Strictly confidential

Color Tester

Electronics and Software

alfa
COLORPAINT DISPENSER

Agenda – 2 day training

	Day #1	Day #2
Presentation:	Theory: - Concept and functioning - Pumps - Mechanics - Unpacking - installation - Set-up - *Questions & Answers*	Theory: - Software and electronics - Machine configuration calibration and functions - Alfa Admin y Alfa Cloud - Importance of connecting the machines to the Network - *Questions & Answers*

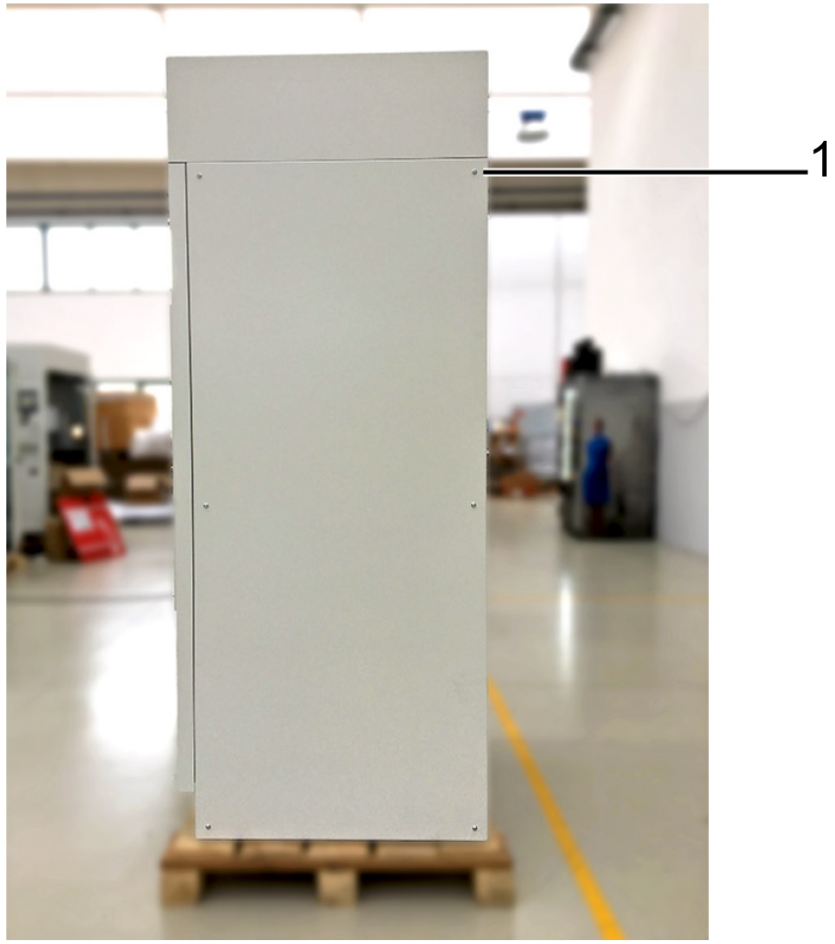
alfa
COLORPAINT DISPENSER

Color Tester

Electronics

alfa
COLORPAINT DISPENSER

Electrical Parts 1/6

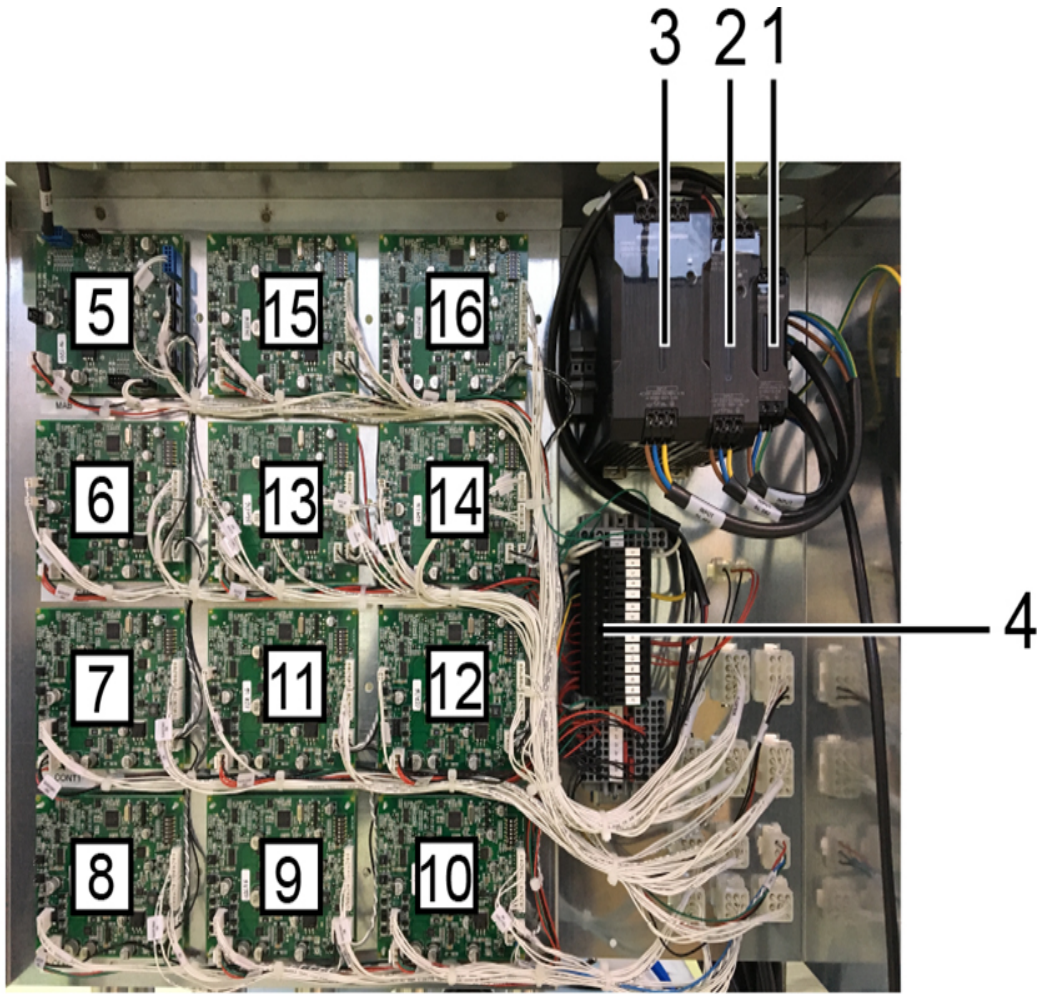


ACCESS TO THE ELECTRICAL POWER SUPPLY BOARD

To access the power supply units and the electronic control circuits of the units, remove the 6 M4 screws (1) securing the right-hand side panel of the machine, behind which is the electrical panel.

alfa
COLORPAINT DISPENSER

Electrical part 2/6



ELECTRIC PANEL

1) power supply 100-240Vac, 12Vdc.
2) power supply 100-240Vac, 24Vdc.
3) power supply 100-240Vac, 48Vdc.
4) terminals and fuses for circuit protection.
5) MAB board
6) SCCB card Autocap circuit
7) SCCB circuit card Boat removal 1
8) SCCB circuit card Boat removal 2
9) SCCB circuit card Boat removal 3
10) SCCB circuit card Boat removal 4
11) SCCB circuit card Cover 1
12) SCCB circuit board Cover 2
13) SCCB card Base 1 circuit
14) SCCB card Base 2 circuit
15) SCCB card Y-axis circuit
16) SCCB card X axis circuit

