

**ES4 - Instructions**

SORTER ES4

**INSTRUCTIONS**

**OF**

**ASSEMBLAGE**

# ES4 - Instructions

## INSTRUCTIONS OF ASSEMBLAGES

The chapter proposes him to facilitate and to drive the technician in the construction and installation of the Box and in all the operations of set-up and debugging of the system.

IT IS SEPARATED IN SOME SECTIONS :

- Substitution ENCODER
- Wiring Electric Box
- Wiring Edge System
- Lighting
- Regulation Cells
- Toward rotation Encoder
- Phase Encoder Catena
- Calibrazione Celle
- Regulation Magnets

### Substitution ENCODER.

The Encoder of the system, (normally in the tree back) must be replaced.

What we have furnished, has the same mechanical characteristics and therefore there are not to change pulleys or other.

**WE RECOMMEND NOT TO HOLD THE VERY TAUT STRAP.** These devices withstand to a strength of draught of 1 Kg.

For the connections that are different, we postpone ESCANG2.PCB to the scheme.

### Wiring Electric Box.

An example is suitable in the sketch ES5PAN1. The type of wiring is subject to the thought of the technician, and there is so many ways to reach the same objective.

We limit there to give some suggestions and recommendations.

- The cards are endowed with outdistance them and grapevines of assemblage. The outdistance I am them necessary, but you/they can be of different length and also plastic (in this case the connection is necessary of earth in the terminal block CN001 of the CPU (scheme ES5NUMP)).
- The group of help UPS is not in endowment and not necessary, it is useful in case of temporary Black-Out to maintain Computer and Centralina for a few minutes and to normally go out of the programs and to go out of Windows.  
If there are frequent interruptions of feeding from the net, it will be opportune to climb on him/it.  
If the group UPS is used it is opportune that food stuff is the computer that the card ES4-CPU (you See scheme ES5PCA1.PCB), it asks for 20 VA + Fan.
- The transformer for the cards electromagnets it has to be Min. 500Va Sec=24V.
- To perform the wirings of power according to the scheme ES5PCA1.  
From ESCANGOM to ESCANG41 there are the details of the electronic connections.  
For the connections in the Cells of Load to use cable screened by 4x0,22 mms.  
For the connections to the Encoder to use a cable screened by 5x0,22 mms.  
The stockings of screening must be connected V to the clamp - as suitable in the relative sketches and Solo from the part of the CPU.
- The cable seriale of communication between CPU and Computer foresees an interface seriale RS232.  
You/he/she is already furnished wired with 7m of cable.  
If Your Computer is not endowed with a COM it frees, you can take a converter USB - > RS232 in a STORE of computer science.

## **ES4 - Instructions**

- **The cards Magnets connect him among them and with the CPU as from scheme ESCANG41 with cables from 5 poles 0,22 mms Not screened using the clamps 80**

# ES4 - Instructions

## Wiring Edge System.

The feeding to 230V 50Hz for the electronic box **Must not** taken by the Electric Box of the Sorter. We recommend a line of separate feeding to avoid Electrical-Contact troubles and to maintain turned on the equipment in case of interventions of emergency on the plant.

Connections Electromagnets.

They are possible two methods:

- **CARDS INSIDE THE BOX.**  
Those on board system must be removed and you replace with terminal block. (2 clamps for every electromagnet). We use some rigid telephone cables from 0,22 mms TWISTATI to 4 couples for every exit.
- **SUBSTITUTION EXISTING CARDS. On board system.**  
They maintain the concept of 2 threads for every magnet. It needs to change the grey cable of communication with one not screened to 5 threads.  
This doesn't have problems of length, but it needs to respect the system of suitable connection in the scheme ESCANG41.

As in the preceding cards the clamp of left is the (+) and it is the commune.

Difference is that these cards will be shaped for cars to 4 lines and therefore the 4° magnet of every exit (Linea4) you/he/she must be leaves free.

**NOTE!** -----

You is worthwhile how much it follows :

Looking behind at the system from toward the motor:

The Line 1 are to the left that.

The Line 2 are that central.

