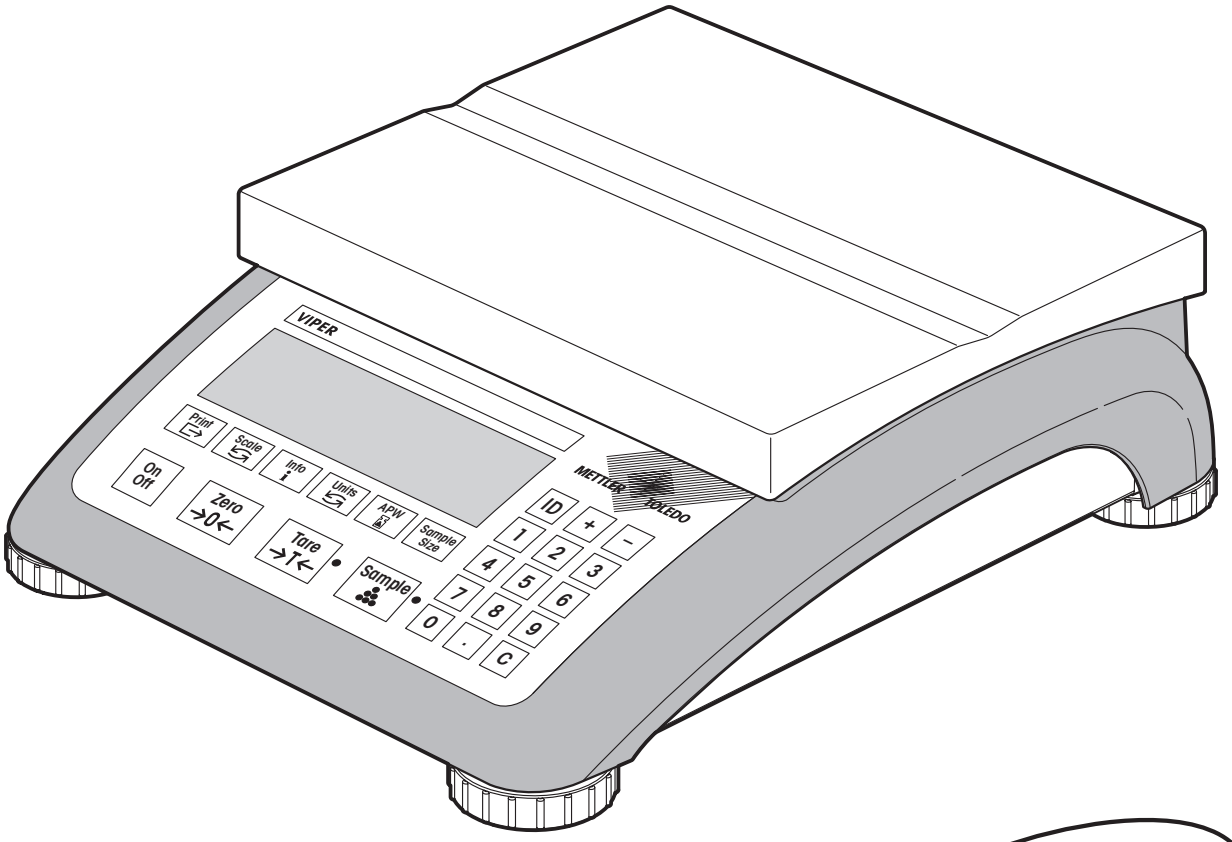
METTLER TOLEDO

Operator Manual

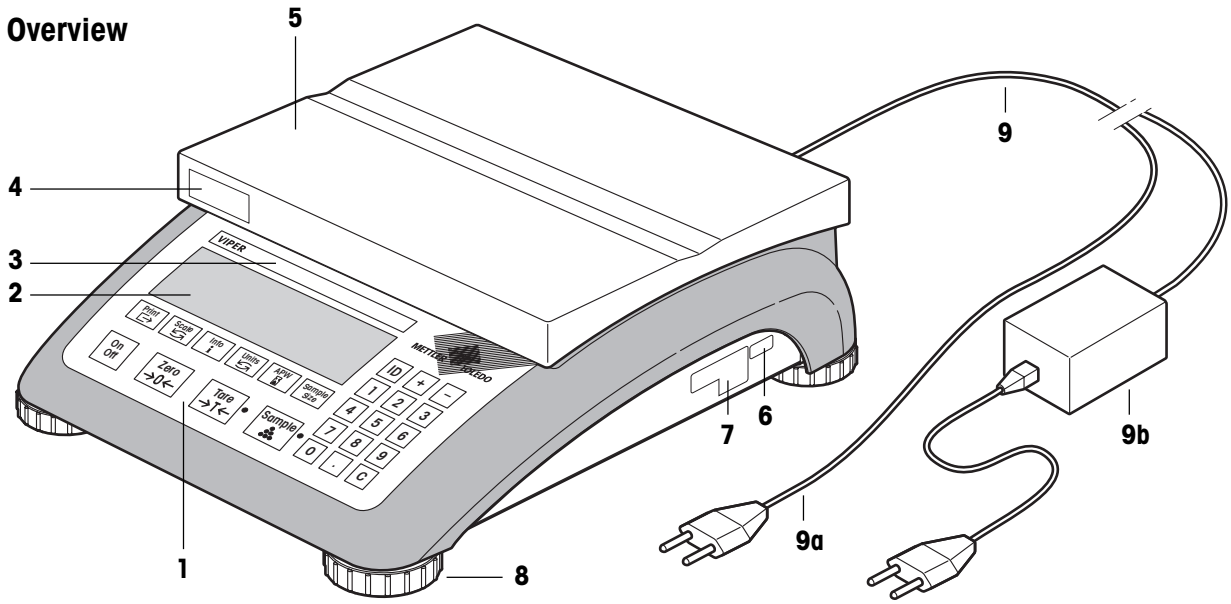
METTLER TOLEDO
Viper D Scales



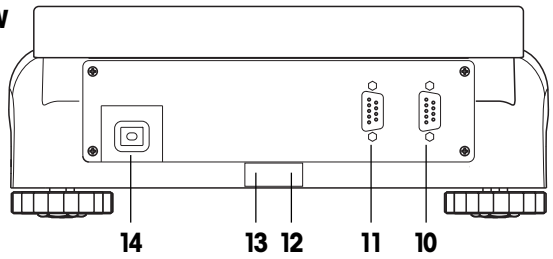
VIPER
The culture of precision

Overview of your Viper D scale

Overview



Rear view

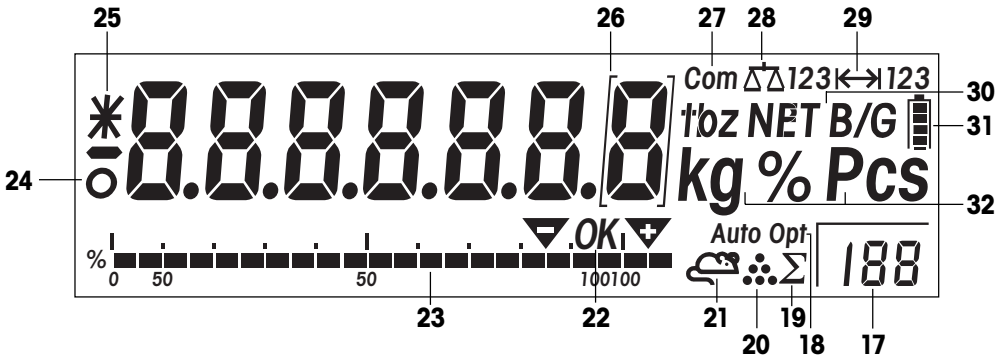


Scale specifications

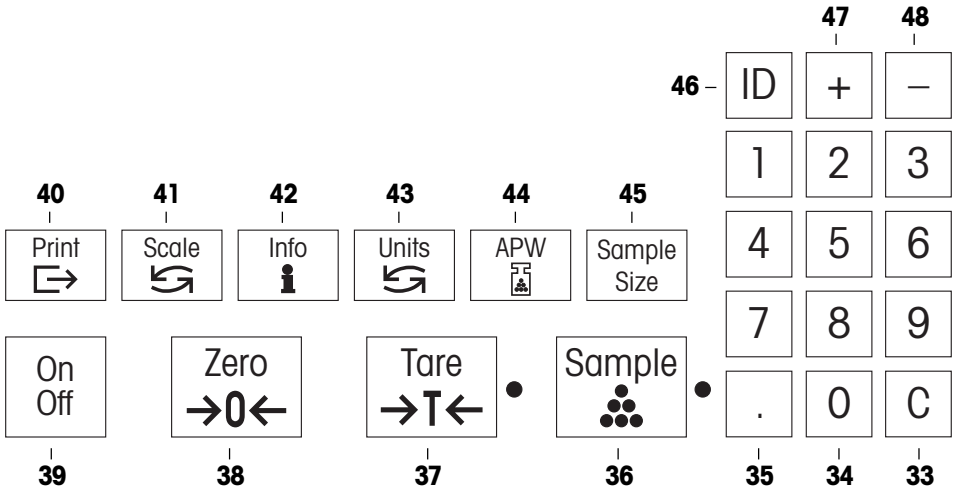
15 16

Max:	6 kg	d = 0.001 kg
Max:	12 lb	d = 0.002 lb

Display



Keypad



Overview

1 Keypad

2 Display

3 Scale specifications (see detailed illustration)

4 "MonoBloc" label (if applicable)

5 Weighing pan

6 Rating plate (power supply specification)

7 Type plate/certification plate

8 Leveling feet

9 Power supply:

9a: Power supply cable (scale without internal battery)

9b: AC adapter (scale with internal battery)

Rear view

10 RS232C interface (standard, female)

11 Optional interface

12 Level indicator

13 Hole for antitheft device (accessory)

14 Power supply cable (or socket for AC adapter on scales with internal battery)

Scale specifications (adhesive label)

15 Maximum load (in kg and lb)

16 Readability (display increment, in kg and lb)

Display

17 Number of reference sample pieces

18 Automatic reference optimization

19 "Sum" symbol (has no function)

20 Piece-counting symbol

21 "Dynamic weighing" indicator (has no function)

22 Target value and tolerance marks (have no function)

23 Bar graph of weighing range

24 Stability detector

25 Information mode indicator

26 Certification brackets (only on certified balances with e=10d)

27 Active interface (only displayed if more than one interface is installed)

28 Active scale (on 2-scale systems)

29 Weighing range

30 Symbol for net/gross weight and tare preset

Display (continued)

31 Internal battery charge status (only on scales with internal battery)

32 Weighing units

Keypad

33 Clears the current result of a weighing or piece counting. When working in setup, this key can be used to jump to the end of the setup for rapid exit from the setup mode.

34 Numeric keys (0 – 9)

35 Decimal point

36 Determines the average piece weight and displays the number of pieces (corresponding to the reference number of pieces). The LED next to the key flashes when the key has to be pressed.

37 Tares the weighing container on the scale and sets the display to zero. The LED next to the key flashes when the key has to be pressed. When working in setup, this key is used as the "No" key to reject an option.

38 Sets the display to zero. When working in setup, this key can be used to navigate backward. Each time the key is pressed, the previous setup item is shown.

39 Switches the balance on and off. This key does not function while working in setup mode.

40 Transmits the weighing result to a connected device (computer, printer, etc.) via the interface. If held down, calls up the setup mode, and when working in setup, functions as the "Yes" key to accept an option.

41 Switches beween Scale 1 and Scale 2 (reference sample scale and bulk scale) in two-scale operation.

42 Shows the results of preceding work steps (e.g. the tare). Each time the key is pressed, the next information field is displayed. In information mode, the asterisk symbol is displayed at the left-hand edge of the display.

43 Switches between the two weighing units specified in setup, or between piece counting and weighing mode if a reference piece weight is present.

44 Manual input of reference piece weight.

45 Selects the number of reference sample pieces (which is displayed above the key).

46 Identification key

47 Plus key (adds piece counts or weights).

48 Minus key (subtracts piece counts or weights).

Contents

1 Setting up the scale

Please read these operating instructions carefully and follow them exactly! If you find that any items are missing or incorrect, or if you have any other problems with your scale, please contact your authorized METTLER TOLEDO representative.

1.1 Unpacking and checking the delivered items

Remove the scale and accessories from the packaging. Check that all items have been delivered. The package should include:

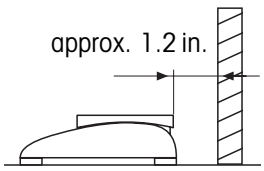
- Viper scale
- Weighing pan
- AC adapter (only for models with internal battery)
- Operating instructions (this document)
- Labels for noting the weighing range and readability after setting
- Special accessories per packing list (if applicable)

1.2 Safety and environment

To ensure safe, environmentally compatible operation of your scale, please observe the following:

Do not use the scale in **hazardous environments** (unless it is specially marked for this purpose).

Do not use the scale in environments where there is a **danger of corrosion**. Scales must never be flooded or immersed in liquids.



If the **power cable** is damaged, the scale must not be used. Check the cable regularly and ensure there is a clearance of approx. 3 cm (1.2 inches) behind the scale so the cable is not excessively kinked.

Never undo the **fastening screws of the load plate support** under the weighing pan!

Never insert a rigid object under the load plate support when the weighing pan is removed.

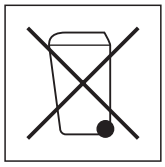
Do not open the scale by undoing the **screws in the base**.

Use only the recommended **accessories and peripherals**.

Treat the scale carefully. It is a precision instrument. Avoid knocking the weighing pan or placing excessively heavy loads on it.

Important if the Viper scale will be used in **food processing areas**: Those parts of the scale which may come into contact with food have a smooth surface and are easy to clean. The materials used do not shatter and contain no harmful substances.

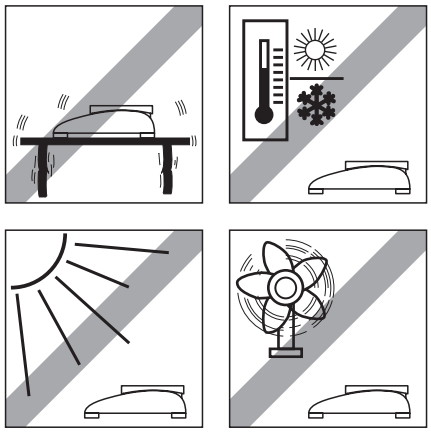
In food processing areas, it is advisable to use the **protective cover** (accessory). This must be regularly cleaned like the scale itself. A damaged or heavily soiled protective cover must be replaced immediately.



When **disposing of the scale,** observe the applicable environmental regulations. If the scale is fitted with an **internal battery,** note that the battery contains heavy metals and must, therefore, not be disposed of as normal waste! Observe local regulations for disposal of environmentally harmful substances.

1.3 Selecting a location and leveling the scale

Choosing the proper location for your scale will guarantee high weighing accuracy!

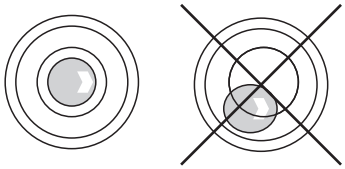


Choose a stable, vibration-free, flat surface (this is especially important for high-resolution scales and balances with METTLER TOLEDO MonoBloc technology). This surface must be able to safely bear the weight of the fully loaded scale.

Pay attention to environmental conditions.