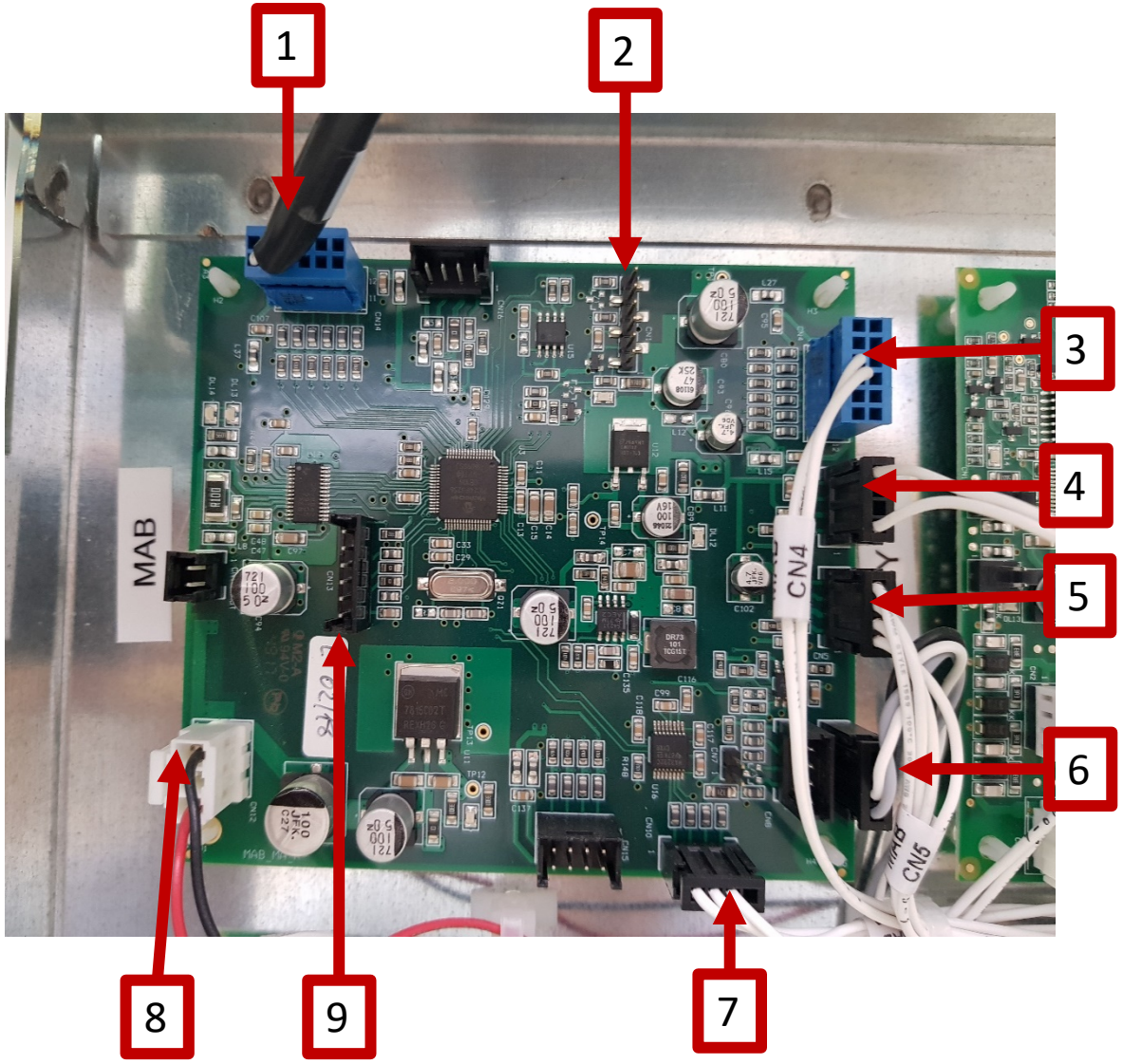
alfa
COLORPAINT DISPENSER

Electrical part 3/6

CIRCUITO	CN2	CN5	CN6	CN8	CN9	CN11	CN12	CN13
BASE 1	STEP BY STEP	FOT.HOME	RS485	RS485	RESERVE	ELECTROVALVE	PWR	MOT AGIT
BASE 2	STEP BY STEP	FOT.HOME	RS485	RS485	RESERVE	ELECTROVALVE	PWR	MOT AGIT
COL 1	STEP BY STEP	FOT.HOME	RS485	RS485	RESERVE	ELECTROVALVE	PWR	MOT AGIT
COL 2	STEP BY STEP	FOT.HOME	RS485	RS485	RESERVE	ELECTROVALVE	PWR	MOT AGIT
COL 3	STEP BY STEP	FOT.HOME	RS485	RS485	RESERVE	ELECTROVALVE	PWR	MOT AGIT
COL 4	STEP BY STEP	FOT.HOME	RS485	RS485	RESERVE	ELECTROVALVE	PWR	MOT AGIT
COL 5	STEP BY STEP	FOT.HOME	RS485	RS485	RESERVE	ELECTROVALVE	PWR	MOT AGIT
COL 6	STEP BY STEP	FOT.HOME	RS485	RS485	RESERVE	ELECTROVALVE	PWR	MOT AGIT
COL 7	STEP BY STEP	FOT.HOME	RS485	RS485	RESERVE	ELECTROVALVE	PWR	MOT AGIT
COL 8	STEP BY STEP	FOT.HOME	RS485	RS485	RESERVE	ELECTROVALVE	PWR	MOT AGIT
COL 9	STEP BY STEP	FOT.HOME	RS485	RS485	RESERVE	ELECTROVALVE	PWR	MOT AGIT
COL 10	STEP BY STEP	FOT.HOME	RS485	RS485	RESERVE	ELECTROVALVE	PWR	MOT AGIT
COL 11	STEP BY STEP	FOT.HOME	RS485	RS485	RESERVE	ELECTROVALVE	PWR	MOT AGIT
COL 12	STEP BY STEP	FOT.HOME	RS485	RS485	RESERVE	ELECTROVALVE	PWR	MOT AGIT
X	STEP BY STEP	FOT.HOME	RS485	RS485	FOT.TOT		PWR	
Y	STEP BY STEP	FOT.HOME	RS485	RS485	FOT.TOT		PWR	
CAN STORAGE 1	STEP BY STEP	FOT.HOME	RS485	RS485	RESERVE		PWR	
CAN STORAGE 2	STEP BY STEP	FOT.HOME	RS485	RS485	RESERVE		PWR	
CAN STORAGE 3	STEP BY STEP	FOT.HOME	RS485	RS485	RESERVE		PWR	
CAN STORAGE 4	STEP BY STEP	FOT.HOME	RS485	RS485	RESERVE		PWR	
LID STORAGE 1		FOT.HOME	RS485	RS485	RESERVE		PWR	LID DC
LID STORAGE 2		FOT.HOME	RS485	RS485	RESERVE		PWR	LID DC
AUTOCAP	STEP BY STEP	FOT.HOME	RS485	RS485			PWR	

alfa
COLORPAINT DISPENSER

Electrical part 4/6

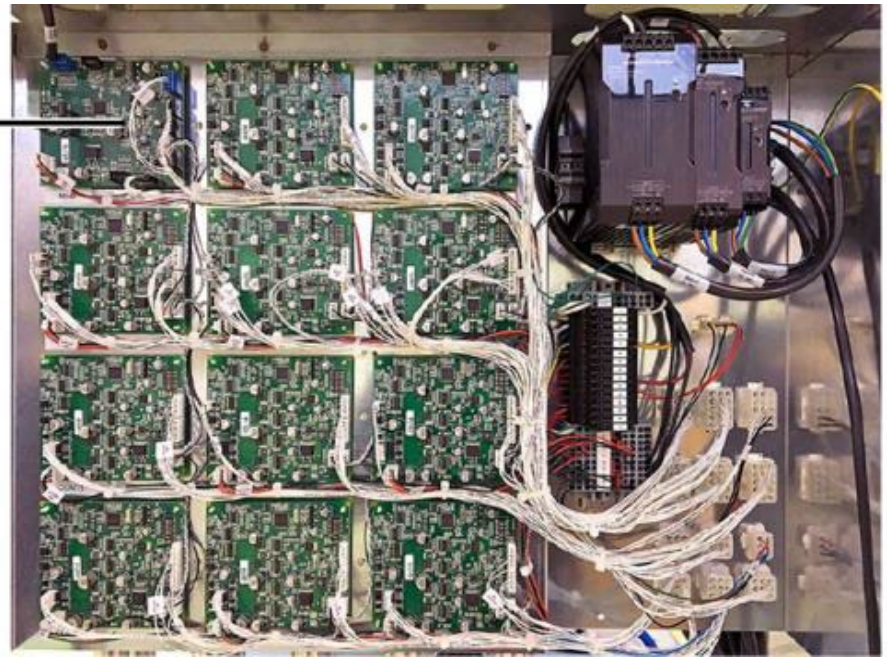


MAB BOARD

-CN14 TECHNICAL ASSISTANCE PULSE CONNECTOR(1)
-CN11 PROGRAMMING CONNECTOR(2)
-CN4 DOOR SWITCH CONNECTOR(3)
-CN9 MICROPRESSURE CONNECTOR PIN IN DISPENSER(4)
-CN5 SENSOR CONNECTOR PRESENCE BOAT IN THE CLAMP(5)
-CN6 COMMUNICATION CONNECTOR WITH AUTOCAP(6)
-CN10 LINUX BOARD COMMUNICATION CONNECTOR(7)
-CN12 24V. POWER CONNECTOR(8)
-CN13 USB BOOT(9) PROGRAMMING CONNECTOR

alfa
COLORPAINT DISPENSER

Electric board 5/6

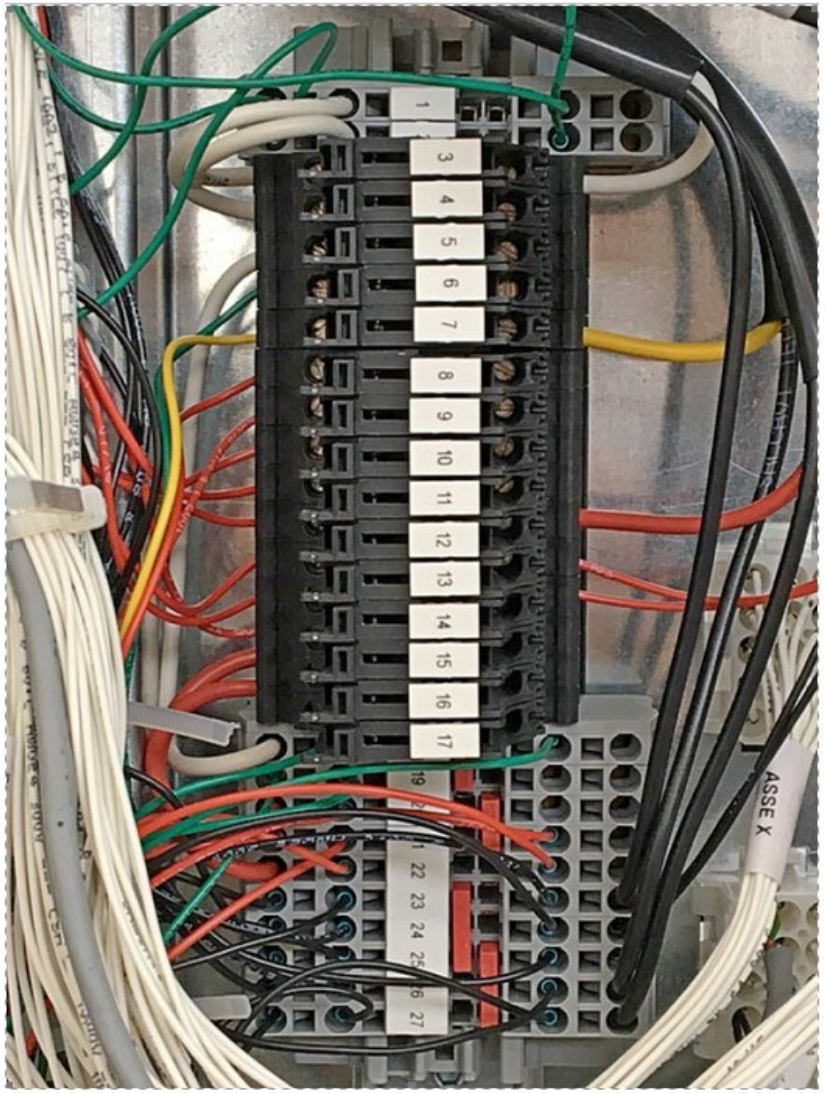


To replace the MAB boards, proceed as follows:
• make sure the machine is disconnected from the power supply as described in para. 2.0.3.
• Remove the rear panel as described in paragraph 2.1.1. to reach the electric panels, then remove the internal protections as described in paragraph 2.1.2.
• Disconnect the power supply and signal cables from the board (1) to be replaced.
• Remove the board by releasing it from the plastic supports on its corners.
• Insert a new board on the supports having care not to damage its components.

WARNING: Use an already programmed board or the suitable programmer to install the correct firmware. To reprogramme the boards refer to chapter 4.
• Restore the electric connections.

