


# TECHNICAL DOCUMENTATION - ECOPLAT PLUS




| Date       | Revisions | Revision reasons                                             | Issue               | Checked by          | Approved by         |
|------------|-----------|--------------------------------------------------------------|---------------------|---------------------|---------------------|
| 24/05/2019 | 00        | First Issue                                                  | <i>Baldinini F.</i> | <i>Baldinini F.</i> | <i>Baldinini F.</i> |
| 19/12/2019 | 01        | Photocell delay change and Manual Operations in Ecoplat Base | <i>Baldinini F.</i> | <i>Baldinini F.</i> | <i>Baldinini F.</i> |
| 20/02/2020 | 02        | Photocell delay change in Ecoplat Base                       | <i>Baldinini F.</i> | <i>Baldinini F.</i> | <i>Baldinini F.</i> |
| 01/09/2020 | 03        | Alarm-malfunction IN0                                        | <i>Baldinini F.</i> | <i>Baldinini F.</i> | <i>Baldinini F.</i> |
| 06/11/2020 | 04        | Added description of input – output for ECOPLAT BASE         | <i>Baldinini F.</i> | <i>Baldinini F.</i> | <i>Baldinini F.</i> |
| 01/04/2021 | 05        | Change of some motor parameters (T10, T12)                   | <i>Baldinini F.</i> | <i>Baldinini F.</i> | <i>Baldinini F.</i> |
| 11/2021    | 06        | Instructions for the opening of the electrical panel         | <i>Baldinini F.</i> | <i>Baldinini F.</i> | <i>Baldinini F.</i> |

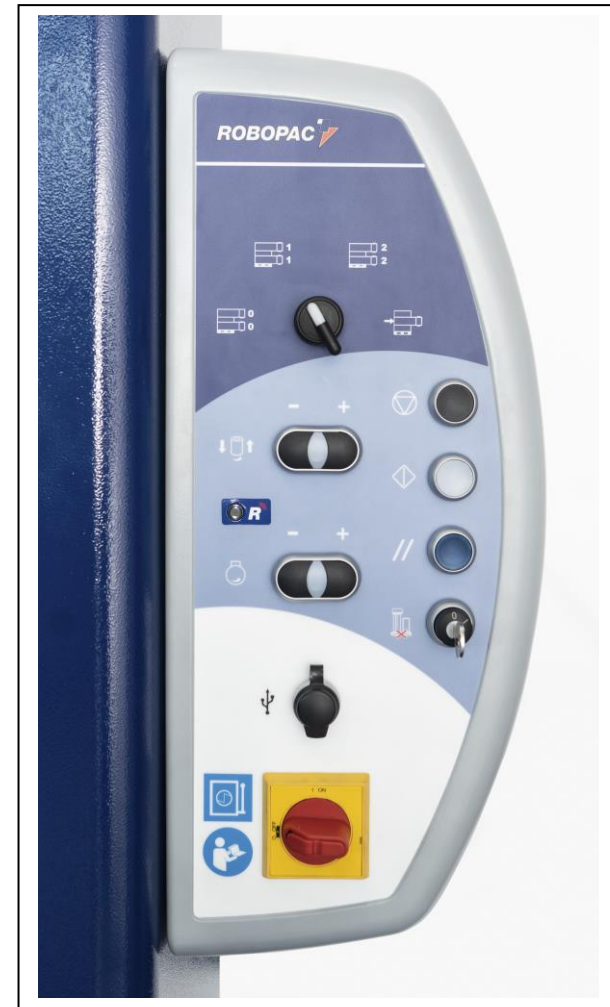
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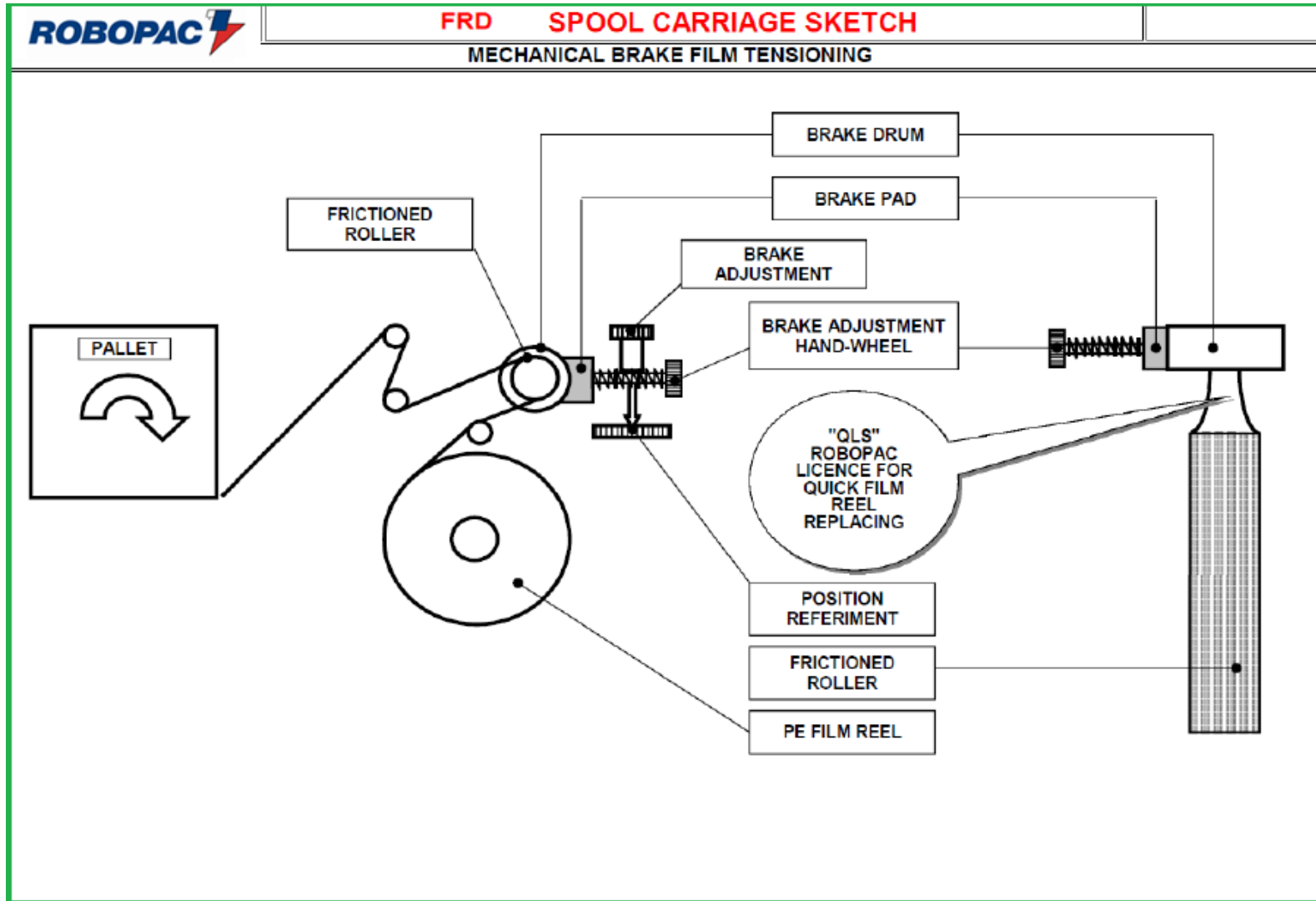
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**OPERATOR PANELS****ECOPLAT PLUS FRD****ECOPLAT PLUS BASE**

