VD-310 SERIES

Scale Indicator

ABS/INOX

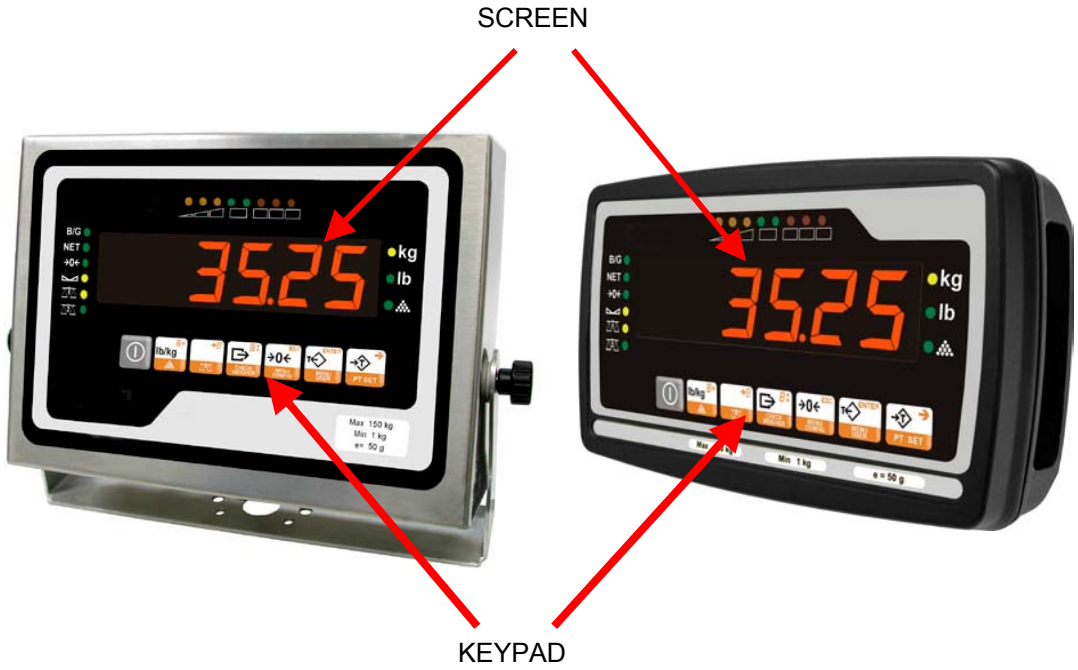
USER MANUAL

DIBAL

REF.: 49-MVD31EN03

INDEX

1. INSTRUMENT DESCRIPTION



2. INTRODUCTION

The indicator can be set up with OIML from 1 up to 10,000 divisions or with OIML from 0 up to 100,000 divisions.

This manual outlines the configuration process and handling of the visual display for use with one or two platforms.

2.1. DISPLAY'S FEATURES

All indicators feature:

- Connection for two independent weighing platforms. (Depending on the model)
- Connection for up to 12 load cells
- Weight in kilos or pounds.
- Tare: two different operations.
- Unit counter function.
- Checkweigher function, with a maximum of 99 different ways of programming per platform. (Depending on the model)
- RS-232Communications
- Communication to printer or remote display.
- Options (VD-310 INOX Series):
    - Relay outputs/Optocoupled inputs.
    - RS-485
    - Wireless communications.
    - 4-20mA / 0-10 V.
    - Ethernet.

2.2. INSTALLATION

The VD-310 indicator is a scale indicator that can also incorporate Checkweigher and unit counter functions.

For the correct functioning of the instrument you need an external power source supplying 12 Vcc

The external power source should be capable of supplying a continuous current of 500 mA

DATA	
Load cells	**Up to 12, 350 OHM**
Platforms	**1 or 2, Configurable (Optional 2nd platform)**
Divisions	**NON OIML: 100,000 OIML: 10,000**
Cell power voltage	**5Vdc**
Zero range	**0 to +2.5mV**
Input range	**0 to 15mV**
Temperature range	**-10ºC to +40ºC**
Class, OIML	**Class III (up to 10,000div)**

POWER	
Power source	**12Vdc, 500mA**

WEIGHING	
Units	**kilograms, pounds**
Additional working modes	**Unit counter Checkweigher**
Display	**6-digit LED, 25.4mm**

COMMUNICATIONS	
RS-232	**Standard**
Printer or remote display	**Standard**
RS-485	**Optional (VD-310 INOX Series)**
4-20mA / 0-10 V	**Optional (VD-310 INOX Series)**
Inputs/Outputs	**Optional (VD-310 INOX Series)**
Wireless	**Optional (VD-310 INOX Series)**
Ethernet	**Optional (Series VD-310 INOX)**
Casing	**ABS (Plastic) or INOX**

ASSEMBLING THE INDICATOR

Load cells

Set-up for one platform

The platforms must be connected to the indicador by means of a 7 pins connector

The connections are as follows:

Connector 1

Pin 1:IN+
Pin 2: SENSE+
Pin 3:OUT+
Pin 4: OUT-
Pin 5: SENSE-
Pin 6: IN-
Pin 7: NOT USED

Set-up for a double platform (Optional)

The loadcells must be connected to the indicador by jeans of a 7 pins connector.

The connections for the pins are as follows:

Platform C1:	**Platform C2**:
Pin 1: …..IN + Pin 2: …..SENSE + Pin 3: …..OUT + Pin 4: …..OUT – Pin 5: …..SENSE - Pin 6: …..IN - Pin 7: …..NOT USED	Pin 1: …..IN + Pin 2: …..SENSE + Pin 3: …..OUT + Pin 4: …..OUT – Pin 5: …..SENSE - Pin 6: …..IN - Pin 7: …..NOT USED

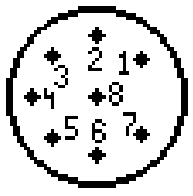
Power

External power must be connected to the connector of power.

