- Manual

SATEX SA 250

Digital indicator

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Manual Indicator SA 250

PCG/C SA 250 Indicator Manual 23-03-07

General

Thank you for purchasing this SATEX precision digital indicator !
This instrument is equipped with reliable technology and has user friendly operational software.
You will use it many times and it will prove itself to be an easy, speedy and accurate tool.

If any questions raise that are not described in this manual, please address yourselves to your SATEX supplier, have a look at our website : www.satex.nl or send your questions per email to : info@satex.nl

Application, Weight and Measures certified

The SA 250 digital indicator is designed for accurate and legal weighing, for counting of articles and for check weighing and filling with settable weight setpoints with LED indicators in the front panel.

The indicator is designed for use in dry, inside conditions, class IP 54. Any 2 mV/V loadcell may be connected to the indicator.

Take care of a stable position of the connected weighing equipment. Place the equipment in accurate level position and prevent for vibrations, shocks and radio radiations.

The CE (OIML R76 1992 class III) Certificate of this scale is valid in all European countries.
It is permitted to use a scale, if stamped individually, for weighing for trade purposes.

Safety

Please read this manual thoroughly before start using the scale.
The supplier does not accept any responsibility if the guidelines of this manual are not observed.

Before any work is done on the indicator, power connections from the mains adaptor and the internal battery should be interrupted. Warranty is void if the scale is opened anyhow.
Breaking of the seal of a stamped scale is a criminal act and causes the complete disapproval of the scale.

The instrument fulfils the requirements laid down in the EG regulations 89/336/EWG and 73/23/EWG for electromagnetic compatibility and the Council Directive 90/384/EEC for not automatic weighing machines. Exceeding of the maximum values, laid down in these regulations, must be avoided.
Electrostatic discharges may cause fatal damage to the scale and should be avoided at all times. I.e. a proper earth connection of the scale and the place of erection is required in such cases.
The mains adaptor has no special protection against humidity and water and should not come into contact with it.
In case this has happened, or the adaptor shows any external damage, the adaptor should not be used any longer.

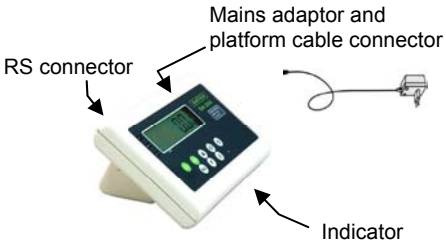
The built in lead battery should, if it has to be replaced, be disposed off as small chemical waste, not to be added to normal waste.

Maintenance

Except from regular cleaning with a slightly humid cloth and a not aggressive detergent, further maintenance is not required. No liquids has to be applied upon the instrument.

However it makes sense to check a scale's weighing accuracy with regular intervals, using accurate calibration weights.
Stamped scales are sealed, but a not stamped scale may be adjusted by the user itself using accurate Class M1 weights.

Start up



- Carefully unpack the indicator.
- Check the presence of:
  - digital indicator
  - mains adaptor in carton box
  - english user manual
- Connect the platform cable to the indicator, connect mains adapter and press the “ON” switch (with an empty weigh platform!)
- The scale automatically sets zero and is ready for use now
- The built in battery allows the scale to work for maximum 75 hours without connection to mains supply.

Due to differences in temperature it may last until 10 minutes after switching on before the reading of the weight is completely accurate.

Place the indicator in a stable position, so no risk for collisions, vibration or falling down will occur. In environments with the risk of static electrical discharges, a proper earth connection is required.

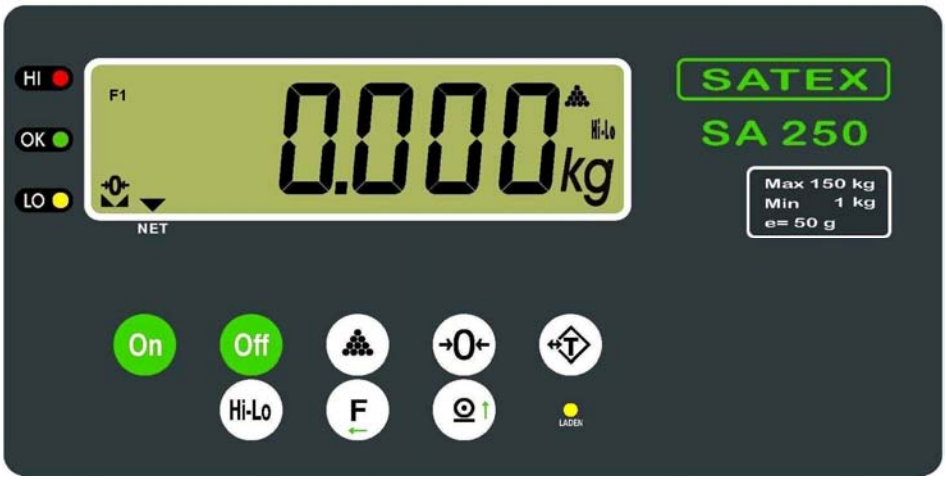
Check, if necessary, the accuracy of a scale with an accurate calibration weight. Using the calibration procedure (page 13) the scale may be re-adjusted. Stamped scales are sealed to prevent for illegal adjustments
At first start up the built in battery may be not completely loaded. Re-load the battery by leaving the scale in OFF position for at least 16 hours with a connected mains adaptor.