**SPOOL CARRIAGES SKETCH DETAILS ECOPLAT FRD**

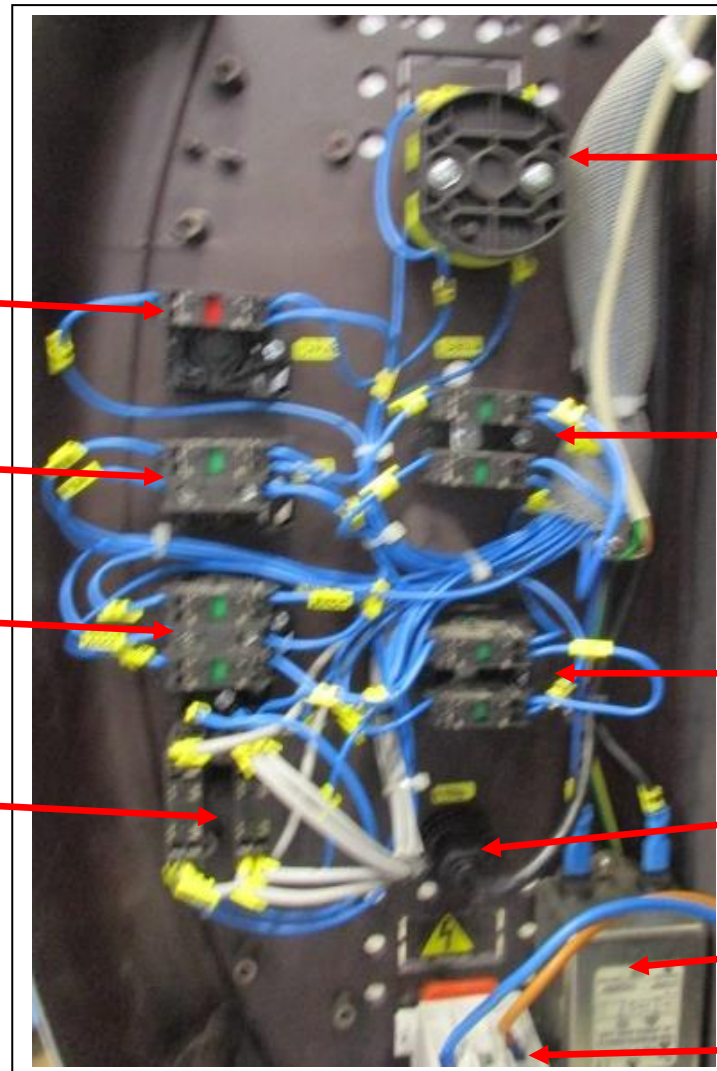


## ECOPLAT PLUS FRD OPERATOR PANEL DESCRIPTION

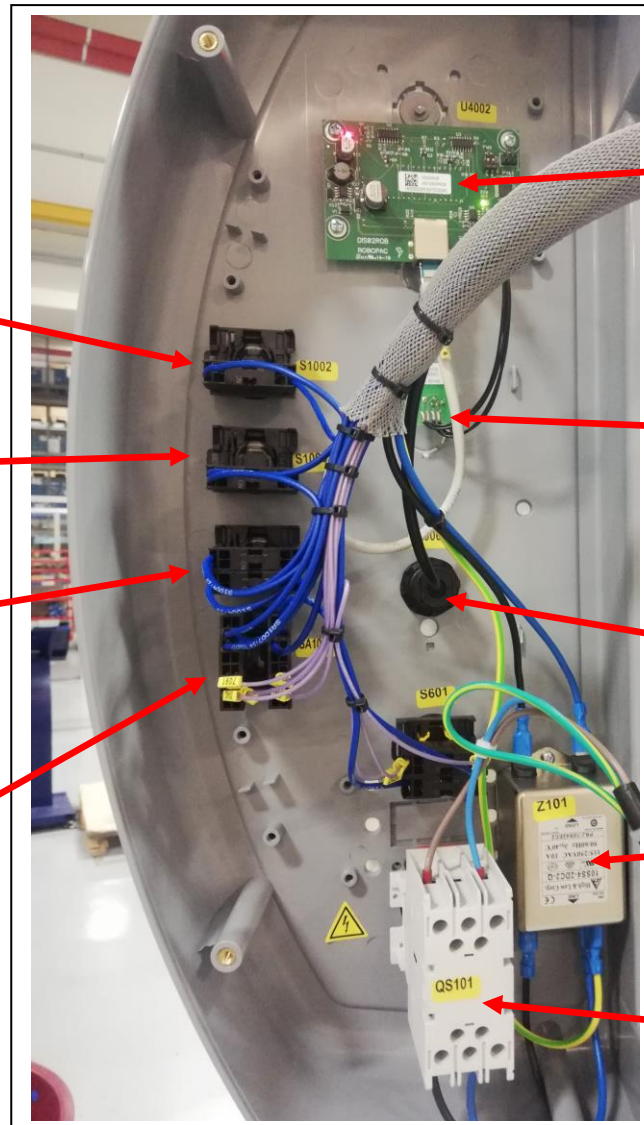
|  |  |                                                                                                                                                                                                                       |
|--|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |  | <p><b>“Stop cycle” button</b><br/>It is used to stop the automatic wrapping Cycle</p>                                                                                                                                 |
|  |  | <p><b>“Start cycle” push-button</b><br/>It is used to start the automatic wrapping cycle</p>                                                                                                                          |
|  |  | <p><b>“Reset” push-button</b><br/>It is used to reset the machine before restarting after an emergency stop or to restart it after stopping with power supply cut-off.</p>                                            |
|  |  | <p><b>Key selector for emergency interruption</b><br/>It is used to momentarily interrupt the emergency of the carriage. Turn the key to the position I (and keep turned), pressing the JOG the carriage goes up.</p> |
|  |  | <p><b>Control panel with JOG and DISPLAY</b><br/>It is used to select the type of cycle, select the work parameters and manage the other functions (see use and maintenance manual)</p>                               |
|  |  | <p><b>“USB” port</b><br/>It is used to download / update the software on the PLC card</p>                                                                                                                             |
|  |  | <p><b>“R-CONNECT” indicator</b><br/>It is used to signal that R-CONNECT is in operation</p>                                                                                                                           |
|  |  | <p><b>Main switch for machine's ON / OFF</b><br/>Turn main switch on I (ON) to turn on electric power supply.</p>                                                                                                     |

## ECOPLAT PLUS BASE OPERATOR PANEL DESCRIPTION

|  |  |                                                                                                                                                                                                                       |
|--|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |  | <p><b>“Stop cycle” button</b><br/>It is used to stop the automatic wrapping Cycle</p>                                                                                                                                 |
|  |  | <p><b>“Start cycle” push-button</b><br/>It is used to start the automatic wrapping cycle</p>                                                                                                                          |
|  |  | <p><b>“Reset” push-button</b><br/>It is used to reset the machine before restarting after an emergency stop or to restart it after stopping with power supply cut-off.</p>                                            |
|  |  | <p><b>Key selector for emergency interruption</b><br/>It is used to momentarily interrupt the emergency of the carriage. Turn the key to the position I (and keep turned), pressing the JOG the carriage goes up.</p> |
|  |  | <p><b>“carriage speed” buttons</b><br/>It is used to adjust the carriage up / down speed</p>                                                                                                                          |
|  |  | <p><b>“rotation speed” buttons</b><br/>It is used to adjust the rotation speed</p>                                                                                                                                    |
|  |  | <p><b>“turns number” selector</b><br/>It is used to select the number of turns and to do a manual reinforcement</p>                                                                                                   |
|  |  | <p><b>“USB” port</b><br/>It is used to download / update the software on the PLC card</p>                                                                                                                             |
|  |  | <p><b>“R-CONNECT” indicator</b><br/>It is used to signal that R-CONNECT is in operation</p>                                                                                                                           |
|  |  | <p><b>Main switch for machine’s ON / OFF</b><br/>Turn main switch on I (ON) to turn on electric power supply.</p>                                                                                                     |

**ECOPLAT PLUS BASE OPERATOR PANEL DETAILS****S1002** - STOP (n.c.)**S1000** - START (n.o.)**S1004** - RESET (n.o.)**SA1007**- Carriage Emergency Interruption  
(n.c.)**S1057** - 4 Positions switch**S1054** - Carriage Speed Button**S1050** - Rotation Speed Button**X2006** - USB port**Z101** - POWER SUPPLY Filter**QS101** - ON / OFF Main Switch