Avoid:

- direct sunlight
- strong drafts (e.g. from fans or air conditioning)
- excessive temperature fluctuations

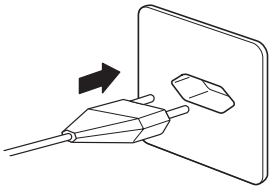


Adjust the scale horizontally by turning the leveling feet. If there is a level indicator, the air bubble must lie inside the inner circle.

Major changes of geographical location

Each scale is adjusted by the manufacturer for the local gravitational conditions (geo value) of the geographical zone to which the instrument is shipped. If there is a major change of geographical location, this adjustment must be corrected by a service technician, or the scale must be readjusted. Certified scales must also be recertified in accordance with applicable regulations for certification.

1.4 Connecting the power supply



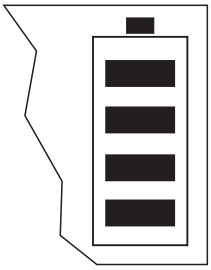
Before connecting the power supply, check that the voltage printed on the right side of the scale, or on the AC adapter, is the same as the local power supply voltage.

Connect the plug of the power cable or AC adapter to the power supply. If the scale is powered by internal battery, connect the AC adapter to the socket on the back of the scale.

After the scale has been connected, it performs a display test in which all the segments and then the software version are briefly displayed. When the display shows zero, the scale is ready for operation.

For maximum precision, after installing the scale have it adjusted/calibrated by a service technician.
Important: Certified scales must be adjusted by an authorized laboratory. Ask your service provider.

1.5 Battery operation



Scales with an internal battery can operate under normal conditions for approx. 30 hours disconnected from the power supply (scales with MonoBloc weighing cells approx. 20 hours). As soon as the power supply is interrupted (by pulling out the power plug, or by a power outage) the scale automatically switches over to battery operation. When power is restored, the scale automatically switches back to power supply operation.

The battery symbol indicates the current charge status of the battery (1 segment represents approx. 25% capacity). If the symbol flashes, the battery must be recharged.

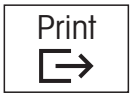
A fully discharged battery requires at least 8 hours to recharge. Work can continue while recharging takes place, but recharging then takes longer.

The battery is protected against overcharging, so the scale can be permanently connected to the power supply without a problem.

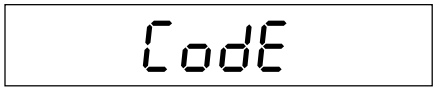
1.6 Energy-saving mode and backlighting

The scale uses less energy with the display backlighting turned off and the energy-saving mode switched on. With the energy-saving mode activated, the display switches off automatically after a specified time if no key is pressed and there is no change of weight. This lengthens the operating interval between recharging battery-operated scales. As soon as a key is pressed or there is a change in weight, the display switches on again.

At the factory, the energy-saving mode is switched off and the display backlighting is activated. You can change these settings as follows:



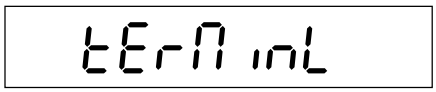
Press the «**Print**» key and hold it down for **at least 3 seconds** until …



… "**Code**" appears in the display.

Print

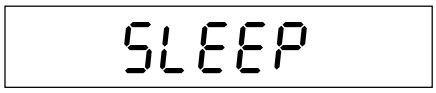
Press the «**Print**» key again briefly.



You are now in the setup mode and the display shows the "**Terminal**" setup block in which the settings for the energy-saving mode and backlighting are located. **Note**: Information about the setup of your scale is provided later in these instructions. At this stage, the objective is only to explain step by step the procedure for setting the energy-saving mode and backlighting.

Print

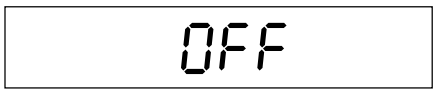
Press the «**Print**» key repeatedly until …



… the **energy-saving mode** setup block appears in the display.

Print

Press the «**Print**» key again to display the current setting for the energy-saving mode ("**On**" or "**Off**").

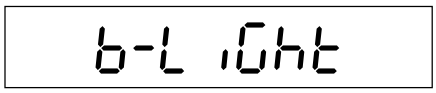


Tare →T←

You can use the «**Tare**» key to switch back and forth between the two settings.

Print

Confirm your setting for the energy-saving mode with the «**Print**» key …

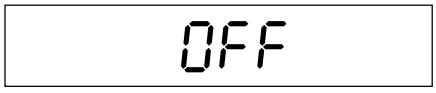


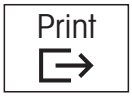
…after which the block with the settings for **backlighting** appears without delay.

Press the «**Print**» key to display the current setting for backlighting ("**On**" or "**Off**").

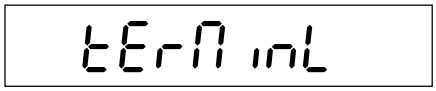
Tare →T←

You can use the «**Tare**» key again to switch between the two settings.

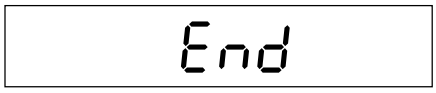




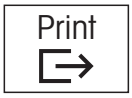
Confirm your setting for backlighting with the «**Print**» key.



Press the «**C**» key to quit the setup mode …

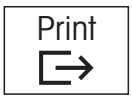


… and "**End**" appears in the display.



Press the «**Print**» key to confirm that you want to quit the setup mode.

You will now be asked whether you want to save your changed settings.



Press the «**Print**» key to save the settings (or if you don't want to save your settings, press the «**Tare**» key instead) and …

… the scale then returns to weighing mode.

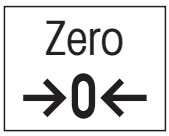
2 Weighing

This chapter explains how you switch the scale on and off, adjust the zero setting, tare the scale, carry out weighings, and record weighing results.

2.1 Switching on/off and setting to zero

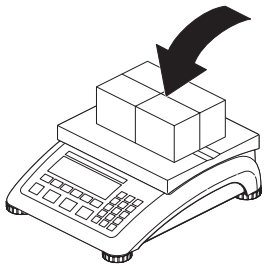
You switch the scale on and off by pressing the «**On/Off**» key.

After it has been switched on, the scale carries out a display test. When the weight display appears, the scale is ready for weighing and is automatically set to zero.
Note: The Viper L scale is designed as a piece-counting scale; the two LEDs next to the «**Tare**» and «**Sample**» keys guide you through the counting procedure. If you only want to carry out simple weighings, you can ignore the flashing LEDs (you can also turn them off, see Section 4.5.1).

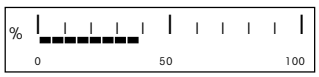


Note: If necessary, you can use the «**Zero**» key to set the scale to zero at any time.

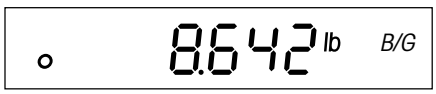
2.2 Simple weighing



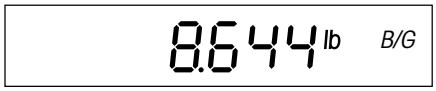
Place the weighing sample on the pan.



The bar graph in the lower part of the display shows how much of the weighing range is already used and how much is still available (in % of the nominal scale capacity).

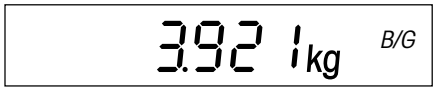


Wait until the stability detector (small ring at left-hand edge of display) goes off and then …



… read the weighing result. The **"B/G"** symbol indicates that it is a gross weight.

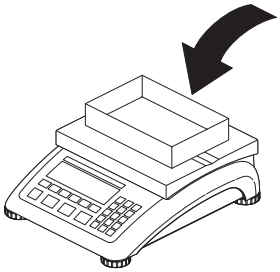
You can use the «**Units**» key at any time to switch between the two weight units preselected in setup.



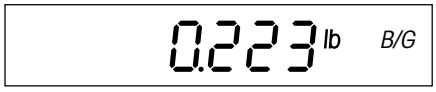
2.3 Weighing with tare

The tare can be defined either by placing the weighing container on the weighing pan, or by entering the tare weight numerically. The two methods are described below. There are also various taring options which can be activated in the menu.

2.3.1 Taring by placing the weighing container on the weighing pan



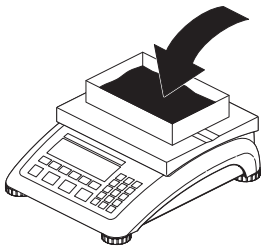
Place the **empty** weighing container or the packaging material on the weighing pan.



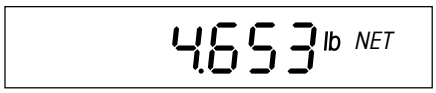
The display shows the weight of the container on the pan, together with the "**B/G**" (gross weight) symbol, which indicates that the scale has not yet been tared.

Press the «**Tare**» key to tare the scale.

The zero display and the "**NET**" (net weight) symbol appear. **Note:** If the automatic taring function has been activated in setup (Section 4.4.2), it is not necessary to press the «**Tare**» key.

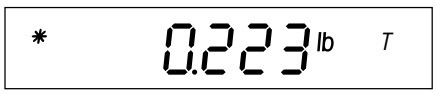


Place the weighing sample on the weighing pan …



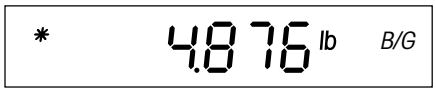
… and read the result (net weight of the weighing sample).

You can use the «**Info**» key to display the **tare weight** (the symbol "T" appears).



The star symbol at the left-hand edge of the display indicates that an **information field** is being displayed and not a weighing result.

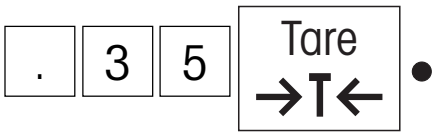
Pressing the «**Info**» key again, returns to displaying the net weight. (If you don't press this key, after about 5 seconds the scale automatically returns to displaying the net weight).



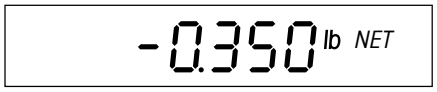
Note: If the corresponding function has been activated in setup (Section 4.5.3), an additional information field is available with the gross weight (tare + net weight).

When you have completed the weighing, press the «**C**» key to clear the weighing result (this clears the tare memory and all the information fields). The scale is now ready for the next weighment.

2.3.2 Entering the tare weight numerically



Enter the known tare weight in the current weighing unit on the numeric keypad and confirm with the «**Tare**» key. If the entry is incorrect, it can be deleted digit-by-digit with the «**C**» key.



The tare weight entered appears in the display with a minus sign and the symbol "**NET**" (net weight).

When the weighing container with the corresponding weight is placed on the scale, zero is displayed.

2.3.3 Taring options

At the factory, the scale is set so that taring is carried out using the «**Tare**» key as described in the previous section. However, other taring options can be activated in setup (Section 4.4.2); these are described below.

Multiple taring

If the "Chain tare" function is activated, you can re-tare the scale at any time by pressing the «**Tare**» key. Each time the key is pressed, the value in the tare memory is overwritten with the current weight value. This allows you to place an additional weighing container on the pan at any time and tare it. **Note:** On noncertified scales, this function is activated at the factory; on certified scales, this function is not available.

If the "Chain tare" function has been switched off in setup, only one single taring is allowed for each weighing operation. If you nevertheless attempt to tare the scale a second time, the error message "No" appears. You can only tare again after the current weighing result has been cleared with the «**C**» key or the display has been reset to zero using the «**Zero**» key.

Automatic taring

If the "Autotare" function is activated, the scale automatically interprets the first weight placed on the pan as the tare weight. When weighing is complete and all items have been removed from the weighing pan, after a few seconds, the tare value is cleared and the scale is ready for the next taring and weighment. **Note:** The "Autotare" function is turned off at the factory. On noncertified scales, it can be activated in setup; on certified scales, this function is not available.

Automatic tare clearance

If this function is activated, the tare value is automatically cleared when the weighing container is removed from the weighing pan, provided that a weighment has previously been carried out. **Note:** At the factory, automatic tare clearance is turned off. This function can only be activated in setup if the automatic taring function is turned off.

2.4 Recording the weighing result

```
4.876 lb G
0.223 lb T
4.653 lb NET
```

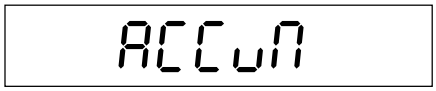
Pressing the «**Print**» key transmits the current weighing result via the interface to the peripheral device (printer, computer). At the factory the standard interface is configured for connection of a printer. Refer to Section 4.7 for information about configuring the interface(s).

The example on the left shows a record of a weighment with tare. "G" indicates the gross weight, "T" the tare, and "NET" the net weight.

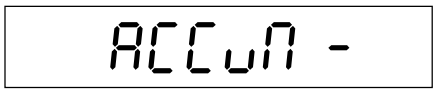
2.5 Totaling weighings

You can do several weighings and then determine the total weight. To do this, one of the functions for totaling weights must be activated in the menu (Section 4.5.2).

If a weighing container is used, it must be tared (either by placing on the scale, or entering the tare weight numerically, see Section 2.3).



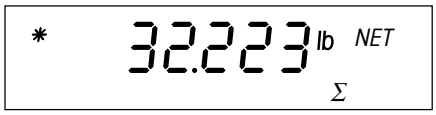
Pressing the «**+**» key **adds** the current weight to the existing total, and the message "Accumulation" appears briefly.



Pressing the «**–**» key **subtracts** the current weight from the existing total, and the message "Accumulation –" appears briefly.

Note:

- **The scale must be unloaded between the individual weighings**, otherwise the error message "no" appears when the next lot is weighed in!
- If the message "Motion" appears when the «**+**» or «**–**» key is pressed, the weighing is not yet stable. Wait a few seconds, then press the key again.

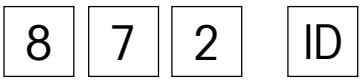


By pressing the «**Info**» key at any time you can call up the **totaling information field**, which displays the total of all accumulated weighings (note the totaling symbol at the bottom of the display).

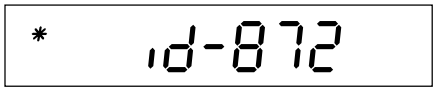
To delete the total from memory, press the «**C**» key while the totaling information field is displayed.

2.6 Using the identification

You can specifiy an identification number which will then be printed on the reports. For example, the ID can contain an article number. The report then shows clearly which articles were weighed out.



To enter the identification number: Type in the identification number (maximum 18 characters, incorrect entries can be deleted digit-by-digit with the «**C**» key) and then press the «**ID**» key to save the number (the ID stays in memory until it is overwritten by a new identification number). The minus sign and decimal point can be used as separators.



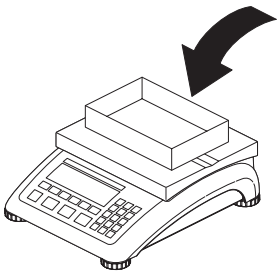
To display the identification number: The current ID can be displayed in an information field by pressing the «**Info**» key. The information field for the ID must have been previously activated in the menu (Section 4.5.3). Note: If the ID has more characters than can be shown on the display, you can move the display with the «**+**» key.

To print the identification number: For the ID to be printed on the reports, the corresponding data field for printing reports must be activated in the menu (Section 4.7.3).

