TECHNICAL DOCUMENTATION

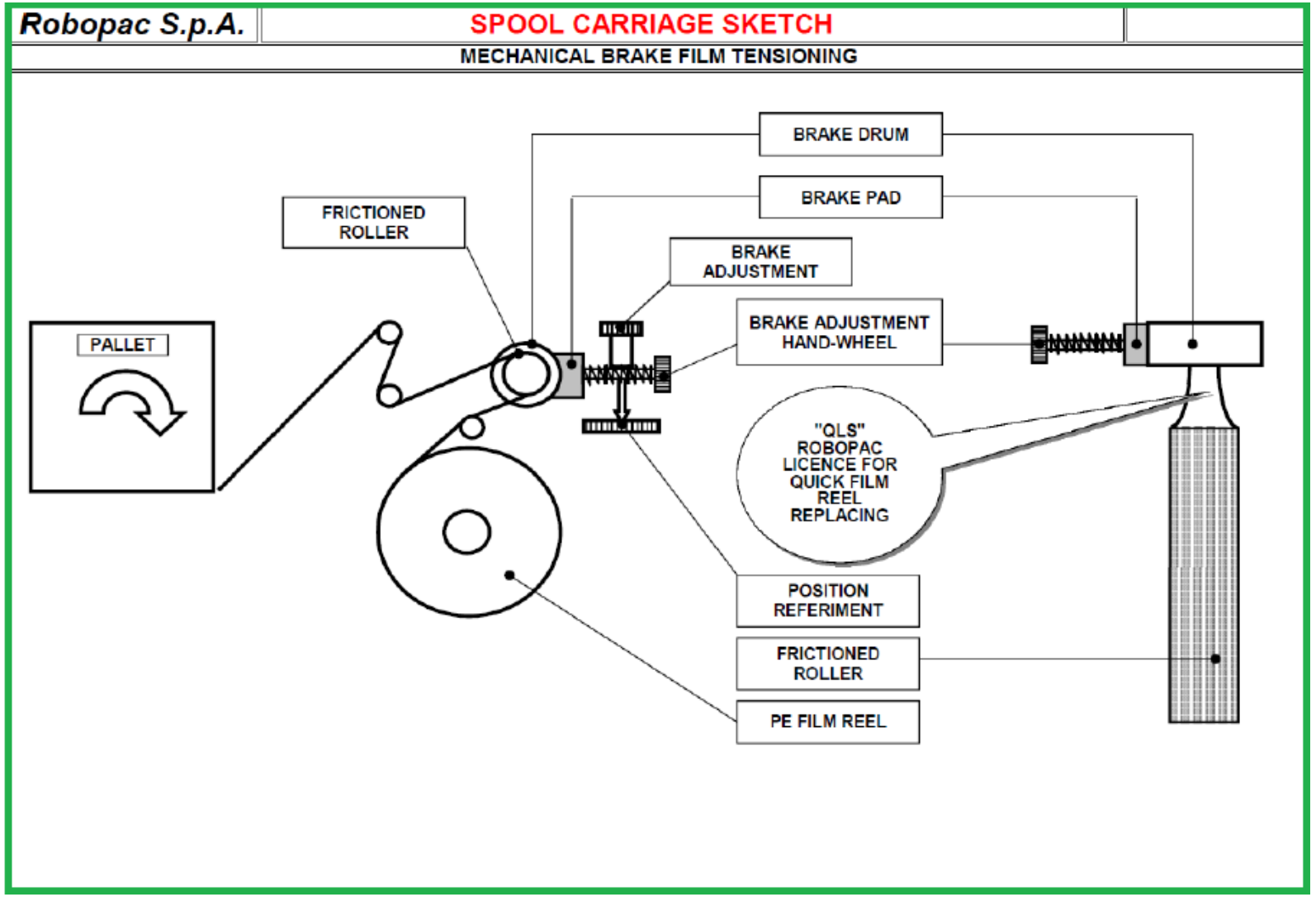
-ECOPLAT FRD/PPS

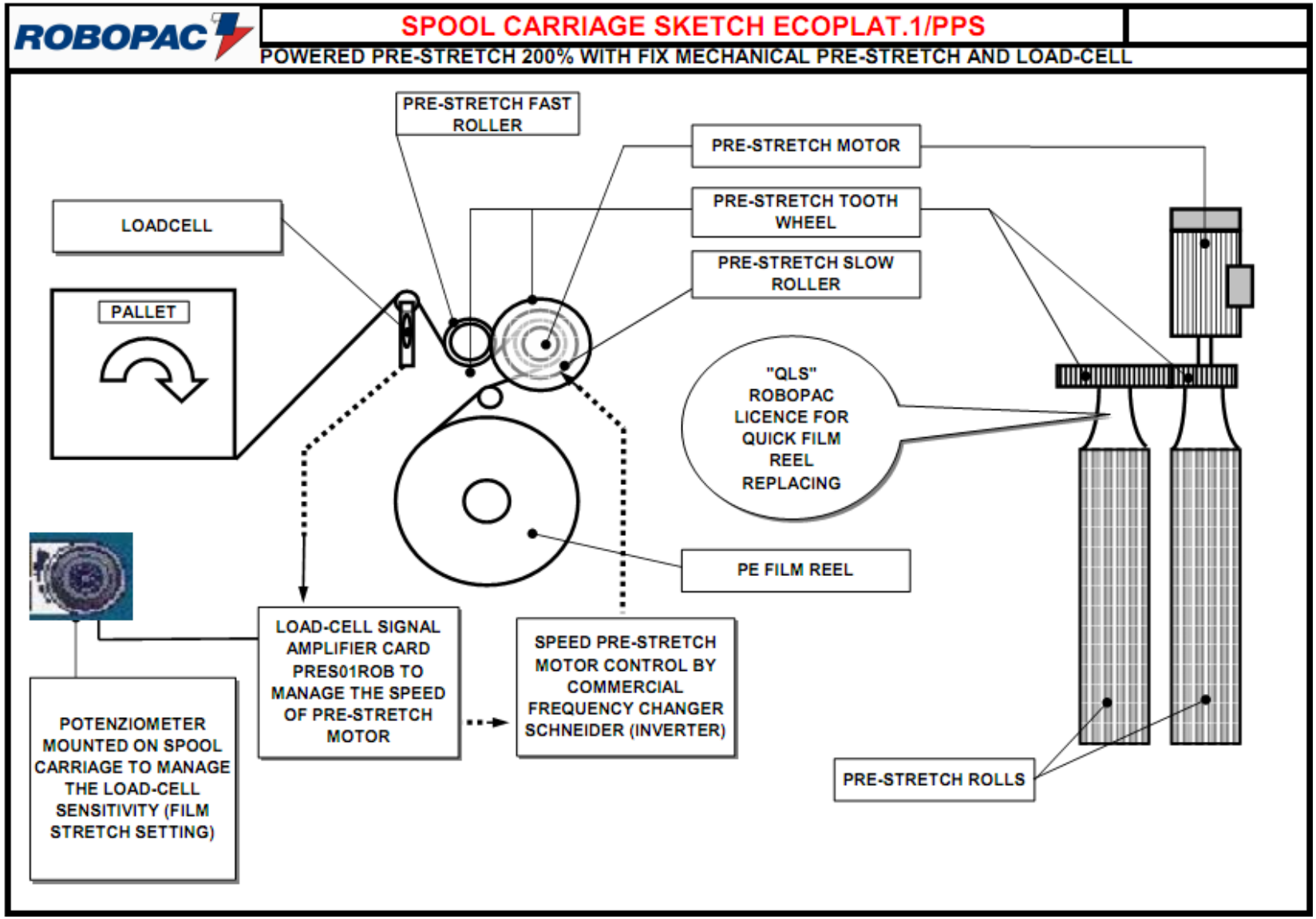
-ECOPLAT BASE

Data	Revisioni	Motivi della Revisione	Emissione	Verifica	Approvazione
30/03/2012	01	Revisione generale	Garavelli D.	Garavelli D.	Garavelli D.
18/09/2017	02	Pallet photocell regulation	Baldinini F.	Baldinini F.	Baldinini F.
06/07/2018	03	Index realization	Baldinini F.	Baldinini F.	Baldinini F.

