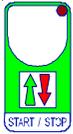


## PRESET PROGRAMS (Bootstrap).



At delivery this processor is programmed with the following (variable) settings. To return to these settings at any time. Power off the processor, press **START/STOP** key and keep it pressed giving power on: release **START/STOP** key when on the screen **boot** message appears. **VIEW = Silo** **dist = 100** **Condition = STOP**  
The **COST** values are shown in *COST Programming*.

## INSTALLATION

### How to connect the line

Connect 230V line on terminals **L-N**.  
Protect supply with adequate fuse.

### How to connect the contacts.

Connect terminals on the terminal block (contacts up to 4AMP.AC1) to the loads as shown in the diagram.

### How to connect the load cells.

Connect the load cells on the terminal block as shown in the diagram; **the maximum number of load cells is 4 of 350 ohm, or 8 to 700 ohm.**  
Connect the screen of the load cells to earth.  
In case of strong-radio-interference insert a ferrite sleeve in the cable near **HP61**.

### Load cells calibration.

For load cells calibration, to obtain only with first starting function, see **COST** paragraph *tArE*, **CELL** and *nV-V* functions, or see *Automatic procedure of load cells calibration*.

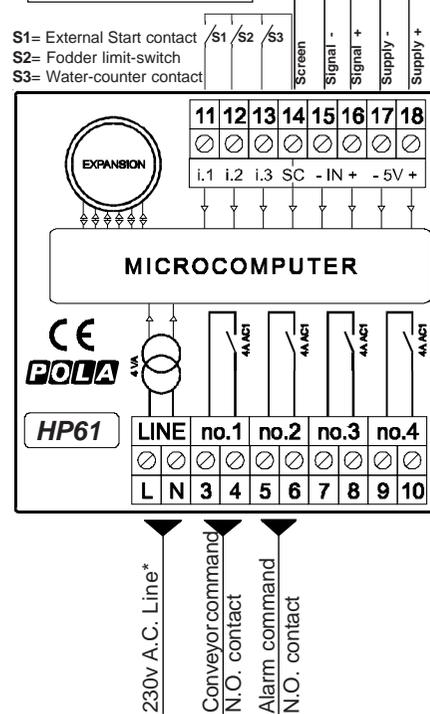
### External condition of the program.

**S1**: if we close for a moment this contact a distribution cycle starts (or during the distribution the consumptions of the feed are memorized at pleasure and the water of the day before).

**S2**: if we close this contact the distribution stops (**STOP** lamp flashes) to start again, then, at the opening of the contact.

**S3**: at each closing of this contact all the programmed litres in **COST** in the **H2-O** function are recorded.

If there are different cells, connect them in parallel, considering that at the most you can connect N.4 of 350 ohm, or N.8 of 700 ohm.



\* Other power voltage if you required

### Signal conditioning detailed list

Load cells sensitivity	0,4...4mV/V F.s.
Resolution	65.500 bipolar points at mV/V F.s.
Precision and stability	1 point on 65.500
Thermic drift	Under 1 point

As it company policy to continually improve the products the Manufacturers reserve the right to make any modifications thereto without prior notice. They cannot be held liable for any damage due to malfunction.



08.01.13

# HP61

SL 6.1

Silo weight controller

Handbook



## VIEW key: VIEWING WEIGHT SELECTION



Press **VIEW** key in order to obtain the **VIEW** lamp on desired display:



**SILO**= Real weight of the feed that is contained in the silo (at this point, if **START** is pressed, the distribution of the feed starts).

**PARTIAL**= Loaded weight in the silo.

Reach on this viewing before loading the silo. Press **START** key to confirm: the program will obtain the partial tare (at this point load the feed in the silo).

During this phase the distribution (if it is working) is stopped.

To return in distribution at the end of the loading, press again **START** key.

**FEED**= Total weight that is distributed from the beginning of the cycle\*; after the consumed weight of yesterday will appear (**FEED** lamp flashing).

**H<sub>2</sub>O**= Litres of water that is distributed from the beginning of the cycle\*; after the consumed litres of water of yesterday will appear (**H<sub>2</sub>O** lamp flashing).

\* These two settings calculate the total weight and the total litres that have burnt out from the beginning of the cycle. To zero these values at the beginning of each cycle, reach this position, and then press more than one second + key (on display the **CLEA** message will be displayed).

## DISTRIB key: WEIGHT PROGRAMMING TO DISTRIBUTE



Press **DISTRIB** key:

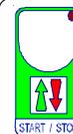
this message will be displayed instead of the **KG set weight value**.

Press + or - to modify, press **DISTR** to confirm.



Over the **9999** setting, the distribution happens as much as you want, with no weight limit.

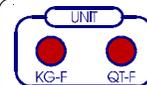
## START / STOP key



Press **START/STOP** key to start a distribution cycle (**START** lamp on); press again **START / STOP** to confirm it (**STOP** lamp on).