Technical specifications

Weighing capacities	: Capacity and division are user settable via the software. Legal trade version up to 10,000 divisions, max setting up to 15.000 divisions has up to 15000 scale divisions.
Accuracy	: Fulfils the European Weight and Measures regulations (EN 45501) for new weighing scales: at a load of: 0 - 500 divisions : deviation ≤ ½ scale division 500 - 2000 divisions : deviation ≤ 1 scale division > 2000 divisions : deviation ≤ 1½ scale division
Environmental	: in operation: 0° … + 40°C, in stock: -10° … + 55°C, max. 85% RH.
Construction	: ABS housing, dust and waterproof display keys and front. Optional turnable console for mounting upon a pole
Excitation	: Mains adaptor 230 VAC 50 Hz 60 mA, output 9 VDC 500 mA, built in rechargeable battery and charger.
CE Approval	: TC 6918 for 10,000 divisions and 0,5 µV/V with 5 V LC excitation
Operation on battery	: 75 / 28 hours, without / with display back light switched on at a one loadcell scale.
Battery charging time	: At least 20 hours for a complete charge.
Automatic switch off	: Settable: auto off after 5, 10, 20, 30 minutes standstill, or no auto off active.
Display back light	: Settable: on, off, or automatic on during weighing (display > 0,0 kg).
RS 232 data communication	: 2400 / 9600 Bd (settable), 8 data bits, 1 stop bit, no parity, CR and LF, fixed string 13 bytes, decimal dot and a kg sign included, 9-pole male D-connector, 4 transmission modes.

Display: keys and display symbols

Front panel



Keys:

On — Switch on scale

Off — Switch off scale

Switch on parts counting function

Set zero of the gross weight value,
range + en - 2 % of the scale capacity

Tare = set zero over the complete scale capacity

Hi-Lo — Hi-Lo function, input weight limits
(if the function is selected only)

F — Toggle from weighing → weighing with lock up → Hi-Lo → parts counting and back
Cursor operation “left” move

Printing / data transmission
Cursor operation “up” move

Indications:

LADEN — Led orange/yellow : battery is charging
Led yellow/green : charging completed

HI — Weight is above the settled up-limit

OK — Weight is in between the up- and down-limit

LO — Weight is below the settled down-limit

Indication of :
Max 150 kg
Min 1 kg
e= 50 g
- maximum scale capacity
- legal minimum weighing range
- value scale divisions (e)

Display symbols:

→0← — Reading is exact zero, within 0,2 scale division

Reading has achieved a complete standstill

NET — If the ▼ sign up here is on, the reading is the net weight value: a tare value has been subtracted

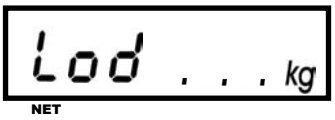
Scale is in parts counting mode

Hi-Lo — The Hi-Lo function is in operation

F1 of F2 — The lock up function is in operation

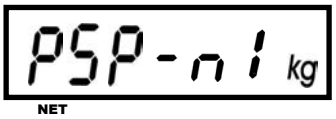
Operating a key causes a short “beep” sound as a confirmation.
If a selected function cannot be executed a longer “beep” sounds as a warning.

Start up



At start up with the On key the display shows briefly: “Lod . . .” (Loading)

During start up the display shows 3 x all the segments of the figures and the decimal dots, running from left to right and the kg sign.



Next turn the display shows the program number : PSP-n1

After that the scale will automatically set zero, as soon as the reading has come to an exact standstill. Only after exact standstill the symbol →0← is shown, followed by the symbol ◣◢ and the display reading will be zero.

After maximum 10 minutes warming up time the measuring system is stabilized and the scale is ready to be used.

Set zero

If the display, with an empty weigh platform, does not show a zero reading, press key →0←.

The zero setting range is limited up to + and - 2% of the scale capacity. Outside this range, zero setting will not be executed.

If more than 2% zero setting is required, switch the scale off and on again. The zero setting range is than + and - 10%.

Small deviations from zero (< ½ scale division), are automatically compensated, so the empty scale will always stay at zero reading. This procedure is called zero tracking.

The addition of very small weights (< ½ scale division) starting from zero reading, may cause faulty weight presentation, caused by the zero tracking. In that case the zero tracking may be switched off via the User Menu (page 8).

Tare

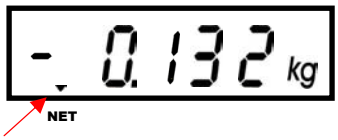
(taring is zero setting, possible over the complete scale capacity)

Place empty container on the platform and tare to zero with key
After standstill the weight reading sets zero.
The symbol ▼ at : **NET** shows that a taring has been operated: display reading now is the **net weight**.