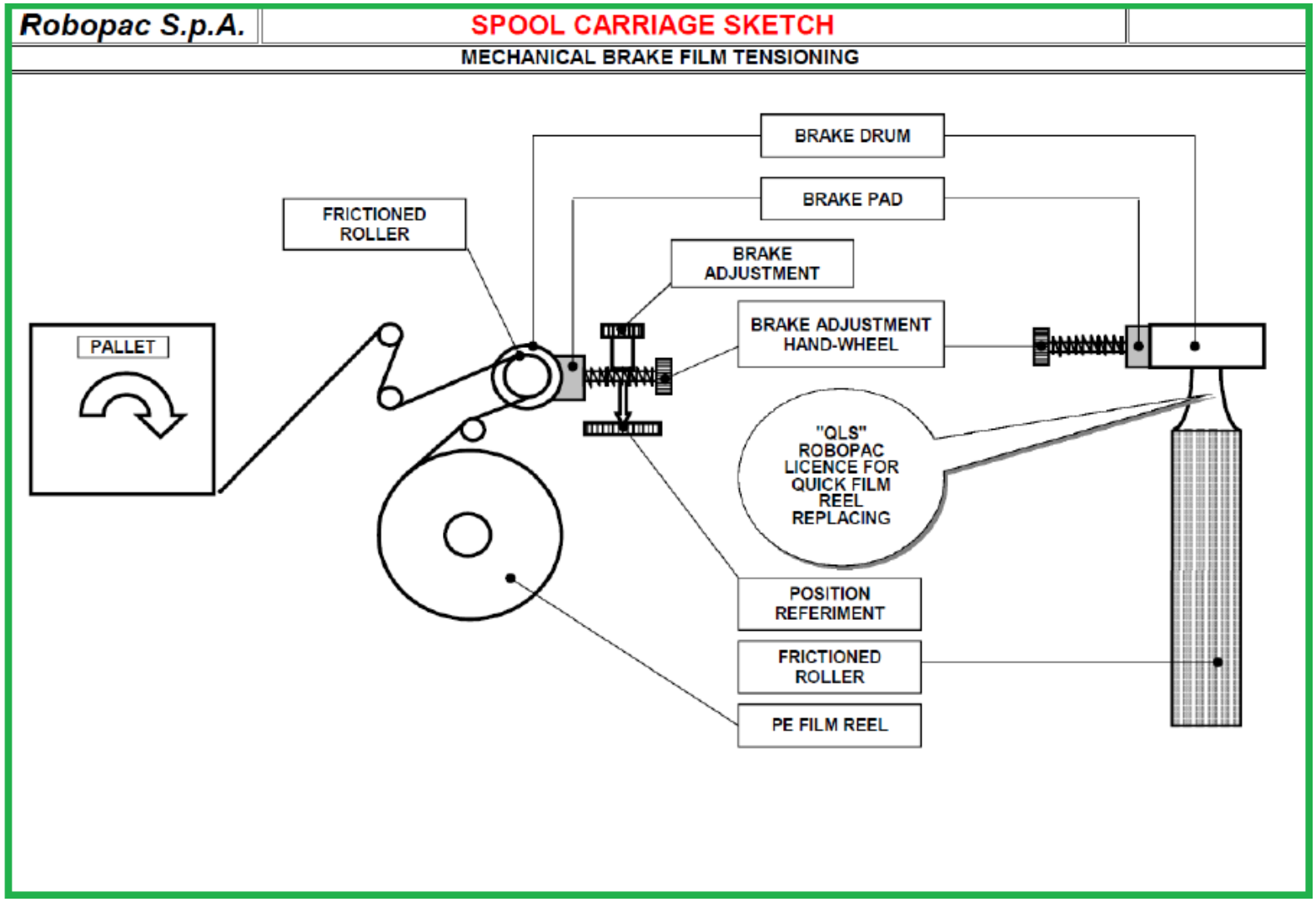
Index

SPOOL CARRIAGES SKETCH DETAILS ECOPLAT FRD/PPS



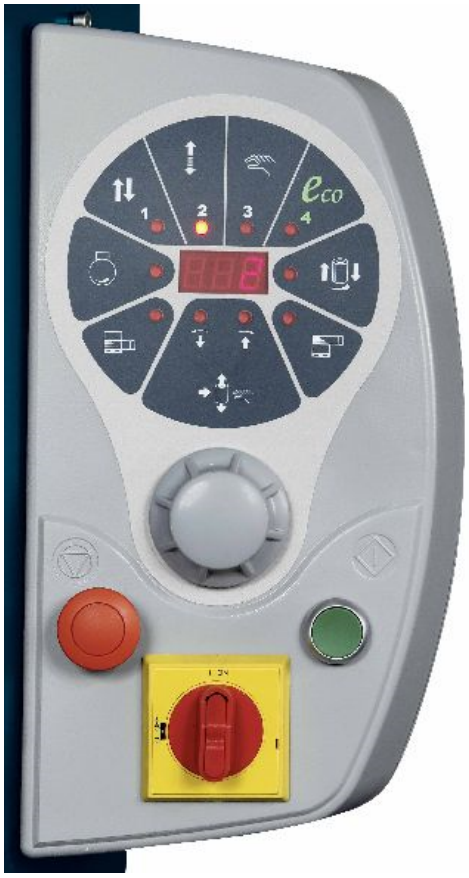

ROBOPAC
SPOOL CARRIAGE SKETCH ECOPLAT.1/PPS
POWERED PRE-STRETCH 200% WITH FIX MECHANICAL PRE-STRETCH AND LOAD-CELL
PRE-STRETCH FAST ROLLER
PRE-STRETCH MOTOR
PRE-STRETCH TOOTH WHEEL
PRE-STRETCH SLOW ROLLER
LOADCELL
PALLET
"QLS" ROBOPAC LICENCE FOR QUICK FILM REEL REPLACING
PE FILM REEL
LOAD-CELL SIGNAL AMPLIFIER CARD PRES01ROB TO MANAGE THE SPEED OF PRE-STRETCH MOTOR
SPEED PRE-STRETCH MOTOR CONTROL BY COMMERCIAL FREQUENCY CHANGER SCHNEIDER (INVERTER)
POTENZIOMETER MOUNTED ON SPOOL CARRIAGE TO MANAGE THE LOAD-CELL SENSITIVITY (FILM STRETCH SETTING)
PRE-STRETCH ROLLS

