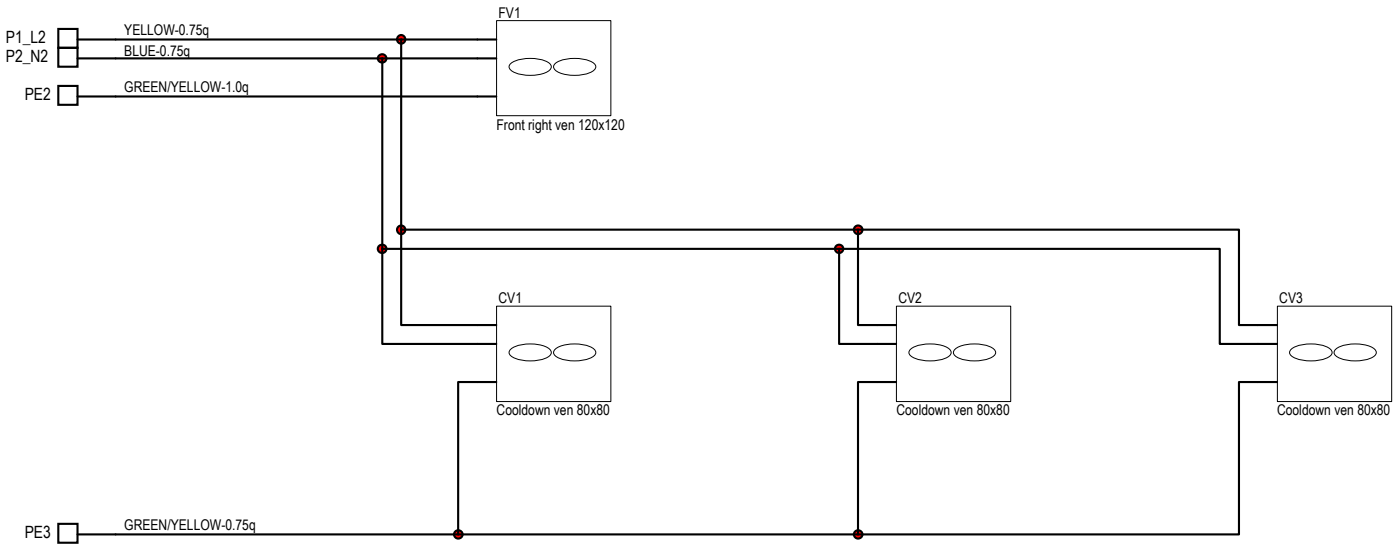

TOP VIEW
Fume extraction pipe Ø80mm
Conveyor direction
4 - 60 cm/min
Preheat zone I
Max. temp 300°C
Preheat zone II
Max. temp 300°C
Reflow zone III
Max. temp 300°C
Cool-down
blowers