Pin 1: Positive.
Pin 2: Negative

RS-232

There are two RS-232 channels, with the following pin-out:



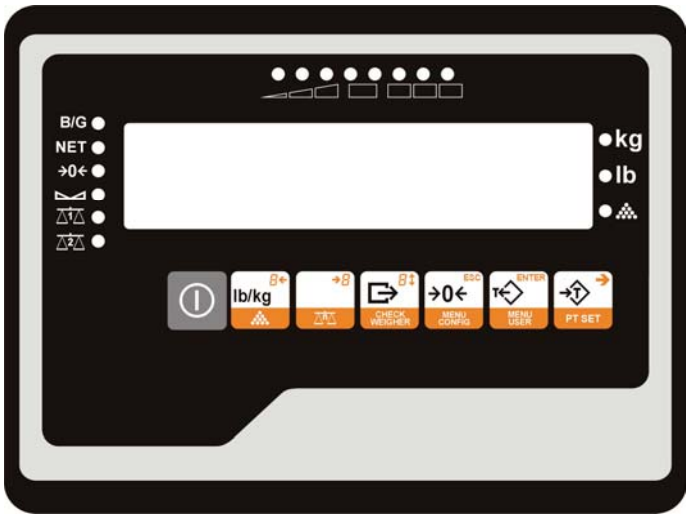
Channel 1	Pin 7: ….. Reception Pin 8: ….. Transmision Pin 6: …..GND
Channel 2	Pin 3: …..Transmision Pin 2: .....Reception Pin 1: …..GND

2.3. KEYPAD

This keypad is composed of 7 keys on one single row.

ABS

INOX



Symbol	Description	
PT SET	**TARE:** Press PT SET twice for less that two seconds and the tare value is set. To remove the tare setting, remove the weight and press PT SET.	**SELECTING THE PROGRAMMED TARE**
	One tap	**Prolonged tap** (>1 seconds)
ENTER T MENU USER	**GROSS WEIGHT/NET**	**USER PROGRAMMING MENU**
ESC →0← MENU CONFIG	**ZERO**	**TECHNICAL CONFIGURATION MENU**
CHECK WEIGHER	**SEND DATA TO PC/PRINTER**	**ENABLE/DISABLE CHECKWEIGH MODE (Optional)**
→8		**SELECTING C1-C2 PLATFORM (Optional)**
lb/kg	**kg/lb.:** If pressed, the display changes weight unit for a certain length of time (Kg or lb.)	**UNIT COUNTER MODE**
		ON/OFF

2.4. DISPLAY

The display shows the weight and all the programming screens.

The series of symbols indicate:

B/G	Gross weight
NET	Net weight, a tare has been selected.
→0←	Zero
	Stability
△1△	Platform 1 Enabled
△2△	Platform 2 Enabled
Kg, lb.,	Weight unit or unit counter mode.

When the first LED lights up, you are working in checkweigher mode.

State of the weight in checkweigher mode depending on the limits

Below Ok Above

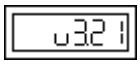
3. OPERATION

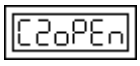
3.1. SWITCHING ON THE DISPLAY

Having ensured that the device has been properly installed, connect the adaptor 230VAC-12VDC to the corresponding connector. Then plug the power cable into the mains.

Press  and hold for a few seconds, until the display lights up. The display will follow the steps outlined below if both platforms are enabled:

.....





- Display test: **"0, 1, 2, 3, 4,...."**
- Metrological Software Version: **"OIML 1.0"**
- User Software Version: **"u 3.31"**
- If the external calibration of platform C2 is enabled: **"C2oPEn"** allows for the configuration of external parameters and the calibration process.
- If the external calibration of platform C1 is enabled: **"C1oPEn"** allows for the configuration of external parameters and the calibration process.

- The indicator is ready for use depending to the active.

To switch off, press  and hold for a few seconds.

3.2. NORMAL WEIGHING

Place the item to be weighed on the weighing platform. The weight will display on the screen.

3.3. TARE

To tare an object:

1. Place the item to be tared on the platform.

2. Press  .

The VD-310 indicator includes the possibility of programming 10 PLU´s for tare (TLU´s) for each platform.

The tare cannot be gauged if the weight is not stable.

3.3.1. Setting the tare

Place the weight to be tared on the weighing platform.

Press the  key twice

If the tare has not been set, on removing the weight, the tare will automatically reset to zero. To remove the tare setting, remove the weight and press  . Successive tare operations can be carried out but always on a greater weight (see section: 7.4 TYPES OF TARE).

3.3.2. Selecting the programmed tare

From weighing mode:

1. Press and hold the key to access selecting the programmed tare submenu.

2. Press to select the required PLU.

3. Press

4. The instrument switches to weighing mode while indicating the tare selected

This type of tare operates in the same way as a tare set manually.

3.4. RESET KEY

The indicator has a manual device for clearance to zero; if, for some reason or other, on removing the weight from the weighing platform, the value of the weight is not zero and is within a given margin, the scale can be reset by pressing the key.

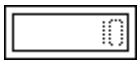
3.5. GROSS WEIGHT OR NET WEIGHT KEY

If you press the key, the weight display changes temporarily, changing from net weight to gross weight, the latter displaying for a few seconds.

3.6. COUNTING-PIECES MODE

The VD-310 indicator incluyes the possibility of programming 200 countin-pieces PLU´s (CLU´s). These CLU´s are common for bothe platforms.
The VD-310 working in counting pieces mode can be used in two different ways: sampling mode and counting pieces PLU´s (CLU´s).

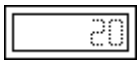
3.6.1. Operative in sampling counting pieces mode.

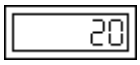


From the normal working mode, keeping the key pressed longer than 1 second, the indicator starts working in counting pieces mode.

When the equipment is working in this mode, the LED is on without flashing. (if the led is flashing the indicator is in mode Counting pieces PLU (CLU).

The indicator shows flashing in the display the last number of pieces requested for sampling (the default value is 10 units).
It is possible to modify the number of pieces to be placed on the platform by pressing the key .
The possible values are: 10, 20, 30, 50 y 100.

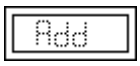


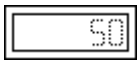


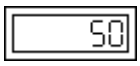
Place on the platform the number of pieces selected and press the key .
When the calculation of the single weight of each piece has been calculated, the indicator shows the number of pieces placed on the platform, from this moment the equipment shows the number of pieces placed on the platform.

To return to the normal working mode press .

If the message “Add” appears on the display, the weight of the number of pieces is under the minimum weight necessary to perform a sample, it is necessary to perform a sample with more pieces, to do it the procedure is the following:







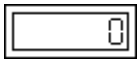
1. Select abigger number of pieces by pressing the key .
2. Place on the platform the exact number of pieces selected.
3. Press , if the message “Add” remains on the display, repeat the three steps by selecting a higher number of pieces.