SPOOL CARRIAGES SKETCH DETAIL ECOPLAT BASE



OPERATOR DESCRIPTION

ECOPLAT FRD/PPS



ECOPLAT BASE

ECOPLAT FRD/PPS

Complete wrapping cycle
UP-DOWN CYCLE SALITA-DISCESA
display readout: **1**

Partial wrapping cycle
ONLY UP OR ONLY DOWN CYCLE
Display readout: **2**

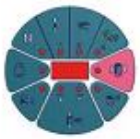
MANUAL CYCLE
Display readout: **3**

ECO CYCLE
Display readout: **4**

function
KEYBOARD LOCK
Display readout: **"FrE", "LoC"**

function
REINFORCEMENT ROTATIONS
Display readout: from **1** to **5**

DIAGNOSTICS
ALARMS signals,
DATA display

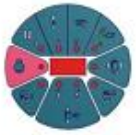


Adjustment
CARRIAGE UP DOWN SPEED
Display readout: from **1.4** to **4.0** (m/min)

adjusting
No. TOP ROTATIONS
Display readout: from **0** to **10**

movement
MANUAL CARRIAGE
Display readout: **"UP"** and **"dn"**

adjusting
No. BOTTOM ROTATIONS
Display readout: from **0** to **10**



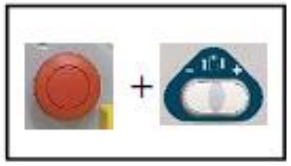
adjusting
TABLE SPEED
Display readout: from **4** to **10** (rpm)

ECOPLAT BASE

adjusting
TABLE SPEED

adjusting
CARRIAGE SPEED

adjusting
TOP/BOTTOM ROTATIONS SELECTOR
&
activation
REINFORCEMENT ROTATIONS



activation
MANUAL CARRIAGE UP/DOWN

PARAMETER CYCLE RANGE

ECOPLAT FRD/PPS

Parameter	Min. –Max.	Step	Measure unit
Bottom wraps	0 – 10	1	Rounds
Top wraps	0 – 10	1	Rounds
Re-enforcement rounds	1 – 5	1	Rounds
Photocell delay	0 – 100	1	Cm
Turntable speed rotation	4 – 10	1	Rounds /minute
Up-ward spool carriage speed	1.4 – 4.0	0.2	m/minute
Down-ward spool carriage speed	1.4 – 4.0	0.2	m/minute
Product weight capacity: • Basement diam.1650 mm. • Basement diam.1500 mm.	 0 - 2000 0 -1200	 -- --	 Kgs Kgs

FRD SPOOL CARRIAGE

Parameter	Min –Max.	Step	Measure unit
Film stretch (mechanical)	--	--	--

PPS SPOOL CARRIAGE

Parameter	Min –Max.	Step	Measure unit
Film stretch (fix pre-stretch)	200 (std) 150 (Opz.) 250 (Opz.)	--- --- ---	%

ECOPLAT BASE

Parameter	Min. –Max.	Step	Measure unit
Bottom wraps	0 – 10	1	Rounds
Top wraps	0 – 10	1	Rounds
Turntable speed rotation	4 – 10	1	Rounds /minute
Up-ward spool carriage speed	1.0 – 4.0	0.1	m/minute
Down-ward spool carriage speed	1.0 – 4.0	0.1	m/minute
Product weight capacity:	0 - 1200	--	Kgs

FRD SPOOL CARRIAGE

Parameter	Min –Max.	Step	Measure unit
Film stretch (mechanical)	--	--	--

KEYBOARD LOCK FUNCTION (for ECOPLAT FRD/PPS only)

It is possible to lock the keyboard of the machine following the next procedure:

1. Turn ON the machine.
2. Keep pressed the "JOG  " button, till get the message "**LoC**" on the display.
3. Make the same operations to un-lock the keyboard till you will get the message "**FrE**" on the display.

When the operator panel is locked, it is possible to play with "START" and "STOP" only to run the packing cycle.

PHOTOCELL DELAY SETTING

ECOPLAT FRD/PPS

To adjust the delay of the photocell which detect the edge of the pallet, on there are two possible ways:

1. Modifying the internal parameter P4 (refer to above paragraph #11)
2. Modifying the data value D7 (refer to above paragraph #7).

ECOPLAT BASE

On Ecoplat Base machine is possible to set the product detection photocell delay according the following procedure:

1. Turn-OFF the machine.
2. Turn-ON the machine simultaneously keeping pressed the push buttons "spool carriage speed  " and then press RESET push button (to enter into the carriage drive mode)
3. Release all push buttons.
4. Press the '**+**  ' push button (increase of spool carriage speed) to move the carriage upward.
   This operation allow you to program an "extra-run" of the spool carriage that will be reproduced like delay time of the product photocell on the top of the pallet.
5. Press the '**-**  ' push button (decrease of spool carriate speed) to return the carriage to the bottom to start the packing cycle.
6. To program a new "product photocell delay time" move up-ward the spool carriage for the requied distance.
7. Turn-OFF the machine to store the required "product photocell delay time".

DATA FILM VISUALIZATION (for ECOPLAT FRD/PPS only)

To see the DATA FILM menu, turn ON the machine keeping pressed the “JOG  ” push button till reading on the display the message “DAT”.

Rotating the “JOG  ” it is possible to scroll-down the values list shown in the below table. The value D7 corresponds to the internal parameter P4 and can be modified as desired. To modify D7 value, press the “JOG  ” and rotate it keeping it pressed. Pressing and rotating it in clockwise direction, it will increase the value (counter clockwise direction, it will decrease). The new value will be memorized as soon the machine will be turned OFF and the related value on P4 of the internal parameters as well. To reset the partial counter, it is necessary to press the “JOG  ” button for 4 seconds at least.

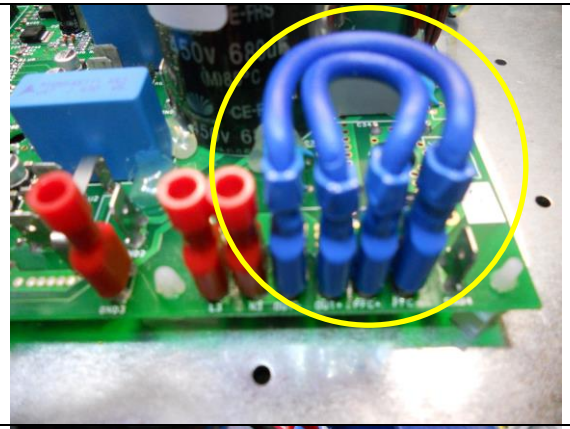
D1	Partial packing cycle counter (0-999) re-settable
D2	MSB total packing cycle counter
D3	LSB total packing cycle counter
D4	Boot loader release

D5	V on bus DC (volt)
D6	Electronic card temperature (°C)
D7	Product detection photocell delay (cm) CHANGEABLE !!!