alfa
COLORPAINT DISPENSER

Electrical part 6/6

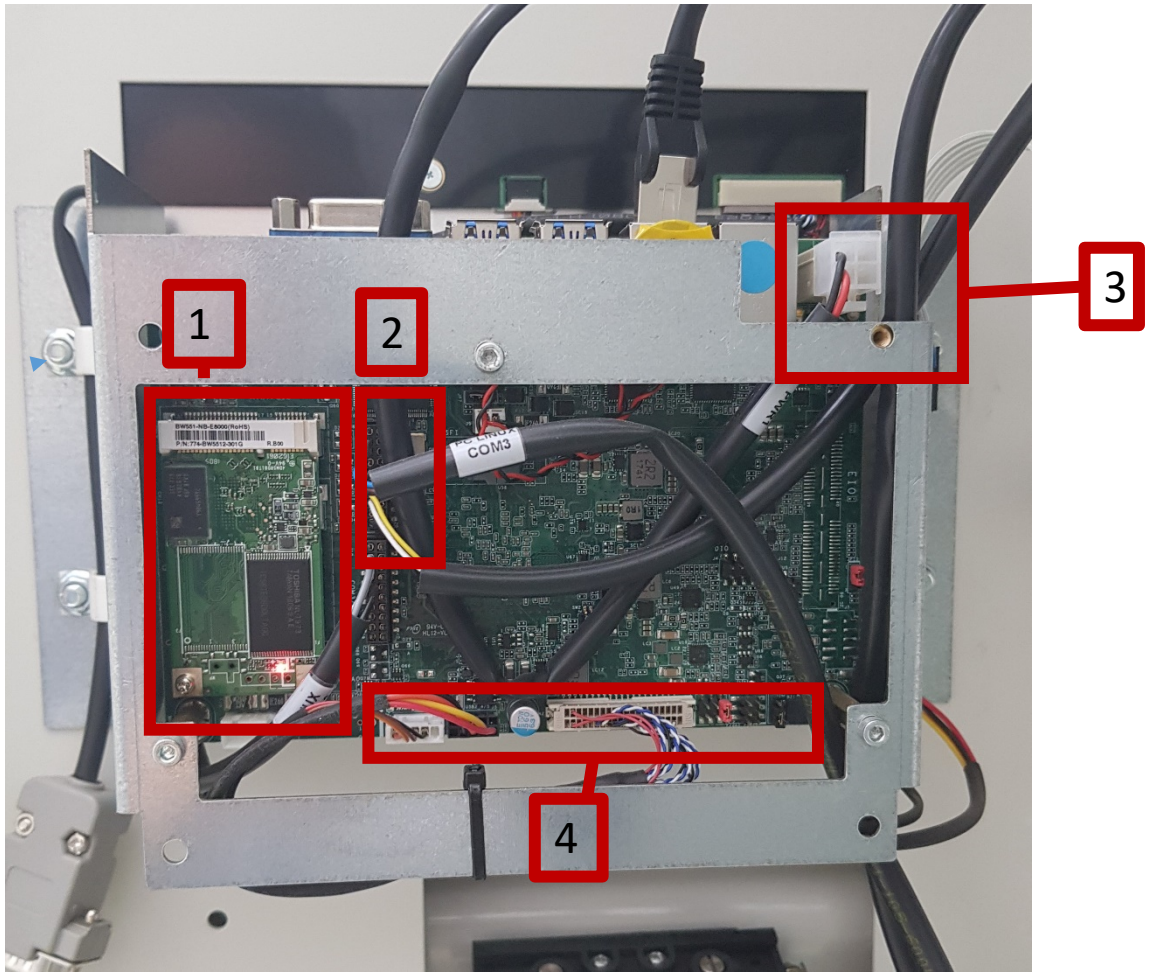


1			48V X-Y
2			48V B1-B2
3	5x20mm F2,5A 250Vac		48V B1-B2
4	5x20mm F2,5A 250Vac		48V X-Y
5	5x20mm F2A 250Vac		48V CONTAINERS
6	5x20mm F4A 250Vac		48V COLORANTS
7	5x20mm F2A 250Vac		12V LINUX
8	5x20mm F1,5A 250Vac		24V PRINTER
9	5x20mm F4A 250Vac		24V COLORANTS
10	5x20mm F150mA 250Vac		24V MAB
11	5x20mm F1A 250Vac		24V X
12	5x20mm F1A 250Vac		24V Y
13	5x20mm F1A 250Vac		24V B1
14	5x20mm F1A 250Vac		24V B2
15	5x20mm F1,5A 250Vac		24V AUTOCAP
16	5x20mm F1,5A 250Vac		24V T1-T2
17	5x20mm F1A 250Vac		48V CONTAINERS
18			48V CONTAINERS
19			
20			24V CONTAINERS
21			
22			24V T1-T2
23			GND
24			
25			
26			
27			

Fuses are located on the terminal boards housed inside the electric panel

alfa
COLORPAINT DISPENSER

Linux board 1/2

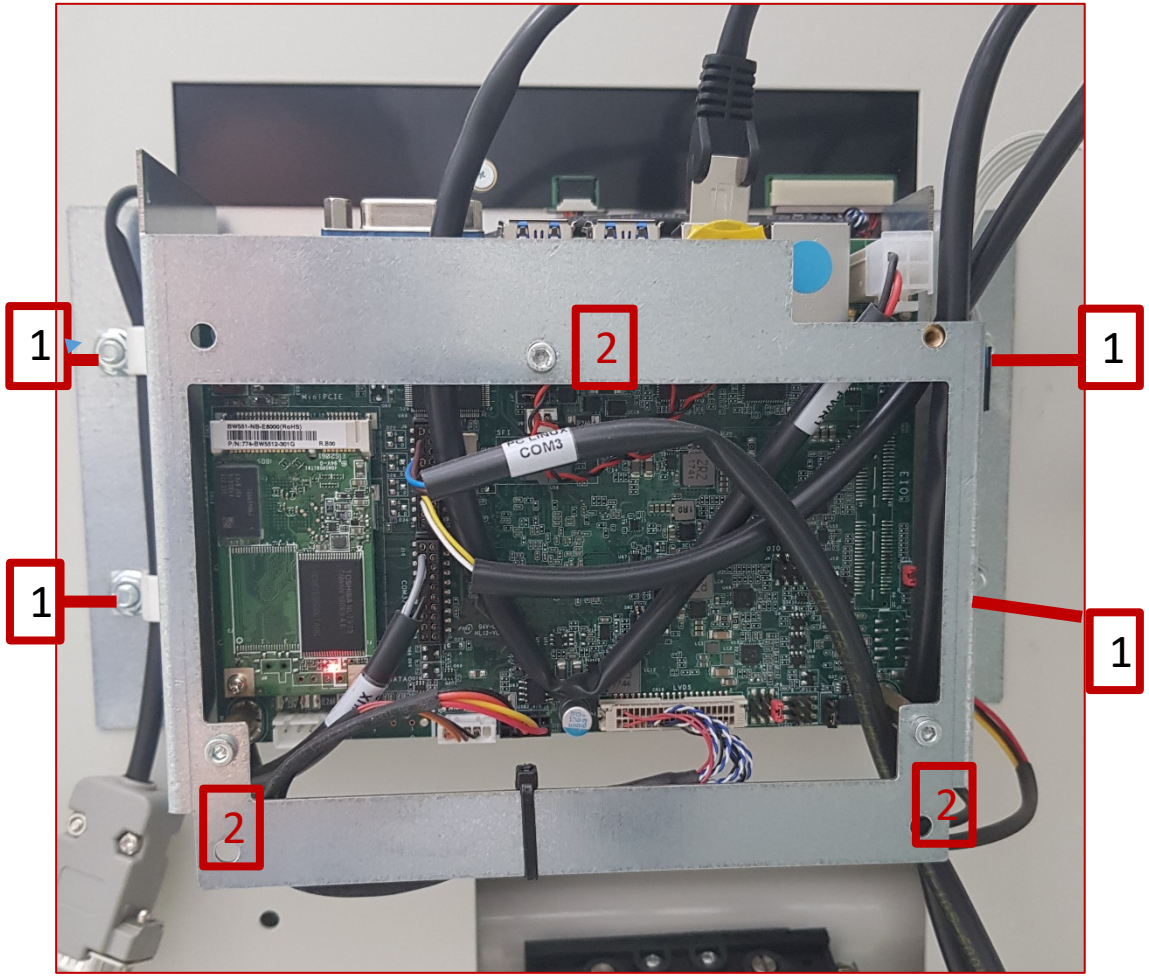


LINUX BOARD

1) 16g memory, where all the information is.
2)Com3 communication cable
3) Power supply 12volt.
4) Display communication cables.

alfa
COLORPAINT DISPENSER

Linux Board 2/2



To remove the PC board, unscrew the M3x6 screws (1) securing the columns (connected to the board) to the metal bracket (2), using a 2.5mm Allen key.

alfa
COLORPAINT DISPENSER

Touch screen

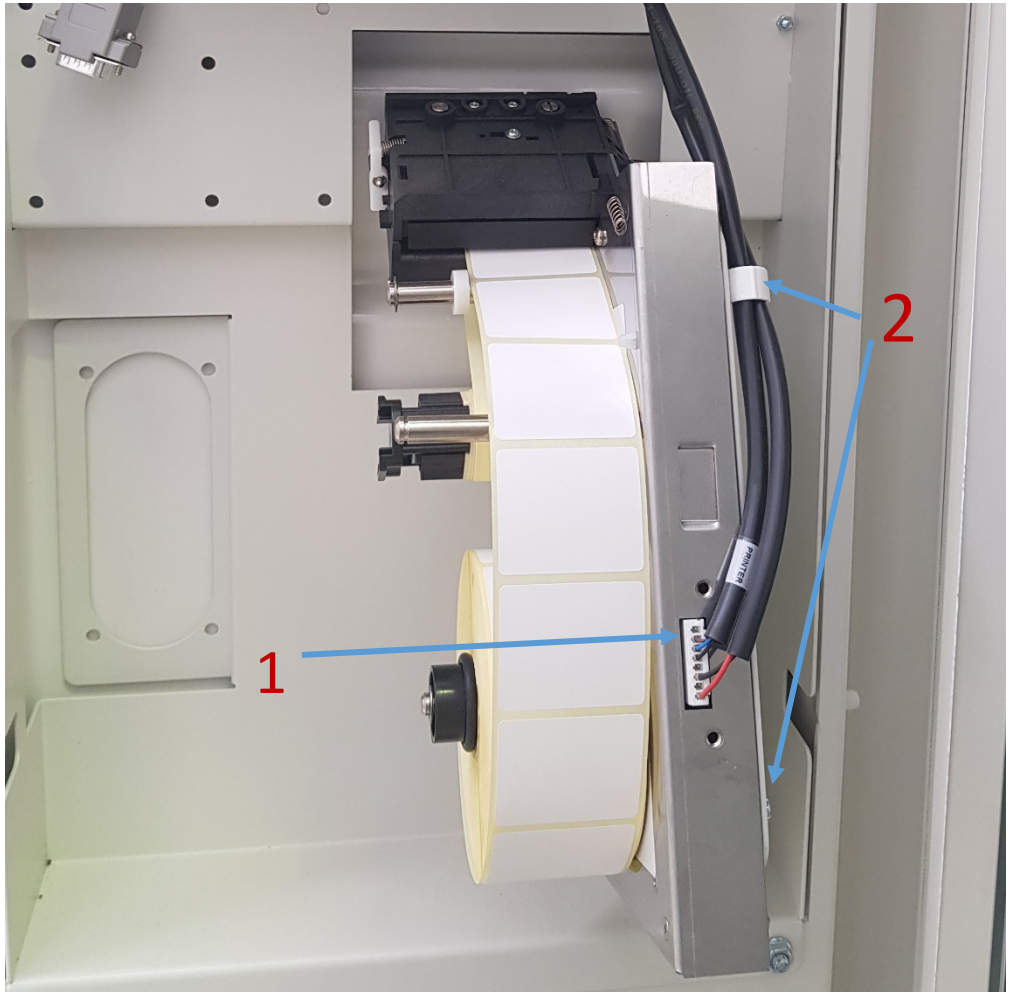
TOUCH SCREEN

Remove the shield by removing the 4 M3X12 Allen screws + D3 washers and the corresponding nuts (6) located in the corners of the shield, taking care not to pull the rear wiring!

Disconnect the connectors on the back of the screen.