If the indicator shows the message “Lo-P”, the minimum weight readable by the platform is bigger than the unitary weight of the pieces to be weighed.
In this case, it is recommended to work with a platform with a lower range.

If the weight is instable, alter few seconds the display Hill show “noStbL” and the number of pieces selected will flash. The calculation of unitary weight has not been done.

Press when the weight is stable.

3.6.2. Operative in mode Counting-pieces PLU (CLU)



From the normal working mode, keeping the key pressed longer than 1 second, the indicator starts working in counting pieces mode.

When the equipment is working in this mode, the LED is flashing. (if the led is on and not flashing the indicator is in mode Sampling Counting pieces.

A CLU Hill always be selectec until make the selection of a new one or until deactivate the counting pieces funtion.

To return to normal working mode press .

To make a new calculation of the number of pieces, press to select the new value of the number of pieces to be placed on the platform, the unitary weight of the piece is set to zero and the led stops flashing. The rest of the process is the same as the mode of sampling counting pieces mode (see 3.6.1 Operative in mode sampling counting pieces).

3.6.2.1. Programming of CLU´s

To program a CLU it is necessary to have calculated previously the unitary weight of the piece according to the paragraph 3.6.1 *Operative in sampling counting pieces mode.*

1. When the indicator shows the number of units, press the key longer than 1 second to access the CLU programming Menu.

2. Press to access selection of number of CLU to be programmed.

3. Press to change the selected CLU
4. The selected digit blinks.
5. Use and to select the digit to be changed.
6. The digit is changed by pressing .

7. Press to set the value. You will be informed of the platform in which the CLU has been programmed.
8. Press to return to counting pieces mode. If the user wants to program more CLU´s the procedure is:
   a. Press to select the number of pieces to be placed in the platform as sample.
   b. Place on the platform exactly the number of pieces selected and press .
   c. Continue in paragraph 1 of 3.6.2.1.
9. To return to the normal working mode, press the key .

3.6.3. Selecting unit counter CLU

To select one of the CLU's the unit counter CLU function must be enabled and a CLU must have been programmed.

1. With the indicator working in counting pieces mode, press the key for more than one second.

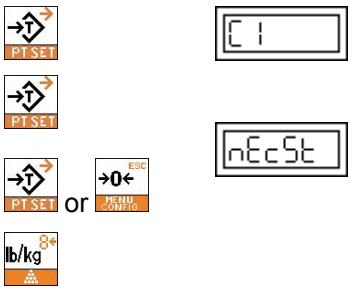
2. Use to choose between:

   0. Unit counter CLU function **Disabled**.
   1. Unit counter CLU function **Enabled**.

3. Press .

   a. If unit counter CLU function **disabled** has been selected, the indicator quits to unit counter mode and maintains the last unit counter calculation.
   b. If unit counter CLU function **enabled** has been selected, the indicator moves on to select the programmed CLU required (pt. **4**).

4. Press to change the selected CLU
5. The selected digit blinks
6. Use and to select the digit to be changed
7. The digit is changed by pressing .

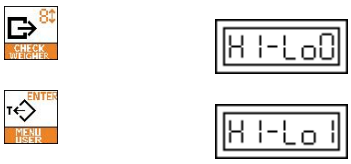


8. Press PT SET to set the value. You will be informed of the platform in which the CLU has been programmed.
9. Press PT SET.
10. If you wish to select another CLU, press PT SET. If you wish to quit to unit counter mode press →0←.
11. To return to the normal working mode, press the key lb/kg.

4. CHECKWEIGHER MODE (Optional)

The VD-310 indicator has as an option a Checkweigher function.

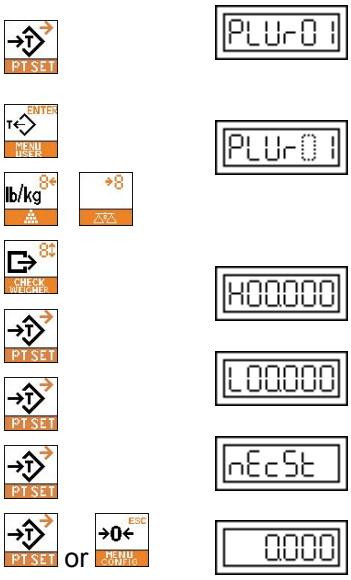
To select the checkweigher function:



1. Keep the key CHECK WEIGHER pressed for longer than 1 second.
2. Press MENU USER to enable or disable the Checkweigher function.

    0. Checkweigher function **disabled**.
    1. Checkweigher function **enabled**.

3. If the function is enabled, it is necessary to select a checkweigher PLU (see 7.1 PLU Programming). The procedure is the following:



    1. Press PT SET to select the selecting PLU submenu
    2. Press MENU USER to change the PLU.
    3. The selected digit blinks.
    4. Use lb/kg and →8 to select the digit to be changed.
    5. The digit is changed by pressing CHECK WEIGHER
    6. Press PT SET to set the value. The value of the upper limit of the PLU displays.
    7. Press PT SET. The value of the lower limit of the PLU displays.
    8. Press PT SET.
    9. To select another PLU, press PT SET, to return to check weigher mode press →0←.

4. To return to normal working mode(exit chack weigher mode), keep pressed the key CHECK WEIGHER for longer than one second . By pressing the key MENU USER select 0 (checkweigher function disabled) and press the key PT SET.

The algorithm of the checkweigher leds is shown with the following example:

Article with a target weight of 1000g with an upper limit of 5g and a coger limit of 10g (so the minimum weight will be 990g and the maximum 1005g).
The functioning of the checkweigher leds will be the following:

	Checkweigher mode enabled.
	Weight between 970 and 980g
	Weight between 980 and 990g.
	Weight between 990 and 1000g.
	Weight of 1000 g (target weight)
	Weight between 1000 and 1005g.
	Weight between 1005 and 1010g
	Weight between 1010 and 1015g
	Weigth over 1015g

	LED ON
	LED OFF

5. OPTION TWO PLATFORMS

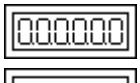
5.1. SELECTION OF PLATFORM IN USE

The VD-310 indicator has as an option the possibility of working with two platforms. To select the platform in use (1 or 2) , keep pressed the key  for longer than 1 second.

5.2. SELECTING WEIGHING PLATFORMS

The instrument can be set up to work with one or two platforms, depending on the model.

