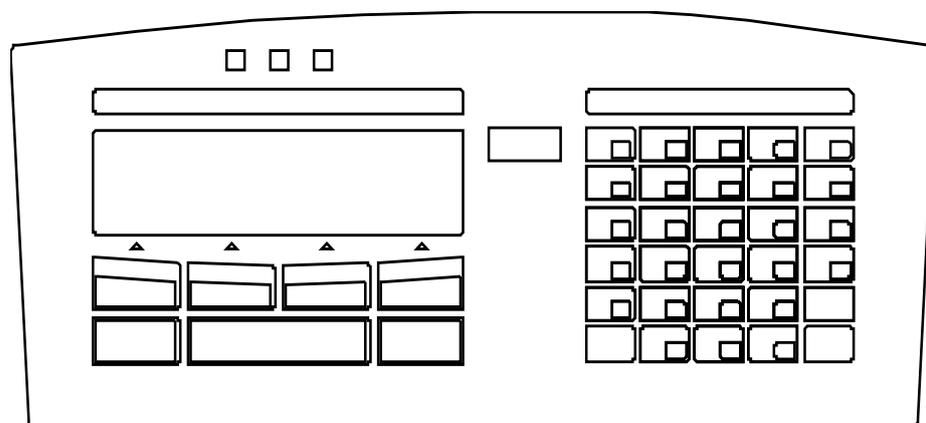
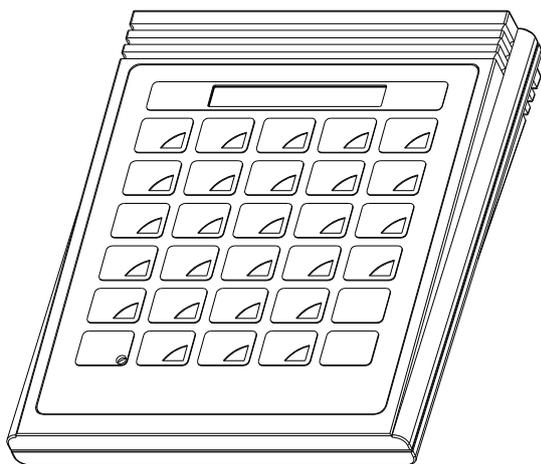


Precisa

THE BALANCE OF QUALITY



Operating Instructions Smartbox

Piece counting

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1 Brief description

The SMARTBOX COUNTING program provides various ways to determine numbers of pieces, to determine proportional differences between weighing goods and to do checkweighings with +/-tolerances. Article numbers, product names, reference weights, tare weights etc. can be stored in a permanent memory and later be activated as required.

Furthermore the individual weighing samples can be totalled up, with the respective protocol-printout of the individual samples and the total.

1.1 Starting up

1.1.1 Smartbox type: External box

Please connect the RS232-interface of the balance with one of the two BUS-connectors of the Smartbox by using the included datacable. While the Smartbox is connected to the balance, CH1 of the Smartbox takes over the functions of the RS232-interface of the balance.

The second bus-connector serves as a connector for further peripheral devices.

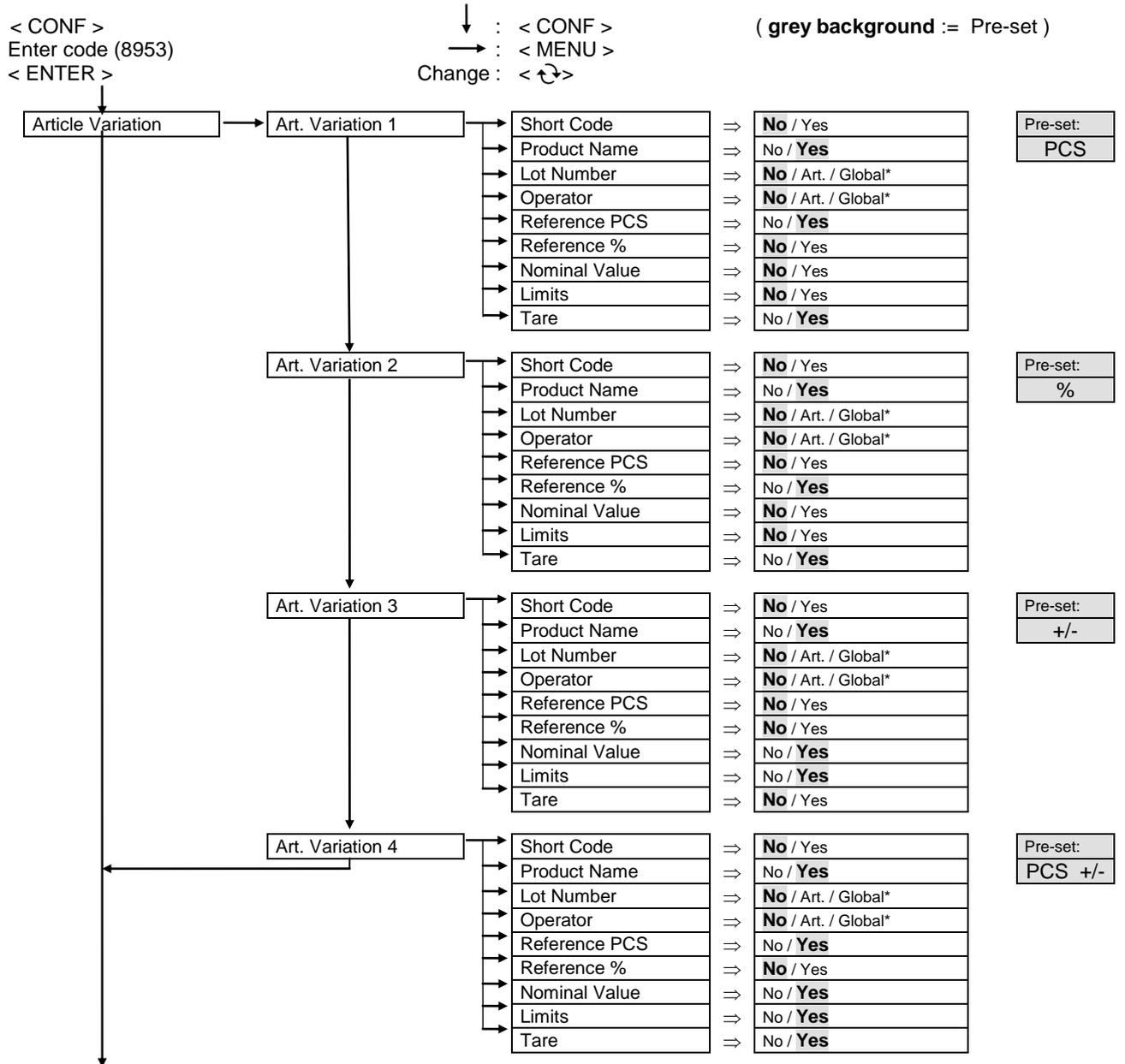
1.1.2 Smartbox type: In balance-terminal integrated

Press the MENU/ESC key on the left side of the terminal and select the application "SMARTBOX".

