













ENGLISH

RECOMMENDATIONS FOR CORRECT INSTALLATION OF WEIGHT INDICATORS

- The entry into the cable board of cells must be independent (on one side or the other of the board) and directly connected to the terminal board of the device without breaking by bearing terminal boards or passing through troughs containing other cables.
- Use the " RC " filters on the instrument-driven coils of the remote control switches.
- Avoid inverter, if inevitable, use filters and separate with sheets.
- In case of 230VAC supply, use a 380/230VAC transformer avoiding to use the 380VAC phase and the neutral.
- The installer of the board is responsible for securing the electrical safety of the indicators.
- It is a good norm to let the indicators always switch on to prevent the formation of condensation.

LEGENDA

Below are shown the simbologies used in the manual in order to warn the reader:



Caution! High Voltage.



Caution! This operation has to be carried out only by specialized personnel.



Pay particular attention to the following indications.



Further information.

GUARANTEE

24 months from the delivery document date. The guarantee covers only defected parts and includes the replacement parts and labour. All shipping and packing costs are paid by the customer. It is possible to have the repair in guarantee on condition that the returned product has not been transformed, damaged or repaired without authorization. No guarantee is applicable on returned products without the original label and/or serial number. No guarantee against misuse. Batteries: Laumas provides 1 year guarantee from the date of delivery note, against material defects or battery manufacturing faults.

Disposal of Waste Equipment by Users in Private Household in the European Union



This symbol on the product or on its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at this time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or the reseller.

TABLE OF CONTENTS

OPERATION	1
TECHNICAL FEATURES	1
ELECTRICAL CONNECTIONS	2
INSTRUMENT START-UP	3
TARE ZERO-SETTING:	3
PROCEDURE FOR AN ALREADY CALIBRATED INSTRUMENT	3
PROCEDURE FOR AN INSTRUMENT WHICH HAS TO BE CALIBRATED	4
SET-POINT, ISTHERESYS AND CONSTANTS PROGRAMMING5 -	6
SET-POINT FUNCTIONING	6
NET/GROSS BUTTON (TERMINALS 12 - 14)	6
PROTECTION PASSWORD	7
ALARMS	7
PRINT AND EXAMPLES OF PRINTOUT	7

OPERATION

Weight indicator with 2 set points that can be set by means of the keyboard (max value 9999), output on two voltage free contacts.

For weight equal or higher than the set-point values programmed the instrument will close the relevant contacts. The exchange for decreasing weights carried out taking in consideration the istheresys values set for this constants ("diF 1", "diF 2").

The instrument is equipped with one input for setting the tare to zero and one input for displaying the net and gross weight.

TECHNICAL FEATURES

Weight indicator installed in a DIN container (dimensions: 96 x 96 mm, depth 65 mm; drilling template 91 x 91 mm).



 \mathbb{N} The instrument is able to read up to 19.999 divisions, when the 9.999 value is reached the visualized weight will restart again from zero and will start blinking in order to inform that the above mentioned value has been passed.

POWER SUPPLY 12 VDC **CONSUMPTION** 5 VA 2 SET-POINT settable by means keyboard, output on two voltage free contacts max115Vca 2A FRONT PANEL PROTECTION IP64 **DISPLAY** semi-alphanumeric display 4 digits, 20 mm in seven segments **DECIMAL POINT** (selectable) xxxx ; xxx.x ; xx.xx ; x.xxx LOAD CELL CONNECTIONS maximum 4 load cells 350 ohm LOAD CELL SUPPLY 5 VDC / 60 mA **INTERNAL DIVISIONS** 20000 **DISPLAY RANGE** -999 ; +19999 MEASURE RANGE - 4 mV + 16.5 mV **READING RESOLUTION** x 1 x 2 x 5 **CONVERSION RATE** 10 readings / sec. LOGICAL OUTPUTS n. 2 (115Vca / 2A) LOGICAL INPUTS n. 2 HUMIDITY (condensate free) max 90 % **STORAGE TEMPERATURE** -20° + 70° C **OPERATING TEMPERATURE** -10° + 50° C UNIT OF MEASURE kg or t

ELECTRICAL CONNECTIONS



WARNING: The procedures here below described have to be carried out by specialized personnel only. Be sure to switch off the instrument before carrying out any connections at all.

Connect the load cells by means of a terminal board in a water-proof junction box connecting the leads having the same colour; perform the same operation for the shields keeping them isolated from the ground or metallic parts connected with the ground. By means of a shielded cable with a section not lower than 0,5 mmq connect the terminal board to the P-WI instrument. The cable routing shall be far away from the power cables and possibly protected by a metal pipe.



