



SM_EN

Part No.: 1964229

Rev.: 05

SERVICE MANUAL

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MANUAL REVISIONS

Rev. #:	Date:	TSB#:	Change Description
01	Feb. 05, 2020	None	First draft released for technical review. Firmware rev 1.04
02	Apr. 03, 2020	None	Include Mini models & update Electric diagrams
03	Jul. 09, 2021	None	Include 3GR models & update Electric diagrams
04	Mar. 22, 2022	None	Include EX2 and update routine maintenance schedule
05	June. 13, 2022	368, 421	Update electrical schematics & add TSB changes.

NOTIFICATIONS

· Explanation of descriptions

There are five different levels of notification intensity within this manual, as identified by the signal terms: DANGER, WARNING, IMPORTANT, NOTE and PRO TIP. The level of risk and importance of the notification is determined by the following definitions. Always observe the warnings to ensure safety and prevent potential injury and product damage.



Important:

Alerts against unsafe practices. Observe Important notifications to ensure food safety, prevent possible minor personal injury, or damage to the machine.



WARNING:

Indicates a potentially hazardous situation which, if the WARNING is ignored, could result in serious injury or even death.



DANGER:

INDICATES AN IMMINENTLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, WILL LIKELY RESULT IN SERIOUS INJURY AND EVEN DEATH.



Note:

Gives additional information which may be helpful during the operation, routine maintenance, and cleaning of the machine.



Pro Tip:

Gives helpful hints and suggestions from the manufacturer that take the guesswork out of choosing settings and care intervals.

ROUTINE MAINTENANCE SCHEDULE

· Service intervals

Main components	Part No.	Months (Cycles)			
		6 (12500)	12 (25000)	18 (37500)	24 (50000)
Boiler					
Non suction valve	65000210	Check	Check	Check	Replace
Boiler filling solenoid valve	60000201				Replace
Boiler upper raccord	30000200		Check*		Check*
Boiler lower raccord	30000210		Check*		Check*
Safety Valve	65000115 65000116 (US Only)		Check		Replace
Brewing group					
Group solenoid valve	60000157				Replace
Shower	75000010	Replace	Replace	Replace	Replace
Group head gasket	75000081 75000082 (US Only) 75000083	Replace	Replace	Replace	Replace
Taps					
Steam tap	15000342 (Rot) 15000338 (Lev)				Replace
Water tap	15000342 (Rot) 60000164 (Auto)				Replace
Motor-pump					
Pump head	60000030	Check	Check	Check	Check
Non return valve	65000010	Check	Check	Check	Check
Expansion valve	65000021				Replace

*Replace in case of limescale built-up. Detected by low group outlet temperature.



Important:

Always conduct the 6 month service intervals without delay to ensure excellent performance of the machine and to ensure full warranty coverage.

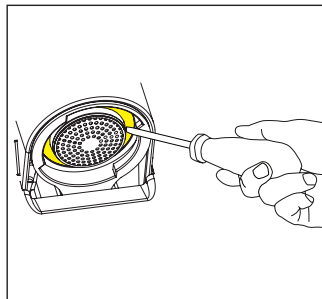


Note:

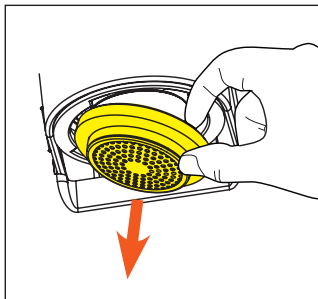
(Rot) Manual rotary tap / (Lev) Manual lever tap / (Auto) Automatic tap solenoid

CHANGING THE GROUP GASKET

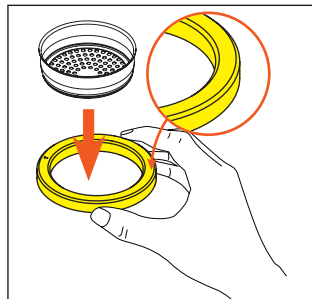
• All versions



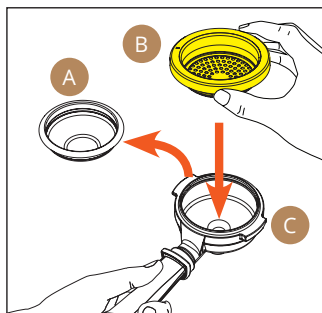
1. To remove the porta-filter, use a straight-blade screwdriver to release the shower by prying down with medium force.



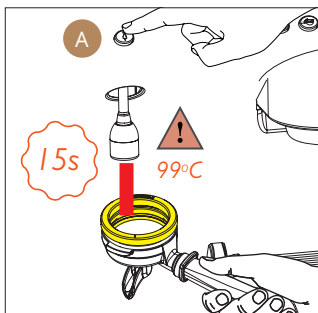
2. Remove the shower and gasket.



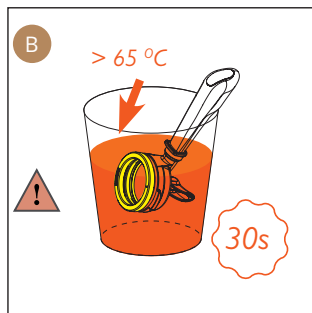
3. Remove and discard the old gasket. Insert the new gasket (chamfer and EXPOBAR logo facing up) into the shower.



4. Remove the filter basket(A), then place the new gasket and shower(B) into the porta-filter(C).



5. Preheat the gasket to soften the rubber. A - heat the gasket for 15 seconds using the water from the hot water outlet, or B - place the gasket, shower, and porta-filter in hot water for 30 seconds.

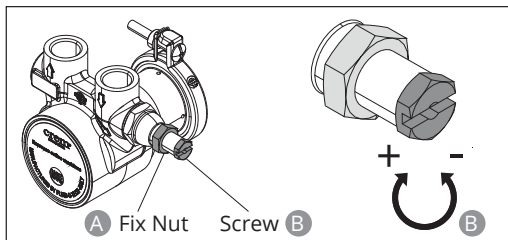
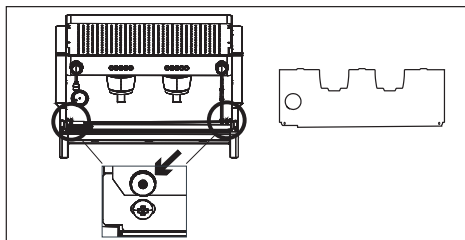


WARNING!

The water from the water tap is very hot! Handle with care to prevent scalding or burns.

PRESSURE SETTINGS

· Pump pressure adjustment



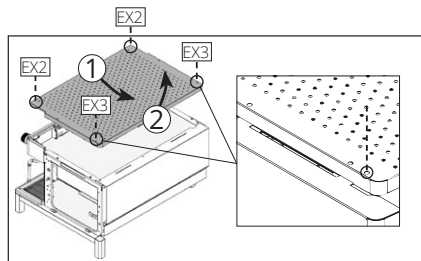
1. Remove the drip tray and the splash panel to access to the pump head. The pump head will be located on the left side of the machine

2. Pump pressure adjustment:

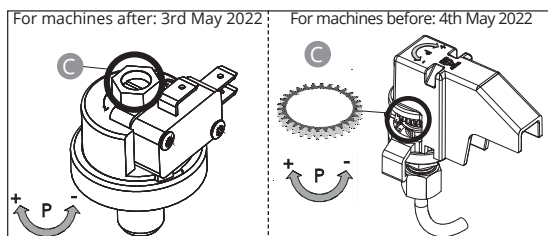
- Loose the fixation nut of the adjustment screw (A).
- Adjust the pump pressure (B).
- Tight the fixation nut of the adjustment screw (A).



· Steam Boiler Pressure adjustment (machines with pressure switch only)



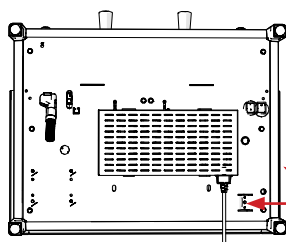
1. Remove the top panel to access to the pressure switch, that will be located on the right side of the machine.



2. Adjust the boiler pressure (C).

- Turning clockwise, the pressure set point will increase.
- Turning counterclockwise, the pressure set point will decrease.