Taring may be repeated up to the maximum scale capacity.

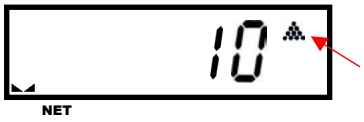
The tare may be deleted by pressing key with an empty platform.

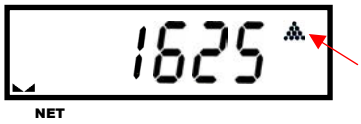
Check weighing (in weighing mode only)



Add the article with the correct weight on the platform and press key →0←.
The reading sets zero. The symbol ▼ at : **NET** shows up.
Replace the article for the item to be checked and read the deviation in + or -.
This tare may be deleted by pressing key →0← with an empty platform.

Counting parts





1. Count by hand a number of articles: 10, 20, 50,100 of 200 pieces.
   The less weight of an article, the more pieces have to be used in order to achieve an accurate counting.
2. Take care of an accurate zero reading: →0← and standstill: ◣◢ .
   Add the pre counted articles in one operation upon the platform.
3. Press keys ⁂. The available quantities show up on the display as running numbers. Press key ⁂ again at the moment the correct quantity appears on the display.
4. Now the scale counts the number of articles, the display shows the number of articles.
   The arrow at ⁂ indicates that the parts counting mode is in operation.
5. With key F may be switched (i.e.) from the counting mode to the weighing mode, and back. The weight of the article is not deleted by this.

If an other article has to be counted, go back to the weighing mode with key F and start at point 1. again.

Note : in this program negative counting (after taring) is not possible

Hi-Lo check weighing (in weighing mode only, if selected in the USER mode)

The Hi-Lo function offers the feature to do a very quick check on the weight of series of articles, or to fill constant quantities, within the settable weight ranges.

Two weight values may be entered. These values will be used as upper and lower limits, indicating that a measured weight value is:

- HI = weight too high
- OK = correct weight
- LO = weight too low

The three LED's left next to the display indicate the weighing result in red, green or yellow. Long or short "beep" sounds may be connected to the HI, OK and LO functions via the User Mode (page 11).

Setting of the weight values is done with key F, see next page

On the condition that weight values have been entered, pressing key Hi-Lo starts and stops the HI-LO function, as well as the counting function.

Hi-Lo weighing continued

Setting the weight limits

HI 1. Press key Hi-Lo. The Hi-Lo symbol and the red LED at **HI** show up. The present value of the upper limit is shown. The last figure is flashing and may be changed now with the cursor key ⊙. With key F the next figure may be turned on and so on.

LO 2. Press key Hi-Lo again. The yellow LED at **Lo** will light up. The present value of the upper limit is shown. Continue procedure as with the entering of the upper limit value.

3. By pressing key Hi-Lo again, display reading will return to the weighing mode.

A check of the present weight values only may be done by simply pressing key Hi-Lo three times.

Hold mode

(in weighing mode only, and the function has to be selected in CAL mode)

This Lock-up function is permanently switched off at legal stamped scales.

The weight value of a weighing may be locked up temporarily.

This may be done in two different way's: (setting in CAL menu):

F1 - The weight value will be locked up as soon as the reading comes to a exact standstill, until the scale display returns to zero and comes to a standstill at zero.

F2 - The weight value will be locked up as soon as a standstill within 1, 2 or 3 scale divisions is determined. However if the real weight value changes for at least 1,2 or 3 scale divisions, the lock up will be set free .

On the condition that the Hold function has been selected in the Calibration Menu, the function may be switched on and off by pressing key F.

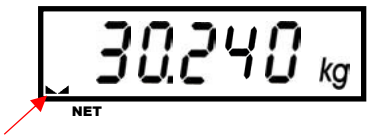
The display shows in the left corner above, which of the hold functions is in operation with the symbols: **F1** or **F2**.

Printing / sending data

Four functions of the procedure of data transmission may be selected in the User Menu:

0. Switched off

1. 1 x printing (or transmission to a PC) after pressing key



Transmission is executed if:
- the reading has standstill at pressing the key (symbol is on)
- the reading has had a standstill at 0, after the last transmission
- the reading is > 0

After pressing key a short “beep” sounds to confirm the transmission. A longer “beep” indicates that no transmission will be executed, since there is no standstill of the weight value, or the reading has not been stable at zero before (not active in the Hi-Lo mode).

2. automatic 1 x printing (or transmission) after each weighing

Transmission is executed if:
- the reading has come to a standstill (symbol is on)
- the reading has had a standstill at 0, after the last transmission
- the reading is > 0
- the reading is in the weighing mode

3. continuous transmission

In the weighing mode only. Transmission speed is about 10 Hz.
Attention: gross negative values are transmitted too.
At loads above the maximum scale capacity the transmission stops.

In this mode the selected extra empty printing lines, before and after the actual data, are not transmitted.