The Line 3 are to the right that.

The exit 1 are the 1° after the weight.

The exit 2 are the 2° after the weight, etc.

# ES4 - Instructions

## Lighting.

For now we maintain the firm system.

The card CPU and the cards magnets have some green lamps that signal the state of ON. They are two lamps on the CPU and one in every card magnets.

You know that when he extinguishes, the lamps of the cards magnets will stay still turned on a few minutes because of the discharge of the condensers.

The interface of communication between CPU and Computer is a RS232 (the cable is in endowment).

If the Computer doesn't have any COM it frees, you can use a converter USB - RS232 by now available in all the STORE of computer science.

In the pen (USB-drive) in endowment there is a program of Autorun that automatically departs and it performs the installation of the Software ES4.

During the Autorun, it recommends him to follow the proposed options. The program will be loaded in the following briefcase:

C:\Programmi\TEA\Euro Sizer 4 v1s.4

And he/she leaves an icon on the Desk-Top for the fast throwing.

Therefore through the icon we launch the program.

In the card CPU around to the center there am two lamps, a Yellow and a Redhead.

Yellow it signals the advancement of the system (it changes state to every cup.

Redhead signals the communications with the Computer (it changes state to every packet you date).

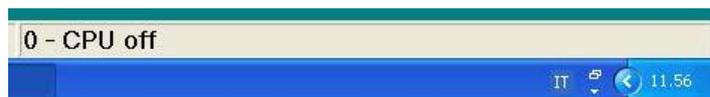
Then as soon as we launch the program the red spy it will have to reveal some activity.

Also in the computer on the screen in low there is a line of State on which we can see and to follow the synchronization of the two equipments::

### 1) The writing in low to the right it points out the Out centralina

Also aloft to the left, the curtain "Work" he/she remains in shade to signal that the system is not operational..

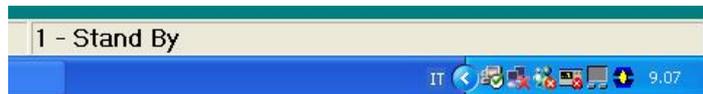
2) When the centralina is turned on the writing he moves to the left.



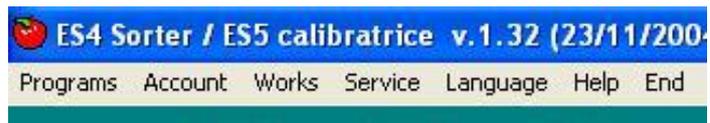
Later it looks for immediately the synchronization of the communications.



And then it transmits all the data of configuration of the system.



And now the curtain "Works" aloft to the left and' active and the system is operational.



The communication is operational now and we jumps to the chapter [ Regulation Cells].

# ES4 - Instructions

In the case that remains in the condition 1).

The furnished software uses as standard the COM1 but you/he/she can be changed.

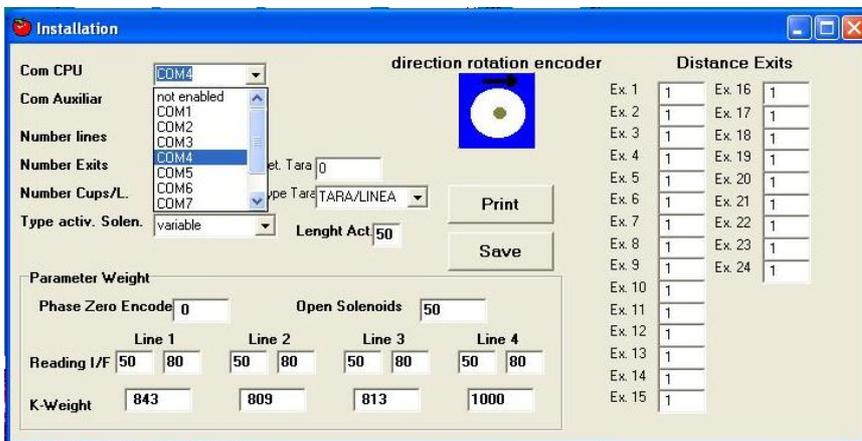
It first of all needs to know the present COMs in the computer and for this the three following images they help you to understand the run.SO.