### ECOPLAT PLUS FRD OPERATOR PANEL DETAILS



**S1002** - STOP (n.c.)

**S1000** - START (n.o.)

**S1004** - RESET (n.o.)

**SA1007** - Carriage Emergency Interruption (n.c.)

**U4002** - Display  
Code 1430300293

**U4005** - JOG Card

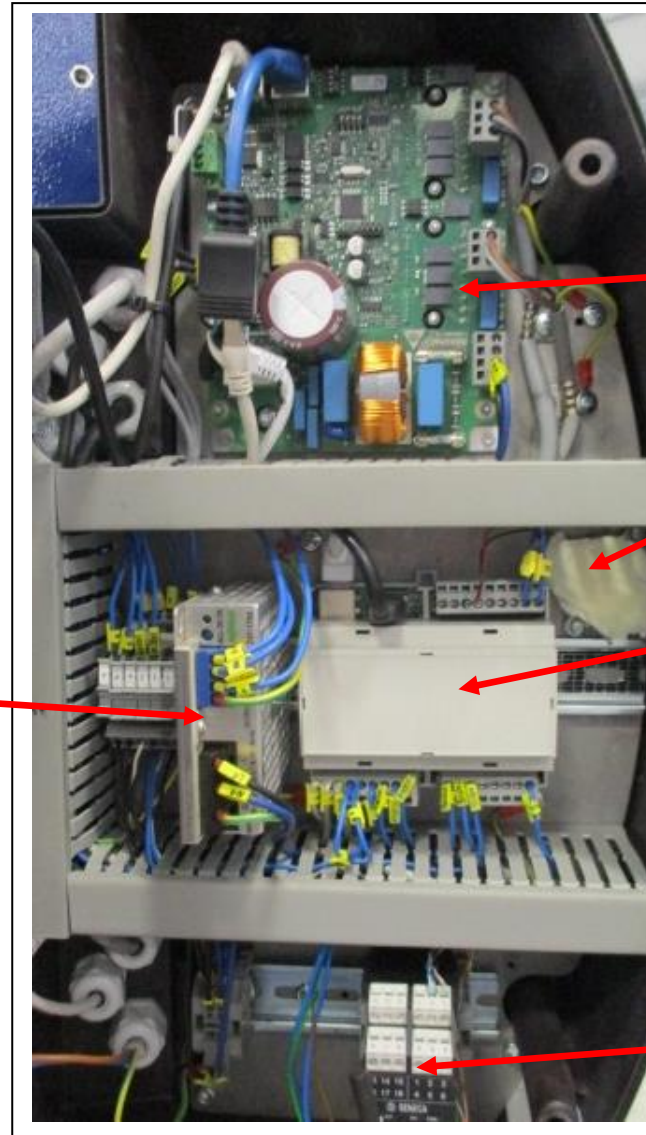
**X2006** - USB port

**Z101** - POWER SUPPLY Filter

**QS101** - ON / OFF Main Switch

**DESCRIPTION AND MAIN ELECTRICAL BOX LAYOUT**

The part numbers are for information only.  
Always check and verify the codes on the  
wiring diagram supplied with the machine.



**T501** – Power Supply  
code 00L0513037

**U201** – Inverter Card INV01ROB\_2  
code 1430300271

**H3000** - Buzzer  
code 0530300000

**U553** - PLC PLC03ROB Card  
code 1430300289

**U30** – R-connect Module





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**I/O DESCRIPTION (INPUTS/OUTPUTS) (PLC03ROB (U553)) – ECOPLAT PLUS BASE**

**Inputs status – Plc card (U553)**

| Connector | Input | Led        | Input Description        | Status | Led Status                                                                               |
|-----------|-------|------------|--------------------------|--------|------------------------------------------------------------------------------------------|
| J5        | IN7   | S15        | Table in Phase sensor    | N.O.   | Table in phase = led ON                                                                  |
| J5        | IN8   | S16        | Rotation speed PLUS      | N.O.   | Button pressed = led ON                                                                  |
| J5        | IN9   | S17        | Rotation speed MINUS     | N.O.   | Button pressed = led ON                                                                  |
| J5        | IN10  | S18        | Carriage speed PLUS      | N.O.   | Button pressed = led ON                                                                  |
| J5        | IN11  | S19        | Carriage speed MINUS     | N.O.   | Button pressed = led ON                                                                  |
| J5        | IN12  | S20        | Contact 1 turn selector  | N.O.   | Contact 1 = led ON                                                                       |
| J5        | IN13  | S21        | Contact 2 turn selector  | N.O.   | Contact 2 = led ON                                                                       |
| J6        | IN3   | S10<br>S11 | Safety Bypass Selector   |        | Selector NOT Activated<br>S10 = ON S11 = OFF<br>Selector Activated<br>S10 = OFF S11 = ON |
| J1        | INA   |            | Reset Button             | N.O.   | Button pressed = led ON                                                                  |
| J6        | IN4   | S12        | Stop Button              | N.C.   | Button pressed = led OFF                                                                 |
| J6        | IN5   | S13        | Start Button             | N.O.   | Button pressed = led ON                                                                  |
| J6        | IN6   | S14        | Product height photocell | N.O.   | Product detected = led ON                                                                |

**Outputs status – Plc card (U553)**

| Connector | Output | Led | Output Description |
|-----------|--------|-----|--------------------|
| J1        | OUT1   | S8  | Buzzer             |
| J1        | OUT2   | S9  | Start Led          |
| J1        | OUT3   | S10 | Reset Led          |
| J1        | OUT4   | S11 | Reserve            |



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**I/O DESCRIPTION (INPUTS/OUTPUTS) (PLC03ROB (U553)) – ECOPLAT PLUS FRD**

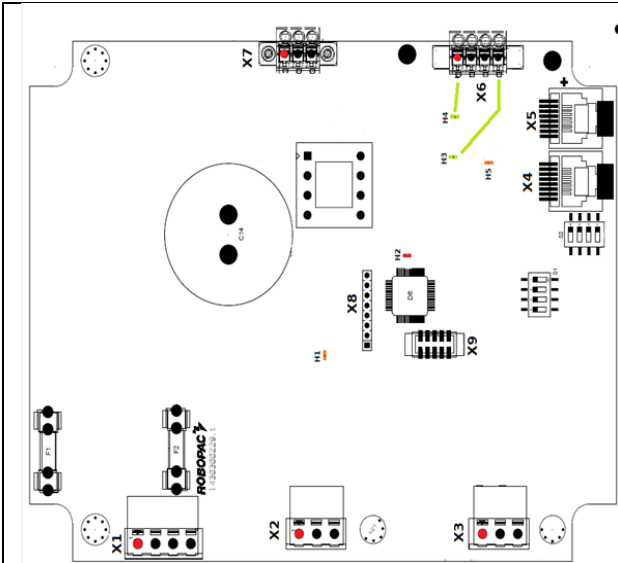
**Inputs status – Plc card (U553)**

| Connector | Input | Led        | Input Description        | Status | Led Status                                                                               |
|-----------|-------|------------|--------------------------|--------|------------------------------------------------------------------------------------------|
| J5        | IN7   | S15        | Table in Phase sensor    | N.O.   | Table in phase = led ON                                                                  |
| J6        | IN3   | S10<br>S11 | Safety Bypass Selector   |        | Selector NOT Activated<br>S10 = ON S11 = OFF<br>Selector Activated<br>S10 = OFF S11 = ON |
| J6        | IN4   | S12        | Stop Button              | N.C.   | Button pressed = led OFF                                                                 |
| J6        | IN5   | S13        | Start Button             | N.O.   | Button pressed = led ON                                                                  |
| J6        | IN6   | S14        | Product height photocell | N.O.   | Product detected = led ON                                                                |
| J5        | IN1   | S10        | Carriage Emergency       | N.C.   | Emergency pressed = led OFF                                                              |
| J1        | INA   | S9         | Reset Button             | N.O.   | Button pressed = led ON                                                                  |

**Outputs status – Plc card (U553)**

| Connector | Output | Led | Output Description |
|-----------|--------|-----|--------------------|
| J1        | OUT1   | S8  | Buzzer             |
| J1        | OUT2   | S9  | Reserve            |
| J1        | OUT3   | S10 | Reserve            |
| J1        | OUT4   | S11 | Reserve            |

**Inverter Card INV01ROB\_2 (U201) – CODE 1430300271**



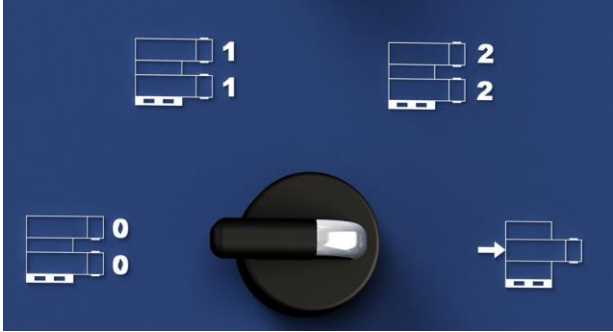






**Table description: status input (U201) Table Rotation Motor and Carriage Lift Motor.**

| LED Number | Input description            | Led Status                | Contact Type |
|------------|------------------------------|---------------------------|--------------|
| H1         | 230 VAC Power                | ON                        |              |
| H2         | Error Led                    | 1 regular blink           |              |
| H3         | Input 1 on X6 – TOP MICRO    | Carriage TOP = Led OFF    | N.C.         |
| H4         | Input 4 on X6 – BOTTOM MICRO | Carriage BOTTOM = Led OFF | N.C.         |
| H5         | 24V Modbus Power             | ON                        |              |