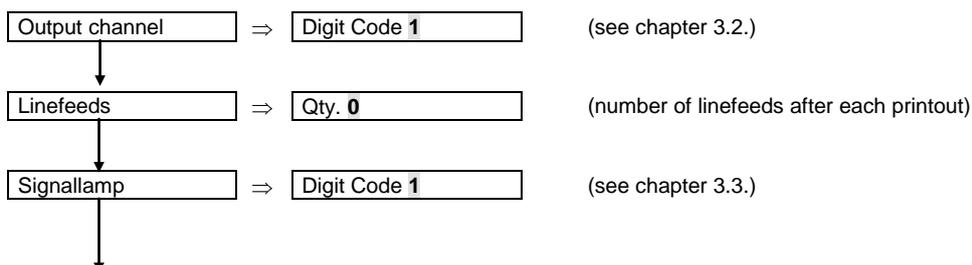
2 Description of keys

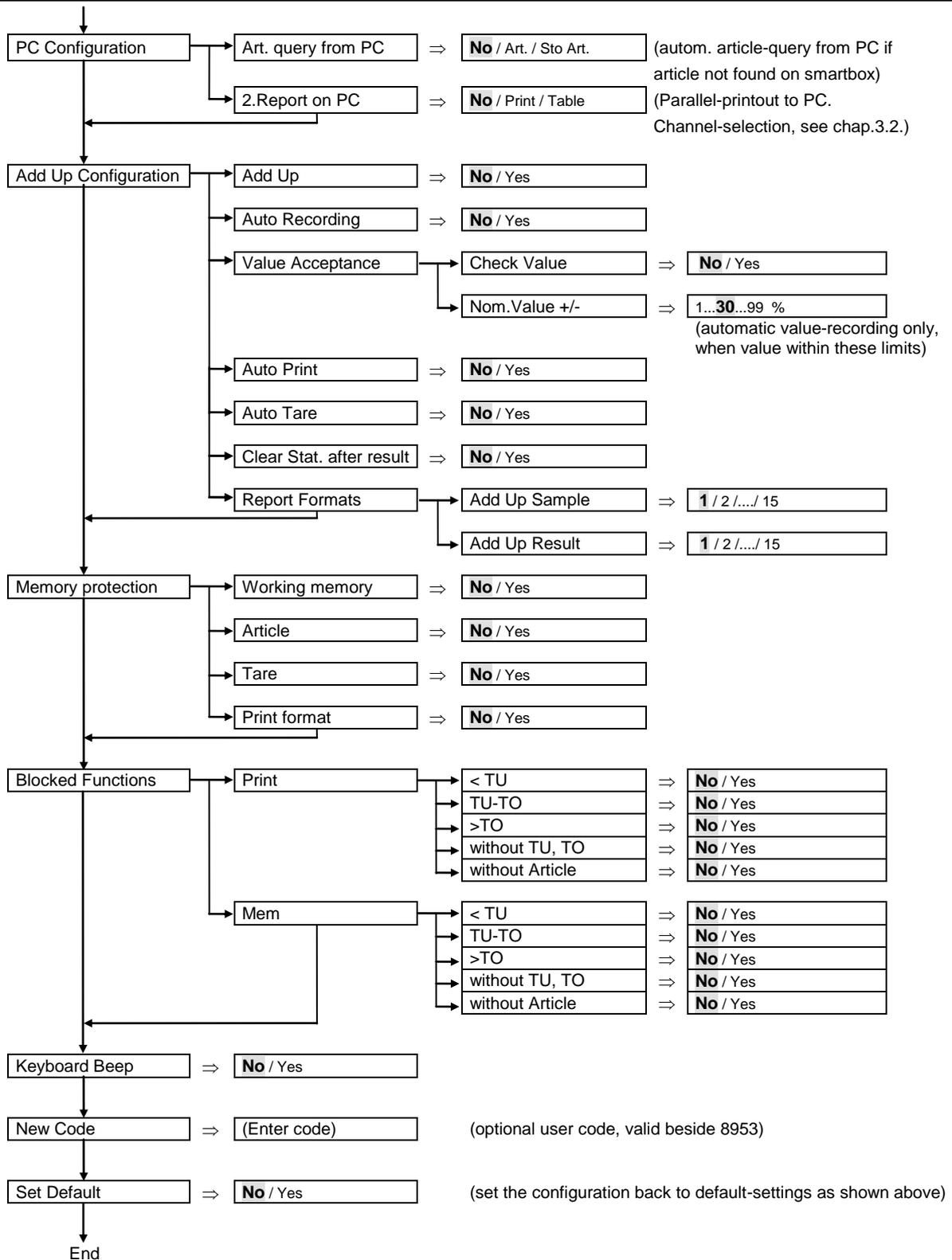
< ENTER >	Confirmation key
< CLR >	Delete key
< SHIFT >	Select alphabetical characters
< - >	Change sign or switch over to difference-display if nominal value available.
< PRINT >	Enable data transfer
< REF >	Enter a reference piece quantity
< REF.W >	Enter a reference weight
< → T >	Tare input
< ART >	Store or recall an article
< STO >	Store (tare, article etc.)
< RCL >	Recall (tare, article etc.)
< MEM >	Store a measurement
< INFO >	Display or print various values
< BASE >	Switch to "data-input from channel (ref. balance)". Instead of data-input via keyboard, "data-input from channel" may be selected by using <BASE > "No. " < ENTER >.
< DISP >	Switch between capacity-display and text-display
< ↻ >	Change unit (weight, pieces, percent)
< MENU >	Menu key
< CONF >	Configuration key
< FIX R >	Fixed reference key
< . >	Decimal point
< 8 >	Figure
<SHIFT> < M >	Letter (hold alpha key = change between capital- and small-letter)

3 Configuration menu



Reference acquisition see page 9

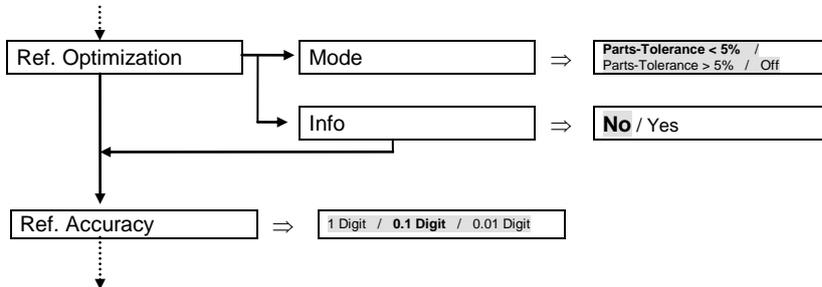




Notes:

* Lot number, operator: *Article* = defined in each article
Global = defined globally. To be entered when loading an article.