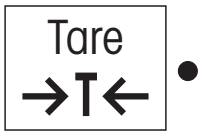
3 Piece counting

Your scale has a number of powerful piece-counting functions which can be activated in setup (Section 4.5). This chapter describes the functions which have been activated at the factory.

3.1 Counting pieces into a container



The flashing LED next to the «**Tare**» key prompts you to take a tare. Place on the platter the empty container into which you will count parts.



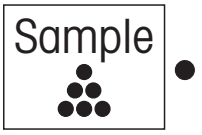
Press the «**Tare**» key to tare the scale.
Note: If the "Autotare" function is activated, you do not need to press the «**Tare**» key because the scale registers the tare weight automatically as soon as the container is placed on the platter.

The LED next to the «**Sample**» button starts to flash prompting you to take a **sample**. Before your scale can count pieces, it must know the average (mean) piece weight (APW, also referred to as the reference). The reference is then used as the basis for counting. If the piece weight is known, it can be entered directly and used as the reference.

Determining the reference by adding pieces:

The number of reference pieces is displayed above the «**Sample Size**» key. By pressing this key, you can choose how many pieces you want to use for determining the reference. (At the factory, piece numbers of 5, 10, 15, 20, and 25 are provided, but these can be changed in setup).

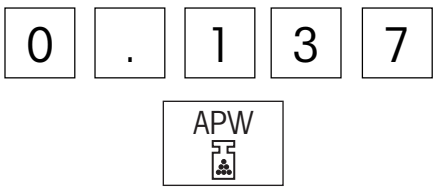
If pressing the «**Sample Size**» key does not offer you a suitable number of pieces, you can enter the desired reference number of pieces directly on the numerical keypad.



After you have selected the desired number of reference pieces (with the «**Sample Size**» key or by entering numerically), place the corresponding number of pieces in the container and press the «**Sample**» key.

The scale now calculates the APW and then displays the number of pieces.

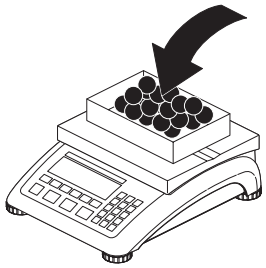
Entering the reference when the piece weight is known



Type in the known piece weight and confirm with the «**APW**» key. The weight entered is used as reference. If no pieces have been placed on the weighing pan, zero is displayed, otherwise the scale calculates the number of pieces based on the piece weight entered and displays this number.

Note: The piece weight must be entered in the current weighing unit!

Counting the pieces in



Put pieces into the container until the desired number of pieces is reached.

Units

Note: Once a count has been determined, you can use the «**Units**» key to switch back and forth between the number of pieces and the weight display at any time. The first time the key is pressed, the weight of the pieces in the container is displayed in the first weighing unit (e.g. "lb", if this has been specified in setup). The second time the key is pressed, the weight is displayed in the second weighing unit (e.g. "kg"), and the third time the key is pressed, the current number of pieces is displayed again.

Using the information key when piece counting

Info

By pressing the «**Info**» key, you can recall additional information about the current piece counting. At the factory, three information fields are provided for piece counting (this setting can be changed in setup). Each time the key is pressed, the next information field is displayed. After the last information field, the number of pieces is displayed again. The following information fields are available:

*0.008345 lb / Pc

Average piece weight

* 99.91 %

Piece-counting accuracy. This value is determined by the scale and is not to be taken as an absolute indication of accuracy but as an approximate value. The piece-counting accuracy depends on the number of reference pieces, their weight, and other parameters specific to the scale. The variance of the individual piece weights is not taken into account.

* 0.223 lb T

Tare weight

C

When you have completed the piece counting, press the «**C**» key to clear the result. (This also clears the tare memory and all the information fields.) The scale is then ready for the next weighment or piece counting.

3.2 Counting pieces out of a container

There are only a few points of difference between counting pieces out of a weighing container and counting them in.

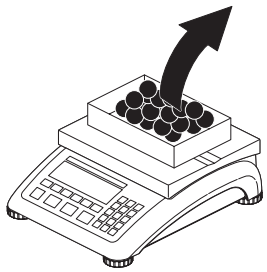
Tare →T←

When the flashing LED next to the «**Tare**» key prompts you to place the weighing container on the platter, place the **full** container on the platter. Press the «**Tare**» key to tare the scale.

5

Sample Size

Select the number of reference pieces using the «**Sample Size**» key or by entering numerically as described in the preceding section.



Remove the reference number of pieces from the container and then press the «**Sample**» key.

- 5 NET Pcs

The scale displays the number of pieces removed, preceded by a minus sign.

Remove more pieces until the desired number of pieces is reached. When piece counting is complete, press the «**C**» key to clear the result.

3.3 Totaling piece counts

You can do several piece counts and then determine the total number of pieces. At the factory, the function for totaling piece counts is activated; otherwise it can be switched on in the menu (Section 4.5.2).

Form the reference and do the piece count (see Section 3.1).

ACCuN

Pressing the «**+**» key **adds** the current piece count to the existing sum, and the message "Accumulation" is displayed briefly.

ACCuN -

Pressing the «**–**» key **subtracts** the current piece count from the existing sum, and the message "Accumulation –" is displayed briefly.

Note:

- **The scale must be unloaded between the individual weighings**, otherwise the error message "no" appears when the next lot is added!
- If the message "Motion" appears when the «**+**» or «**–**» key is pressed, the weighing is not yet stable. Wait a few seconds, then press the key again.

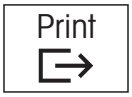
* 327 Pcs Σ

By pressing the «**Info**» key at any time you can call up the **totaling information field**, which disiplays the total of all accumulated piece counts (note the totaling symbol at the bottom of the display).

C

To delete the total from memory, press the «**C**» key while the totaling information field is displayed.

3.4 Recording the piece counting result



Press the «**Print**» key and the result of the current piece count will be transmitted to the peripheral device (printer, computer). At the factory, the standard interface is configured for connection of a printer. Refer to Section 4.7 for information about configuring the interface(s).

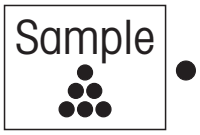
```
1.615 lb G
0.225 lb T
1.390 lb NET
   26 PCS
```

The example on the left shows a piece count record. Your own records may differ from this example depending on the record settings you selected in setup (Section 4.7.3). In the example, the following parameters have been set at the factory:

"G" indicates the gross weight, "T" the tare, "NET" the net weight, and "PCS" (number of pieces) the result of the piece count.

3.5 Average piece weight enhancement

Enhancing the average piece weight (APW) gives more accurate counting results. Your scale has two ways of doing this, automatic and manual reference optimization, which are both described below. At the factory, reference optimization is set to manual. In both cases, pieces are added and then the average piece weight (reference) is recalculated. Each enhancement improves the piece-counting accuracy. **Note:** Reference optimization can be turned off completely in setup.

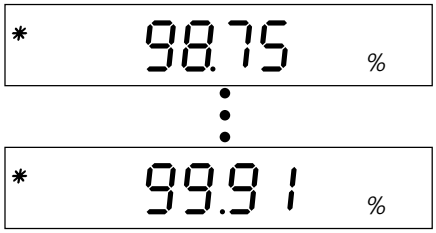


If the "**Manual reference optimization**" function is activated (factory setting), you can improve the counting accuracy by pressing the «**Sample**» key after each addition of pieces. The display then briefly shows the message "Enhance", which confirms that the average piece weight (reference) has been recalculated, following which the number of pieces is displayed.

Note: If more pieces are added than have already been counted, enhancement is not possible and a corresponding message is displayed (see Section 3.7).

If the "**Automatic reference optimization**" function has been activated in setup, the scale performs the optimization automatically each time more pieces are placed on the scale. You therefore do not have to press a key to start the optimization procedure. Each time the reference is optimized the message "Enhance" is briefly displayed.
Note: With automatic reference optimization turned on, the symbol "Auto Opt" appears at lower right in the display.

You can check how successful optimization is at any time by using the «**Info**» key to recall the data field which shows the piece-counting accuracy. The accuracy value should increase with each optimization.



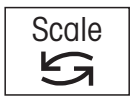
3.6 Piece counting with two-scale systems

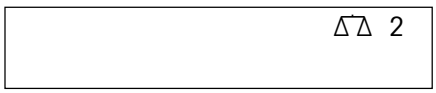
You can connect your Viper scale to a second scale, e.g. a floor scale, for piece counting of large quantities which exceed the capacity of your Viper scale. In such a system, the reference is determined on the Viper scale, whereas the second scale serves as the bulk scale.

If you connect your Viper scale to a high-resolution scale (e.g. a Viper MonoBloc), you can use the high-resolution scale as the reference scale, and in this case the Viper scale serves as the bulk scale.

To set up a two-scale counting system, the second scale must be defined in the setup of the Viper scale, and the interface must be configured for two-scale operation (Sections 4.4.6 and 4.7.1). Also, the remote scale must be connected to the Viper scale with the correct cable (Section 6.4).

In the following description, it is assumed that the two-scale system has been set up and configured correctly. It is also assumed that the second scale is defined as the bulk scale, and reference determination takes place on the Viper scale (this corresponds to the factory setting). However, the system can also be configured so that the second scale is the reference scale and the Viper is the bulk scale. The basic procedure is the same in both cases.





Important points

The scale symbol in the upper right-hand corner of the display indicates which scale is currently active ("⚖ 1" = Viper scale, "⚖ 2" = second scale).

You can use the «**Scale**» key to switch between the two scales at any time.

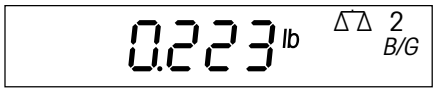
The operating steps for piece counting (taring, reference determination) always refer to the active scale.

If the second scale is active, you can set it to zero and tare it using the «**Zero**» and «**Tare**» keys of the Viper scale.

Operating procedure

The **operating procedure** for piece counting is basically the same as for single-scale counting systems:

The LED next to the «**Tare**» key flashes to prompt you to place the tare container on the **bulk scale** (in this example the second scale, "⚖ 2").

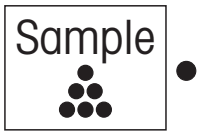


If you are using a container, place it on the bulk scale (the weight of the weighing container appears in the display of the Viper scale).

Press the «**Tare**» key (even if you are working without a weighing container the «**Tare**» key must be pressed).

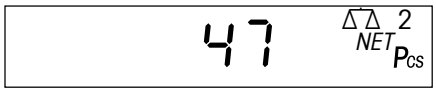
The display now changes automatically to the **reference scale** (in this example the Viper scale "⚖ 1"), and the flashing LED next to the «**Sample**» key prompts you to determine the reference.

Use the «**Sample Size**» key to select the desired number of reference pieces, and place the corresponding number of pieces on the reference scale. (If you wish to use a container for the sample pieces, place this on the scale first, and then press the «**Tare**» key).



Determine the reference by pressing the «**Sample**» key.

After you have determined the reference, the display changes back automatically to the **bulk scale**.



The Viper scale will now indicate the count value as pieces are added to the container.

Notes

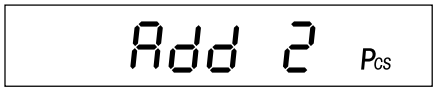
- You can recall certain **data fields** at any time by pressing the «**Info**» key. The data fields available are the same as for piece counting with single-scale systems (Section 3.1).
- You can print a record of the weighing result by pressing the «**Print**» key (Section 3.4).
- For **optimizing the reference**, the same options are available as for single-scale weighing systems (Section 3.5)
- You do not necessarily have to follow the procedure described above. You can use the «**Scale**» key at any time to switch between the Viper and the second scale and carry out the required operating procedure (taring, reference determination, piece counting) on the scale you choose.

3.7 Messages during piece counting

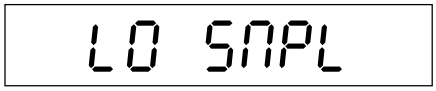
In the preceding sections, it was assumed that there were no exceptional occurrences during piece counting. However, if the scale encounters a problem while it is determining or optimizing the reference, one of the following messages is displayed:

Messages during reference determination

Error in operating procedure: you pressed the «**Sample**» key without first taring the scale. Repeat the operating procedure and tare the scale with the «**Tare**» key even if you are not using a weighing container. Also observe the flashing lights which guide you through the operating procedure.



The number of pieces on the scale is too small for precise determination of the reference, and the scale is therefore prompting you to add more pieces. Place the requested additional number of pieces on the scale, and it will then automatically determine the reference.

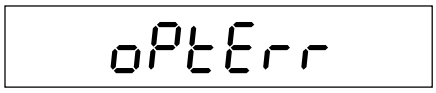


Sample weight too low ("low sample"): The total weight of the pieces on the scale is too low to determine a valid APW for piece counting. The scale automatically shows the next higher number of sample pieces (above the «**Sample Size**» key). Place the corresponding number of pieces on the scale and press the «**Sample**» key again.

Note: The minimum sample weight can be specified in setup (Section 4.5.1). This check can be turned off completely, but doing so reduces counting accuracy.

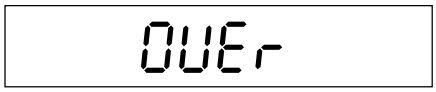
Sample piece weight too low ("low average piece weight"): The reference determination results in an average (mean) piece weight which is too low to be used by the scale as a reference. We recommend you to count such light pieces on a scale with a lower weighing range and correspondingly higher resolution.

Messages during reference optimization



This message ("optimization error") occurs during **automatic and manual reference optimization** if the total weight of the pieces on the scale is more than 4% of the scale capacity. Above this limit, it is no longer possible to optimize the reference.

This message also occurs if you try to optimize the reference manually without placing more pieces on the scale.



This message ("over") occurs during **automatic and manual reference optimization** if you have put more additional pieces on the scale than were already on the weighing pan. In this case reference optimization is not possible.

- With manual reference optimization, you can remove the excessive number of pieces and press the «**Sample**» key again to carry out a reference optimization.
- With automatic reference optimization just remove the excessive number of pieces and reference optimization then takes place automatically.

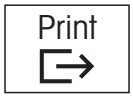
You can also ignore the message and continue with piece counting. However, if you do this, no further reference optimization can be carried out for the current piece counting.

Note: General warning and error messages (which may also occur while piece counting) are listed in Section 5.2.

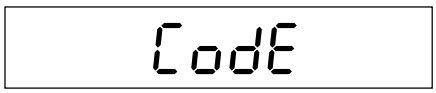
4 Setup

You can use the setup mode to change the settings of the scale and to activate functions. This makes it possible to adapt the scale to your individual weighing needs. To prevent incorrect operation during day-to-day work, setup is reserved for the supervisor and can only be accessed with a password (Exception: Parts of the "Terminal" block can be accessed by the user, see Section 4.6.4).

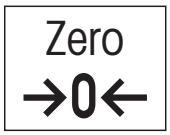
4.1 Calling up the setup mode and entering the password



Press the «**Print**» key and hold it down until ...



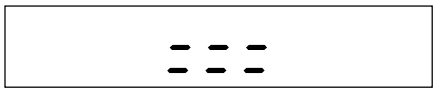
... the prompt to enter the password appears.



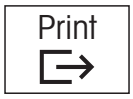
3x

The password comprises a series of keystrokes. At the factory, the password for the supervisor has been set to «**Zero**» «**Zero**» «**Zero**». We recommend you to replace this password with one of your own as soon as possible (Section 4.6.4).