**Table description (U201): X1 – X2 – X3 – X4 – X5 – X6 – X7 – X8 – X9 Connectors**






| Connector Number | Description                 |
|------------------|-----------------------------|
| X1               | 230 VAC – Card Power Supply |
| X2               | Motor 2 – Carriage Lift     |
| X3               | Motor 1 – Table Rotation    |
| X4               | Communication Out           |
| X5               | Communication In            |
| X6               | Digital Inputs              |
| X7               | Driver Enable               |
| X8               | SD for SW update            |
| X9               | Debug                       |

**RECIPE DATA LIST**  
**ECOPLAT BASE**

| Parameter                                                                                                       |                                                                                      | Min. – Max.                                    | Step | Unit of measure / Note |
|-----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|------------------------------------------------|------|------------------------|
| Type of packaging cycle<br><br> |    | Zero Bottom Turns<br>Zero Top Turns            |      |                        |
|                                                                                                                 |    | One Bottom Turns<br>One Top Turns              |      |                        |
|                                                                                                                 |    | Two Bottom Turns<br>Two Top Turns              |      |                        |
|                                                                                                                 |    | Manual Reinforcement turns<br>during the cycle |      |                        |
| Rotation Speed Adjustment                                                                                       |  |                                                |      |                        |
| Carriage Speed Adjustment                                                                                       |  |                                                |      |                        |

ECOPLAT FRD

| Parameter                       |  | Min. – Max.                          | Step | Unit of measure / Note |
|---------------------------------|--|--------------------------------------|------|------------------------|
| Type of packaging cycle<br><br> |  | Up and Down cycle                    |      |                        |
|                                 |  | Only Up cycle and<br>Only Down cycle |      |                        |
|                                 |  | Top sheet cycle                      |      |                        |
|                                 |  | Manual Cycle                         |      |                        |
|                                 |  | Eco Cycle                            |      |                        |
| Photocel delay (PD)             |  | (PD) 0 - 100                         | 1    | Centimeters            |
| Altimeter (H)                   |  | (H) 50 - 220                         | 1    | Centimeters            |

|                                                        |                                                                                     |                  |            |                     |
|--------------------------------------------------------|-------------------------------------------------------------------------------------|------------------|------------|---------------------|
| <p>Ergonomic carriage lift at the end of the cycle</p> |    | <p>0 - 100</p>   | <p>1</p>   | <p>Centimeters</p>  |
| <p>Carriage up and down speed</p>                      |   | <p>1.4 – 4.0</p> | <p>0.1</p> | <p>m/minute</p>     |
| <p>Rotation speed</p>                                  |   | <p>4 - 10</p>    | <p>1</p>   | <p>turns/minute</p> |
| <p>Bottom Turns</p>                                    |   | <p>0 – 10</p>    | <p>1</p>   | <p>Turns</p>        |
| <p>Top Turns</p>                                       |  | <p>0 - 10</p>    | <p>1</p>   | <p>Turns</p>        |

**MANUAL OPERATIONS IN ECOPLAT BASE**

Carriage UP : Press [1] (+ speed carriage) + [3] ( Stop)

Carriage DOWN : Press [2] (- speed carriage) + [3] ( Stop)

Plate Rotation : Press [4] (+ speed table) + [3] ( Stop)

**ECO CYCLE DESCRIPTION**

Select the cycle 5 = ECO



Press and keep pressed thel  
JOG **J** and press the button  
STOP **S**, on the digit REC is  
displayed

Press the START button to  
confirm



Press AGAIN the START button **ST** to start the rotation of the table



Use the JOG **J** to move the carriage Up and DOWN during the cycle

- The cycle ends after pressing the STOP button **S** forcing a stop in phase of the table
- To save the cycle press and keep pressed the JOG **J** and press the STOP **S** button



**KEYBOARD LOCK FUNCTION IN ECOPLAT FRD (NO BASE)**


To lock the parameters, keep the JOG (J) pressed for 5 seconds until the LOC is displayed

At this point is possible to change only the cycle number (1-2-3-4-5) without possible to change the working parameters

To unlock the parameters keep the JOG (J) pressed for 5 seconds until the FRE is displayed

## PHOTOCELL DELAY CHANGE ON ECOPLAT BASE

|                                                                                                                                                                                                                                                    |                                                                                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <p>Make sure the carriage is at the low end position</p>                                                                                                                                                                                           |                                                                                       |
| <p>Turn off the machine</p>                                                                                                                                                                                                                        |                                                                                       |
| <p>Turn on the machine and wait the Reset button to be on<br/>Press and keep pressed both carriage speed change buttons [1] + [2] and then press also the Reset button [3] keeping both other buttons pressed (you enter manual carriage mode)</p> |   |
| <p>Release all the buttons</p>                                                                                                                                                                                                                     |                                                                                       |
| <p>Pressing the '+' [2] button (increase in carriage ascent speed) the carriage goes up</p>                                                                                                                                                        |  |
| <p>To record a new measurement of the photocell delay move the carriage upwards to the desired distance<br/>- this value will be reproduced at the end of the pallet during cycle -</p>                                                            |                                                                                       |
| <p>To record a new measurement of the photocell delay move the carriage upwards to the desired distance</p>                                                                                                                                        |                                                                                       |

|                                                                                                                             |                                                       |                                      |               |
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## MACHINE CONFIGURATION AND INTERNAL PARAMETERS LIST

It is possible to change the parameter values by inserting a text file named "DATA.TXT" inside a USB key. Then insert the key into the USB port on the electric box when the machine is off and turn on the machine.

At this point the parameters inside the machine will be updated.

*Syntax of the file DATA.TXT:*

The text file "DATA.TXT" must be written following the syntax:

"P[*Machine parameter index*]=[*Parameter value*];"

or,

"T[*Rotation motor parameter index*]=[*Parameter value*];"

or,

"C[*Carriage motor parameter index*]=[*Parameter value*];"

Examples:

**P1=1;** (*will set parameter 1 to 1*)

**P2 = 0 ;** (*will set parameter 2 to 2*)

**T4 = 200;** (*will set parameter 4 of the rotation motor to 200*)

NOTE:

- Only the parameters indicated in the DATA.TXT file will be modified. The others will remain unchanged
- In addition to the text file method in the USB pen, it is possible to change the values of the machine parameters from the display (ECOPLAT-FRD), entering the display pages of the counters
- In the base ecoplat the first 10 parameters can be modified also with a procedure WITHOUT USB key (see below)
- The values of the machine parameters, rotation motor and lifting motor can be changed simultaneously



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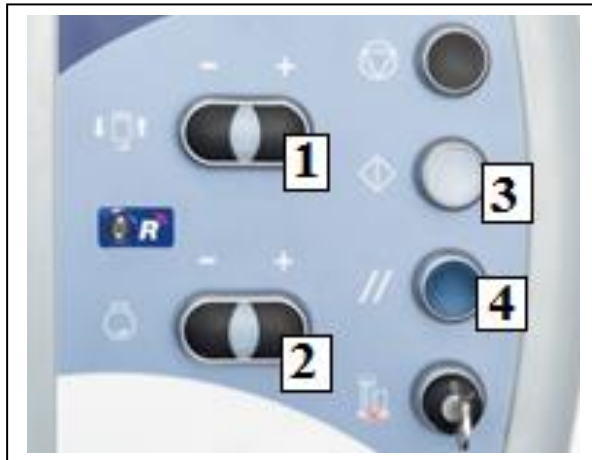
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## ECOPLAT PLUS BASE PARAMETERS

| PARAMETER | RANGE   | DEFAULT | DESCRIPTION                                                              |
|-----------|---------|---------|--------------------------------------------------------------------------|
| P1        | 0-1     | 0       | Enable FILM BREAK (Enable if R-Connect is present with film consumption) |
| P2        | 0-1     | 0       | TABLE TYPE<br>0 = Diameter 1500-1650mm<br>1 = Low Profile Table          |
| P3        | 0-1     | 0       | PALLET START alarm enable                                                |
| P4        | -       | -       | Free                                                                     |
| P5        | -       | -       | Free                                                                     |
| P6        | -       | -       | Free                                                                     |
| P7        | -       | -       | Free                                                                     |
| P8        | -       | -       | Free                                                                     |
| P9        | -       | -       | Free                                                                     |
| P10       | -       | -       | Free                                                                     |
| P11       | 0-65535 | 0       | Film Weight                                                              |
| P12 – P39 | -       | -       | Free                                                                     |
| P40       | 0 - 60  |         | RESTART (Seconds of pause between one cycle and the next)                |

## MACHINE CONFIGURATION AND INTERNAL PARAMETERS LIST ON ECOPLAT BASE

- It's possible to change manually the first 10 parameters of the machine, working directly on the buttons START and RESET.
- To enter into the modification mode, turn on the machine and wait to enter into RESET status (lamp on the RESET button turns on).
- Press simultaneously the buttons Rotation Speed + [2], Carriage Speed + [1] and the START [3] button



- Now the lamp on the START [3] button start to blink. The number of the flashes means the number of the selected parameter, pressing the START button the index of the selected parameter is increased

1 FLASHING = Parameter P1

2 FLASHES = Parameter P2

...

