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# Operating instructions Touch screen-Industrial Balance

## KERN FKT / IKT

Version 2.0  
09/2010  
GB





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## Operating instructions

### Touch screen-Industrial Balance

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# 1 Technical Data

## Models FKT:

KERN	FKT 6K0.02	FKT 6K0.05	FKT 12K0.05
Readability (d)	0.02 g	0.05 g	0.05 g
Weighing range (max)	6 100 g	6 100 g	12 100 g
Taring range (subtractive)	6 100 g	6 100 g	12 100 g
Reproducibility	0.04 g	0.05 g	0.05 g
Linearity	±0.1 g	±0,15 g	±0.15 g
Smallest piece weight	0.02 g	0.05 g	0.05 g
Adjustment points	2/5/6 kg	2/5/6 kg	2/5/10/12 kg
Recommended adjusting weight F1 (not supplied)	5 kg	5 kg	10 kg
Humidity of air	max. 80% rel. (non-condensing)		
Stabilization time (typical)	3 sec.		
Allowable ambient temperature	+10 °C ... + 40 °C		
Housing (B x D x H) mm	270 x 345 x 106		
Vibration filter	yes		
Weighing plate stainless steel mm	253 x 228		
Units	see menu		
Weight kg (net)	3.3		
Data interface	yes (RS232)		

<b>KERN</b>	<b>FKT 12K0.1</b>	<b>FKT 24K0.1</b>	<b>FKT 24K0.2</b>
Readability (d)	0.1 g	0.1 g	0.2 g
Weighing range (max)	12 100 g	24 100 g	24 100 g
Taring range (subtractive)	12 100 g	24 100 g	24 100 g
Reproducibility	0.1 g	0.1 g	0.2 g
Linearity	±0.3 g	±0.3 g	±0.6 g
Smallest piece weight	0.1 g	0.1 g	0.2 g
Adjustment points	2/5/10/12 kg	5/10/15/20/24 kg	5/10/15/20/24 kg
Recommended adjusting weight F1 (not supplied)	10 kg	20 kg	20 kg
Humidity of air	max. 80% rel. (non-condensing)		
Stabilization time (typical)	3 sec.		
Allowable ambient temperature	+10 °C ... + 40 °C		
Housing (B x D x H) mm	270 x 345 x 106		
Vibration filter	yes		
Weighing plate stainless steel mm	253 x 228		
Units	see menu		
Weight kg (net)	3.3		
Data interface	yes (RS232)		

<b>KERN</b>	<b>FKT 6K0.02L</b>	<b>FKT 16K0.05L</b>	<b>FKT 16K0.1L</b>	<b>FKT 36K0.1L</b>
Readability (d)	0.02 g	0.05 g	0.1 g	0.1 g
Weighing range (max)	6 100 g	16 100 g	16 100 g	36 100 g
Taring range (subtractive)	6 100 g	16 100 g	16 100 g	36 100 g
Reproducibility	0.04 g	0.1 g	0.1 g	0.2 g
Linearity	±0.1 g	±0.25 g	±0.3 g	±0.5 g
Smallest piece weight	0.02 g	0.05 g	0.1 g	0.1 g
Adjustment points	2/4/5/6 kg	5/10/15/16 kg	5/10/15/16 kg	10/20/30/36 kg
Recommended adjusting weight F1 (not supplied)	5 kg	10 kg + 5 kg	10 kg + 5 kg	20 kg + 10 kg
Humidity of air	max. 80% rel. (non-condensing)			
Stabilization time (typical)	3 sec.			
Permitted environmental temperature	+10 °C ... + 40 °C			
Housing (B x D x H) mm	350 x 390 x 120			
Vibration filter	yes			
Weighing plate stainless steel mm	340 x 240			
Units	see menu			
Weight kg (net)	6.5			
Data interface	yes (RS232)			

<b>KERN</b>	<b>FKT 36K0.2L</b>	<b>FKT 65K0.2L</b>	<b>FKT 65K0.5L</b>
Readability (d)	0.2 g	0.2 g	0.5 g
Weighing range (max)	36 100 g	65 100 g	65 100 g
Taring range (subtractive)	36 100 g	65 100 g	65 100 g
Reproducibility	0.2 g	0.4 g	0.5 g
Linearity	±0.6 g	± 1.0 g	± 1.5 g
Smallest piece weight	0.2 g	0.2 g	0.5 g
Adjustment points	10/20/30/36 kg	20/30/50/60 kg	20/30/50/60 kg
Recommended adjusting weight F1 (not supplied)	20 kg + 10 kg	50 kg	50 kg
Humidity of air	max. 80% rel. (non-condensing)		
Stabilization time (typical)	3 sec.		
Allowable ambient temperature	+10 °C ... + 40 °C		
Housing (B x D x H) mm	350 x 390 x 120		
Vibration filter	yes		
Weighing plate stainless steel mm	340 x 240		
Units	see menu		
Weight kg (net)	6,5		
Data interface	yes (RS232)		

**Models IKT:**

<b>KERN</b>	<b>IKT 3K0.01S</b>	<b>IKT 10K0.1S</b>	<b>IKT 8K0.05</b>
Readability (d)	0.01 g	0.1 g	0.05 g
Weighing range (max)	3 100 g	10 100 g	8 100 g
Taring range (subtractive)	3 100 g	10 100 g	8 100 g
Reproducibility	0.02 g	0.1 g	0.05 g
Linearity	±0.05 g	±0.3 g	±0.15 g
Smallest piece weight	0.01 g	0.1 g	0.05 g
Adjustment points	1/2/3 kg	2/5/10 kg	2/4/5/7/8 kg
Recommended adjusting weight F1 (not supplied)	3 kg	10 kg	5 kg + 2 kg
Humidity of air	max. 80% rel. (non-condensing)		
Stabilization time (typical)	3 sec.		
Allowable ambient temperature	+10 °C ... + 40 °C		
Housing (B x D x H) mm	228 x 228 x 70	228 x 228 x 70	315 x 305 x 70
Vibration filter	yes		
Weighing plate stainless steel mm	228 x 228	228 x 228	315 x 305
Units	see menu		
Weight kg (net)	5,5	5,5	7,5
Data interface	yes (RS232)		

<b>KERN</b>	<b>IKT 16K0.1</b>	<b>IKT 30K0.1</b>	<b>IKT 36K0.2</b>
Readability (d)	0.1 g	0.1 g	0.2 g
Weighing range (max)	16 100 g	30 100 g	36 100 g
Taring range (subtractive)	16 100 g	30 100 g	36 100 g
Reproducibility	0.1 g	0.2 g	0.2 g
Linearity	±0.3 g	±0.5 g	±0.6 g
Smallest piece weight	0.1 g	0.1 g	0.2 g
Adjustment points	5/10/15/16 kg	10/15/20/30 kg	10/15/20/30/36 kg
Recommended adjusting weight F1 (not supplied)	10 kg + 5 kg	20 kg + 10 kg	20 kg + 10 kg
Humidity of air	max. 80% rel. (non-condensing)		
Stabilization time (typical)	3 sec.		
Allowable ambient temperature	+10 °C ... + 40 °C		
Housing (B x D x H) mm	315 x 305 x 70		
Vibration filter	yes		
Weighing plate stainless steel mm	315 x 305		
Units	see menu		
Weight kg (net)	7,5		
Data interface	yes (RS232)		