Reference acquisition:



3.1 Printing out the configuration

< INFO >
 < PRINT >
 < CONF >

3.2 Arrangement of output channels

In the case of the output channels a predetermined model 1..6 or a user model (always 6 digits) may be entered.

Predetermined Model	On Smartbox (addr=0)	On Smartbox (addr=1)	External: (addr 2...15) lowest address	External: (addr 2...15)	External: (addr 2...15)	External: (addr 2...15) highest address
	Chn. 1	Chn. 2	Chn. 3	Chn. 4	Chn. 5	Chn. 6
1 default	1	2	0	0	0	0
2	1	3	0	0	0	0
3	1	2	3	0	0	0
4	1	2	3	4	0	0
5	1	2	3	4	5	0
6	1	5	0	0	0	0

Function
0 = No Function
1 = Report printer (standard-printout)
2 = Barcode reader
3 = Reference balance (base)
4 = Barcode printer
5 = PC connection (2 nd report)
6-8 = External keys (see chap. 3.4.)

Exp.1: Printer connected to channel 1, barcode-reader connected to channel 2

Configuration-menu: „Output Ch. 1“ or „Output Ch. 1 2 0 0 0 0“

Exp.2: Printer connected to channel 1, reference-balance connected to channel 2, barcode-printer connected to channel 3

Configuration-menu: „Output Ch. 1 3 4 0 0 0“

3.3 Operating diagram for signallamp (TU,TO)

Model	Red light \ominus	Buzzer (stable)	Green light $> <$	Buzzer (stable)	Yellow light \oplus	Buzzer (stable)
1 default	50% - TU (always)	-	TU - TO (always)	-	TO - OL (always)	-
2	0% - TU (always)	-	TU - TO (always)	-	TO - OL (always)	-
3	50% - TU (stable)	-	TU - TO (stable)	-	TO - OL (stable)	-
4	0% - TU (stable)	-	TU - TO (stable)	-	TO - OL (stable)	-
5	50% - TU (always)	Beep	TU - TO (always)	-	TO - OL (always)	-
6	0% - TU (always)	Beep	TU - TO (always)	-	TO - OL (always)	-
7	50% - TU (stable)	Beep	TU - TO (stable)	-	TO - OL (stable)	-
8	0% - TU (stable)	Beep	TU - TO (stable)	-	TO - OL (stable)	-
9	50% - TU (always)	-	TU - TO (always)	Beep	TO - OL (always)	-
10	0% - TU (always)	-	TU - TO (always)	Beep	TO - OL (always)	-
11	50% - TU (stable)	-	TU - TO (stable)	Beep	TO - OL (stable)	-
12	0% - TU (stable)	-	TU - TO (stable)	Beep	TO - OL (stable)	-
13	50% - TU (always)	-	TU - TO (always)	-	TO - OL (always)	Beep
14	0% - TU (always)	-	TU - TO (always)	-	TO - OL (always)	Beep
15	50% - TU (stable)	-	TU - TO (stable)	-	TO - OL (stable)	Beep
16	0% - TU (stable)	-	TU - TO (stable)	-	TO - OL (stable)	Beep
17	50% - TU (always)	Beep	TU - TO (always)	-	TO - OL (always)	Beep
18	0% - TU (always)	Beep	TU - TO (always)	-	TO - OL (always)	Beep
19	50% - TU (stable)	Beep	TU - TO (stable)	-	TO - OL (stable)	Beep
20	0% - TU (stable)	Beep	TU - TO (stable)	-	TO - OL (stable)	Beep

Exp.: Red = from 50% of the nominal value to TU always light
 Green = from TU to TO always light; short acoustic signal, as soon as weight is stable
 Yellow = from TO to OL (Overload) always light

Configuration-menu: „Signallamp 9“

3.4 Connection of external keys

At pins DTR and CTS or RS232-Out and RS232-In of a channel of your choice an external key can be connected to.

By short-circuiting briefly these two pins (e.g. DTR and CTS) a tare-, print- or mem-command can be initiated.

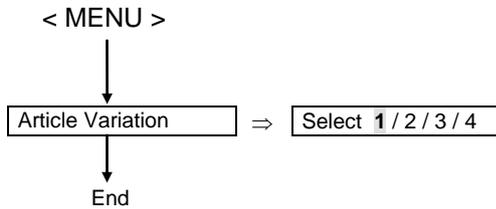
Please note: Only channel 1 and channel 2 are available for this function.

Function	Pin DTR and CTS	Pin RS232-Out and RS232-In
6	Tare - Key	Print - Key
7	Tare - Key	Mem - Key
8	Print - Key	Mem - Key

Exp.: Printer connected to channel 1, external tare-key connected to pin DTR and CTS of channel 2.

Configuration-menu: „Output Ch. 1 6 0 0 0 0“

4 Menu



The pre-selection of the variation number (1...4) defines which values will be prompted during the storage of an article (see chapter 3 “article variation”).

The subsequent work (weighing) with the stored article is independent of the variation number selected at that time.

5 Error messages

Display:	aa ErrXX	(aa: Device-address)
Exp.:	72 Err40 ARTICLE NOT FOUND	(72: Device-address of Smartbox)
'Memory protected'		Err38
'Article not found'		Err40
'Not enough memory'		Err44
'Tare-No. too big'		Err46

