3. ELECTRIC REPAIRING OPERATIONS

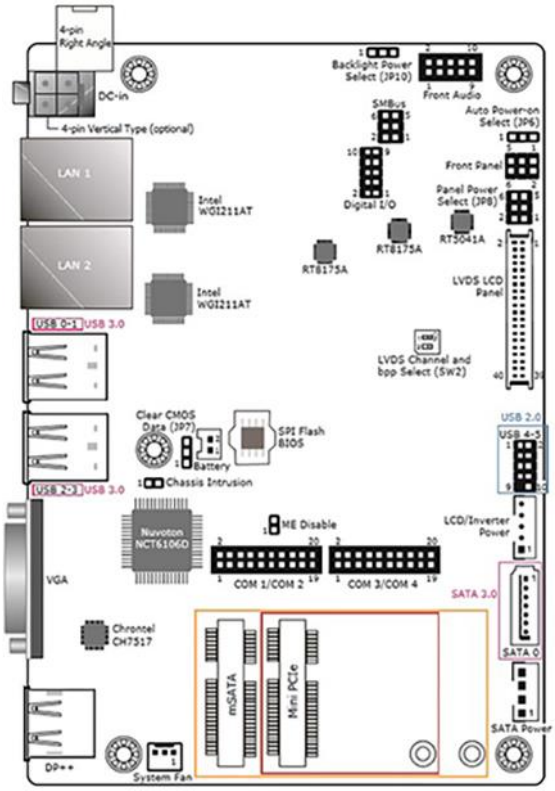
3.1. DIAGNOSIS AND ELECTRONIC PART DESCRIPTION

3.1.1. PC LINUX BOARD

The machine is provided with a Linux PC board on which the high-level machine software is memorised.

The Linux PC board receives the Ethernet connection from the LAN1 port and is internally connected to the MAB board via RS-232. The Linux board has RS-232 and USB ports necessary to connect some accessories like the scale.

The Linux PC board is powered with 12V.



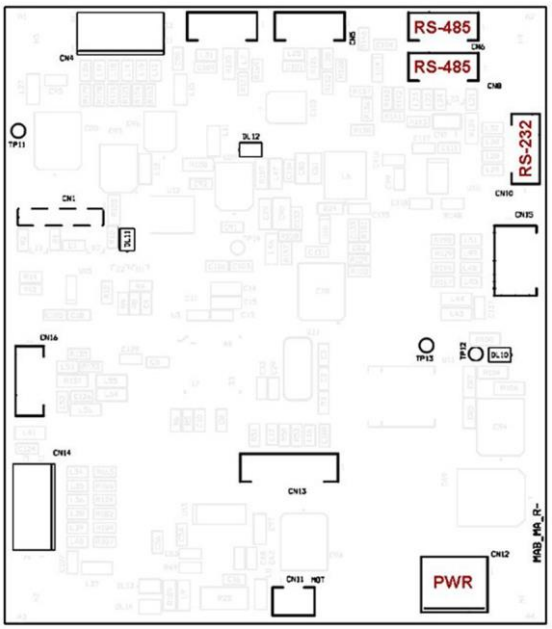
3.1.2. MAIN AUTOMATION BOARD (MAB)

The machine management firmware MAB board is saved on the MAB board. The orders sent by the high-level software are managed at MAB level. This board organises the machine cycle by interrogating and sending orders via RS-485 to the slave boards of the single circuits.

The MAB board is supplied with 24Vdc.

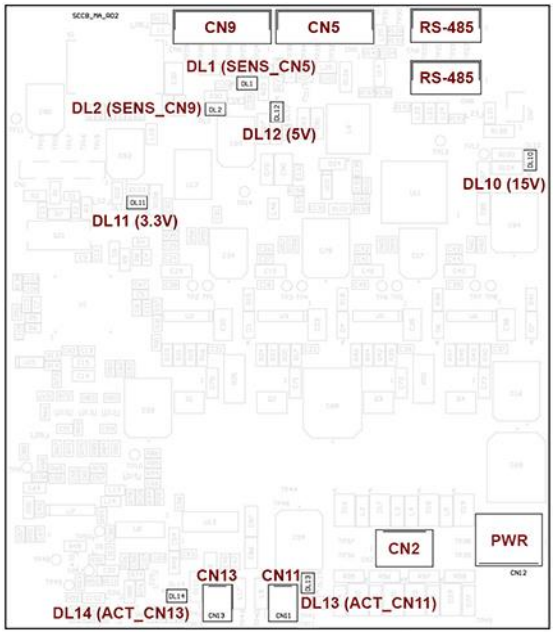
The MAB board controls directly:
- the status lamp and the stop button
- hole beam locator lasers
- the can presence photocell

CN13 is used for programming the firmware via bootloader (see chapter 4 – PROGRAMMING THE ELECTRONIC BOARDS).



3.1.3. SCCB BOARD

Each circuit (colorants, bases, storages, Cartesian axes and autocap) is managed by a dedicated SCCB board addressed according to the machine configuration set in the software.



Each board is powered with 24 V (two separate lines for logics and power) and 48V, controls the digital sensor inputs and integrates the control drivers of two DC 24V peripheral units (DC motor stirring and/or electrovalves) and of one stepper motor.

The board generates the necessary on-board service voltage. To facilitate the diagnosis, each power supply features a status LED (on = power connected):
DL11 = 3.3V
DL12 = 5V
DL10 = 15V

In case one or more power supply LEDs is OFF, check the fuse relevant status (see para. 3.2).
Likewise, the DC MOT (CN13) and EV (CN11) outputs have a status LED that indicates when they are powered.

Following is a list of the controls of each SCCB board:

CN1 connector is always used for programming and updating the firmware via PICkit (see chapter 4 – PROGRAMMING THE ELECTRONIC BOARDS).

CIRCUIT	CN2	CN5	CN6	CN8	CN9	CN11	CN12	CN13
MASTER 1…4	STEPPER	HOME PHOT.	RS485	RS485	RESERVE	ELECTROVALVE	PWR	STIR MOT
COL 1…16	STEPPER	HOME PHOT.	RS485	RS485		ELECTROVALVE	PWR	STIR MOT
AUTOCAP	STEPPER	HOME PHOT.	RS485	RS485	HUM.LEV.SENS.	ATOMIZER BOARD	PWR	VACUUM PUMP

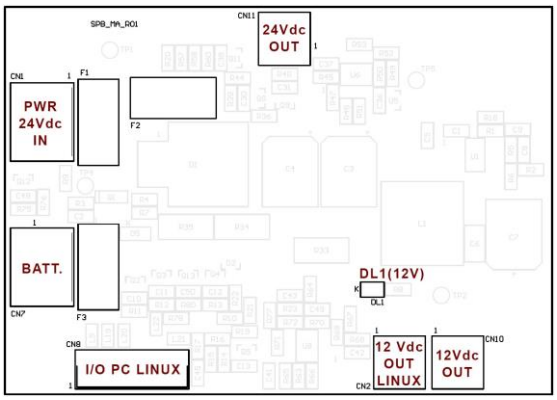
3.1.4. SPB BOARD

The SPB board is powered at 24Vdc and produces 12Vdc on board. These power supplies are also used to power the Linux board and any accessories.

In case of machine switch-off or mains problems (blackout or voltage drop), the SPB board keeps the Linux board powered at 12V for the time required for operating system controlled shutdown.

A 16.8V - 1800mAh NI-MH battery is used to store the 12V power: it features a safety PTC inside and is connected to the board at CN7.
The board features two inner fuses:
- F2=0.5A on recharge branch (protection against a charging current higher than the maximum allowed by the battery);
- F3=2.5A on the battery (protection in case of excess power absorption).

DL1 LED indicates 12V power on.

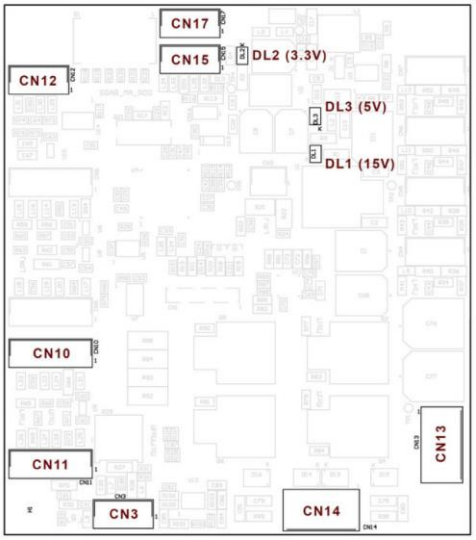


3.1.5. SGBRD BOARD

The SGB board is dedicated to the management of the automatic can lifter, actuators and relevant sensors.

LEDs DL1, DL2 and DL3 indicate the presence of 15V, 3.3V and 5V power supplies, respectively.

CN3 = Photocell CAN ON LIFTER
CN10 = Photocell LIFTER DOWN
CN11 = Photocell LIFTERUP
CN12 = Photocell ENCODER
CN13 = BOARD BOX
CN14 = CAN LIFTER MOTOR
CN15 = BOARD BOX (RS-485)
CN17 = BOARD BOX (RS-485)



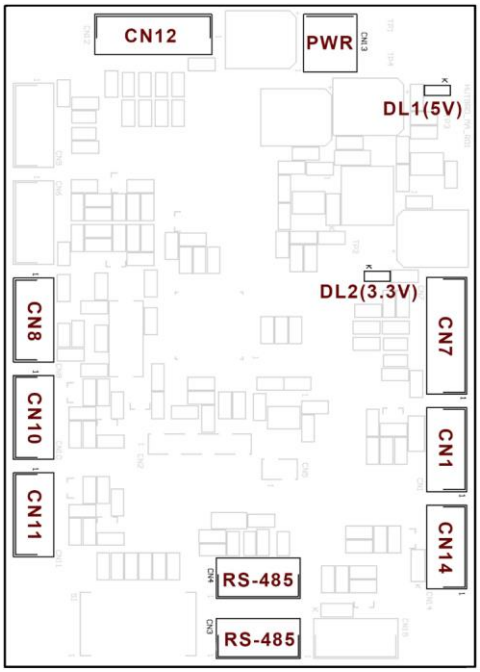
3.1.6. HUTBRD BOARD

HUT board (HUmidity & Temperature) functions include:
- acquisition of ambient humidity and temperature (through external sensors);
- enable a heater (option) to set the temperature inside the machine;
- control the air pump and atomizer in order to optimise humidifier effectiveness.

The purpose of this control system is:
1) avoiding that the products inside the canisters and tanks can be used at unsuitable temperatures (below 10°C);
2) the humidifier maintains a suitable degree of humidity at the nozzles, avoiding any condensate.

LEDs DL1 and DL2 indicate the presence of 5V and 3.3V power supplies, respectively.

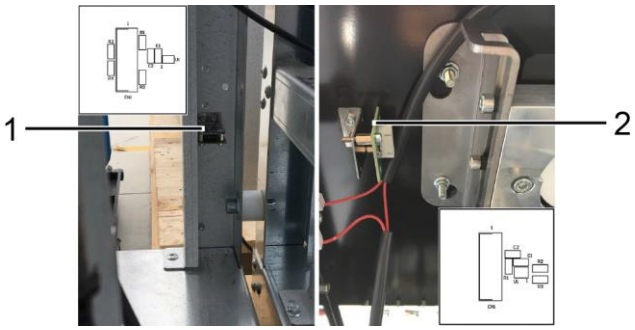
CN1 = Humidifier tank level sensor
CN3-CN4 = RS485
CN7 = Autocap temperature and humidity sensor
CN8 = LED (humidifier tank lighting)
CN12 = Mobile internal temperature sensor
CN10 = Atomizer
CN11 = Air pump
CN13 = PWR
CN14 = Heater Relay 1



3.1.7. HUTTS and HUTSN BOARDS

The HUT_TS board (1) is the board supporting the temperature sensor TC72 used to monitor the temperature of the products (colorants and bases).
The board is located inside the cabinet, fastened to one of the rear uprights of machine frame and is connected to connector CN12 of HUTBRD board.

The HUT_SN board (2) is the board supporting the temperature and humidity sensor SHT30 used to monitor the temperature and humidity in the autocap area.
It is housed inside the head, next to the autocap and is connected to HUTBRD board on connector CN7.



3.2. CHECKING AND REPLACING THE NETWORK FUSES

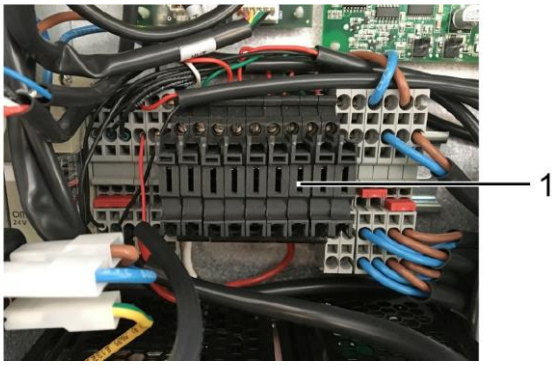
In case of mains malfunction or problems, the safety fuses could blow and cut power.
Fuses are located in the fuse holder built in the plug with switch on the back panel.
To replace the interrupted fuse open fuse holder using a flat screwdriver to prise it open.
Remove the fuse and its holder and install a new fuse.

⚠	**USE ONLY FUSES OF THE SAME TYPE AND THE NOMINAL RATING SHOWN IN THE PRODUCT LABEL.** **Fuse requirements:** **EU - IEC 60127 Approval** **US - UL248-1 and UL248-14 Approval**

3.3. REPLACING THE SECONDARY CIRCUIT FUSES (INTERNAL TERMINAL BOARDS)

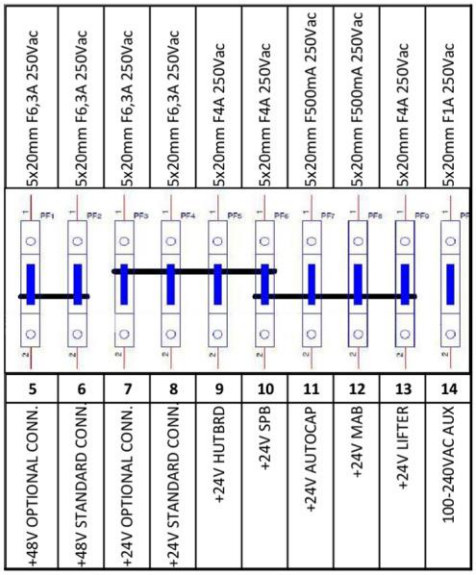
In case of malfunction or faults, the safety fuses could interrupt the output power supply of the terminal boards.
The fuses are located on the terminal boards located inside the rear electric compartment (see chapter 2 - ACCESS TO THE ELECTRIC PARTS).

- In order to replace the fuses, proceed as follows:
- Remove the rear panel as described in chapter 2 - EXTERNAL COVER REMOVAL to reach the fuse carrier terminal boards (1).



- Find the circuit of the interrupted power supply line and take a fuse with a correct rating according to the diagram to the side.
- Lift the fuse holder until it is possible to manually remove the damaged fuse.
- Insert the new fuse in the fuse holder.
- Close the fuse holder by slightly pressing on it.
- Reposition and fix the machine rear panel using the previously removed screws.

WARNING: use only fuse of the same type and with the same nominal rating specified by the manufacturer.



3.4. REPLACING THE POWER SUPPLY UNITS

In case of an electric fault in one or more power supply units of the machine, proceed as follows to replace them:

- To reach the power supply unit compartment, remove the rear panel as described in chapter 2 - EXTERNAL COVER REMOVAL.
- Disconnect the wiring between the power supply unit to be replaced and the rest of the machine.
- Remove the power supply unit by fitting a small flat screwdriver in the suitable retaining tab and remove the unit from the DIN bar.

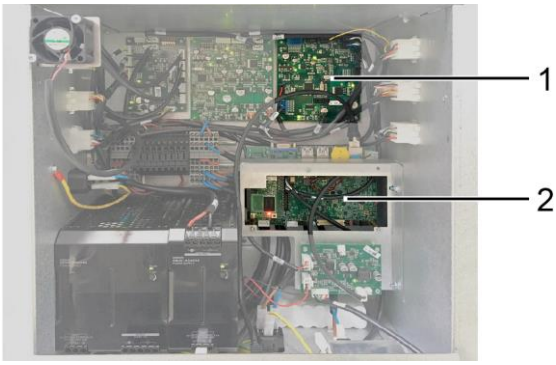
- Fit the new power supply unit manually on the DIN bar.
- Reconnect the power supply unit to the wiring according to the attached wiring diagram.
- Reposition the previously removed protection panel.

WARNING: use only genuine spare parts supplied by the manufacturer.