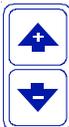
If a distribution cycle is working, on display distributed weight will appear in real time.

## VIEWING WEIGHT



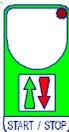
The viewing of the weight happens in KG (**KG-F** lamp on); over the **9999** Kg value the viewing changes to Quintals with decimals (**QT-F** lamp on); over the value of **999.9** Quintals with decimal point the view goes to full Quintals (**QT-F** lamp lighting in the consumption).

## COSSt programming (System constants)



These settings refer to the operation mode of the system and must be made on initial startup. Press - / + at the same time for at least one second: the message **C.O.S.t.** will be displayed.

Press then repeatedly **START/STOP** until the message regarding the chosen variable is displayed (see table below) : value of variable and message will be displayed.



Press + or - to set a new value and then press **START/STOP** to confirm.

The next system constant will then appear.

Press **START/STOP** for at least 2 seconds to exit and return to the Run Mode.

Mess.	Value	Meaning	Note
dELA	0"	Seconds late of conveyor start after the sensor has operated	*1
t.vEr	0"	Seconds time of control weight loss when distribution	*2
t.dIS	0'	Minutes of maximum period distribution	*3
Stoc	0	KG minimum weight of supply signal	*4
H2-O	1.0	Recorded litres for each contact closing of water-counter	*5
Filt	0.2"	Load cells time filtering reading	*6
tArE	0	Tare weight	*7
CELL	1000	Weight value at 10% of full scale of cell loads summ	*7
nV-V	2.000	Value in mV/V of load cells	*7

\*1) When the sensor of maximum weight of the distribution works, when it starts again, the functioning of the conveyor has a delay of this time (**START** lamp flashes).

\*2) When the distribution is working it happens that during this time the weight starts to reduce in the silo; if this doesn't happen the distribution stops and the alarm relay starts to work (**bloc** message on display). If **0"** is set the function isn't operative.

\*3) When this time has passed from the beginning of the distribution, the distribution stops and the alarm relay starts to work (**tinE** message on display). If **0'** is set the function isn't operative.

\*4) Under this weight of the silo, **Stoc** message appears on display and the alarm relay start to work.

\*5) This value depends on model of connected water-counter.

\*6) If there is an instability on weight displayed (owing to oscillations on the weighing) increase this value to eliminate them.

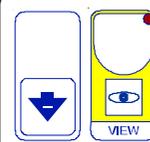
\*7) **Statement's procedure of load-cells:** arrive on **tArE**, press **START** key to obtain a confirm (or set the value of the weight of tare if known); on display will appear **CELL** message: set the **10%** of the total of the weight system. For example with 4 cells of 5.000 Kg the result will be = **2.000** (the 10% of 5.000 x 4), press **START** key to obtain a confirm.

At this point set in **mV/V** the value in mV/V of the load-cell.

Exit from **COSSt** condition and make a *Tare procedure*.

Statement's procedure of load cells can be obtained too, loading a known weight on the weighing; see *Automatic procedure of load cells setting*.

## AUTOMATIC PROCEDURE OF LOAD CELLS CALIBRATION



If you know the exact weight loaded on the silo, and if you want to make a calibration: press - key together with **VIEW** key: on display the weight loaded on the silo will be appear.

Operate on + or - keys to correct a possible inaccuracy of reading, press **VIEW** to obtain a confirm.

At this point the processor returns in normal functioning.

This procedure sets the values once again calculated of **nV-V** and **tArE** (see COSSt).

## TARE

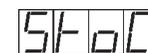


If during the period at empty silo the weighing doesn't reach **0** value (owing to residual feed products or something else) press **DISTRIB** key for more than 2 seconds. On display will appear this message; press + key to confirm. Tare weight is obtained automatically in **tArE** function in **COSSt**.

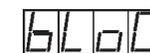


## PARTICULAR MESSAGES ON DISPLAY

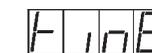
During normal functioning these messages can appear on display.



Alarm operation of minimum supply



Alarm operation of non-unloading silo\*

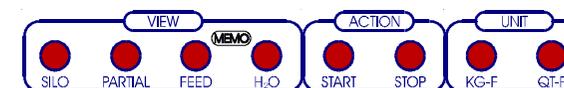


Alarm operation of max. time of distribution\*

\* When this message appears the distribution stops (**START** lamp flashes) and the alarm relay intervenes. To start again the distribution, press **START** key.

## SIGNAL LAMPS

The lamps that are situated under the display show the condition state of the program.



Lamp.	Actioning
SILO	Silo weight viewing
PARTIAL	Loaded weight viewing
FEED	Consumed feed viewing
H <sup>2</sup> O	Consumed water viewing
START	Distribution conveyor On
STOP *2	Distribution conveyor Off
KG-F	Weight viewing to KG
QT-F	Weight viewing to Qt

\*1 During maximum load sensor intervention and during the phase of delay of conveyor start (see **COSSt**, **dELA** function) the lamp flashes.