"Resources of the Computer" 3° button of the mouse that opens a curtain. To select "Ownership." In the window of the Ownerships to select "Management Peripheral" and in this window to select "Handed COM and LPT."". In the case in example it signals that the only COM is the COM9 and therefore also in the software it is necessary to correct this value.



Program (ES4) curtain "Service", "Installation", "Sorter." To answer (YES) to the notice and to digitize " 0" (Zero) to the application of the

Password.



In the window of Installation aloft to the left "COM CPU" cliccare on the arrow. It opens a window with the possible COMs to use and here he plans before that gimmick.

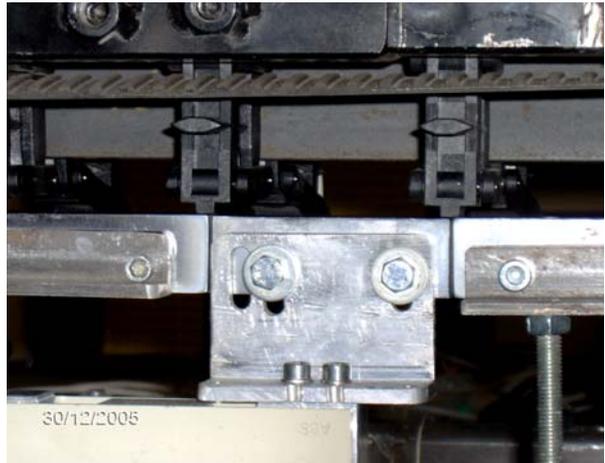
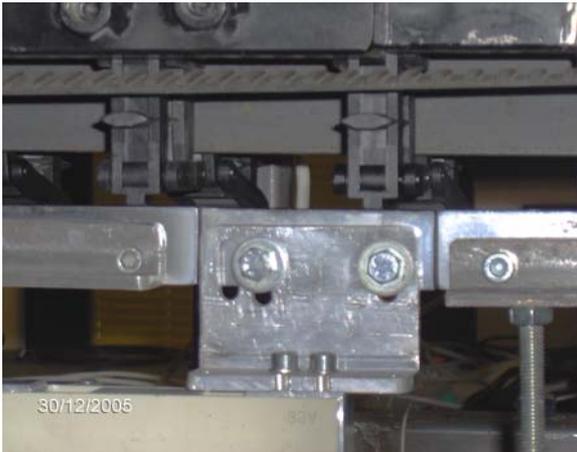
Cliccare on "Salute."

If the COMs correspond and the cables are regular, this time the synchronization between Centralina and Computer will regularly happen.

# ES4 - Instructions

## Regulation Cells

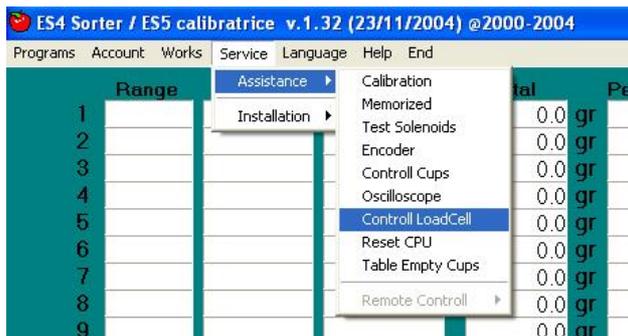
It is necessary to exactly stop the calibratrice with a cup above to the system of pesatura.



### OK No Error

The photos above they help to understand the concept even if the cups and the system of weight don't correspond.

This is the only control that must be done to firm system. It serves to verify the analogical section: Cells of load, Cables, Amplifiers and filters.



From the curtain "Service" "Assistance" "Control Load Cell" he enters the window that visualizes the values of the 4 lines.

The system will be able to correctly operate in a field from 0050 to 500 (in this last case the maximum useful field will be 500 grs); however some tests ask for a value to empty of around 150 for which will be opportune to bring this value in a field among 140.