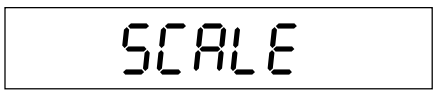
To call up the setup mode using the password set at the factory, briefly press the «**Zero**» key three times.



Each keystroke you enter is shown in the display as a double horizontal dash.



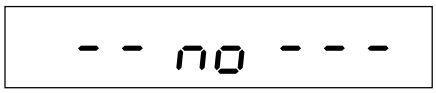
Confirm the password with the «**Print**» key.



If you entered the password correctly, the first main block of the setup now appears.

Note:

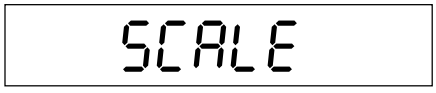
- Enter the password as soon as you are prompted with "Code"; otherwise, the scale returns to normal operation after a few seconds.



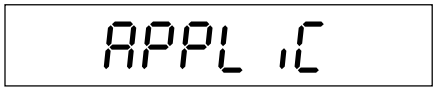
- If the password you entered is incorrect, an error message ("no") appears, and shortly after this you will be prompted to reenter the password.
- If you do not operate any key for approximately 3 minutes, the scale automatically returns to weighing or counting mode.

4.2 Setup structure

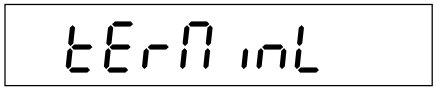
The setup of the Viper scale is divided into 6 main blocks, each of which has a number of subblocks.



The first main block of the setup contains scale-specific settings (Section 4.4).

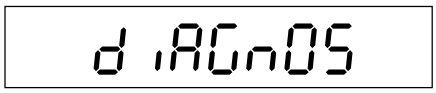


In the second main block (Section 4.5), you will find the settings for applications (e.g. for piece counting).

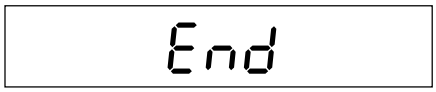


The third main block of the setup contains settings for the scale terminal and for access authorizations (Section 4.6).

In the fourth main block, you can specify the settings for the interface(s) (Section 4.7).



The fifth main block can be used to print out the settings (Section 4.8).

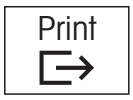


In the sixth main block, you can save your settings and quit the setup (Section 4.9).

You will find a complete overview of the setup mode in Section 4.10.

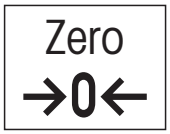
4.3 Working with the setup mode

To work with the setup you use the following keys:



In the setup you use the «**Print**» key to confirm that you wish to accept a proposed option (entry to a setup block or selection of a particular setting). This key has the meaning "**YES**".

You use the «**Tare**» key to reject a proposed option (entry to a setup block or selection of a particular setting). This key has the meaning "**NO**".

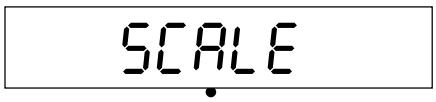


You use the «**Zero**» key to move back through the setup. Each time you press the key it calls up the previous setup block.

The «**C**» key ("Clear") takes you directly to the end of the setup, where you can decide whether you want to save the changes before you quit the setup mode.

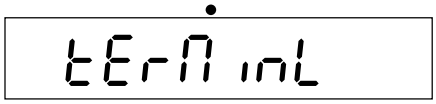
Example

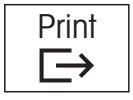
In the following example you want to turn off the backlighting of the display. This setting is in the main block "Terminal" (the complete path to this setting is: Terminal –> Device –> Backlight –> On/Off).



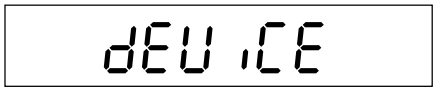
When you enter the setup, the first main block is displayed.

Now press the «**Tare**» ("No") key repeatedly until the block appears in which you wish to make a setting (in this example the main block "Terminal").

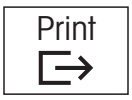




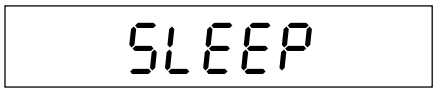
Press the «**Print**» key. By doing so, you confirm that you want to enter the selected setup block.



The first subblock of the "Terminal" appears.

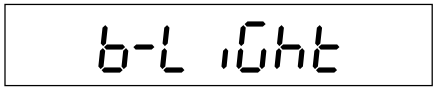


Since the setting you want to change is in this block, press the «**Print**» ("Yes") key.

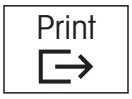


The first subblock of the "Device" block appears in the display.

Since the desired setting is not in this block, press the «**Tare**» ("No") key.

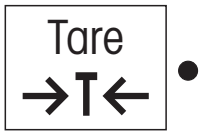


The second subblock of the "Device" setup is displayed. It is in this block that you make the setting for the backlighting.

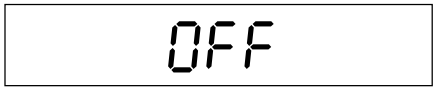


Press the «**Print**» key to enter this setup block.

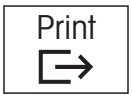
The current setting for backlighting appears in the display. At the factory, backlighting of the display is turned on ("On").



Press the **Tare**» ("No") key to switch the backlighting off.

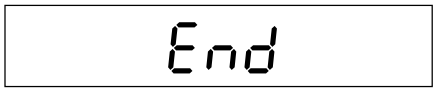


The new setting is displayed.

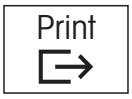


Confirm the new setting ("OFF") with the «**Print**» key. The backlighting is immediately turned off.

Since you do not wish to make any more settings in setup at present, now press the «**C**» key …

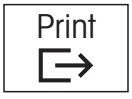


… and you arrive at the last block in the setup.



Press the «**Print**» ("YES") key to confirm that you wish to quit the setup mode.

You are now asked whether you wish to save the changed setting.

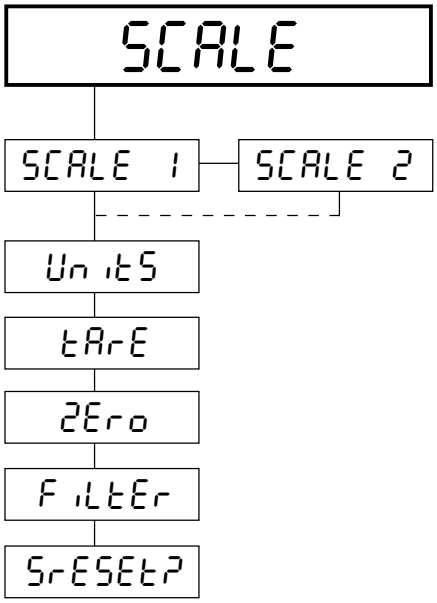


Press the «**Print**» ("Yes") key to save the new setting and …

… the scale returns to weighing mode. (If you do not wish to save the changed settings, press the «**Tare**» ("No") key instead, and the scale continues to use the former settings).

4.4 Scale settings ("SCALE" block)

You use this block to make scale-specific settings. These include specifying weighing units, defining settings for taring and zeroing, as well as special filter settings to adapt the scale to its environmental conditions.



The "SCALE" main block contains the following subblocks:

Selects the scale for which settings are to be made (SCALE 1 is the Viper scale, SCALE 2 is a second scale [if used])

Selects the weighing units (Section 4.4.1)

Defines settings for taring (Section 4.4.2)

Defines settings for zeroing (Section 4.4.3)

Adapts the scale to environmental conditions (Section 4.4.4)

Resets the settings in the "SCALE" block to the factory settings (Section 4.4.5)

Note: If you select "SCALE 1", the block for selecting weighing units appears. If you select "SCALE 2", a subblock appears with the settings for the second scale (Section 4.4.6).

4.4.1 Selecting the weighing units ("Units")

In the "Units" block, you specify the weighing units with which your Viper scale should operate. This block contains the following two subblocks:

In this subblock, you specify the weighing unit which should be displayed as standard.

The units available are shown at left. The factory setting is "lb".

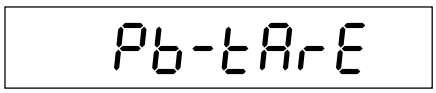
Note: On certified scales, the settings "g" and "oz" are not available.

In this subblock, you specify the second weighing unit which in weighing mode will be displayed when you press the «Units» key.

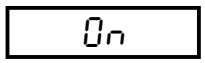
The units available are the same as the standard weighing units, but with the additional setting "OFF" (no second weighing unit). The factory setting is "kg". On certified scales the settings "g" and "oz" are also not available as second weighing units.

4.4.2 Settings for taring ("Tare")

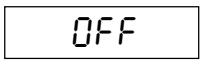
In the "Tare" block, you specify settings which control **how your scale tares**. This block contains the following four subblocks:



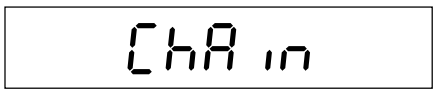
In this subblock ("Pushbutton Tare"), you can activate or deactivate the «**Tare**» key:



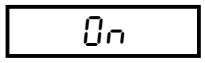
The «**Tare**» key is active. This is the factory setting.



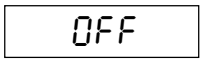
The «**Tare**» key is inactive; if it is pressed, no taring takes place.



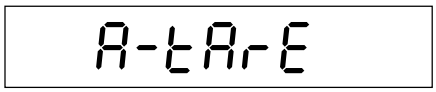
In this subblock, you specify whether **multiple taring** ("Chain tare") during a weighing operation is allowed. **Note: On certified scales, this block is not available!**



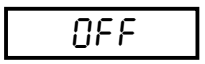
The scale can be re-tared at any time. Each time the key is pressed, the value in the tare memory is overwritten with the current weight value. This is the factory setting.



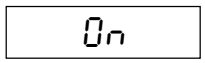
For each weighing operation, only one taring is allowed. Re-taring is only possible after the current weighing result is cleared with the «**C**» key or the display is set to zero with the «**Zero**» key.



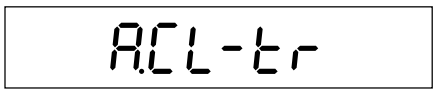
In this subblock, you can turn the **autotare function** on or off.



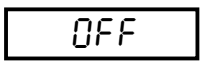
The autotare function is turned off; taring is done manually using the «**Tare**» key. This is the factory setting.



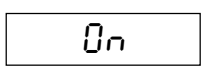
The autotare function is turned on. The scale automatically interprets the first weight placed on the scale as the tare.



In this subblock, you specify whether the tare should be automatically cleared ("Auto Clear Tare"). **Note: This block is not available if the autotare function is active!**

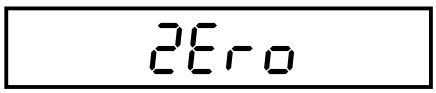


Automatic tare clearance is turned off. The current tare value is cleared with the «**C**» key or by retaring. This is the factory setting.

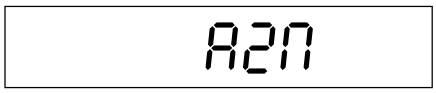


The tare value is automatically cleared when the weighing container is removed from the scale, provided that a weighing has been carried out.

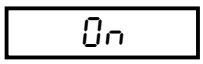
4.4.3 Settings for zeroing ("Zero")



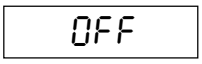
In the "Zero" block, you specify the settings for zeroing the scale. This block contains the following three subblocks:



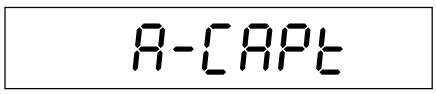
In this subblock ("Autozero Mode"), you can turn **automatic zeroing** on and off. The autozero function automatically corrects the zero point of the scale and thereby compensates for minor soiling of the weighing pan. The following settings are available:



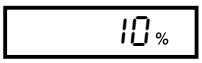
Automatic zeroing is active. This is the factory setting.



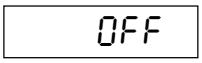
Automatic zeroing is turned off.



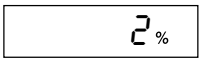
In this subblock ("Auto Capture"), you can specify whether the scale should **automatically zero when it is turned on,** and set the allowable zeroing range. If the weight on the weighing pan is within the selected range, the display is set to zero when the scale is switched on; otherwise, an error message appears. The following settings are available:



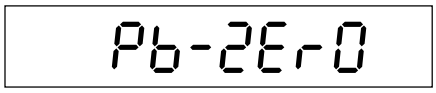
Zeroing range at switch-on: ±10 % of scale capacity. This is the factory setting.



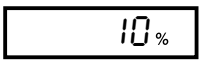
Automatic zeroing of the scale at switch-on is deactivated.



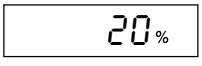
Zeroing range at switch-on: ±2 % of scale capacity.



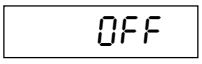
In this subblock ("Pushbutton Zero", **not available on certified scales**), you can use the **«Zero» key to set zeroing on and off** and to set the allowable zero range. If the weight on the weighing pan is within the selected range, when the **«Zero»** key is pressed the display is set to zero; otherwise, an error message appears. The following settings are possible:



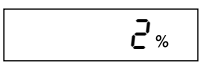
Zeroing range: ±10 % of scale capacity. This is the factory setting for noncertified scales.



Zeroing range: +20 %/–2 % of scale capacity.

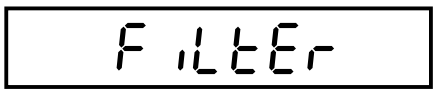


Zeroing with the **«Zero»** key is deactivated.

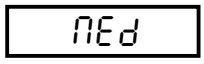


Zeroing range: ±2 % of scale capacity.

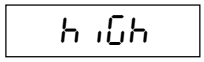
4.4.4 Adaptation to surrounding conditions ("Filter")



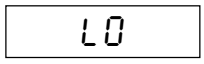
You can use the "Filter" block to adapt your scale to the surrounding conditions (vibration, drafts). This block contains no subblocks; you arrive immediately at the following settings:



Setting for **normal surrounding conditions**. This is the factory setting. The scale operates at medium speed.



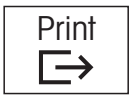
Setting for **unstable surroundings**. The scale operates more slowly than with the factory setting, but is less sensitive to external disturbance.



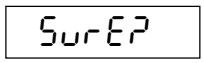
Setting for **very stable and stable surroundings**. The scale operates very fast, but is more sensitive to external disturbance.

4.4.5 Resetting the scale settings to the factory settings ("Scale Reset")

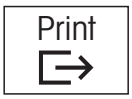
You can use the "S-Reset" ("Scale Reset") block to reset all the settings in the "SCALE" block to the factory settings.



To reset the settings, press the «**Print**» ("Yes") key. If you do not wish to reset the settings, press the «**Tare**» ("No") key instead.



You are asked again whether you really want to reset the settings in the "SCALE" block.

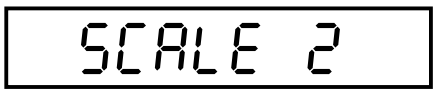


If you want to reset, press the «**Print**» ("Yes") key again. Otherwise, press the «**Tare**» ("No") key. This is your last chance to cancel the reset.

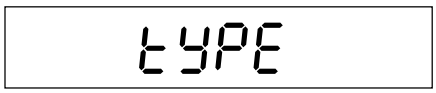
When you press the «**Print**» key as confirmation, all the settings in the "SCALE" block are reset and the scale immediately operates with the factory settings.