alfa
COLORPAINT DISPENSER

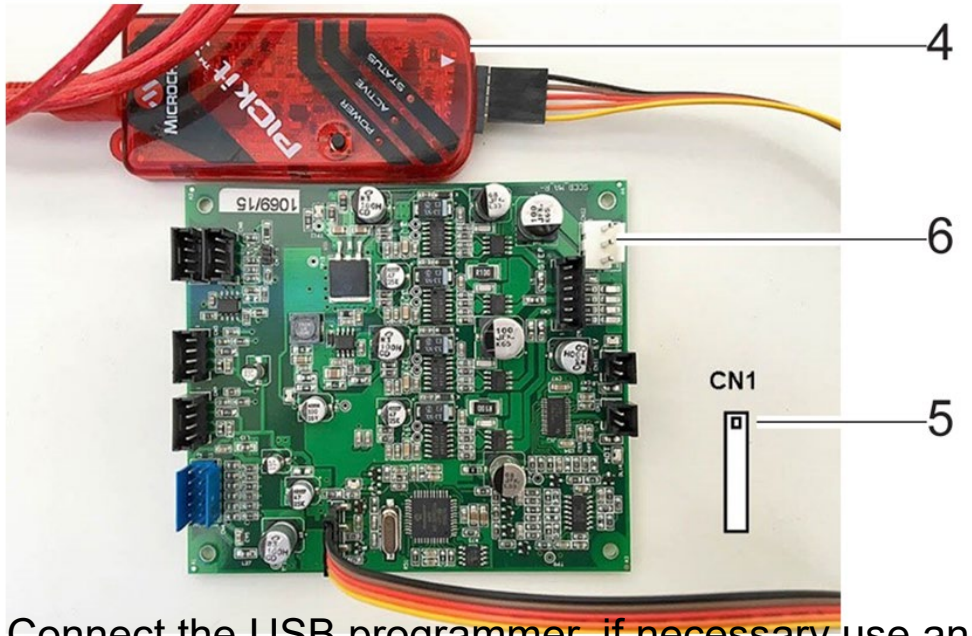
Label Printer



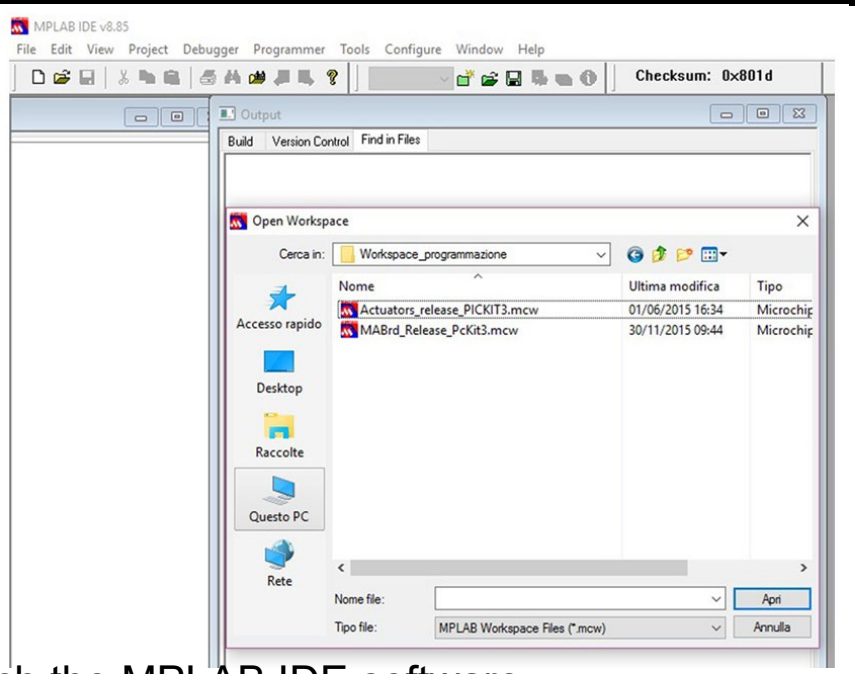
To replace the label printer
Disconnect the connector (1) between the PC block and the printer.
Unscrew the 4 M4X12 Allen screws + washer D4 + washer D5 by screw (2), taking care not to damage the wiring attached to the upper left screw on the printer support.

alfa
COLORPAINT DISPENSER

Programming devices



Connect the USB programmer, if necessary use an extension, to CN1 connector of the board to be programmed.
WARNING: Check that pin 1 of the programmer (4) is connected to pin 1 of CN1 connector (5)!
Power the board by connecting the CN12 connector (6) to the machine.
WARNING: do not connect the CN6 and CN8 connectors of the RS-485 communication to avoid problems linked with possible address conflicts.



Launch the MPLAB IDE software
Access to “File – Open workspace…” and select the workspace of the board to programme (MAB or SCCB), then select Open.
For the SGBRD board, use SCCB workspace.
WARNING: if you have connected a MAB board, upload the “MABrd” workspace, whereas if you have connected an SCCB board, upload the “Actuators” workspace (see para. 4.3).
If message “No PICkit 3 Connected” is displayed, it means that the programmer is not connected correctly.

Color Tester

Technical Data

alfa
COLORPAINT DISPENSER

Technical Data

ELECTRICAL SPECIFICATIONS

Power supply	**100-240Vac 50-60Hz**
Max. power	2.5÷1.7A
Absorbed power	400W max.
5X20 mm fuses	T2,5A-250V each 2 item
Operating noise (*)	Less 70 dB (A)
TFT-LCD touch screen	12.1” 1024x768 16.2M Capacitive touch screen

PACKAGING DIMENSIONS

Height on platform	**2110 mm (15MM)**
Platform width	1150 mm
Platform depth	900 mm
Unloaded weight	350 Kg

alfa
COLORPAINT DISPENSER

Technical data

PRODUCT AGITATION AND RECIRCULATION

	Agitation	Recirculation
Colorants	30” each 30’	1’ each 30’
Bases or semi-finished	30” each 30’	1’ each 30’

STAND-BY

The machine during the down phases performs activities necessary for the maintaining the correct functioning of the system. These functions, which are described in more detail below, are:

- Agitation of colorants
- Agitation of bases;
- Recirculation of bases;
- Recirculation of colorants

alfa
COLORPAINT DISPENSER

Color Tester

Smart unit

alfa
COLORPAINT DISPENSER

Direct control of technologies

PAINT FACTORY

alfa CLOUD

PAINT STORE

BIDIRECTIONAL COMMUNICATION

IN REAL TIME FROM REMOTE

MARKETING

LABORATORY

SERVICE

How?

Intelligence on board

Each machine is equipped with a PC Linux

Web Server

Virtual server in every PC Linux

Internet

Ethernet cable connection or Router with SIM data

VPN

Access though secure connection

alfa
COLORPAINT DISPENSER

Software

Alfa Kiosk

alfa
COLORPAINT DISPENSER

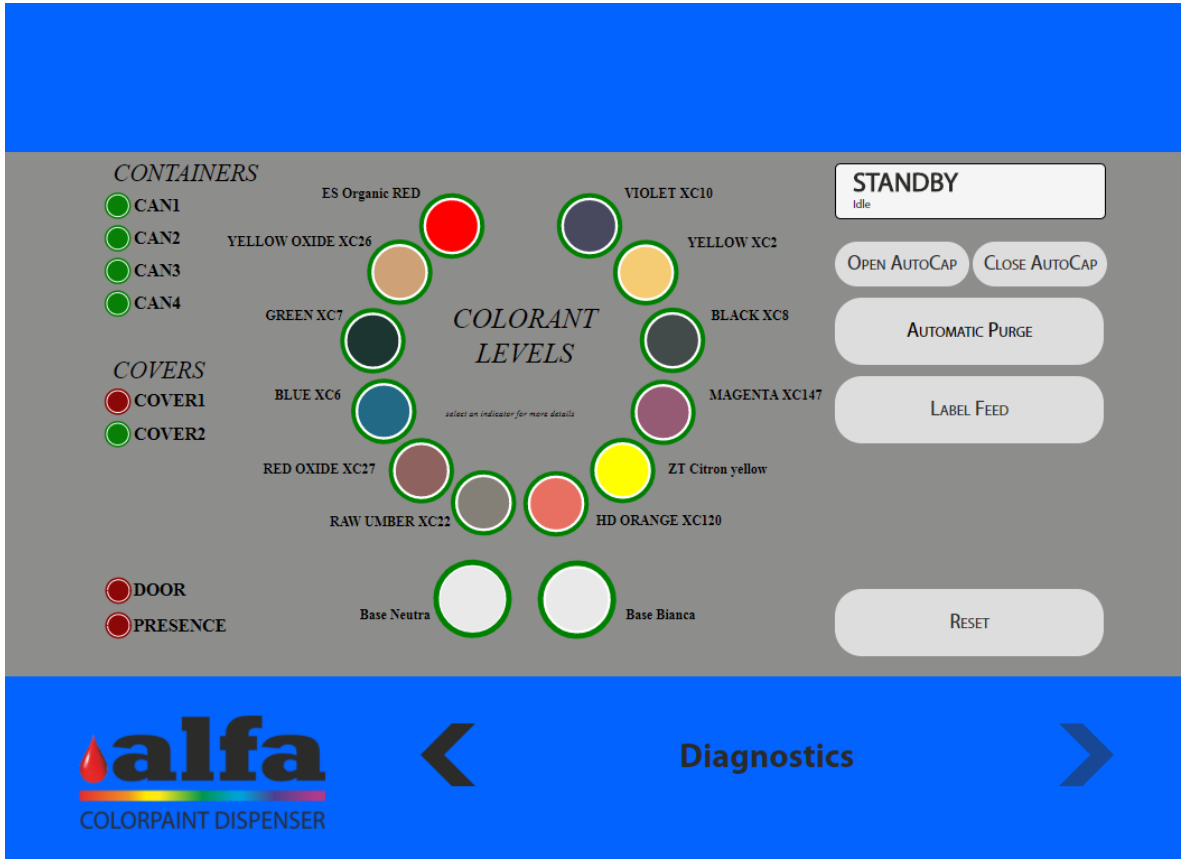
Access in Diagnostic mode

Click on the status indicator on the touch screen (1) click «Diagnostics» (2) to continue.

The manufacturer configuration is standard with the password «ALFA». This can be modified anytime by the system administrator.

alfa
COLORPAINT DISPENSER

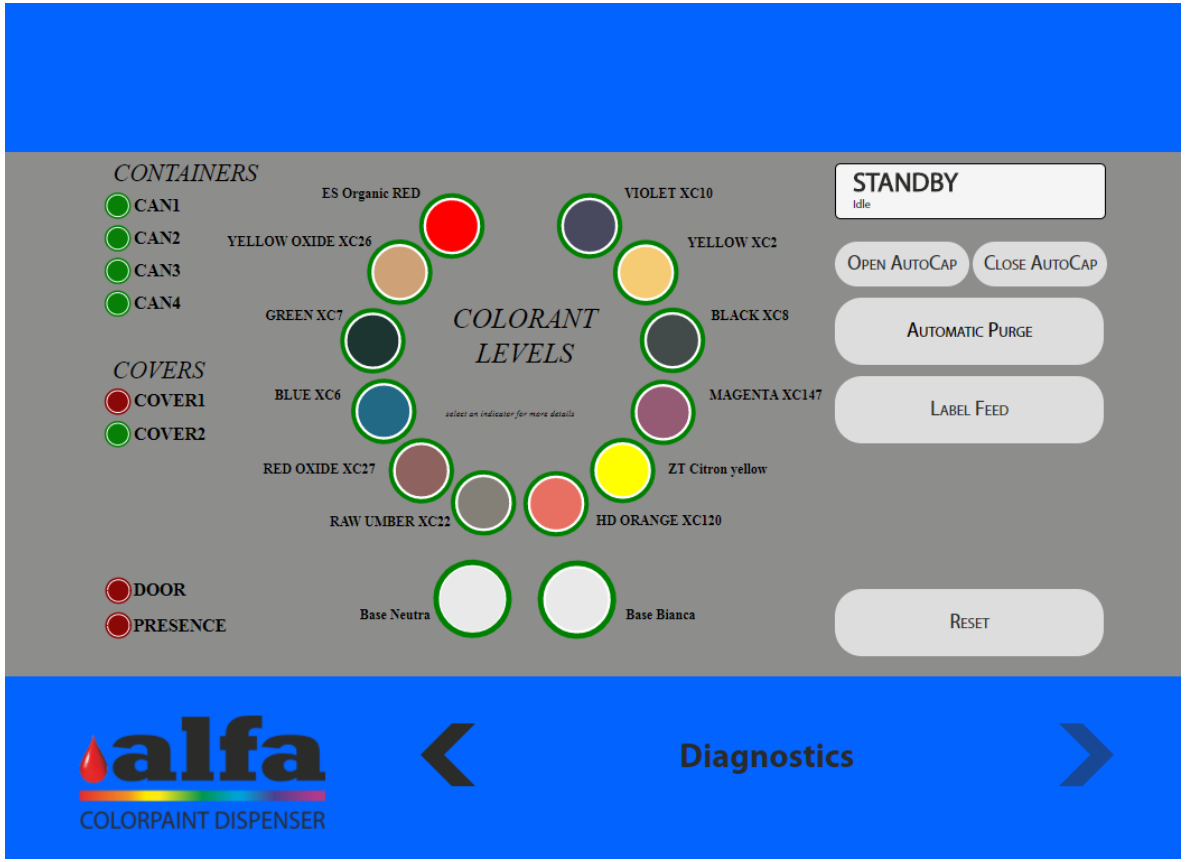
Alfa Kiosk



Alfa Kiosk is the control software to monitor the components and the machine operations. It can be opened from the Color Tester screen, a computer or a mobile device.