With the screwdriver in endowment it turns counterclockwise him in sense the trimmer related to the line to correct and it brings him to the correct value.

The same thing has to be repeated for the other two lines.

It is now had to check the ripetitivà and the stability of the cells.

In each of them it is had to put a weight than at least 200 grs. and then he removes. Every time the values are had to repeat and they have to be stable in a field of  $\pm 3$ .

Superior oscillations or a slow and irregular drift denote mechanical or electronic problems and you/they must be resolved.

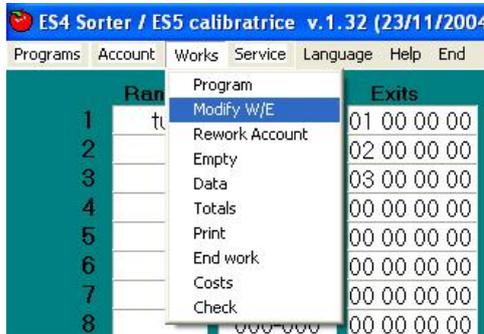
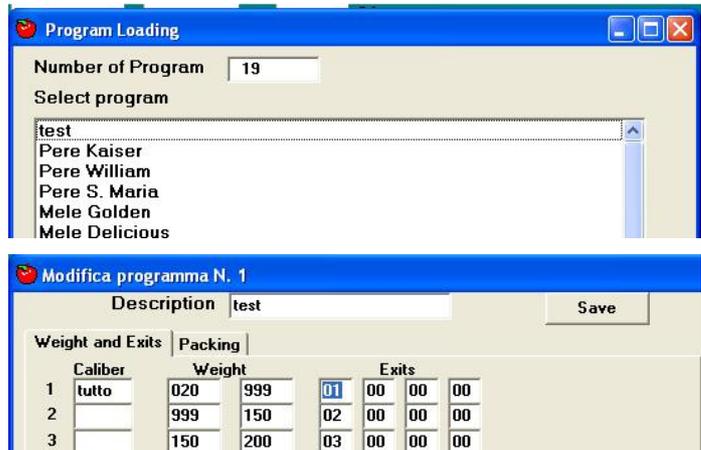
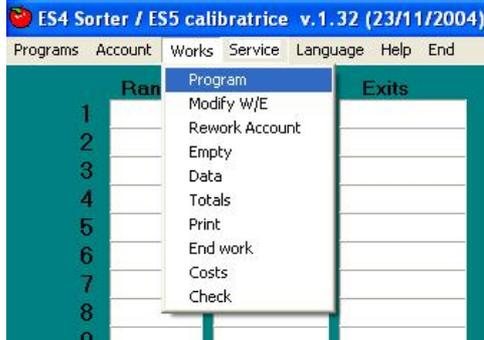


# ES4 - Instructions

## Toward Rotation Encoder.

When all the lines are regulated and the balances are stable they are to place and we can proceed to the debugging dynamics.

It is now had to load a program and to modify him for exits to 00. later it sets otherwise her we could have some unwanted openings and to the wrong point.

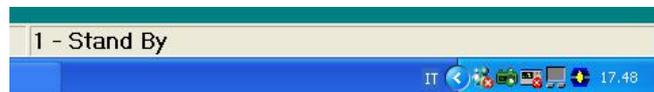


The program of "Test" it has to have only a caliber 020çç

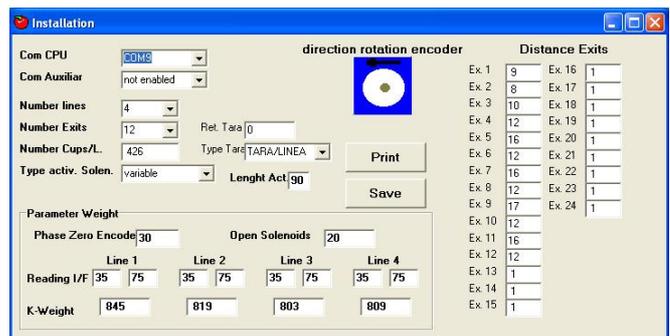
We can now start the system but we have to verify the formulation of the Encoder. To second that this is climbed on to the right or to the left of the system (generally in

the hauled tree) it will be had to repair the Set-Up.