· Element High Limit Switch



*Element high limit switch

*Element high limit switch:

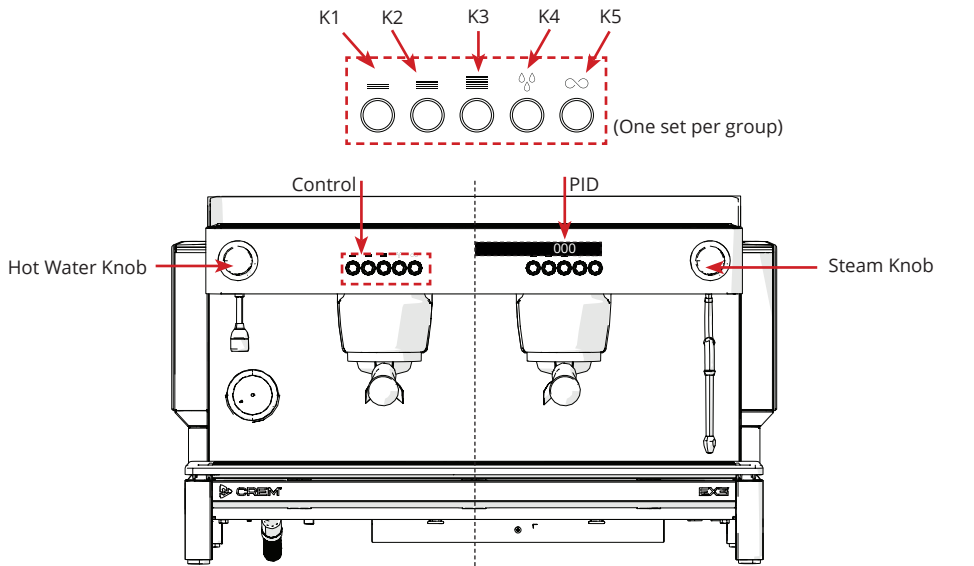
Since Nov-2021, high limit switch is placed on the right side of the machine

BUTTONS AND CONTROLS

· Machine controls

EX3 features a push button control block for each brewing group. Control functions are explained below.

Versions with display (PID) are equipped with an individual 3 digit display on each group for monitoring machine status, performing user programming and machine adjustments.



Button	Selection description	Programming menu function
K1	Short espresso	(+)
K2	Medium espresso	(-)
K3	Large espresso	
K4	Group flush	
K5	Continuous / Hot water	Enter / Accept



Pro Tip:

All group buttons are fully adjustable via the user programming. See the Dose Programming section for more details.



Pro Tip:

Versions with display will show the shot timer during the brewing process.

SERVICE PROGRAMMING

· Stand-by [oFF] status

To put the machine on electronic Stand-by mode **[oFF]** from home screen, press K5 and then K3 at the same time. Message **[oFF]** is shown on the display.

On this mode, the heating element will remain disconnected.

To exit from the Stand-by mode, just press any button (K1 – K2 – K3 – K4) to come back to the home screen.

· Factory preset

To restore the machine to factory default programming settings, follow the steps below:

1. Turn the machine off at the main power switch.
2. Press and hold K1+K3+K5 simultaneously while turning the main power switch back on. The display will show **[PrS]** and all previously customized settings will be erased and replaced with the factory settings.
3. Cycle the machine off and on once more at the main power switch to remove the message.

· Service menu - Access

To access the service programming settings, follow the steps below:

1. Put the machine on Stand-by mode **[oFF]** (see previous instructions).
2. When **[oFF]** is shown on the display, hold K5 for 15 seconds, until **[toU]** (1st menu setting) is shown on the display.
3. Browse through the menu by pressing K1 & K2.
4. Access to each setting by pressing K5. The adjustable parameter will flash. Accept and save by pressing K5 again.
5. To exit from the menu, browse to **[ESc]** (Escape) and press K5 to come back to **[oFF]** mode.

· Service menu - Settings summary chart

Setting	Description
[toU]	Boiler filling time-out
[cLE]	Cleaning program cycles
[Prd]	Dose programming
[SEn]	Level probe sensitivity
[PIF]*	Preinfusion (electronic)
[tEA]*	Automatic tea valve
[Eco]*	Eco mode functions
[tEc]	Eco mode boiler temperature
[SLA]*	Service liter alarm (Filter maintenance)

Setting	Description
[ScA]*	Service coffee alarm (maintenance)
[tU]	Temperature units
[SkP]	'kP' PID parameter
[Ski]	'kI' PID parameter
[Skd]	'kD' PID parameter
[Sb]	PID band parameter
[SE]	Display temperature offset
[AUt]*	Auto On/Off

* Disabled by default after PCB factory preset

SERVICE PROGRAMMING

· **tOU** – Boiler filling Time-out

To change the boiler filling time-out, follow the steps below:

1. Enter the service programming and browse through the menu (see previous instructions).
2. When **[tOU]** is shown on the display, enter by pressing K5.
3. Select with K1 and K2 the boiler filling time-out in seconds.
4. Accept and save setting by pressing K5. You are back in the service programming menu.

· **cLE** – Automatic group cleaning cycles

To change the automatic group cleaning program cycles, follow the steps below:

1. Enter the service programming and browse through the menu (see previous instructions).
2. When **[cLE]** is shown on the display, enter by pressing K5.
3. Select with K1 and K2 the automatic group cleaning cycles.
4. Accept and save setting by pressing K5. You are back in the service programming menu.

· **Prd** – Enabling/Disabling dose Programming

To enable or disable the dose programming function, follow the steps below:

1. Enter the service programming and browse through the menu (see previous instructions).
2. When **[Prd]** is shown on the display, enter by pressing K5.
3. Use K1 and K2 to enable **[on]** or disable **[oFF]** the Dose programming function.
4. Accept and save setting by pressing K5. You are back in the service programming menu.

· **SEn** – Level probe sensitivity

To change the level probe sensitivity, follow the steps below:

1. Enter the service programming and browse through the menu (see previous instructions).
2. When **[SEn]** is shown on the display, enter by pressing K5.
3. Select with K1 and K2 the Level probe sensitivity between: **[L]** Low; **[M]** Medium; **[h]** High.
4. Accept and save setting by pressing K5. You are back in the service programming menu.

SERVICE PROGRAMMING

· PiF – Enabling/Disabling electronic Preinfusion

To enable or disable the electronic preinfusion function, follow the steps below:

1. Enter the service programming and browse through the menu (see previous instructions).
2. When **[PiF]** is shown on the display, enter by pressing K5.
3. Use K1 and K2 to enable [on] or disable **[oFF]** the electronic preinfusion function.
4. Accept and save setting by pressing K5. You are back in the service programming menu.



Note:

If enabled on service menu, electronic Preinfusion can be enabled **[on]** or disabled **[oFF]** individually on each group **[Pi1]**, **[Pi2]** or **[Pi3]** on the user menu.

· tEA – Enabling/Disabling automatic hot water function

To enable or disable the automatic hot water functions, follow the steps below:

1. Enter the service programming and browse through the menu (see previous instructions).
2. When **[tEA]** is shown on the display, enter by pressing K5.
3. Select with K1 and K2 the hot water tap function: **[oFF]** Manual hot water tap; **[on]** Automatic hot water tap; **[St]** Smart Tea function (specific model only).
4. Accept and save setting by pressing K5. You are back in the service programming menu.

· Eco – Enabling/Disabling Eco mode function

To enable or disable the Eco mode function, follow the steps below:

1. Enter the service programming and browse through the menu (see previous instructions).
2. When **[Eco]** is shown on the display, enter by pressing K5.
3. Use K1 and K2 to enable **[on]** or disable **[oFF]** the Eco mode function in the user menu.
4. Accept and save setting by pressing K5. You are back in the service programming menu.

· tEc – Eco mode boiler temperature

To change the Eco mode machine's boiler temperature, follow the steps below:

1. Enter the service programming and browse through the menu (see previous instructions).
2. When **[tEc]** is shown on the display, enter by pressing K5.
3. Select with K1 and K2 the Eco mode boiler temperature.
4. Accept and save setting by pressing K5. You are back in the service programming menu.

SERVICE PROGRAMMING

· **SLA** – Service liter alarm (Water filter maintenance)

To change the Service liter alarm, follow the steps below:

1. Enter the service programming and browse through the menu (see previous instructions).
2. When **[SLA]** is shown on the display, enter by pressing K5.
3. Select with K1 and K2 the Service filter alarm value. The counter can be adjusted in steps of 10L = **[001]**: From **[000]** = 0L = Disabled, to **[999]** = 9990L.
4. Accept and save setting by pressing K5. You are back in the service programming menu.

· **ScA** – Service coffee alarm (Maintenance)

To change Service coffee alarm, follow the steps below:

1. Enter the service programming and browse through the menu (see previous instructions).
2. When **[ScA]** is shown on the display, enter by pressing K5.
3. Select with K1 and K2 the Service coffee alarm value. The counter can be adjusted in steps of 1000coffees = **[001]**: From **[000]** = 0coffees = Disabled, to **[999]** = 999000coffees.
4. Accept and save setting by pressing K5. You are back in the service programming menu.