10 FLASHES = Parameter P10

- Pressing the RESET [4] button the value of the selected parameter changes from ZERO to ONE and from ONE to ZERO (only two values), the led on the RESET [4] button means its value

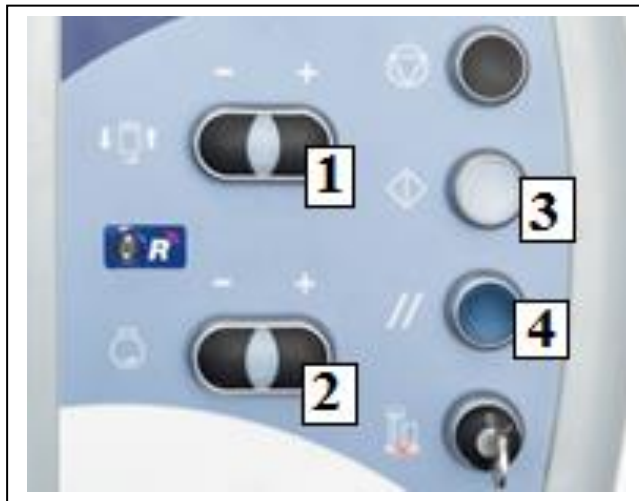
RESET LED OFF --- > Parameter Value is ZERO

RESET LED ON --- > Parameter Value is ONE

Example:

Start Led = 2 Flashes, Reset Led OFF ----- > P2 = 0

Start Led = 3 Lampeggi, Reset Led ON ----- > P3 = 1



- Once all the parameters of interest have been changed, switch off the machine



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## ECOPLAT PLUS FRD PARAMETERS

| PARAMETER | RANGE   | DEFAULT | DESCRIPTION                                                              |
|-----------|---------|---------|--------------------------------------------------------------------------|
| P1        | 0-1     | 0       | Enable FILM BREAK (Enable if R-Connect is present with film consumption) |
| P2        | 0-1     | 0       | TABLE TYPE<br>0 = Diameter 1500-1650mm<br>1 = Low Profile Table          |
| P3        | 0-1     | 0       | PALLET START alarm enable                                                |
| P4        | 0-2     | 0       | MAST HEIGHT<br>0 = Mast 2200mm<br>1 = Mast 2400mm<br>2 = Mast 2800mm     |
| P5        | 0-1     | 0       | Enable DISPLAY USA<br>0 = Metric System<br>1 = Imperial System (USA)     |
| P6        | -       | -       | Free                                                                     |
| P7        | -       | -       | Free                                                                     |
| P8        | -       | -       | Free                                                                     |
| P9        | -       | -       | Free                                                                     |
| P10       | -       | -       | Free                                                                     |
| P11       | 0-65535 | 0       | Film Weight                                                              |
| P12 – P39 | -       | -       | Free                                                                     |
| P40       | 0 - 60  |         | RESTART (Seconds of pause between one cycle and the next)                |



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## DISPLAY AND COUNTERS / PARAMETERS CHANGE ON ECOPLAT FRD

To display the COUNTERS menu turn on the machine keeping the JOG pressed


Release it as soon as the word "DAT" appears on the display.

Pressing the JOG scrolls the list of data and parameters according to the following table.

To modify a parameter press the JOG to select it. Turning clockwise increases the value (counterclockwise decreases).

Press the JOG to confirm and advance to the next parameter.

|     |                                                                                                                                                                                                         |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| D1  | Partial cycle counter (0-999) ( <i>resettable with a pressure and prolonged JOG</i> )                                                                                                                   |
| D2  | MSB total cycle counter (0-999) * 1000 ( <i>resettable with a long press of the JOG and superuser privileges</i> ) ( <i>automatically also resets D3</i> )                                              |
| D3  | LSB total cycle counter (0-999)                                                                                                                                                                         |
| D4  | Software Revision                                                                                                                                                                                       |
| D5  | V on DC bus (volt)                                                                                                                                                                                      |
| D6  | Inverter board temperature [degrees centigrade]                                                                                                                                                         |
| RUN | Time elapsed in the AUTOMATIC state [hours] ( <i>it is reset together with D2 and D3</i> )                                                                                                              |
| P1  | Film Break Alarm Enable                                                                                                                                                                                 |
| P2  | Table Type                                                                                                                                                                                              |
| P3  | Enable Pallet Start Alarm                                                                                                                                                                               |
| P4  | Mast Height                                                                                                                                                                                             |
| P5  | Enable Display USA                                                                                                                                                                                      |
| P6  | Free                                                                                                                                                                                                    |
| P40 | Restart ( <i>modifiable with ROBOPAC user privileges</i> )                                                                                                                                              |
| GSM | Display of GSM signal strength * (- 1)                                                                                                                                                                  |
| SW  | Display of the Seneca device software version                                                                                                                                                           |
| RCR | R-Connect enrollment mode ( <i>to enroll the machine follow the instructions below</i> ) (pressing the JOG again returns to the counter "D1"; pressing "STOP" the machine will go to the "RESET" state) |

|                                                                                                                             |                                                       |                                      |               |
|-----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|--------------------------------------|---------------|
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## **R-CONNECT REGISTRATION (IF present)**

### **ECOPLAT-BASE**

To activate R-Connect turn on the machine and wait for it to go to the "RESET" status (lighting of the "RESET" button lamp).

Simultaneously press the "ROTATION SPEED +", "ROTATION SPEED -" and the "RESET" button.

The lamp of the "START" button starts flashing slowly.

Pressing the "START" button starts the activation procedure. During this phase, the "RESET" button will flash quickly until it becomes steady when the procedure is complete. By pressing the "RESET" button the machine will go to the "STOP" state.

Pressing "STOP" the procedure is canceled and the PLC moves to the "RESET" status.

### **ECOPLAT-FRD:**

To activate R-Connect it is necessary to reach the "RCR" page in the counters display mode (previous point) and press the "START" button.

Wait for all four LEDs to light up in the top line of the display.

At this point the procedure is deemed to have ended.

Pressing the JOG returns to the value "D1".

By pressing the "STOP" button the machine will go to the "RESET" status.