INSTRUMENT START-UP:

Switch on the instrument and wait for about 5 minutes until all the components will reach a steady temperature. Verify that the displayed weight is positive and that it increases if one subjects the container to a force weight. In case a negative value is displayed check the load cells connections and their correct installation (direction of charge). Check also that the container is correctly installed (tubes position, links, etc.).

TARE ZERO-SETTING:

Make sure that the container is empty and press the Akey, the "tArE " message will be displayed,

keeping pressed **A** press the **ENTER** key at the same time and the tare will be set to zero.

It is also possible to set the tare to the zero by using the zero-setting external contact.

Warning: Turning off the instrument, the divisions set to zero by external contact will be lost.

INSTRUMENT THAT HAS ALREADY BEEN CALIBRATED

Laboratory setting: "*CELL*"(); "*nU-U*"(); "*rISO*"()

In this case the instrument has already been calibrated, proceed to "Instrument calibration check".

INSTRUMENT CALIBRATION CHECK:

Make sure that the container is empty and that the instrument displays zero. Place a significant quantity of product in the container (at least 50% of the maximum quantity of product that is to be weighed but in any case less than 9,999) and make sure that the instrument displays the correct value.

- If the displayed value <u>is different</u> from the weight known to be in the container (bigger than 1-2%), make sure that this is not due to mechanical causes and again check the electrical connections and the direction in which the load cells are mounted.

- If the <u>difference in weight is negligible</u> (about 1-2%), then proceed to **CORRECTING DISPLAYED WEIGHT FROM KEYBOARD**.

CORRECTING DISPLAYED WEIGHT FROM KEYBOARD (this operation is possible only if the print is disabled) :

Procedure subject to entry of access password (see "PASS" on page 7).

When the weight is displayed, press $\mathbf{\nabla}$. The display will show "*CAL I"*. Hold down the $\mathbf{\nabla}$ key

and press ENTER. The display will show the weight value blinking. Use the \checkmark and \clubsuit keys to correct it and set the value of the real quantity loaded in the container. Press ENTER to confirm. The display will show "*CAL I*" for an instant, then the correct value will appear.

If the display shows *"ErrO"* (error), this means that incorrect values have been set for the parameters *"CELL"* and *"nU-U"* (calibration has been tampered with). Repeat the calibration (see THEORETICAL CALIBRATION) restoring the laboratory setting.

INSTRUMENT THAT HAS NOT YET BEEN CALIBRATED

In this case the instrument has not yet been calibrated, proceed to the theoretical calibration; tare zero-setting and Calibration check.



Procedure subject to entry of access password (see "PASS" on page 7).

Switch off the instrument, then switch it back on again while holding down the **MENU** key. The display will show "*C.O.S.c.*", press **ENTER** twice and the display will show:

"dECP2, press ENTER and set the number of decimals (max. 3 decimals) using the V and A keys. Press ENTER to confirm and the display will show:

"nU-U" , press ENTER and set the load cell sensitivity (expressed in mV/V) using the $oldsymbol{
abla}$ and

keys. Press ENTER to confirm. The display will now show:

"unit", press ENTER and set the unit of measurement using the ∇ and Δ keys: 0 = kq; 1 = t. Press ENTER to confirm. The display will now show "PASS".

Press MENU to exit.

Press **MENU** and then press **A** several times until the display will show:

"CELL" , press ENTER and set 10% of the system's full scale using the $oldsymbol{
abla}$ and $oldsymbol{\Phi}$ keys (for example with 3 load cells of 100 kg , full scale = $100 \times 3 = 300.0 \text{ kg}$; 10% of 300.0 kg = 30.0 kg). Press ENTER to confirm. The display will show:

"rISO", press ENTER and set the system resolution:

1 = resolution 1

2 =resolution 2 (the last digit of the weight moves in steps of two: 0, 2, 4, 6).

3 = resolution 5 (the last digit of the weight moves in steps of five: 0, 5, 10, 15 ...).

Press **ENTER** to confirm and press **MENU** to return to the weight reading.

After the theoretical calibration, proceed as follows:

- Set the tare to zero (see paragraph TARE ZERO-SETTING).
- Check the instrument calibration (see paragraph **INSTRUMENT CALIBRATION CHECK**).

If necessary, correct the displayed weight (see paragraph CORRECTING DISPLAYED WEIGHT FROM KEYBOARD).



If the display shows "ErrO" (error), this means that incorrect values have been set for the parameters "CELL" and "nU-U". Check them and if necessary, repeat the Calibration.



During the weight displaying phase press the **MENU** key and the following will appear:

"SEt.1", weight of the first set-point (max 9.999).