3.5. REPLACING THE LINUX/MAB BOARD

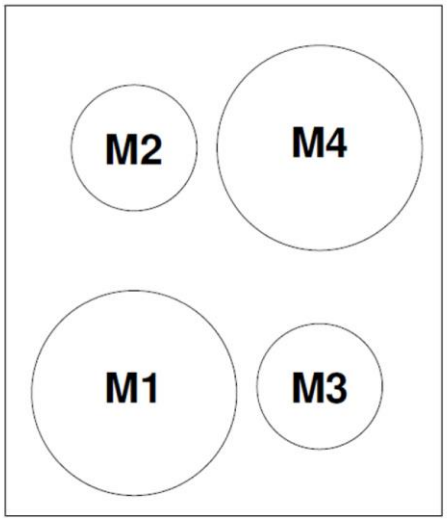
To replace the Linux PC or MAB boards, proceed as follows:

- Remove the rear power supply panel as described in chapter 2 - EXTERNAL COVER REMOVAL.
- Disconnect the power supply and signal cables from the board to be replaced.
- Removed the MAB (1) or Linux PC (2) board to be replaced from the supports on its corners (pressure-fit plastic supports for the MAB board and M3 retaining screws to the Linux board).
- 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 software/firmware. To reprogramme the boards refer to chapter 4.
- Restore the electric connections.

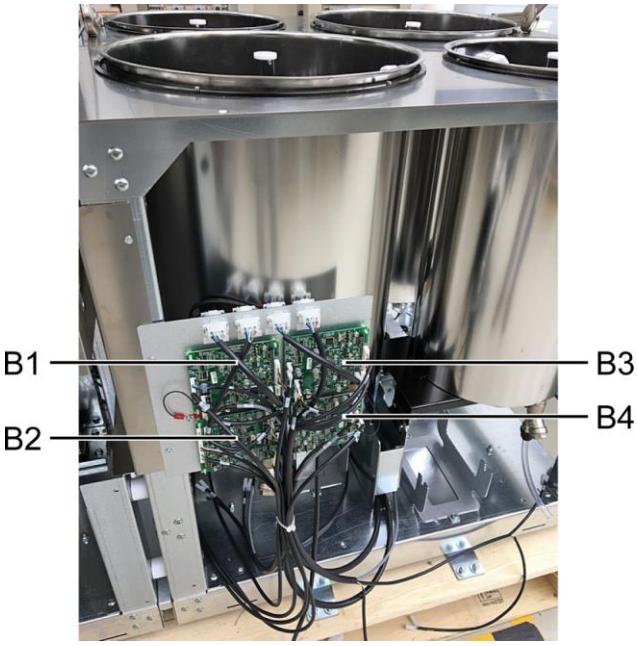


3.6. REPLACING THE SCCB BOARD BASE CIRCUIT

- To reach the SCCB boards of the master circuits (if any), remove the front panels as described in chapter 2 - EXTERNAL COVER REMOVAL, then proceed as described below.



- Identify the location of the board controlling the affected group (labels B1..B4 are placed next to every connector).
- Disconnect the power supply and signal cables from the board.
- Remove the board by releasing it from the supports on its corners.
- Insert a new board on the supports having care not to damage its components.
- **WARNING**: Use a board already programmed with the function of the replaced board. To reprogramme the boards refer to chapter 4.
- Restore the previously disconnected connections according to the wiring diagram.



3.7. CAN LIFTER BOARD REPLACEMENT

Automatic can lifter group control board (SGBRD) is fastened to the rear side of the lifting column, at the bottom.

To change the board, remove the rear panel as described in chapter 2 - ACCESS TO THE ELECTRIC PARTS, then:

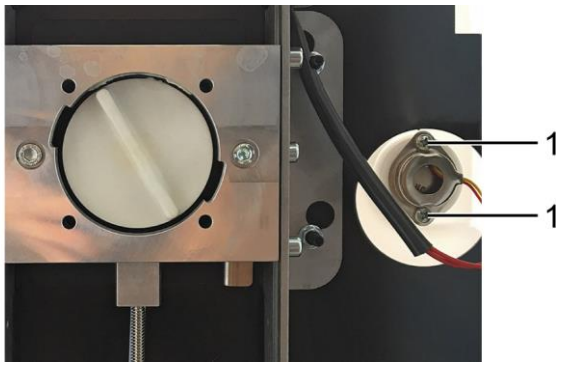
- Disconnect the power supply and signal cables from the board.
- Remove the board by releasing it from the supports on its corners.

3.8. REPLACEMENT OF HUMIDIFIER PARTS (ULTRASONIC ATOMIZER KIT)

3.8.1. ATOMIZER

The humidifier uses an ultrasonic atomizer to spray the water from the tank. To change the transducer:

- Remove the mobile anti-crushing safety protection located under the dispensing head by loosening the 4 M4x10 retaining countersunk head screws, as described in para. 2.7;
- Disconnect the wiring connector;
- Loosen the two cross-slotted screws (1) and remove the transducer.

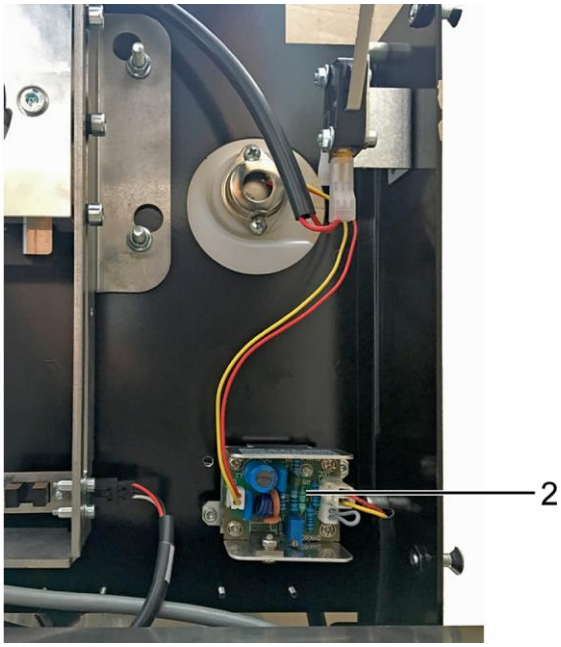


WARNING: THERE MUST BE WATER IN THE TANK WHEN YOU TURN THE ATOMIZER ON.

3.8.2. ATOMIZER CONTROL BOARD

The atomizer is controlled by a board located inside the electric box.
To change the board, remove the rear panel to reach the switchboard, as described in chapter 2 - ACCESS TO THE ELECTRIC PARTS, then:

- Disconnect the connectors from the board;
- Loosen the two M3x10 retaining screws with an Allen wrench of 2.5 mm to remove the board (2).



3.8.3. AIR PUMP

The air pump (3) is located near the humidifier tank. The pipes are interference-fit.

Disconnect the pipes and the electrical connector to disconnect the pump.

3.9. LTE ROUTER SETTINGS

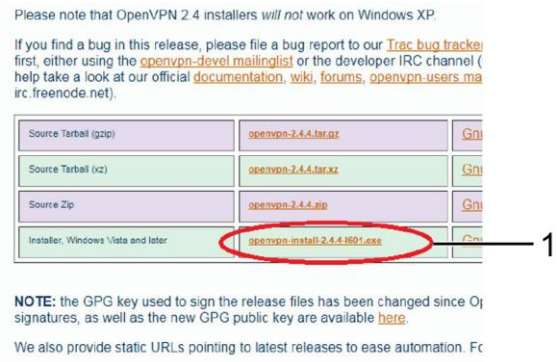
When a hard-wired ethernet network is not available, it is still possible to obtain a remote connection to the machine via an LTE Router.

A VPN client - duly installed and set up - is necessary to connect to the machine.

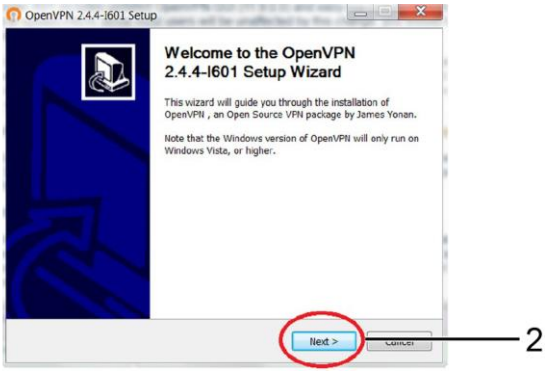
3.9.1. CONNECTION VIA VPN CLIENT ON WINDOWS 7 AND 10

To install the VPN Client, proceed as described below:

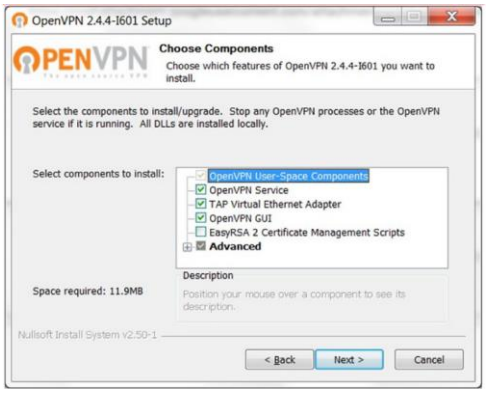
- Open an internet browser at https://openvpn.net/index.php/open-source/downloads.html
- Click “openvpn-install-2.4.4-I601.exe” (1) and download the file.



- Open the downloaded file, then press “Next” (2) on the following screen page.

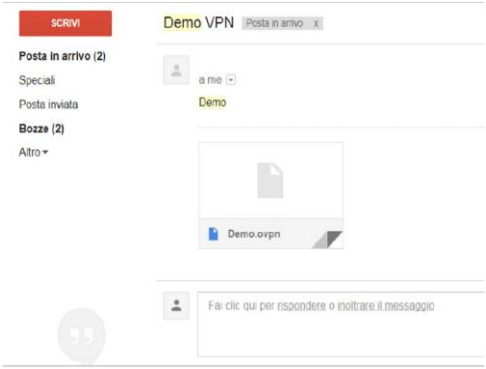


- Check the boxes indicated in the figure on the side, then press “Next”.

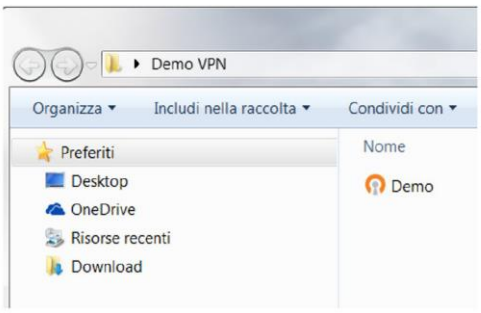


To connect to the machine via the VPN Client, proceed as described below:

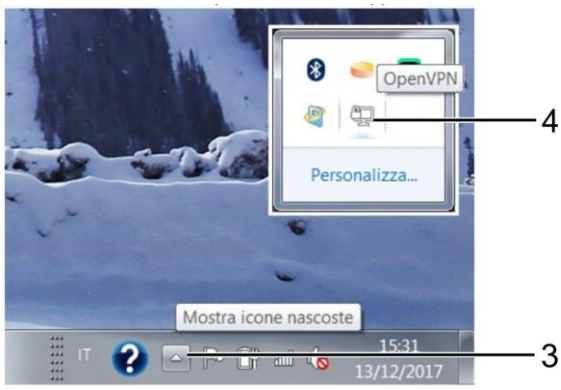
- Download the file containing the login credentials sent by Alfa via email.



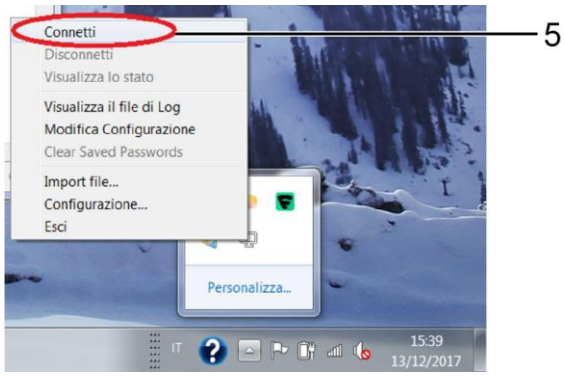
- Save the file containing the credentials in C:/programs/OpenVPN/Config
- Make sure you save it as an ".opvn" file.



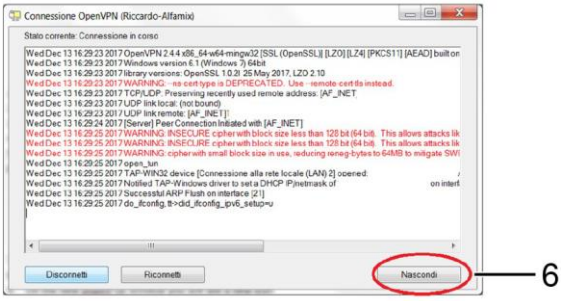
- On Windows Toolbar, click the arrow icon "show hidden icons" (3) then find the icon "OpenVPN" (4) in the pop-up.



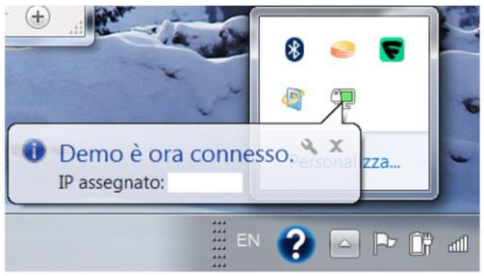
- Right click on the icon and select "Connect" (5);



- Press "Hide" (6) to close the following page;

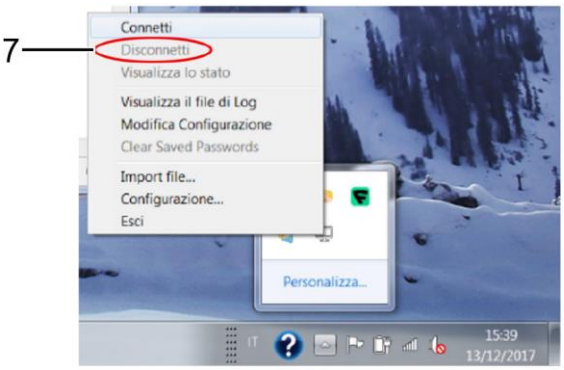


- After a few seconds a new pop-up will open on the toolbar, near the clock indicating that the PC is connected. This window could close automatically, while the OpenVPN icon will become green.



- To connect to the machine, open your internet browser.
- In the address bar, enter the IP address of the machine you wish to establish connection with, usually indicated on the LTE router.
- Enter the login credentials given by Alfa.

To disconnect from the machine, right click on OpenVPN icon and select “Disconnect” (7).



3.9.2. CONNECTION VIA VPN CLIENT FROM ANDROID DEVICES

To install the VPN Client, proceed as described below:

- From the Home screen of your device, open Play Store.
- In the search bar, type “openvpn for android”.

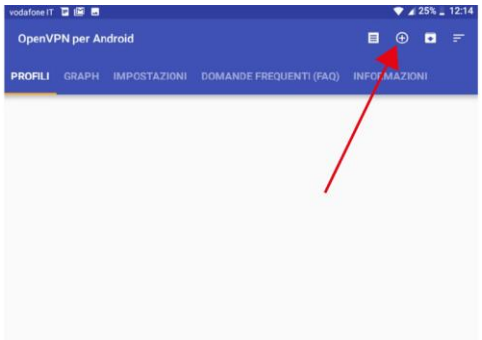
- Click the green button (1) to install the application.

To connect to the machine via the VPN Client, proceed as described below:

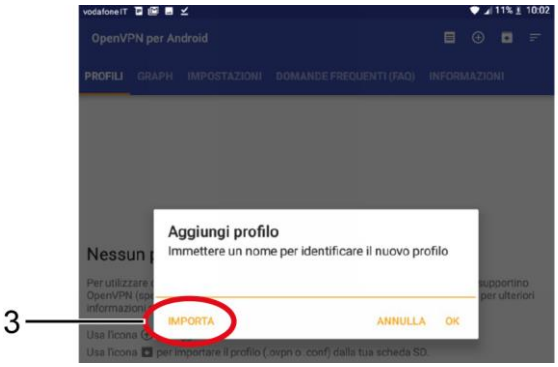
- Download the file containing the login credentials sent by Alfa via email.

- Run the app OpenVPN (2) previously installed.

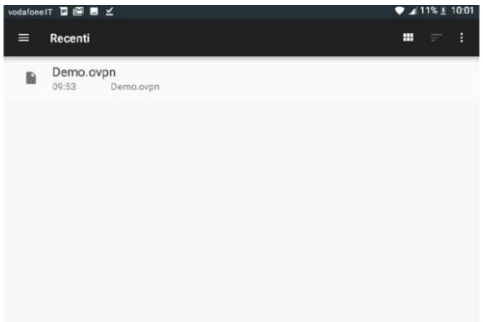
- Press symbol “+” present on the bar at top right of the app screen.



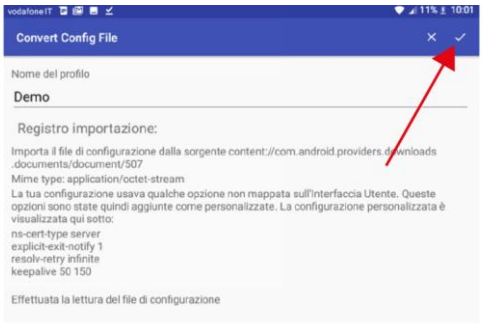
- Press “Import” (3).