alfa
COLORPAINT DISPENSER

Diagnostic and technical

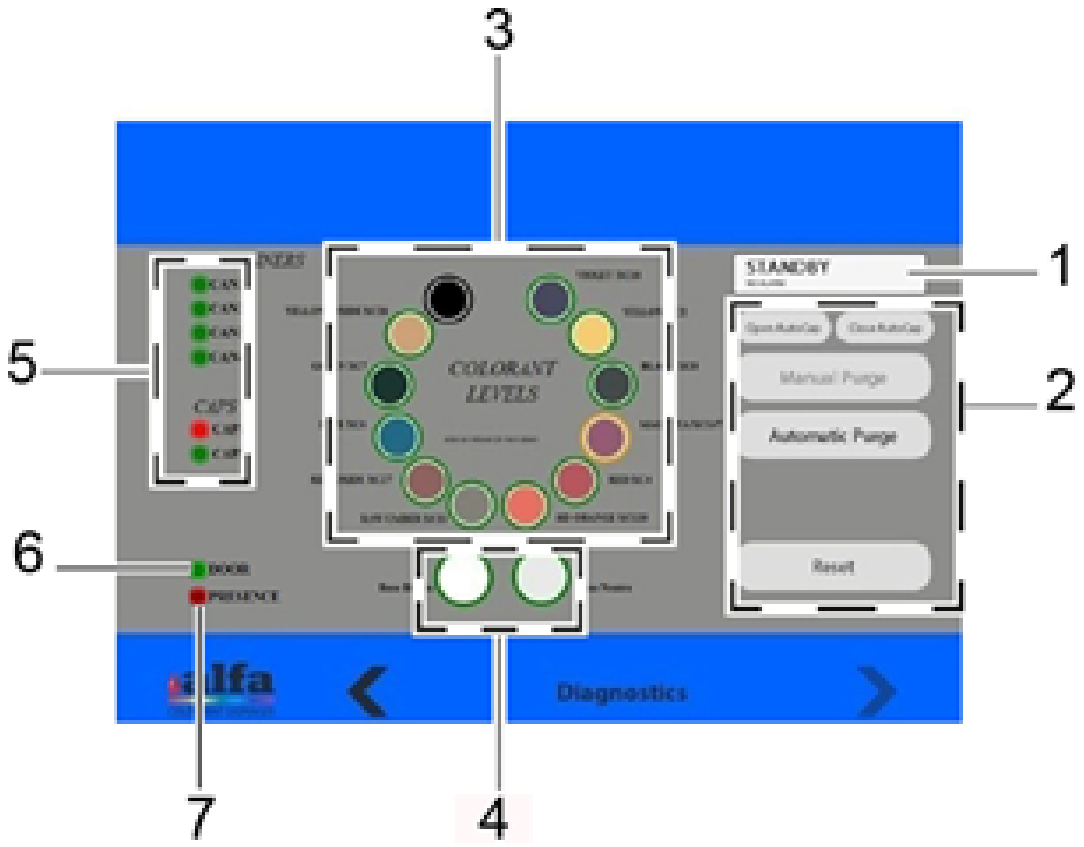


The access in Diagnostic mode is permitted to the operator in charge for maintenance.

The access in technical mode is permitted to the technician in charge and allows to access higher level functions.

alfa
COLORPAINT DISPENSER

Screen Diagnostics

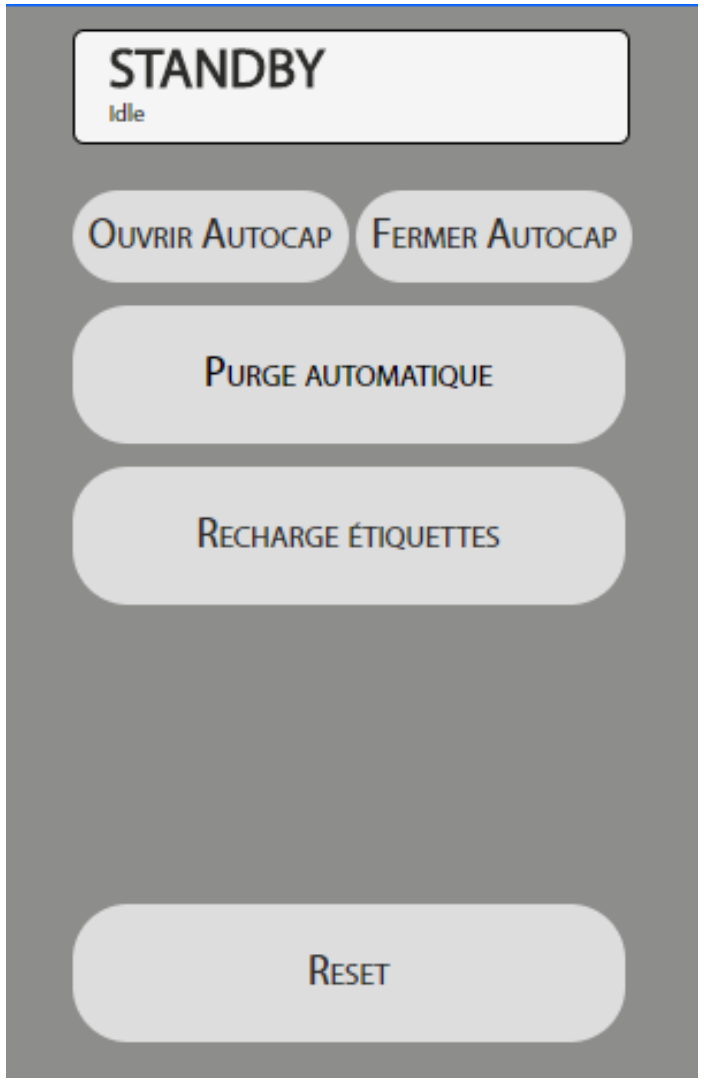


The screen Diagnostics shows the following data:

1) Status of the machine;
2) Control area;
3) Colorants levels;
4) Bases levels;
5) Loaders level;
6) Door status (red= open);
7) Presence of can in the clamp

alfa
COLORPAINT DISPENSER

Controls

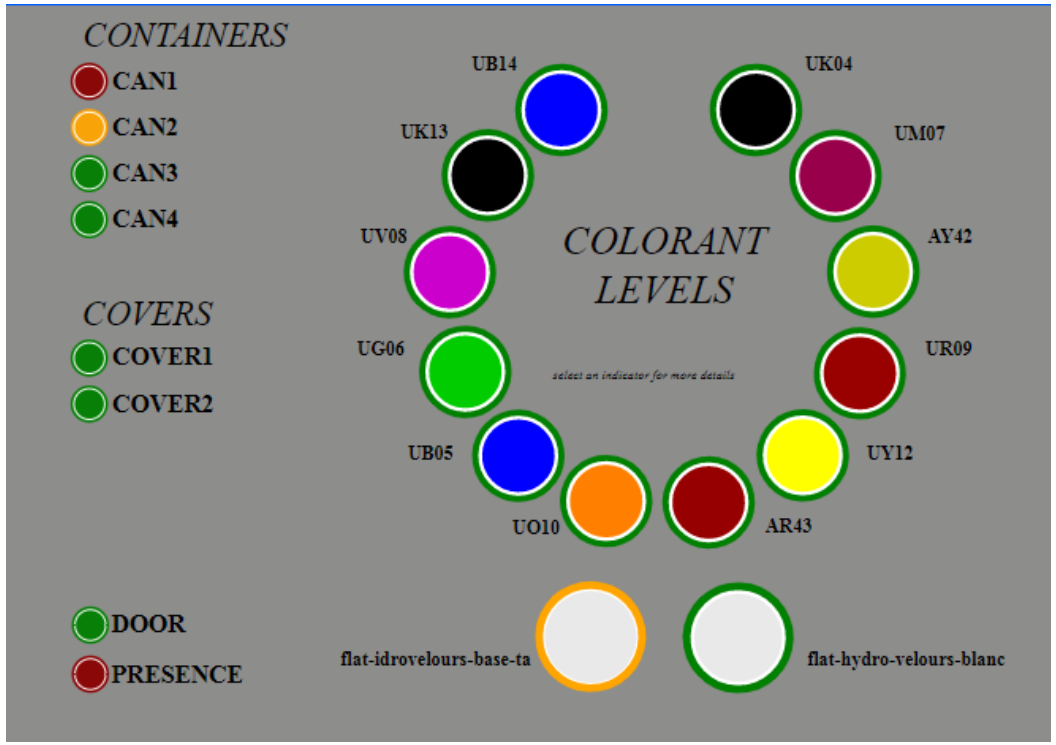


Right from the first screenshot it is possible to monitor the status of the circuits. Moreover it is possible to:

- Execute a machine Reset;
- Open Autocap;
- Close Autocap;
- Launch an automatic purge;
- Activate the label roll forward.

alfa
COLORPAINT DISPENSER

State of the machine

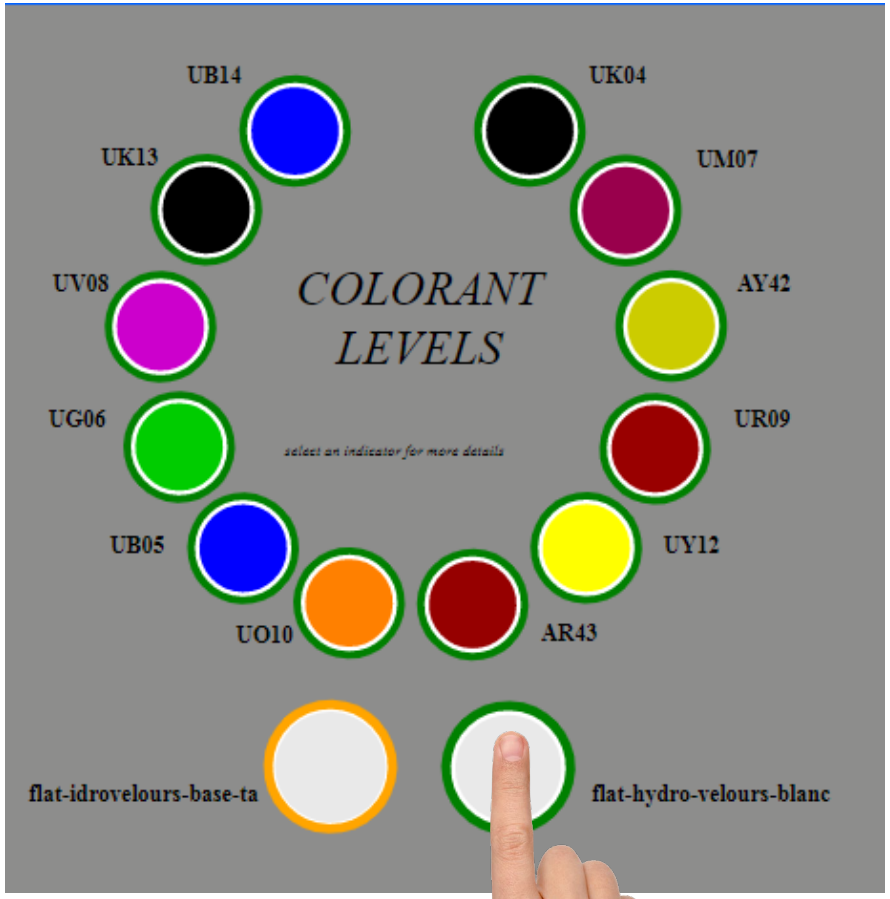


Orange color indicates that the circuit is below warning level.