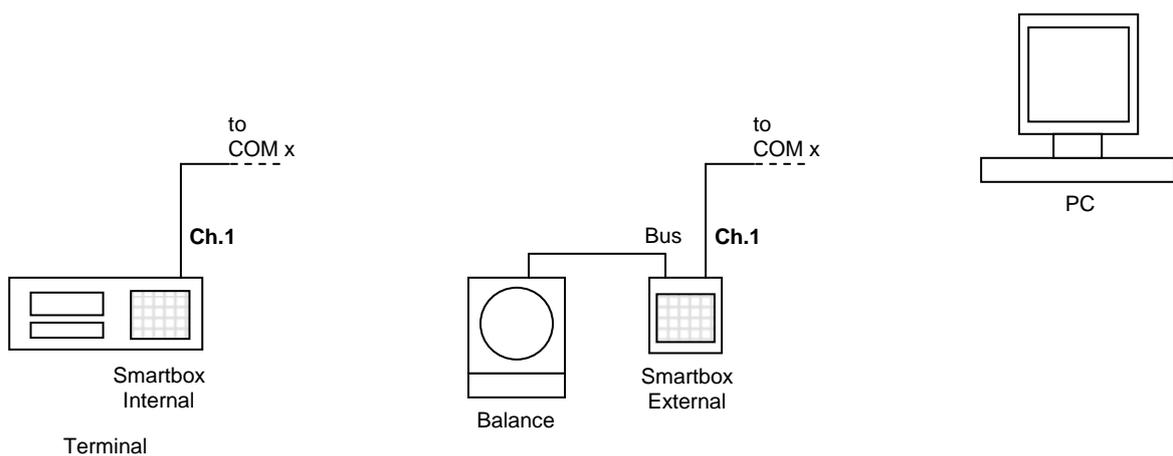
6 General notes

6.1 General settings

Language settings (German, English and French) and interface parameters (RS232) are taken from the balance and can only be set there.

6.2 Program update

The program can be loaded into the Smartbox using a special PC-download-software. For downloading, COM x of the PC and Ch.1 of the Smartbox must be used.



6.3 Technical data

Maximal memory capacity :

1000	Articles
250	Tares

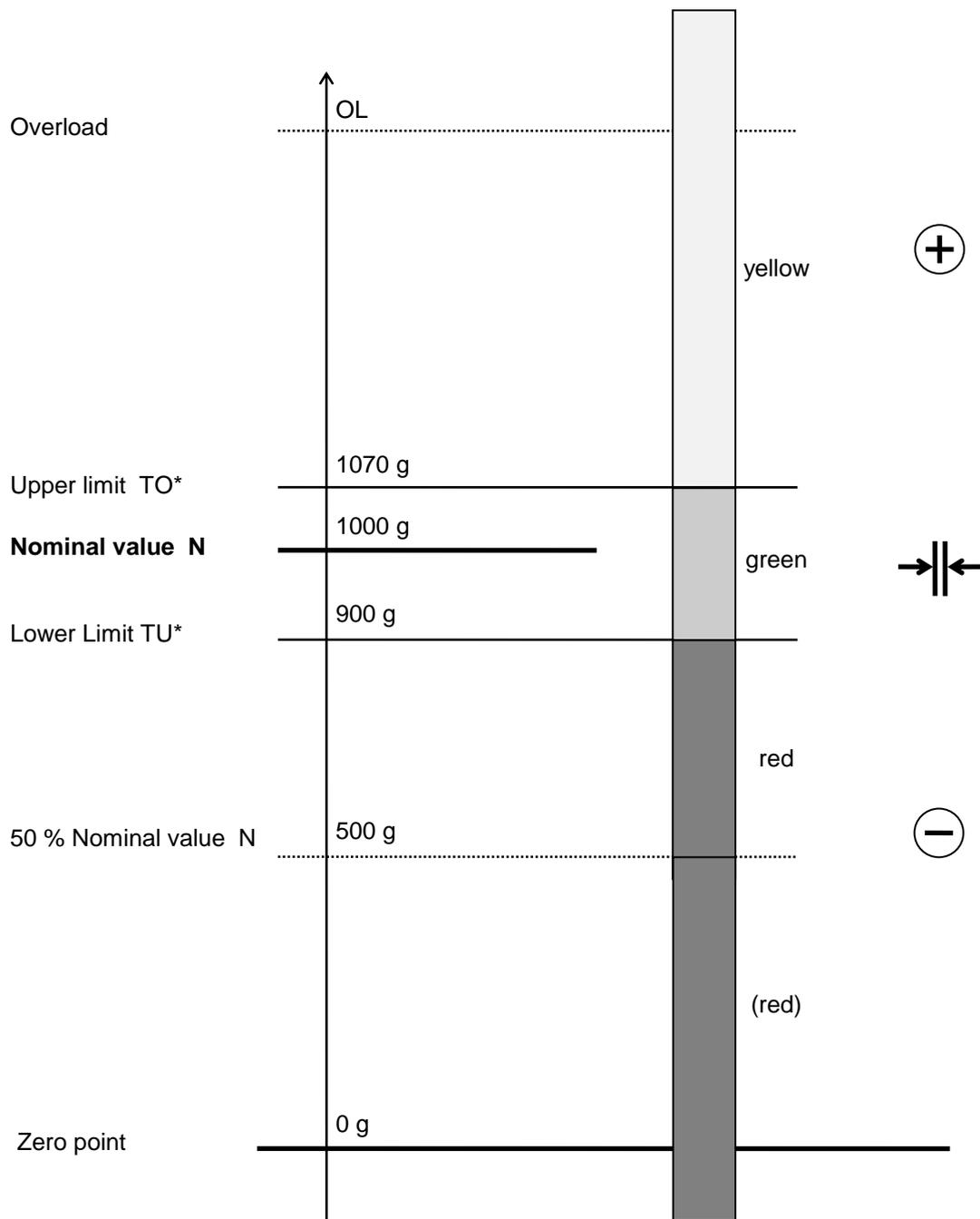
7 Article

7.1 The components of the article

Name	Input requirements	Format	Description
Article number	ART. NO. ?	20 characters	Identification of the article An article can be activated or deleted using its identification
Short code	SHORT CODE ?	3 characters	Short Identification of the article for activation
Product name	PROD ?	20 characters	Description of the article
Lot No.	LOT-NO. ?	20 characters	Lot number for information
User's name	Name ?	20 characters	User name for information
Article weight	REF. W g/PCS ?	Real number	Reference weight for counting program
Percent weight Weight for 100%	REF. W g/100% ?	Real number	Reference weight for percent program
Nominal value	NOM. VALUE g ?	Real number	Nominal value for statistics and tolerances in the reference unit or base unit
Lower limit	TU g ?	Real number	Lower limit for plus/minus display and statistics in the reference unit or base unit
Upper limit	TO g ?	Real number	Upper limit for plus/minus display and statistics in the reference unit or base unit
Mean tare weight	TARE g ?	Real number	Input for automatic tare subtraction

7.2 The signallamp limits of the article

- * Red range : weight value < TU
- Green range : $TU \leq \text{weight value} \leq TO$
- Yellow range : weight value > TO



7.3 Storing an article in memory

< STO >

< ART >

Enter article number

< ENTER >

Enter short code*

< ENTER >

Enter product name*

< ENTER >

Enter lot number*

< ENTER >

Enter user name*

< ENTER >

Enter reference weight*

< ENTER >

Enter nominal weight*

< ENTER >

Enter lower limit*

< ENTER >

The upper and lower limits will be automatically calculated on exiting

Enter upper limit*

< ENTER >

The upper limit will be automatically calculated proportional to the lower limit on exiting

Enter mean tare weight*

< ENTER >

* Can only be entered if activated in Art. Variation

7.4 Editing an article

An article already stored may be corrected or altered.