To select the platform to be used, take the following steps:



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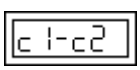
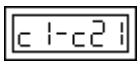




1. Switch on the device. When the display shows the count from 0 to 9, press and hold the  . Key. The screen will display **"c1-c2".**
2. Press  to select the System Configuration submenu.

.....

3. Press  to change the value.

- **0.** Remote platform (the screen shows the display of another master screen)
- **1.** Only platform 1 (**C1**) enabled.
- **2.** Only platform 2 (**C2**) enabled.
- **3.** Platforms 1 (**C1**) and 2 (**C2**) enabled.

4. Press  to store and reboot the instrument.

6. PRINTING FUNCTION

The VD-310 indicator can send information to a serial printer. To do so; press  when the weight on the platform is stable.

Once the printing has been done, printing can be resumed in the following cases:

1. There has been a change in the weight
2. After 5 seconds

If these conditions are not met, the **"nEu"** message will display.

In the event that the transmission is at low speed and has not yet finished, a **"busY"** message temporarily displays.

The printing format and the communication parameters can be programmed by the user (see 7.12 *PRINTING PARAMETERS,* 7.11 *COMMUNICATIONS PARAMETERS*).

7. PROGRAMMING USER PARAMETERS

These parameters allow the user to adapt the instrument's operation to installation requirements.

The user menu contains the following functions:

- Programming of Checkweigher PLU´s (depending on the version).
- Tares programming.
- Programming Time and Date.
- Selecting types of tare.
- Weighing filters selection.
- Enabling the filter for conditions of instability.
- Changing Non OIML parameters.
- Internal divisions reading.
- Communications setup.
- Selection of communication parameters.
- Selecting printing formats.
- Exit from menú, return to normal working mode.

To gain access to the parameters of User´s Programming, from the normal working mode, press the key  for longer than 1 second.

By pressing several times the key  the indicator shows the programmation submenus.

The configuration and programming parameters are independent for each of the platforms.

The procedure for programming configuration parameters for platforms C1 and C2 is the same.

7.1. PROGRAMMING PLU

In this submenu it is programmed the Checkweigher PLU.
The indicator has the possibility of programming 99 PLU´s for each platform

To enable the checkweigher mode see section 4- *CHECKWEIGHER MODE*


1. From normal working mode, keep pressed the key for longer than 1 second.


2. Press to select the PLU programming submenu.

3. Enter the number of PLU to be programmed (from 1 to 99), to do so:



1. Press in order to be able to change the value.
2. The selected digit blinks.
3. Use and to select the digit to be changed.
4. The digit is changed by pressing .
5. Press to set the value and pass to program the target weight of the PLU.

7.1.1. PLU's target weight

This parameter is for programming the PLU's target weight, to do so:



1. Press in order to be able to change the value.
2. The selected digit blinks.
3. Use and to select the digit to be changed.
4. The digit is changed by pressing .
5. Press to set the value and pass to program the type of limit of the PLU.

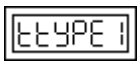
7.1.2. Type of limit of PLU

This parameter is for selecting one of the two types of limit.

The possible limits are:

1. The upper and lower values are selected as a percentage of the target weight.

2. The upper and lower values are selected as weight values.

1. Press  to select the type of limit of PLU.

2. Press  to set the value and pass to program the upper limit.

Example:

If a target weight of 1000g is programmed, and the upper limit and lower limits are to be set to 10 g respectively, two types of limit can be selected, a percentage or a weight. A percentage can be used, setting 1% as the upper limit and 1% as the lower limit , or weight values can be used, setting 10 g above and 10 g below the target weight. However, if the upper limit is to be set to 10 g and the lower limit to 5 g, then the percentage limits cannot be used, because **decimals are not permitted in percentages**. In this case, weight values should be programmed as the limit values, programming 10 g above and 10 g below the target weight.

7.1.2.1. TYPE OF LIMIT BY PERCENTAGE

It is not possible to program decimals in this parameter

Upper limit

This parameter is for programming the upper limit in % of the target weight. Take the following steps:







1. Press  in order to be able to change the value.
2. The selected digit blinks.
3. Use  and  to select the digit to be changed.
4. The digit is changed by pressing  .
5. Press  to set the value and pass to program the lower limit.

Lower limit

This parameter is for programming the lower limit in % of the target weight. Take the following steps:





1. Press  in order to be able to change the value.
2. The selected digit blinks.
3. Use  and  to select the digit to be changed.
4. The digit is changed by pressing  .
5. Press  to set the value and pass to program the functioning of the buzzer.

7.1.2.2. TYPE OF LIMIT USING WEIGHT VALUES

Upper limit

This parameter is for programming the upper limit weight value. Do as follows:





1. Press  in order to be able to change the value.
2. The selected digit blinks.
3. Use  and  to select the digit to be changed.
4. The digit is changed by pressing  .
5. Press  to set the value and pass to program the lower limit..

Lower limit

This parameter is for programming the lower limit weight value. Do as follows:





1. Press  in order to be able to change the value.
2. The selected digit blinks.
3. Use  and  to select the digit to be changed.
4. The digit is changed by pressing  .
5. Press  to set the value and pass to program the functioning of the buzzer..

7.1.3. FUNCTIONING OF THE BUZZER

There are two modes of working of the buzzer:

1. A sound is emitted when the weight is within the limits
2. A sound is emitted when the weight is outside the limits and is greater than 20 divisions of the lowest range used.

1. Press  to select the type of sound required.
2. Press  to set the value and pass to program the type of buzzer.

7.1.4. TYPE OF BUZZER

There are three types of buzzer sound:

1. No sound.
2. Several beeps once.
3. Several beeps several times.

1. Press  to select the required Sound mode.
2. Press  to set the value.

7.1.5. Programming next PLU

Once a PLU has been programmed:

- Press  to program another PLU
- Press  to return to the User´s Programming mode

See **Par 7.13** to return to the normal working mode.

7.2. TARE PROGRAMMING

The VD-310 indicator includes the tare programming function. The VD-310 has the possibility of programming 10 preset tares (TLU) for each platform.

The operation for the programming of the tares is as follows:

1. In normal working mode, place the tare weight on the platform and press .


2. Keep pressed the key for longer than 1 second to access the User´s Programming.


3. Press until you reach the screen **“tLUPro”**.


4. If there is tare, if you press you access the **“tLU 01”** submenu. Otherwise a series of beeps will indicate that there is no tare to be programmed.