<b>KERN</b>	<b>IKT 30K0.1L</b>	<b>IKT 36K0.2L</b>	<b>IKT 60K0.2L</b>
Readability (d)	0.1 g	0.2 g	0.2 g
Weighing range (max)	30 100 g	36 100 g	60 100 g
Taring range (subtractive)	30 100 g	36 100 g	60 100 g
Reproducibility	0.2 g	0.2 g	0.4 g
Linearity	±0.5 g	±0.6 g	±1.0 g
Smallest piece weight	0.1 g	0.2 g	0.2 g
Adjustment points	10/15/20/30 kg	10/15/20/30/36 kg	20/30/50/60 kg
Recommended adjusting weight F1 (not supplied)	20 kg + 10 kg	20 kg + 10 kg	50 kg
Humidity of air	max. 80% rel. (non-condensing)		
Stabilization time (typical)	3 sec.		
Allowable ambient temperature	+10 °C ... + 40 °C		
Housing (B x D x H) mm	450 x 350 x 115		
Vibration filter	yes		
Weighing plate stainless steel mm	450 x 350		
Units	see menu		
Weight kg (net)	7,5		
Data interface	yes (RS232)		

<b>KERN</b>	<b>IKT 65K0.5L</b>	<b>IKT 100K0.5L</b>	<b>IKT 150K1L</b>
Readability (d)	0.5 g	0.5 g	1 g
Weighing range (max)	65 100 g	101 000 g	151 000 g
Taring range (subtractive)	65 100 g	101 000 g	151 000 g
Reproducibility	0.5 g	0.5 g	1 g
Linearity	±1,5 g	±1,5 g	±3 g
Smallest piece weight	0.5 g	0.5 g	1 g
Adjustment points	20/30/50/60 kg	20/50/100 kg	50/100/150 kg
Recommended adjusting weight F1 (not supplied)	50 kg	50 kg + 50 kg	3 x 50 kg
Humidity of air	max. 80% rel. (non-condensing)		
Stabilization time (typical)	3 sec.		
Allowable ambient temperature	+10 °C ... + 40 °C		
Housing (B x D x H) mm	450 x 350 x 115		
Vibration filter	yes		
Weighing plate stainless steel mm	450 x 350		
Units	see menu		
Weight kg (net)	7,5		
Data interface	yes (RS232)		

## 2 Basic Information (General)

It is absolutely necessary that you read and understand the operating instructions prior to installation and commissioning and follow the instructions during the process!

### 2.1 Proper use

The balance you purchased is intended to determine the weighing value of material to be weighed. It is intended to be used as a “non-automatic“ balance, i.e. the material to be weighed is manually and carefully placed in the centre of the weighing plate. As soon as a stable weighing value is reached the weighing value can be read.

### 2.2 Improper Use

Do not use balance for dynamic weighing. In the event that small quantities are removed or added to the material to be weighed, incorrect weighing results can be displayed due to the “stability compensation“ in the balance (Example: Slowly draining fluids from a container on the balance.).

Do not leave permanent load on the weighing plate. This may damage the measuring system.

Impacts and overloading exceeding the stated maximum load (max) of the balance, minus a possibly existing tare load, must be strictly avoided. Balance may be damaged by this.

Never operate balance in explosive environment. The serial version is not explosion protected.

The structure of the balance may not be modified. This may lead to incorrect weighing results, safety-related faults and destruction of the balance.

The balance may only be used according to the described conditions. Other areas of use must be released by KERN in writing.

### 2.3 Warranty

Warranty claims shall be voided in case

- Our conditions in the operation manual are ignored
- The appliance is used outside the described uses
- The appliance is modified or opened
- mechanical damage and damage caused by media, liquids
- natural wear and tear
- The appliance is improperly set up or incorrectly electrically connected
- The measuring system is overloaded

### 2.4 Monitoring of Test Resources

In the framework of quality assurance the measuring-related properties of the balance and, if applicable, the testing weight, must be checked regularly. The responsible user must define a suitable interval as well as type and scope of this test. Information is available on KERN's home page ([www.kern-sohn.com](http://www.kern-sohn.com)) with regard to the monitoring of balance test substances and the test weights required for this. Our accredited DKD calibration laboratory offers fast and inexpensive adjustment for test weights and weighing balances (reset to national normal weight).

### 3 Basic Safety Precautions

#### 3.1 Pay attention to the instructions in the Operation Manual



Carefully read this operation manual before setup and commissioning, even if you are already familiar with KERN balances.

#### 3.2 Personnel training

The appliance may only be operated and maintained by trained personnel.

### 4 Transportation & Storage

#### 4.1 Testing upon acceptance

When receiving the appliance, please check packaging immediately, and the appliance itself when unpacking for possible visible damage.

In case of visible damage have the damage verified by the messenger's signature. Do not alter goods or packaging and do not remove any parts of the delivery. Report the damage immediately (within 24 hours) in writing to the parcel service.

#### 4.2 Packaging / return transport



- ⇒ Keep all parts of the original packaging for a possibly required return.
- ⇒ Only use original packaging for returning.
- ⇒ Prior to dispatch disconnect all cables and remove loose/mobile parts.
- ⇒ Reattach possibly supplied transport securing devices.
- ⇒ Secure all parts such as the glass wind screen, the weighing platform, power unit etc. against shifting and damage.

## 5 Unpacking, Setup and Commissioning

### 5.1 Installation Site, Location of Use

The balances are designed in a way that reliable weighing results are achieved in common conditions of use.

You will work accurately and fast, if you select the right location for your balance.

**Therefore, observe the following for the installation site:**

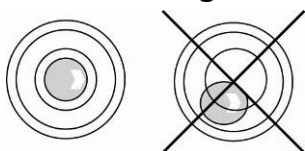
- Place the balance on a firm, level surface;
- Avoid extreme heat as well as temperature fluctuation caused by installing next to a radiator or in the direct sunlight;
- Protect the balance against direct draughts due to open windows and doors;
- Avoid jarring during weighing;
- Protect the balance against high humidity, vapors and dust;
- Do not expose the device to extreme dampness for longer periods of time. Non-permitted condensation (condensation of air humidity on the appliance) may occur if a cold appliance is taken to a considerably warmer environment. In this case, acclimatize the disconnected appliance for ca. 2 hours at room temperature.
- Avoid static charging of the material to be weighed, weighing container and windshield.

If electro-magnetic fields or static charge occur, or if the power supply is unstable major deviations on the display (incorrect weighing results) are possible. In that case, the location must be changed.

### 5.2 Unpacking

Carefully remove the balance from the packaging, remove plastic cover and setup balance at the intended workstation.

#### 5.2.1 Placing



Level balance with foot screws until the air bubble of the water balance is in the prescribed circle.

### 5.3 Mains connection

Power is supplied via the external mains adapter. The stated voltage value must be the same as the local voltage.

Only use original KERN mains adapters. Using other makes requires consent by KERN.

### 5.4 Connection of peripheral devices

Before connecting or disconnecting of additional devices (printer, PC) to the data interface, always disconnect the balance from the power supply. With your balance, only use accessories and peripheral devices by KERN, as they are ideally tuned to your balance.

### 5.5 Initial Commissioning

A warming up time of 2 hours after switching on stabilizes the measuring values.

The accuracy of the balance depends on the local acceleration of gravity.

Strictly observe hints in chapter "Adjustment".