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## MOTOR PARAMETERS

| PARAMETER | DESCRIPTION                | VALUE          | ROTATION | CARRIAGE |
|-----------|----------------------------|----------------|----------|----------|
| 1         | FW version                 |                |          |          |
| 2         | Bootloader version         |                |          |          |
| 3         | Minimum frequency          | 0-20 (Hz)      | 0        | 0        |
| 4         | Maximum frequency          | 0-100 (Hz)     | 100      | 100      |
| 5         | Acceleration               | 0-999 (Hz/sec) | 12       | 200      |
| 6         | Deceleration               | 0-999 (Hz/sec) | 12       | 200      |
| 7         | Maximum current            | 0-10 (A)       | 7        | 5        |
| 8         | Average current            | 0-100 (dA)     | 50       | 25       |
| 9         | Rated frequency            | 0-100 (Hz)     | 50       | 72       |
| 10        | Boost voltage              | 0-100 (%)      | 20 ***   | 5        |
| 11        | Point 1 frequency          | 0-100 (Hz)     | 10       | 10       |
| 12        | Point 1 voltage            | 0-100 (%)      | 25 ***   | 16       |
| 13        | Motor type                 | 0-5            | 0        | 0        |
| 14        | Positioning on             | 0-1            | 0        | 0        |
| 15        | I Max Low Frequency        | 0-100          | 50       | 25       |
| 16        | Feedback Value             | 0-6            | 0        | 0        |
| 17        | Early low speed            | 0-999          | 100      | 0        |
| 18        | Low speed value            | 0-999 (dHz)    | 50       | 50       |
| 19        | Fast deceleration (Hz/sec) | 0-999 (Hz/sec) | 100      | 65       |
| 20        | Communication Timeout      | 0-100 (ms)     | 30       | 30       |

\*\*\* before July 2020

T10 = 5

T12 = 20

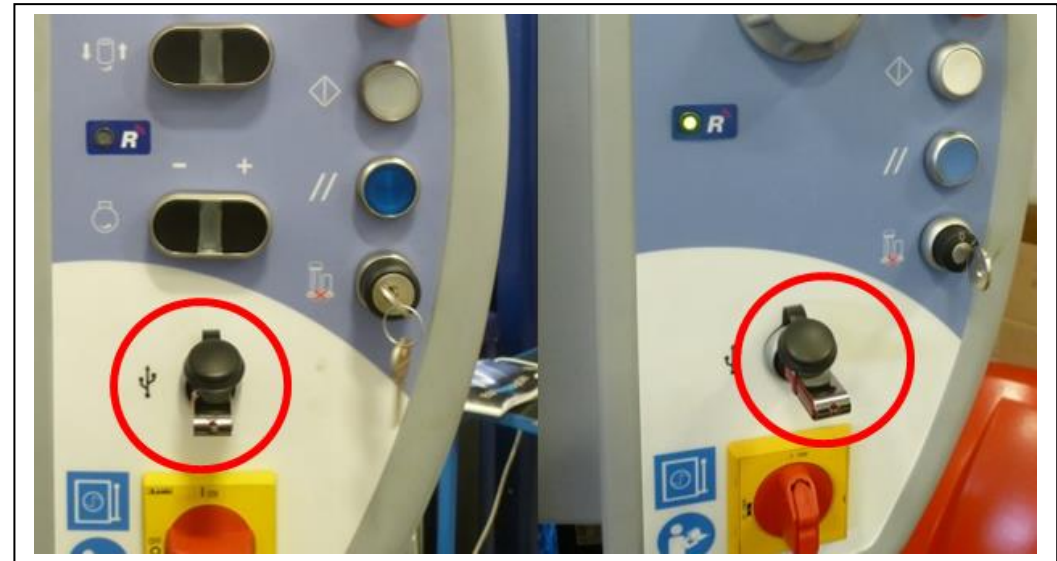
## PROCEDURE FOR REPLACING, LOADING SOFTWARE AND CALIBRATION OF ELECTRONIC CARDS

### PLC CARD

The only card that need software in case of its replacement is the PLC card.

When it's needed to replace the PLC or to make a software update follow indications below

USB pen and related software is required



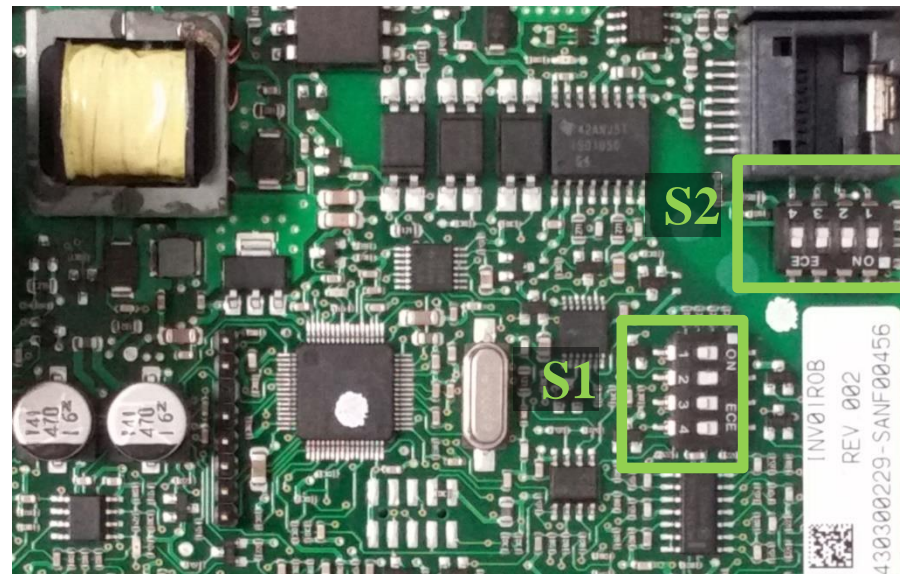
1. Be sure the PLC03ROB card is not powered  
(machine off)
2. Insert the USB pen prepared previously on the USB pen placed on the electrical box
3. Turn on the machine using the main switch
4. Wait for the machine to start. (The Reset button turns on on Ecoplat-Base or display of Reset ("RES") on Ecoplat-FRD)
5. Procedure completed

**INVERTER CARD (U201)**

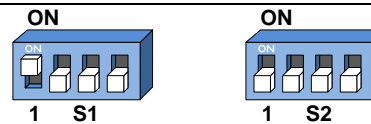
This electronic card is provided as spare part COMPLETE with software.



- Switch off the machine.
- Mount mechanically the new card in place of the faulty card.
- Wire electrically the new card.
- Place the S1 and S2 switches of the card as follows:



**Inverter Card U201**  
- Table Rotation Motor  
- Carriage Up/Down Motor




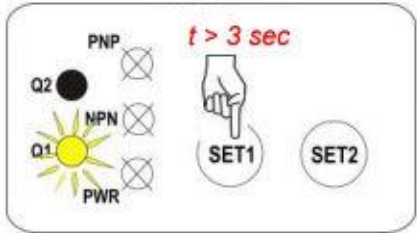
- The values of the Motor Parameters are automatically loaded by the PLC on the Inverter board

## PRODUCT HEIGHT DETECTION PHOTOCELL CALIBRATION

### STANDARD PHOTOCELL (for clear products)

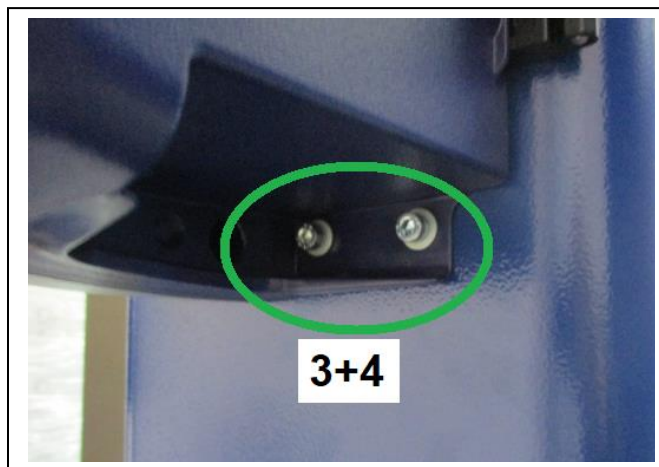
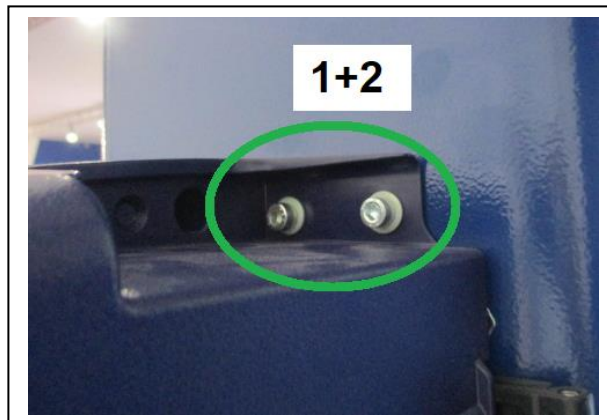
Adjust the photocell sensitivity trimmer about to load center; approximately set the trimmer to time 2 (looking the photocell from back in order to read the written DL).