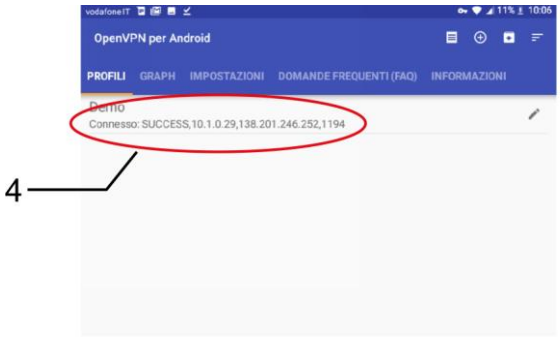
- Select the “.ovpn” file previously downloaded;



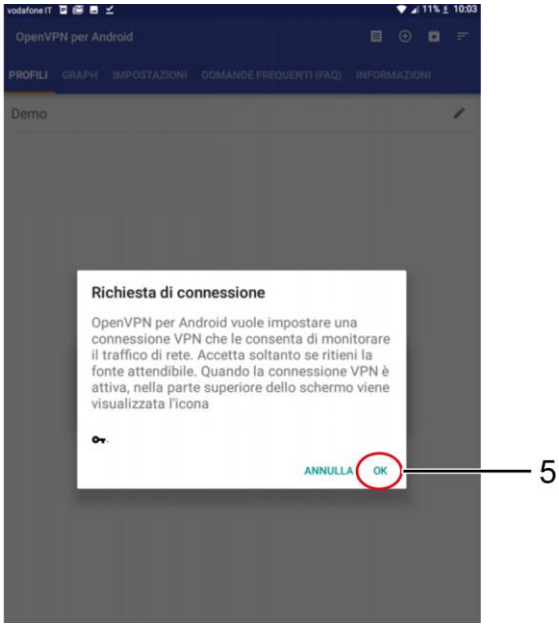
- Press on the check mark in the top right corner;



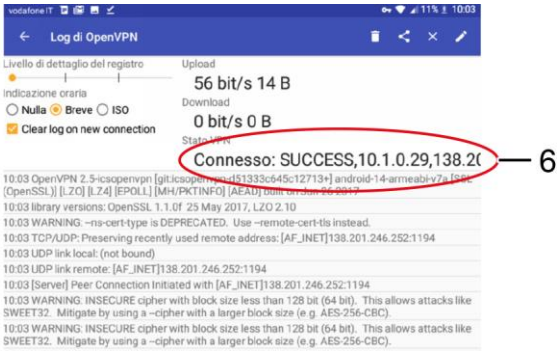
- Press on the just-added file (4).



- Press OK (5) on the next window.



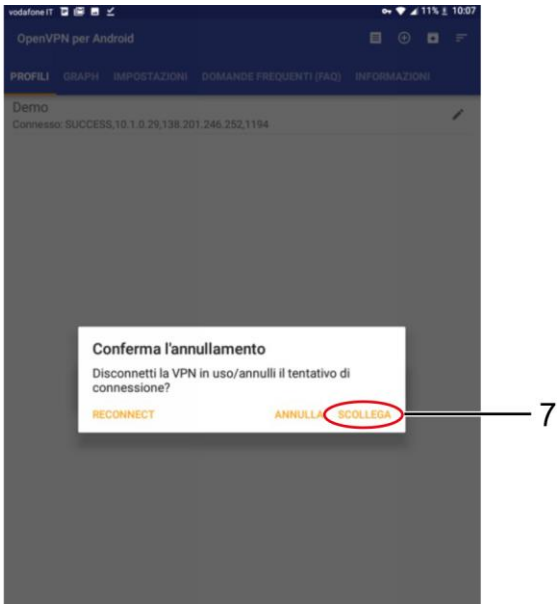
- Now the VPN status must be “Connected” (6).



- To connect to the machine, open your internet browser.
- In the address bar, enter the IP address of the machine you wish to establish connection with, usually indicated on the LTE router.

Enter the login credentials given by Alfa.

- To disconnect from the machine, open the app OpenVPN, then select the “Profiles” menu and press “Disconnect” (7).



4. PROGRAMMING THE ELECTRONIC BOARDS

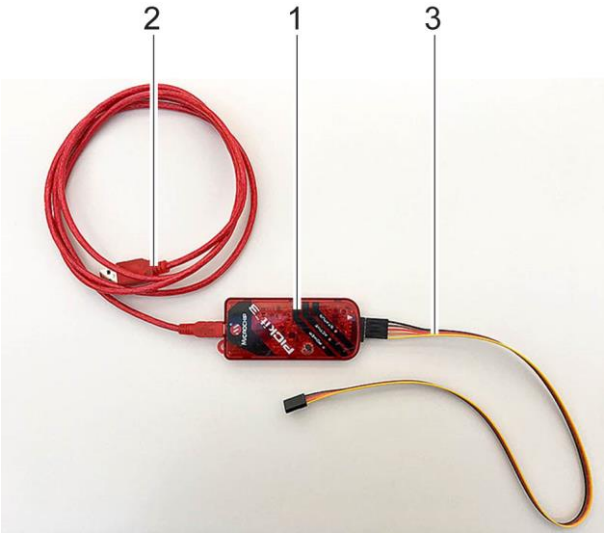
Depending on board version, programming can be carried out in either of two different methods:
- Boards with no bootloader (programming via PICkit): see paragraph 4.1
- Board with bootloader: see paragraph 4.2.

4.1. PROGRAMMING OF BOARDS WITH NO BOOTLOADER

4.1.1. PROGRAMMING DEVICES

Each SCCB board must have the dedicated firmware. For the SCCB boards, the firmware depends on the group to control.

To programme the boards, use a suitable USB programmer (1) and the MPLAB IDE programming software.
If you do not have the suitable programmer, contact the Alfa technical service.
The programmer uses a USB cable (2) for the connection to the PC.
It could be useful to use an extension (3) to connect the programmer to the boards positioned in points that are hard to reach.
NOTE: The boards can be programmed both on the machine and on the bench. To programme the boards they must be powered by means of CN12 connector. If you use the previously programmed boards for other functions it is recommendable to disconnect the RS-485 serial connectors before powering the machine.



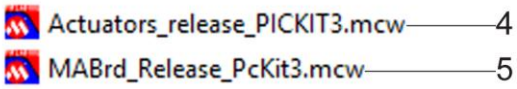
4.1.2. INSTALLING THE MPLAB IDE SOFTWARE

The MPLAB IDE programming software can be downloaded from the reserved area of the website www.alfadispenser.com or from the download area of the website http://www.microchip.com. The software can be installed on a Windows, Linux or Mac PC.

4.1.3. PROGRAMMING WORKSPACE

To write the firmware it is necessary have a programming workspace to upload in the MPLAB IDE software as better described below.

The programming workspaces are different for the SCCB (4) boards and the MAB (5) board.



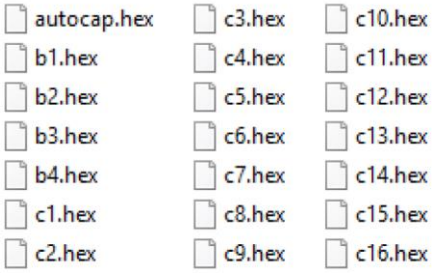
4.1.4. PROGRAMMING THE SCCBB, SGBRD AND MAB BOARDS

Download the workspace and the last available firmware version from the Alfa website reserved area, or contact the Alfa technical service to receive the firmware. If you do not have the credentials to access the reserved area, contact the Alfa technical service.

SCCB: according to the group to which the board must be connected, the following firmware is available:

- 24 firmware versions (from c1 to c24) that can be used on the colorant groups of the machine*;
- 8 firmware versions (from b1 to b8) that can be used on base groups or semi-finished products of the machine*;
- Autocap group firmware;

*: see the circuits enabled in the “Slave configuration” of the “Device-Machine” menu of the Admin interface. For further information consult the Software manual



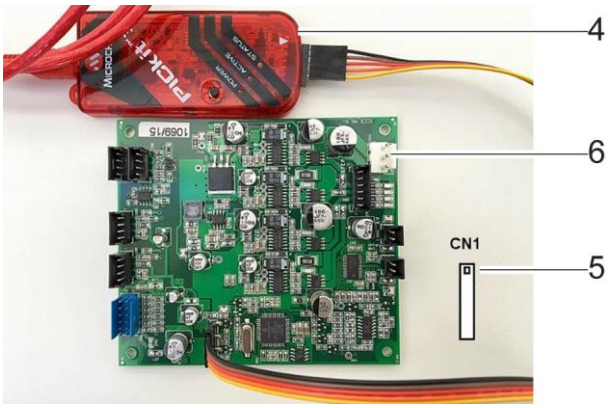
MAB and SGBRD:
- MAB Desk board firmware
- SGBRD board firmware

WARNING: CAREFULLY READ THE RELEASE NOTE TO CHECK THE FIRMWARE VERSION COMPATIBILITY

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.

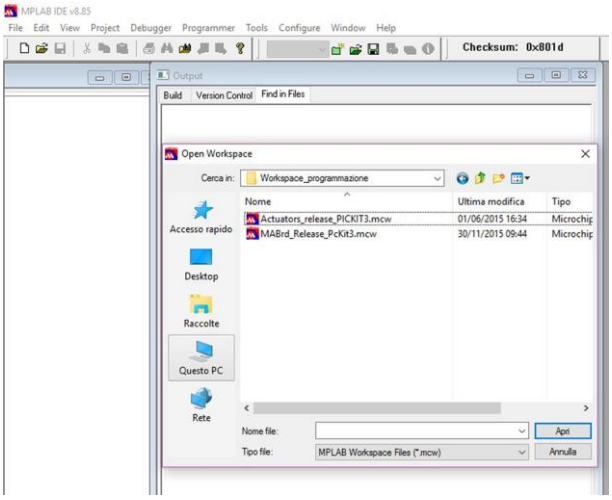


Launch the MPLAB IDE software

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.

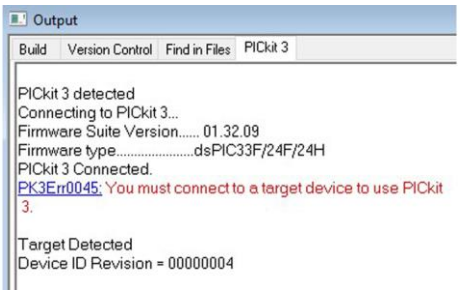
WARNING: if you have connected a MAB board, upload the “MABrd” workspace, whereas if you have connected an SCCB board, upload the “Actuators” workspace (see para. 4.3).

If message “No PICkit 3 Connected” is displayed, it means that the programmer is not connected correctly.



When the programmer is correctly connected and detected, the software will show the message “PICkit 3 detected”.

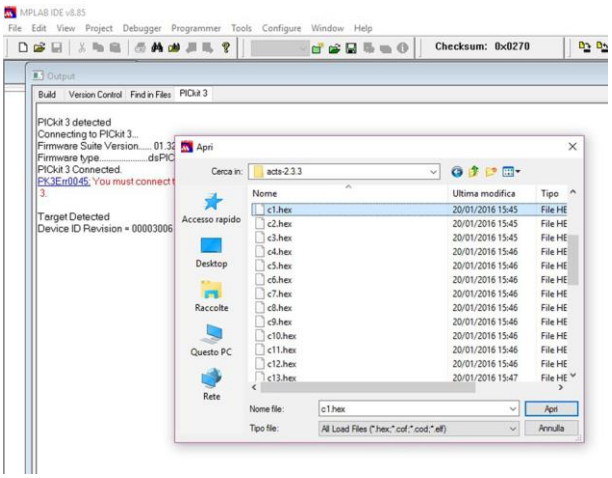
When connecting the board to the programmer and powering it, the software shows the message “Target Detected”.
besides the DEVICE ID of the connected board.



WARNING: If you upload a MAB Workspace and connect an SCCB board (or vice versa), the software will show the error “Target device ID does not match expected Device ID”.

When everything is ready, programme the board in “File – Import…” and select the suitable firmware version.

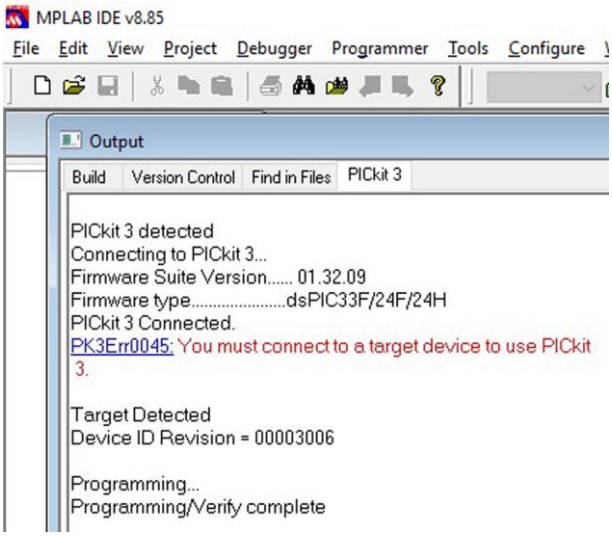
Select the suitable firmware version and select “Open”.



If the operation is completed successfully, the display will show the message “Loaded….”

Select “Program” in the “Programmer” menu to start the board programming.

At the end of the operation, the display will show the message “Programming/Verify complete”.



Now it is possible to disconnect the power supply and the programmer.

The board is ready to be used on the machine.

WARNING: Before programming a new board, make sure the loaded Workspace is the correct one. If this is not the case, go back to the “File – Open workspace…” menu and upload the new workspace.

4.2. PROGRAMMING OF BOARDS WITH BOOTLOADER

4.2.1. SOFTWARE “BOOTLOADERAPP”

The most recent boards are preloaded with BOOT firmware for the management of the BootLoader, i.e. the application that allows the updating of the machine control firmware.
NOTE: To program a board that does not feature preloaded BOOT, please contact Alfa technical service.

To program a hard-wired board via BootLoaderAPP, it is necessary to follow this procedure:
1. Shut off the machine;
2. connect the special cable Alfa USB BOOT LOADER (code 305001893) across CN13 connector of the MAB board and a USB port of the PC/LAPTOP on which the application BootloaderAPP.exe is installed;
3. run BootloaderAPP;
4. switch the machine on.

TO USE A MACHINE IN BOOT MODE, YOU MUST FIRST CONNECT THE USB CABLE FROM MAB TO PC / LAPTOP AND THEN SWITCH MACHINE ON.

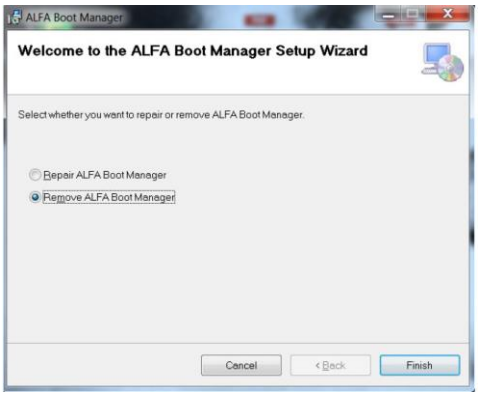
BootLoaderAPP installation procedure is described in the following paragraph. If the software is already installed on the PC, go directly to the following paragraph explaining software use for programming boards.

4.2.2. INSTALLATION OF “BOOTLOADERAPP”

If a version of the application is already present on the PC, you must first remove it before installing a new version.

In this case, run the installation software ALFA Boot Manager and select option “Remove ALFA Boot Manager”, then press “Finish”.

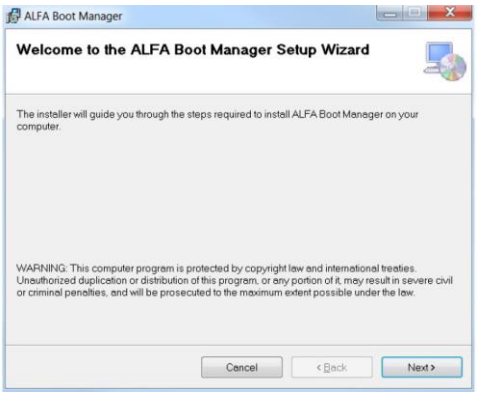
Wait until uninstall is completed and press “Close”.



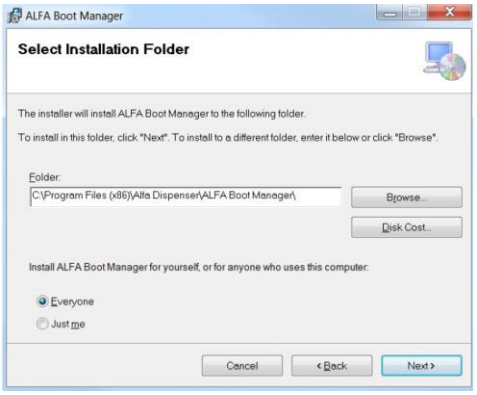
To install the application:

1. Run the installation file ALFA Boot Manager .

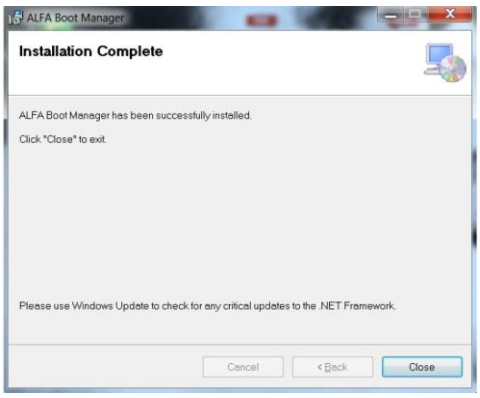
The page on the side will open.