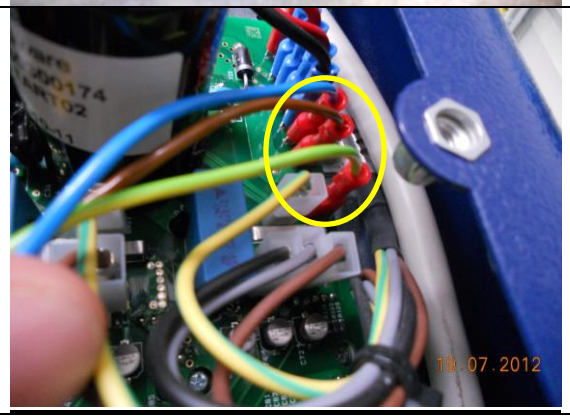
INSTRUCTIONS TO REPLACE AND SET MOTHER-BOARD

When it will be necessary to replace the Mother-board START_02 into the electrical box of the Ecoplat machine, upon the appropriate mechanical installation and electrical wiring, it is necessary to perform the following operations:

8.1. Be sure that the bridges indicated in the picture on the side are properly inserted and fit.



8.2. Carefully check and be sure that the wires which give power to the pre-stretch inverter drive are connected like in the picture on the side (from top wire blue color, wire brown color and ground).



8.3.	Set internal parameter P6 =1 of the machine to activate pre-stretch output for PPS carriage (for Ecoplat PPS only)	Follow up the instructions indicated in the next paragraph #11, to set the internal parameter P6 = 1.
8.4.	Set the mechanical configuration of the TP shaped basement diam.1500 mm:	**for ECOPLAT FRD/PPS** Follow up the instructions indicated in the next paragraph #11, to set the internal parameter P1 = 1 (set internal parameter P1 = 0 in case of standard shape basement).
8.4.1.	Procedure to set the appropriate mechanical configuration for Ecoplat Base machine equipped with TP shaped basement diam.1500 mm (pinion Z=22).	**for ECOPLAT BASE** Meanwhile the machine will be TURN ON, keep pressed in the same time the following push buttons: • Turntable speed increase push button & turntable speed decrease push buttton  • Stop push button  • Spool carriage speed decrease push button  Turn OFF the machine to memorize the new mechanical configuration setting.
8.4.2.	Procedure to set the appropriate mechanical configuration for Ecoplat Base machine equipped with standard shaped basement (pinion Z=14).	• Turntable speed increase push button & turntable speed decrease push buttton  • Stop push button  • Spool carriage speed increase push button  Turn OFF the machine to memorize the new mechanical configuration setting.

INTERNAL PARAMETER RESETTING TO DEFAULT VALUES (for ECOPLAT FRD/PPS only)

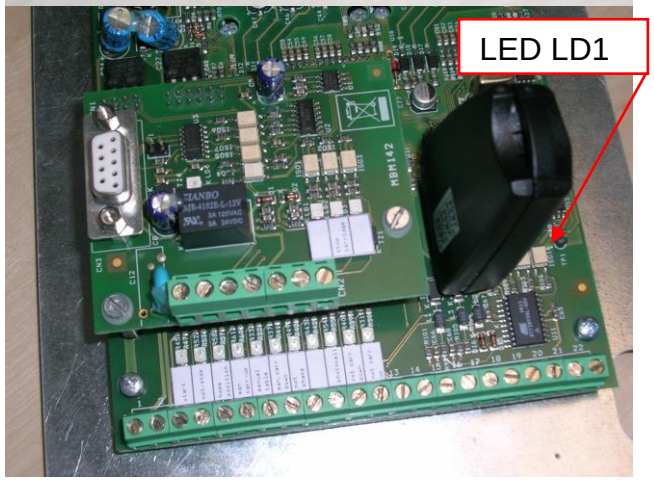
It is suggestible to reset the internal parameter values to producer default every time that will be necessary to replace the software on the machine, and then, re-set the suitable internal parameter according the machine configuration.

1. Scroll-down the internal parameter till reaching the parameter P10
2. Keep pressed the encoder “JOG  ” push button till will be shown on the display of the machine the message ‘DEF’
3. Release the “JOG  ” button

If during the DEFAULT operation, the internal parameter P10=1, the packing cycle counters (partial & total) will be reset too.

PROCEDURE TO INSTALL THE SOFTWARE

The START_02 Mother-board equipped on Ecoplat machines, get the machine's software implemented into the electronic card.
To install the machine's software into the Mother-board START_02 it is necessary to follow the next procedure:

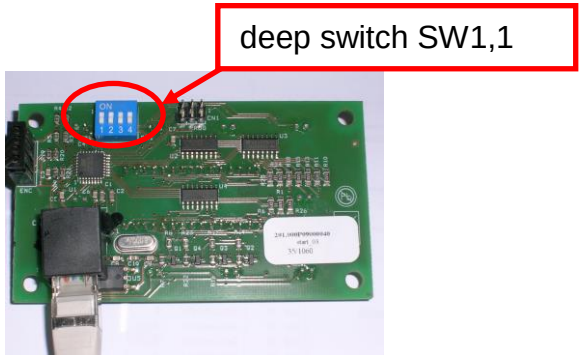


1. Turn the machine OFF (START02 mother-board not fed and capacitor completely discharged).
2. Insert the program KEY-PRG02 indicating the appropriate code of the software into the connector CN4 equipped on START02 mother-board
3. Turn the machine ON and check that the led **LD1** mounted on the START_02 mother-board make the following blinking sequence:
   - **ON** for about **3 seconds** *(insertion key checking phase).*
   - OFF for about 0.5 seconds.
   - **ON** for about **8 seconds** *(microcontroller master memory flash deleting pahse).*
   - OFF for about 0.5 seconds.
   - **ON** for about **28 seconds** *(EEPROM reading and microcontroller master writing pahser).*
   - Definitely OFF (download completed)
4. Turn the machine OFF and wait that all the LEDS on the mother-board are completely OFF (*capacitor discharged*).
5. Extract the KEY-PRG02 from the socket CN4 on the PLC electronic card START02 to complete the machine's software installation and run the machine for packaging.

INTERNAL PARAMETER SETTING PROCEDURE AND LIST (only for ECOPLAT FRD/PPS)

To access and modify the internal parameter of the machine proceed like following:

1. Turn the machine OFF
2. Move the deep switch SW1,1 of the display card in position ON
3. Turn the machine ON (the display will shows parameter P1 alternatively to its set value)
4. To scroll-down the parameters, press the encoder "JOG" push button
5. To modify the visualized parameter, rotate the "JOG"
6. When the operation is completed, move again the deep switch SW1,1 in its OFF original position (working cycle mode).
7. Turn the machine OFF to exit from the internal parameter setting mode and run the machine for packing.