Important: In two-scale systems, resetting only affects the scale you selected when you entered the "SCALE" block (Scale 1 = Viper scale, or Scale 2 = second scale).

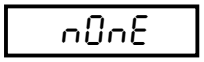
4.4.6 Settings for the second scale ("Scale 2")



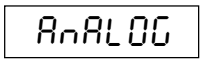
The "SCALE 2" block is only relevant if a **second scale** is connected to the Viper scale. It contains the following subblocks:



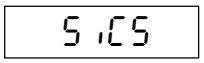
In this subblock, you select the type of second scale. The following settings are available:



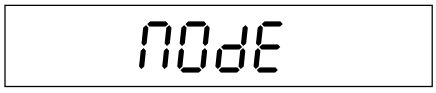
No second scale is connected. This is the factory setting.



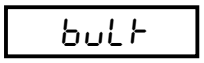
The second scale is a **platform** connected via the **optional analog interface**. With this setting, the Viper scale functions as a terminal for an analog scale. An analog scale base can be used to configure a compact two-scale system. After the analog platform has been connected, its parameters must be entered. These are stored on the analog interface board. This preparatory work is carried out by the service technician and is not described in the present instructions. After the parameters have been entered, the same settings are available in the "SCALE" block for the second scale as for the Viper scale itself. These settings have been described in the preceding sections (settings for weighing units, taring, zeroing, filter).



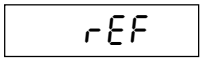
A second scale, which supports the **M**ETTLER **T**OLEDO **S**tandard **I**nterface **C**ommand **S**et (MT-SICS), is connected to the RS232C interface of the Viper scale. With this setting, the Viper scale uses SICS commands to communicate with the second scale.



In this subblock, you specify the operating mode of the second scale for piece counting. The following settings are available:



The second scale is used as a **bulk scale**, and reference determination takes place on the Viper scale. This is the factory setting.

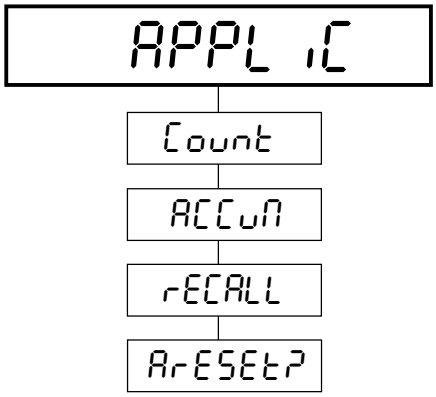


The second scale serves as the **reference scale**, and piece counting takes place on the Viper scale.

Important: If the second scale is connected to an RS232C interface on the Viper scale, this interface must be configured for two-scale operation (Section 4.7).

4.5 Application settings ("APPLICATION" block)

In this main block, you define application-specific settings. These include settings for piece counting and definitions of information fields.



The "APPLICATION" main block contains the following subblocks:

Settings for piece counting (Section 4.5.1)

Settings for totaling (Section 4.5.2)

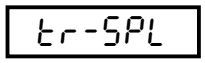
Definitions of information fields (Section 4.5.3)

Resetting the settings in the "APPLICATION" block to the factory settings (Section 4.5.4)

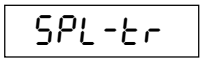
4.5.1 Settings for piece counting ("Count")

In the "Count" block, you specify the settings for piece counting. This block contains the following eight subblocks:

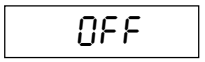
In this subblock ("Prompting"), you specify the **work process for piece counting**, i.e. how the LEDs by the «**Tare**» and «**Sample**» keys should function. The following settings are available:



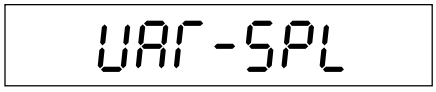
"Tare –> Sample": You want to tare first and then determine the reference. In this case, the LED by the «**Tare**» key flashes first, followed by the LED by the «**Sample**» key. This is the factory setting.



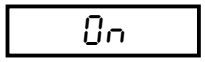
"Sample –> Tare": You want to determine the reference first and only to tare afterwards. In this case, the LED by the «**Sample**» key flashes first, followed by the LED by the «**Tare**» key.



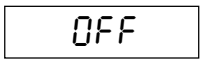
The two LEDs are both switched off, and you can decide the sequence of operations yourself.



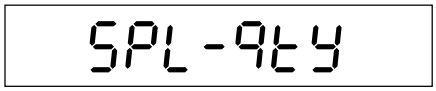
In this subblock ("Variable Sample"), you specify whether the number of reference pieces can be changed or not. The number of reference pieces is displayed above the «**Sample Size**» key.



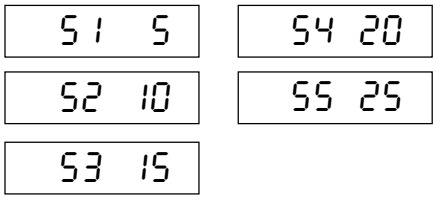
The number of reference pieces can be changed with the «**Sample Size**» key (you specify the possible numbers of pieces in the next setup block). This is the factory setting.



The number of reference pieces cannot be changed, and the «**Sample Size**» key has no function. If the key is pressed by mistake, the error message "No" appears. **Note**: With this setting, the number of reference pieces displayed is the first one you specify in the next block.

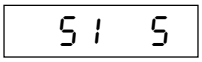


In this subblock ("Sample Quantity"), you specify the **numbers of reference pieces** which can be selected using the «**Sample Size**» key.

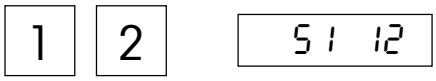


5 quantities of reference pieces are available (S1 – S5). You can set their values in this block. The factory settings for all 5 quantities are shown at left.

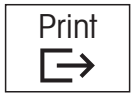
To change the numbers of reference pieces, proceed as follows:



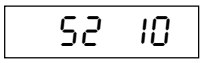
When you call up this block, the first number of reference pieces ("S1") is displayed. In this example we assume that the first number of reference pieces is currently set to 5 (factory setting), and that you want to change it to 12.



Enter the desired reference number of pieces (max. 100) on the numerical keypad (incorrect entries can be deleted digit-by-digit with the «**C**» key).

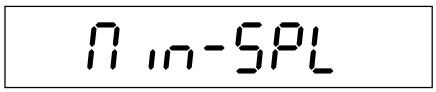


Confirm the entry with the «**Print**» key ("Yes") and ...

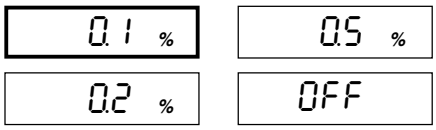


... the second number of reference pieces appears in the display, which you can change if necessary in the way described above.

Important: Setting a number of reference pieces to "000" also deactivates its display. By doing this, you can limit how many numbers of reference pieces the user has available.

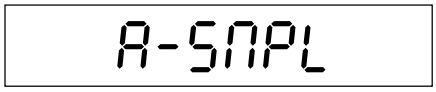


In this subblock ("Minimum Sample"), you specify the **minimum reference weight**. If the total weight of the reference pieces on the scale is below this limit, it is not possible to determine a reference, and a corresponding message appears (Section 3.7).

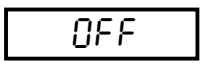


The available settings are shown on the left. The factory setting is 0.1 %. The percentage values are in relation to the nominal load of the scale (e.g. with a setting of 0.1% on a scale with a nominal load of 24 lb (12 kg), the weight of the reference pieces must be at least 0.024 lb (0.012 kg)).

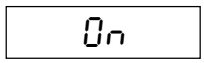
Note: If the "OFF" setting is used, no minimum reference weight is required for piece counting, but this can be at the cost of counting accuracy.



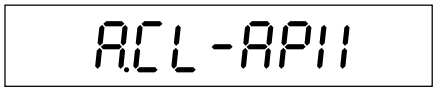
In this subblock ("Auto Sample"), you can activate or deactivate **automatic reference determination**:



Automatic reference determination is deactivated and the reference for piece counting must be determined with the «**Sample**» key. This is the factory setting.

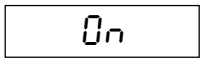


Automatic reference determination is activated. If the scale has been previously tared, the scale automatically interprets the load on it as the reference weight. The reference weight is automatically used for the number of reference pieces which is displayed above the «**Sample Size**» key. For this reason, before you place the reference pieces on the scale, check that the corresponding number of pieces is displayed.

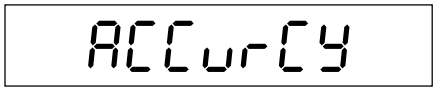


In this subblock ("Auto Clear Average Piece Weight"), you can activate or deactivate **automatic deletion of the reference piece weight**:

Automatic deletion of the reference piece weight is deactivated. The reference piece weight has to be cleared manually by pressing the «**C**» key. This is the factory setting.

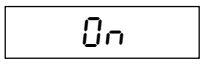


Automatic clearance of the reference piece weight is activated. When you remove the weighing container from the scale after piece counting, the reference piece weight is automatically cleared and the scale is then ready for a new reference determination. This setting is useful if you frequently count different sorts of pieces, which makes it necessary to determine a new reference weight each time you count pieces.



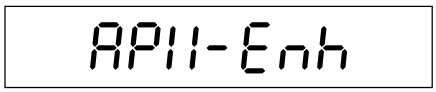
In this subblock ("Accuracy"), you can choose whether the **accuracy** should be briefly displayed after the reference is determined or optimized.

The accuracy is not displayed. **Note**: You can, however, still call up the piece-counting accuracy in the corresponding information field. This is the factory setting.

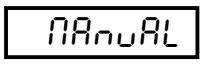


After each reference determination and optimization, the percentage piece-counting accuracy is briefly displayed. This setting is useful if you need to achieve a particular accuracy, because if necessary you can immediately place more pieces on the scale and thereby improve the reference optimization and accuracy.

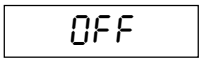
Please refer to the **notes on counting accuracy** in Section 3.1.



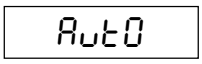
In this subblock ("Average Piece Weight Enhancement"), you can specify or deactivate the settings for **reference optimization**. The following settings are available:



The reference can be optimized manually by placing additional pieces on the scale and then pressing the «**Sample**» key. This is the factory setting.



Reference optimization is deactivated.

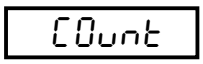


The scale optimizes the reference automatically each time there is a change in weight. **Note**: With automatic reference optimization switched on, the display shows the "Auto Opt" symbol at lower right.

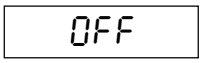
You will find further information about reference optimization in Section 3.5.

4.5.2 Settings for totaling ("Accumulation")

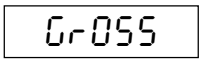
In the "Accumulation" block you can specify which values should be totaled with the «**+**» and «**–**» keys. This menu block contains no sub-blocks, instead you arrive directly at the following settings:



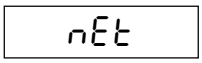
Totaling **piece counts**. This is the factory setting.



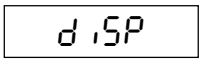
Totaling **inactive**, the «**+**» and «**–**» keys have no effect.



Totaling **gross weights**.



Totaling **net weights**.

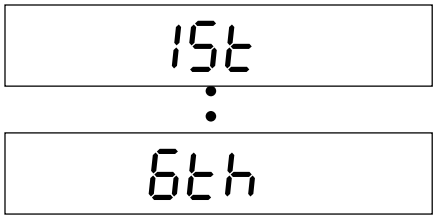


Totaling **displayed values**. With this setting, the currently displayed weight value (net or gross) is always added or subtracted.

Information about working with the totaling function is found in sections 2.5 and 3.3.

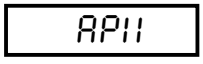
4.5.3 Settings for information fields ("Recall")

The "Recall" block is used to specify the contents of **information fields**. You can define up to 6 information fields which can be called up with the «**Info**» key while weighing or counting.

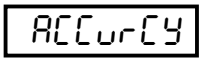


This block contains one subblock for each of the 6 information fields:

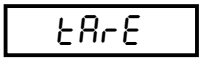
Each of the 6 information fields can have one of the following settings assigned to it:



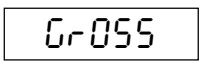
Displays the average (mean) piece weight (factory setting for the first information field)



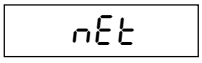
Displays the counting accuracy (factory setting for the second information field)



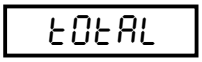
Displays the tare weight (factory setting for the third information field, always activated on certified balances)



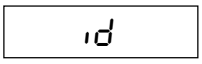
Displays the gross weight



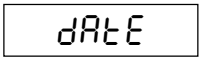
Displays the net weight



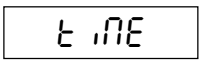
Displays the total (factory setting for the fourth information field)



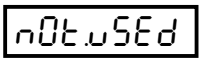
Displays the identification



Displays the date



Displays the time

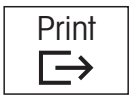


The information field is not used (factory setting for the fifth and sixth information fields)

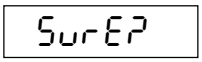
You will find further information about using information fields in Sections 2.3 and 3.1.

4.5.4 Resetting the application settings to the factory settings ("Application Reset")

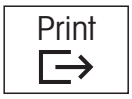
In the "A-Reset" ("Application Reset") block, you can reset all the settings in the "APPLICATION" block to the factory settings.



To reset the settings, press the «**Print**» ("Yes") key. If you do not wish to reset the settings, press the «**Tare**» ("No") key instead.



You are asked again whether you really want to reset the settings in the "APPLICATION" block.

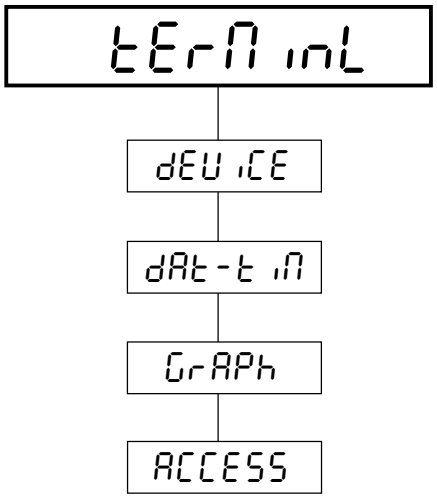


If you want to reset, press the «**Print**» ("Yes") key again. Otherwise press the «**Tare**» ("No") key. This is your last chance to cancel the reset.

When you press the **"Print"** key as confirmation, all the settings in the "APPLICATION" block are reset, and the scale immediately operates with the factory settings.

4.6 Scale settings ("TERMINAL" block)

In this main block, you can specify scale-specific settings. These include settings for the display, and for authorizing access to the setup mode.



The "TERMINAL" main block contains the following subblocks:

Settings for the display (Section 4.6.1)

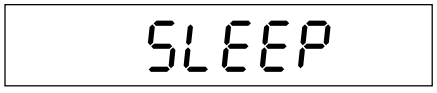
Settings for date and time (Section 4.6.2)

Settings for the weighing range bar graph (Section 4.6.3)

Settings for authorizing access to the setup mode (Section 4.6.4)

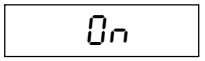
4.6.1 Settings for the display and for the beeper ("Device")

In the "Device" block, you can specify settings for the display and for the beeper. This block contains the following three subblocks:

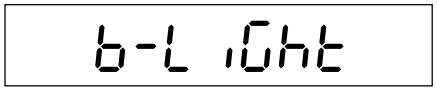


In this subblock ("Sleep"), you can turn the **energy-saving mode** on and off:

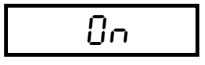
Energy-saving mode is deactivated, the display is permanently switched on. This is the factory setting for scales connected to the power supply.