5. Press to select the number de TLU where you wish to program the tare.

6. Press to store the tare and return to normal working mode.

7.3. DATE & TIME

Use this submenu for programming the time and the date of the instrument.

Date and time are not kept when the indicator is switched off.

7.3.1. Programming Time


1. Keep pressed the key for longer than 1 second to access the User´s Programming.


2. Press to select the programming time submenu.


3. Press .


4. Press .

5. Enter the time in the “HH.MM.SS” format, to do so:

1. Press in order to be able to change the value.
2. The selected digit blinks.
3. Use and to select the digit to be changed.
4. The digit is changed by pressing .
5. Press to set the value and move on to the next parameter.




7.3.2. Programming Date






1. Press .
2. Enter the date in “DD.MM.YY” the format. To do so:
    1. Press in order to be able to change the value.
    2. The selected digit blinks.
    3. Use and to select the digit to be changed.
    4. The digit is changed by pressing .
    5. Press to set the value and return to the user´s programming mode

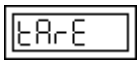
See **Par 7.13** to return to the normal working mode.

7.4. TYPES OF TARE

The Tare is always subtracted, i.e., the weight of the item being tared is discounted from the maximum range of the load cell, thus reducing its range.

To select types of tares:







1. Keep pressed the key for longer than 1 second to access the User´s Programming.
2. Press until you reach the **“tArE”** screen
3. Press .
4. Press to change the value.
    1. Successive tares are not allowed.
    2. Successive tare operations are allowed, but only on a greater weight.
    3. Self-tare. The first stable weight is tared. It is untared when the full weight is removed.

Press to set the value and return to the user´s programming mode.

See **Par 7.13** to return to the normal working mode.

7.5. SELECTING FILTERS

These filters allow to adapt the weighing characteristics of the indicator the site where it is installed (open area, platform with strong vibrations, etc). There are 7 selectable filters.

Filtro 0 ➔ Deafult value.
Filtro 1 ➔ Platform in an open area.
:
:
Filtro 6 ➔ Platform with strong vibrations.

To select the filter value:


1. Keep pressed the key for longer than 1 second to access the User´s Programming


2. Press until you reach the **"FILtEr"** screen


3. Press .


4. Press to change the value.

	ICS1	rdS1	rdM1	ICS2	rdS2	rdM2	Average reading
Grade 1	3	1	1	5	1	1	1
Grade 2	4	2	2	6	2	2	1
Grade 3	5	2	3	6	2	3	1
Grade 4	4	1	1	5	3	2	2
Grade 5	4	1	1	5	1	1	3
Grade 6	5	2	2	6	2	2	3

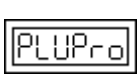
5. Press to set the value and return to the user´s programming mode.

See **Par 7.13** to return to the normal working mode.

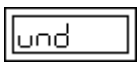
7.6. Selecting special filter (wind)

This filter is used when plant conditions or the wind could affect stability.

To program this parameter:

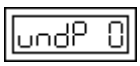



1. Keep pressed the key for longer than 1 second to access the User´s Programming.

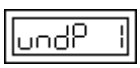
2. Press until you reach the **"und"** screen

3. Press .

4. Press to change the value.

   0. Special filter **Disabled**.
   1. Special filter **Enabled**.

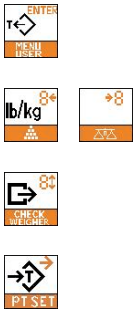



5. Press to set the value and move on to the next parameter.

7.6.1. Operative margin of the Filter for Wind

This parameter defines the range of weight values to which this filter is to be applied.

To program this parameter:



1. Press ENTER in order to be able to change the value.
2. The selected digit blinks.
3. Use lb/kg and *8 to select the digit to be changed.
4. The digit is changed by pressing CHECK WEIGHER.
5. Press PT SET to set the value and return to the user´s programming mode.

The default value of the filter's operating margin is 5e

See **Par 7.13** to return to the normal working mode.

7.7. NON-OIML APPLICATIONS

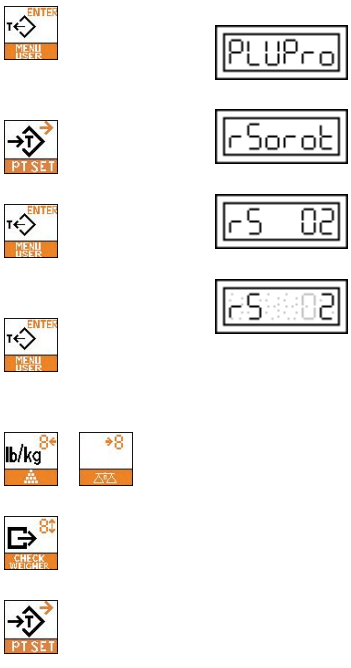
If the instrument is not used under OIML requirements, it is possible to adjust the initial parameters.

If the instrument is used under OIML requisites, sections 7.7.1, 7.7.2, and 7.7.3 are not programmed.

7.7.1. Limit of manual zero

This parameter indicates the % of the maximum with which manual zero can be done.

To program this parameter:



1. Keep pressed the key ENTER for longer than 1 second to access the User´s Programming.

2. Press PT SET until you reach the **"rSorot"** screen

3. Press ENTER.

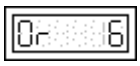
4. Enter the % of the maximum range (from 0 to 99 %) with which you wish to allow reset. To do so:
   1. Press ENTER in order to be able to change the value.
   2. The selected digit blinks.
   3. Use lb/kg and *8 to select the digit to be changed.
   4. The digit is changed by pressing CHECK WEIGHER.
   5. Press PT SET to set the value and move on to the next parameter.

7.7.2. Initial reset limit

This parameter indicates the % of the maximum range with which initial reset is allowed.

To program this parameter:





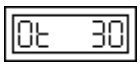
Enter the % maximum range (from 0 to 99 %) with which you wish to allow initial reset. To do so:

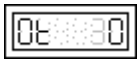
1. Press  in order to be able to change the value.
2. The selected digit blinks.
3. Use  and  to select the digit to be changed.
4. The digit is changed by pressing  .
5. Press  to set the value and move on to the next parameter.

7.7.3. Zero tracking limit

This parameter indicates the % of the interval with which you wish to go from zero to the first interval.