· **tU** – Temperature units

To change the Temperature units, follow the steps below:

1. Enter the service programming and browse through the menu (see previous instructions).
2. When **[tU]** is shown on the display, enter by pressing K5.
3. Select with K1 and K2 the Temperature units between: **[C]** Celsius; **[F]** Fahrenheit.
4. Accept and save setting by pressing K5. You are back in the service programming menu.

· **SkP** – Ski - Skd – PID parameters kP, Ki & kd

To change the PID factors value, follow the steps below:

1. Enter the service programming and browse through the menu (see previous instructions).
2. When **[SkP]**, **[Ski]** or **[Skd]** is shown on the display, enter by pressing K5.
3. Select with K1 and K2 the selected PID parameter value.
4. Accept and save setting by pressing K5. You are back in the service programming menu.

SERVICE PROGRAMMING

· **Sb** – PID band zone

To change the PID band zone, follow the steps below:

1. Enter the service programming and browse through the menu (see previous instructions).
2. When **[Sb]** is shown on the display, enter by pressing K5.
3. Select with K1 and K2 the PID working band value.
4. Accept and save setting by pressing K5. You are back in the service programming menu.

· **SE** – Display temperature offset

To change the home Display temperature offset, follow the steps below:

1. Enter the service programming and browse through the menu (see previous instructions).
2. When **[SE]** is shown on the display, enter by pressing K5.
3. Select with K1 and K2 the Display temperature offset.
4. Accept and save setting by pressing K5. You are back in the service programming menu.



Note:

The temperature shown on the display at home screen will be the boiler temperature read by the temperature probe minus the **[SE]** value. E.g.: If Tboiler = 116°C and **[SE]** = 20, the value shown on the display will be Tboiler – **[SE]** = 116 – 20 = **[96]**

· **AUt** – Enabling/Disabling Auto On/Off function

To enable or disable the Auto On/Off function, follow the steps below:

1. Enter the service programming and browse through the menu (see previous instructions).
2. When **[AUt]** is shown on the display, enter by pressing K5.
3. Use K1 and K2 to enable **[on]** or disable **[off]** the Auto On/Off function.

If enabled **[on]**, press K5 and the machine will ask for the close day **[00X]**.

Weekdays: **[001]** Monday; **[002]** Tuesday; ... ; **[007]** Sunday.

4. Accept and save setting by pressing K5. You are back in the service programming menu.

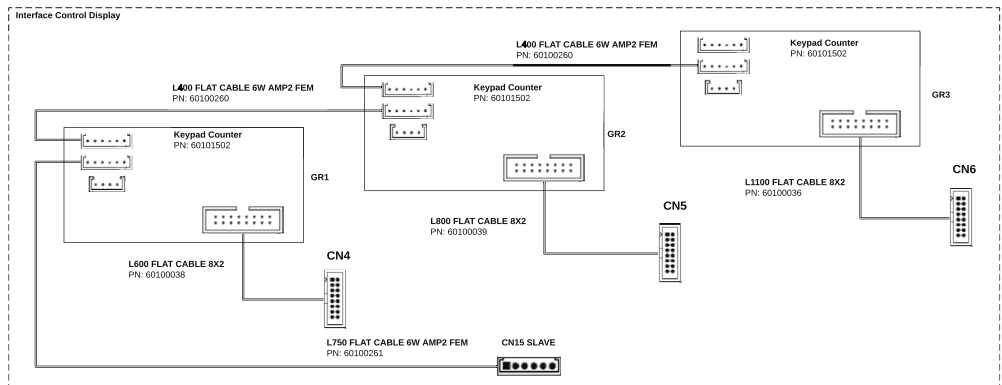
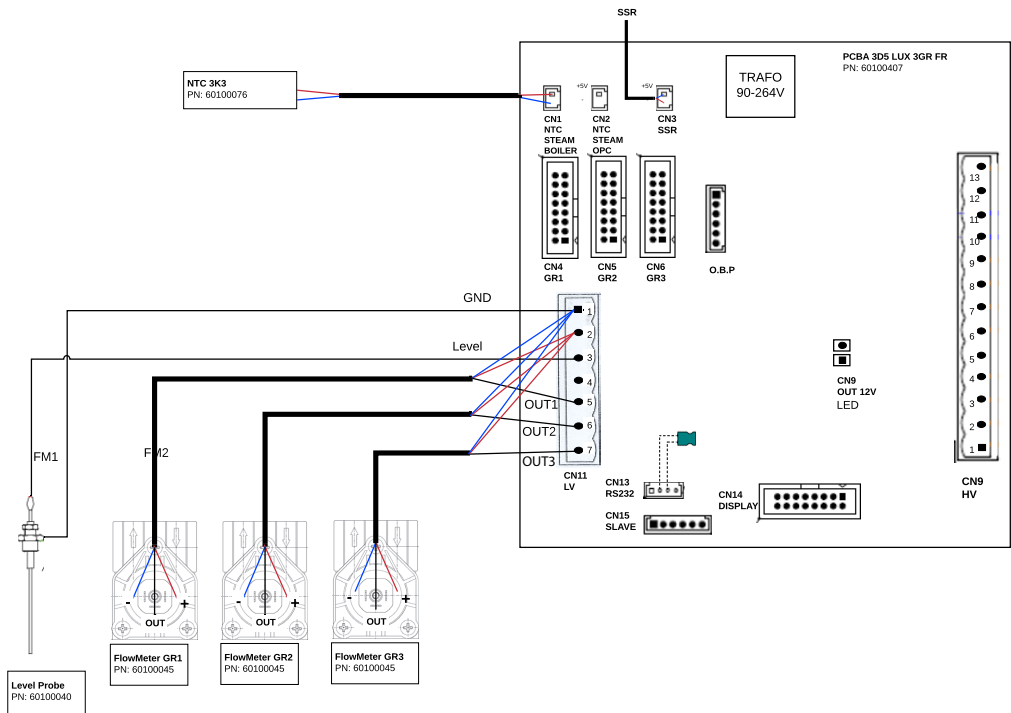


Note:

The Auto On and Off timers are adjusted on User menu when the function is enabled in service menu.

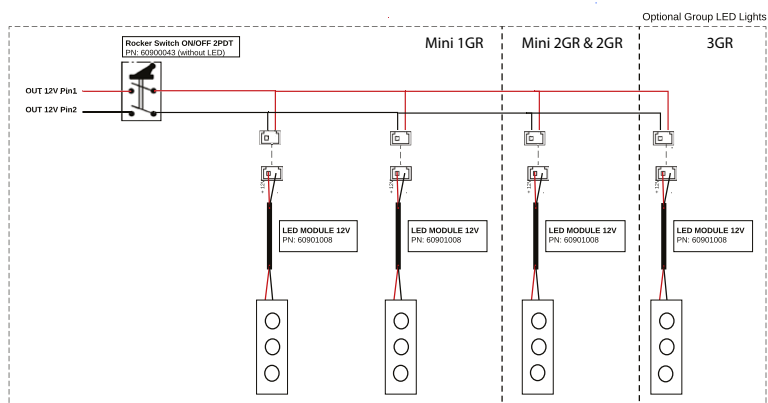
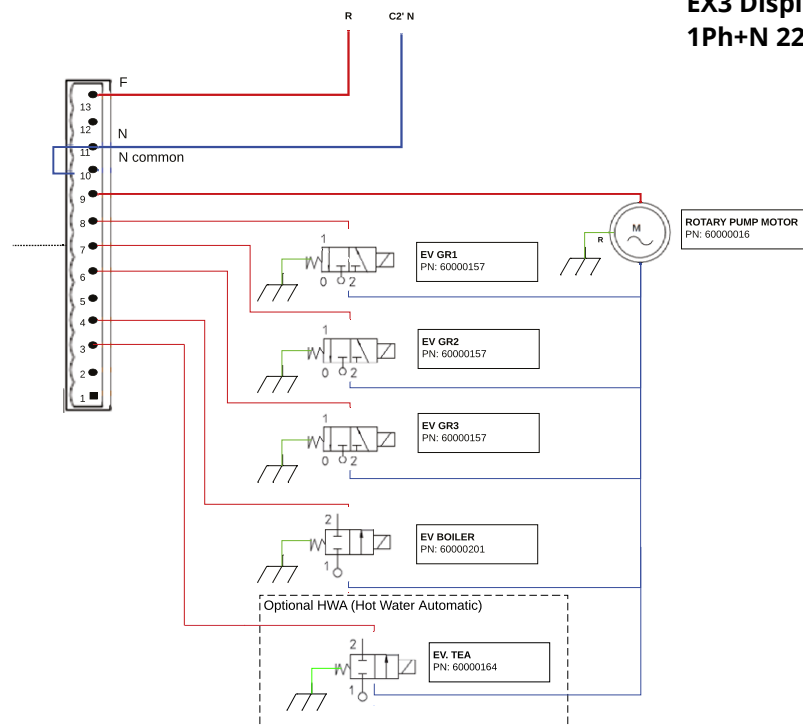
ELECTRICAL DIAGRAMS