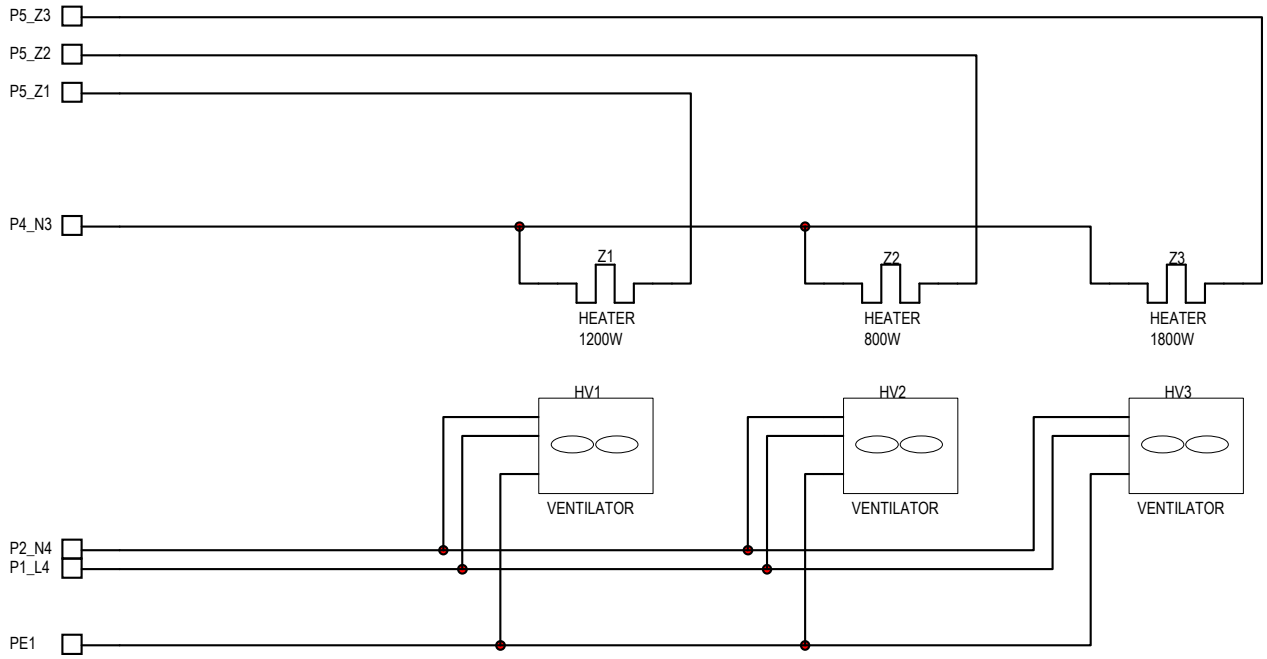


Overview Mistral260 wiring

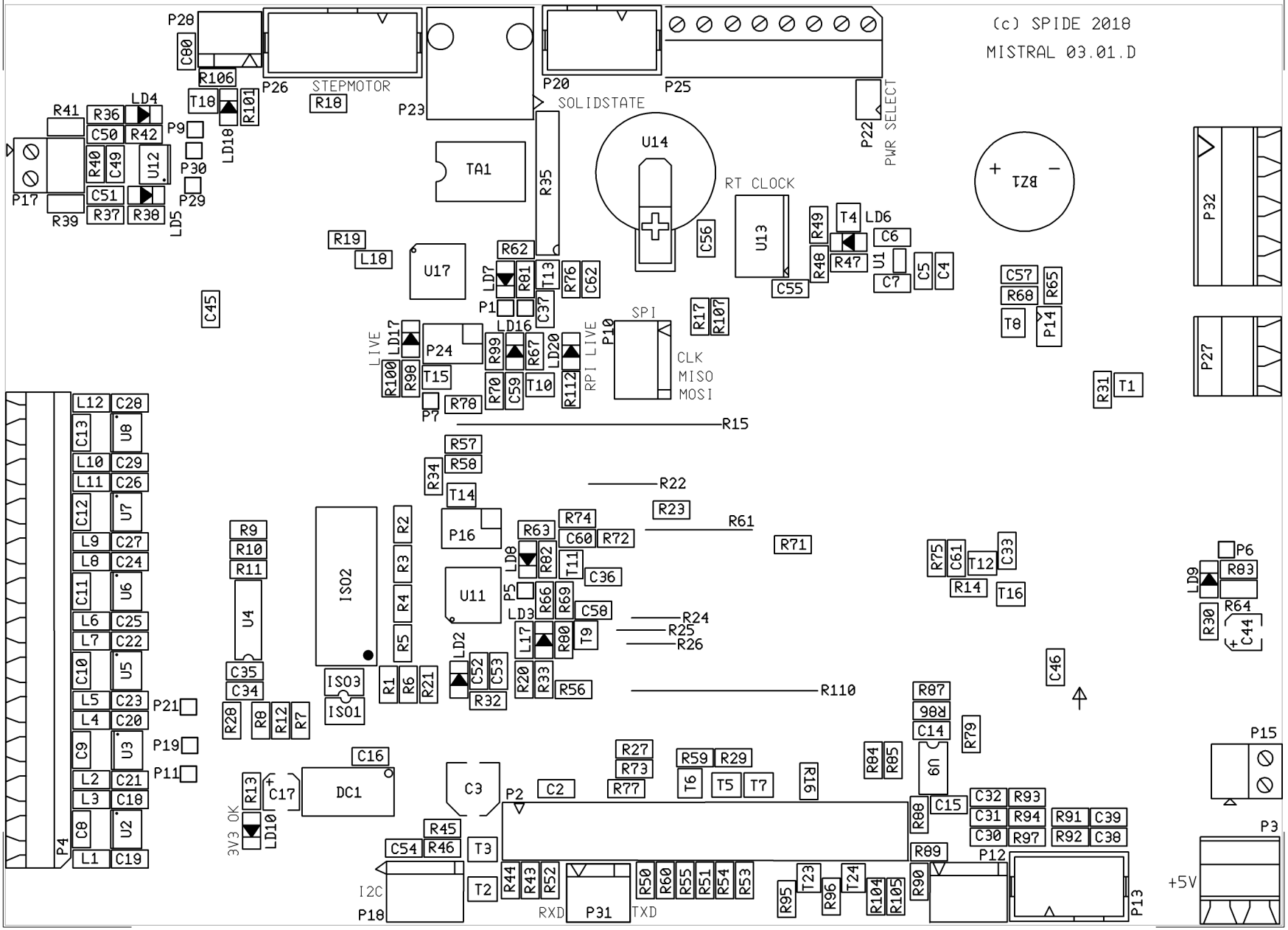


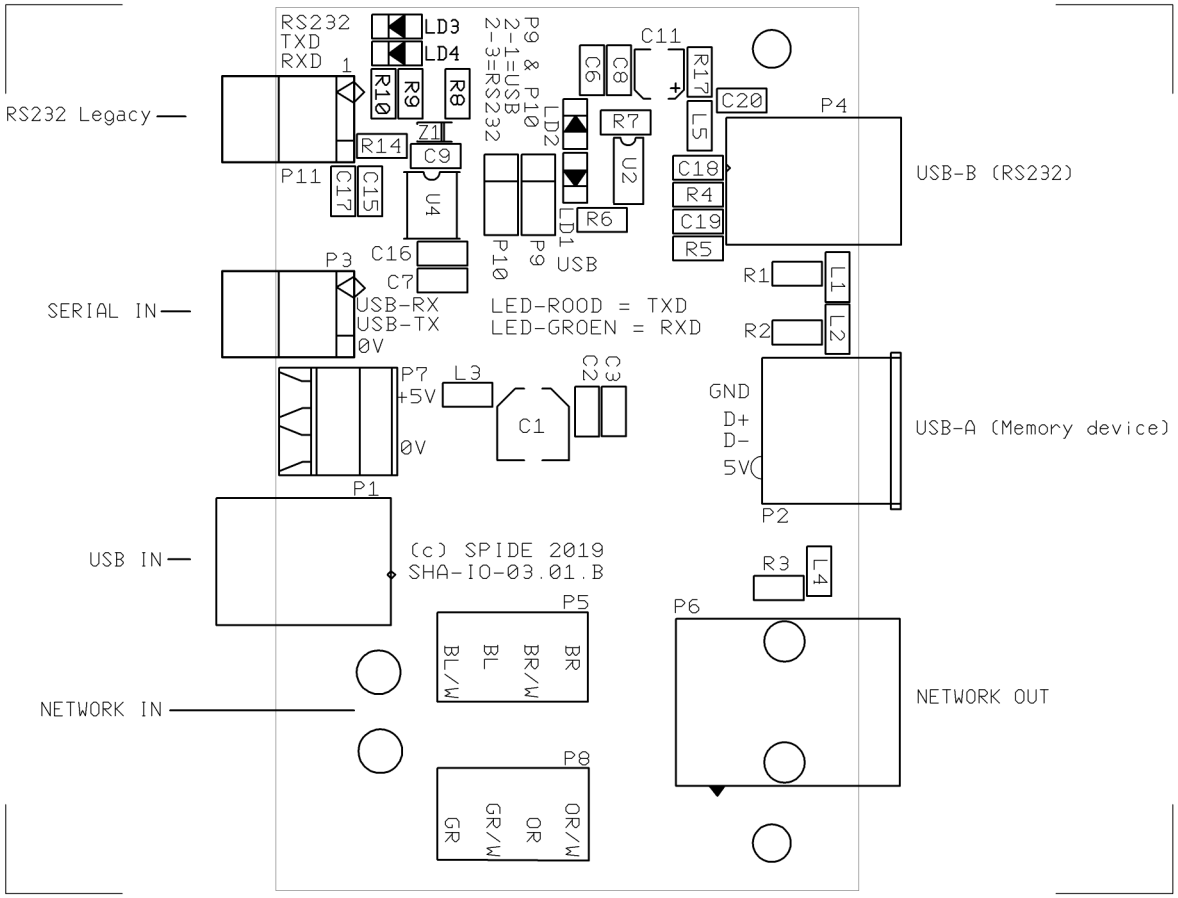