< STO >

< ART >

Enter article number

< ENTER >

Enter or confirm short code*

< ENTER >

Enter or confirm product name*

< ENTER >

Enter or confirm lot number*

< ENTER >

Enter or confirm user name*

< ENTER >

Enter or confirm reference weight*

< ENTER >

Enter or confirm nominal weight*

< ENTER >

Enter or confirm lower limit*

< ENTER >

Enter or confirm upper limit*

< ENTER >

Enter or confirm mean tare weight*

< ENTER >

* Can only be entered if activated in Art. Variation

7.5 Loading an article from the memory

< RCL >

< ART >

Enter article number or short code

< ENTER >

7.6 Deleting an article from the memory

< CLEAR >

< ART >

Enter article number

< ENTER >

7.7 Deleting all articles from the memory

< CLEAR >
 < ART >
 'ALL'
 < ENTER >

7.8 Deleting the article from the working memory

< CLEAR > This command also deletes from the working memory a reference value
 < ART > or a mean tare weight which is not entered with the article.
 < ENTER >

7.9 Barcodes and articles

Whenever an article number is entered, this may also be done using a barcode reader. Barcodes of types Code 39, EAN 8 and EAN 13 are accepted.

< STO >
 < ART >
 Read article number with barcode reader
 < ENTER >

The reading of a standard barcode, without prior input via the keyboard, will always be interpreted by the balance as < RCL > < ART > 'barcode' < ENTER >.

7.10 Table for automatic tolerance calculation (TU, TO)

Nominal value Q_N in grams			Allowable plus or minus deviations	
			as % of Q_N	in grams
5	to	50	9	-
50	to	100	-	4.5
100	to	200	4.5	-
200	to	300	-	9
300	to	500	3	-
500	to	1'000	-	15
1'000	to	10'000	1.5	-

8 Tare

8.1 Storing a tare in the tare memory

Storing a tare using the keypad

< STO >
< →T >
Number of the tare memory
< ENTER >
Enter mean tare weight
< ENTER >

Storing a tare from the balance

< STO >
< →T >
Number of the tare memory
< ENTER >
< ENTER > Indicated weight is stored in tare memory

In the case of an existing tare, this can be edited

< STO >
< →T >
Number of the tare memory
< ENTER >
Enter or confirm mean tare weight
< ENTER >

8.2 Deleting the current tare

< CLEAR >
< →T >
< ENTER >

8.3 Loading a tare from the tare memory

< RCL >
< →T >
Number of the tare memory
< ENTER >

8.4 Deleting a tare from the tare memory

< CLEAR >
< →T >
Number of the tare memory
< ENTER >

8.5 Deleting all tares from the tare memory

< CLEAR >
< →T >
'ALL'
< ENTER >

8.6 Pre-setting tare using the decimal keypad

< →T >
Enter mean tare weight
< ENTER >

8.7 Barcode and tare

The mean tare weight can be read directly with a barcode reader. The barcode must be of Type EAN 13. It must be specially coded and contain the tare.
The reading of a special barcode without prior input via the keypad will always be interpreted by the balance as < →T > 'barcode' < ENTER >.

9 Printout

All available measurements, tares and article data can be printed out using the < PRINT > key.

9.1 Printing out measurements

< PRINT > The current measurement will be printed out

9.2 Allocating a fixed print format to the PRINT key

Three permanently programmed print formats may be allocated to the PRINT key:

Format 1: current net-weight

Format 2: date/time, article, current net-, gross- and tare-weight

Format 3: date/time, article, current net-weight, article-definitions

< STO >

< PRINT >

Enter format number

< ENTER >

9.3 Printing out an article

< INFO >

< PRINT >

< ART >

Enter article number

< ENTER >

9.4 Printing out a list of articles

< INFO >

< PRINT >

< ART >

Enter 'ALL'

< ENTER >

9.5 Printing out a tare from the tare memory

< INFO >
< PRINT >
< →T >
Enter tare number
< ENTER >

9.6 Printing out the list of tares

< INFO >
< PRINT >
< →T >
Enter 'ALL'
< ENTER >

9.7 Printing out the current tare

< INFO >
< PRINT >
< →T >
< ENTER >

9.8 Printing out the current reference value

< INFO >
< PRINT >
< REF.W >
< ENTER >

9.9 Printing out the version of the Smartbox software

< INFO >
< PRINT >
< ↻ >

By skipping the <PRINT> key the information can be shown line by line in the display instead of being printed. Each line then will be shown for 2 seconds. By using the < ↻ > key the display can be be halted or continued.

10.1.4 Variable reference – with preset tare value

If you do not wish to operate with the predetermined fixed reference you may freely select any desired reference.

<i>Preparation</i>	Place filled container on balance < →T > Enter tare value <ENTER>	
	< REF >	The <i>start-value</i> of the weight will be determined (Display: DIFF. REF ...)
	Remove or add reference quantity	
	Enter reference quantity	
	< ENTER >	The <i>end-value</i> of the weight will be determined -> weight <i>difference</i> / reference quantity = unit weight
<i>Counting</i>		The current contents of the container will be displayed in pieces unit

10.2 Counting with unit weight as reference

If you know the unit weight of the parts, proceed as follows :

1. Inform the balance of the unit weight
2. You can now commence counting

Without tare:

<i>Preparation</i>	< REF.W > Enter reference weight < ENTER >
<i>Counting</i>	Place article on balance

With tare:

<i>Preparation</i>	Place container with parts on balance < → T > Enter tare weight < ENTER > < REF.W > Enter reference weight < ENTER >
<i>Counting</i>	Place article on balance

10.3 Barcodes and reference weight

The reference weight can be read directly with a barcode reader. The barcode must be of type EAN 13. It must be specially coded and contain the unit weight.

The reading of a specially coded barcode without prior input via the keypad will always be interpreted by the balance as < REF.W > 'barcode' < ENTER > (see also Section 15.5).

10.4 Counting with temporary article memory

If you use one-off identifications, such as article number and product name, then you operate with the temporary article memory, also called the working memory.