· PCB & LED lights connections - EX3 Display PID Versions



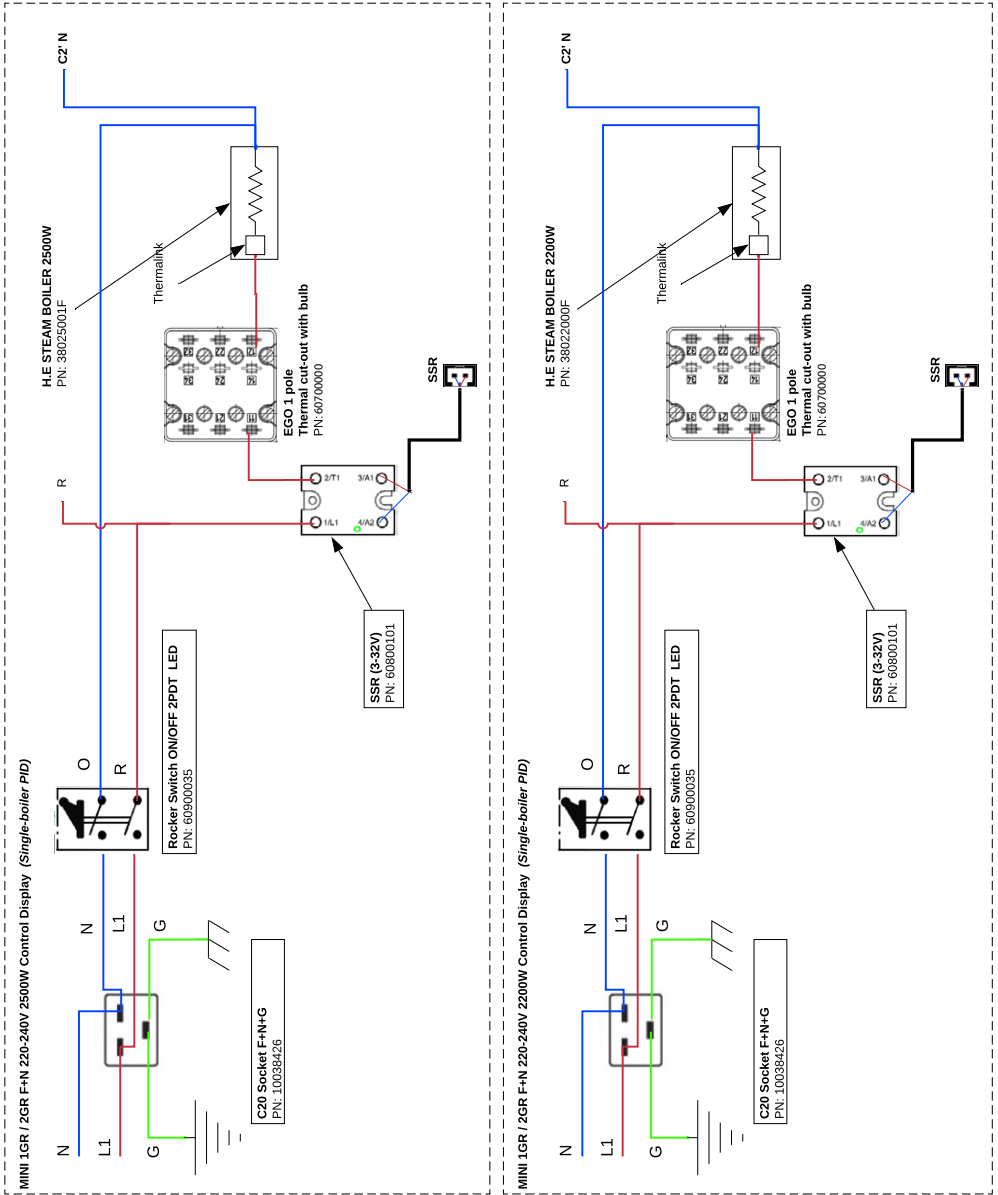
ELECTRICAL DIAGRAMS

· PCB & LED lights connections - EX3 Display PID Versions

**EX3 Display PID
1Ph+N 220-240V**

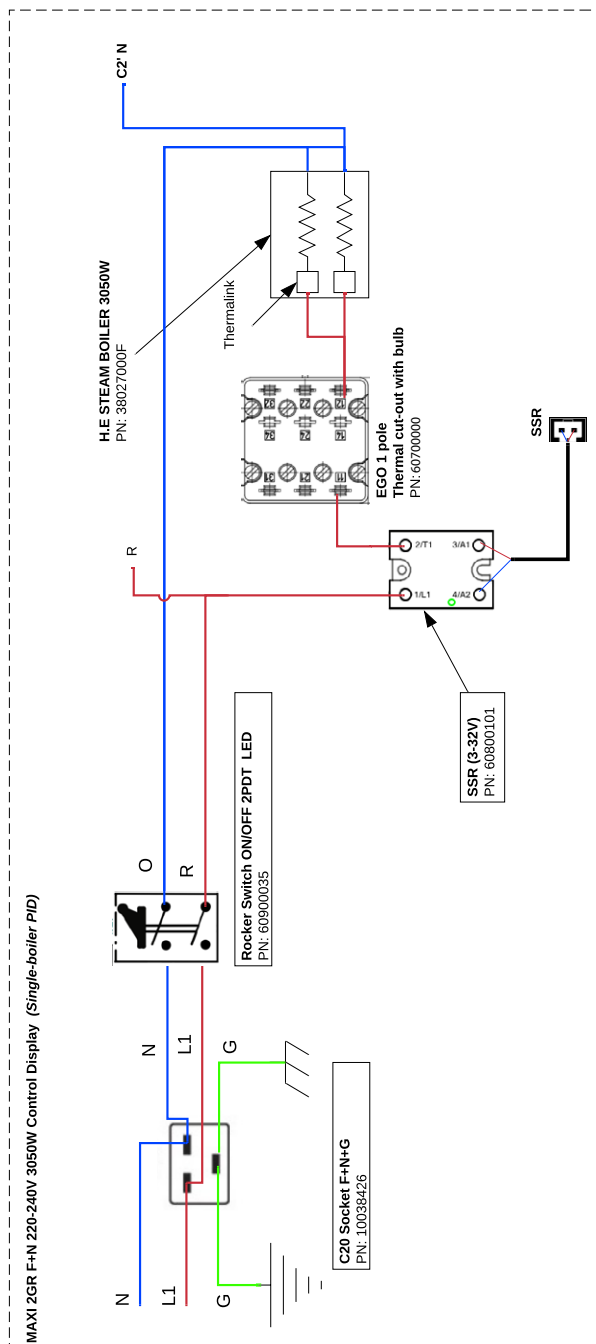
ELECTRICAL DIAGRAMS

· Power diagram - EX3 MINI 1Gr & MINI 2Gr Display PID - 1Ph+N 220-240V



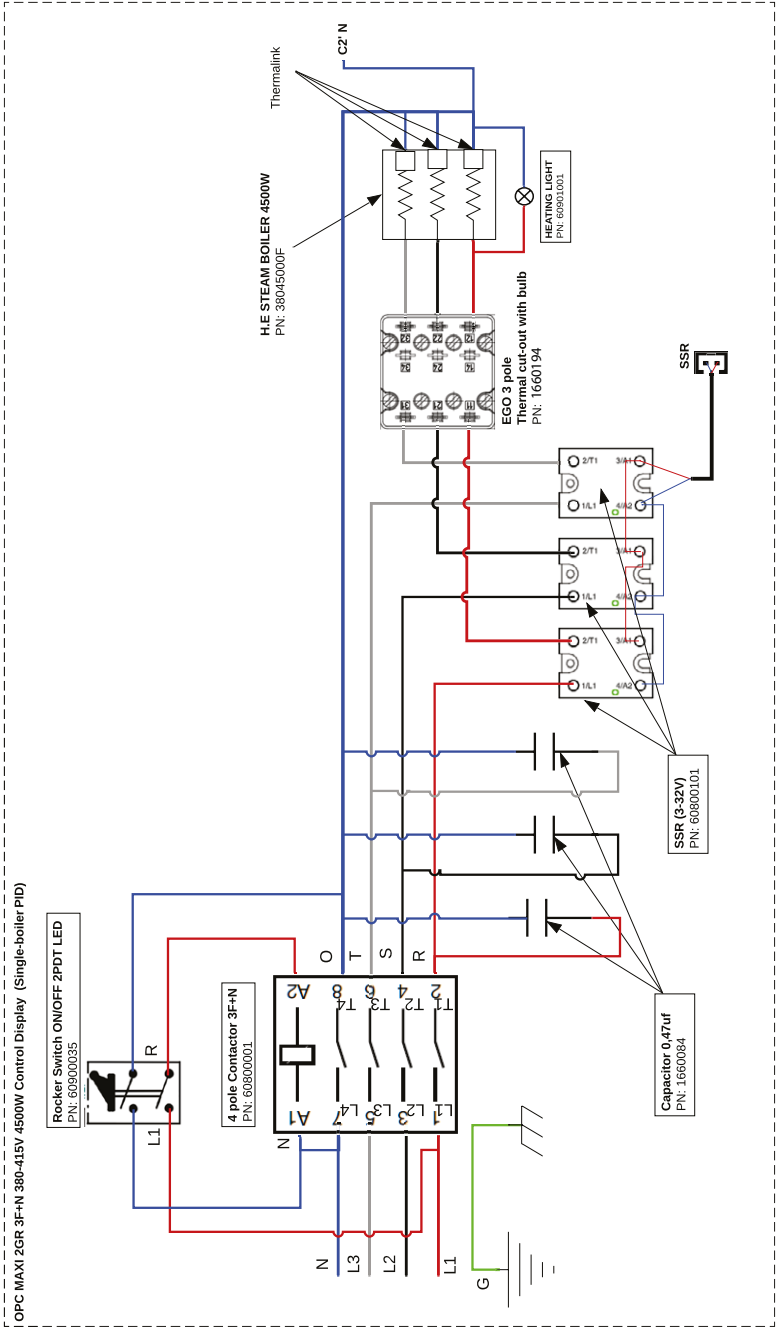
ELECTRICAL DIAGRAMS

· Power diagram - EX3 2Gr Display PID - 1Ph+N 220-240V



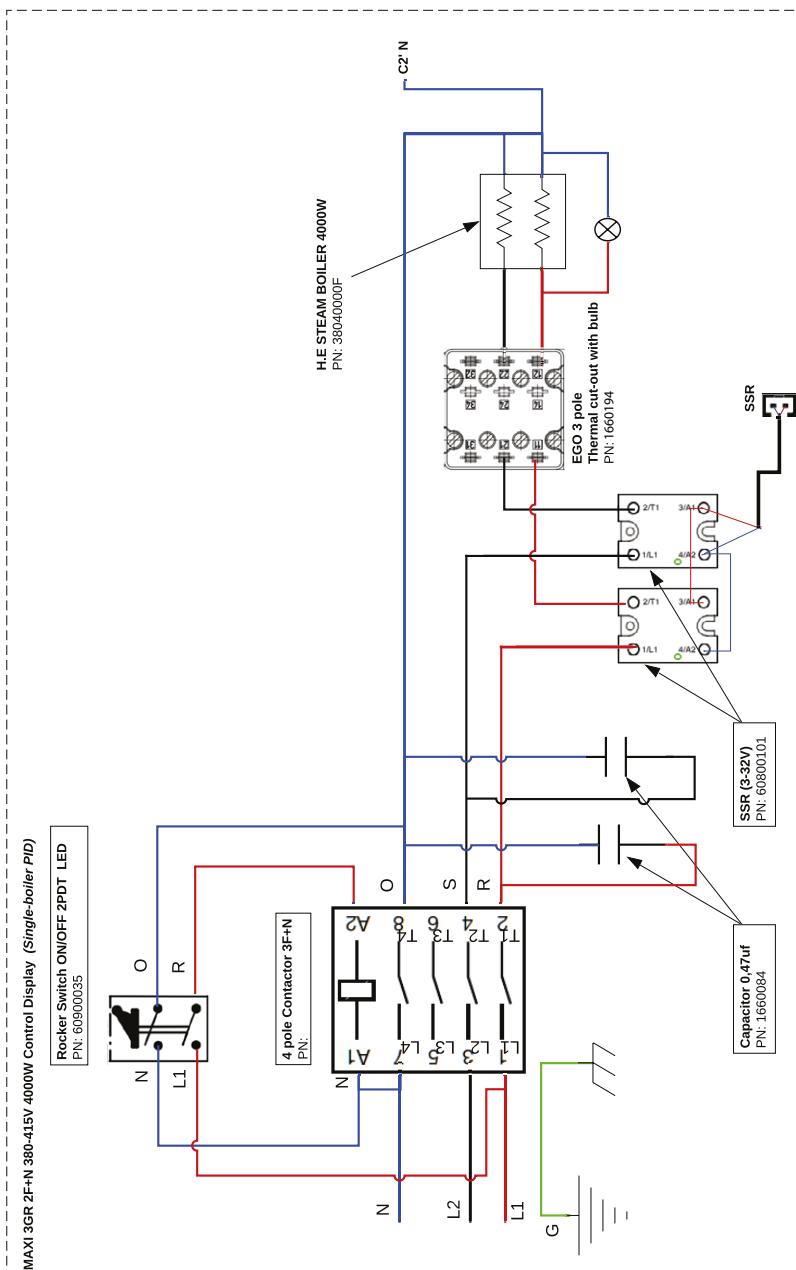
ELECTRICAL DIAGRAMS

· Power diagram - EX3 2Gr Display PID - 3Ph+N 380-415V



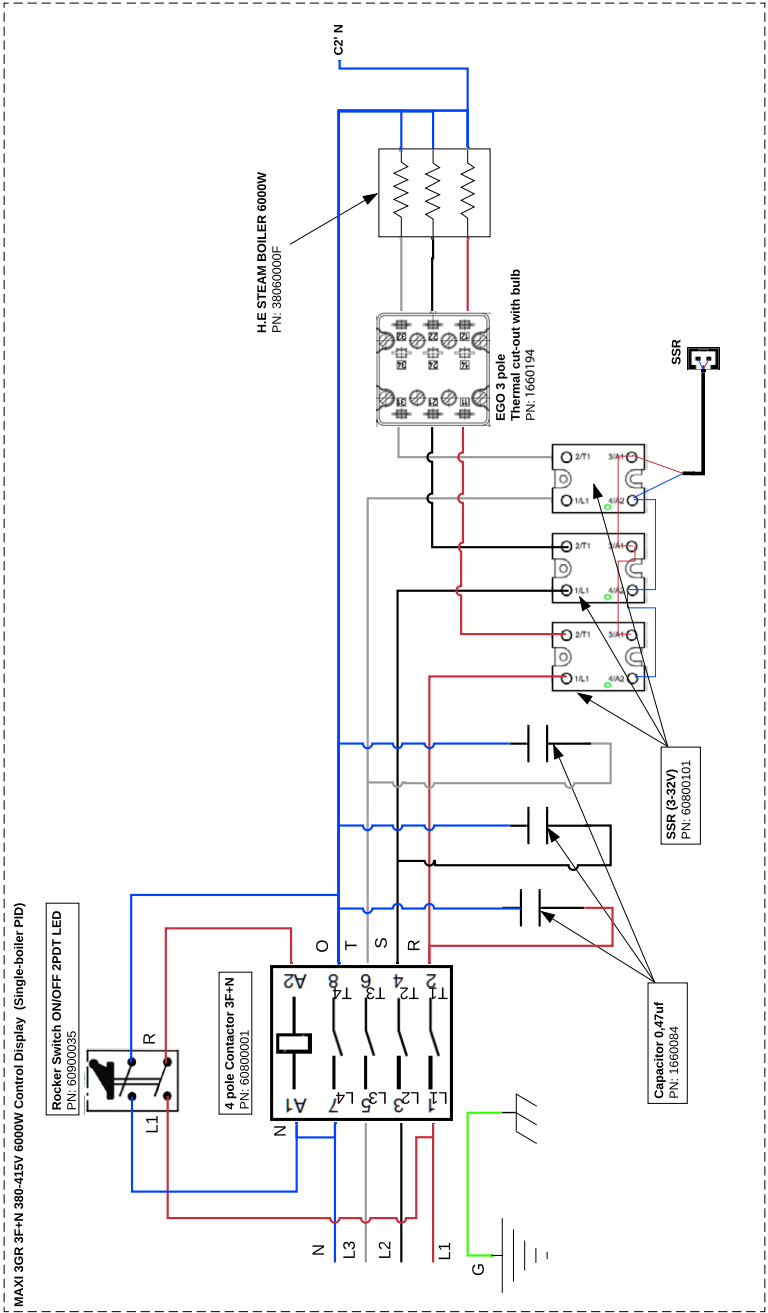
ELECTRICAL DIAGRAMS

· Power diagram - EX3 3Gr Display PID - 2Ph+N 380-415V



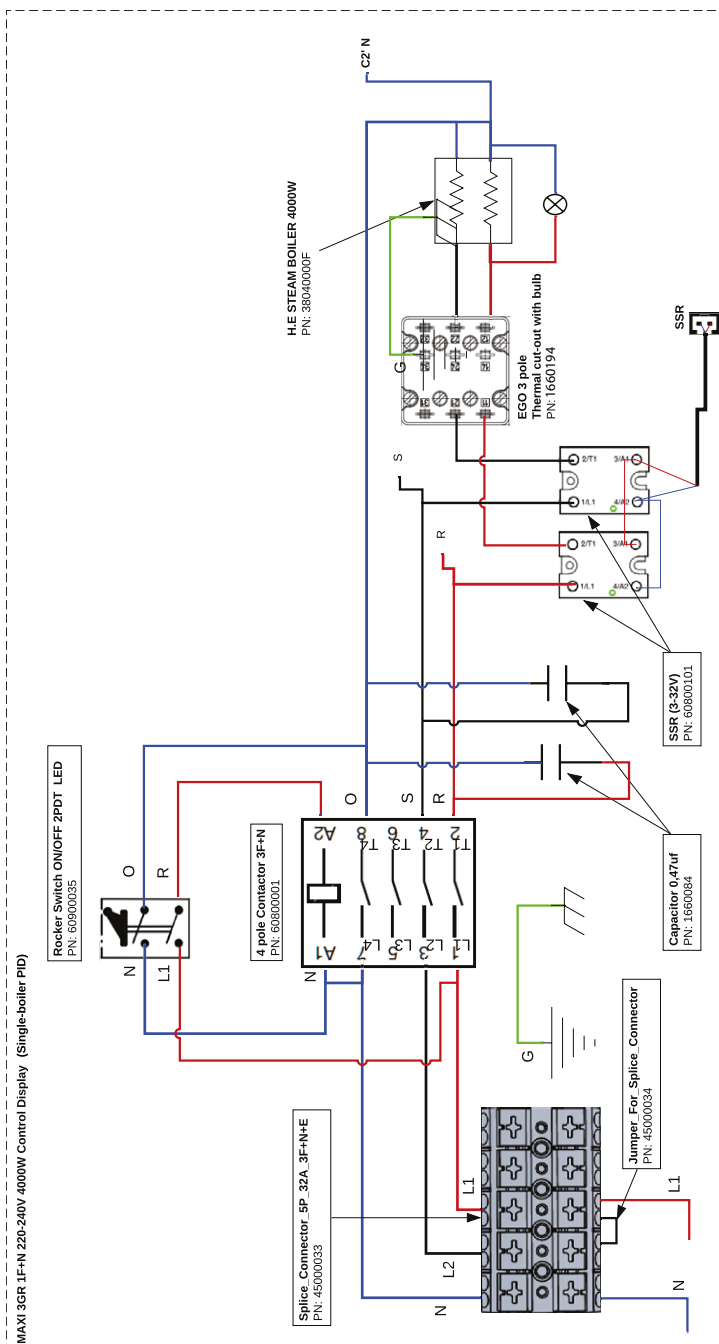
ELECTRICAL DIAGRAMS

· Power diagram - EX3 3Gr Display PID - 3Ph+N 380-415V



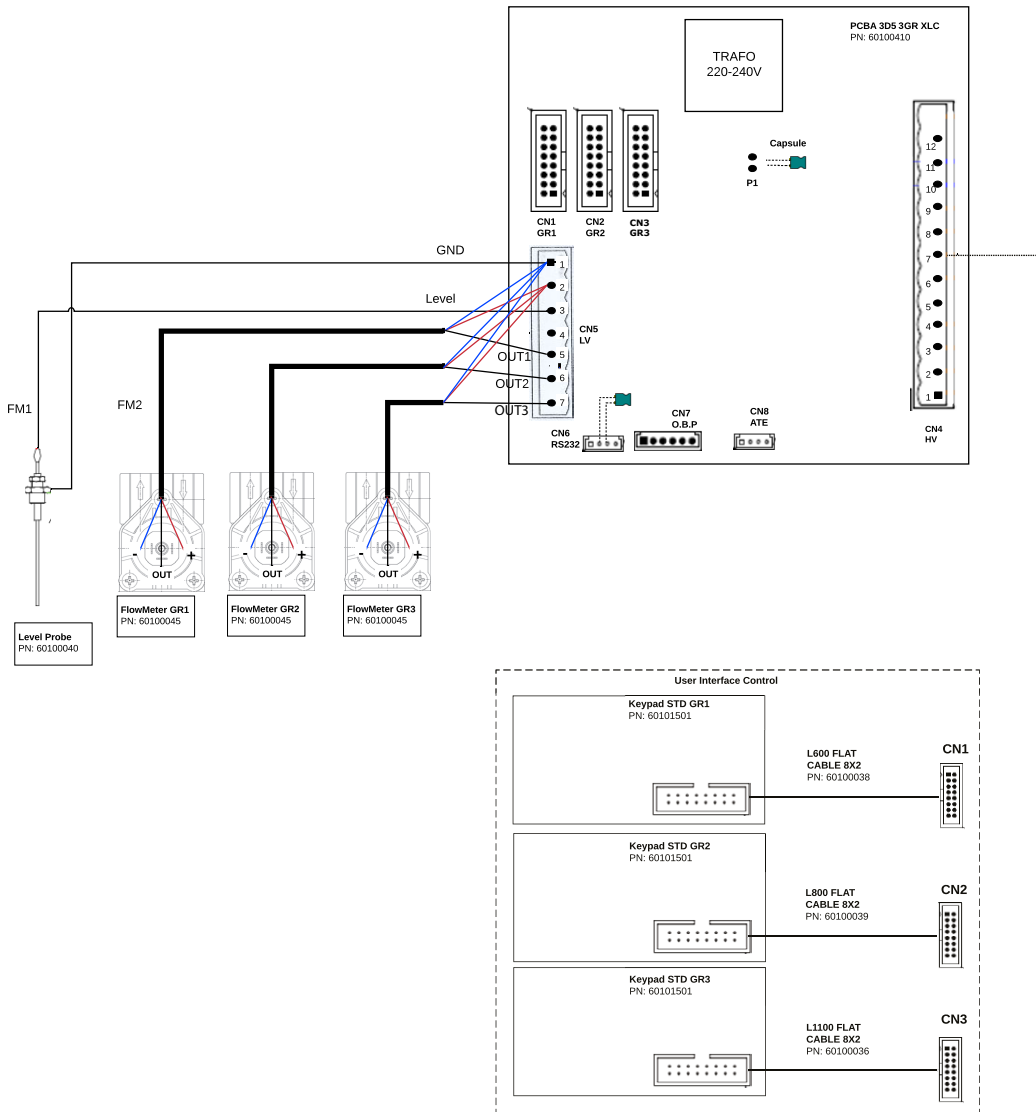
ELECTRICAL DIAGRAMS

· Power diagram - EX3 3Gr Display PID - 1Ph+N 220-240V



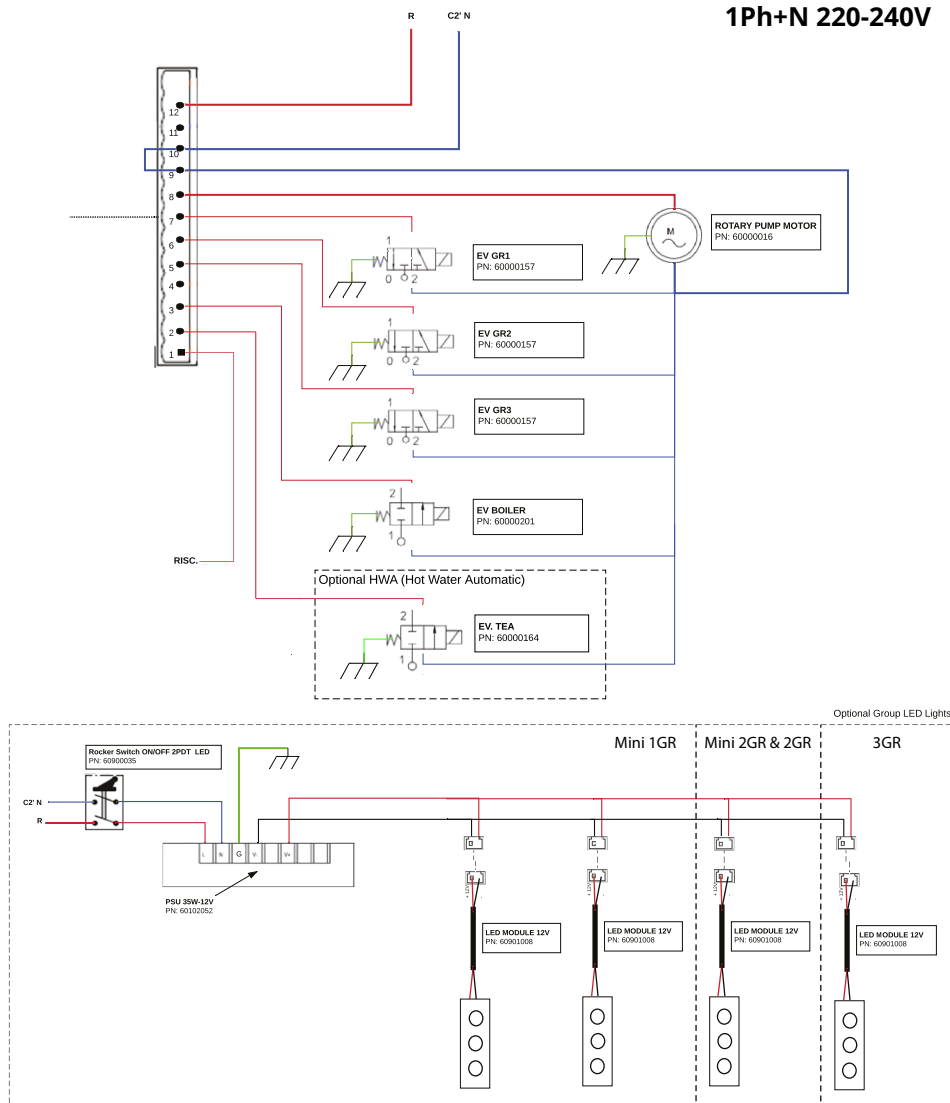
ELECTRICAL DIAGRAMS

· PCB & LED lights connections - EX3/EX2 Control Versions



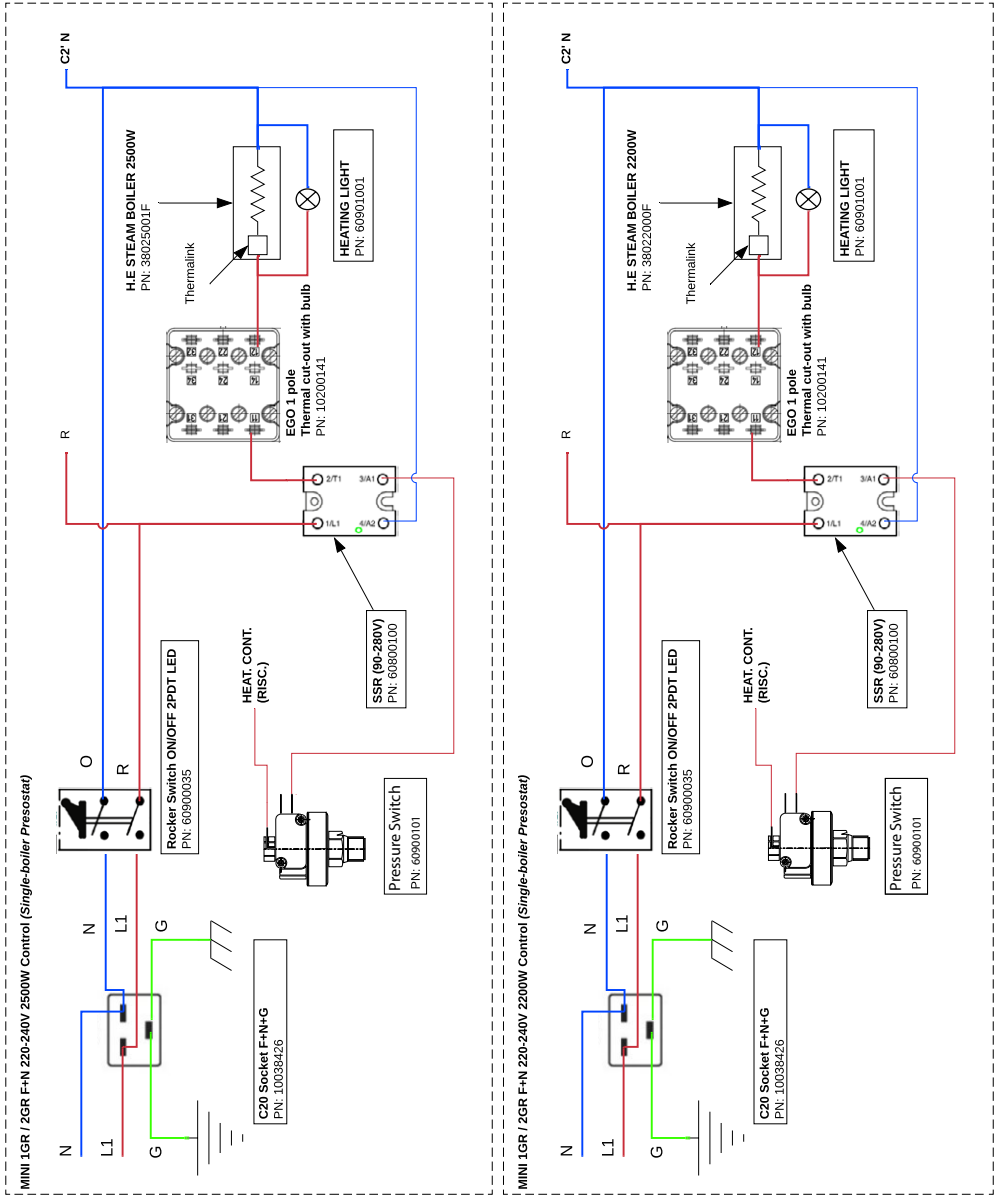
ELECTRICAL DIAGRAMS