Red Color indicates that the circuits is below minimum level. In this case, the circuit is disabled until following refilling.

alfa
COLORPAINT DISPENSER

State of Circuits

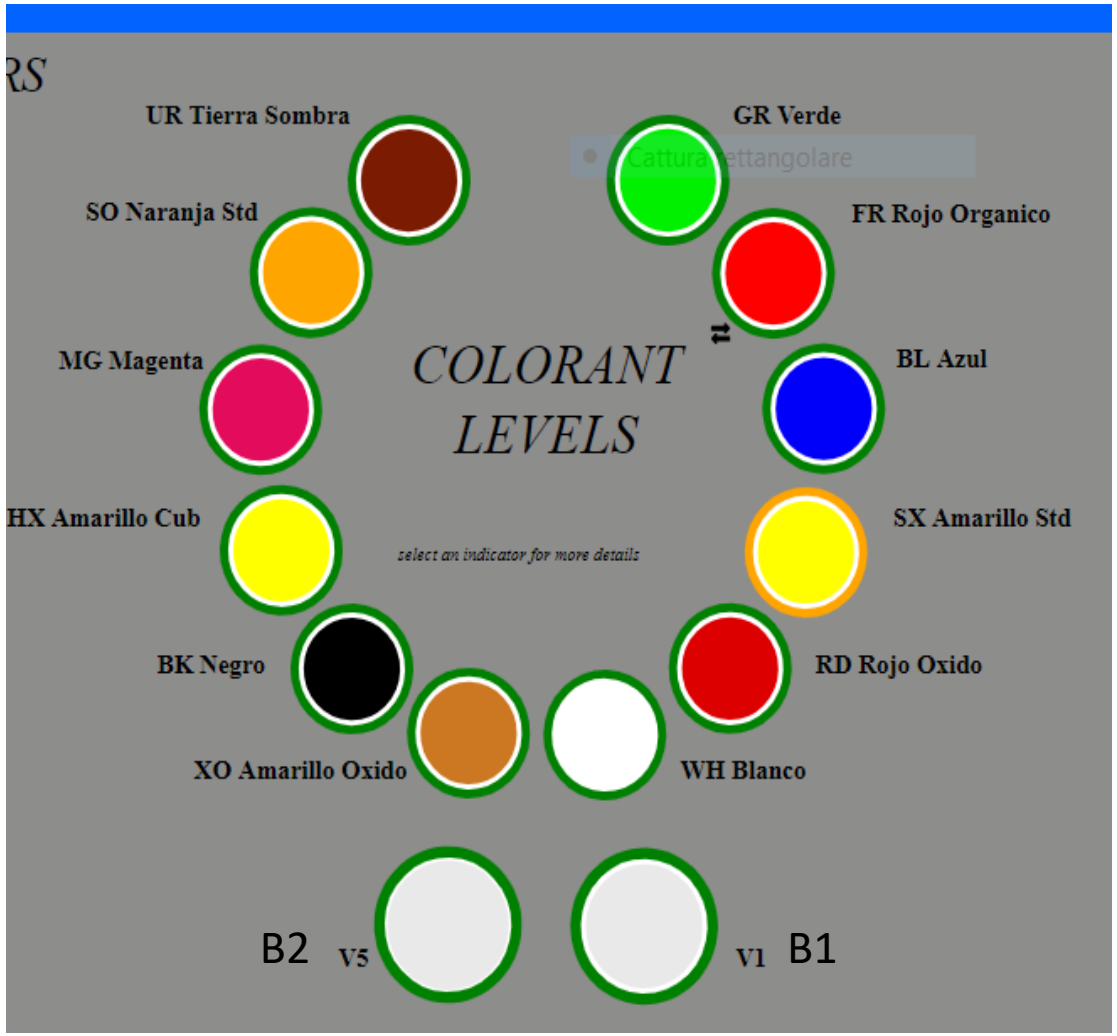


By clicking on the identification of a colorant or base circuit you can access the circuit management menu, by which it is possible to:

- Visualize product level;
- Insert the quantity refilled;
- Activate a purge;
- Start/stop recirculation;
- Start/stop stirring.

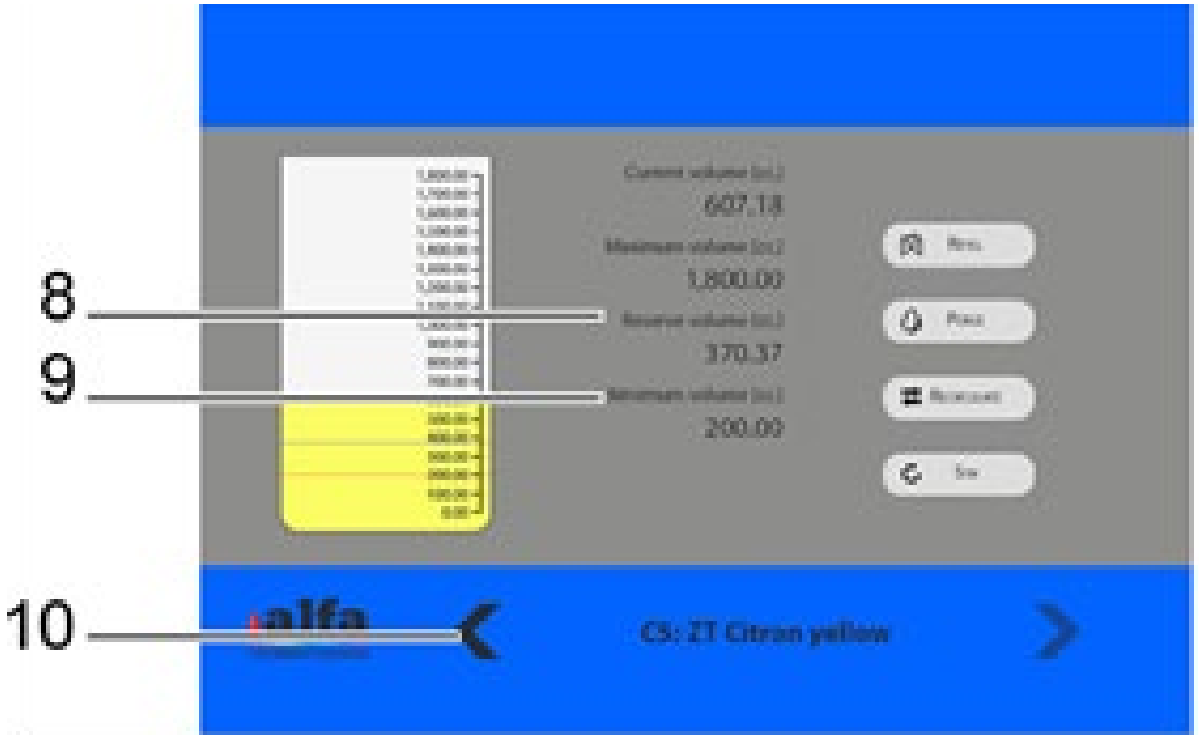
alfa
COLORPAINT DISPENSER

Refill Colorants



B1	Alfa 0.2 cc	V1	5597.04	22000.0	3930.8176	3000.0	next »
B2	Alfa 0.2 cc	V5	2475.62	22000.0	4612.5461	2500.0	next »
C1	Alfa 0.05 cc	GR Verde	1054.17	1500.0	402.2526	200.0	next »
C2	Alfa 0.05 cc	FR Rojo Organico	413.95	1500.0	356.3792	200.0	next »
C3	Alfa 0.05 cc	BL Azul	478.33	1500.0	401.9293	200.0	next »
C4	Alfa 0.05 cc	SX Amarillo Std	362.38	1500.0	377.3585	200.0	next »
C5	Alfa 0.05 cc	RD Rojo Oxido	610.39	1500.0	228.5192	200.0	next »
C6	Alfa 0.05 cc	WH Blanco	263.34	1500.0	251.3826	200.0	next »
C7	Alfa 0.05 cc	XO Amarillo Oxido	834.47	1500.0	250.7523	200.0	next »
C8	Alfa 0.05 cc	BK Negro	391.42	1500.0	374.2515	200.0	next »
C9	Alfa 0.05 cc	HX Amarillo Cub	884.14	1500.0	405.1864	200.0	next »
C10	Alfa 0.05 cc	MG Magenta	523.20	1500.0	414.5937	200.0	next »
c11	Alfa 0.05 cc	SO Naranja Std	781.81	1500.0	384.0246	200.0	next »
C12	Alfa 0.05 cc	UR Tierra Sombra	850.51	1500.0	337.6097	200.0	next »

Circuits status

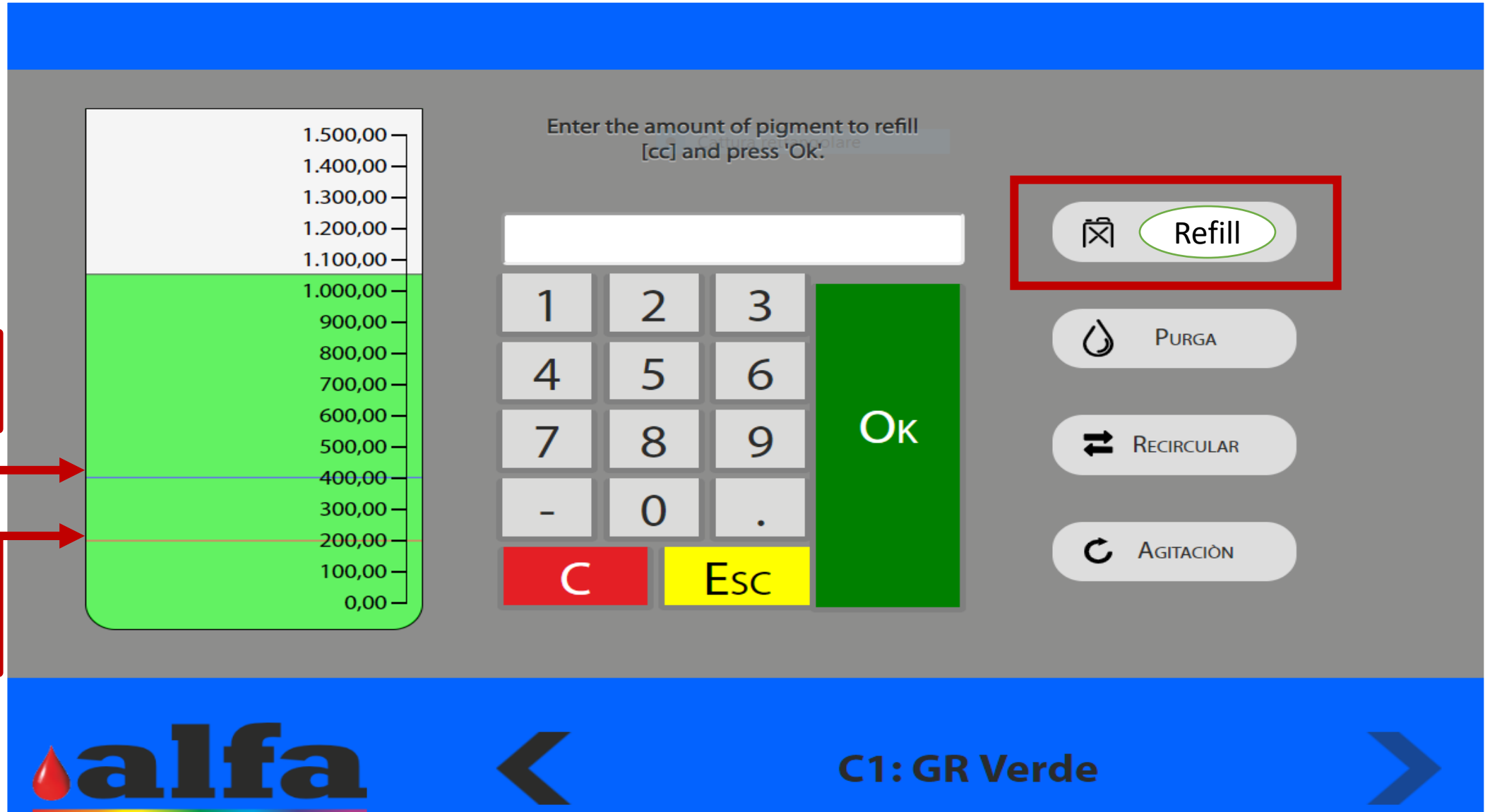


For each circuit you can check the warning level (8) and the minimum level (9).