### PHOTOCELL FOR BLACK PROUCTS S65

|                                                                                                           |                                                                                   |
|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|                          | <p>Place the target at the center of the pallet</p>                               |
| <p><b>Teach-In</b></p>  | <p>Keep pressed the Set1 button for more than 3 seconds, till led Q1 flashing</p> |
| <p>Release the button, target detected</p>                                                                |                                                                                   |

**INSTRUCTIONS for the OPENING of the ELECTRICAL PANEL**

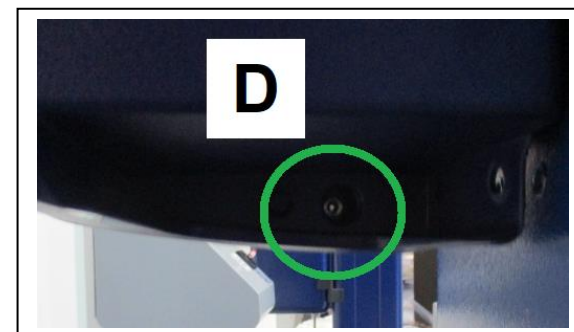
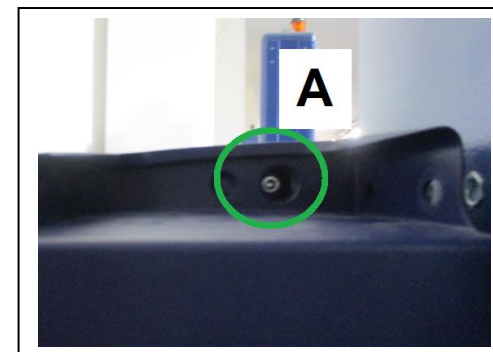
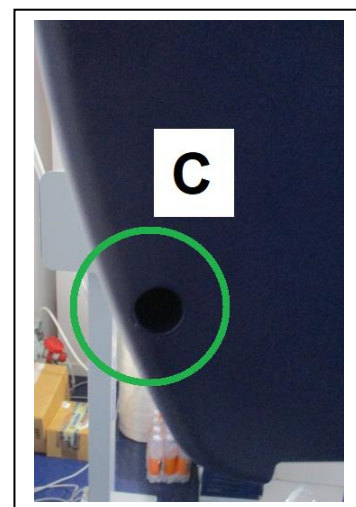
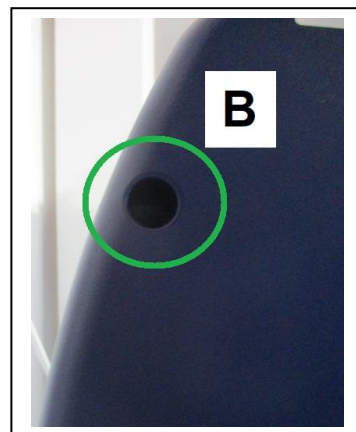
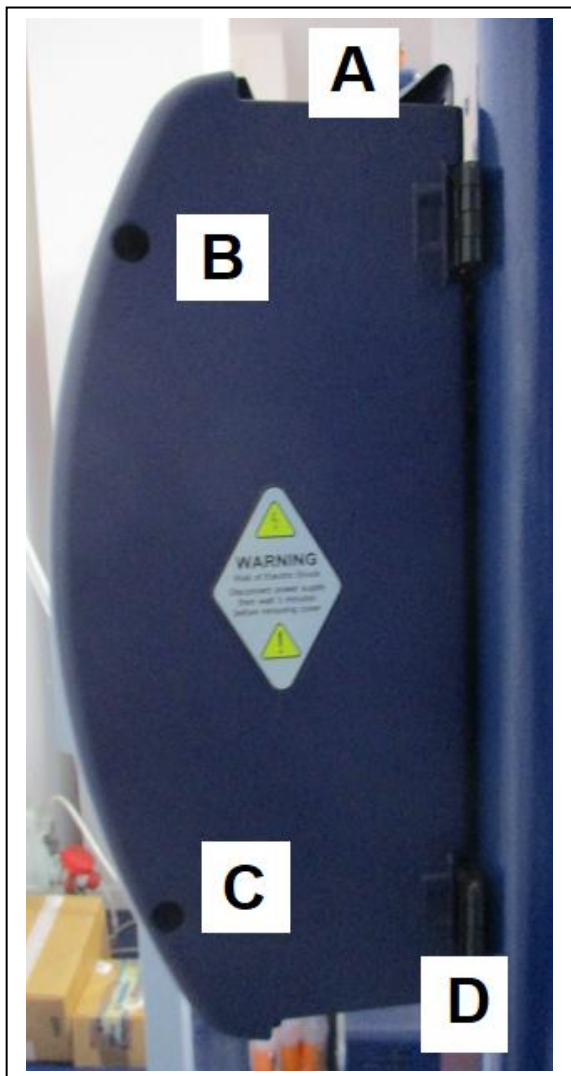
Unscrew the 4 screws that connect the panel to the mast,  
1+2 and then 3+4



now the electrical panel can rotate ...



Unscrew the 4 screws that close the electrical panel,  
A, B, C and D



now it is possible to open the electrical panel




... to close the panel, insert in the order  
the screws A, B, C, D, 1+2, 3+4



|                                             |                                                       |                               |               |
|---------------------------------------------|-------------------------------------------------------|-------------------------------|---------------|
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## LISTA ALLARMI E RICERCA GUASTI ECOPLAT PLUS FRD

| Alarm code | Alarm description                                                                                                          | Troubleshooting                                                                                                            | Cause of the fault                                              | Solution                                                                                        |
|------------|----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| <b>E02</b> | <b>Carriage descent safety alarm</b><br> | Carriage descent emergency                                                                                                 | Obstacle between floor and carriage                             | If the obstacle cannot be manually removed, turn the key button and manually lift the carriage. |
|            |                                                                                                                            | Check the conditions of the limit stop connected to the emergency plate.<br><br>Check input IN1 (Led S10) on the PLC card. | The safety limit stop connected to the metallic plate is broken | Replace the mechanical limit stop                                                               |

|            |                                      |                                                                                          |                                                                                  |                                  |
|------------|--------------------------------------|------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------|
| <b>E31</b> | <b>Table Motor Inverter Alarm</b>    | Disconnect the turntable rotation motor from the inverter card and start a packing cycle | If the alarm message disappears there is a fault of the turntable rotation motor | Replace turntable rotation motor |
|            |                                      |                                                                                          | If the alarm message doesn't disappear, there is a fault on the inverter card.   | Replace the inverter card.       |
|            |                                      | Check the gearbox connected to the turntable rotation motor.                             | Possible fault of the gearbox                                                    | Replace the gearbox              |
| <b>E32</b> | <b>Carriage Motor Inverter Alarm</b> | Disconnect the carriage motor from the inverter card and start a packing cycle           | If the alarm message disappears there is a fault of the carriage motor           | Replace carriage motor           |
|            |                                      |                                                                                          | If the alarm message doesn't disappear, there is a fault on the inverter card.   | Replace the inverter card.       |
|            |                                      | Check the gearbox connected to the carriage motor.                                       | Possible fault of the gearbox                                                    | Replace the gearbox              |


|            |                                                                              |                                                                                                                                 |                                                                        |                                                                                |
|------------|------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| <b>E60</b> | <b>Film break alarm</b><br>(only if present R-connect with film consumption) | Film not applied to the pallet or film ended.                                                                                   |                                                                        | Replace the film spool, or apply again the film to the pallet and press START. |
|            |                                                                              | Check the correct operation of the film consumption sensor                                                                      | The film consumption sensor is not sending the signal to the PLC card. | Check the connections and / or replace the film consumption sensor.            |
|            |                                                                              |                                                                                                                                 | The film consumption sensor works correctly.                           | Replace the PLC card                                                           |
| <b>E61</b> | <b>Table rotation alarm</b>                                                  | Check revolution counter sensor position (the alarm appears with there is no PLC input signal for at least 2 table revolutions) | Incorrect sensor position.                                             | Correctly reposition the sensor                                                |
|            |                                                                              | Check correct sensor operations                                                                                                 | Possible sensor and relevant wiring fault                              | Replace the sensor                                                             |
|            |                                                                              | Check input IN7 (Led S15) on the PLC card.                                                                                      | Possible PLC board fault                                               | Replace the PLC board.                                                         |