Parameter	Range	Default (producer values)	Parameter description
P1	**0 - 2**	**0**	• 0 → for STD machine / for TP machines (basement diam. 1650mm) • 1 → for TP machines (basement diam. 1500mm) • 2 → for STD machine with turntable rotation pinion Z14
P2	**0 - 1**	**0**	Enable of self-learning mode with product detection photocell
P3	**0 - 1**	**0**	Enable for motors current consumption test
P4	**0 - 50**	**15**	Product detection photocell delay in cm (For PPS spool carriage, set this valued to 30)
P5	**--**	**--**	Free for further applications.
P6	**0 - 1**	**0**	Enable pre-stretch inverter
P7	**--**	**--**	Free for further applications.
P8	**--**	**--**	Free for further applications.
P9	**--**	**--**	Free for further applications.
P10	**0 - 1**	**0**	Enable for film data RESET

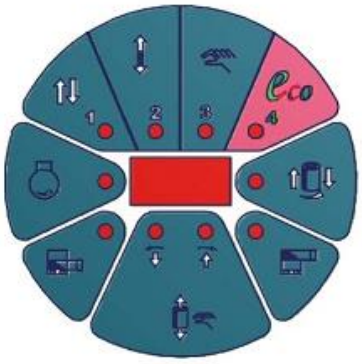
INTERNAL PARAMETER SETTING PROCEDURE AND LIST FOR ECOPLAT BASE

(useful through the programmable key-pad only)

Parameter	Range	Default (producer values)	Parameter description
P1	**0 - 2**	**0**	• 0 → for STD machine / for TP machines (basement diam. 1650mm) • 1 → for TP machines (basement diam. 1500mm) • 2 → for STD machine with turntable rotation pinion Z14
P2	**--**	**--**	***For Robopac internal use only***
P3	**0 - 1**	**0**	Enable for motors current consumption test
P4	**0 - 50**	**15**	Product detection photocell delay in cm
P5	**--**	**--**	Free for further applications.
P6	**--**	**--**	Free for further applications.
P7	**--**	**--**	Free for further applications.
P8	**--**	**--**	Free for further applications.
P9	**--**	**--**	Free for further applications.
P10	**0 - 1**	**0**	Enable for film data RESET

PACKING FUNCTIONS DESCRIPTION (for ECOPLAT FRD/PPS only)

ECO packing cycle (self-learning REC & PLAY)



NEW

ECO CYCLE

display readout: **4**

Purpose:

The operator may record a specific wrapping cycle specifically tailored to his necessities and therefore it will be an **Economical** and **Ecological** cycle that will only use the film that is strictly necessary, without waste or wasted time.

Functioning:

Sequence:

CYCLE RECORDING:

-Press the **jog** along with the **stop** button, the **display** will show **"rEC".**

From this moment on the machine will record an movement done by the operator. He may start turntable rotation pressing **start** and moving the carriage upward or downward using the **MANUAL CARRIAGE** function. The operator will finish the recording cycle by pressing JOG and **stop** button simultaneously.

CYCLE REPRODUCTION:

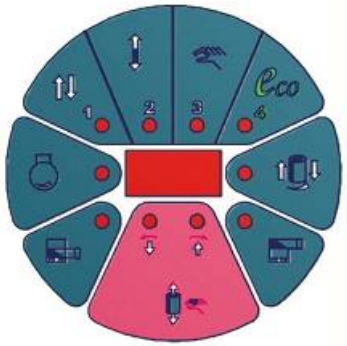
Pressing the **start** button

the display will show **"rUn"**

and the machine will run a wrapping cycle that is the same as what was memorized in the recording phase cycle ("rEC"). Obviously the cycle will remain memorized even after the machine is turned off.

This particular function, gives the opportunity to record up to 25 steps of movement of the spool carriage in manual mode, and play them in a automatic packing cycle (movement and time).
The setting of the parameter of the packing cycle (such like number of bottom and top wraps, turntable rotation speed and spool carriage up/down speed) must be set before to record the ECO packing cycle.

Spool carriage manual movements functions



MANUAL CARRIAGE

Message on the display:

"- - -" for a stopped carriage,

"UP" for a carriage going upwards,

"dn" for a carriage going downwards

Purpose:

Through this operation the operator will be able to manually move the carriage upward or downward.

The operation is also possible when the turntable is stopped, for example for a more comfortable film roll substitution.

Manual carriage movement is possible when:

1) The turntable is stopped,

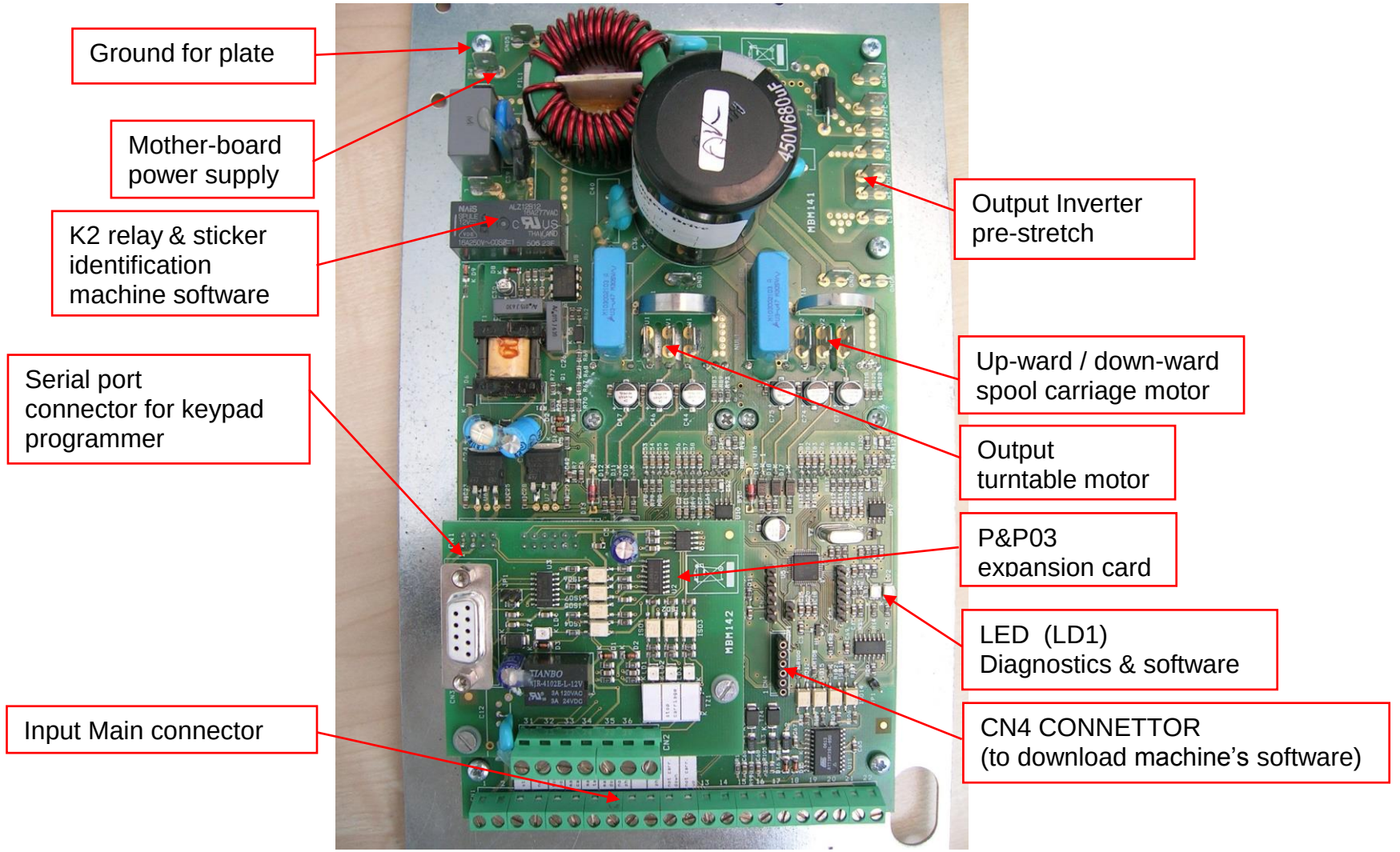
2) During the **MANUAL CYCLE**,

3) During the recording of the **ECO CYCLE**

Functioning:

Rotating the **jog** move to the desired operation, pressing it again both LEDs of the operation will start to flash. At this point the operator will be able to rotate the jog clockwise to make the carriage move upwards or counter clockwise to make the carriage go down.