Print of weight:

```
30.240 kg

28.750 kg

 7.890 kg
```

Printing examples

G = gross
N = net
T = tare
QTY … PCS = quantity … pieces
PCW = piece weight in grams

Print of counting / weighing (HR version):

```
G    20.196  kg
N    20.196  kg
T     0.000  kg
QTY     403  PCS
PCW  50.0699 g


G     5.041  kg
N     4.344  kg
T     0.697  kg
QTY     856  PCS
PCW  5.07199 g
```

The empty spaces above and below the printed lines may be selected (max. 9 empty lines) in the User Mode.

USER mode, how to operate

The hatched frames show the default settings.

The User Mode is selected by pressing key F continuously and then starting the scale with key On .

As soon as the display shows: CAL , release the F key.

Press key On to step to the first and the next menu lines.

After operating key On in one of the menu lines, the present values of that line will be entered, followed by automatic stepping to the next line.

After this, at each line position in the menu, the User Mode may be shut down by pressing key Off , memorizing all the data that has been entered via key On

With key ▲ the available settings of each line may be selected.

The User mode is always accessible for the user and may be edited.

MENU USER mode

Automatic Zero

(**A**uto **0**, keeps the reading with an empty platform on zero)

½ division

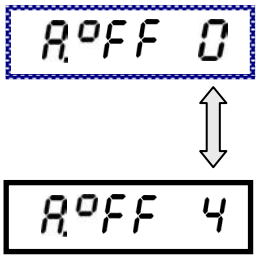
The automatic zero setting may be switched off, or selected to be in operation around + or - ½ scale division from the gross zero weight value.

With key ▲ the available choices are shown.

With key On the selected function may be entered , followed by automatic stepping to the next menu line.

Automatic switch off

The Auto off function switches off the scale automatically after . . minutes standstill (not in programming modes). This saves the battery's capacity.

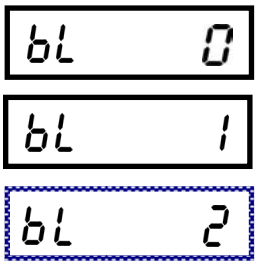


0 = auto off switched
1 = 5 minutes
2 = 10 minutes
3 = 20 minutes
4 = 30 minutes

With key ▲ the available time delays are shown.

With key On the selected value may be entered , followed by automatic stepping to the next menu line.

Back light display



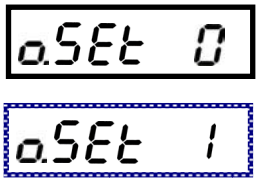
The back lightning of the display may be selected as:

0 = always off
1 = always on
2 = automatically switching on if weight > 0,0 kg

With key the available choices are shown.

With key On the selected function may be entered , followed by automatic stepping to the next menu line.

Initial zero setting



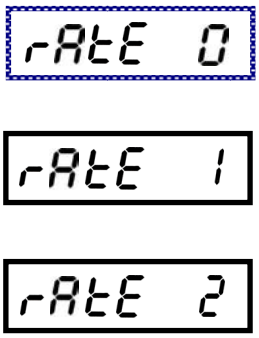
After switching on the scale will automatically:

0 = set zero based upon the last time the scale was set to zero with →0←
1 = set zero based upon the actual situation, after standstill

With key the available choices are shown.

With key On the selected function may be entered , followed by automatic stepping to the next menu line.

Display speed



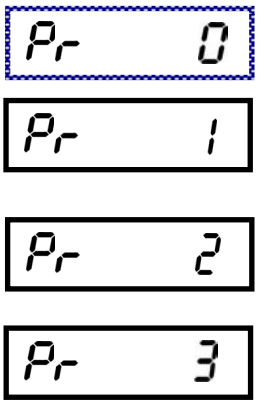
The speed of refreshment of the display reading is settable. Under unstable conditions a lower refreshment speed may give better readability of the weight values.

0 = standard, 10 Hz
1 = low speed, 5 Hz.
2 = lowest speed 2 Hz.

With key the available choices are shown.

With key On the selected function may be entered , followed by automatic stepping to the next menu line.

Printer / RS 232 data output



Four different functions of the RS 232 data output are available:

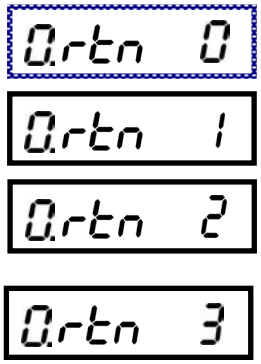
0 = switched off
1 = 1 x transmission after key operation at standstill
2 = automatic 1 x transmission each time the scales comes to a standstill after return to zero and standstill at zero and the display reading is not at zero
3 = continuous transmission with ca. 10 Hz

Choices 2 and 3 are not available for the counting and lock up modes.

With key ▲ the available choices are shown.

With key On the selected function may be entered , followed by automatic stepping to the next menu line.