|            |                                 |                                                                                                                                                               |                                                                                                                          |                                                 |
|------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| <b>E64</b> | <b>Carriage speed alarm</b>     | <p>The carriage is not working at the set speed or the carriage is blocked. Check the correct functioning of the up / down carriage</p>                       | <p>Possible failure of the carriage up / down motor or failure of the relative wiring.</p>                               | <p>Replacing the motor, restore the wiring.</p> |
|            |                                 | <p>Check carriage up-down motor connection and connection to U201 board.</p>                                                                                  | <p>Possible failure of the U201 board.</p>                                                                               | <p>Replace the U201 board.</p>                  |
| <b>E69</b> | <b>Alarm steps in eco cycle</b> | <p>Reached maximum moving steps in ECO cycle (self-learning)</p>                                                                                              | <p>During the setting of ECO packing cycle, has been overcome the maximum number of recordable steps (25 movements).</p> | <p>Remake an ECO cycle</p>                      |
| <b>E74</b> | <b>Pallet start alarm</b>       | <p>If the pallet start parameter is enabled, the machine cycle does not start if the photocell does not see the product while the START button is pressed</p> |                                                                                                                          | <p>Placet the pallet e restart the cycle</p>    |

|            |                                                                                                                           |                                                                          |                                                                                                    |                                                                        |
|------------|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| <b>E83</b> | <b>Communication Alarm</b>                                                                                                | Check the connections between the PLC the display and the inverter card. | Possible failure of a communication cable                                                          | Check the connection and/or replace the connection cable.              |
|            |                                                                                                                           |                                                                          | Possible communication hub failure                                                                 | Check the connection and/or replace the connection hub.                |
|            |                                                                                                                           | If necessary, try again by connecting one device at a time.              | Possible failure of the inverter card                                                              | Replace the inverter card                                              |
|            |                                                                                                                           |                                                                          | Possible panel card failure                                                                        | Replace the panel card                                                 |
|            |                                                                                                                           |                                                                          | Possible failure of the PLC card                                                                   | Replace the PLC card.                                                  |
| <b>IN0</b> | <b>Lack of communication between DISPLAY and PLC</b><br><br>The panel board is powered but not communicating with the PLC | Check the connections between the PLC the display and the inverter card. | Possible failure of a communication cable                                                          | Check the connection and/or replace the connection cable.              |
|            |                                                                                                                           |                                                                          | Possible communication hub failure                                                                 | Check the connection and/or replace the connection hub.                |
|            |                                                                                                                           |                                                                          | Check the connection of the communication cable in connectors X4 and X5 rj45 of the inverter board | If the rj45 connector (s) is / are damaged, replace the inverter board |
|            |                                                                                                                           | If necessary, try again by connecting one device at a time.              | Possible failure of the inverter card                                                              | Replace the inverter card                                              |
|            |                                                                                                                           |                                                                          | Possible panel card failure                                                                        | Replace the panel card                                                 |
|            |                                                                                                                           |                                                                          | Possible missing software in the PLC                                                               | Download the software on the PLC                                       |
|            |                                                                                                                           |                                                                          | Possible failure of the PLC card                                                                   | Replace the PLC card.                                                  |

## ECOPLAT PLUS BASE

In the ECOPLAT-BASE, the type of alarm is notified to the user through a coding of **flashes of the lamp on the RESET button**, as shown in the following table

| N°Flashes on the RESET Button | Alarm description                                                                                                          | Troubleshooting                                                                                                            | Cause of the fault                                              | Solution                                                                                        |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| 2                             | <b>Carriage descent safety alarm</b><br> | Carriage descent emergency                                                                                                 | Obstacle between floor and carriage                             | If the obstacle cannot be manually removed, turn the key button and manually lift the carriage. |
|                               |                                                                                                                            | Check the conditions of the limit stop connected to the emergency plate.<br><br>Check input IN1 (Led S10) on the PLC card. | The safety limit stop connected to the metallic plate is broken | Replace the mechanical limit stop                                                               |

|   |                                                                       |                                                                                                           |                                                                                                   |                                                                                |
|---|-----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| 3 | Inverter alarm                                                        | Disconnect the turntable rotation motor / carriage motor from the inverter card and start a packing cycle | If the alarm message disappears there is a fault of the turntable rotation motor / carriage motor | Replace turntable rotation motor / carriage motor                              |
|   |                                                                       |                                                                                                           | If the alarm message doesn't disappear, there is a fault on the inverter card.                    | Replace the inverter card.                                                     |
|   |                                                                       | Check the gearbox connected to the turntable rotation motor / carriage motor                              | Possible fault of the gearbox                                                                     | Replace the gearbox                                                            |
| 4 | Film break alarm<br>(only if present R-connect with film consumption) | Film not applied to the pallet or film ended.                                                             |                                                                                                   | Replace the film spool, or apply again the film to the pallet and press START. |
|   |                                                                       | Check the correct operation of the film consumption sensor                                                | The film consumption sensor is not sending the signal to the PLC card.                            | Check the connections and / or replace the film consumption sensor.            |
|   |                                                                       |                                                                                                           | The film consumption sensor works correctly.                                                      | Replace the PLC card                                                           |

|   |                      |                                                                                                                                       |                                                                                     |                                          |
|---|----------------------|---------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------|
| 5 | Table rotation alarm | Check revolution counter sensor position (the alarm appears with there is no PLC input signal for at least 2 table revolutions)       | Incorrect sensor position.                                                          | Correctly reposition the sensor          |
|   |                      | Check correct sensor operations                                                                                                       | Possible sensor and relevant wiring fault                                           | Replace the sensor                       |
|   |                      | Check input IN7 (Led S15) on the PLC card.                                                                                            | Possible PLC board fault                                                            | Replace the PLC board.                   |
| 6 | Carriage speed alarm | The carriage is not working at the set speed or the carriage is blocked.<br>Check the correct functioning of the up / down carriage . | Possible failure of the carriage up / down motor or failure of the relative wiring. | Replacing the motor, restore the wiring. |
|   |                      | Check carriage up-down motor connection and connection to U201 board.                                                                 | Possible failure of the U201 board.                                                 | Replace the U201 board.                  |



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|----|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------|
| 7  | <b>Pallet start alarm</b> | If the pallet start parameter is enabled, the machine cycle does not start if the photocell does not see the product while the START button is pressed |  | Placet the pallet e<br>restart the cycle |
| 10 | <b>Generic alarm</b>      |                                                                                                                                                        |  |                                          |

|                      |                                                                                                                       |                                                                                                                 |                                                                                    |                                                                                                                         |
|----------------------|-----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| <b>Ecoplat PLUS</b>  | The carriage remains still (does not lift or lower)                                                                   | Check the mechanical high and low limit stops                                                                   | One or both mechanical limit stops are defective.                                  | Replace defective mechanical limit stops.                                                                               |
|                      |                                                                                                                       | Make sure the high and low position limit stops correctly send the signal to the inverter card.                 | Possible high and low mechanical limit stop electrical fault or wires disconnected | Replace the mechanical limit stop or restore wiring                                                                     |
|                      |                                                                                                                       | Check inverter card operating conditions                                                                        | Possible inverter card fault                                                       | Replace the inverter card.                                                                                              |
| <b>Ecoplat PLUS</b>  | The film breaks during the packaging of the product, or is not properly applied to the pallet (too tight or too slow) | Check that the film is correctly applied on the carriage and in particular that it "adheres" to the last roller | Incorrect insertion of the film on the spool carriage                              | Load the film correctly on the machine and make sure to apply it according to the path indicated in the machine manual. |
|                      |                                                                                                                       | Visually check the condition of the rollers                                                                     | The rollers are dirty and mark the film                                            | Clean with pressurized air (do not use thinners)                                                                        |
| <b>Ecoplat PLUS</b>  | The carriage does not go up during working cycle                                                                      | The phase sensor is not working                                                                                 | --- > go to alarm E61                                                              |                                                                                                                         |
|                      |                                                                                                                       | The photocell is not working correctly                                                                          | The photocell does not "sees" the pallet                                           | Adjust the photocell                                                                                                    |
|                      |                                                                                                                       |                                                                                                                 | The PLC card does not detect IN6 (Led S14).                                        | Restore and fix the photocell – card connections                                                                        |
|                      |                                                                                                                       |                                                                                                                 |                                                                                    | Replace the photocell                                                                                                   |
|                      |                                                                                                                       | Check not to have the top microswitch activated                                                                 | Mechanical problem with the microswitch                                            | Adjust / replace the micro                                                                                              |
|                      |                                                                                                                       |                                                                                                                 | Electrical problem with the microswitch                                            | Check the connection                                                                                                    |
| Replace the PLC card |                                                                                                                       |                                                                                                                 |                                                                                    |                                                                                                                         |