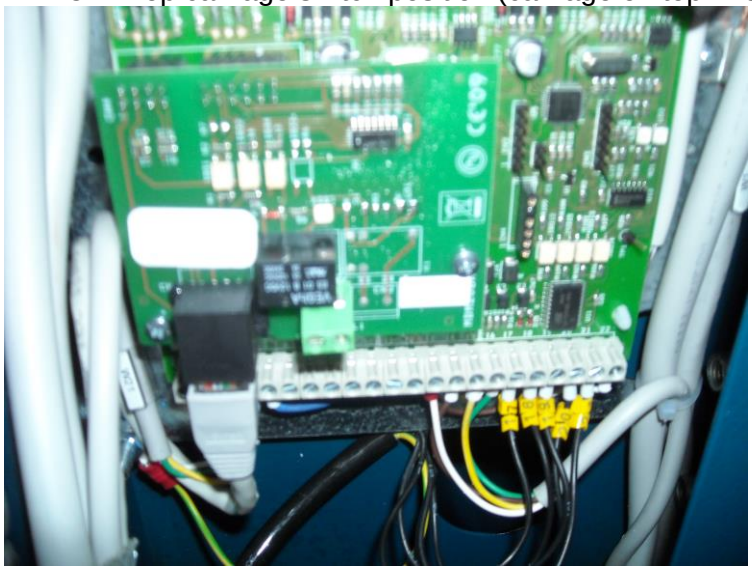
DESCRIPTION LIST FOR "LED" (INPUT / OUTPUT) ON MAIN BOARD START_02



Input description for START_02 mother-board
ECOPLAT FRD/PPS

(from left → right)

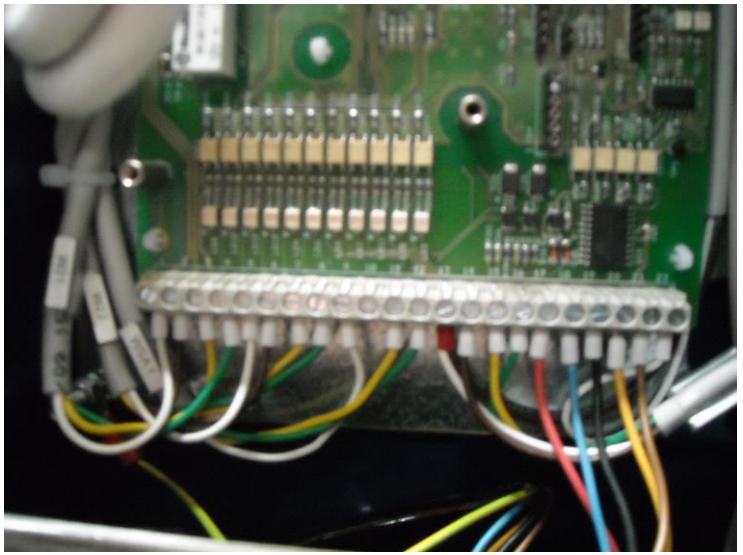
- LD8 Start (push button pressed = led ON)
- LD10 Stop (push button pressed = led OFF)
- LD12 Pre-stretch inverter alarm
- LD13 Free
- LD4 Free
- LD6 Free
- LD9 Turntable phase position switch (Disc in phase = led OFF)
- LD7 TP emergency photocell (photocell busy = led OFF)
- LD11 Product detection photocell (photocell busy = led ON)
- LD5 Bottom carriage switch (carriage on bottom = led OFF)
- LD3 Top carriage switch position (carriage on top = led OFF)



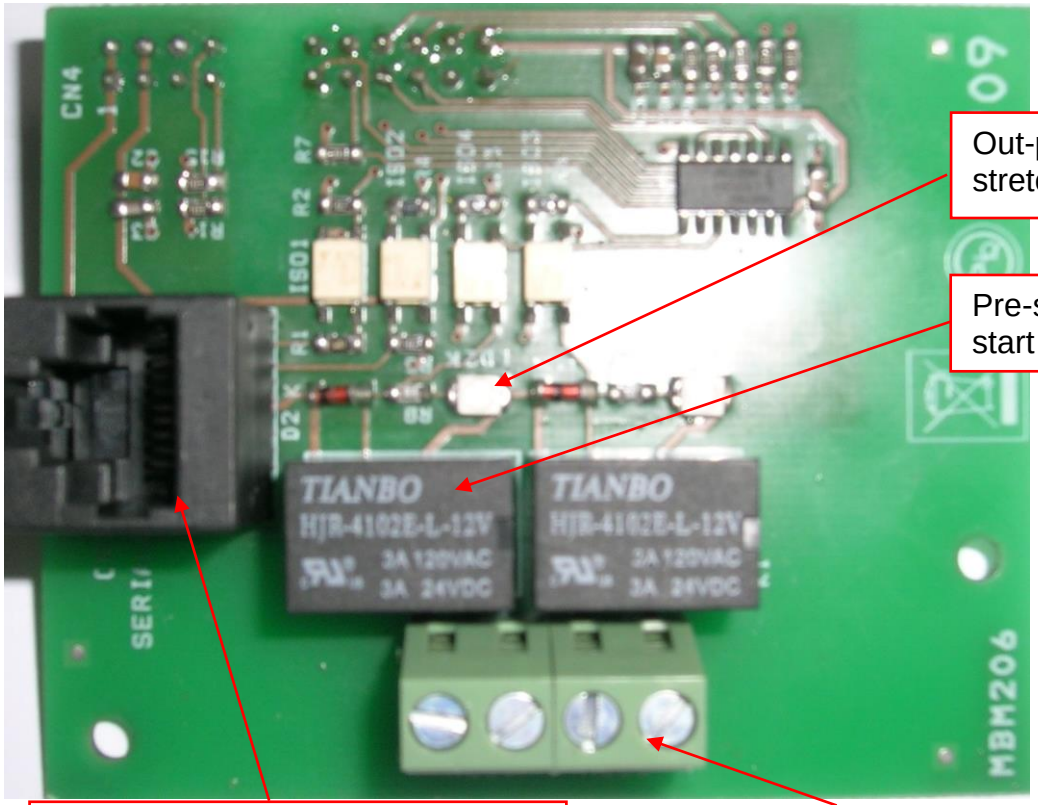
Input description for START_02 mother-board
ECOPLAT BASE

(from left → right)

- LD8 Start (push button pressed = led ON)
- LD10 Stop (push button pressed = led OFF)
- LD12 Turntable speed decreasing (push button pressed = led ON)
- LD13 Turntable speed increasing (push button pressed = led ON)
- LD4 Spool carriage decreasing speed (push button pressed = led ON
- LD6 Spool carriage increasing speed (push button pressed = led ON)
- LD9 Turntable phase position switch (Disc in phase = led OFF)
- LD7 TP emergency photocell (photocell busy = led OFF)
- LD11 Product detection photocell (photocell busy = led ON)
- LD5 Bottom carriage switch (carriage on bottom = led OFF)
- LD3 Top carriage switch position (carriage on top = led OFF)



EXPANSION CARD P&P03 INPUT – OUTPUT DESCRIPTION (for ECOPLAT FRD/PPS only)