To program this parameter:

Enter the % of the interval (from 0 to 99 %) with which you wish to allow the jump from zero to the first interval. To do so:

1. Press  in order to be able to change the value.
2. The selected digit blinks.
3. Use  and  to select the digit to be changed.
4. The digit is changed by pressing  .
5. Press  to set the value.

See **Par 7.13** to return to the normal working mode.

7.8. MENU COUNTI

Submenu not in use.

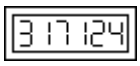

Press  to continue.

See **Par 7.13** to return to the normal working mode.

7.9. INFORMATION ON INTERNAL DIVISIONS

This parameter shows the value of the weight in internal divisions. To do it:



1. Keep pressed the key  for longer than 1 second to access the User´s Programming.
2. Press  until you reach the **"ICount"** screen
3. Press  to view internal divisions.
4. Press  to quit to user menu.

See **Par 7.13** to return to the normal working mode.

7.10. SELECTING COMMUNICATIONS

This parameter is used for setting up the VD-310 Series indicator for communicating with a serial printer, with the r TP-05 repeater or with the RD-3 repeater.

To select communications:




1. Keep pressed the key  for longer than 1 second to access the User´s Programming.
2. Press  until you reach the **"CoMM"** screen
3. Press  to change the value.

1. Communication with remote display RD-3.

2. Communication with series printer.

3. Communication with PC through polling.

4. Communication with PC through stable weight.

5. Communication with PC by pressing key for sending data.

7. Protocol F501: weight sent by VD-300 upon PC request.

8. Protocol F501: weight sent by VD-300 by pressing key for sending data.

9. Protocol F501: weight sent by VD-300 in continuous mode.

10. Protocol SAIE: weight sent by VD-300 upon PC request.

11. Protocol SAIE: weight sent by VD-300 by pressing key for sending data.

12. Protocol SAIE: weight sent by VD-300 in continuous mode.

13. Protocol Multipoint 2000 (currently through 00 address): weight sent by VD-300 upon PC request.

14. Protocol Multipoint 2000 (currently through 00 address): weight sent by VD-300 by pressing key for sending data.

15. Protocol Multipoint 2000 (currently through 00 address): weight sent by VD-300 in continuous mode.

16. Protocol SEUR: weight sent by VD-300 upon PC request.

17. Protocol SEUR: weight sent by VD-300 when the weight is stable.

18. Protocol TISA: weight sent by VD-300 in polling mode.

19. Protocol TISA: weight sent by VD-300 when the weight is stable.

20. Protocol TISA: weight sent by VD-300 weight sent by VD-300 by pressing key for sending data.

21. Protocol TISA: weight sent by VD-300 in continuous mode.

22. Protocol F501: weight sent by VD-300 upon PC request**.** It is also possible to send the TARE from the PC.

4. Press 

to set the value and return to the user´s programming mode

See **Par 7.13** to return to the normal working mode.

7.11. PROGRAMMING COMMUNICATIONS PARAMETERS

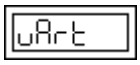
Use this submenu for programming the communication speed, the data bits, the parity and the stop bits with which the instrument is to communicate

7.11.1. Communication speed

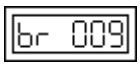
This parameter is for selecting the speed in bauds at which the indicator is to communicate.

To program the communication speed:


1. Keep pressed the key for longer than 1 second to access the User´s Programming.

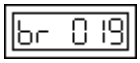



2. Press until you reach the **"uArt"** screen

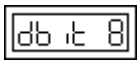



3. Press .

4. To change the communication speed press .



001 = 1200 bps
002 = 2400 bps
004 = 4800 bps
009 = 9600 bps
019 = 19200 bps
038 = 38400 bps
057 = 57600 bps
115 = 115200 bps

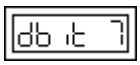



5. Press to set the value and move on to the next parameter.

7.11.2. Data bits

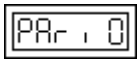
This parameter is for selecting the data bits with which the indicator is to communicate.

To do so:

1. Press if you wish to change the number of data bits.

7 7 data bits.
8 8 data bits.

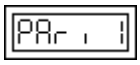



2. Press to set the value and move on to the next parameter.

7.11.3. Parity

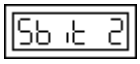
This parameter is for selecting the communications parity.

To do so:

1. Press if you wish to change the parity.

   0 No parity.
   1 Odd parity
   2 Even parity.

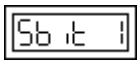



2. Press to set the value and move on to the next parameter.

7.11.4. Stop bits

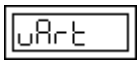
This parameter is for selecting the number of stop bits.

To do so:

1. Press if you wish to change the number of stop bits.

   1 One stop bit.
   2 Two stop bits.

2. Press to set the value and return to the user´s programming mode.

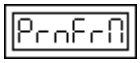
See **Par 7.13** to return to the normal working mode.

7.12. PRINTING PARAMETERS

Use this submenu to select the printing formats and the feed lines on the paper after printing.

7.12.1. Printing format





To select the printing format:

1. Keep pressed the key for longer than 1 second to access the User´s Programming.
2. Press until you reach the **“PrnFrm”** screen
3. Press .
4. To change the printing format press .

Select one of the following formats:

Printing formats for weighing

1

Weighing Number:	#XXXXX
hh:mm	mm/dd/yy
Net:	XX.XXX Kg
Tare:	XX.XXX Kg

2

Weighing Number:	#XXXXX
hh:mm	mm/dd/yy
Net:	XX.XXX Kg
Tare:	XX.XXX Kg
Goss:	XX.XXX Kg

Printing formats for unit counter

3

Weighing Number:	#XXXXX
hh:mm	mm/dd/yy
Unit W:	0.000000 g
Tare:	XX.XXX Kg
Goss:	XX.XXX Kg
Net:	XX.XXX Kg
Quantity:	XXXXXX u

4

Weighing Number:	#XXXXX
Unit W:	0.000000 g
Goss:	XX.XXX Kg
Net:	XX.XXX Kg
Quantity:	XXXXXX u

Printing formats for checkweigher

5

Weighing Number:	#XXXXX
hh:mm	mm/dd/yy
Target weight:	XX.XXX Kg
Actual weight:	XX.XXX Kg
Deviation:	XX.XXX Kg

6

Weighing Number:	#XXXXX
Target weight:	XX.XXX Kg
Actual weight:	XX.XXX Kg
Deviation:	XX.XXX Kg

5. Press PT SET to set the value and move on to the next parameter.

7.12.2. Number of feed lines

Enter the number of lines (0-99), to do so:

1. Press MENU in order to be able to change the value.
2. The selected digit blinks.
3. Use lb/kg and the next key to select the digit to be changed.
4. The digit is changed by pressing CHECK WEIGHER.
5. Press PT SET to set the value and return to the user´s programming mode.