Front & rear case ventilators

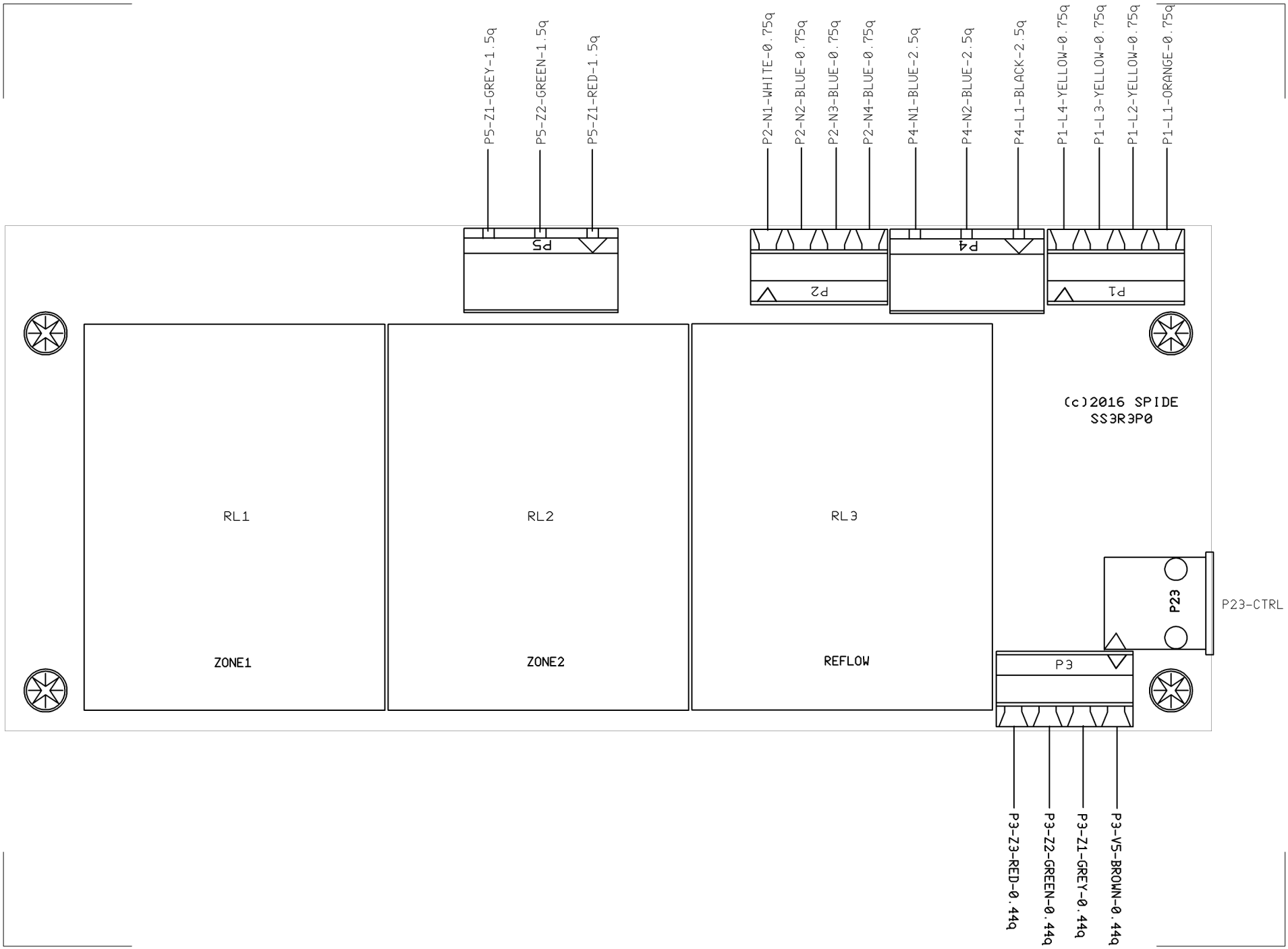

P1_L2
P2_N2
PE2
YELLOW-0.75q
BLUE-0.75q
GREEN/YELLOW-1.0q
FV1
Front right ven 120x120
CV1
Cooldown ven 80x80
CV2
Cooldown ven 80x80
CV3
Cooldown ven 80x80
PE3
GREEN/YELLOW-0.75q