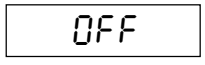
Energy-saving mode is switched on. This is the factory setting for battery-operated scales.
On scales connected to the power supply the display is automatically switched off if, for a certain period of time, no key is pressed and there is no change in weight. At the next keystroke or change in weight the display is re-activated. Battery-operated scales are switched off completely. The «**On/Off**» key must be pressed to switch them on again when required.



In this subblock ("Backlight"), you can switch the **backlighting of the display** on and off:



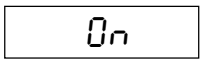
Backlighting of the display is switched on. This is the factory setting.



Backlighting of the display is switched off.

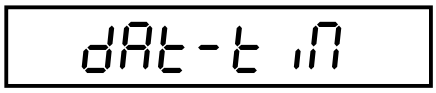
In this sub-block ("Beeper") you can switch the **beeper** on and off:

The beeper is switched off. This is the factory setting.

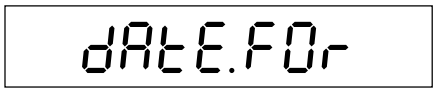


The beeper is switched on. Every time a key is pressed there is a short beep to acknowledge it.

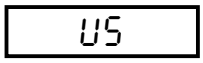
4.6.2 Settings for date and time ("Date – Time")



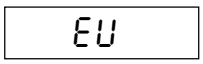
In the "Date – Time" block you make settings for displaying and printing out the date and time. This menu block contains the following four sub-blocks:



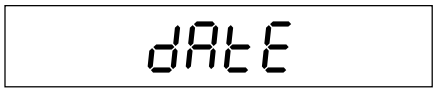
In this sub-block ("Date Format") you select the **format for date and time**:

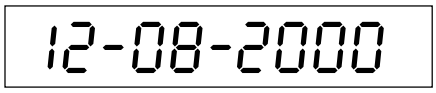


US format for date (MM-DD-YYYY) and time (12-hour display). This is the factory setting.

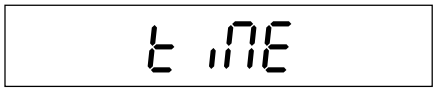


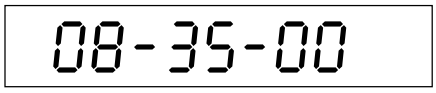
European format for date (DD-MM-YYYY) and time (24-hour display).



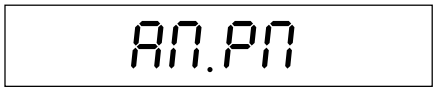


In this sub-block ("Date") you enter the current **date** in the selected format ("MM-DD-YYYY" or "DD-MM-YYYY"). Use the decimal point as separator. Note: Because there is not enough space to display all the characters, the display moves during input.

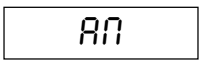




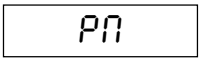
In this sub-block ("Time") you enter the current **time** in the selected format (12- or 24-hour format). Use the decimal point to separate hours, minutes, and seconds. Note: Because there is not enough space to display all the characters, the display moves during input.



This sub-block ("AM/PM") is only available if US format (12-hour display) has been selected. You specify here whether the time just entered relates to morning or afternoon:



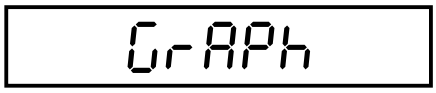
Morning ("AM")



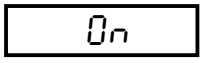
Afternoon ("PM").

Note: The scale has a backup battery, so the date and time are retained even if the scale is disconnected from the power supply.

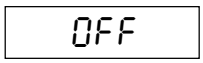
4.6.3 Settings for the graphical weighing range display ("Graph")



In the "Graph" block, which has no subblocks, you can switch the **graphical weighing range display** (bar with % scale at the bottom of the display) on and off:



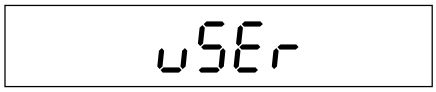
The graphical weighing range is switched on. This is the factory setting.



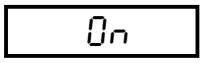
The graphical weighing range is switched off.

4.6.4 Settings for authorizing access to the setup mode ("Access")

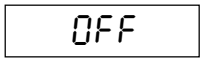
In the "Access" block, you specify authorizations and passwords for the setup mode. This block contains the following two subblocks:



In this subblock ("User"), you can specify whether the **operator** should have access to a part of the setup:

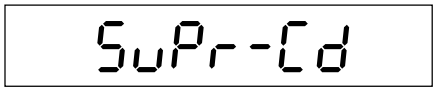


The operator has restricted access to the setup mode, specifically to the "TERMINAL" block with the settings for energy-saving mode and backlighting. This is the factory setting.

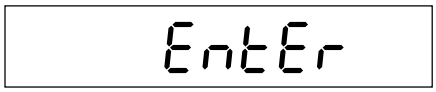


The operator has no access to the setup mode.

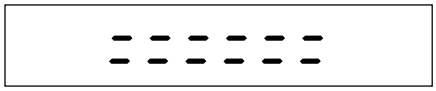
In this subblock ("Codes"), you can specify your own supervisor password for access to the setup mode. Proceed as follows:



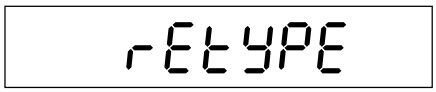
Call up the "Codes" block with the «**Print**» ("Yes") key and …



… you will be prompted to enter your new password. Enter the sequence of keystrokes you wish to use as your password. You can use up to 6 keys. **Important**: The «**Print**» key cannot be used in the password! Do not press this key, as it is used to terminate input and confirm the new password!



Each keystroke is symbolized in the display by two double horizontal dashes. Confirm the new password by pressing the «**Print**» ("Yes") key.

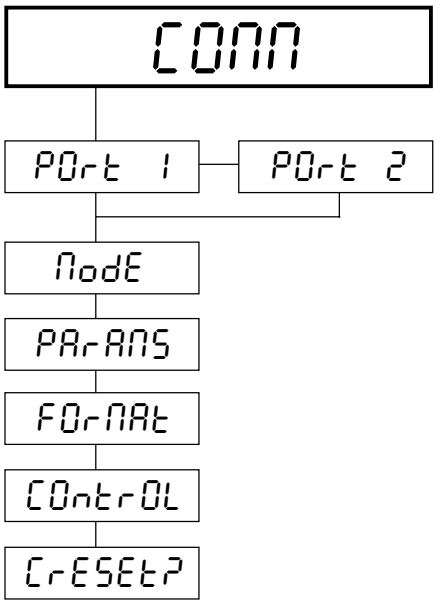


You will now be prompted to enter the password again. Retype the new password and confirm it again with the «**Print**» ("Yes") key.

Definition of the password is now complete, and the next time you attempt to enter the setup mode you will be asked for it. **Important**: Make a note of your password! If you forget it, the service technician will have to define a new supervisor password before you can use the setup again!

4.7 Settings for the interfaces ("COMMUNICATION" block)

Your scale has either one or two RS232C serial interfaces. This main block is where you specify the settings for these interfaces.



The "COMMUNICATION" main block contains the following subblocks:

Selection of the RS232C interface for which you wish to make settings. The blocks below are available for both interfaces:

Selects the communication mode (Section 4.7.1)

Settings for the communication parameters (Section 4.7.2)

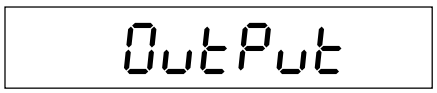
Settings for printed reports (Section 4.7.3)

Settings for data transmission (Section 4.7.4)

Resetting "COMMUNICATION" block to the factory settings (Section 4.7.5)

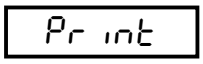
4.7.1 Selecting the communication mode ("Mode")

In the "Mode" block, you specify how your Viper scale should communicate through the selected interface. This block contains the following two subblocks:

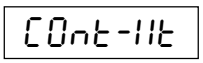


In this subblock, you specify the format in which data should be output through the interface. This depends on the device you have connected to the corresponding interface.

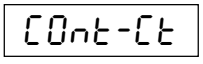
The following settings are available:



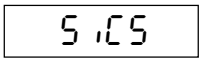
Data output to a **printer**. This is the factory setting. **Note**: If you select this setting, a further block with settings for the report printout is also available (Section 4.7.3).



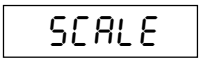
The **weight value** is continuously transmitted through the interface in TOLEDO format ("Continuous Weight"). This setting can be used to record weighing results on a computer.



The **current piece count** is continuously transmitted through the interface ("Continuous Count"). This setting can be used to record piece countings on a computer.

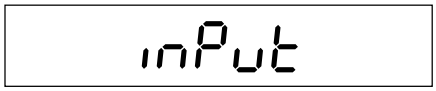


Bidirectional communication with an external device using **MT-SICS commands**. This setting can be used to control the Viper scale from a computer. Refer to Section 5.1 for information about the SICS interface commands.



Connection of a **second scale** to the RS232C interface. If you select this setting, you can use the «**Scale**» key to switch back and forth between the two scales.

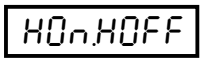
Important: Make sure that the second scale is correctly configured in the "SCALE" block (Section 4.4.6)! If the scale type has been defined there as "analog", you cannot use this setting.



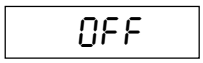
In this block, you can make settings for the input line of the interface.

Important: This subblock is only available if the setting you selected in the preceding "Output" block uses only the output line of the interface: These settings are "Print", "Continuous Weight", or "Continuous Count". With these settings, the input line can be used separately. This is not possible with the "SICS" and "Scale" settings, because these two modes are bidirectional and therefore also use the input line of the interface. You can, for example, connect a printer but still send commands from a PC to the scale through the same interface. This requires a T-piece which allows connection of the two devices and separates the input and output lines of the interface.

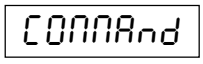
The following settings are available:



The input line of the interface is used for the software handshake (Xon/Xoff protocol). This setting must be used if the connected device requires a software handshake. This is the factory setting.

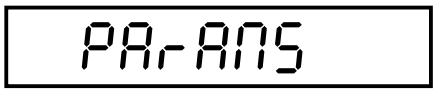


The input line of the interface is not used.

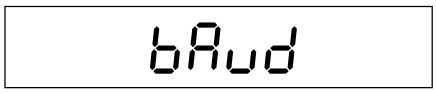


The input side of the interface is used to receive commands in TOLEDO format. You can obtain a list of these commands from a METTLER TOLEDO service point.

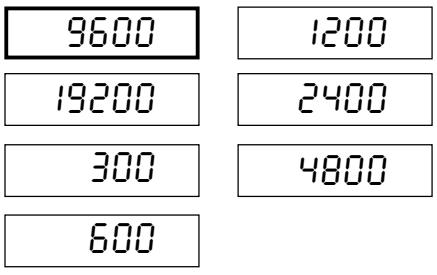
4.7.2 Setting the communication parameters ("Parameters")



In the "Parameters" block, you specify the **communication parameters** for the interface.
Important: Make sure that these parameters are set to the same values on the external device (printer, PC, second scale) which is connected to the scale. This block contains the following three subblocks:

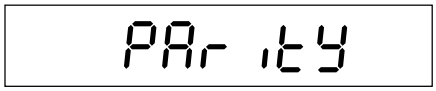


The "Baud" subblock is used to set the **data transmission rate of the interface**.

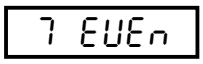


The available settings are shown at left.

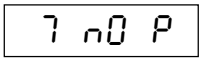
The factory setting is 9600 baud.



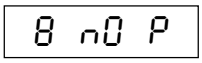
The "Parity" subblock is used to specify the **number of data bits** and the **parity**. The available settings are shown below:



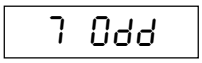
7 data bits, even parity. This is the factory setting.



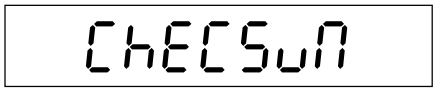
7 data bits, no parity.



8 data bits, no parity.

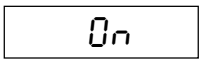


7 data bits, odd parity.



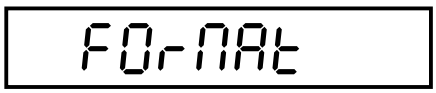
In the "Checksum" subblock, you specify whether the integrity of the values transmitted through the interface should be verified by means of a **checksum**. **Important**: This subblock is only available if you have set the communication mode to either "Continuous Weight" or "Continuous Count" (Section 4.7.1). The following settings are available:

Data validation turned off. This is the factory setting.

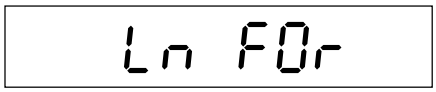


Data validation turned on.

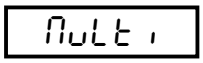
4.7.3 Settings for the printed reports, or tickets ("Format")



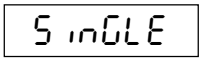
In the "Format" block, you can specify the settings for **printing reports**.
Important: This block is only available if you have set the communication mode to "Print" (Section 4.7.1). This block contains the following eight subblocks:



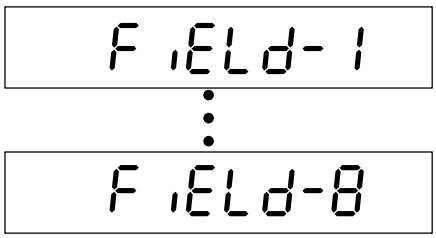
In the "Line Format" subblock, you specify how the printout should be formatted. The following settings are available:



Multi-line printing. Each value in the report is printed on a separate line. This is the factory setting.

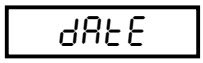


Single-line printing. Several values (e.g. net weight, tare, and gross weight) are printed on a single line.

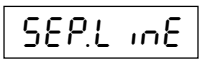


A report can contain a maximum of 8 data fields. You use subblocks "Field 1" to "Field 8" to specify which data should be printed on the report.

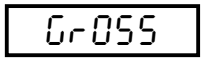
In each of the 8 blocks "Field 1" to "Field 8" the following settings are available:



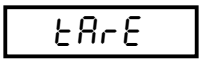
The date is printed out (factory setting for data field 1).



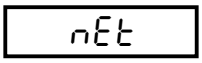
A separating line is inserted.



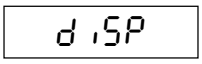
The gross weight is printed on the report (factory setting for data field 2).



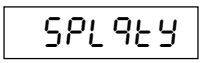
The tare weight is printed on the report (factory setting for data field 3).



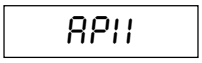
The net weight is printed on the report (factory setting for data field 4).