See **Par 7.13** to return to the normal working mode.

7.13. DISCRIMINATOR / CLASSIFIER MODE

In this section, either discriminator or classifier mode is selected and programmed. The discriminator uses a target weight, beyond which the object is discriminated and the classifier uses weight intervals to classify the object.

To programme the discriminator or classifier:

1. Press and hold MENU/USER for at least one second in order to access the user's menu.

2. Press PT/SET to go to the "ChECt" screen.

3. Press MENU/USER to choose between the discriminator and the classifier and type of weighing.
Use MENU/USER to change the value.

0. Disabled.
1. Discriminator, static weight (stable, positive, net weight).
2. Discriminator, dynamic weight (positive, net weight).
3. Classifier, static weight (stable, positive, net weight).
4. Classifier, dynamic weight (positive, net weight).

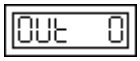
NOTE: If the classifier is selected:
- Press PT/SET to edit intervals.
- Press MENU/USER to change value (the selected digit will flash).
- Press lb/kg and *8 to select the number to be changed and ZERO/ESC to change the digit.
-.Press PT/SET to edit the next interval (up to 8 intervals).

If less intervals are programmed, the next interval after the last programmed interval should be filled with zeros.

4. Press PT/SET to define the output disabling mode.
Use MENU/USER to change the value.

0. Go through zero
1. Level variation. Press PT/SET to define level variation (display units).
2. Switch off signal for start of cycle.
3. Timer. Press PT/SET to define the timer (tenths of a second).

5. Press PT/SET to go to the next parameter (input test).
The parameter "Inp" indicates the number of active inputs.



6. Press 

to go to the next parameter (output test).

Use 

to select the output to be tested.

For the discriminator mode:

0	Weight	No active output.
1	Correct weight.	Output 1 active
2	Weight above target.	Output 2 active.
3	Weight below target.	Output 3 active.
4	Equipment error	Output 4 active.

For the classifier mode:

0	Weight	No active output.
1	Weight ≤ Interval 1.	Output 1 active.
2	Interval 1 < Weight ≤ Interval 2.	Output 2 active.
3	Interval 2 < Weight ≤ Interval 3.	Outputs 1, 2 active.
4	Interval 3 < Weight ≤ Interval 4.	Output 3 active.
5	Interval 4 < Weight ≤ Interval 5.	Outputs 1, 3 active.
6	Interval 5 < Weight ≤ Interval 6.	Outputs 2, 3 active.
7	Interval 6 < Weight ≤ Interval 7.	Outputs 1, 2, 3 active.
8	Interval 7 < Weight ≤ Interval 8.	Output 4 active.
9	Motor 1	Outputs 3, 4 active.
10	Motor 2	Outputs 2, 4 active.

7. Press 

to return to the user's menu.
See sect. 7.16 to return to the operating mode.

NOTE: The cycle starts when input E1 is activated and ends when input E2 is activated.

In classifier mode, if the weight value is within the value that has been programmed for each interval, the 4 output signals show the interval to which the weight is assigned, in binary form. If, however, the weight value does not fall within any programmed interval, the output signal is a "9" (in binary form).

The discriminator/classifier and dispenser can be configured in the user's menu. If the value of the two utilities in the DEF field is ">0", the last utility that has entered will be activated.

7.13.1. Output connector

Output connector pins on the digital card.

There are two inputs and four outputs.

The inputs have two potential-free pins, a positive pin and a negative pin, with a maximum difference in voltage of 24V.

The outputs have three pins. They are potential-free. Each output has a shared pin and two potential-free connectors with a maximum voltage of 300V.

Pin	Output signal
1	5 V.
2	12 V.
3	TX RS-232
4	Earth
5	N.C.
6	Negative pin input 1.
7	Negative pin input 2.
8	Connector normally open, output 1.
9	Shared pin output 2.
10	Connector normally closed, output 2.
11	Connector normally open, output 3.
12	Shared pin output 4.
13	Connector normally closed, output 4
14	5 V.
15	12 V.
16	RX RS-232.
17	Earth.
18	Positive pin input 1
19	Positive pin input 2.
20	Shared pin output 1.
21	Connector normally closed, output 1.
22	Connector normally open, output 2.
23	Shared pin output 3.
24	Connector normally closed, output 3.
25	Connector normally open, output 4.

7.14. DISPENSER MODE

This section is responsible for programming the display in order to fill with a product at two different speeds. Filling is controlled and adjusted by entering a target weight.

Operation is as follows:

The dispensing processes commences when signal E1 is activated, or when the weight on the platform exceeds the programmed threshold and key “8” is pressed and held. Output S1 and/or S2 is activated for fast and/or slow respectively, depending on how the corresponding parameter has been programmed. If the weight is equal to or above the weight programmed as the fast value, signal S1 is deactivated and signal S2 is activated for slow filling. If the remainder control parameter is not programmed, when the slow value is attained signal S2 will be deactivated; if the remainder control is enabled, when the estimated weight value is attained, S2 is deactivated. When it becomes stable, the difference between this weight and the target weight is memorised in order to correct it in the next operation. When the weight becomes stable, signal S3 is activated to indicate that filling is complete. This signal will remain active until it is deactivated. If the error percentage exceeds the programmed tolerance, error signal S4 will be activated, and this will be deactivated at the start of the next cycle.

Input values:

E1	Start of cycle
E2	

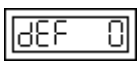
Output values:

S1	Fast.
S2	Slow.
S3	Filling complete
S4	Error

To programme this parameter

1. Press and hold  for at least one second in order to access the user’s menu.

2. Press  to go to the “dOSIF1” and press 



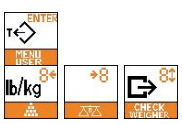
3. Press  to enable/disable the dispenser.