To operate a purge it is necessary to open the autocap and place a can below the dispensing head.

alfa
COLORPAINT DISPENSER

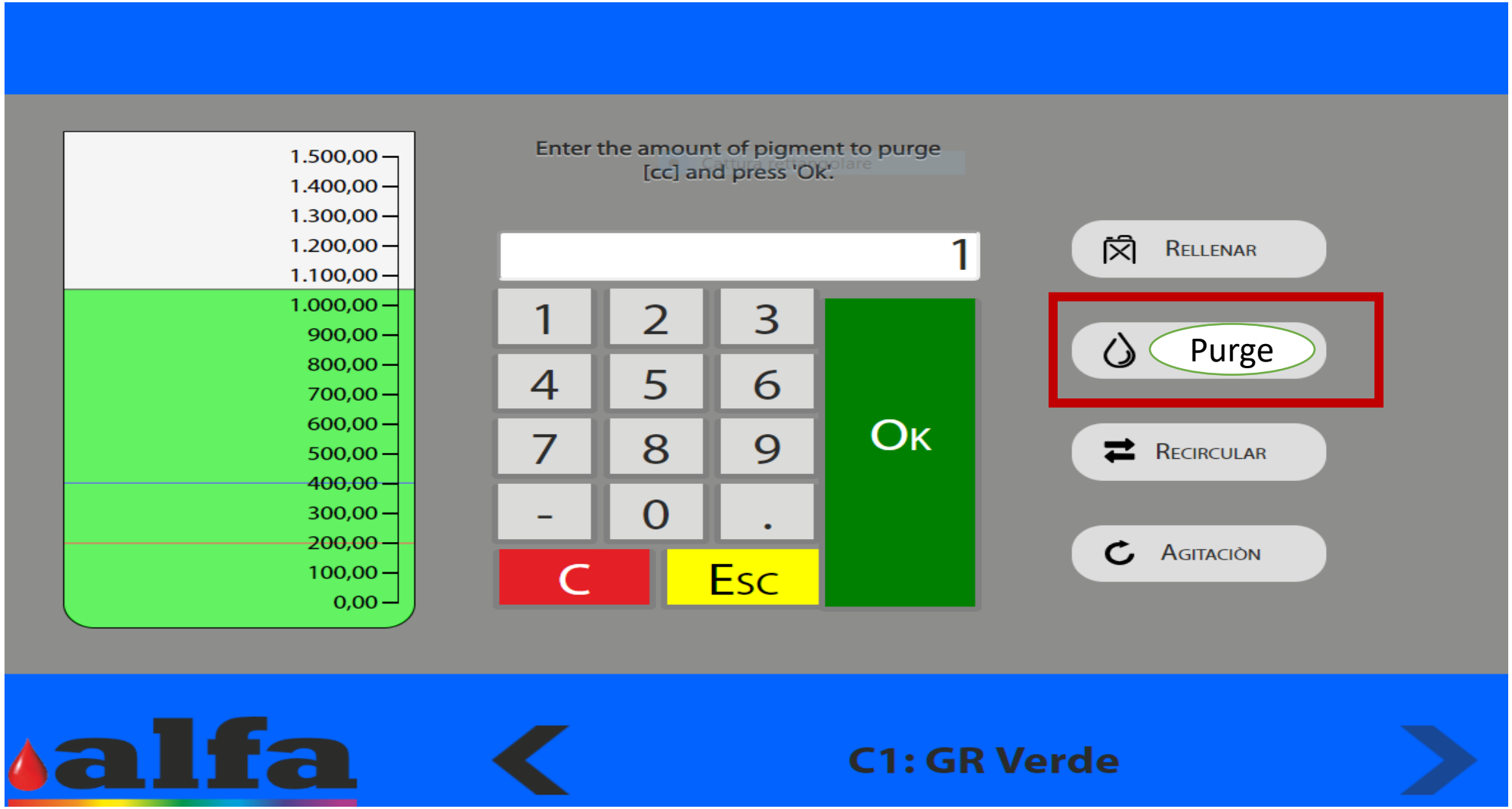
Alfa kiosk/ Diagnostics



Reserve level

Minimum level

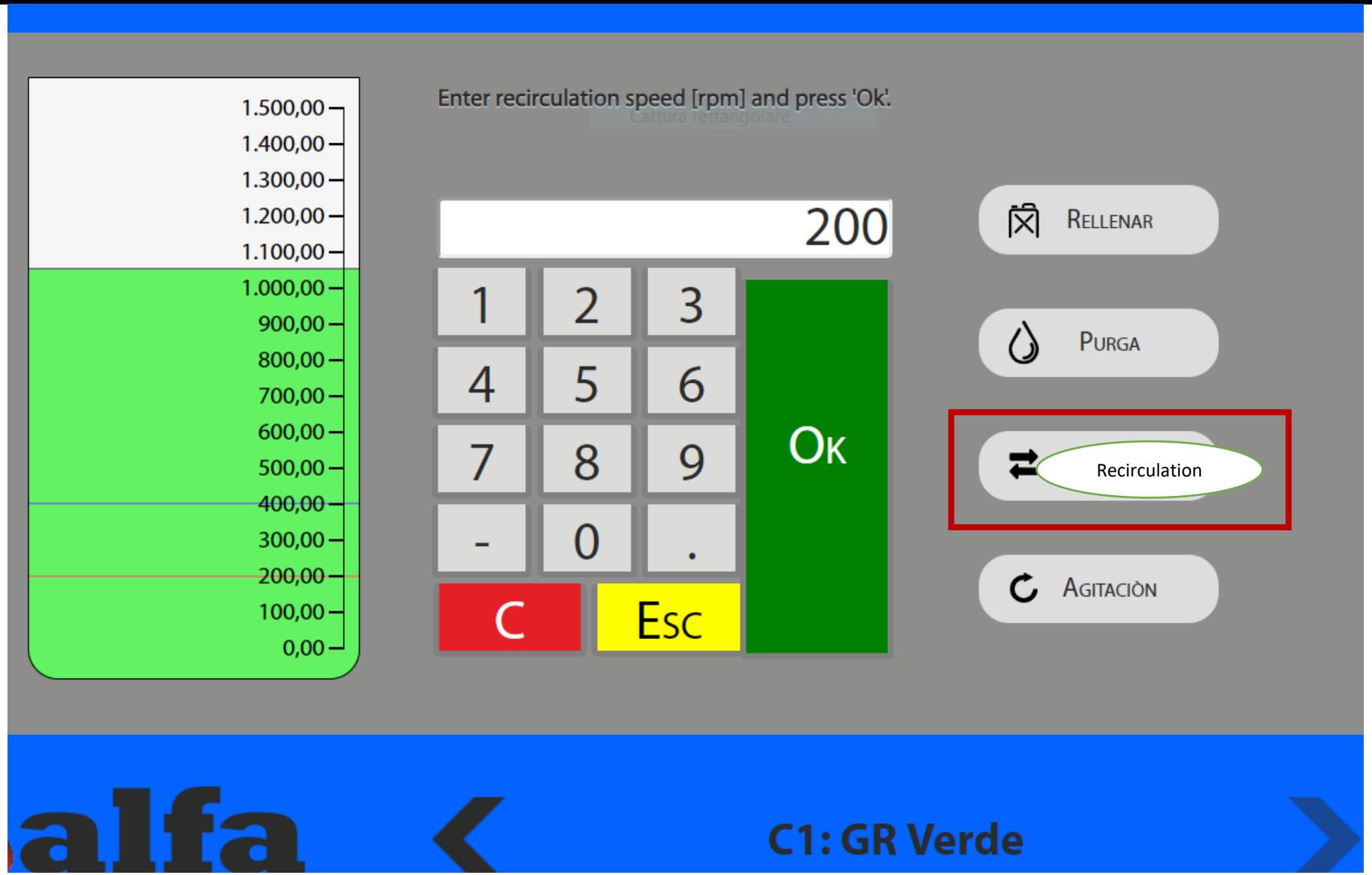
Alfa kiosk/ Diagnostics



Note:
Before performing a Purge it is necessary:
open the autocap;
position a container under the centre of the nozzle