Preparation

- < ART >
- Enter article number
- < ENTER >
- Enter product name
- < ENTER >
- Enter Unit Weight
- < ENTER >
- Enter mean tare weight optional input
- < ENTER >

Counting Place article on balance

Clear working memory

- < CLEAR >
- < ART >
- < ENTER >

10.5 Counting with the article memory

If you always work with the same article numbers and product name, then you use the permanent article memory.

Storing Article

<i>Preparation</i>	< STO > < ART > Enter article number < ENTER > Enter short code < ENTER > Enter product name < ENTER > Enter unit weight < ENTER > Enter mean tare weight < ENTER >	 If there is already a unit weight in the working memory, this unit weight can be transferred using < ENTER > Optional input
--------------------	--	--

Working memory is deleted

Call up article

<i>Preparation</i>	< RCL > < ART > Enter article number or short code < ENTER >
<i>Counting</i>	Place article on balance

10.6 Unit weight determined with reference balance

The unit weight can also be taken directly from a reference balance.
For connecting and adjusting the reference balance see Section 17. Reference balance.

Determining unit weight from several articles

< REF >
< BASE >
Enter base number
< ENTER >
Enter quantity
< ENTER >

Transferring unit weight of an article

< REF.W >
< BASE >
Enter base number
< ENTER >

11.2 Weighing with temporary article memory

If you use one-off identifications, such as article number and name of product, then you operate with the temporary article memory, also called the working memory.

Preparation

- < ART >
- Enter article number
- < ENTER >
- Enter product name
- < ENTER >
- Enter reference weight for 100%
- < ENTER >
- Enter mean tare weight optional input
- < ENTER >

Weighing Place article on balance

Clear working memory

- < CLEAR >
- < ART >
- < ENTER >

11.3 Weighing with the article memory

If you always work with the same article numbers and name of product, then you use the permanent article memory.

Storing Article

Preparation

< STO >
< ART >
Enter article number
< ENTER >
Enter short code
< ENTER >
Enter product name
< ENTER >
Enter reference weight for 100%
< ENTER >

Enter mean tare weight
< ENTER >

If there is already a reference weight in the working memory, this unit weight can be transferred using < ENTER >

Optional input

Working memory is deleted

Call up article

Preparation

< RCL >
< ART >
Enter article number or short code
< ENTER >

Weighing

Place article on balance

12 Weighing with tolerance range

Using the Smartbox it is possible to check whether the weight of an article is within a certain tolerance. For this, the nominal weight and a lower and upper limit are entered. In weighing, the \ominus sign is then illuminated if the weight is below the lower limit and the \boxplus sign illuminates if the upper limit is exceeded. If the weight is within the tolerance range, the $>||\leftarrow$ sign will light up. In addition, the display will show the weight.

12.1 Weighing with temporary article memory

If you use one-off identifications, such as article number and product name, then you operate with the temporary article memory, also called the working memory.

<i>Preparation</i>	<p>< ART > Enter article number < ENTER > Enter product name < ENTER > Enter reference weight for article or % < ENTER > Enter nominal weight < ENTER > Enter lower tolerance (TU) < ENTER > Enter upper tolerance (TO) < ENTER > Enter mean tare weight < ENTER ></p>	<p>if no reference weight is entered, the subsequent entries are in grams</p> <p>if TU is not entered, TU and TO will be calculated from the table Chapter 7.12</p> <p>if TO is not entered, TO will be set symmetrical to TU</p> <p>Optional input</p>
<i>Weighing</i>	<p>Place article on balance</p>	<p>\ominus : below TU</p> <p>$> \leftarrow$: within tolerance range</p> <p>\boxplus : above TO</p>

Clear working memory

< CLEAR >
< ART >
< ENTER >

12.2 Weighing with the article memory

If you always work with the same article numbers and name of product, then you use the permanent article memory.

Storing Article

<i>Preparation</i>	< STO >	
	< ART >	
	Enter article number	
	< ENTER >	
	Enter short code	
	< ENTER >	
	Enter product name	
	< ENTER >	
	Enter reference weight for article or %	if no reference weight is entered, the subsequent entries are in grams
	< ENTER >	
	Enter nominal weight	
	< ENTER >	
	Enter lower tolerance (TU)	if TU is not entered, TU and TO will be calculated from the table Chapter 7.10
	< ENTER >	
	Enter upper tolerance (TO)	if TO is not entered, TO will be set symmetrical to TU
	< ENTER >	
	Enter mean tare weight	Optional input
	< ENTER >	

Working memory is cleared

Call up article

<i>Preparation</i>	< RCL >
	< ART >
	Enter article number or short code
	< ENTER >

<i>Weighing</i>	Place article on balance	⊖ : below TU
		> < : within tolerance range
		⊕ : above TO

13 ADD UP

Using the Smartbox it is possible to sum articles, print reports on individual articles and print summary reports.

13.1 Totalling and printing out

An article can be totalled using the < MEM > key. If the Add Up Setting Auto Recording is set to 'Yes' in the Configuration menu, the articles will be automatically totalled on change of load.

If the Add Up Setting Auto Print is set to 'Yes', the Report, associated with the Add Up Sample Report, will be automatically printed out on totalling.

If the Add Up Setting Auto Print is set to 'No', the Sample Report can be printed out once with the < PRINT > key after totalling. Subsequently, the Standard Report will again be printed out with the < PRINT > key.

13.1.1 Printout of the Add Up Sample Format 1

Date 08-10-2004 Time 11:20:34

Sample 3
Art.No. 33
Prod. TABLE SALT 1KG

+ 994.0 g

13.1.2 Printout of the Add Up Sample Format 2

Date 08-10-2004 Time 11:23:34

Sample 3
Art.No. 33
Prod. TABLE SALT 1KG

+ 994.0 g
Diff. - 6.0 g

Nom.Value + 1000.0 g
TU + 985.0 g
TO + 1015.0 g

13.1.3 Printout of the Add Up Sample Format 4...14

In user-defined sample formats (4...14) printformat 15 is prefixed to the first sample as a header.

13.2 Deleting samples

The last sample can be deleted from the total using < CLEAR > < P > .

13.2.1 Printout of a deleted sample

```
Date 08-10-2004    Time 11:25:02
Sample 3          deleted
```

13.3 Printing out the total

Using < INFO > < PRINT > < MEM > the current total will be printed out.
Using < CLEAR > < MEM > the current total will be deleted.

If the Add Up Setting 'CLR after Result' is set to 'Yes', the current total will be deleted automatically after INFO-PRINT-MEM.