## 5.6 Adjustment

As the acceleration value due to gravity is not the same at every location on earth, each balance must be coordinated - in compliance with the underlying physical weighing principle - to the existing acceleration due to gravity at its place of location (only if the balance has not already been adjusted to the location in the factory). This adjustment process must be carried out during the initial start-up, after change in location and variation of surrounding temperature. To receive accurate measuring values it is also recommended to adjust the balance periodically in weighing operation.

## 5.7 Adjustment

With an adjustment weight, the weighing accuracy can be checked and re-adjusted at any time.

**Attention:** In the verified balances the adjustment is not possible.

### **Procedure when adjusting:**

Observe stable environmental conditions. A short warming up time of ca. 15 minutes is recommended for stabilization.

## 5.8 Verification

### General introduction:

According to EU directive 90/384/EEC balances must be verified if they are used as follows (legally controlled area):

- a) For commercial transactions if the price of goods is determined by weighing.
- b) For the production of medicines in pharmacies as well as for analyses in the medical and pharmaceutical laboratory.
- c) For official purposes
- d) For manufacturing final packages

In cases of doubt, please contact your local trade in standard.

### Verification instructions

An EU type approval exists for balances described in their technical data as verifiable. If a balance is used where obligation to verify exists as described above, it must be verified and re-verified in regular intervals.

Re-verification of a balance is carried out according to the respective national regulations. The validity for verification of balances in Germany is e.g. 2 years.

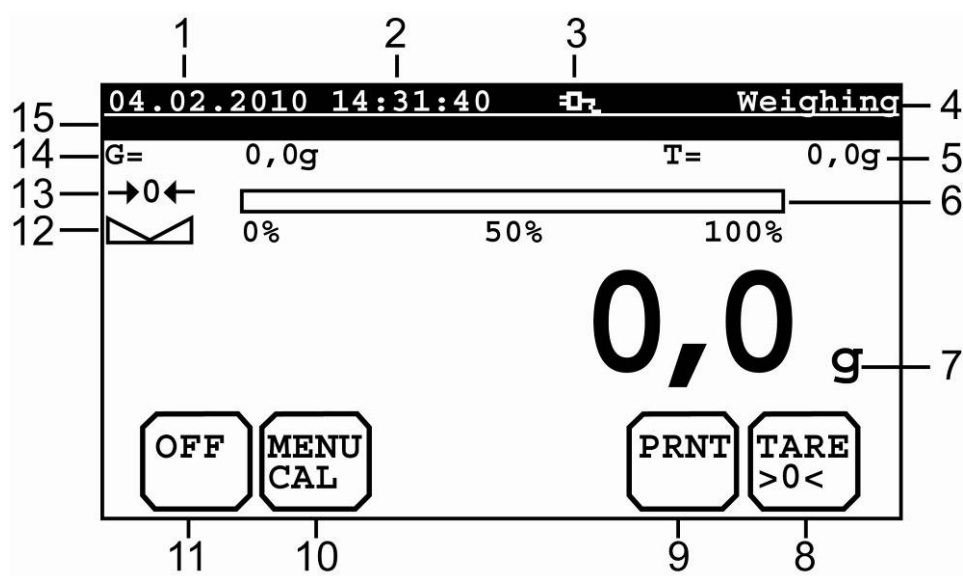
The legal regulation of the country where the balance is used must be observed!

## 6 Operation

### 6.1 How to turn on/off balance

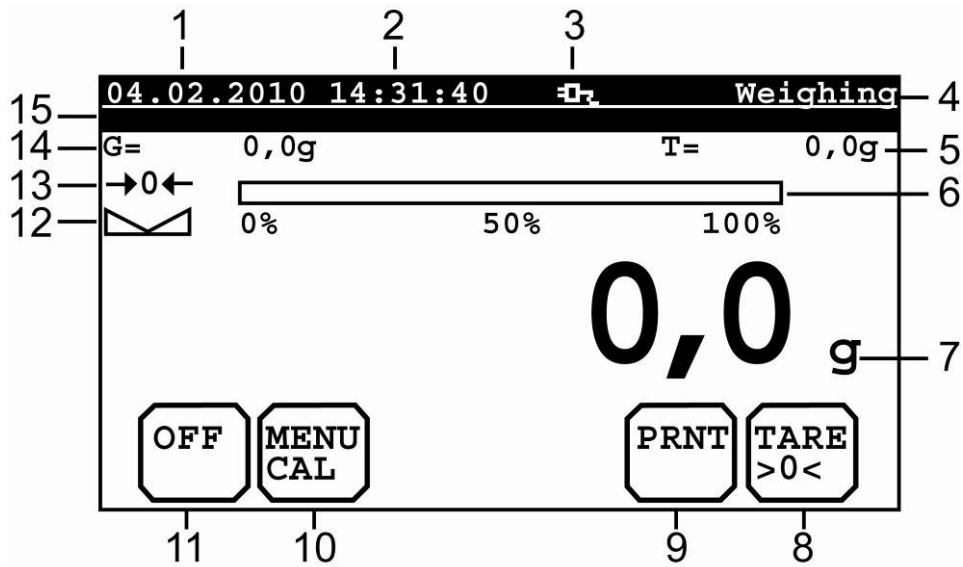
To turn on touch the screen surface

Turn off by touching the **OFF** surface command



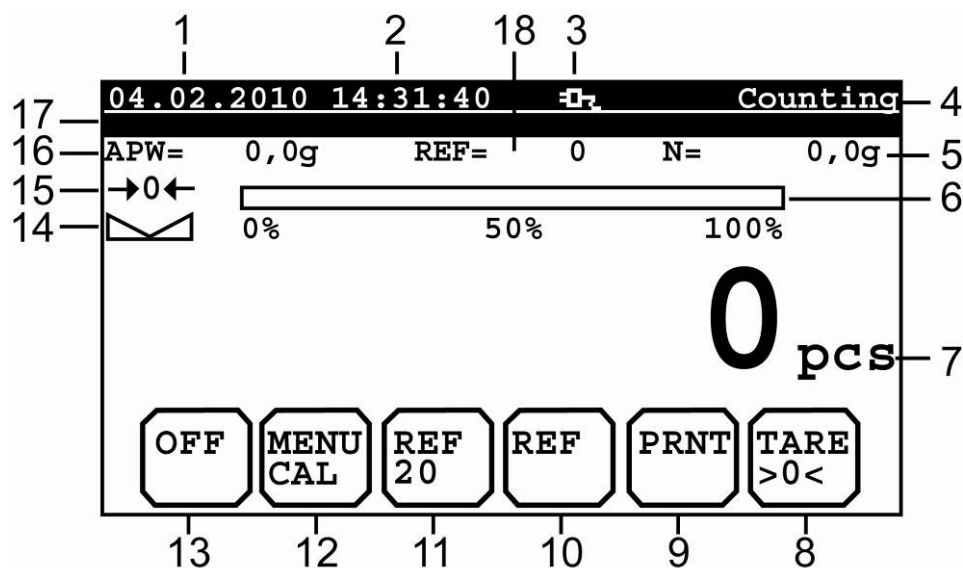
All fields with rounded corners are touch fields.