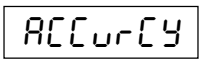
The current weight value ("Display") is printed on the report. This setting is useful for piece counting, so that the net weight is also printed on the report.



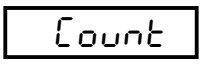
When piece counting, the reference number of pieces ("Sample Quantity") is printed on the report.



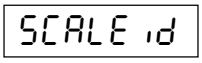
The average piece weight ("Average Piece Weight") is printed on the report.



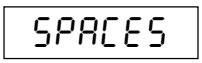
The counting accuracy ("Accuracy") is printed on the report.



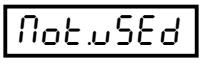
The piece counting result is printed on the report (factory setting for data field 5).



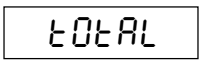
The scale identification ("Scale ID") is printed on the report. This allows each printed report to be uniquely identified to a specific scale.



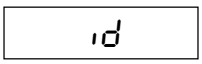
Instead of the value of the data field being printed on the report, blanks ("Spaces") are inserted in its place. This setting is useful if there is a particular data field you do not wish to print out, but all the other fields should still be printed in the same positions.



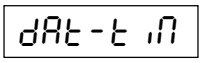
The data field is not printed out ("Not Used", factory setting for printing fields 6 to 8). In contrast to the previous setting ("Spaces") where blanks are inserted, printing of the field is suppressed. The next field follows directly after the preceding field.



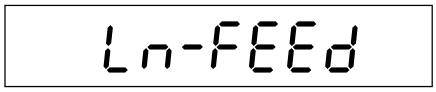
The result of totaling is printed out.



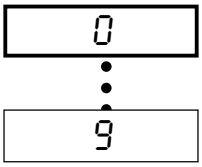
The current identification is printed out.



The date and time are printed out.



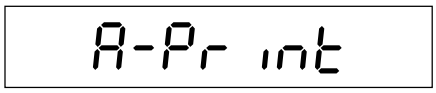
In this subblock ("Line Feed"), you can insert **additional empty lines** between the reports, for example to leave space for adding handwritten notes to the printed values.



You can insert from 0 to 9 empty lines. The factory setting is "0" (no additional lines are printed).

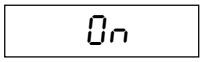
4.7.4 Settings for data transfer ("Control")

In the "Control" block you specify the conditions under which data should be transmitted through the interface. This block contains the following two subblocks:

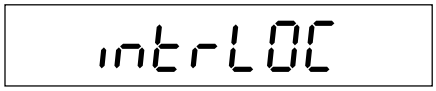


In this subblock ("Auto Print"), you specify whether the data should be transmitted automatically or by pressing a key. **Note**: This setting is only active for piece counting. Automatic data transmission is not possible in weighing mode! The following settings can be selected:

Automatic data transmission is switched off. The data is only transmitted when the «**Print**» key is pressed. This is the factory setting.

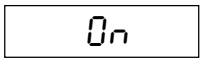


When piece counting, the data is automatically transmitted as soon as the reference has been determined.



In this subblock ("Print Interlock"), you specify whether data can be transmitted only once, or several times, during a single weighing or counting operation. The following settings can be selected:

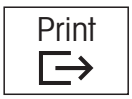
An unlimited number of data transmissions is allowed per weighing or counting operation. Data is transmitted each time the «**Print**» key is pressed. This is the factory setting.



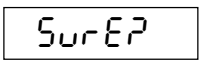
Data can only be transmitted again when the weighing pan is completely empty or the «**C**» key has been pressed.

4.7.5 Resetting the communication settings ("Communication Reset")

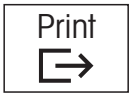
In the "C-Reset" ("Communication Reset") block, you can reset all the settings in the "COMMUNICATION" block to the factory settings.



To reset the settings, press the «**Print**» ("Yes") key. If you do not wish to reset the settings, press «**Tare**» ("No") instead.



You are asked again whether you really want to reset the settings in the "COMMUNICATION" block.

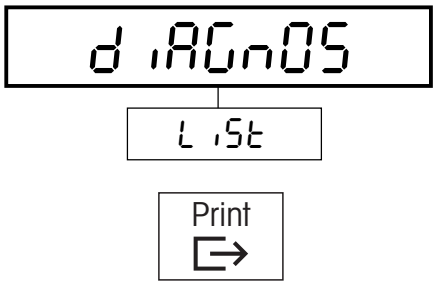


If you want to reset, press the «**Print**» ("Yes") key again. Otherwise press the «**Tare**» ("No") key. This is your last chance to cancel the reset.

When you press the «**Print**» key as confirmation, all the settings in the "COMMUNICATION" block are reset and the scale immediately operates with the factory settings.

4.8 Printing out the settings ("DIAGNOSTICS" block)

In this main block you can print out your settings on a printer.



The "DIAGNOSTICS" main block has only one subblock:

Print the settings.

To print out the settings on a printer, press the «**Print**» key.

Shown below is an example of a printout with the factory settings.

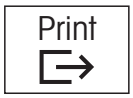
```
Sw. ver D-1.00
SCALE 1
  SNR           :      99
  MEtrOLO       : nOnE
  buiLd
    CAP         :  6.000 lb
    rESOLu      :  0.002 lb
  GEO           : 16
  UNIT
    DiSPLAy     : lb
    2nd         : kg
  tArE
    Pb-tArE     : On
    ChAin       : On
    A-tArE      : OFF
    A.CL-tr     : OFF
  ZErO
    AZM         : On
    A-CAPt      : 10 %
    Pb-ZErO     : 10 %
  FiLtEr        : MEd
APPLiC
  Count
    PrOMPt      : tr-SPL
    VAr-SPL     : On
    SPL-qty   1: 5
    SPL-qty   2: 10
    SPL-qty   3: 15
    SPL-qty   4: 20
    SPL-qty   5: 25
    Min-SPL     : 0.1
    A-SMPL      : OFF
    A.CL-APW    : OFF
    ACCurCy     : OFF
    APW-Enh     : MAnuAL
  ACCuM         : COunt
  rECALL
    1St         : APW
    2nd         : ACCurCy
    3rd         : tArE
    4th         : tOtAL
    5th         : nOt.uSEd
    6th         : nOt.uSEd
tErMinL
  dEViCE
    SLEEP       : OFF
    b-LiGht     : On
    bEEPEr      : OFF
```

```
    dAt-tiM
      DAtE.FOr    : US
      DAtE        : 12-08-2000
      tiME        : 03-22-18 PM
      AM.PM       : PM
      tiMEOUt     : 0
    GrAPh         : On
    ACCESS
      uSEr        : On
      SuPEr       : On
COMM
  MOdE
    OutPut    1: Print
    inPut     1: XOn.XOFF
  PArAMS
    bAud      1: 9600
    PArity    1: 7 EVEn
    ChECSuM   1: OFF
  FOrMAt
    Ln FOr    1: MuLti
    FiELd-1   1: dAtE
    FiELd-2   1: GrOSS
    FiELd-3   1: tArE
    FiELd-4   1: nEt
    FiELd-5   1: COunt
    FiELd-6   1: nOt.uSEd
    FiELd-7   1: nOt.uSEd
    FiELd-8   1: nOt.uSEd
    Ln-FEEd   1: 0
  MOdE
    OutPut    2: Print
    inPut     2: XOn.XOFF
  PArAMS
    bAud      2: 9600
    PArity    2: 7 EVEn
    ChECSuM   2: OFF
  FOrMAt
    Ln FOr    2: MuLti
    FiELd-1   2: dAtE
    FiELd-2   2: GrOSS
    FiELd-3   2: tArE
    FiELd-4   2: nEt
    FiELd-5   2: COunt
    FiELd-6   2: nOt.uSEd
    FiELd-7   2: nOt.uSEd
    FiELd-8   2: nOt.uSEd
    Ln-FEEd   2: 0
  COntrOL
    A-Print     : OFF
    intrLOC     : OFF
```

4.9 Saving the settings and quitting the setup mode ("END" block)

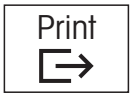
In the last main block, you can save your settings and quit the setup mode. **Note**: Whenever you press the «**C**» key at any point in setup, you return directly to this block.

To save your settings and quit the setup mode, proceed as follows:



Press the «**Print**» ("Yes") key to confirm that you want to quit the setup mode.

You are then asked whether you want to save the changed settings.



Press the «**Print**» ("Yes") key to save the settings, or if you want to reject the changes you have made, press the «**Tare**» ("No") key instead.

The scale then returns to weighing mode.

4.10 Setup overview

Shown below is an overview of the complete setup mode of your Viper scale. The factory settings are marked with an asterisk (*).

Level 1	*Level 2*	*Level 3*	*Level 4*	*Level 5*
SCALE	Scale 1	Units	Displayed	lb*, g, kg, oz [1]
			2nd	lb, g, kg*, oz [1]
		Tare	Pushbutton	On*, Off
			Chain Tare [2]	On*, Off
			Auto Tare	On, Off*
			Auto Clear Tare	On, Off*
		Zero	Auto Zero Mode (AZM)	On*, Off
			Auto Capture	±2%, ±10%*, Off
			Pushbutton Zero	±2%, ±10%*, +20/–2%, Off
		Filtering	Low, Medium*, High	
		SCALE Reset	Sure?	
	Scale 2	Scale Type	Analog [3], SICS, None*	
		Mode	Reference, Bulk*	
APPLICATION	Count	Prompting	Off, Tare-Sample*, Sample-Tare	
		Variable Sample	On*, Off	
		Sample Quantity	S1 = 0 - 100 (05*) S2 = 0 - 100 (10*) S3 = 0 - 100 (15*) S4 = 0 - 100 (20*) S5 = 0 - 100 (25*)	
		Minimum Sample	0.1%*, 0.2%, 0.5%, Off	
		Auto Sample	On, Off*	
		Auto Clear APW	On, Off*	
		% Accuracy	On, Off*	
		APW Enhance	Auto, Manual*, Off	
	Accumulation	Off, Gross, Net, Display, Count*		
	Recall	First	APW*, % Accuracy, Tare, Gross, Net, Total, ID, Date, Time, Not Used	
		Second	APW, % Accuracy*, Tare, Gross, Net, Total, ID, Date, Time, Not Used	
		Third	APW, % Accuracy, Tare*, Gross, Net, Total, ID, Date, Time, Not Used	
		Fourth	APW, % Accuracy, Tare, Gross, Net, Total*, ID, Date, Time, Not Used	
		Fifth	APW, % Accuracy, Tare, Gross, Net, Total, ID, Date, Time, Not Used*	
		Sixth	APW, % Accuracy, Tare, Gross, Net, Total, ID, Date, Time, Not Used*	
	APPLIC- Reset	Sure?		

Continued on next page

Level 1	*Level 2*	*Level 3*	*Level 4*	*Level 5*
TERMINAL	Device	Sleep	On [4], Off*	
		Backlight	On*, Off	
		Beeper	On, Off*	
	Date/Time	Format	US*, EU	
		Date	[Enter date]	
		Time	[Enter time]	
		AM/PM	AM, PM [5]	
	Bargraph	On*, Off		
	Access	User	On*, Off	
		Codes	Supervisor Code	Enter code [6] Retype code
COMMUNICATION	Port 1/2	Mode	Output	Print*, Cont. Weight, Cont. Count, SICS, Scale [7]
			Input [8]	Command, Handshake*, Off
		Parameters	Baud	300, 600, 1200, 2400, 4800, 9600*, 19200
			Bits/Parity	7/even*, 7/none, 8/none, 7/odd,
			Checksum [9]	On, Off*
		Format [10]	Line	Multiple*, Single
			Field 1	Date*, Separator Line, Gross, Tare, Net, Display, Sample Qty., APW, Accuracy, Count, Scale ID, Spaces, Not Used, Total, ID, Date/Time
			Field 2	Date, Separator Line, Gross*, Tare, Net, Display, Sample Qty., APW, Accuracy, Count, Scale ID, Spaces, Not Used, Total, ID, Date/Time
			Field 3	Date, Separator Line, Gross, Tare*, Net, Display, Sample Qty., APW, Accuracy, Count, Scale ID, Spaces, Not Used, Total, ID, Date/Time
			Field 4	Date, Separator Line, Gross, Tare, Net*, Display, Sample Qty., APW, Accuracy, Count, Scale ID, Spaces, Not Used, Total, ID, Date/Time
			Field 5	Date, Separator Line, Gross, Tare, Net, Display, Sample Qty., APW, Accuracy, Count*, Scale ID, Spaces, Not Used, Total, ID, Date/Time
			Field 6	Date, Separator Line, Gross, Tare, Net, Display, Sample Qty., APW, Accuracy, Count, Scale ID, Spaces, Not Used*, Total, ID, Date/Time
			Field 7	Date, Separator Line, Gross, Tare, Net, Display, Sample Qty., APW, Accuracy, Count, Scale ID, Spaces, Not Used*, Total, ID, Date/Time
			Field 8	Date, Separator Line, Gross, Tare, Net, Display, Sample Qty., APW, Accuracy, Count, Scale ID, Spaces, Not Used*, Total, ID, Date/Time
			Extra Line Feeds	0*, 1, 2, 3, 4, 5, 6, 7, 8, 9
		Control	Auto Print	On, Off*
			Print Interlock	On, Off*
		COMM Reset	Sure?	
DIAGNOSTICS	List			
END	Save?			

See notes on next page

Notes to menu overview (see previous pages)

1) On certified scales only "lb" and "kg" are available.
2) On certified scales this block is not available.
3) After this option has been activated, the same settings are available as for "Scale 1".
4) Factory setting for battery-operated scales.
5) Only available if the time/date format was set to "US".
6) Factory setting for the supervisor code is «**Zero**» «**Zero**» «**Zero**».
7) Setting not available if the second scale is connected to the optional analog interface.
8) This block is not available if "SICS" or "Scale" has been selected in the "Output" block.
9) This block is only available if either "Continuous Weight" or "Continuous Count" has been set in the "Output" block.
10) This block is only available if "Print" has been set in the "Output" block.

5 Additional important information

In this chapter, you will find information about the interface commands, error messages, and cleaning your scale.

5.1 SICS interface commmands

Your scale can be configured, queried, and operated from a computer via the RS232C interface.

5.1.1 Preconditions for communication between scale and computer

For communication between the scale and a computer, the following preconditions must be fulfilled:

- The scale must be connected to the RS232C interface of a computer by a suitable cable (Section 6.4).
- The interface of the scale must be set to "SICS" mode (Section 4.7.1).
- The computer must have a terminal program (e.g. "Hyper Terminal") installed on it.
- The communication parameters (data transmission rate, bits, and parity) in the computer terminal program must be set to the same values as on the scale (Section 4.7.2).

5.1.2 SICS standard commands supported by Viper

Your scale supports the **M**ETTLER **T**OLEDO **S**tandard **I**nterface **C**ommand **S**et **(MT-SICS**). All SICS "**Level 0**" and "**Level 1**" commands are implemented. You will find detailed information about the interface commands in the **MT SICS Reference Manual** (available in English only, ME-705184).

Besides the standard commands, there are also **scale-specific SICS commands** which support specific characteristics of the product. These commands are not listed in the MT SICS Reference Manual, but in the documentation of the specific scale. Your Viper scale currently supports one single specific command for defining and inquiring the reference piece weight. This command is described below.

5.1.3 Scale-specific SICS command for defining and inquiring the reference piece weight

You can use the scale-specific "**PW**" command to define and inquire the reference piece weight. To do this, proceed as follows:

Check that the communication between the scale and the computer is functioning.