0. Disabled.
1. Enabled.

4. Press  to go on to define the operation mode. Use  to modify the values as follows:

0. Enable fast filling.
1. Enable fast and slow filling.


5. Press PT SET to go on to define the value of the target weight.



Press MENU USER to modify the value. Use lb/kg and →8 to move along the digits and CHECK WEIGHER to vary the value.


6. Press PT SET to define the weight value when fast filling should be closed.

Press MENU USER to modify the value. Use lb/kg and →8 to move along the digits and CHECK WEIGHER to vary the value.


7. Press PT SET to define the weight value when slow filling should be closed.

Press MENU USER to modify the value. Use lb/kg and →8 to move along the digits and CHECK WEIGHER to vary the value.

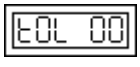

8. Press PT SET to access remainder control. Press MENU USER to modify the value.

0. Disabled (this lets any remaining product drop down).
1. Enabled.
2. Enabled. Remainder value is saved.

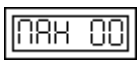

9. Press PT SET to select the form of disabling the end of cycle output. Modify the value using MENU USER.

0. Stable weight.
1. End of signal that marks start of cycle.
2. Activation of start of cycle signal or →8.
3. Time.


If parameter 3, “Time” is selected, when PT SET is pressed, it is possible to define the value of the output activation time (tIM) (in tenths of a second). To modify it, press MENU USER.

10. Press PT SET to define tolerance (percentage difference between target weight and real weight in order to activate error signal in %). To modify this value, press MENU USER.

11. Press PT SET to determine the value of the maximum filling time (in minutes). To modify this value, press MENU USER

12. Press  to determine the value of the minimum weight on the weighing platform required to start the cycle (in the units shown on the display). Press  to modify the value. Use  and  to move along the digits and  to vary the value.

13. Press  to go to the next parameter (input test).
Parameter “Inp” indicates the number of active inputs.

14. Press  to go to the next parameter (output test).
Use  to select the output to be tested.

0. No active output.
1. Output 1 active.
2. Output 2 active.
3. Output 3 active.
4. Output 4 active.

15. Press  to return to the user’s menu.

See sect. 7.16 to return to operating mode.

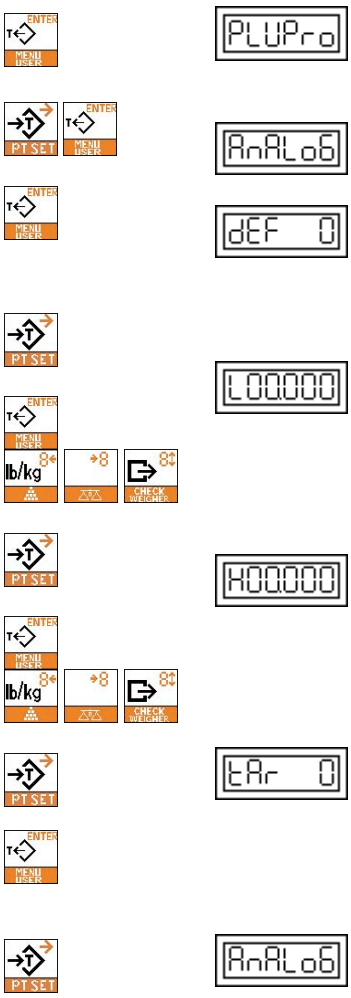
The discriminator/classifier and dispenser can be configured in the user’s menu. If the value of the two utilities in the DEF field is “>0”, the last utility that has entered will be activated.

Output connector see sect. 7.13.1

7.15. ANALOGUE OUTPUT MODE

In this mode of operation, analogue outputs are provided in accordance with the upper and lower weight limits programmed by the user. These outputs are proportional to the limits and their voltage may vary within a range of 0 to 5 V, 0 to 10 V, and in current from 4 to 20 mA.

To programme this parameter:

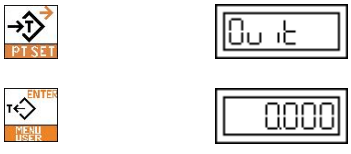


1. Press and hold MENU USER for at least one second in order to access the user's menu.
2. Press PT SET to go to the "AnALoG" screen. Press MENU USER
3. Press MENU USER to enable/disable analogue output mode.
   0. Disabled.
   1. Enabled.
4. Press PT SET to programme the lower limit (in the units shown on the display).
   Press MENU USER to modify the value. Use lb/kg and →8 to move along the digits and CHECK WEIGHER to vary the value.
5. Press PT SET to programme the upper limit (in the units shown on the display).
   Press MENU USER to modify the value. Use lb/kg and →8 to move along the digits and CHECK WEIGHER to vary the value.
6. Press PT SET to programme the tare.
   Select the gross or net weight using MENU USER.
   0. Gross weight.
   1. Net weight.
7. Press PT SET to return to the user's menu.
   See sect. 7.16 to return to operating mode.

7.15.1. Output connector

Pin	Output signal	RL
1	4-20 mA.	< 1 kΩ
2	Earth signal 4-20 mA.	
3	0-5 V.	≥ 2 kΩ
4	Earth signal 0-5 V.	
5	0-10 V.	≥ 4 kΩ
6	Earth signal 0-10 V.	

7.16. RETURN TO NORMAL WORKING MODE



Once in User Programming Parameters, if the user wants to the return to the normal working mode, press PT SET until you reach the **"Quit"** screen. Then press MENU USER to quit to weighing mode.

DIBAL	DECLARATION OF CONFORMITY	AENOR ER Empresa Registrada ER-0292/1/96 · IQNet · ISO 9001 · CE

No. of the notified body in charge of EU Verification conformable to Directive 90/384/EEC: **0317**

Manufacturer:	**DIBAL, S.A.** **Astintze 20-24** **Pol. Ind. Neinver** **48160 – Derio SPAIN**
Type: **VD-310 SERIES**	No. of EC type-approval certificate: **TC6490**

E

It corresponds to the model described in the CE type-approval certificate, as per requisites of Directive 90/384/CEE modified in accordance with what is laid down in the following EC directives: 89/336/CEE, 73/23/CEE, tests and checking in accordance with European standard EN45501 section 8.2.
In the event of confirmation being carried out in two stages, the validity of the declaration of conformity may depend on the documentation on the realisation of the second stage of verification.

True copy of the manual entrusted to notified body no. No. 317
The information contained in this manual may be modified by the manufacturer without prior notice

Ref.: 49-MVD31EN03 Rev.: 03 31/05/05

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