## 6.2 Screen Operating mode Weighing



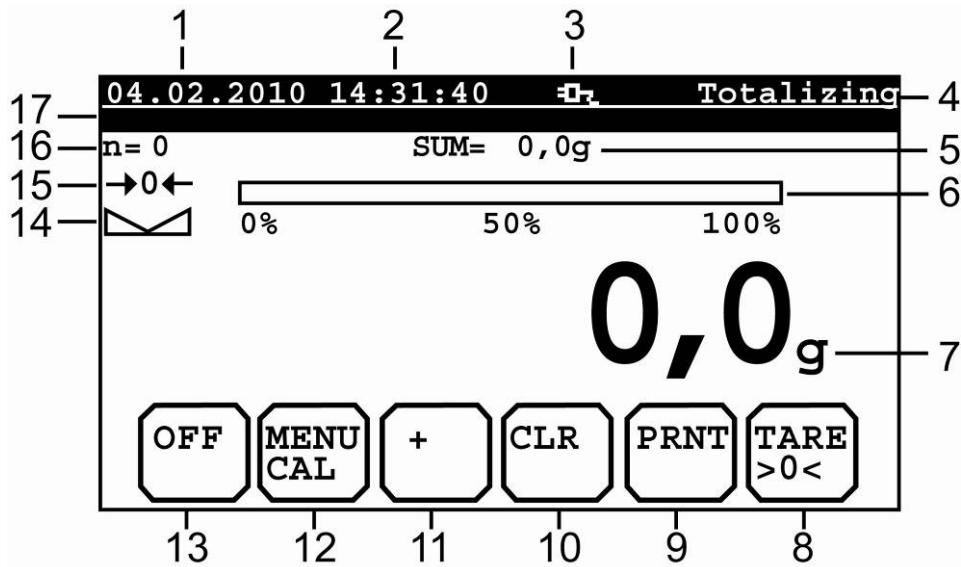
Display	Designation
1	Date
2	Time
3	Battery or mains operation
4	Operation modus
5	Tare value
6	Range display
7	Unity of displayed value
8	Tare and zero set button
9	Print button
10	Menu button
11	„Switch-off“ button
12	Weighing stoppage
13	Zeroing display
14	Gross value
15	Info line for operator, article, etc.

### 6.3 Screen operating mode counting



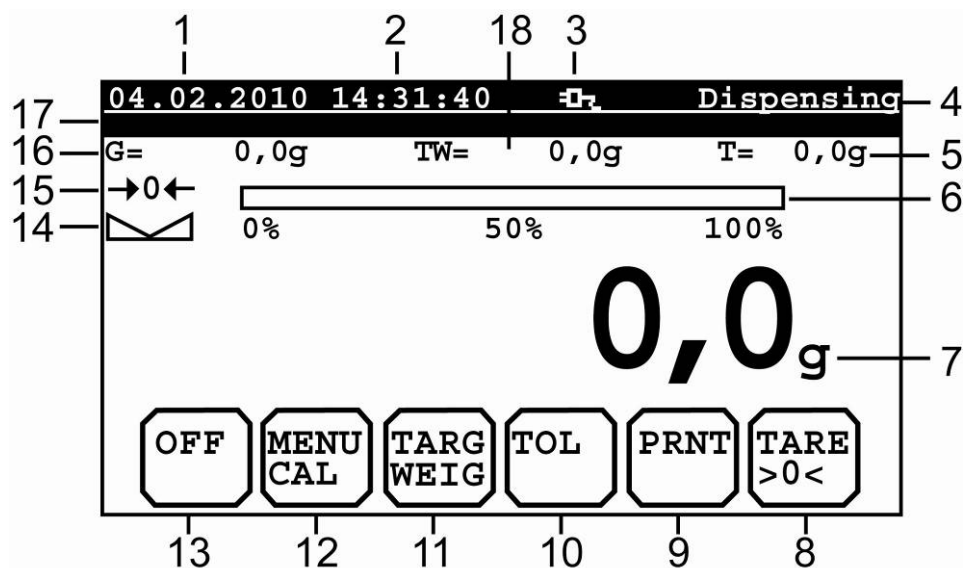
Display	Designation
1	Date
2	Time
3	Battery or mains operation
4	Operation modus
5	<b>Net value</b>
6	Range display
7	Unity of displayed value
8	Tare and zero set button
9	Print button
10	<b>Selection button REF quantity</b>
11	<b>Confirmation button for REF formation</b>
12	Menu button (memory locations)
13	„Switch-off“ button
14	Weighing stoppage
15	Zeroing display
16	<b>Piece weight</b>
17	Info line for operator, article, etc.
18	<b>Ref quantity</b>

## 6.4 Screen Operating mode Totalizing



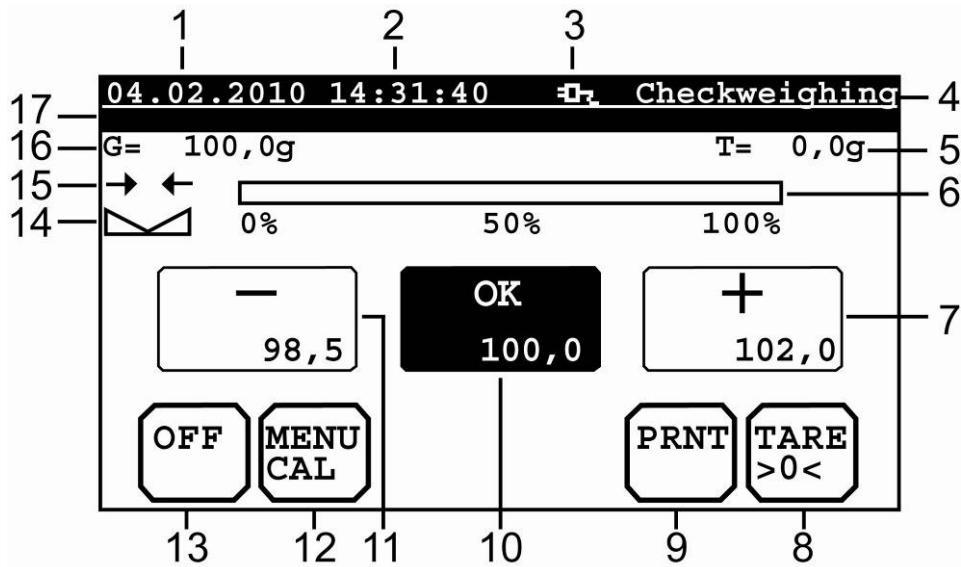
Display	Designation
1	Date
2	Time
3	Battery or mains operation
4	Operation modus
5	<b>Sum value</b>
6	Range display
7	Unity of displayed value
8	Tare and zero set button
9	Print button
10	<b>Delete key</b>
11	<b>Addition button</b>
12	Menu button (memory locations)
13	„Switch-off“ button
14	Weighing stoppage
15	Zeroing display
16	<b>Number of positions</b>
17	Info line for operator, article, etc.