Disable double printing (added medio 2007)



switched off

+/- 1 d

+/- 2 d

+/- 5 d

Twice printing of the same weighing could be undesirable and may be disabled by setting the condition that a second printing is allowed only if the reading has been returned one time to 0 kg.

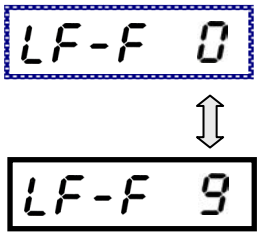
This "0 value" may be setted at + and - 1, 2 or 5 scale divisions (d) around the actual zero.

At setting at 0, double printing / data transmission is not disabled.

With key ▲ the available choices are shown.

With key On the selected function may be entered , followed by automatic stepping to the next menu line.

Extra empty lines (Line Feeds - For)



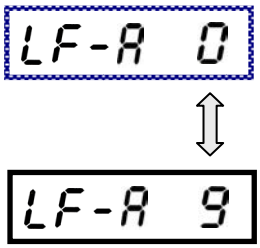
In order to place the printed lines on a printed label on the required hight, max. 9 empty lines may be inserted in front of the actual data lines.

The shown number corresponds with the number of empty lines (line feeds).

With key ▲ the available numbers are shown.

With key On the selected number may be entered , followed by automatic stepping to the next menu line.

Extra empty lines (Line Feeds - After)



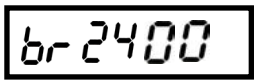
In order to create more space after the printed lines, 9 empty lines may be inserted after the actual data lines.

The shown number corresponds with the number of empty lines (line feeds).

With key ▲ the available numbers are shown.

With key On the selected number may be entered , followed by automatic stepping to the next menu line.

Baud rate

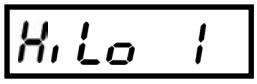


Two Baud rates are selectable: 9600 Bd and 2400 Bd

With key  the available choices are shown.

With key  the selected speed may be entered , followed by automatic stepping to the next menu line.

Hi-Lo setting — On / off



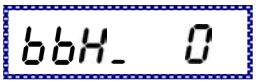
De Hi-Lo function may be switched on or off :

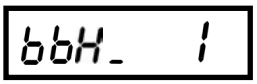
0 = off 1 = on

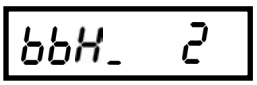
With key  the available choices are shown.

With key  the selected choice may be entered , followed by automatic stepping to the next menu line.

Hi-Lo setting — "Beeps" at: Hi







Short or longer "beeps" may sound if the weight is "above upper limit".

At display reading 0,0 kg the beeps will be switched off.

0 = no beeps

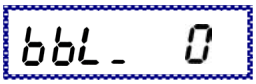
1 = short beeps (be.be.be.be…)

2 = long beeps (beee..beee..beee…)

With key  the available choices are shown.

With key  the selected choice may be entered , followed by automatic stepping to the next menu line.

Hi-Lo setting — "Beeps" at: Lo



Short or longer "beeps" may sound if the weight is "below low limit".

At display reading 0,0 kg the beeps will be switched off.

0 = no beeps

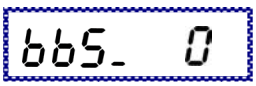
1 = short beeps (be.be.be.be…)

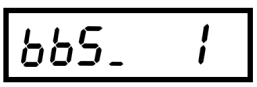
2 = long beeps (beee..beee..beee…)

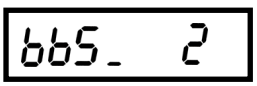
With key  the available choices are shown.

With key  the selected choice may be entered , followed by automatic stepping to the next menu line.

Hi-Lo setting — "Beeps" at: OK







Short or longer "beeps" may sound if the weight is "correct" .

At display reading 0,0 kg the beeps will be switched off.

0 = no beeps

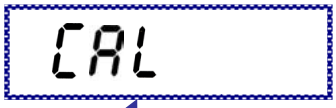
1 = short beeps (be.be.be.be…)

2 = long beeps (beee..beee..beee…)

With key  the available choices are shown.

With key  the selected choice may be entered , followed by automatic stepping to the next menu line.

CALIBRATION mode how to operate



The hatched frames show the default settings.

The User Mode is selected by pressing key F continuously and then starting the scale with key On .
As soon as the display shows: CAL , release the F key.

Press key Hi-Lo to step to the first and the next menu lines.
After operating key Hi-Lo in one of the menu lines, the present values of that line will be entered, followed by automatic stepping to the next line.
Use key ⊙! to edit a parameter in a menu line

The menu may be closed with key Off , all (edited) data will be memorized that have been entered with key Hi-Lo

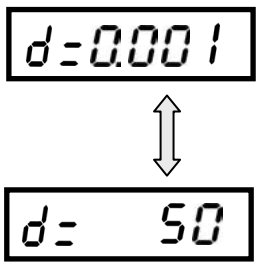
However: once an weight adjusting procedure has been started, it has to be completed to its full extend. If this is not done, the weighing results will be incorrect and not reliable.