The command for defining the reference piece weight is **PW_x**, where "x" is the reference piece weight. Specify the desired piece weight as shown in the example below:

PW_0.24_lb <CR><LF> (sets the reference piece weight to 0.24 lb)

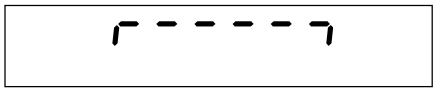
Note the following:

- Each SICS command line must be terminated with **<CR><LF>** (depending on the computer keyboard being used, this is the "Enter", "Return" or "↵" key). The command will then be immediately executed and confirmed (in the example above with PW_A0.240000_lb).
- The "_" character in the example above represents a blank, and is used only for clarity.
- By entering **PW<CR><LF>** you can inquire the reference piece weight stored on the scale. For the example above, the answer would be PW_A0.240000_lb.

When you have finished specifying the reference piece weight (and if you do not wish to execute any further SICS commands), you can terminate the connection between the scale and the computer. **Important**: Reset the scale interface to the desired setting (e.g. to "Print", if you have connected it to a printer).

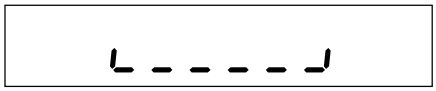
5.2 Warning and error messages

In this section you will find general error messages together with instructions for correcting their causes. Messages which may occur in relation to piece counting are described in Section 3.7.



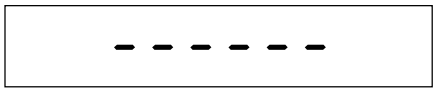
Overload

Reduce the load on the scale or reduce the preload.



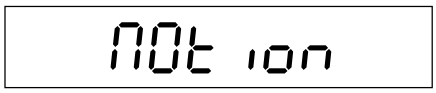
Underload

Place the weighing pan on the scale and ensure it can move freely.



Result not stable

This message always appears if the scale has not yet become stable (when zeroing, taring, etc.) so it is not a true error message. If the balance still does not become stable after a long time, the "Motion" message described below appears.

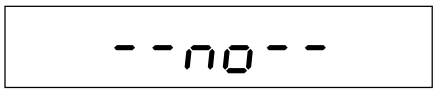


Stability not possible ("Motion")

While zeroing, taring, or determining the reference, stability was not attained even after a long time.

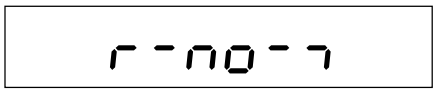
1. Ensure that the surroundings are stable.
2. Ensure that the weighing pan can move freely.
3. Change the filter setting (Section 4.4.4).

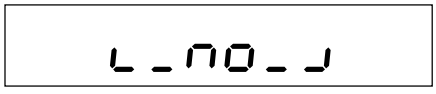
This message can also occur when totaling after the «**+**» or «**–**» minus key is pressed. In most cases it is enough to wait a few seconds and then press the respective key again.



Function not allowed

The requested function could not be executed. This is usually because an attempt was made to execute the function at a time when it is not allowed (e.g. determining the reference before taring the balance). If this message occurs while totaling, it means the scale was not unloaded before the next lot was weighed in or counted in. In this case, the scale must be unloaded before the «**+**» or «**–**» key is pressed.





Zeroing not possible

Make sure that zeroing is being performed in the allowed range and not with overload or underload.

no2ndSC

Error messages on two-scale systems

The message "no second scale" occurs only on two-scale systems. It indicates that the second scale was not found. Check the following:

- Is the second scale switched on?
- Is the correct cable being used for connecting the two scales, and is it correctly plugged in?
- Are the interfaces of the two scales correctly configured, and do they correspond to the communication parameters (Section 4.7)?
- Is the second scale correctly configured in the setup of the Viper scale (Sections 4.4.6 and 4.7.1)?

Even when the fault has been corrected, the message may not disappear automatically because the Viper balance only checks the communication when it switches over to the second scale. In this case, press the «**Scale**» key to switch between the scales. When the second scale is selected again, the error message should no longer appear.

tEY Err

Keyboard error

There is a problem with the keyboard. Contact the service technician or your authorized METTLER TOLEDO representative.

t iMEOUt

Timeout

The service technician set a time limit for using your scale, which has now expired. Contact the service technician or your authorized METTLER TOLEDO representative.

Err 6

Not calibrated/adjusted

Disconnect the power supply plug and reconnect it (or if the scale is battery-operated, switch it off and then on again). If the message appears again, have the scale calibrated/adjusted by a service technician.

Err 53

EAROM checksum error

Disconnect the power supply plug and reconnect it (or if the scale is battery-operated, switch the scale off and then on again). If the message reappears, contact your authorized METTLER TOLEDO representative.

5.3 Cleaning instructions

Before you start to clean your scale, disconnect it from the power supply!

Use a moist cloth (no acids, caustics, or strong solvents).

Do not use abrasive cleaning agents, they can scratch the display.

Do not clean the scale with a high-pressure cleaner or under running water.

If heavily soiled, remove the weighing pan, protective cover (if present), and leveling feet, and clean them separately.

Never insert a rigid object under the load plate support when the weighing pan is removed!

Observe all applicable regulations with regard to cleaning intervals and permitted cleaning agents.

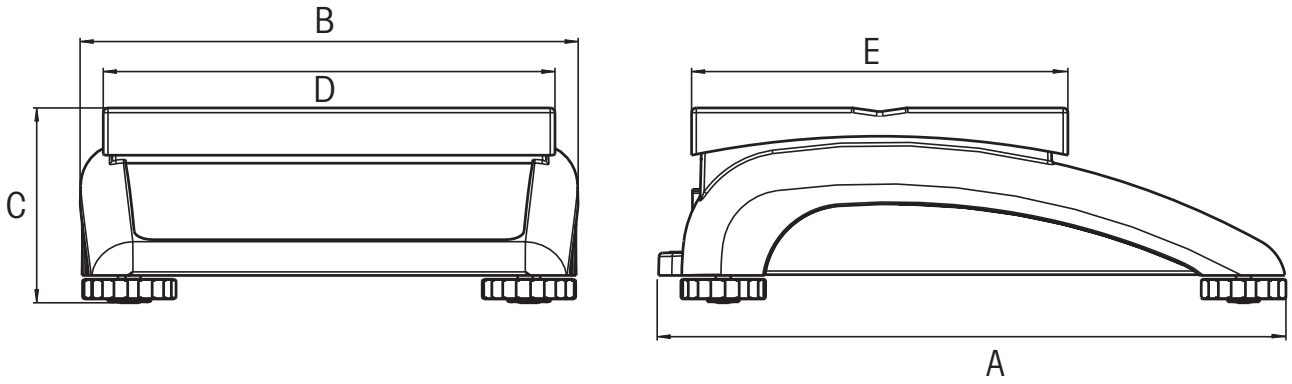
6 Technical data and accessories

In this chapter you will find technical specifications for your scale, information about standards and directives, and a list of currently available accessories.

6.1 Technical data

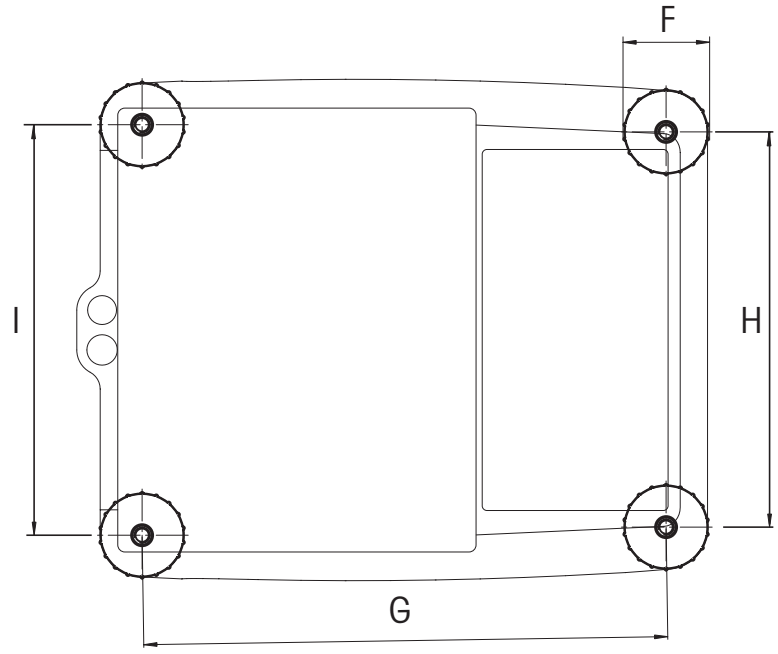
Functions	Weighing Piece counting / Piece counting with second balance Totaling Numerical input of tare weights, reference piece weights, and reference piece counts
Settings	4 weighing units (with switchover between two active units) Adding mode for reference determination (piece counting) Manual or automatic reference determination Variable reference piece count, selectable minimum weight Manual or automatic reference optimization (piece counting) Selectable operating sequence for piece counting Filter for adaptation to environmental conditions Automatic taring, multiple taring, automatic tare clearance Automatic zeroing (at switch-on and during operation) Switch-off function Programmable information fields and identifications Date and time Beeper Display backlighting Graphical weighing range display
Display	Liquid crystal display (LCD), 35 mm high, backlit, with linear weighing range display
Environmental conditions	Performance is guaranteed in the following ranges: Temperature range: 14 ... 104 °F (–10 ... +40 °C) for scales with strain gauge cells 50 ... 86 °F (+10 ... +30 °C) for scales with MonoBloc cells Relative air humidity: 15 ... 85% rh (noncondensing) Overvoltage category: II Pollution degree: 2
Power supply	Direct connection to power supply or via AC adapter: 120 V, 60 Hz, 90 mA Note: Viper D scales are specifically designed for the U.S. and Canadian markets. When battery-operated with AC adapter, power supply to scale: 13.5 VAC, 450 mA
Total weight	Compact model: Power-supply operated: Strain gauge cell 10.2 lb (4.6 kg), MonoBloc cell 10.4 lb (4.7 kg) Compact model: Battery-operated: Strain gauge cell 11.5 lb (5.2 kg), MonoBloc cell 11.7 lb (5.3 kg) Large model: Power-supply operated: Strain gauge cell 18.1 lb (8.2 kg), MonoBloc cell 23.1 lb (10.5 kg) Large model: Battery-operated: Strain gauge cell 19.4 lb (8.8 kg), MonoBloc cell 24.5 lb (11.1 kg)
Standard delivery package	Complete scale Operating instructions AC adapter (for battery-operated version)

6.2 Dimensions



	A	B	C*	D	E
Compact model	13.19 in (335 mm)	10.43 in (265 mm)	3.94 in (100 mm)	9.45 in (240 mm)	7.87 in (200 mm)
Large model	14.56 in (370 mm)	14.17 in (360 mm)	4.53 in (115 mm)	13.78 in (350 mm)	9.45 in (240 mm)

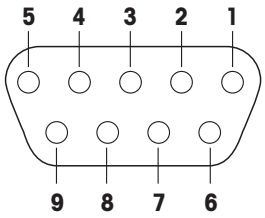
* with leveling feet completely screwed in



	F	G	H	I
Compact model	1.81 in (46 mm)	10.87 in (276 mm)	8.19 in (208 mm)	8.46 in (215 mm)
Large model	2.05 in (52 mm)	12.24 in (311 mm)	12.01 in (305 mm)	12.24 in (311 mm)

6.3 Interface specifications

Viper scales can be supplied with either 1 or 2 interfaces.



Standard Viper scales are fitted with one voltage interface according to EIA RS-232C/ DIN 66020 (CCITT V24/V.28, maximum cable length 50 ft / 15 m). As an option, Viper scales are also available with 2 interfaces. The corresponding interface boards replace the standard interface. An analog interface is also available instead of an RS232C interface. All interfaces have a 9-pin sub-D socket (female).

The illustration at left shows the numbering of the individual pins (looking onto the socket). The pin designations for the different interfaces are shown in the following tables.

Standard interface

Interface type:	**RS232C**
Pin 1	VCC (voltage +5V)
Pin 2	TxD (transmit data)
Pin 3	RxD (receive data)
Pin 4	Not available for connection
Pin 5	Signal ground GND
Pin 6	Not available for connection
Pin 7	Not available for connection
Pin 8	Not available for connection
Pin 9	VCC (voltage +5V)

Optional: 2 RS232C interfaces

Interface no./type:	**Interface 1/RS232C**	**Interface 2/RS232C**
Pin 1	Not used	Not used
Pin 2	TxD 1 (transmit data)	TxD 2 (transmit data)
Pin 3	RxD 1 (receive data)	RxD 2 (receive data)
Pin 4	Not used	Not used
Pin 5	Signal ground GND	Signal ground GND
Pin 6	Not used	Not used
Pin 7	Not used	Not used
Pin 8	Not used	Not used
Pin 9	VCC 1 (voltage +5V)	VCC 2 (voltage +5V)

Optional: 1 RS232C interface and 1 analog interface

Interface no./type:	Interface 1/RS232C	Interface 2/analog
Pin 1	VCC 1 (voltage +5V)	+ Excitation (+8.2 V)
Pin 2	TxD 1 (transmit data)	+ Sense
Pin 3	RxD 1 (receive data)	Shield
Pin 4	Not available for connection	– Sense
Pin 5	Signal ground GND	– Excitation (GND)
Pin 6	Not available for connection	Not used
Pin 7	Not available for connection	+ Signal
Pin 8	Not available for connection	– Signal
Pin 9	Not available for connection	Not used

6.4 Accessories

You can order the following accessories from your authorized METTLER TOLEDO representative:

Accessory	Art. no.
Protective cover for compact model	21203207
Protective cover for large model	21203206
Antitheft device with bolts	00229175
Antitheft device (steel cord with lock)	00590101

Interface cables for peripheral devices (computer, printer, etc.) see current price-list.

6.5 Standards and directives

Your Viper scale conforms to the standards and directives stated below.

6.5.1 Safety regulations

The manufacturer of this product declares with sole responsibility that the product to which this declaration relates conforms to the following standards:

Scale line: Viper D

Designation	Tested according to standard
	IEC/EN61010-1 Safety Requirements IEC/EN61326-1 Class B Emission

6.5.2 Weights and Measures Approval for certified scales

U.S. and Canadian Weights and Measures approvals are pending.

6.5.3 FCC Compliance

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to both Part 15 of the FCC Rules and the radio interference regulations of the Canadian Department of Communications. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

6.5.4 Canadian Radio Interference Regulations

ICES-001 Notice for Industrial, Scientific and Medical Radio Frequency Generators:
This ISM apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.
Please note that this requirement is only for generators which operate at over 10 000 Hz.

Avis de l'ICES-001, générateurs de radiofréquences dans le domaine industriel, scientifique et médical:
Cet appareil ISM (industriel, scientifique et médical) satisfait à toutes les exigences définies par la réglementation canadienne en matière d'équipements générant des perturbations radioélectriques.
Veuillez noter qu'il s'agit d'une exigence concernant uniquement les générateurs fonctionnant au-delà de 10 000 Hz.

To protect your METTLER TOLEDO product's future:
METTLER TOLEDO service assures the quality, measuring accuracy and preservation of value of all METTLER TOLEDO products for years to come.
Please send for full details about our attractive terms of service.
Thank you.

Subject to technical changes and availability of the accessories supplied with the instruments.

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