## 6.5 Screen Operating mode Dispensing



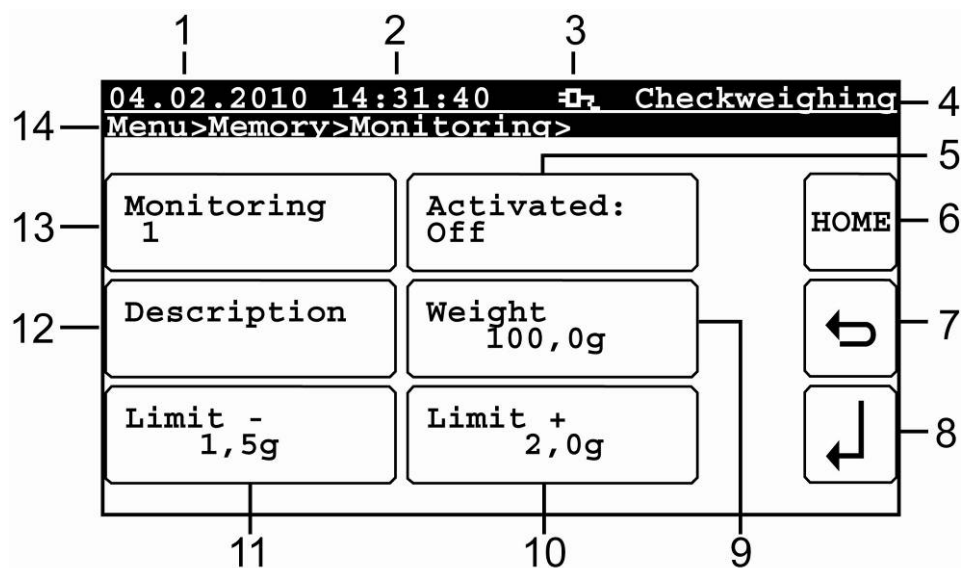
Display	Designation
1	Date
2	Time
3	Battery or mains operation
4	Operation modus
5	Tare value
6	<b>Range display for target weight</b>
7	Unity of displayed value
8	Tare and zero set button
9	Print button
10	<b>Tolerance default</b>
11	<b>Target weight input</b>
12	Menu button (memory locations)
13	„Switch-off“ button
14	Weighing stoppage
15	Zeroing display
16	Gross value
17	Info line for operator, article, etc.
18	<b>Target weight default</b>

## 6.6 Screen Operating mode Check weighing



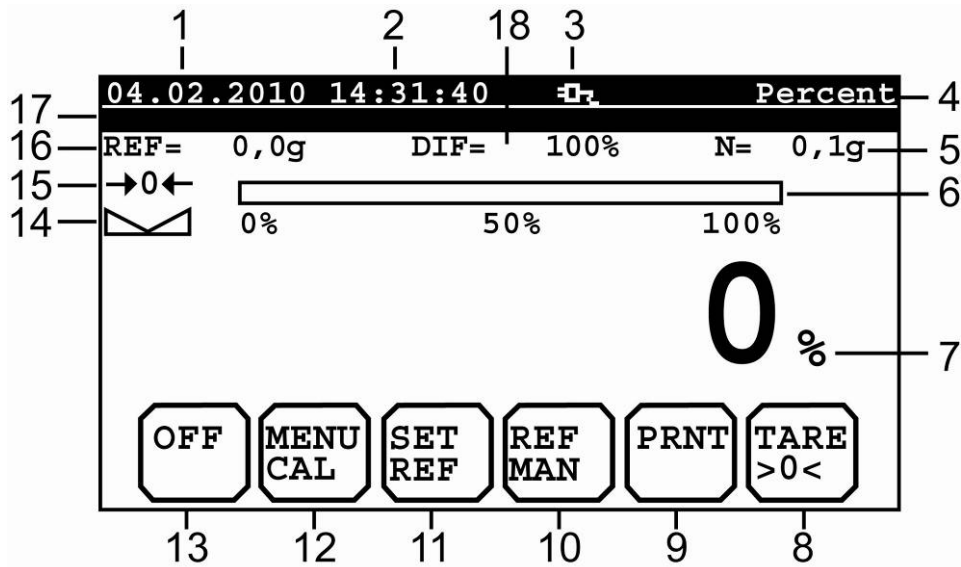
Display	Designation
1	Date
2	Time
3	Battery or mains operation
4	Operation modus
5	Tare value
6	Range display
7	<b>Input / evaluation field plus-tolerance</b>
8	Tare and zero set button
9	Print button
10	<b>Input / evaluation field Setpoint value default</b>
11	<b>Input / evaluation field Minus-tolerance</b>
12	Menu button (memory locations)
13	„Switch-off“ button
14	Weighing stoppage
15	Zeroing display
16	Gross value
17	Info line for operator, article, etc.

### 6.6.1 Memory location Check weighing



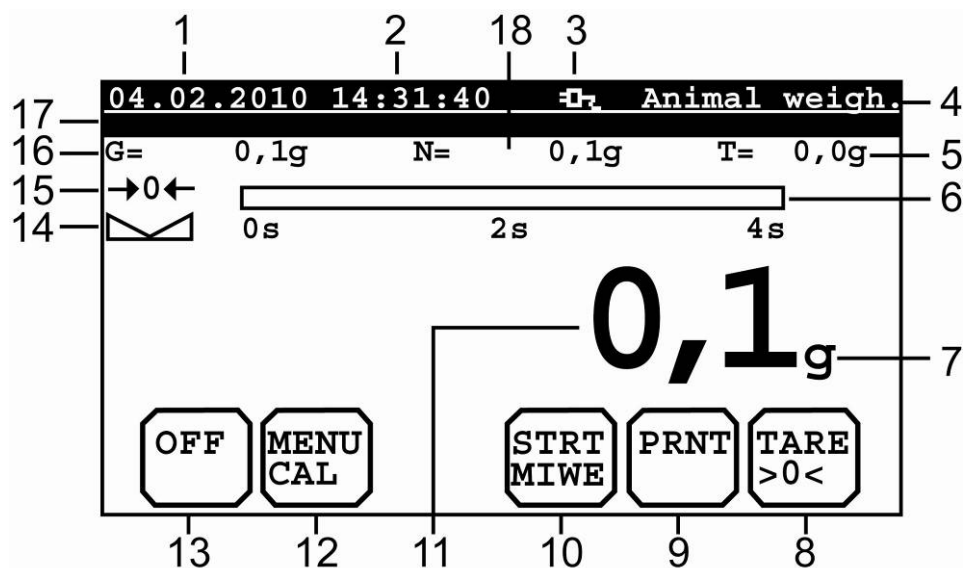
Display	Designation
1	Date
2	Time
3	Battery or mains operation
4	Operation modus
5	<b>Activation and transfer of the memory location</b>
6	<b>Back to start screen</b>
7	<b>One menu level back</b>
8	<b>Confirmation button of entries</b>
9	<b>Input field nominal weight</b>
10	<b>Input field plus value</b>
11	<b>Input field minus value</b>
12	<b>Designation of product / article</b>
13	<b>Memory location „Check1“</b>
14	<b>Menu path</b>