If this writing doesn't change after some second, the toward of Rotation Encoder is not correct.



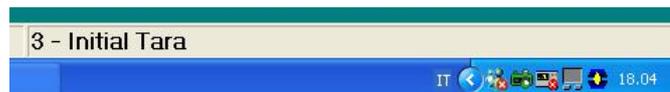
In the window of "Service" "Installation" "Sorter" cliccare on "Direction rotation encoder"; the arrow of direction changes, therefore to plan 50 on "Number Cup/L" and to select Tara/Line on "Type Tare" and therefore cliccare on "Save."



In gone out from this picture and with the "Save", a RESET happens and always therefore it restarts everything from the sequence of synchronism communications..

After max 10 Cups the writing changes as from image beside..

After other 10 cups it begins the calculation of the value of it Sets (to Empty) of every cup.



After other 50 cups we will have this writing..

# ES4 - Instructions

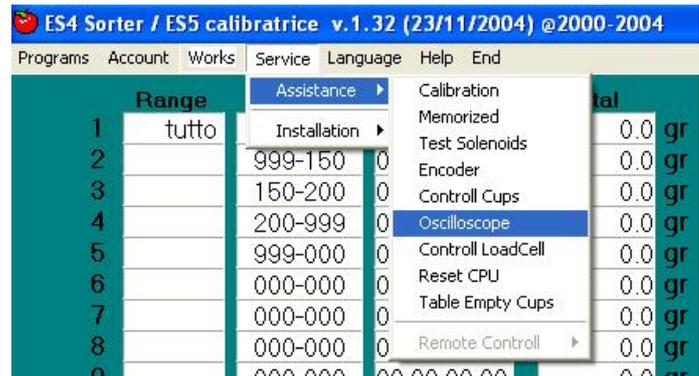
## Phase Encoder-chain

It is now had to check the Phase of the Electronics with that of the Chain. For this it is had to use the Function "Service", "Assistance", "Oscilloscope."

This function replaces the use of technical tools and serves to check the passage of the fruit on the system of weighting.

We everything have to specify that the Encoder makes 100 impulses for every cup to follow the weight during the passage on the balance available. Obviously not all the 100 impulses will be optimal for which the graph serves to find the mechanical phase but also to establish the points of reading.

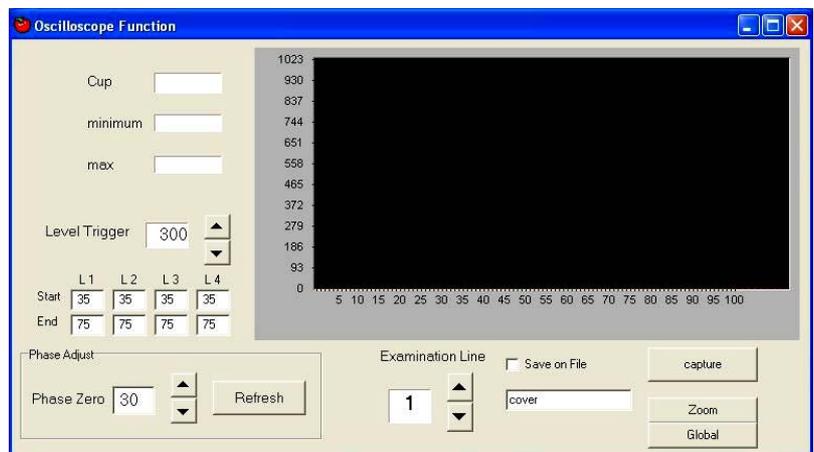
In the graph the horizontal axle points out note the 100 impulses of the passage of the piece.



To select the line on the box "Examination Line", with the button "Capture" it begins the survey.

To perform 3 passages on the line.

( The passage he performs putting a fruit of around 200gr on a cup before the weight and withdrawing later it).



If it doesn't visualize the layout:

- The weight is too much small
- It Sets her it is too much low.
- The balance not hung.