Heater & heater ventialors


(c) SPIDE 2018
MISTRAL 03.01.D
STEPMOTOR
SOLIDSTATE
PWR SELECT
RT CLOCK
SPI
CLK
MISO
MOSI
LIVE
RPI LIVE
3V3 OK
I2C
RXD
TXD
+5V
P1
P2
P3
P4
P5
P6
P7
P9
P10
P11
P12
P13
P14
P15
P16
P17
P18
P19
P20
P21
P22
P23
P24
P25
P26
P27
P29
P30
P31
P32
U1
U2
U3
U4
U5
U6
U7
U8
U9
U11
U12
U13
U14
U17
TA1
DC1
BZ1
ISO1
ISO2
ISO3


RS232 Legacy
SERIAL IN
USB IN
NETWORK IN
USB-B (RS232)
USB-A (Memory device)
NETWORK OUT
RS232
TXD
RXD
LD3
LD4
P9 & P10
2-1=USB
2-3=RS232
P11
P3
P7
+5V
0V
P1
P4
P2
P5
P6
P8
P10
P9
USB
USB-RX
USB-TX
0V
LED-ROOD = TXD
LED-GROEN = RXD
GND
D+
D-
5V
BR
BR/W
BL
BL/W
OR
OR/W
GR
GR/W
(c) SPIDE 2019
SHA-IO-03.01.B
C1
C2
C3
C6
C7
C8
C9
C10
C11
C15
C16
C17
C18
C19
C20
L1
L2
L3
L4
L5
R0
R1
R2
R3
R4
R5
R6
R7
R9
R10
R14
R17
U2
U4
Z1


P5-Z1-GREY-1.5q
P5-Z2-GREEN-1.5q
P5-Z1-RED-1.5q
P2-N1-WHITE-0.75q
P2-N2-BLUE-0.75q
P2-N3-BLUE-0.75q
P2-N4-BLUE-0.75q
P4-N1-BLUE-2.5q
P4-N2-BLUE-2.5q
P4-L1-BLACK-2.5q
P1-L4-YELLOW-0.75q
P1-L3-YELLOW-0.75q
P1-L2-YELLOW-0.75q
P1-L1-ORANGE-0.75q
P5
P2
P4
P1
RL1
RL2
RL3
ZONE1
ZONE2
REFLOW
(c)2016 SPIDE
SS3R3P0
P23
P23-CTRL
P3
P3-Z3-RED-0.44q
P3-Z2-GREEN-0.44q
P3-Z1-GREY-0.44q
P3-V5-BROWN-0.44q

Spare parts.

Art.nr	Description
AC01605001	2 Phase On/Off switch 220VAC - 20A
EL01606001	Analoge motordriver met MC33926, 30V/5A
EL01612002	Controller board for 5.7 inch touchscreen
EL01607001	Full color LCD touchscreen 5.7 inch
EL01606002	I/O print with 1x USB-A, 1x USB-B, 1x Ethernet
EL01610001	PSU 100/240VAC, 24V, 0,625A
EL01710002	PSU 100/240VAC, 5V, 3,0A
AC01509001	Solid state relay 40A, O=30-240VAC, I=3..32VDC
VW01506002	Heater element 230VAC - 1200W (Zone 1)
VW01506001	Heater element 230VAC - 800W (Zone 2)
VW01506003	Heater element 230VAC - 1800W (Zone 3)
VW01603001	Heater ventilator 220VAC-50Hz
SNS1510001	Mistral 260 zone1 Chamber sensor type K, 920mm
SNS1505002	Mistral 260 zone2 Chamber sensor type K, 1030mm
SNS1505003	Mistral 260 zone3 (Reflow) Chamber sensor type K, 1320mm
BH01506002	Case ventilator 120 x 120 x 38mm
BH01603001	Cooldown ventilator 80 x 80 x 38mm
SNS1612001	Profile thermocouple type K. With plug, L = 1650mm
VR01503001	Conveyer spring 2000mm
M260-SPW-SET	Set of 21 transport spring wires 2000mm