The User mode is not accessible in legal stamped scales.

MENU CALIBRATON mode (not accessible in legal stamped scales and on request)

Attention !
The calibration mode in legal stamped scales is under EC rules not accessible. The breaking of the legal seals only makes this access possible. Breaking the seals of housing and platform terminates the warranty, besides that it is a legal crime that may cause severe financial fines.

Scale divisions



18 different scale divisions (d) are selectable:

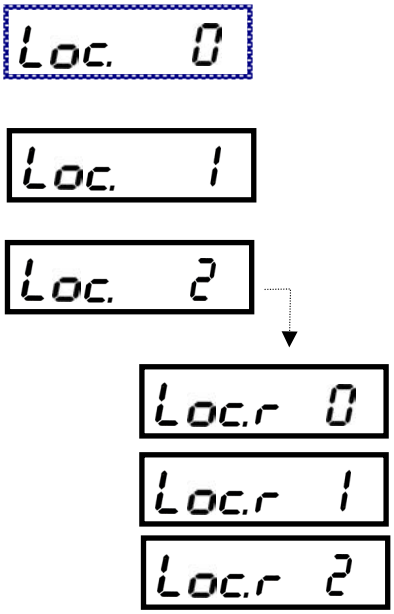
0.001	0.1	0.010
0.002	0.2	0.020
0.005	0.5	0.050
0.01	1	10
0.02	2	20
0.05	5	50

With key ⊙! the available choices are shown.
With key Hi-Lo the selected choice may be entered , followed by automatic stepping to the next menu line.

If the scale has to be adjusted only, skip this function by pressing key Hi-Lo .

Hold function

Lock up function, is always disabled at legal stamped scales.



The lock up function has 3 programs available:

0 - switched off
1 - The weight value will be locked up as soon as the reading comes to a exact standstill, until the scale display returns to zero and comes to a standstill at zero.
2 - The weight value will be locked up as soon as a standstill within 1, 2 or 3 scale divisions is determined. However if the real weight value changes for at least 1,2 or 3 scale divisions, the lock up will be set free .

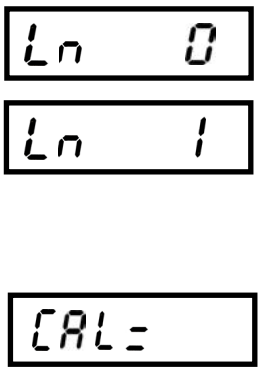
If program 2 is selected, this will offer the opportunity to select the number of divisions that will be used to determine the rate of motion that will start up and hold on the locking of the weight reading:

0 = within 1 scale division
1 = within 2 scale divisions
2 = within 3 scale divisions

With key  the available choices are shown.

With key  the selected choice may be entered , followed by automatic stepping to the next menu line.

Choice of the weight adjusting procedures



There are 2 procedures available to adjust the weight reading:

0 = single point adjustment with one free to choose weight value *)

1 = multi points adjustment with 3 free to choose weight values, with this method a not linearity of the scale may be compensated **)

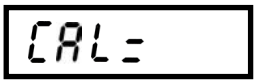
With key  the required program may be selected.

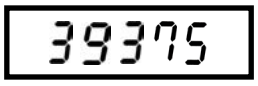
With key  the selected choice may be entered , followed by automatic stepping to the next menu line: **CAL**, according to the selected choice this will be the one point or multi points adjustment procedure.

*) With the one point procedure the best results are achieved by choosing a reference weight value of about 2/3 of the scale capacity.

**) With the multi points procedure the best results are achieved by choosing reference weight values of about 1/6, 2/3 and 3/3 of the scale capacity.

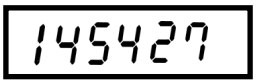
One point adjustment : Procedure with one reference weight





READING OF ZERO VALUE

1. Press key Hi-Lo to step to the next menu line: zero adjustment.
   The actual zero value can be read now in points of the A/D converter. The value should be in between: 5.000 and 50.000. If this not so, adjust with switch 1 on the main print board. If there is no reading at all, the weight input signal is negative (see: malfunctions).
2. Set the reading to zero with key →0←. If only the zero has to be adjusted, the procedure may be terminated from here by pressing key Off



READING OF WEIGHT VALUE

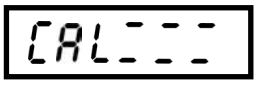
3. Put an accurate weight (value free to choose) in the middle of the weigh platform. The display reading should be now in between 50.000 and 250.000 points. If this number is higher or lower an accurate adjustment is not to possible.

4. Press key Hi-Lo to enter the measured weight signal.

The display now asks for the value of the weight that has been put upon the scale.
The display shows : **SP 1** , the figure at the right flashes and may be edited now with key ↑
With key F the next figure is made editable, and so on.

WEIGHT VALUE

5. Key in the complete weight value and enter with key Hi-Lo.

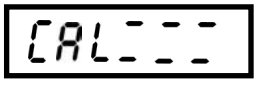


The display will show **CAL** during the entering procedure and will step forward to the next menu line.