2. In the following window, select the software installation path and select option “Everyone”, then press “Next >”.

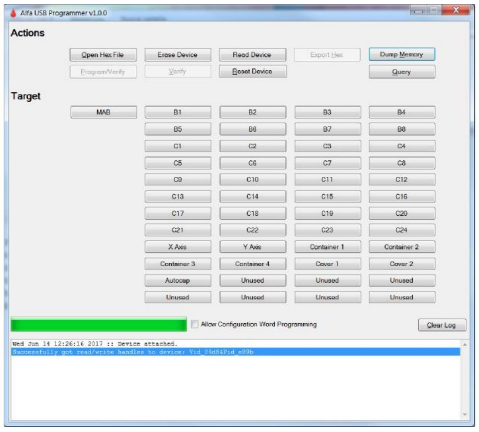


3. When prompted, press “Next >” until completing the installation procedure, then press “Close” to end the installation procedure.



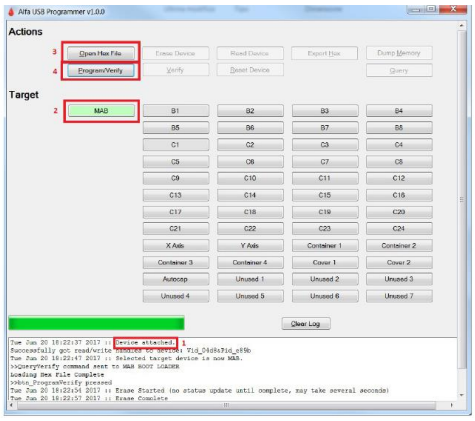
4.2.3. STARTING THE BOOTLOADER

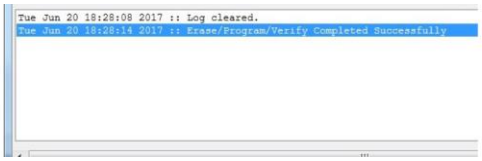
Run BootloaderApp on the PC (the application is in the folder selected in step 2 of the installation procedure).
The following window will open.



4.2.4. MAB FIRMWARE UPDATE

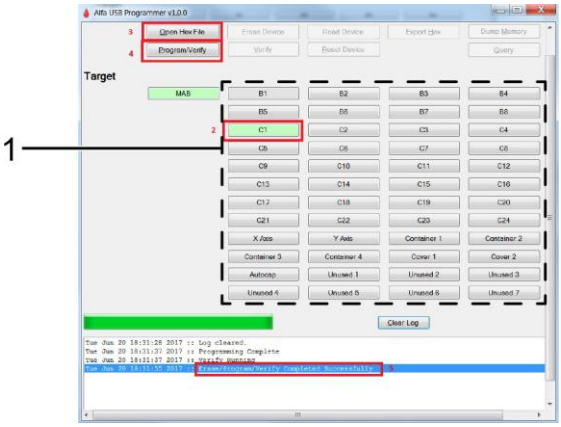
- Check that the software detected the presence of a MAB ‘Device attached’ (1)
- Select the MAB board to be used by pressing the MAB button (2) ‘Selected target device is now MAB’ + ‘QueryVerify command sent to MAB BOOT LOADER’
- Select the Intel HEX file to be programmed, and press ‘Open Hex File’ (3) ‘HEX File Complete’
- Proceed with Programming and Verification, by pressing ‘Program/Verify’ (4) ‘’: wait for the final message ‘Erase/Program/Verify Completed Successfully’
- If programming is successful, the ‘MAB’ button becomes GREEN.





4.2.5. ACTUATOR FIRMWARE UPDATE (SCCB BOARDS)

- Connect the special cable Alfa USB BOOT LOADER (code 305001893) across CN13 connector of the MAB board and a USB port of the PC for programming;
- Switch the machine on (or the board when programming it on a bench);
- Check that the software detected the presence of a MAB ‘Device attached’;
- Select actuator board (1) to be programmed by pressing the corresponding button (Fig. C1) (2) ‘Selected target device is now C1’ + ‘QueryVerify command sent to MAB BOOT LOADER’;
- Check that the address set in the actuator board to be programmed is consistent with the selected device (please refer to the following paragraph “SETTING ADDRESSES”);
- Select the Intel HEX file to be programmed, and press ‘Open Hex File’ (3) ‘HEX File Complete’;
- Proceed with Programming and Verification, by pressing ‘Program/Verify’ (4), then wait for the final message ‘Erase/Program/Verify Completed Successfully’ (5);
- If programming is successful, the ‘C1’ button becomes GREEN.

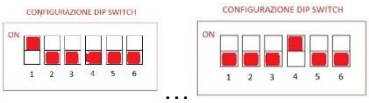
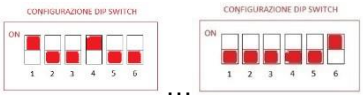
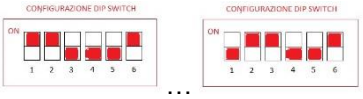
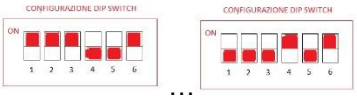
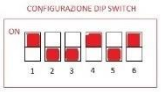


4.2.6. SETTING ADDRESSES

For programming an SCCB actuator board, the address set via the dip-switches must be consistent with the Target selected via the programming software (see previous paragraph).
Before programming a board, set the corresponding dip-switches accordingly.

Dip-switch addressing is a binary code.
The least significant bit is the leftmost one. A dip-switch set to ON corresponds to a bit value of ‘1’.

SCCB must have a fixed addressing, as follows:

GROUP OR CIRCUIT	DIP-SWITCH
BASE or MASTER B1-B8 (or M1-M8): ADDRESS 1...8	
COLORANTS C1-C24: ADDRESS 9…32	
X-AXIS: ADDRESS 33	
Y-AXIS: ADDRESS 34	
CAN SELECTOR 1-4: ADDRESS 35…38	
CAPPING 1-2: ADDRESS 39…40	
AUTOCAP: ADDRESS 41	
CAN LIFTER: ADDRESS 42	
HUMIDIFIER: ADDRESS 43	

Each address must be unique in the machine.
After programming, board address can be changed but only into addresses belonging to the same group of circuits (colorants, bases, etc.).

4.3. BOOTLOADER 2.0

Boot Loader 2.0 generation will include the possibility to remotely update the Firmware of ALFA machines, only by means of ALFA Software, with no need of any USB cable and without physically switching the machine off and back on.
If newer Firmware versions are found, a message will warn the operator, specify the name and type of the Firmware versions available, and propose the update with a new Firmware version. The operator shall then select which versions to install.

5. HANDLING THE MACHINE

5.1. MOVING THE MACHINE

Desk must only be moved under conditions of maximum safety.

In order to move the machine with the cabinet, it is possible to raise the support feet and use the dedicated wheels.

IN ORDER TO AVOID THE RISK OF PAINTING SPILLS INSIDE THE MACHINE, NEVER MOVE THE MACHINE WITH THE COLORANT CIRCUITS FULL.

BEWARE OF ANY STEPS OR IRREGULARITIES IN THE FLOORING/TERRAIN THAT COULD RESULT IN SUDDEN STOPPAGES, AS THESE COULD CAUSE MACHINE TO BECOME UNBALANCED. ALWAYS PROCEED AT A LOW SPEED WITH TWO PEOPLE HANDLING THE MACHINE AT ALL TIMES.

For bigger movements, it is necessary to use a suitable lifting mean. In this case, proceed as follows:

- Switch the machine off and disconnect all electric connections (power supply, ethernet, etc.);
- remove PC, keyboard, monitor and any other device from the machine bearing surfaces;
- Push the machine on the forks of a forklift truck or a manual lift truck having a suitable capacity, after checking the weight of the configuration in section 1.5.4 of the operator's manual;

EMPTY ALL TANKS OR BRING THEM TO MINIMUM LEVEL BEFORE LIFTING AND/OR MOVING THE MACHINE.

LIFT THE MACHINE CAREFULLY, TAKING CARE TO MAKE SURE THAT IT IS GRIPPED PROPERLY AND IS NOT AT RISK OF TIPPING OVER

- Handle the machine using the forklift truck and position it in the required space.

Always place the machine on a surface suitable for sustaining its weight or on perfectly smooth and level flooring.

Once the movement has been completed, lower the support feet to stabilise the machine and reconnect the electrical circuits. Use a spirit-level to level the machine.

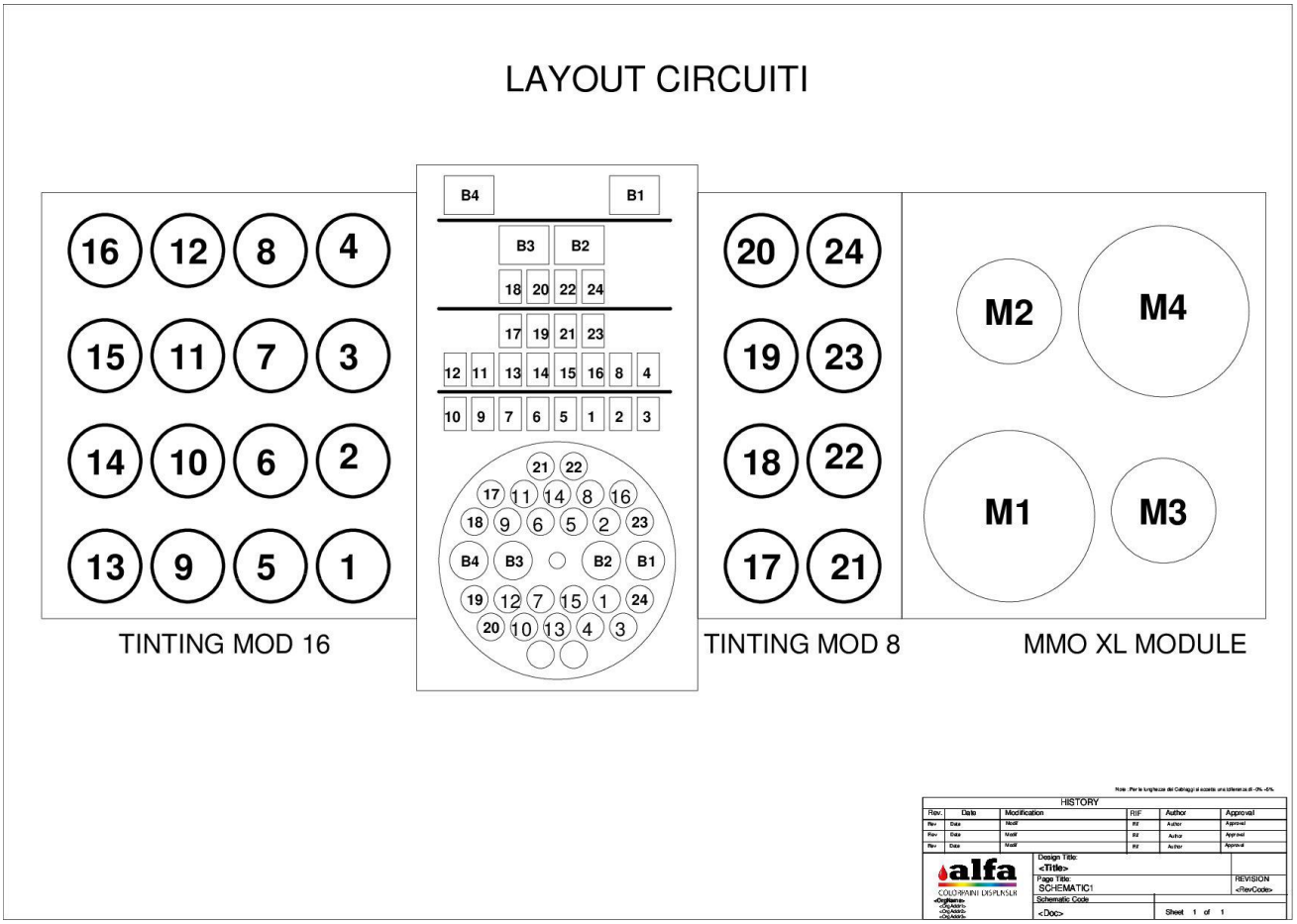
6. ACCESS TO THE DIAGNOSTIC FUNCTIONS

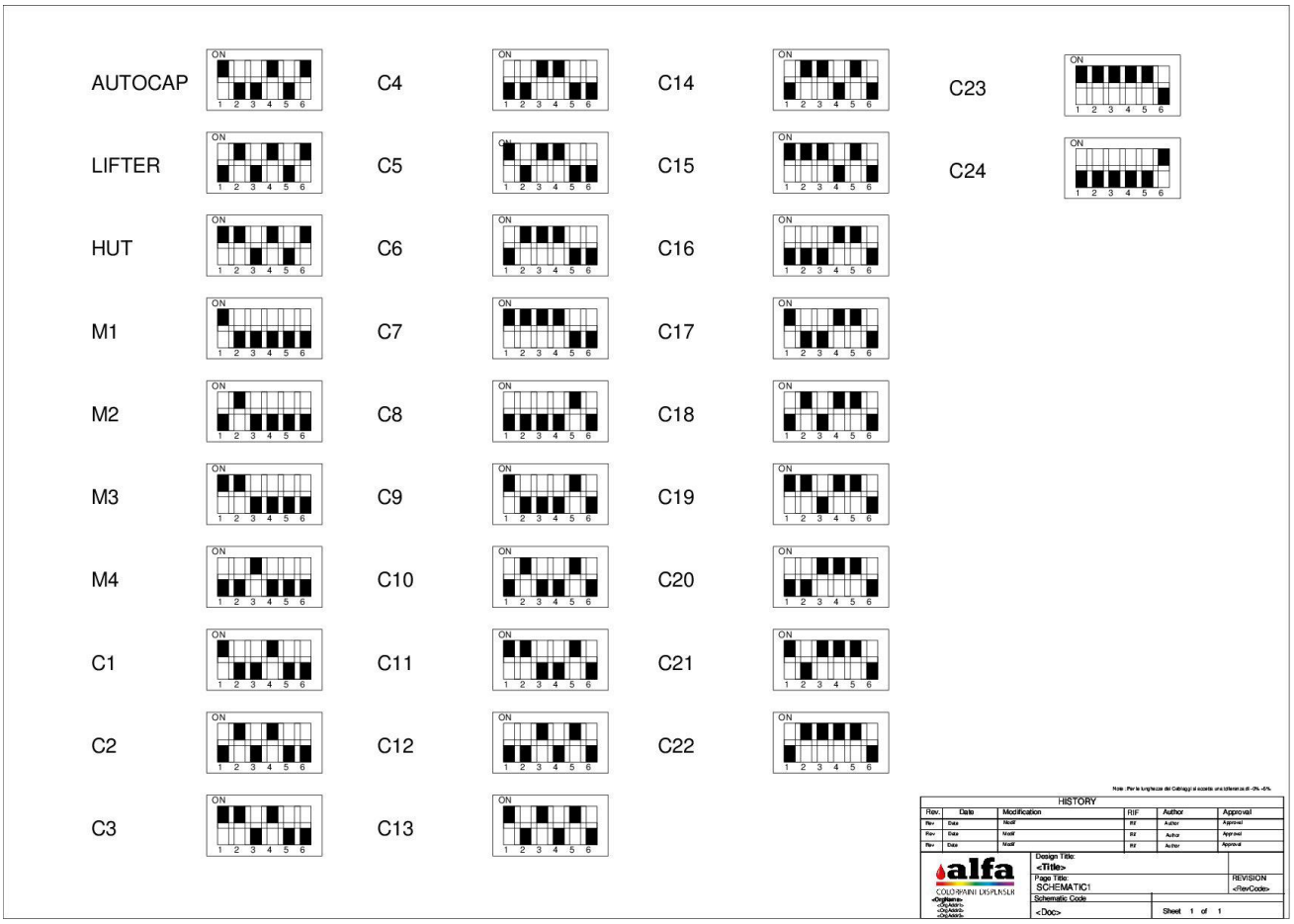
6.1. ADMIN CONTROL AND DIAGNOSTIC INTERFACE