## 6.7 Screen Operating mode Percentage



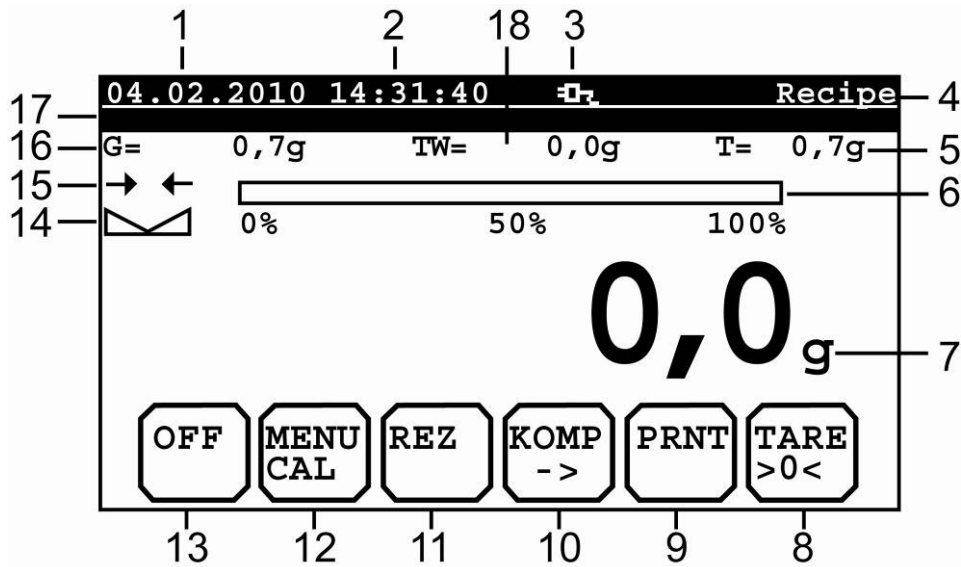
Display	Designation
1	Date
2	Time
3	Battery or mains operation
4	Operation modus
5	<b>Net value</b>
6	Range display
7	Unity of displayed value
8	Tare and zero set button
9	Print button
10	<b>Input of REF weight</b>
11	<b>Confirmation of nominal weight</b>
12	Menu button (memory locations)
13	„Switch-off“ button
14	Weighing stoppage
15	Zeroing display
16	<b>REF weight</b>
17	Info line for operator, article, etc.
18	<b>Difference percentage</b>

## 6.8 Screen Operating mode Animal weighing



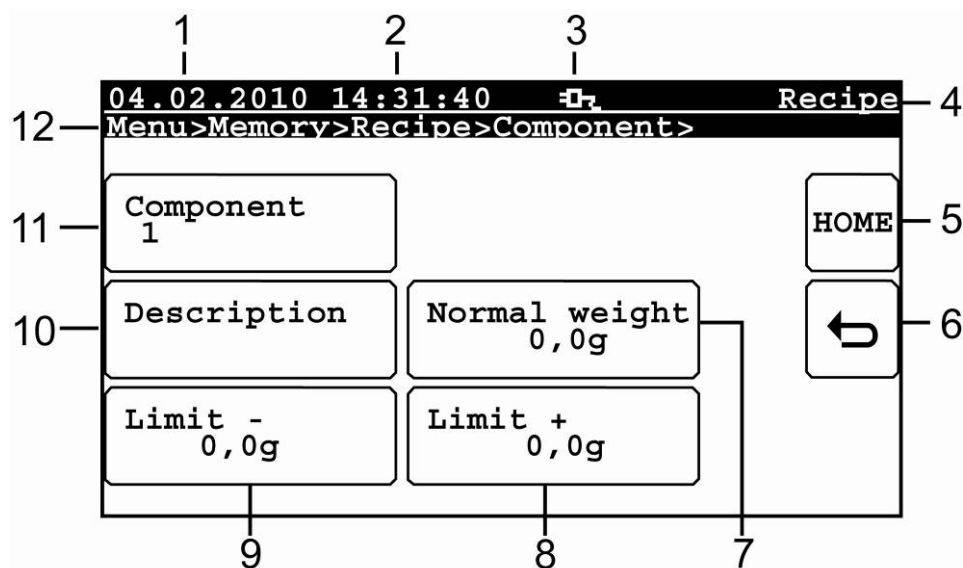
Display	Designation
1	Date
2	Time
3	Battery or mains operation
4	Operation modus
5	Tare value
6	<b>Measuring period</b>
7	Unity of displayed value
8	Tare and zero set button
9	Print button / <b>deleting the mean value</b>
10	<b>Start measurement</b>
11	<b>Mean value for animal weighing</b>
12	Menu button (memory locations)
13	„Switch-off“ button
14	Weighing stoppage
15	Zeroing display
16	Gross value
17	Info line for operator, article, etc.
18	<b>Net value</b>

## 6.9 Screen Operating mode Formulation



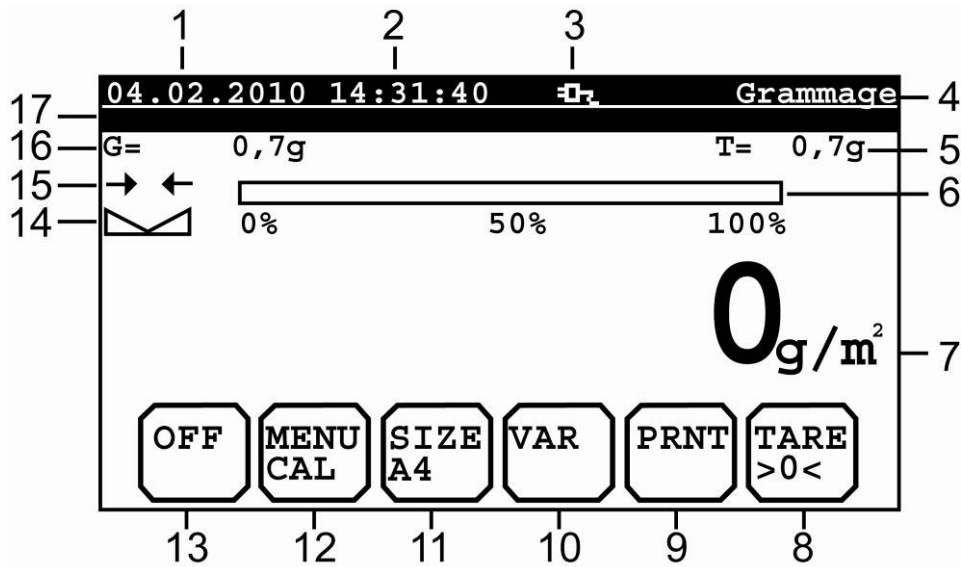
Display	Designation
1	Date
2	Time
3	Battery or mains operation
4	Operation modus
5	Tare value
6	Range display
7	Unity of displayed value
8	Tare and zero set button
9	Print button
10	<b>Confirmation of component / Transfer of new target weight</b>
11	<b>Selection of formula</b>
12	Menu button (memory locations)
13	„Switch-off“ button
14	Weighing stoppage
15	Zeroing display
16	Gross value
17	Info line for operator, article, etc.
18	<b>Target weight default</b>

### 6.9.1 Memory location Formulation



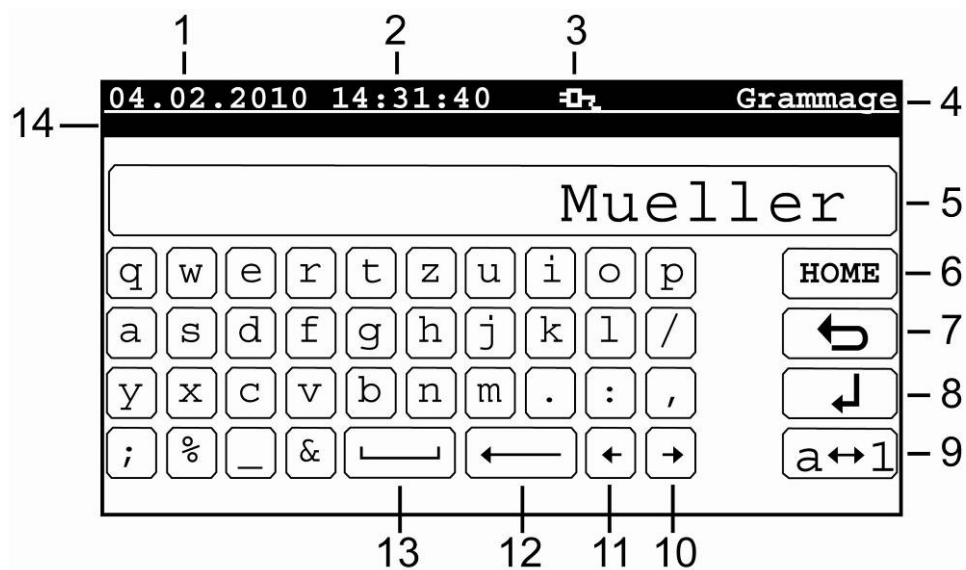
Display	Designation
1	Date
2	Time
3	Battery or mains operation
4	Operation modus
5	<b>Back to start screen</b>
6	<b>One menu level back</b>
7	<b>Input field nominal weight</b>
8	<b>Input field Plus tolerance value</b>
9	<b>Input field Minus tolerance value</b>
10	<b>Designation of product / article</b>
11	<b>Memory location „Component1“</b>
12	<b>Menu path</b>