The display now asks for the value of the maximum scale capacity.
The display shows: **SP 2** , the figure at the right flashes and may be edited now with key ↑ .
With key F the next figure is made editable, and so on.

MAX. SCALE CAPACITY

6. Key in the complete weight value of the maximum scale capacity.
   During normal operation of the scale the weight reading will switch off and show "overload" at loadings above this weight value + 9 divisions.

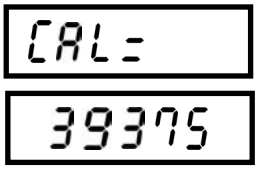


7. Press key Hi-Lo to enter the value of the maximum weighing capacity.
   The display shows **CAL** during the entering procedure.
   The adjustment procedure will now be finished and the scale will automatically return to the normal weighing mode.

8. Remove the weight from the weigh platform.

9. Switch the scale off and on again. All keys will be accessible now.
   The scale is ready to be used.

Multi points adjustment: Procedure with 3 reference weights



READING OF ZERO VALUE

1. Press key Hi-Lo to step to the next menu line: zero adjustment.
   The actual zero value can be read now in points of the A/D converter.
   The value should be in between: 5.000 and 50.000. If this is not so, adjust with switch 1 on the main print board. If there is no reading at all, the weight input signal is negative (see: malfunctions).

2. Set the reading to zero with key →0←. If only the zero has to be adjusted, the procedure may be terminated from here by pressing key Off

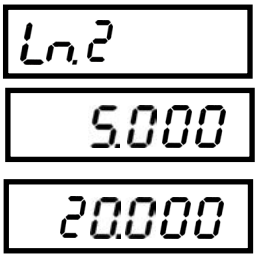
3. Press key Hi-Lo to step to the next menu line : 1e point of adjustment.
   After a short: **LN.1** the display reading sets zero.

4. Put an accurate weight (value free to choose) on the weigh platform.
   Previously used calibration weight value may be shown now.
   A possible deviation from this previous adjustment now can be read.

5. Press key Hi-Lo to enter the measured weight signal.

6. Enter the value of this weight with the keys ↑ (increase) and F (switch left)
   The symbol **F1** indicates this first point of adjustment.

7. Press key Hi-Lo to enter the value of the weight.



   After a short: **LN.2** the program steps to the 2e point of adjustment.

   The (adjusted) value of the present load may be read now.

8. Add weights for the 2e point of adjustment upon the scale.

9. Press key Hi-Lo to enter the measured weight signal.

10. Enter the value of this weight with the keys ↑ (increase) and F (switch left)
    The symbol **F2** indicates this second point of adjustment.

11. Press key Hi-Lo to enter the value of the weight.

    After a short: **LN.3** the program steps to the 3e point of adjustment.

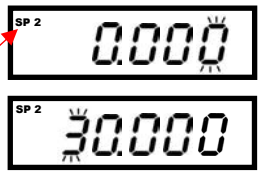
    The (adjusted) value of the present load may be read now.

12. Add weights for the 3e point of adjustment upon the scale.
    (This is not necessarily the max. weighing capacity)

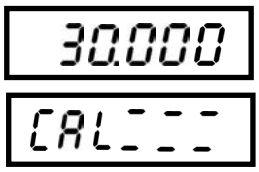
13. Press key Hi-Lo to enter the measured weight signal.

14. Enter the value of this weight with the keys ↑ (increase) and F (switch left)
    The symbol **F3** indicates this second point of adjustment.

15. Press key Hi-Lo to enter the value of the weight.



16. The display now asks for the value of the maximum scale capacity.
    The display shows: **SP 2** , the figure at the right flashes and may be edited now with key ↑ .
    With key F the next figure is made editable, and so on.
    During normal operation of the scale the weight reading will switch off and show "overload" at loadings above this weight value + 9 divisions.



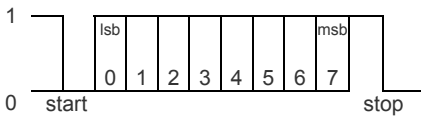
17. Press key Hi-Lo to enter the value of the maximum weighing capacity.
    The display shows **CAL** during the entering procedure.
    The adjustment procedure will now be finished and the scale will automatically return to the normal weighing mode.

8. Remove the weight from the weigh platform.

19. Switch the scale off and on again. All keys will be accessible now.
    The scale is ready to be used.

RS 232 output Data communication

Table 1 Byte Format



Baud rate	2400 / 9600 (selectable)
Parity	none
Data bits	8
Codes	CR and LF

Table 2 Weight transmission only
1 string, format 13 bytes

nr.	1	2	3	4	5	6	7	8	9	10	11	12	13
	a	x	x	x	b	x	x	x	c	k	g	CR	LF

a = either a blank, or a minus sign
x = blanks and/or weight figures
b = decimal dot *)
c = blank
k and g = weight unit: kilo gram

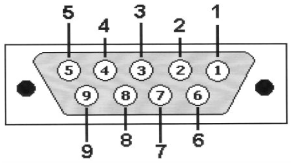
*) In weight figures with 2 or 1 figure behind the decimal the decimal dot is in position 6 or 7.
Weight figures without a decimal are transmitted without a decimal dot too.