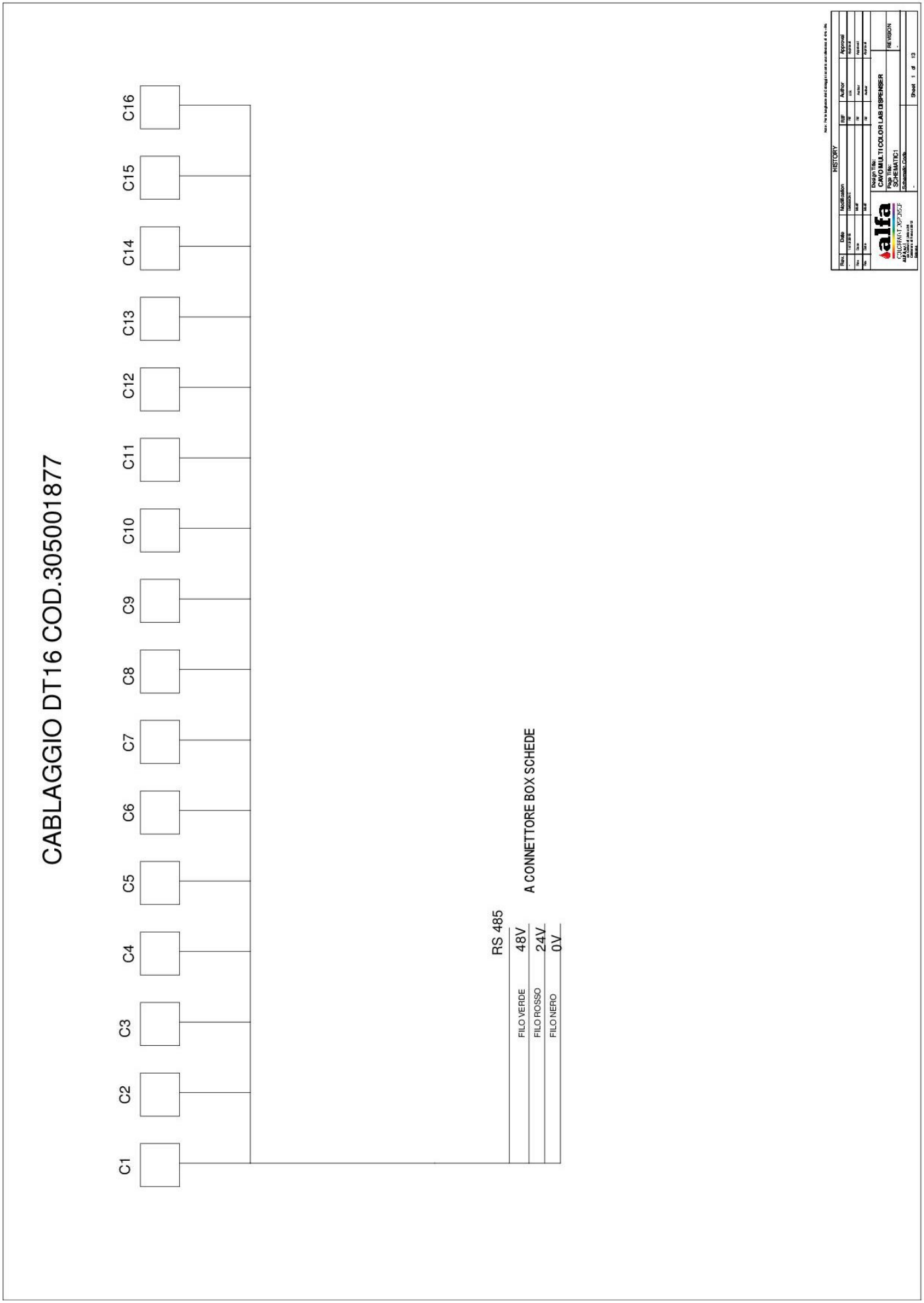
The web control browser Admin interface has diagnostic functions that indicate the status of the machine and of the relevant circuits, as well as specific controls to activate and test each single circuit or the valve and motor functions.

For information about the interface access modes and the function description refer to the software manual.

7. CONNECTION DIAGRAMS






CABLAGGIO DT16 COD.305001877
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
C11
C12
C13
C14
C15
C16
RS 485
FILO VERDE
FILO ROSSO
FILO NERO
48V
24V
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A CONNETTORE BOX SCHEDE
HISTORY
Rev.
Date
Modification
Ref
Author
Approval
Note: The re-keyed-in data of drawings is not only dimensions of parts, etc.
alfa
COLORPAINT DISPENSER
ALFA MIX S.r.l.
Via Dante, 4 - 20010 Pogliano M.se (MI)
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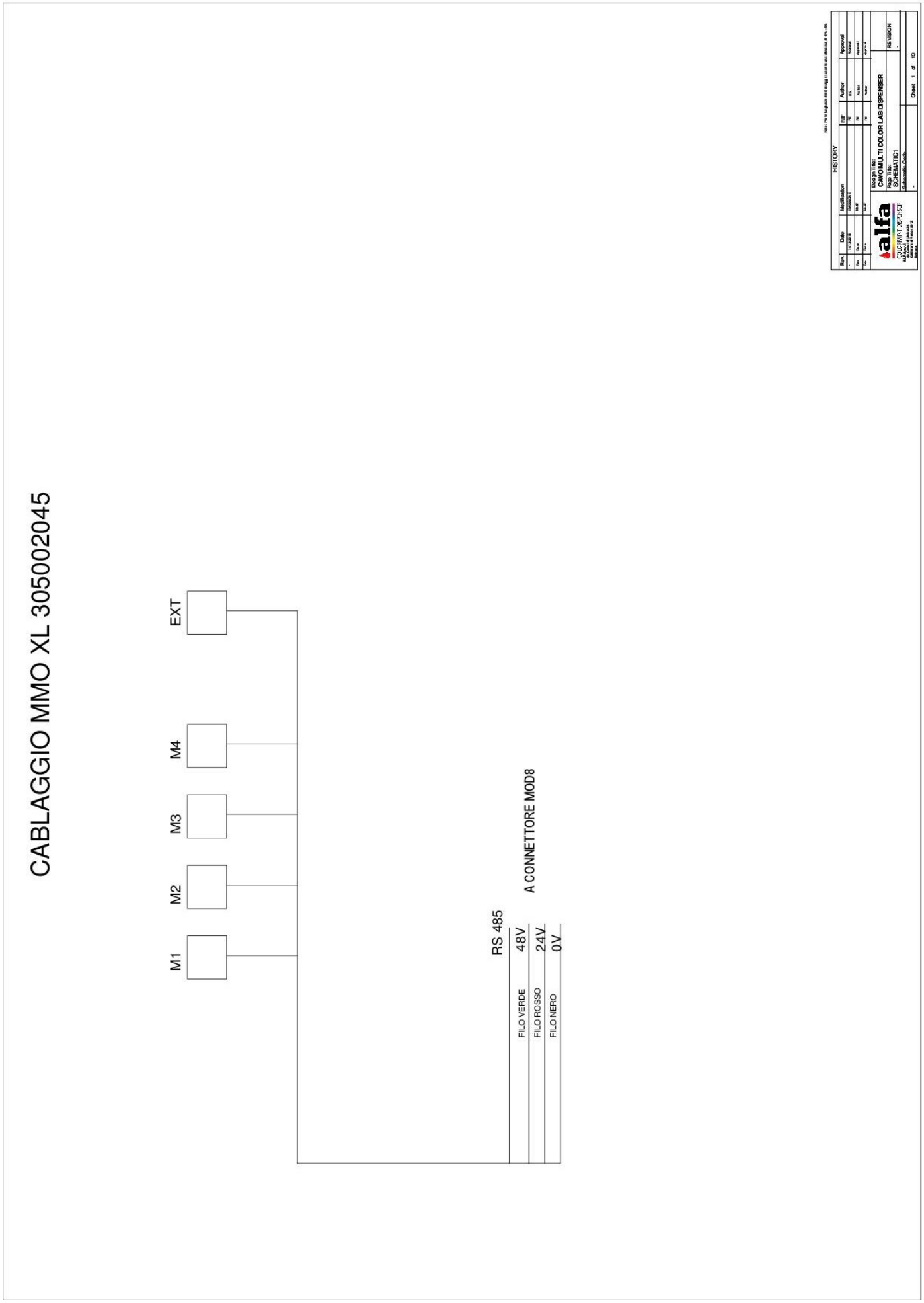
Sheet 1 of 13


CABLAGGIO MMO XL 305002045
M1
M2
M3
M4
EXT
RS 485
A CONNETTORE MOD8
FILO VERDE
48V
FILO ROSSO
24V
FILO NERO
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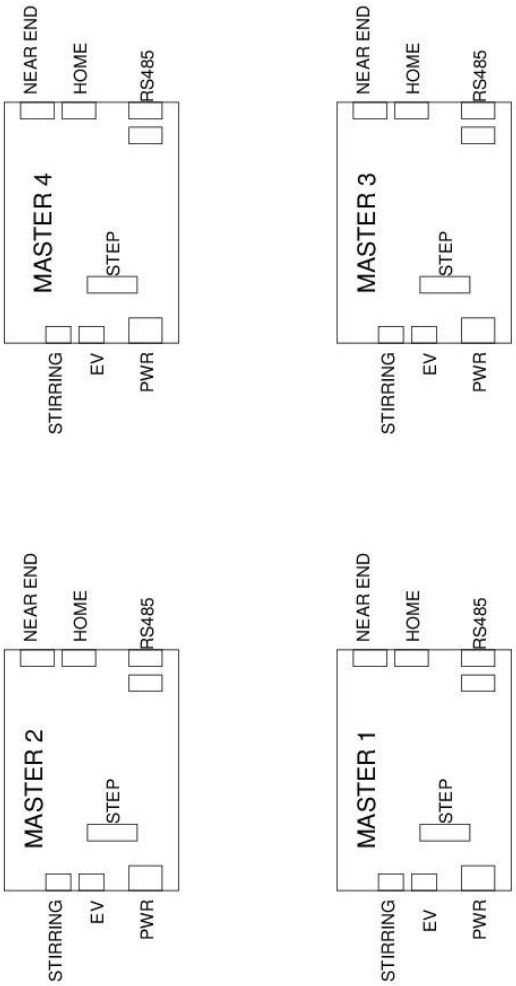
Sheet 1 of 13



Note: Per la lunghezza dei Cablaggi si accetta una tolleranza di -0% +5%

HISTORY				
Rev.	Date	Modification	RIF	Author	Approval
Rev	Date	Modif	RIF	Author	Approval
Rev	Date	Modif	RIF	Author	Approval
Rev	Date	Modif	RIF	Author	Approval

alfa
COLORPAINT DISPENSER

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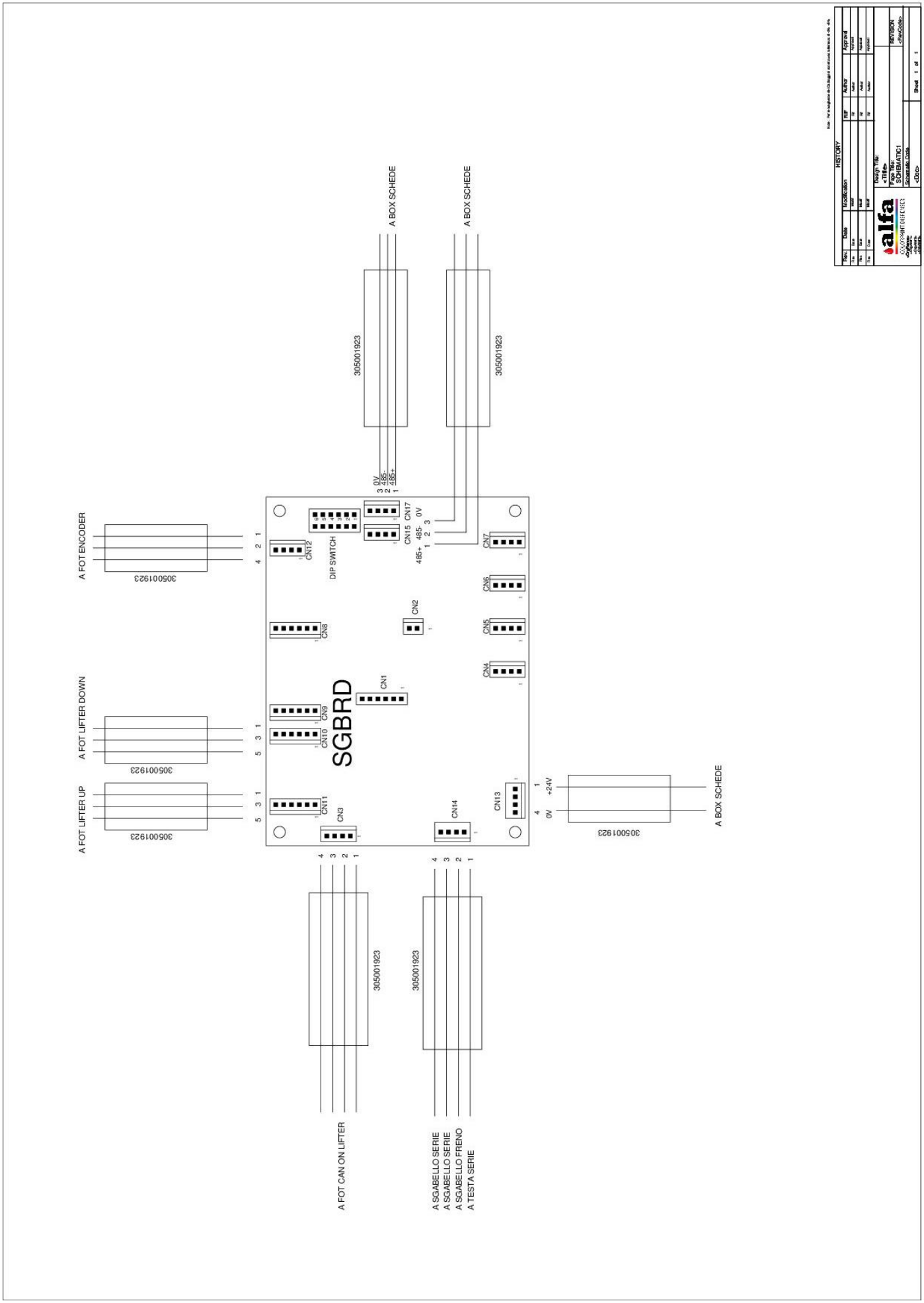
A BOX SCHEDE
A BOX SCHEDE
305001923
305001923
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485-
485+
CN17
CN15
0V
485-
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DIP SWITCH
CN12
CN8
CN2
CN1
CN9
CN10
CN11
CN3
CN14
CN13
CN7
CN6
CN5
CN4
SGBRD
A FOT ENCODER
A FOT LIFTER DOWN
A FOT LIFTER UP
305001923
305001923
305001923
+24V
0V
305001923
A BOX SCHEDE
305001923
305001923
A FOT CAN ON LIFTER
A SGABELLO SERIE
A SGABELLO SERIE
A SGABELLO FRENO
A TESTA SERIE
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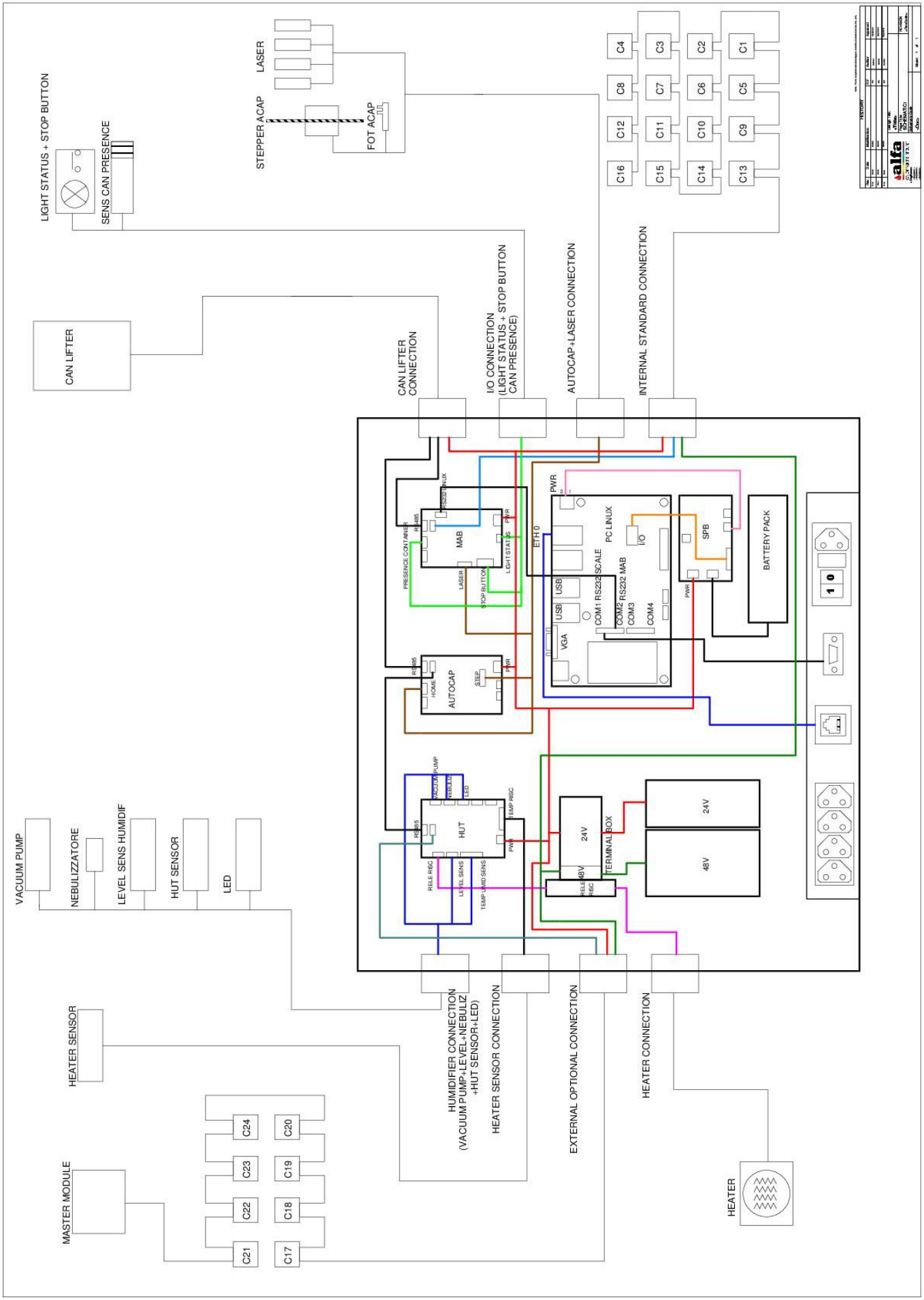
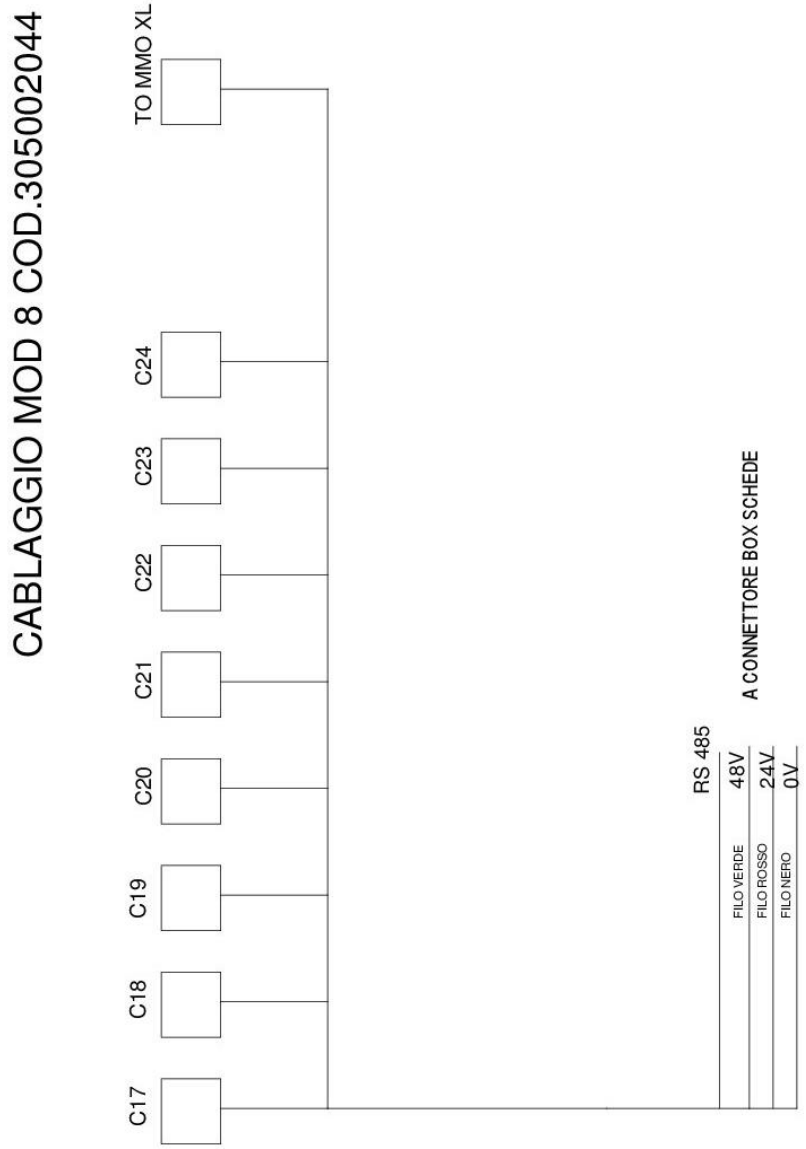
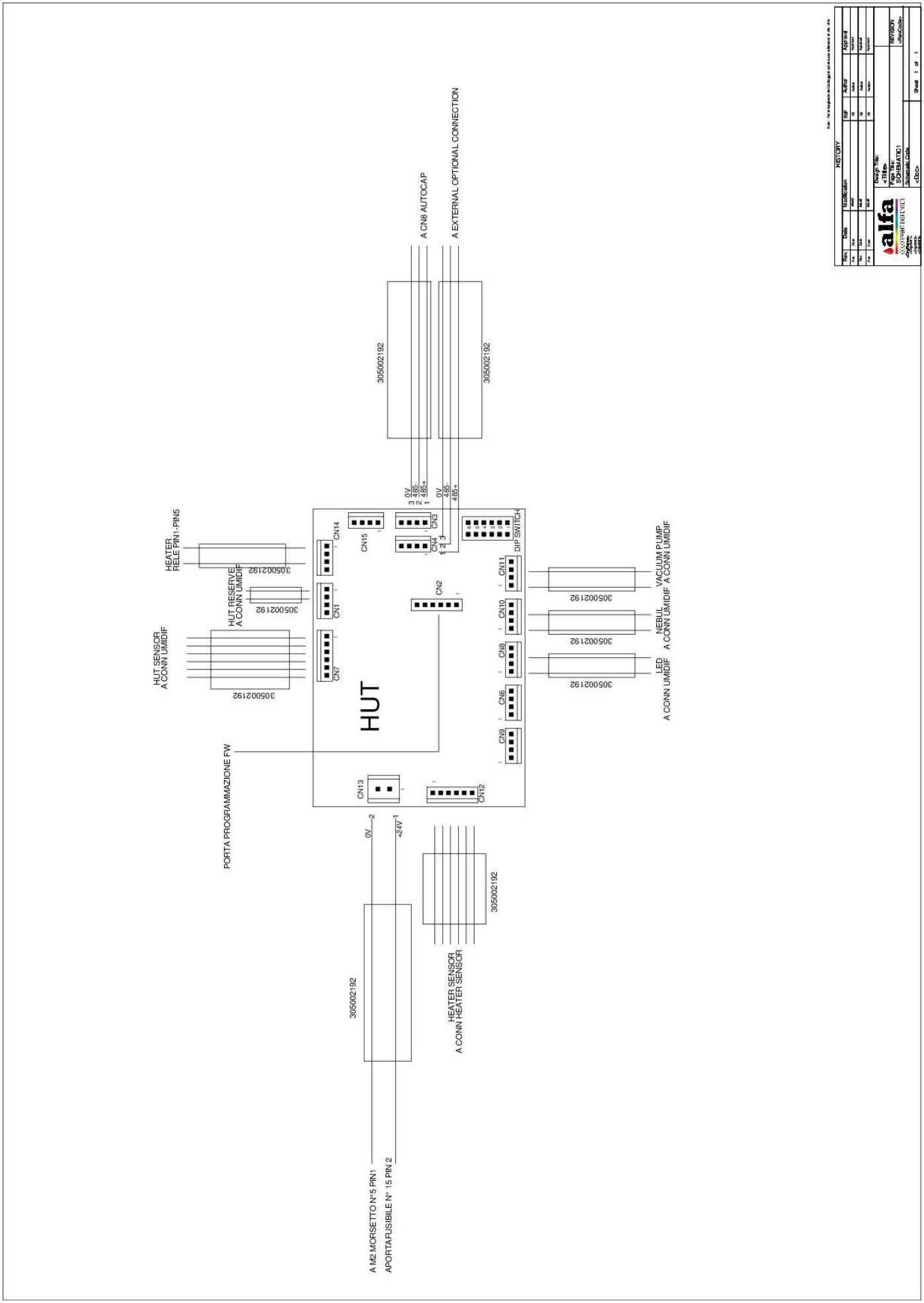
Sheet 1 of 1