· PCB & LED lights connections - EX3/EX2 Control Versions

EX CONTROL
1Ph+N 220-240V

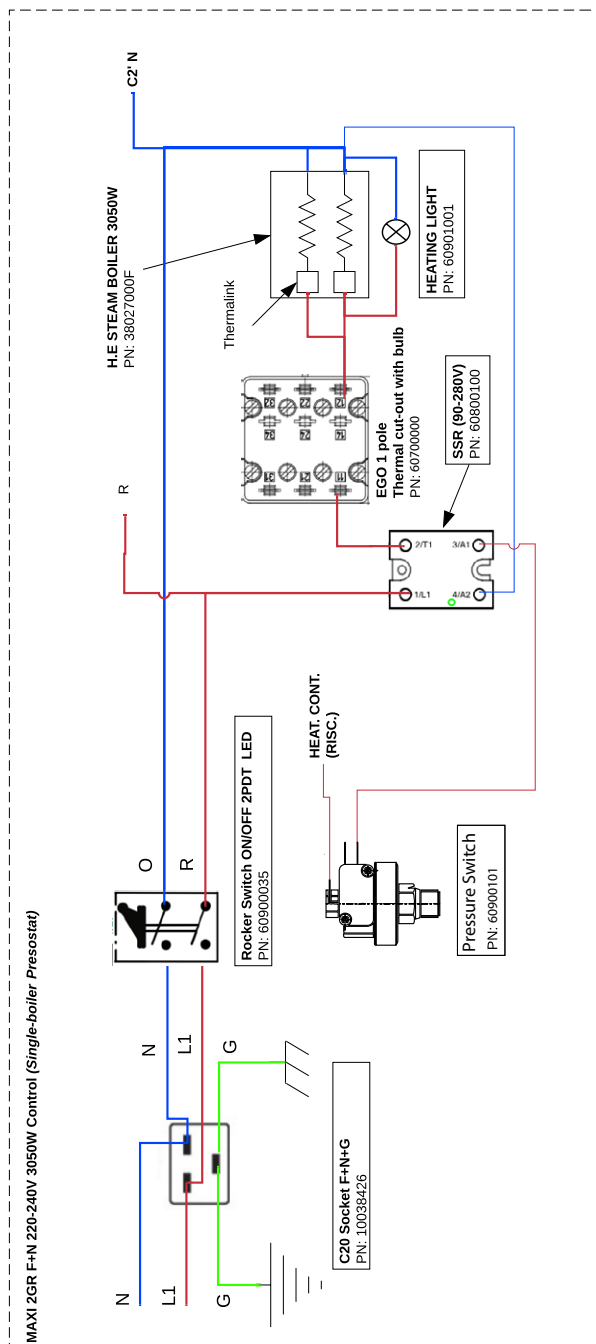
ELECTRICAL DIAGRAMS

· Power diagram - EX3/EX2 MINI 1Gr & MINI 2Gr Control - 1Ph+N 220-240V



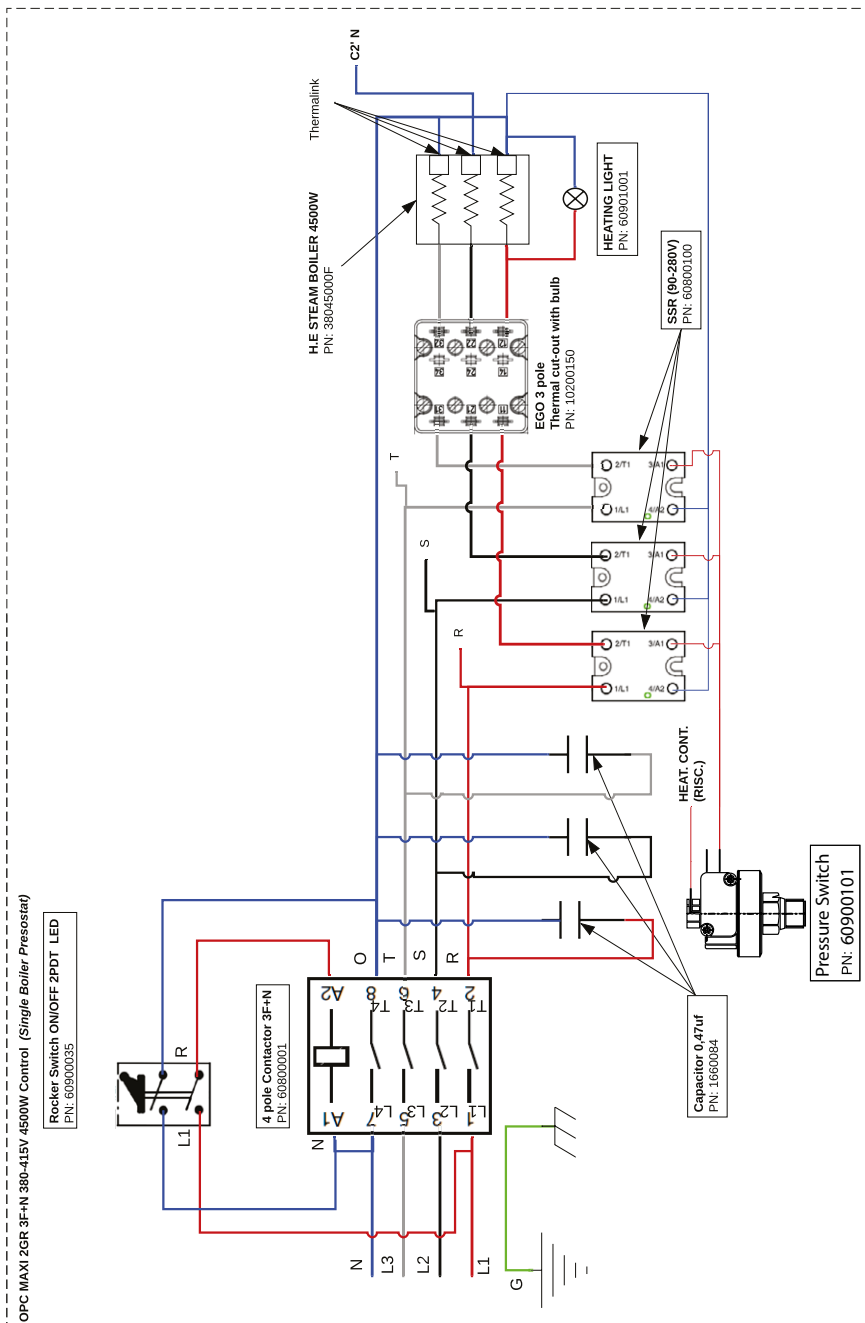
ELECTRICAL DIAGRAMS

· Power diagram - EX3/EX2 2Gr Control - 1Ph+N 220-240V



ELECTRICAL DIAGRAMS

· Power diagram - EX3 2Gr Control - 3Ph+N 380-415V



MACHINE ALERTS

· Alarms and warnings

To alert users that routine service of the machine is due or against a situation that could possibly cause damage to the machine, EX3 has the following alerts programmed into its software:

Display versions

Display Code	Machine status	Alarm Name	Warning / Alarm	Solution
[AL1]	Machine blocked and all touchpads buttons blink	NTC is short-circuited	Alarm	Call a service specialist to replace it
[AL2]	Machine blocked and all touchpads buttons blink	NTC is not connected	Alarm	Call a service specialist to replace it
[AL3]	Selected button blinks and brew must be stopped manually	No flow detected on this group	Warning	Call a service specialist