## 6.10 Screen Operating mode Surface weight



Display	Designation
1	Date
2	Time
3	Battery or mains operation
4	Operation modus
5	Tare value
6	Range display
7	Unity of displayed value
8	Tare and zero set button
9	Print button
10	<b>Input of variable factor</b>
11	<b>Selection of paper format</b>
12	Menu button (memory locations)
13	„Switch-off“ button
14	Weighing stoppage
15	Zeroing display
16	Gross value
17	Info line for operator, article, etc.

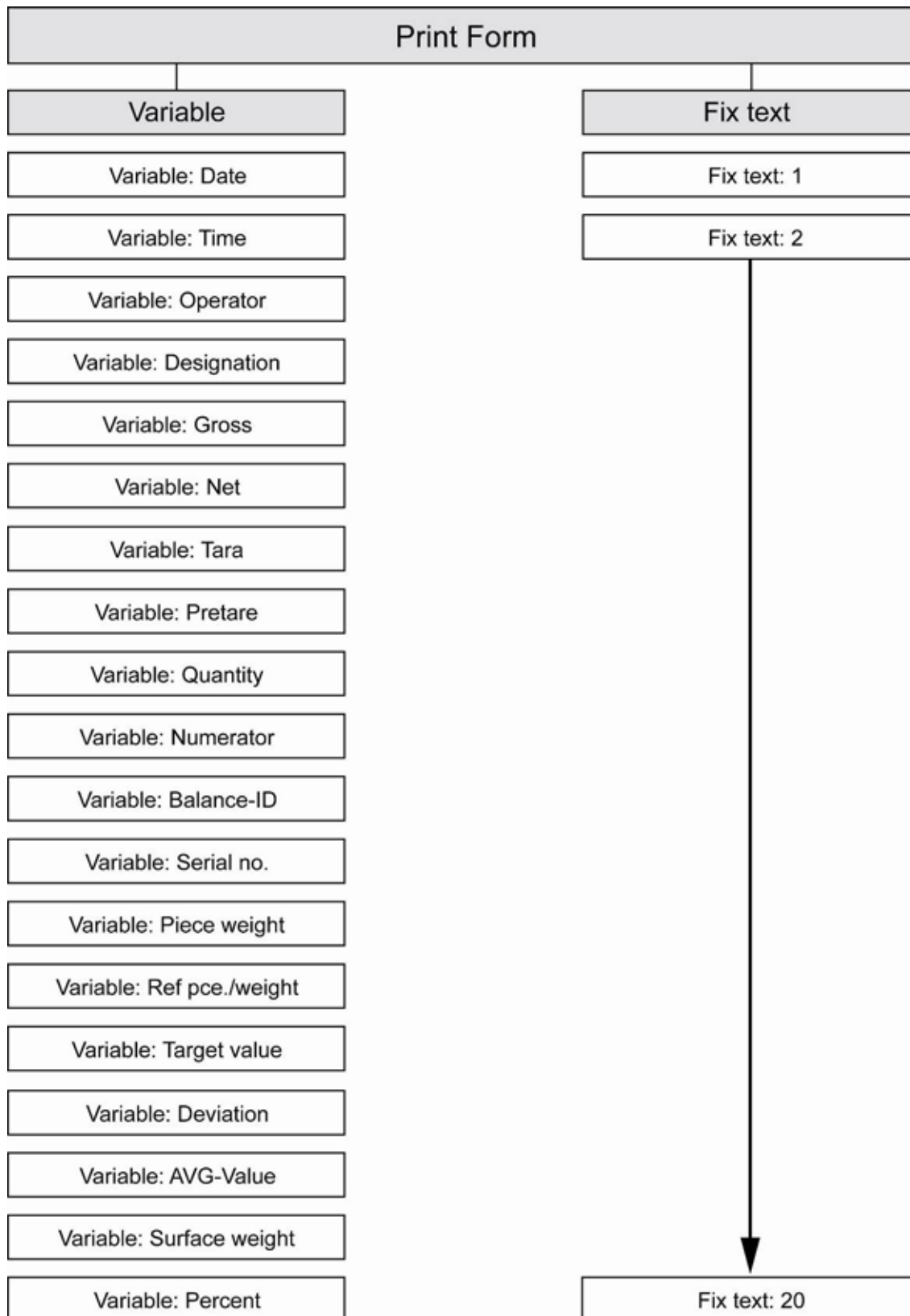
## 6.11 Input screen



Display	Designation
1	Date
2	Time
3	Battery or mains operation
4	Operation modus
5	<b>Text field</b>
6	<b>Back to start screen</b>
7	<b>One menu level back</b>
8	<b>Input confirmation</b>
9	<b>Switch-over button capital/lower case/digits</b>
10	<b>Cursor right</b>
11	<b>Cursor left</b>
12	<b>Delete character</b>
13	<b>Space key</b>
14	Menu path

## 7 Print form

### 7.1 Contents of the form impression



## 7.2 Arrangement of form printout

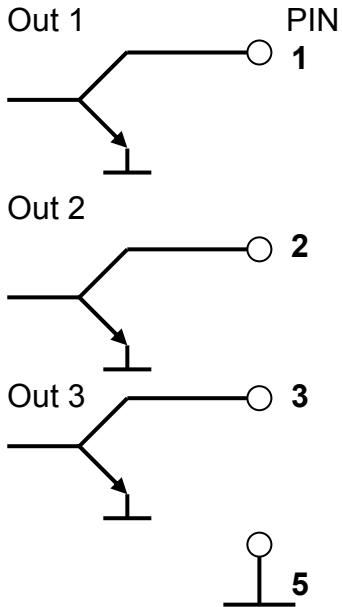
Variable	
Variable: Gross	Activated: ON
Line <b>2</b>	Column <b>1</b>
<b>Printout "Gross" line 2 / column 1</b>	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx 1. line 1500,00 g    xxxxxxxxxxxxxxxx 2. line
<b>Printout "Gross" line 2 / column 12</b>	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx 1. line xxxxxxxxxxxxx1500,0 g    xxxxxx 2. line
Fix text	
Fix text 1	Activated: ON
Line <b>2</b>	Column <b>1</b>
Designation „Gross“	
<b>Printout "Designation contents" Line 2 / column 1</b>	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx 1. line Gross : xxxxxxxxxxxxxxxxxxxx 2. line
Combination of fix text and variable	
<b>Fix text "Gross:" -line 2 / column 1</b>	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx 1. line
<b>Variable "gross value" – line 2 / column 12</b>	Gross : xxx1500,0 g    xxxxxx 2. line

x = space character

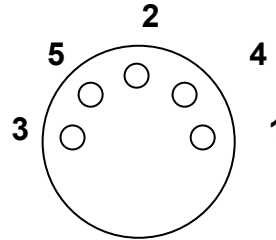
- The fields „line“ and „column“ are position printing input fields
- Field „Variable“ is a selection field of fixed printing possibilities
- Field „Fix text“ offers the possibility to specify texts for printout.
- The field „designation“ is a text input field to add information such as gross, tare, net, pcs to the values.
- Field „Activated: on“ takes over this line into the print form.