LIGHT STATUS + STOP BUTTON
SENS CAN PRESENCE
STEPPER ACAP
LASER
FOT ACAP
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
C11
C12
C13
C14
C15
C16
CAN LIFTER
CAN LIFTER CONNECTION
I/O CONNECTION (LIGHT STATUS + STOP BUTTON CAN PRESENCE)
AUTOCAP+LASER CONNECTION
INTERNAL STANDARD CONNECTION
MAB
AUTOCAP
HUT
PC LINUX
SPB
BATTERY PACK
24V
48V
VACUUM PUMP
NEBULIZZATORE
LEVEL SENS HUMIDIF
HUT SENSOR
LED
HEATER SENSOR
MASTER MODULE
C17
C18
C19
C20
C21
C22
C23
C24
HUMIDIFIER CONNECTION (VACUUM PUMP+LEVEL+NEBULIZ +HUT SENSOR+LED)
HEATER SENSOR CONNECTION
EXTERNAL OPTIONAL CONNECTION
HEATER CONNECTION
HEATER


CABLAGGIO MOD 8 COD.305002044
TO MMO XL
C24
C23
C22
C21
C20
C19
C18
C17
RS 485
A CONNETTORE BOX SCHEDE
FILO VERDE
48V
FILO ROSSO
24V
FILO NERO
0V


HUT
A CN8 AUTOCAP
A EXTERNAL OPTIONAL CONNECTION
305002192
0V
485-
485+
CN1
CN2
CN3
CN4
CN6
CN7
CN8
CN9
CN10
CN11
CN12
CN13
CN14
CN15
DIP SWITCH
HEATER
RELE PIN1-PIN5
HUT RESERVE
A CONN UMIDIF
HUT SENSOR
A CONN UMIDIF
PORTA PROGRAMMAZIONE FW
VACUUM PUMP
A CONN UMIDIF
NEBUL
A CONN UMIDIF
LED
A CONN UMIDIF
HEATER SENSOR
A CONN HEATER SENSOR
-24V
A M2 MORSETTO N°5 PIN1
APORTA FUSIBILE N° 15 PIN 2
HISTORY
Rev.
Date
Modification
Ref
Author
Approval
Design Title:
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Page Title:
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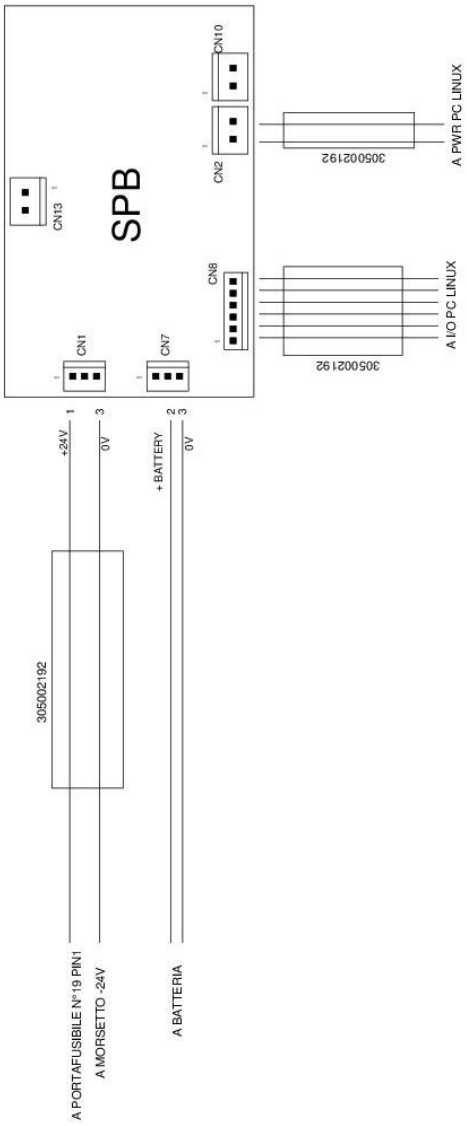
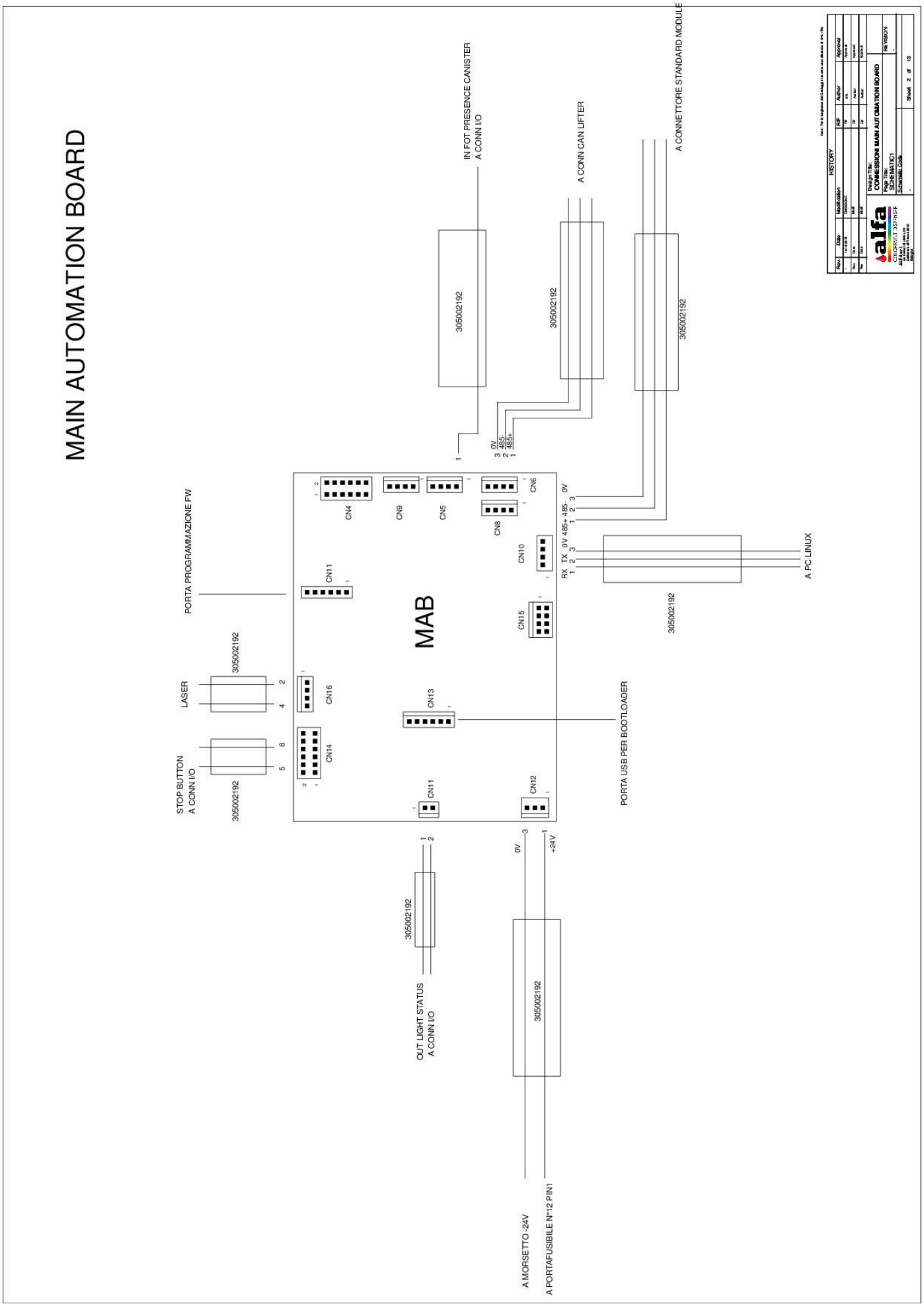

SPB
CN13
CN1
CN7
CN8
CN2
CN10
305002192
305002192
A PWR PC LINUX
A IO PC LINUX
305002192
+24V
0V
+ BATTERY
0V
A PORTAFUSIBILE N°19 PIN1
A MORSETTO -24V
A BATTERIA