The voice "Level Trigger" it points out the threshold of survey "it Sets + Hangs", he is able cliccare on "Finish", to modify "Level Trigger" decreasing him or to return to the chapter "Regulation Cells."

If it continually visualizes the layouts::

- The value of "Regulation Cells it is too much tall.
- There are defective cups.
- To try to lift the value "Level Trigger."

Here to side the first case of a passage.

The buttons "Zoom and Global" to change the staircase of the display.

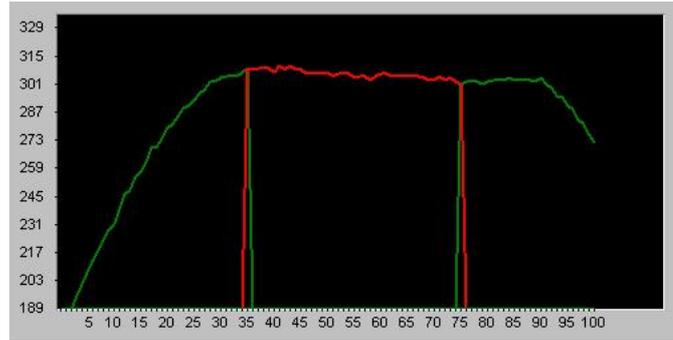
This layout points out that the phase of the Encoder is late at least of 35 points. "Phase Zero" it is to  $30 + 35 = 65$ . It needs to Go out of the Test with "Finish" and with her (X) red of the picture "Oscilloscope."

In the picture installation "Service", "Installation", "Sorter" it is had to change the value "Phase Zero Encoder" and to insert 70. Then the Button "Save."

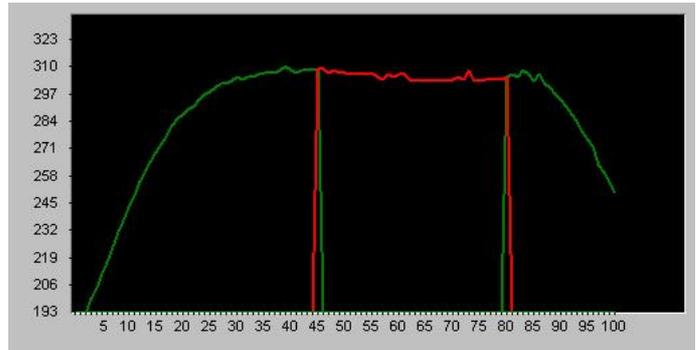
To attend that the system returns in " 4 Work"es to repeat the Oscilloscope.

## ES4 - Instructions

The new layout (With key "Zoom") it points out the beginning of the exit of the cup and therefore he can be approved. However the reading what time from 35 to 75 it needs to move it to 45-80. We still go out of the window and we go in that of Installation where we will change the values of "Start" and "End" of the line in examination. (To remember themselves of "Save").

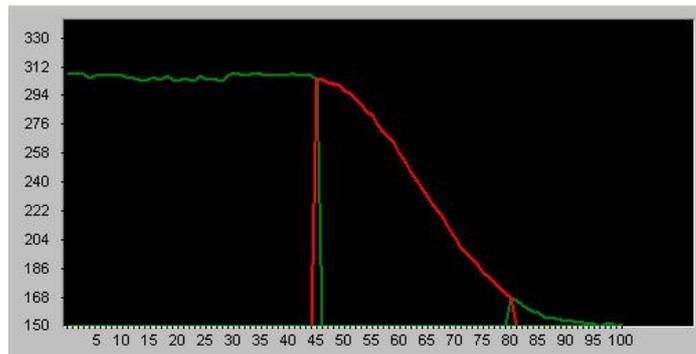


This time we have a correct layout. The "Phase Zero Encoder" it is correct. It needs to check her readings "Start" and "End" of all the lines that could slightly result different.



Besides This regulation "Start" and "End" he must be done to the speed of job of the system. I remind us that the layout moves to the left him increasing the speed of the system.

In this layout, we see that her "Phase Zero Encoder" it is too anticipated (around 60 points).