13.3.1 Printout of the Add Up Result Format 1

```
Begin Date 08-10-2004    Time 11:20:34
Number of Samples      2
Total Net  + 1988.0      g
End Date 08-10-2004    Time 11:26:47
```

13.3.2 Printout of the Add Up Result Format 2

```
Begin Date 08-10-2004    Time 11:20:34
Number of Samples      2
Total Net  + 1988.0      g
Total Diff. - 12.0       g
Total Nom. + 2000.0      g
End Date 08-10-2004    Time 11:27:22
```

14 Defining print formats

The user has the possibility to create his own print formats. For this purpose there are 15 freely definable text lines and over 50 pre-defined text lines (measurements, results) available. These text lines can be combined in a print format and this print format can then be assigned to the PRINT key.

Furthermore, to all print formats (pre-defined and free-defined) a certain number of linefeeds can be appended.

14.1 Storing an ASCII text line

```
< STO >  
< SHIFT >  
' S '  
Enter text number  
< ENTER >  
Enter text  
< ENTER >
```

There are 15 memory locations available for ASCII and HEX lines. Text Numbers from 01 to 15 are possible. Text Number 01 will also always be used for the barcode labels. 40 characters can be entered for each memory location.

14.2 Storing a line of HEX (control codes)

```
< STO >  
< SHIFT >  
' H '  
Enter HEX line number  
< ENTER >  
Enter HEX Code            always 2-digit codes: Exp. 1B 30 2B 41 42 (= ESC 0 + A B)  
< ENTER >
```

There are 15 memory locations available for ASCII and HEX lines. Text numbers from 01 to 15 are possible. Text number 01 will also always be used for the barcode labels. 80 characters, i.e. 40 ASCII symbols, can be entered for each memory location.

14.3 Deleting a text or HEX line

```
< STO >  
< SHIFT >  
' H '  
Enter HEX line number  
< ENTER >  
Enter '00' ( HEX symbol 0)  
< ENTER >
```



```

58 Begin Date  Date      Time  Time  CR LF
59 End Date   Date      Time  Time  CR LF

60 Sample     Sample number CR LF
61 Number of Samples  Number of Samples CR LF
62                               Current sample count CR LF
63                               Current sample weight CR LF
64 Diff.      Current sample weight difference from nominal value CR LF
65 Total Net  Total pieces CR LF
66 Total Net  Total weight CR LF
67 Total Diff. Difference total weight from total nominal value CR LF
68 Total Nom. Total nominal value CR LF
69 Current sample pieces CR LF
70 Current sample weight CR LF

71 <normal letters>           Command for label-printer LP2824/LP2844
72 <condensed letters>       "      "      "      "      "      "
73 <wide letters>            "      "      "      "      "      "
74 <high/normal letters>     "      "      "      "      "      "
75 <high/condensed letters>  "      "      "      "      "      "
76 <high/wide letters>       "      "      "      "      "      "
77 <go to label-top>         "      "      "      "      "      "

80 Date
81 Time

82 Smartbox Application CR LF
83 Smartbox Software version CR LF
84 Balance Model CR LF
85 Balance Software version CR LF
86 Balance Serial number CR LF

88 Incremental number       Field width min. = 1
89   Incremental number     Field width = 10, right-aligned

90 Sample number           Field width min. = 3
91 Article number          Field width min. = 10
92 Product name            Field width min. = 10
93 Total weight CR LF
94 Total pieces CR LF

```

Text-Line 88, 89: Defining (once) the incremental number

```

< STO >
< BASE >
Enter incremental number           Range: 0...999'999'999
< ENTER >

```

After each printout the incremental number will be increased by 1. During power-off of the balance the current incremental number will remain unchanged.

14.5 Storing a print format

```

< STO >
< SHIFT >
' P '
Enter print format number
< ENTER >
Enter output function and text numbers
< ENTER >

```

Print format numbers can be 1,2 and 4 to 15. Print format 1 is prefixed to all permanently programmed print formats as a header, print format 2 is appended as terminator.

Example : *Print format 1*
Statistics printout
Print format 2

1 to 5 may be entered as the output-function (one digit), see also Section 3.2.
The text numbers are always two position. A maximum of 40 text numbers can be entered.

```

Example : <STO>
          <SHIFT>
          'P'
          '4'           Printformat 4
          <ENTER>
          '1172816'     1 . . . . . : Output-Function = 1 = Report printer (see also Section 3.2.)
                       . 17. . . . : Date/Time
                       . . . 28. . : Current weight
                       . . . . . 16 : Additional. CR,LFs
          <ENTER>

```

14.6 Allocate print format to the PRINT key

Print formats with the numbers 1 to 21 can be allocated to the Print key.

```

< STO >
< PRINT >
Enter format
< ENTER >

```

Format 1	current net-weight
Format 2	date/time, article, current net-, gross- and tare-weight
Format 3	date/time, article, current net-weight, article-definitions
Format 4 - 15	Freely definable print formats
Format 16 - 21	Barcode label print format (Barcode print formats are described in Chapter 15)

15 Eltron LP2022SE or LP2824 Barcode-Printer

Labels with the article number, the tare and the reference weight, which can be read directly into the balance with a barcode-reader, can be printed out with the “Eltron LP2022SE” or “LP2824” barcode-printer. (Note: LP2824 must be configured to LINE-MODE.)

15.1 Print article number in EAN8 code (Printformat 16)

Allocate **printformat 16** to the Print key, as described in Chapter 14.6.
Load an article number into the working memory and press the < PRINT > key.
A label with the article number in EAN8 Code will be printed out.

15.2 Print article number in EAN13 code (Printformat 17)

Allocate **printformat 17** to the Print key, as described in Chapter 14.6.
Load an article number into the working memory and press the < PRINT > key.
A label with the article number in EAN13 Code will be printed out.

15.3 Print article number in Code39 (Printformat 18)

Allocate **printformat 18** to the Print key, as described in Chapter 14.6.
Load an article number into the working memory and press the < PRINT > key.
A label with the article number in Code 39 will be printed out.

15.4 Print tare weight in EAN13 code (Printformat 19)

Allocate **printformat 19** to the Print key, as described in Chapter 14.6.
Place a container on the balance pan and press the < PRINT > key.
A label with the tare weight in EAN13 Code will be printed out.

15.5 Print reference weight in EAN13 code (Printformat 20)

Allocate **printformat 20** to the Print key, as described in Chapter 14.6.
Determine a reference weight for quantities, as described in Chapter 10, and press the < PRINT > key.
A label with the reference weight in EAN13 Code will be printed out.

15.6 Print text-label (Printformat 21)

Allocate **printformat 21** to the Print key, as described in Chapter 14.6, and press the < PRINT > key.
A label with information on the current article and measurement will be printed out.

16 Barcode-Reader

A barcode-reader can be attached to any Smartbox.