MAIN AUTOMATION BOARD
MAB
IN FOT PRESENCE CANISTER
A CONN I/O
A CONN CAN LIFTER
A CONNETTORE STANDARD MODULE
A PC LINUX
PORTA PROGRAMMAZIONE FW
PORTA USB PER BOOTLOADER
LASER
STOP BUTTON
A CONN I/O
OUT LIGHT STATUS
A CONN I/O
A MORSETTO -24V
A PORTAFUSIBILE N°12 PIN1
305002192
CN4
CN9
CN5
CN6
CN8
CN10
CN11
CN15
CN16
CN13
CN14
CN12
0V
485-
485+
RX
TX
+24V
HISTORY
Rev.
Date
Modification
Ref.
Author
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CONNESSIONI MAIN AUTOMATION BOARD
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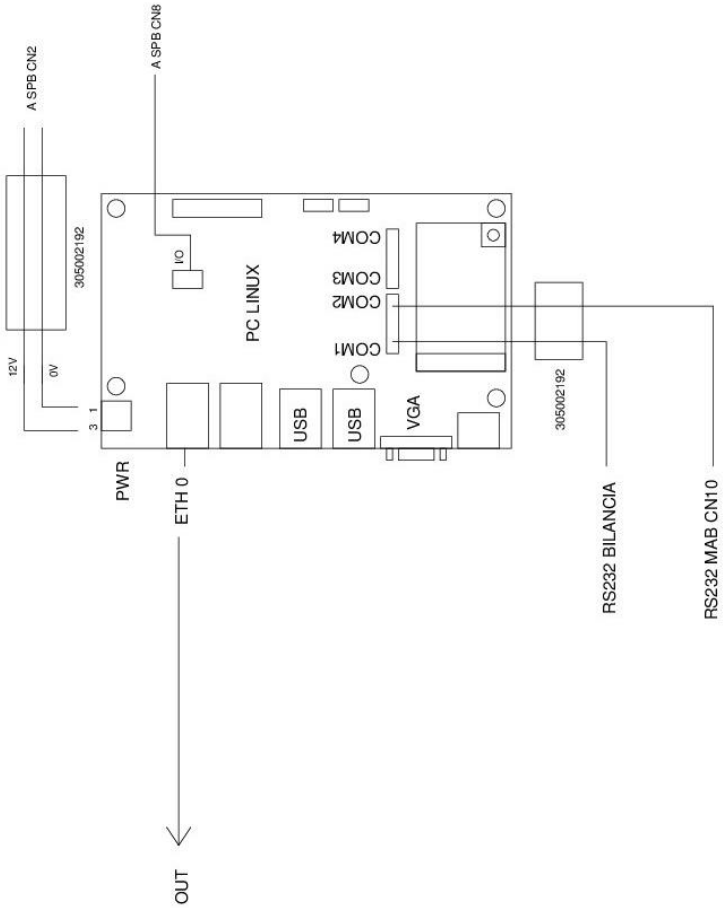
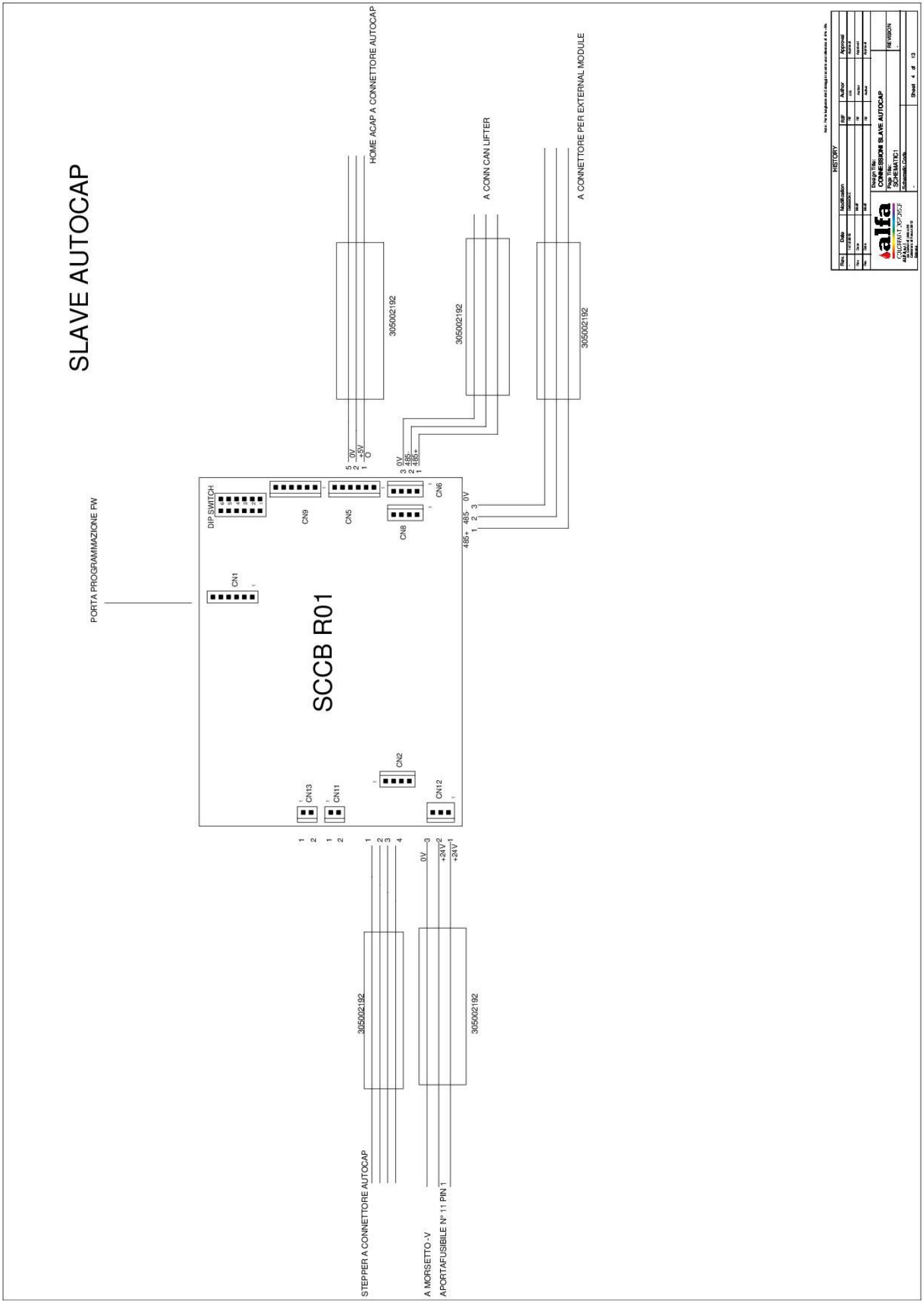
PC LINUX


A SPB CN2
A SPB CN8
12V
0V
3 1
305002192
PWR
ETH 0
OUT
USB
USB
VGA
PC LINUX
COM1
COM2
COM3
COM4
305002192
RS232 BILANCIA
RS232 MAB CN10