Press ENTER, set the value by using the $\mathbf{\nabla}$ and the $\mathbf{\Phi}$ keys and confirm with the ENTER key, the following will appear:

"diF.1", istheresys of the first set-point.

Press ENTER, set the value using the $\mathbf{\nabla}$ and the $\mathbf{\Phi}$ keys, the relay condition will change for decreasing weight, it will be equal to the value programmed as SEt.1 minus the value programmed in this constant.

Confirm by pressing the ENTER key and the following will appear:

"SEt.2", weight of the second set-point (max 9.999).

Press ENTER, set the value by using the $\mathbf{\nabla}$ and the $\mathbf{\Phi}$ keys, then confirm with the ENTER key, and the following will appear:

"diF.2", istheresys of the second set-point.

Press ENTER, set the value using the $\mathbf{\nabla}$ and the $\mathbf{\Phi}$ keys, the relay condition will change for decreasing weight, it will be equal to the value programmed as "SEt.2" minus the value programmed in this constant.

Confirm by pressing the ENTER.



 \mathbb{W} If the password is enabled ("PASS" = 0), access will be denied to the next constants programming. When the you have finished to programme "diF. 2", confirm with ENTER to return to the weight reading.



If the password is disabled ("PASS" = 1), you will enter next constants programming and the display will show:

, print. Press ENTER and the following will appear: "StA"

0 = disabled print.

1= enabled print.

Set the value by using the $\mathbf{\nabla}$ and the $\mathbf{\Phi}$ keys, then confirm with the ENTER key, and the following will appear:

"FiLt", filter (weight oscillations filter).

Press ENTER and set a value included between 0 and 9 seconds by using the $\mathbf{\nabla}$ and the $\mathbf{\Phi}$ keys.

To reduce the oscillations of the weight increase the filter's value. Confirm by pressing the **ENTER** key and the following will appear:

"CELL", DO NOT MODIFY THIS VALUE

Press ENTER and the following will appear:	Sot Value : ()
confirm by pressing ENTER and the following will appear:		
"riso" , Do not modify this value		、
confirm by pressing ENTER and the following will appear:	Set value : ()
<i>"n.div"</i> , SET 0.		
confirm by pressing ENTER and the following will appear:		
<i>"n.rEA"</i> , SET 0.		
confirm by pressing ENTER and the following will appear:		
<i>"nAnC"</i> , setting set-point contacts normally open or closed.		
Press ENTER , set the value by using $igsidentarrow$ and $igsidentarrow$ keys:		
0 = normally open ; 1 = normally closed		

Press ENTER to return to the weight displaying phase.

SET - POINT FUNCTIONING

The contacts on terminals 4, 5 (SEt. 1) and 7, 8 (SEt. 2) will be closed for a weight lower than the programmed set values. The contacts on terminal 4, 3 (SEt. 1) and 7, 6 (SEt. 2) will be closed for a weight higher or equal to the programmed set values. The exchange of the decreasing weight contacts will be carried out taking in consideration the istheresys values set for this constants (diF. 1, diF 2). For example: SEt. 1 = 100, diF. 1 = 10, for increasing weight the state of the contact will change at 100, for decreasing weight it will change at 90.

NET - GROSS BUTTON (terminals 12 - 14)

- The instrument will be set to zero by pressing the external push-button NET/GROSS and the letter "n" will be displayed on right hand side. This operation will allow the operator to load several quantities of net weight product (once the value 999 has been surpassed, the letter "n" will disappear and the right hand point on the display will become alighted to indicate that the value being displayed is the net weight).

- By pressing the NET/GROSS for about 3 seconds the gross weight will be displayed.

PROTECTION PASSWORD

Switch off the instrument, then switch it back on again while holding down the **MENU** key. The display will show "*C.O.S.c.*", press Ψ and the display will show:

"PASS" (access protection password). When the password is enabled, access can be restricted/denied to parameters programming and calibration functions.

Press ENTER to confirm and use the \clubsuit and \clubsuit keys to select:

0 = password enabled (access will be denied to parameters programming and calibration).

1 = password disabled.

Press ENTER, the message "*dECP*" will appear, press MENU to return to the weight reading.

ALARMS

"AL_ _ _ ": this alarm appears when excitation wires are disconnected, or no load cell is connected.

"SEGN" : this alarm appears when signal wires are disconnected or signal is higher than 15 mV.



WARNING: During the alarms displaying the relays are un-excited.

PRINT

\mathcal{M} The printer has to be switch on together to the p-wi to allow the instrument recognize the printer (supply them from the same line).

If the printer is enabled (see the Constants programming) by pressing the $\mathbf{\nabla}$ key the weight value will be printed with date and time.

Examples of printout:

LAU0 PESO = kg 1240 08:53 05-04-05