Output description P&P03 expansion card

(from left → right)

- LD1 Free
- LD2 Pre.stretch inverter start output (pre-stretch function enabled = led ON)

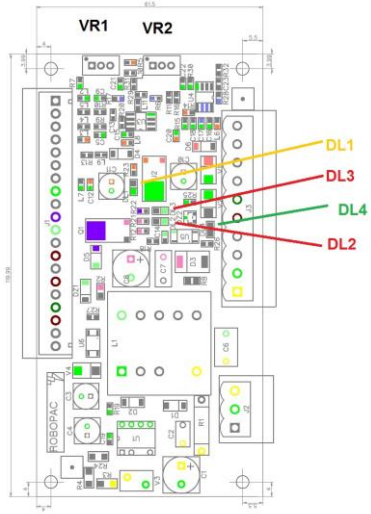
PPS PRESTRETCH SYSTEM SETTING (for ECOPLAT PPS ONLY)

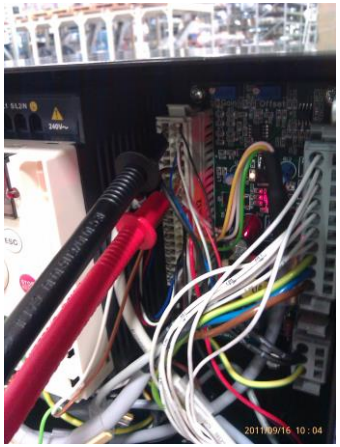
PPS pre-stretch motor spool carriage motor drive with Inverter SCHNEIDER ATV12H018M2 inverter

1. Press the "Jog" button to enter into the setting menu of the inverter.
2. Rotate the "Jog" button to scroll the parameter list of the inverter menu and set the desired values as shown in the below table for customized values.

	New values (Robopac's use)	PRODUCER SETTINGS
Conf-Full - drC- → tFr	90 Hz	60 Hz
Conf-Full - drC- → nCr	1.4 A	1.1 A
ConF → ACC	0.5 s	3 s
ConF → DEC	0.5 s	3 s
Conf → HSP	90 Hz	50 Hz
Conf-Full - I_O- → AI1t	10V	5 V
Conf-Full- FLt- → tHt-→ ItH	1.4 A	1.1 A

LOAD-CELL SIGNAL AMPLIFIER CARD PRES01ROB SETTING (for ECOPLAT PPS only)





CAUTION: the bottom part of the PRES01ROB amplifier card has a dangerous tension of 300VDC.
Be careful to not touch with the setting instruments the bottom part of the electronic card.

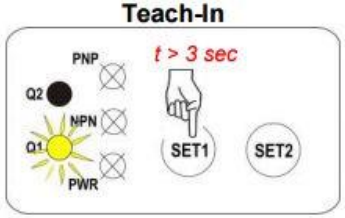
1. Turn the machine ON
2. Set the potentiometer on the spool carriage (load-cell sensitivity) to minimum (value = 0).
3. check that the red led (DL2) and the yellow led (DL1) are ON. The red led (DL3) must be OFF.
4. The load-cell (extensionmeter) must be completely free (film not applied to the last roll)
5. Select the manual cycle (cycle #3 ) and press START to run the manual cycle.
6. Proceed to adjust the Vr1 trimmer till to view on the display of the inverter the frequency "**0.0**" (the inveter is already showing the frequency value by display). The rubber rolls must be completely stopped (not moving).
7. Check that the green led (DL4) and the red led (DL3) are ON.
8. To get the required load-cell (extensionmenter) sensibility, apply a film reel on the carriage and set the value of film stretch to minimum (potentiometer mounted on the spool carriage moved to zero), and then START a packing cycle.
   If the film applied to the product is too "hard", go to play with VR2 trimmer (GAIN) on PRES01ROB signal amplifier card (the one to the right) counter clock-wise direction to increase the load-cell sensitivity to get a "softer" film application to the product to pack.

PRODUCT HEIGHT DETECTION PHOTOCELL CALIBRATION

Standard photocell (for clear products)

Adjust the photocell sensitivity trimmer to load centre

Photocell for black products S65

	Place the target at the center of the pallet
	Keep pressed the Set1 button for more than 3 seconds, till led Q1 flashing
	Release the button, target detected

ALARM LIST AND TROUBLESHOOTING ECOPLAT (only for ECOPLAT FRD/PPS)

Alarm code	Alarm description	Troubleshooting	Cause of the fault	Solution
E10	TP shaped basement photocell alarm	Check the alignment of the photocell with reflector	Wrong alignment of the photocell with reflector	Make the appropriate alignment
		Check that safety photocell works properly	Photocell defective or wiring damaged	Replace the photocell/reflector or the wiring
			The mother-board of the machine is defected	Replace mother-board card
E30	Rotation turntable inverter alarm	Disconnect the turntable rotation motor from the mother-board 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 disappears, there is a fault on the mother-board.	Replace mother-board.
		Check the gearbox connected to the turntable rotation motor	Possible fault of the gearbox	Replace the gearbox
E31	Up-ward / down-ward spool carriage inverter alarm	Disconnect the up-ward / down-ward spool carriage motor from the mother-board and start a packing cycle.	If the alarm message disappears there is a fault of the up-ward / down-ward spool carriage motor	Replace up-ward / down-ward spool carriage motor
			If the alarm message doesn't disappears, there is a fault on the mother-board.	Replace mother-board.
		Check the gearbox connected to the up-ward / down-ward spool carriage motor	Possible fault of the gearbox	Replace the gearbox

E32	Pre-stretch inverter alarm	Disconnect the pre-stretch motor from the inverter card and start a packing cycle.	If the alarm message disappears there is a fault of the pre-stretch motor	Replace pre-stretch motor
			If the alarm message doesn't disappears, there is a fault on the inverter card.	Replace inverter card.
E34	Inverter overtemperature alarm	Check that a mechanical impediment obstruct the appropriate machine's working	A mechanical impediment gives the alarm message	Remove the mechanical obstacle and start the cycle
		Disconnect all the motors from the mother-board and play a cycle	If the alarm message doesn't disappears, there is a fault on the mother-board.	Replace mother-board.
			If the alarm message disappears there is a fault of one of the motors or gearboxes	Replace motor or gearboxes in fault
E41	Serial communication error	Check the phone cable which connect expansion card and display card	Phone cable defective	Replace phone-cable
		Check the conditions of the connectors for phone-cable on expansion card and display card	The connector on one of the two cards is defected	Replace the defected card.
		Check the connector between mother-board and expansion card	The connector is open	Plug the connector properly
		Check the expansion card and mother-board working	Defect on mother-board or expansion card	Replace the defected card
E42	Missing cycle parameters list initialization		Installation of the operator panel display card or machine's software not completed	Make the initialization procedure as indicared in paragraph 9 & 11.
E43	Data flash not writable	Check the wiring conditions of all card	Defect on mother-board	Replace mother-board card.