Table 3 Weight and counting transmission
5 strings, format 14 - 16 bytes

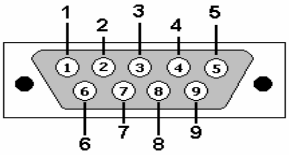
nr.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	G	a	x	x	x	b	x	x	x	a	k	g	CR	LF		
	N	a	x	x	x	b	x	x	x	a	k	g	CR	LF		
	T	a	x	x	x	b	x	x	x	a	k	g	CR	LF		
	Q	T	Y	a	x	x	x	x	x	x	a	P	C	S	CR	LF
	P	C	S	a	x	b	x	x	x	x	x	a	g	CR	LF	

G = Gross weight
N = Net weight
T = Tare weight
QTY = Quantity of counted pieces
PCS = Weight of one single piece. The position of the decimal dot is here dependent on the presentation of the figure itself.
g = weight unit: gram

Pin configuration RS 232 connector (inside indicator, solder side)



Pin configuration RS 232 cable connector (solder side)



Connector DB-09 Male:

Pin 1, 3, 4, 6, 7, 8, 9	NC
Pin 2	TXD
Pin 5	GND

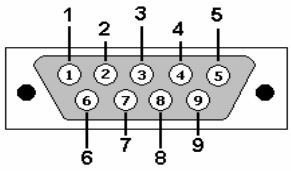
Loadcell connection

Connector DB-09 Female:

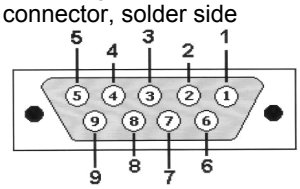
Functions	Loadcell cable colors *)	D-connector on indicator	Cable internal inside indicator	Print connection
Excitation +	blue	pin 1	red	E +
Ground	yellow	pin 3	- -	- -
Excitation -	black	pin 4	yellow	E -
Signal +	white	pin 6	white	S +
Signal -	red	pin 8	black	S -
Sense +	green	pin 2	shortcut with pin 1	
Sense -	grey	pin 5	shortcut with pin 4	

*) These are the standard wire colors. Other colors may be applied. In that case the loadcell has to be checked by measuring the resistances per wire group:
Exc + en - (420 Ω), Sense + and - (420 Ω) , Signal + and - (350 Ω).

Pin configuration loadcell connector, solder side (inside indicator):



Pin configuration loadcell cable connector, solder side



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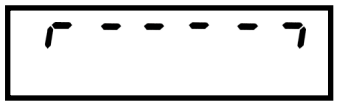
Malfunctions and error codes

Lod . . . stays on display. At switching on the weight signal is too low.
Check the correct position of the weigh platform and possible damage of the connecting cable and connector.
The loadcell could be damaged.
Execute a new one point adjustment procedure until the point 2 (zero setting).

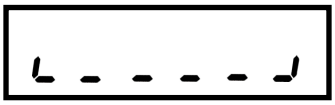
The scale has been switched on, but zero setting is not possible since the weight signal is higher or lower as 10% of the scale capacity.
Remove the load on the weigh platform. Check cable and connector.
Execute a new one point adjustment procedure until point 2 (zero setting).

The scale refuses zero setting.
The weight signal is outside the zero setting range(+ and - 2% scale capacity).
Tare function will operates correctly. Switch the scale off and on again so a new zero (+ and - 10% scale capacity) may be settled.

Reading is gross negative. Set zero and set tare not possible.
The scale has been switched on with a load on the platform and has set zero with this load. Thereafter, the load has been removed and now the reading is gross negative. Switch the scale off and on again with an empty platform.



The load on the platform is higher as the maximum scale capacity: overload.
Remove the load from the weigh platform. Check cable and connector.
The loadcell could be damaged.



The weight signal is far too negative. Check the correct position of the weigh platform and clean the interior of the platform. Check for damage of the cable and connector. The loadcell could be damaged.
Execute a new adjustment procedure.

If during the calibration, after CAL= and operating key 

no value at all appears on the display, the weight input signal is negative: incorrect connected loadcell(s), loadcell bended too far (upwards), short cut in the loadcell cable.

Power supply excitation is too low, battery is empty.
Recharge the battery.

The Hi-Lo function cannot be selected with key **F** .
- No weight values has been entered in the Hi-Lo mode.
  Enter upper and down limit weight values with the key **Hi-Lo**.
- The Hi-Lo function is disabled in the USER mode.

The Lock up function cannot be selected with key **F** .
- The Lock up function is disabled in the Calibration mode.

No data transmission or printing follows after operating the printer key.
- The transmission function is disabled in the USER mode
- Scale reading is at zero
- Scale reading has not been on zero with standstill after the last transmission.