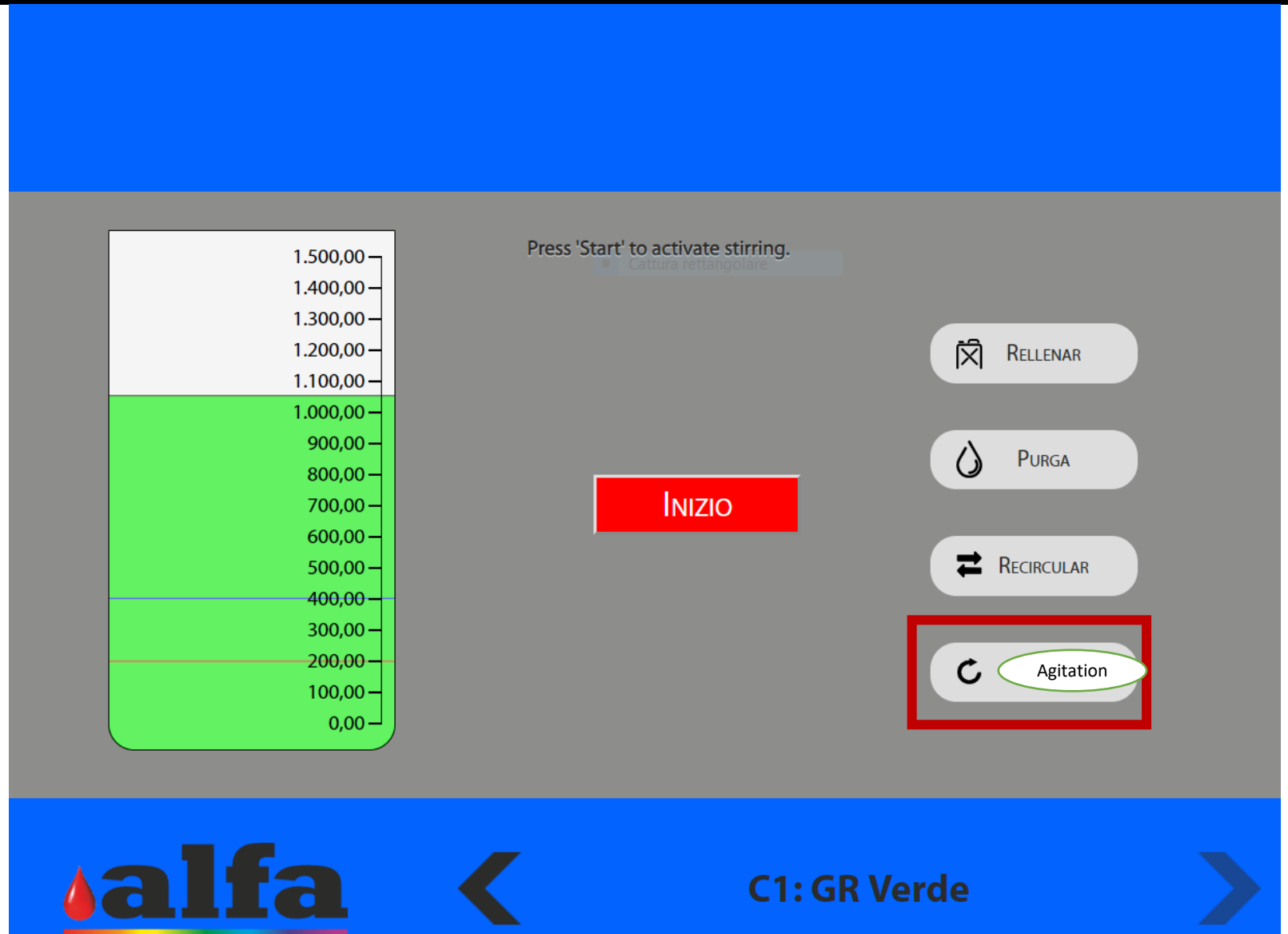
alfa
COLORPAINT DISPENSER

Alfa kiosk/ Diagnostics



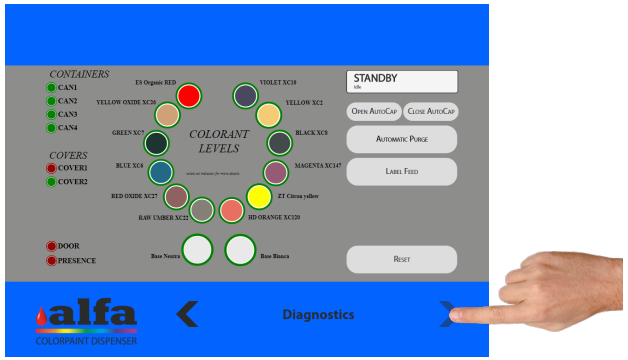
alfa
COLORPAINT DISPENSER

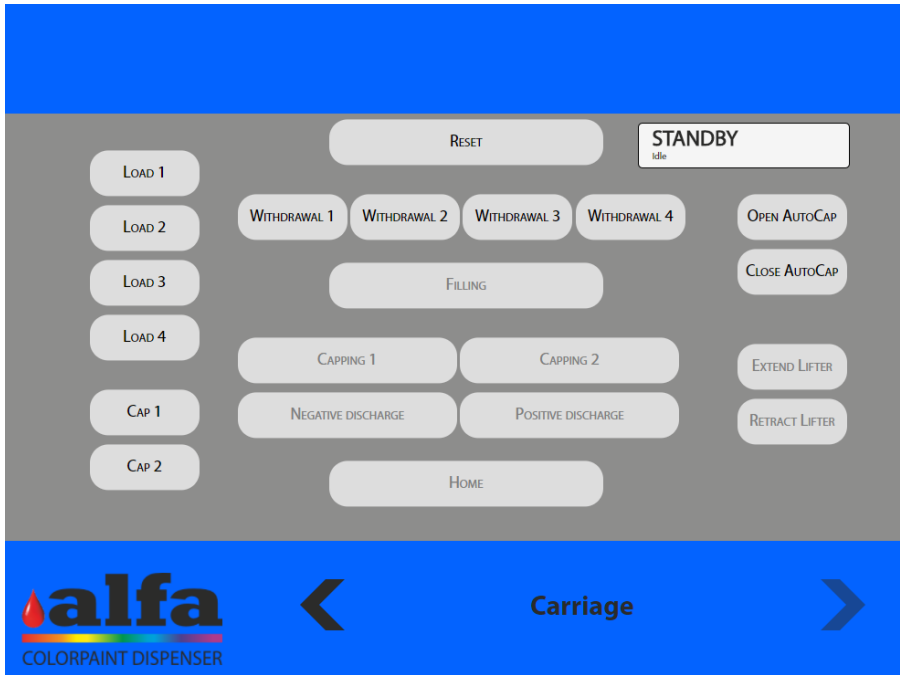
Alfa kiosk/diagnósticos



alfa COLORPAINT DISPENSER

Screenshot technical





Right from the first screenshot, you can access a set of advanced features by clicking on the forward arrow on the bottom right:

- Execute a machine reset;
- Open and Close autocap;
- Position the clamp below the cans loader;
- Activate the collection of a can;
- Position the clamp below the dispensing head;
- Activate and stop the lever to lift up cans;
- Operate the closing station;
- Operate a cycle of negative discharge;
- Operate a cycle of positive discharge;
- Place the clamp back to start position.

alfa
COLORPAINT DISPENSER

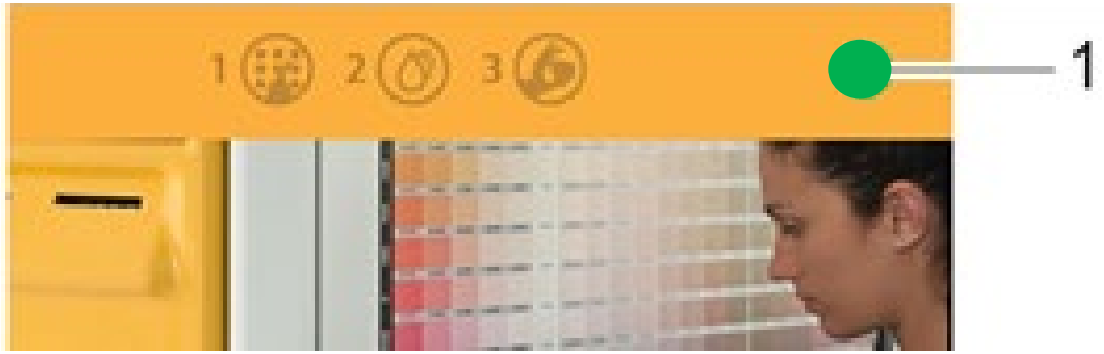
Access with protections inhibited

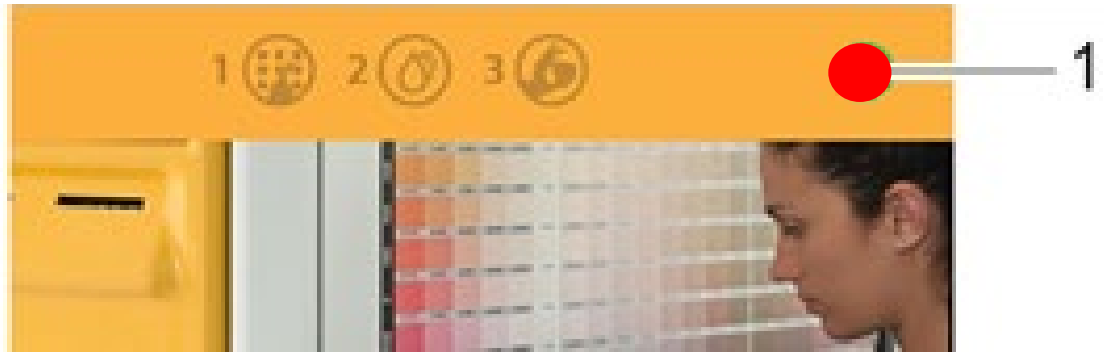
To habilitate operations with the doors opened, connect the button to the connector, than keep it pushed to allow the mechanical parts to move.

With this mechanism the machine end the reset but it does not switch to STANDBY mode, therefore, you cannot do samples or purges.

alfa
COLORPAINT DISPENSER

Alarms





The screen shows in real time the critical alarms that require the immediate intervention of an operator. These alarms inhibit the use of the machine.

Also the non critical alarms are shown; these are just reminders that a non urgent intervention is required.

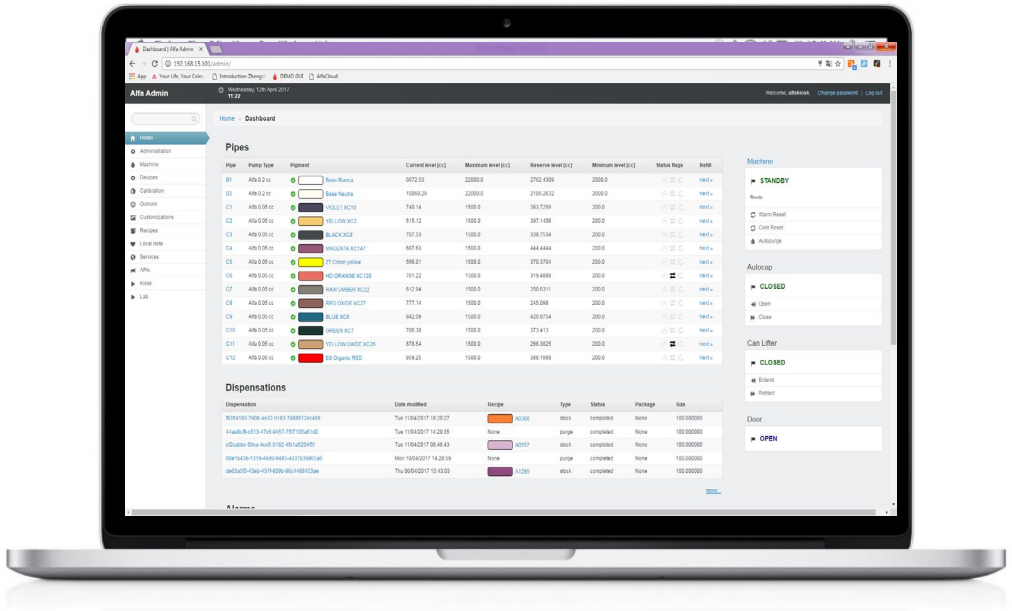
alfa
COLORPAINT DISPENSER

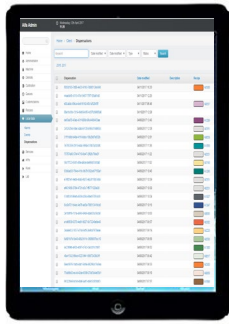
Software

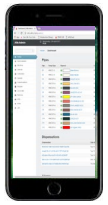
Alfa Admin and Alfa Cloud

alfa
COLORPAINT DISPENSER

Alfa Admin





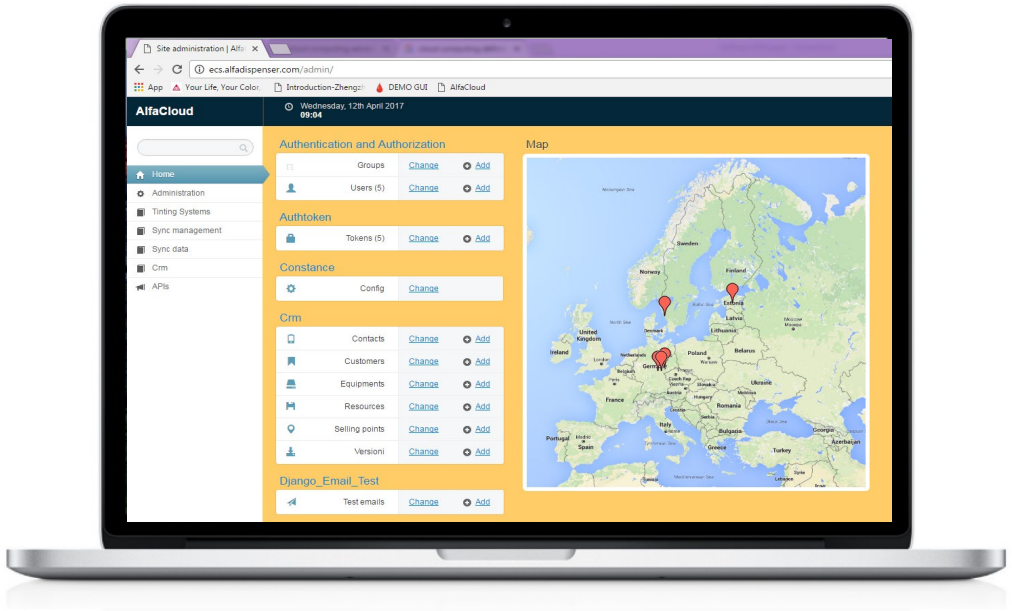


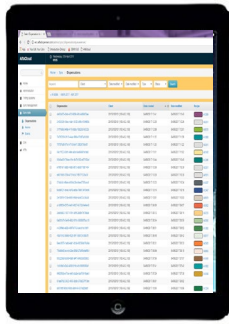
Configure and operate each dispenser from remote:

- Control the machine status;
- Verify the level of consumables;
- Configure the machine;
- Collect dispensation data;
- Diagnostics and problem solving.

alfa
COLORPAINT DISPENSER

Alfa Cloud





Manage simultaneously the global network of dispensers:

- Formulas update;
- Information upload/download;
- Geo-localization of all machines;
- Level of consumables to plan refilling;
- Set different user profiles.

alfa
COLORPAINT DISPENSER

Thank you!

alfa
COLORPAINT DISPENSER