16.1 Storing an article number with the barcode-reader

< STO >
< ART >
Read in barcode
< ENTER >
.....
Enter remaining information on the article

16.2 Loading an article with the barcode-reader

Read in barcode with the reader. If the corresponding article is stored, it will automatically be loaded into the working memory and the balance operates as with an < RCL > < ART >...
If the corresponding article is not found, the barcode read in remains in working memory as an identification number.

16.3 Reading in a reference weight with the barcode-reader

Only specially coded barcodes can be read in as a reference weight. This code contains an identification and the reference weight in g/PCS. This label can be produced as described in Chapter 15.5. If the barcode is read in, the balance switches to the count mode and the reference will be set.

16.4 Reading in tare weight with the barcode-reader

Only specially coded barcodes can be read in as a tare weight. This code contains an identification and the tare weight in grams. This label can be produced as described in Chapter 15.4.
If the barcode is read in, the manual tare of the balance will be set.

17 Reference-Balance

A balance with RS232-interface may be used as a reference balance. Normally the reference-balance will have a higher resolution than the counting-balance. The counting-balance takes more precisely determined unit weights from the reference-balance.

If more than one reference-balance is allocated to the input channels, an input channel (1....) must be supplied after the < BASE > key.

17.1 Configuring the reference-balance

The interface parameters of the counting- and reference-balances must be the same. The base unit of the reference balance must be in grams.

17.2 Determining the unit weight from several articles

< REF.W >
< BASE >
Enter base number
< ENTER >
Enter quantity
< ENTER >

17.3 Transferring unit weight of an article

< REF.W >
< BASE >
Enter base number
< ENTER >

17.4 Transferring tare weight

< STO >
< → T >
Enter tare number
< ENTER >
< BASE >
Enter base number
< ENTER >

18 Interfaces and accessories

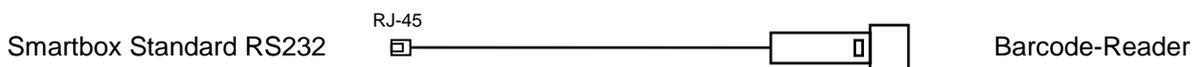
18.1 Standard interface

One or two peripherals may be attached to the standard interfaces RS232 (Ch.1, Ch.2) of the Smartbox.

Interface cable RS232 for a peripheral (bi-directional)
for Series 320, 490
Order No. 350-xxxx



Barcode-Reader
for Series 320, 490
Order-No. 350-xxxx



19 Controlling the Smartbox remotely via the interface

Remote control of the Smartbox functions is effected in a similar manner to input via the keypad. Each function has a key code, otherwise the ASCII Code is used. A Smartbox remote control command always starts with '#\$'.

19.1 Key code for the functions

\A	< DISP >	
\B	< FixR >	
\C	< REF >	
\D	< REF.W >	
\E	< MEM >	
\F	< MENU >	
\G	< CONF >	
\H	< ART >	
\I	< TARA >	
\J	< STO >	
\K	< ↻ >	
\L	< RCL >	
\M	< BASE >	
\N	< INFO >	
\O	< PRINT >	
\P	< CLR >	
\Q	< SHIFT >	(not used)
\R	< ENTER >	

19.2 Direct commands

Data in the direct commands are separated with a Tab (Hex 09) or semicolon (;). In setting or storing an article all components of the article must always be transferred, even if not used. The numerical values may only be transferred in grams, pieces or percentages. No other weight units will be accepted. 0 g must be employed for unused numerical values. A hyphen may be used as a filler for alphanumeric values which are not used.

19.2.1 Direct commands for the article

Place article in working memory #SETA...

```
#SETA 111;1;TEST 111;12313-ASD;Roland Moor;0.25;g/PCS;800;PCS;750;PCS;850;PCS;25;g
```

Store article in memory #STOA...

An article with the same article number will be overwritten.
If all article memory is full, subsequent articles will be ignored.

```
#STOA 111;1;TEST 111;12313-ASD;Roland Moor;0.25;g/PCS;800;PCS;750;PCS;850;PCS;25;g
```

```
#STOA 222;2;TEST 222;;;0.05;g/PCS;200;g;180;g;220;g;0;g
```

```
#STOA 333;3;TEST 333;12313-ASD;Roland Moor;0.1;g/PCS;3000;PCS;90;%;115;%;100;g
```

```
#STOA 444;4;TEST 444;123456-ABC;Roland Moor;0.02;g/PCS;0;g;0;g;0;g;20;g
```

Read an article #GETA 111

Read all articles #GETA ALL

The article will be printed out in the same format, as stored with #STOA...
The data received can be stored in a text file and further processed using Excel.

Clear an article #CLRA 111

Clear all articles #CLRA ALL

19.2.2 Direct commands for the tare

Set tare in working memory #SETT...

#SETT 25.25;g

Store tare in memory #STOT...

#STOT 1;25.25;g

#STOT 13;452.42;g

#STOT 53;100;g

#STOT 244;200.42;g

Read a tare #GETT 13

Read all tares #GETT ALL

The tare weights are printed out in the same format as they are stored with #STOT..
The data received can be stored in a text file and further processed using Excel.

Clear a tare #CLRT 13

Clear all tares #CLRT ALL

19.2.3 Direct commands for the strings and print formats

Set print format #SETP...
(corresponds to < STO > < PRINT >)

```
#SETP 3
```

Store string in memory #STOS...

```
#STOS 1;PRECISA Gravimetrics AG
```

```
#STOS 13;Moosmattstrasse 32
```

Store Hex string in memory #STOH...

```
#STOH 3;0D0A0D0A303132204444142
```

```
#STOH 4;E0E4E2E60D0A0D0A
```

Store print format in memory #STOP...

The first position of the string is occupied by the output function, after which is the text number, always two positions (see also Section 14.5).

```
#STOP 1;1011613160316
```

```
#STOP 5;101161316
```

Read a string #GETS 13

Read all strings #GETS ALL

Read a print format #GETP 13

Read all print formats #GETP ALL

The strings and print formats will be printed out in the same format as stored with #STO...
The data received can be stored in a text file and further processed using Excel.

Delete a string #CLRS 13

Delete all print formats #CLRP ALL

20 Tips and tricks

20.1 < DISP > key

If an article is in working memory, it is possible to switch the lower display between capacity-indicator and text-display.

20.2 < ↻ > key

During the info display it is possible to stop or re-display individual lines with the < ↻ > key.

20.3 < - > key

If the working memory contains a nominal value, the weight display can be switched between net weight and weight difference from nominal using the < - > key.
If the difference-display is active, a circle will appear in the display.