E44	Csum data flash non correct	Check the wiring conditions of all card	Defect on mother-board	Replace mother-board card.
E46	Communication error between turntable inverter's micro and carriage (signal from turtnable micro)	Check the wiring conditions of all card	Connection cable defected	Replace cable.
			Defect on mother-board	Replace mother-board card.
E47	Communication error between turntable inverter's micro and carriage (signal from carriage micro)	Check the wiring conditions of all card	Connection cable defected	Replace cable.
			Defect on mother-board	Replace mother-board card.
E61	Blocked turntable alarm	Check the position of the mechanical switch compared to its cam	Wrong positioning of the mechanical switch	Fit the mechanical switch in the appropriate position.
		Check that the mechanical switch is working properly	Damage of the mechanical switch or related wiring	Replace the mechanical switch
		Check that input (DL9) on the mother-board card works properly	Possible fault on the mother-board card.	Replace mother-board card
E62	Reached maximum moving steps in ECO cycle (self-learning)		During the setting of ECO packing cycle, has been overcome the maximum number of recordable steps (25 movements).	Turn the machine OFF and repeat the ECO packing cycle record, reducing the number of movements (maximum 25).
E70	Function not active information	Option not active		
		Operator panel display locking activated		Unlock the operator panel as indicated in paragraph 5.
		Check the control operator panel display card and mother-board card.	Possible fault of one of the two cards.	Replace mother-board card or operator panel display card.

E90	Low power supply voltage alarm, below than 183VAC	Check the power supply that must be according the machine's specifications	The power supply isn't according the technical specification.	Adjust the power supply according the specification
			The mother-board card is defected	Replaced mother-board card
E91	High power supply voltage alarm, above than 276VAC	Check the power supply that must be according the machine's specifications	The power supply isn't according the technical specification.	Adjust the power supply according the specification
			The mother-board card is defected	Replaced mother-board card
The spool carriage does not pre-stretch the film		Check the run of the film into the rolls of the spool carriage and check the quality of the film.	Possible improper use of the machine.	Apply on the machine the correct film and run it properly into the rolls following the instructions.
		Check that the transmission of the PPS spool carriage works properly (pulley/belt/rubber rolls).	Possible improper use of the machine.	Dismantle the top section of the PPS spool carriage and replace the detective parts.
The spool carriage doesn't move up-ward or down-ward.		Check top and bottom mechanical safety switches.	One of the two mechanical switch are defective.	Replace the defective switches.
		Check that top and bottom mechanical switches give signals to the mother-board.	Possible electrical fault of one of the two mechanical switches or an electrical interruption.	If there is an electrical interruption, fix it. If there is an electrical fault of the mechanical safety switch, replace the defective one.
		Check that mother-board is working properly.	Possible fault of the mother-board.	If the mother-board properly receive the signals from the mechanical safety switches, the PLC is defective, and it is necessary to replace it.

The film broken during the packing of it is not properly applied to the pallet (too light or too tight)	Check that the film is running through the last dancing roller of the spool carriage (where it is connected the sensitivity sensor – load cell)	Wrong film insertion onto the spool carriage.	Insert the film on the spool carriage in the proper way following the instructions in the user manual.
	Make a view check of the rubber rolls	The rolls are dirty and sign the film	Clean the rubber rolls (do not uses chemical additives)
	Check that the sensitivity sensor – load cell isn't mechanical damaged or not properly fit (the dancing roller must move of just few millimetres in the top and bottom fitting points).	The sensitivity sensor – load cell is too tight or mechanically damaged.	Loosen the screws that fit the instrument to the carriage frame/dancing roller. If the instrument is mechanical defective, replace it.
	Check that the sensitivity sensor – load cell is working properly (no electrical fault).	Electrical damage on the instrument.	Make the tuning of the load-cell (extensometer) as indicated in paragraph, if not solve replace the instrument
	Check that the pre-stretch card properly manage the signal of the sensitivity sensor – load cell.	Possible fault of the pre-stretch card.	Make the tuning of the load-cell (extensometer) as indicated in paragraph, if not solve replace amplifier/inverter card
The machine (standard shape basement configuration) shows E10 alarm even if that it shouldn't happen	Check the connector X3 which connect the base of the machine to the mast	The bridge on X3 connector is opened	Close the bridge on connector X3.

ALARM LIST AND CONDITION OF STATUSI/ALARMS ECOPLAT BASE (for ECOPLAT BASE only)

The START02 PLC card got an LED for feeding / diagnostic signals (please refer to led "**LD1**" that according the number of blinking gives information about the status of the machine, possible faults and protection alarms

Blinks on LD1	Status/ Alarm	Description of Status/Alarm	Solution
1	Stop mode	Machine waiting for the START input	Press START push button
2	Machine on RUN	Machine working in automatic mode	-----
3	Turntable motor current alarm	Hardware alarm because of a current peak like a shortcut.	Check that there isn't a mechanical impediment of the turntable rotation. Disconnect the turntable rotation motor and play a packing cycle (START). If the problem persists replace the mother-board, otherwise replace the turntable motor.
4	Turntable motor overload	Alarm on the current average absorbed	Check that there isn't a mechanical impediment of the turntable rotation. Disconnect the turntable rotation motor and play a packing cycle (START). If the problem persists replace the mother-board, otherwise replace the turntable motor.
5	Over voltage alarm	Alarm for voltage too high (above than 276VAC i.e. 390VDC)	Carefully check the power supply of the facility connected to the machine. If the power supply is according the technical specification, replace the mother-board of the machine.
6	Low voltage alarm	Alarm for voltage too low (below than 183VAC i.e. 190VDC)	Carefully check the power supply of the facility connected to the machine. If the power supply is according the technical specification, replace the mother-board of the machine.
7	Temperature alarm	Temperature alarm. The card reached the maximum limit acceptable of temperature during the working status. The temperature near the power module is higher than 85°C.	Turn the machine OFF for few minutes to cool it. Then turn it ON again. If the problem persists, replace the mother-board.

8	*Communication alarm*	*Communication fault between the microcontroller master & microcontroller slave.*	Check the electrical continuity of the wiring/connections. In case, replace the mother-board.
9	Up-ward / down-ward spool carriage motor current alarm	Hardware alarm because of a current peak like a shortcut.	Check that there isn't a mechanical impediment of the spool carriage up/down movement. Disconnect the turntable rotation motor and play a packing cycle (START). If the problem persists replace the mother-board, otherwise replace the turntable motor.
10	Up-ward / down-ward spool carriage motor overload	Alarm on the current average absorbed	Check that there isn't a mechanical impediment of the spool carriage up/down movement. Disconnect the turntable rotation motor and play a packing cycle (START). If the problem persists replace the mother-board, otherwise replace the turntable motor.
11	*Communication alarm*	*Communication alarm indicated by l microcontroller slave (only for producer use).*	Contact Robopac's after sales service dpt.
12	*Tiny alarm*	*Tiny program alarm, analogical inputs (only for producer use).*	Contact Robopac's after sales service dpt.
13	TP safety photocell alarm (Transpallet machine)	During the packing cycle the TP safety photocell signal has been interrupted.	• For "TP" model machines, check that the input (led DL7) is activated when the B3 photocell is busy. If the led doesn't changes position, check the wiring from the photocell to the mother-board. If the led changes status, change the mother-board (input contact defected). • For machines equipped of standard basement, fit the bridge on connector X3. If the bridge on X3 is properly closed, replace the mother-board (input contact defected).
14	Turntable phase position alarm	Missing signal from phase limit switch during turntable rotation	Check that the mechanical switch gives the appropriate signal to the mother-board (led LD9). If the signal doesn't arrive, check the mechanical switch position and working conditions and its wiring too. If the signal arrive to the mother-board, replace it (defect on input connector).