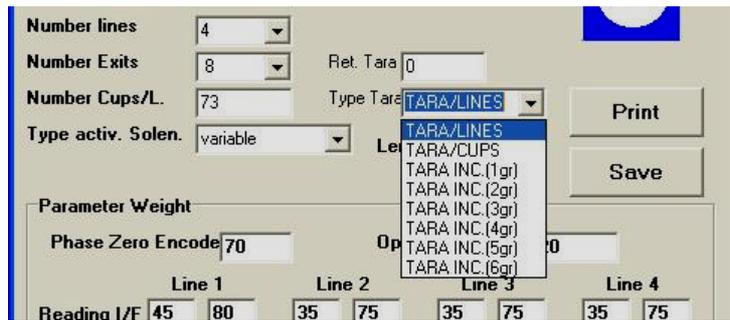


# ES4 - Instructions

## Calibration Load Cell

It now needs to count the cups of a line in 1 turn of the system.

In the window "Installation", "Sorter" to correct the value. "Number Cups/L" and "TARA/LINES" with "TARA/CUPS." To save and to attend the "4 Works."



### NOTE :

"TARA/CUPS" it will use for the weight the value of the single cup. This function serves if in system they are present cups of different weight (from different fusions or because you deform or routs).

Before performing the calibrazione it is had to be sure that there are no defective cups.. **Two tests can be used for this :**

"Control Cups" with a value of 20/30 grs. (You see Note above).

"Table Empty Cups" checking the whole chart. If there are different values of 40 or more they will be defective cups (you See Note above).

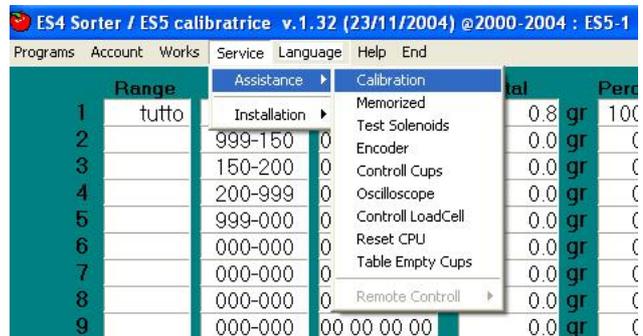
To refer to the "Operative Manual" for the details of these Tests.

### Now You procedure of CALIBRAZIONE.

It performs the correction of the values read by the balance to bring them to the True value.

IT IS A PROCEDURE THAT MUST BE DONE WITH THE SYSTEM IN MOTION SO THAT TO COMPENSATE POSSIBLE DYNAMIC COMPONENTS.

It is had to use a Weight Champion or a fruit of which the exact weight is known of around 200 grs



To insert the Value in "Real Weight" and cliccare on "Start."

To pass in system the Weight at least 10 times for every line. Cliccare on "Stop."

Before saving, to check the "KAPPA"; the values are able bill from balance to balance and also from card to card; they normally have to be in a range from 700 to 999.

Low values too much or above the 1000 they point out anomalies and it needs to return to:

- "Control Load Cell"
- "Control Cups"
- "Table Empty Cups"

# ES4 - Instructions

If everything is regular cliccare on "Save" and to use the Test "Memorized" to verify.

This test with some passages points out you values that they clearly have to change but within some gram.

In a new system to cups, the error is + / - 3gr; if the system is dirty or consumed the error you/he/she can also arrive to + / - 8 grs.

	1	2	3	4
N. CUP	53	0	0	0
TARA	141	1	1	2
NETWEIGH	197	0	0	0

If there are greater errors, it needs to check the mechanics of the balances (Guides on the Cells of Load) and to repeat all the operations returning to the "Phase Zero Encoder."

In this Example, the weight results inferior of 3 grams; if in the other lines it is to place, you/he/she can manually be corrected here in the Window of "Calibration Lines" digitizing "993" in the field "KAPPA" line 1 and then "Save."

To notice that however a Kappa of 990 is to the limit of those permissions (this and' an example).

Line	N°	KAPPA	Weight
1		990	
2		819	
3		803	
4		809	

# ES4 - Instructions

Regulation Magnets **i**

Now to put the system to the least speed.