[FiL]	Machine blocked and all touchpads buttons blink	Steam Boiler FillingUp timeout	Alarm	Turn the main switch off and on again. Check that the machine is receiving water
[Eco]	Touchpads lights off Boiler temperature is decreased to 105°C	Eco mode status	Warning	Press any button from K1 to K4 to 'wake up' the machine
[oFF]	Touchpads lights off Boiler element disconnected	Stand-by mode status	Warning	Press any button from K1 to K4 to 'wake up' the machine
[SEr]	Machine works Static message on group 1	Service maintenance alarm	Warning	Call service specialist to perform maintenance routine. To reset the service alarm counter: - Keep pressed K1+K2 and turn the machine on by the main switch. - Message [rSE] will be shown on Group 1
[FiL]	Machine works Static message on group 1	Water filter maintenance alarm	Warning	Call service specialist to perform maintenance routine. To reset the service alarm: - Keep pressed K3+K4 and turn the machine on by the main switch. - Message [rFi] will be shown on Group 1

TROUBLESHOOTING

· Machine faults

Problem	Possible cause	Solution
The machine does not start up when turned on	The plug is not correctly inserted into the power socket	Check that the plug is correctly inserted and that the power socket is operational.
	The circuit breaker and/or differential are disconnected.	Check that they are connected.
	Check that they are connected	Call service personnel to replace them.
The steam wand does not dispense steam	The steam wand is clogged with dried milk.	Clean the wand and, if necessary, remove the nozzle and unclog it using a pin or needle.
The group boiler does not heat water	Standby mode is activated.	Press again K1+K5 to exit Standby mode.
Preinfusion is not working	When the preinfusion mode is "enabled" you must program the ON/OFF settings of this function.	Set up the preinfusion settings as explained in "User Programming > Preinfusion settings"
Water is found underneath the machine	The drain tube is blocked with used grounds/rubbish or is pulled off the drain cup.	Clean the drainage tube.

· Brewing faults

Problem	Possible cause	Solution
Coffee dispensing is too fast:	The coffee grind is too coarse.	Switch to a finer grind of espresso.
Coffee dispensing is too slow:	The coffee grind is too fine.	Switch to a coarser grind of espresso.

· Limescale faults

Problem	Possible cause	Solution
Coffee dispensing temperature is too cold:	Heat-exchanger outlet pipes are clogged with limescale.	Turn of the machine at the switch and contact a technician to make needed repairs.
Brewing groups do not dispensing water:	Water system is clogged with limescale.	Turn of the machine at the switch and contact a technician to make needed repairs.

For the warranty to be valid the conditions for maintenance must have been followed according to our instructions, proper precaution has been made and warranty claim been issued without delay.

The affected equipment may not be used during awaiting service if there is any risk that the damage or defect would worsen.

The warranty will not cover consumption supplies such as glassware, normal maintenance such as cleaning of filters, contaminations in water, lime, incorrect voltages, pressure or adjustment of water amounts.

The warranty will not cover damages of defects caused by incorrect handling and operation of the appliance.

For service
Please contact your dealer

Your Dealer

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