SLAVE AUTOCAP
PORTA PROGRAMMAZIONE FW
SCCB R01
CN1
DIP SWITCH
CN9
CN5
CN8
CN6
CN2
CN13
CN11
CN12
HOME ACAP A CONNETTORE AUTOCAP
A CONN CAN LIFTER
A CONNETTORE PER EXTERNAL MODULE
305002192
STEPPER A CONNETTORE AUTOCAP
A MORSETTO -V
APORTAFUSIBILE N° 11 PIN 1
HISTORY
Rev.
Date
Modification
Ref
Author
Approval
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Schematic Code
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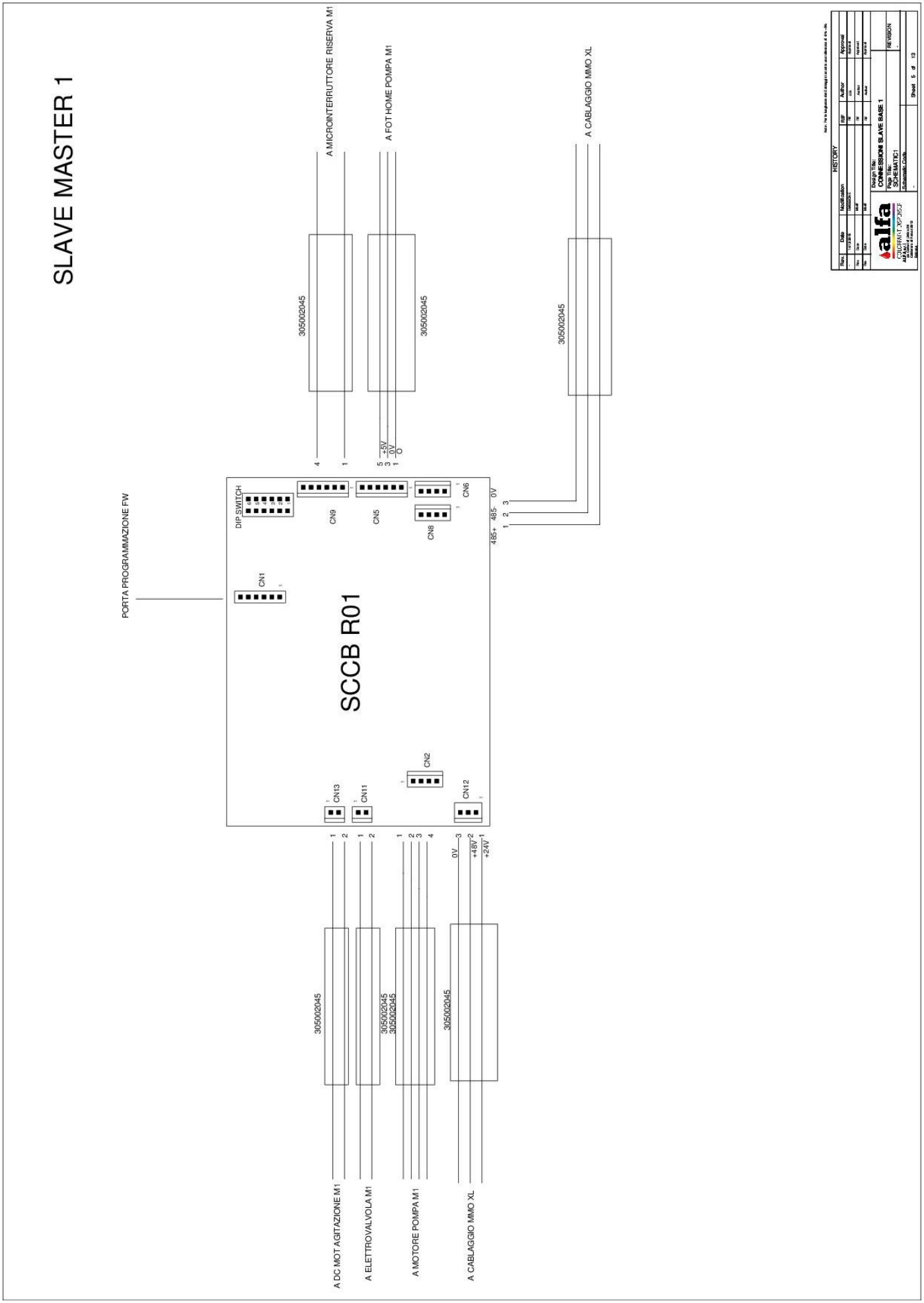
SLAVE MASTER 1
A MICROINTERRUTTORE RISERVA M1
A FOT HOME POMPA M1
A CABLAGGIO MMO XL
305002045
305002045
305002045
PORTA PROGRAMMAZIONE FW
DIP SWITCH
CN1
CN9
CN5
CN8
CN6
SCCB R01
CN13
CN11
CN2
CN12
485+
485-
0V
+5V
0V
0V
+48V
+24V
305002045
305002045
305002045
305002045
A DC MOT AGITAZIONE M1
A ELETTROVALVOLA M1
A MOTORE POMPA M1
A CABLAGGIO MMO XL
HISTORY
Rev.
Date
Modification
REF
Author
Approval
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Page File:
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RE-VISION
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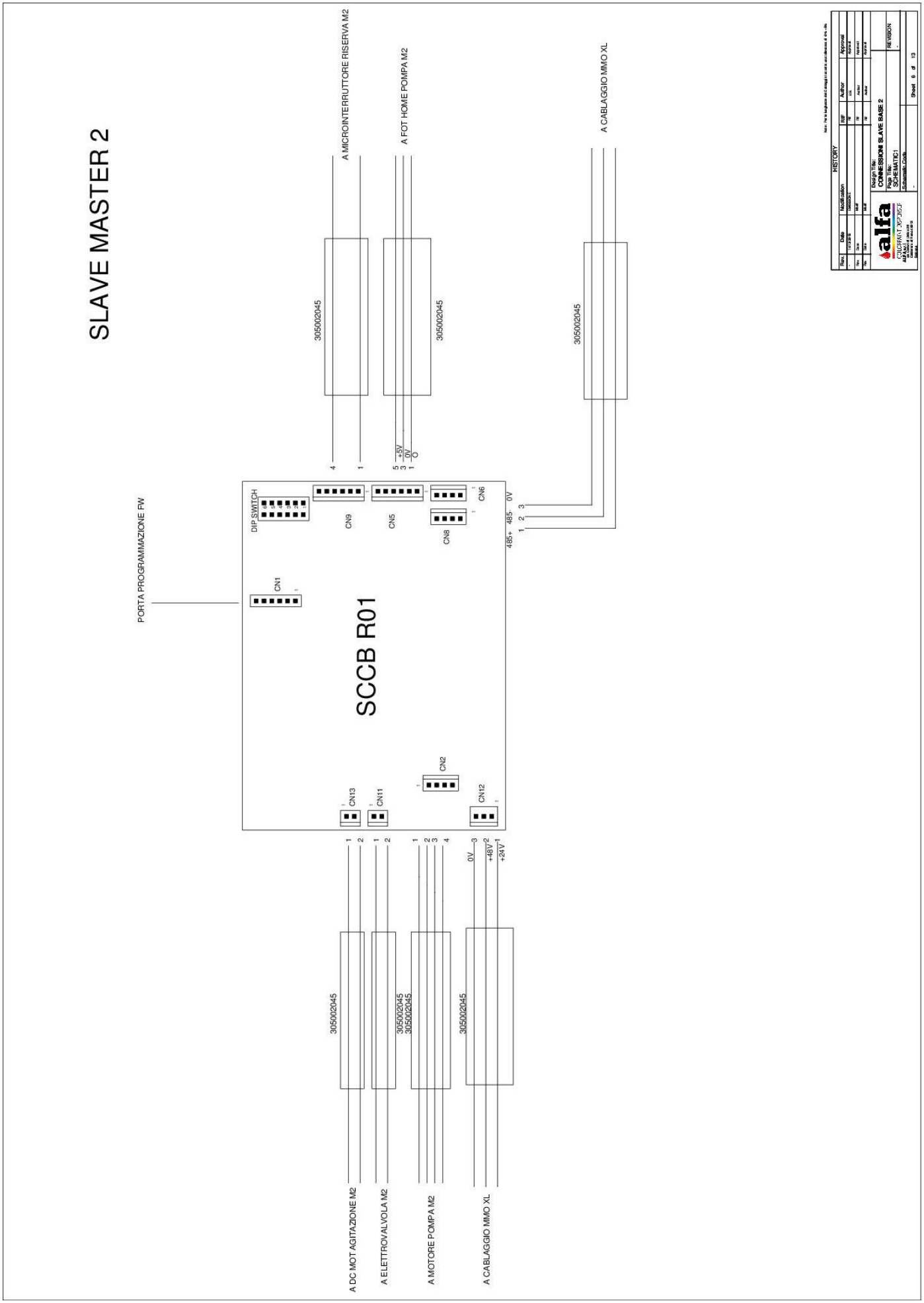
SLAVE MASTER 2
A MICROINTERRUTTORE RISERVA M2
A FOT HOME POMPA M2
A CABLAGGIO MMO XL
305002045
305002045
305002045
+5V
0V
0
4
1
5
3
1
DIP SWITCH
CN9
CN5
CN8
CN6
CN1
PORTA PROGRAMMAZIONE FW
SCCB R01
0V
485-
485+
3
2
1
CN13
CN11
CN2
CN12
305002045
305002045
305002045
305002045
0V
+48V
+24V
A DC MOT AGITAZIONE M2
A ELETTROVALVOLA M2
A MOTORE POMPA M2
A CABLAGGIO MMO XL
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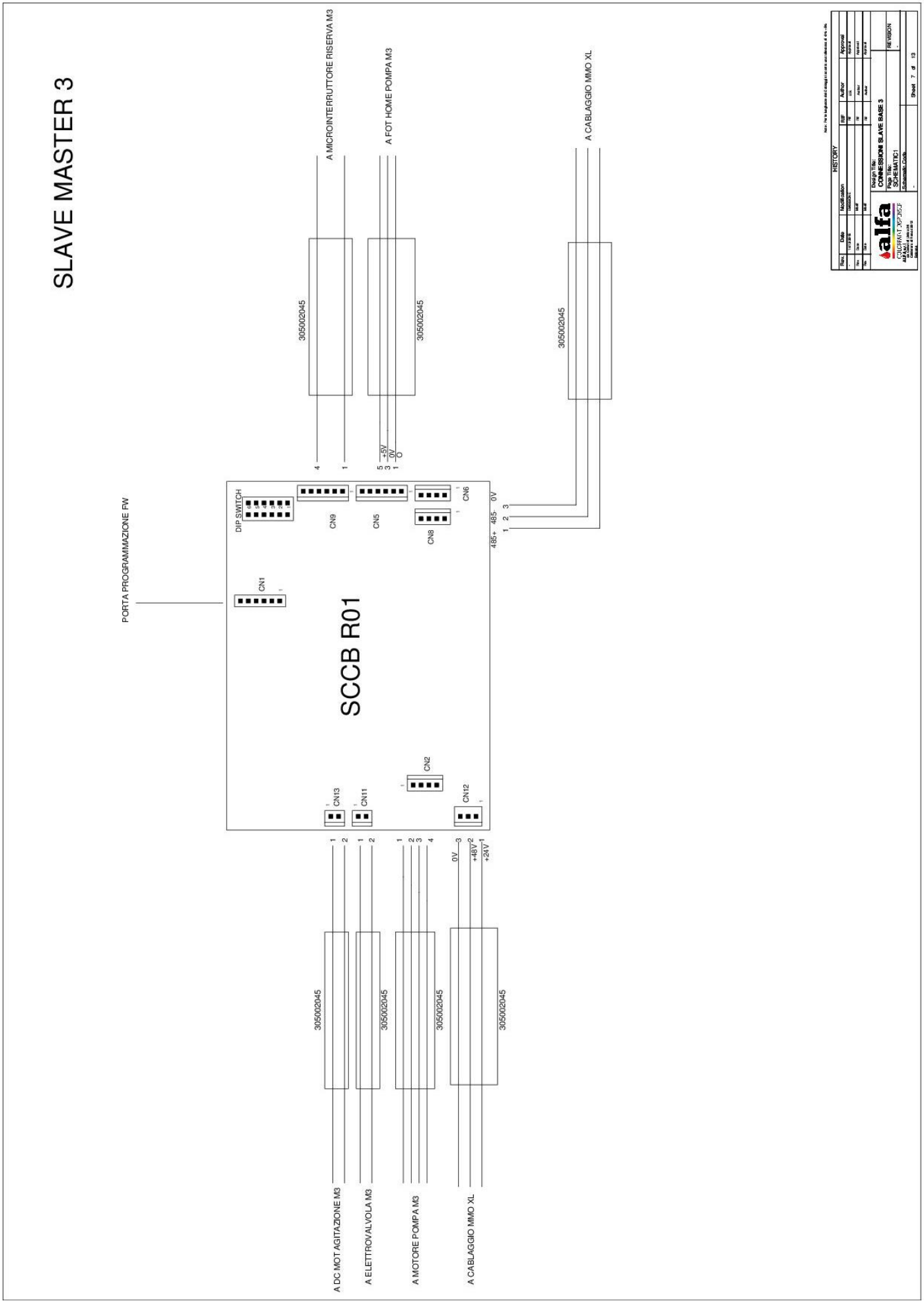
SLAVE MASTER 3
A MICROINTERRUTTORE RISERVA M3
A FOT HOME POMPA M3
A CABLAGGIO MMO XL
305002045
305002045
305002045
+5V
0V
0
4
1
5
3
1
PORTA PROGRAMMAZIONE FW
DIP SWITCH
CN1
CN9
CN5
CN8
CN6
SCCB R01
CN2
CN13
CN11
CN12
0V
485-
485+
3
2
1
305002045
305002045
305002045
305002045
0V
+48V
+24V
A DC MOT AGITAZIONE M3
A ELETTROVALVOLA M3
A MOTORE POMPA M3
A CABLAGGIO MMO XL
HISTORY
Rev.
Date
Modification
REF
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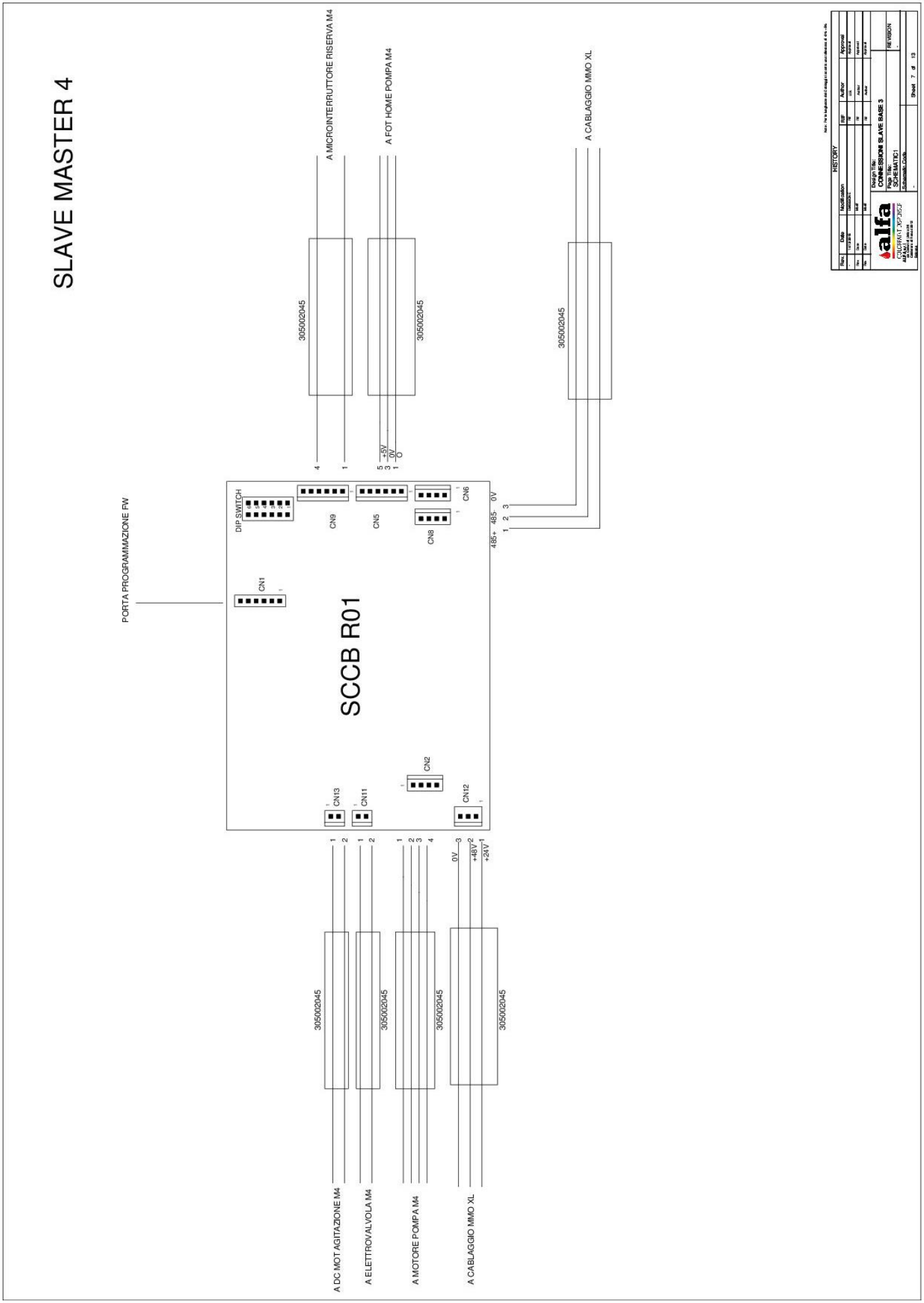
SLAVE MASTER 4
A MICROINTERRUTTORE RISERVA M4
A FOT HOME POMPA M4
A CABLAGGIO MMO XL
305002045
305002045
305002045
+5V
0V
PORTA PROGRAMMAZIONE FW
DIP SWITCH
CN1
CN9
CN5
CN8
CN6
SCCB R01
CN13
CN11
CN2
CN12
485+
485-
0V
0V
+48V
+24V
305002045
305002045
305002045
305002045
A DC MOT AGITAZIONE M4
A ELETTROVALVOLA M4
A MOTORE POMPA M4
A CABLAGGIO MMO XL
HISTORY
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Date
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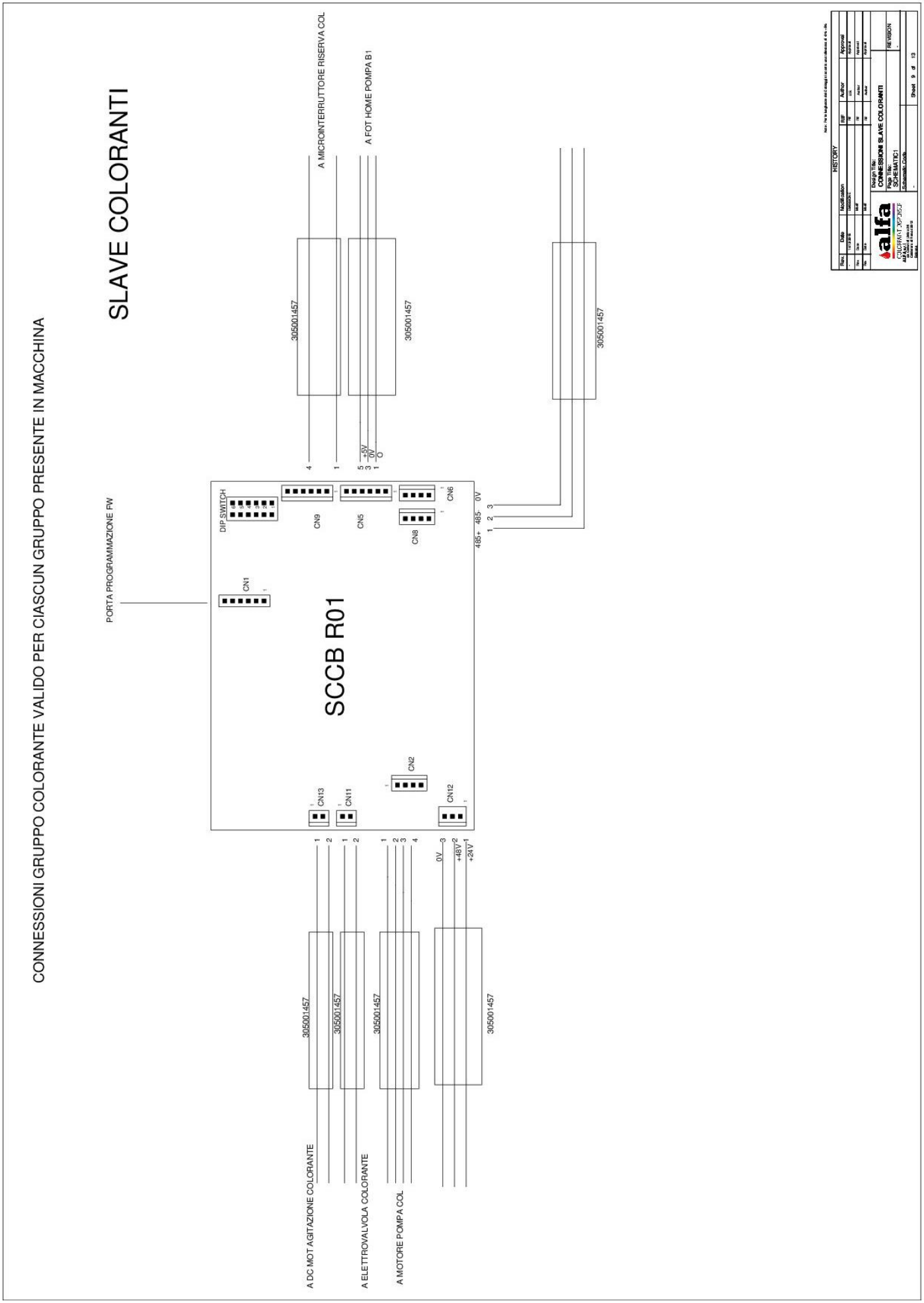
CONNESSIONI GRUPPO COLORANTE VALIDO PER CIASCUN GRUPPO PRESENTE IN MACCHINA
SLAVE COLORANTI
PORTA PROGRAMMAZIONE FW
SCCB R01
DIP SWITCH
CN1
CN2
CN5
CN6
CN8
CN9
CN11
CN12
CN13
A MICROINTERRUTTORE RISERVA COL
A FOT HOME POMPA B1
305001457
A DC MOT AGITAZIONE COLORANTE
A ELETTROVALVOLA COLORANTE
A MOTORE POMPA COL
0V
+48V
+24V
485+
485-
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CONNESSIONI SLAVE COLORANTI
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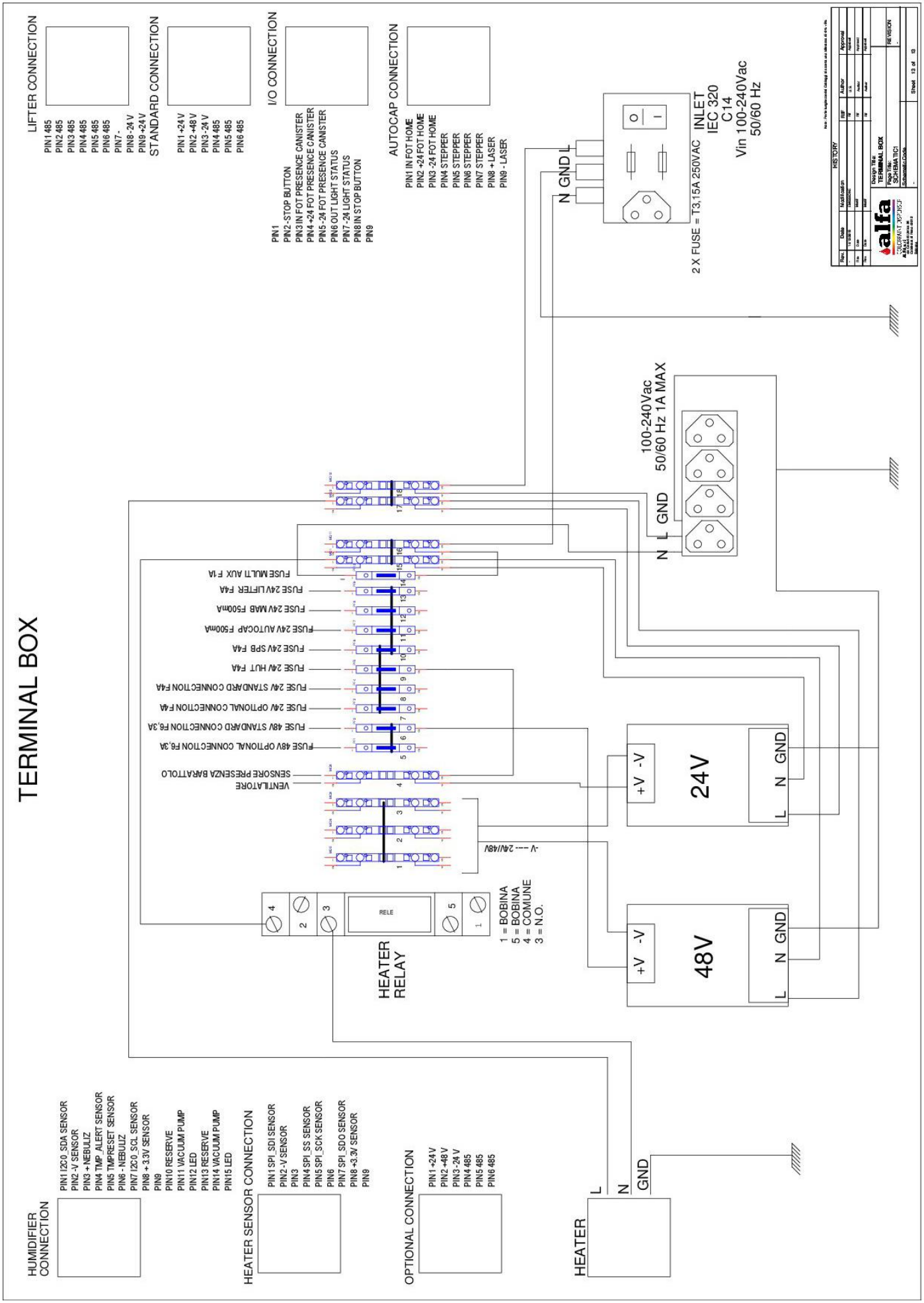
TERMINAL BOX
LIFTER CONNECTION
PIN1 485
PIN2 485
PIN3 485
PIN4 485
PIN5 485
PIN6 485
PIN7 -
PIN8 -24 V
PIN9 +24 V
STANDARD CONNECTION
PIN1 +24 V
PIN2 +48 V
PIN3 -24 V
PIN4 485
PIN5 485
PIN6 485
I/O CONNECTION
PIN1
PIN2 -STOP BUTTON
PIN3 IN FOT PRESENCE CANISTER
PIN4 +24 FOT PRESENCE CANISTER
PIN5 -24 FOT PRESENCE CANISTER
PIN6 OUT LIGHT STATUS
PIN7 -24 LIGHT STATUS
PIN8 IN STOP BUTTON
PIN9
AUTOCAP CONNECTION
PIN1 IN FOT HOME
PIN2 +24 FOT HOME
PIN3 -24 FOT HOME
PIN4 STEPPER
PIN5 STEPPER
PIN6 STEPPER
PIN7 STEPPER
PIN8 +LASER
PIN9 - LASER
N GND L
2 X FUSE = T3.15A 250VAC
INLET
IEC 320
C14
Vin 100-240Vac
50/60 Hz
100-240Vac
50/60 Hz 1A MAX
N L GND
FUSE MULTI AUX F1A
FUSE 24V LIFTER F4A
FUSE 24V MAB F500mA
FUSE 24V AUTOCAP F500mA
FUSE 24V SPB F4A
FUSE 24V HUT F4A
FUSE 24V STANDARD CONNECTION F4A
FUSE 24V OPTIONAL CONNECTION F4A
FUSE 48V STANDARD CONNECTION F6,3A
FUSE 48V OPTIONAL CONNECTION F6,3A
VENTILATORE
SENSORE PRESENZA BARATTOLO
-V ---- 24V/48V
+V -V
24V
N GND
L
+V -V
48V
N GND
L
RELE
HEATER
RELAY
1 = BOBINA
5 = BOBINA
4 = COMUNE
3 = N.O.
HUMIDIFIER
CONNECTION
PIN1 I2C0_SDA SENSOR
PIN2 -V SENSOR
PIN3 + NEBULIZ
PIN4 TMP_ALERT SENSOR
PIN5 TMPRESET SENSOR
PIN6 - NEBULIZ
PIN7 I2C0_SCL SENSOR
PIN8 + 3.3V SENSOR
PIN9
PIN10 RESERVE
PIN11 VACUUM PUMP
PIN12 LED
PIN13 RESERVE
PIN14 VACUUM PUMP
PIN15 LED
HEATER SENSOR CONNECTION
PIN1 SPI_SDI SENSOR
PIN2 -V SENSOR
PIN3
PIN4 SPI_SS SENSOR
PIN5 SPI_SCK SENSOR
PIN6
PIN7 SPI_SDO SENSOR
PIN8 +3.3V SENSOR
PIN9
OPTIONAL CONNECTION
PIN1 +24 V
PIN2 +48 V
PIN3 -24 V
PIN4 485
PIN5 485
PIN6 485
HEATER
L
N
GND
alfa
COLORPAINT DISPENSER
TERMINAL BOX
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Author
Approval