With the Curtain "Modify W/E" it is had to put the exit 1 in the first caliber of the program.

The system now has to turn to the least one because if the opening is not correct the cups (or the tree) you/they can damage him..

Growing old, the chains lengthen and therefore he can be reached the point in which if in the first exit the cup corresponds to 1 cm before the opening, in the last exit he can be also 1 or 2 cms after the opening. For this we recommend the following method of regulation.

With the firm system, it owes us to also assure that all the magnets correspond to the same point.

To put a fruit in system and you follow the moment of opening.

The tongue of the magnet has to open as soon as after the preceding cup has passed.

To get this is owed to modify the value "Open Solenoids" anticipating or delaying; it accepts values from 00 to 99. Every time is had to save and to attend the "4 Work."

If during the regulation it changes the cup (it opens that before or that later) it is had to also correct her/it "Distance Exits" of the "Ex1" increasing or decreasing.

The screenshot shows the 'Installation' window with the following settings:

- Com CPU: COM9
- Com Auxiliar: not enabled
- Number lines: 4
- Number Exits: 8
- Number Cups/L.: 73
- Type activ. Solen.: variable
- Lenght Act: 90
- Ret. Tara: 0
- Type Tara: TARA/CUPS
- Open Solenoids: 20
- Phase Zero Encode: 70
- Parameter Weight: 990, 819, 803, 809
- Reading I/F: 45, 80, 35, 75, 35, 75, 35, 75
- Distance Exits table:

Ex.	Value	Ex.	Value
Ex. 1	9	Ex. 16	1
Ex. 2	8	Ex. 17	1
Ex. 3	10	Ex. 18	1
Ex. 4	12	Ex. 19	1
Ex. 5	16	Ex. 20	1
Ex. 6	12	Ex. 21	1
Ex. 7	16	Ex. 22	1
Ex. 8	12	Ex. 23	1
Ex. 9	17	Ex. 24	1
Ex. 10	12		
Ex. 11	16		
Ex. 12	12		
Ex. 13	1		
Ex. 14	1		
Ex. 15	1		

When the opening is regulated, to bring the system to the speed of job and to retry.

If everything is regular to stop the system,; to count and to mark on paper the number of cups among the exit 1 and the 2, then between the 2 and the 3, etc. These values must be inserted in the column "Distance Exits" in the respective boxes. And then you save.

Now it is had to try the opening of the respective magnet in every line putting a fruit on the line 1, then one on the line 2 and on the line 3; Then in "Modify W/E" the exit 1° caliber changes him in 02.

To retry the three lines the fall of the fruit. This way for all the exits.

This is the most boring and long part. However it is necessary; if in the wiring they have exchanged the magnets, you will find You of the product that goes after all or he is unloaded in the wrong exits. And it will be difficult to discover him/it during the workmanship.

You remember however that the problem most common of the Magnets on Cups cars it is that they delay the closing and they allow to fall 2 cups. For this in the window of "Installation" there and a voice "Lenght Act" that it allows the closing a just before the end of the cup to help the tongue to return above all in useful time to elevated speed.

**WE HAVE ENDED.**

In case of problems always remembered to perform the followings controls :

- "Control Load Cell" to firm system.  
The value to void has to be stable. Putting and removing a weight the values they repeat him.  
If everything corresponds the balances they are all right.

## ES4 - Instructions

- With the function "Memorized" you Perform some passages in every line.  
If the readings damage then a lot of difference is a problem of Weight and you will have to check the Phase and the points of "Start" and "Stop" with the function "Oscilloscope."  
If instead the readings are regular the problem it is in the magnets. You will have to also verify first of all the program of job and then the same magnet.  
In this case it is almost always necessary to put on above the system and to observe the job of every exit to understand the causes.

### IN MOUTH THE WOLF.

**NB.** You also remember that to go out of the program ES4 you have to use the button "End"; it saves the Total ones that will be restored to the following morning. Otherwise those will be loaded of the last "End" performed and you would be able not to be with the results of the workmanship.