## 8 Interfaces

### 8.1 Digital I/O output - open collectors (only Operating mode Check weighing)



Diode connecting plug 5 pol.  
Type Masei 5100 S version D



Performance data:  $V_{cemax} = 35 \text{ V DC}$   
 $I_{cmax} = 80 \text{ mA DC}$

Pin 4 is not allocated.

## 8.2 Data output RS 232 C

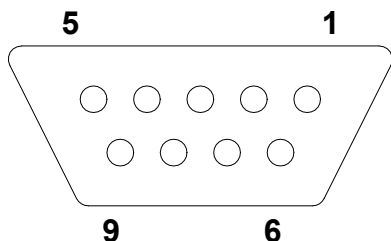
### Technical data:

#### 8-bit ASCII Code

- 1 start bit, 8 data bits, 1 stop bit, no parity bit
- Baud rate selectable from 2400, 4800, 9600 Baud (factory setting) and 19200 Baud.
- Sub-D plug 9-channel required
- For operation with interface faultless operation is only ensured with the correct KERN – interface cable (max. 2m)

### Pin allocation of the balance output socket (front view)

Sub-D jack 9-channel



Pin 2: Transmit data

Pin 3: Receive data

Pin 5: Signal ground

## 8.3 Interface RS 232C

### Data output via interface RS 232C

#### General

The previous condition for the data transfer between balance and a peripheral device (e.g. printer, PC ...) is that the appliances are set to the same interface parameters (e.g. baud rate, parity ...).

### 8.3.1 There are 4 kinds of data output via RS 232C

#### Data output using the PRINT key

The printing process can be triggered by pressing the PRINT key.

The settings AUTOPRINT and AUTOPRINT should be disabled for this process.

#### AUTOPRINT (data output according to weight application)

The setting AUTOPRINT is located on the PRINTER path where you can turn it on or off. When AUTOPRINT is active, the current weighing value will be sent via the RS 232 data interface after unloading and subsequent loading of the balance as soon as the balance is in resting position.

#### Permanent PRINT (continuous data output)

The setting permanent Print is located on the PRINTER path and where you can turn it on or off. When permanent Print is active, the current weighing values will be sent continuously via the RS 232 data interface.

#### Data output and remote control commands

Remote control commands transferred as ASCII characters to the balance can be used to trigger the following functions on the balance (always finish with CR, LF!):

- t Taring
- w The balance sends a weighing value (also unstable) via the serial interface.
- s The balance sends a stable weighing value via the serial interface.

After receiving either character w or s, the balance will send without a printer pause between the characters.

### 8.3.2 Explanation of the data transfer

Each data transfer is structured as follows:

Without numerator

Bit no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
		B	B	B	B	B	B	B	B	0	.	0	B	g	B	B	CR	LF
	B*																	

- B\*: = Blank or for % autotare on in zero range.
- B, 0, ., g: = Blank or weighing value giving unit according to loading of the balance
- CR: = Carriage Return
- LF: = Line Feed

with numerator:

Bit no.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	N	N	N	B*	B	B	B	B	B	B	B	0	.	0	B	G	B	B	CR	LF
N:	=	numerator																		

## 8.4 Printer

The serial interface RS 232 facilitates the connection of a printer. The printout shows the weight in grams. In counting mode either the piece number or the weight details will be printed out.

In percentage mode the percentage proportion or the weight details will be printed out.

Printout will take place after pressing the PRINT key.

It is possible to number each printout continuously with the help of the numerator.

The numerator will be reset to (000) each time the balance is turned off or the CLEAR function is actuated.

## 8.5 Underfloor weighing

Objects which are unsuitable for placement on the weighing tray due to their size or shape can be weighed with the help of the underfloor weighing facility.

Proceed as follows:

- Switch off balance.
- Turn over the balance and in doing so take care that the weighing plate is not loaded.
- Open the closing lid on the bottom of your balance.
- Mount the hooks for underfloor weighing.
- Put the balance over an opening
- Suspend the goods to be weighed from the hook and carry out the weighing.



**CAUTION**

- Always ensure that all suspended objects are stable enough to hold the desired goods to be weighed safely (danger of breaking).
- Never suspend loads that exceed the stated maximum load (max) (danger of breaking)
- Always ensure that there are no persons, animals or objects that might be damaged underneath the load.



After completing the underfloor weighing the opening on the bottom of the balance must always be closed (dust protection).

## 9 Service, maintenance, disposal

### 9.1 Cleaning

Before cleaning, please disconnect the appliance from the operating voltage.

Please do not use aggressive cleaning agents (solvents or similar agents), but a cloth dampened with mild soap suds. Ensure that no liquid penetrates into the device and wipe with a dry soft cloth. Loose residue sample/powder can be removed carefully with a brush or manual vacuum cleaner.

**Spilled weighing goods must be removed immediately.**

### 9.2 Service, maintenance

The appliance may only be opened by trained service technicians who are authorized by KERN. Before opening, disconnect from power supply.

### 9.3 Disposal

Disposal of packaging and appliance must be carried out by operator according to valid national or regional law of the location where the appliance is used.

## 10 Instant help

In case of an error in the program process, briefly turn off the balance and disconnect from power supply. The weighing process must then be restarted from the beginning.

Help:

### Fault

### Possible cause

The displayed weight does not glow.

- The balance is not switched on.
- The mains supply connection has been interrupted (mains cable not plugged in/faulty).
- Power supply interrupted.

The displayed weight is permanently changing

- Draught/air movement

-

- Table/floor vibrations
- Weighing plate has contact with other objects.
- Electromagnetic fields / static charging (choose different location/switch off interfering device if possible)

The weighing value is obviously wrong

- The display of the balance is not at zero
- Adjustment is no longer correct.
- Great fluctuations in temperature.
- Electromagnetic fields / static charging (choose different location/switch off interfering device if possible)

Should other error messages occur, switch balance off and then on again. If the error message remains inform manufacturer.

## 11 Declaration of conformity



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### Declaration of conformity

**EC-Konformitätserklärung**  
**EC- Déclaration de conformité**  
**EC-Dichiarazione di conformità**  
**EC- Declaração de conformidade**  
**EC-Deklaracja zgodności**

**EC-Declaration of -Conformity**  
**EC-Declaración de Conformidad**  
**EC-Conformiteitverklaring**  
**EC- Prohlášení o shode**  
**EC-Заявление о соответствии**

<b>EN</b>	Konformitäts- erklärung	Wir erklären hiermit, dass das Produkt, auf das sich diese Erklärung bezieht, mit den nachstehenden Normen übereinstimmt.
<b>GB</b>	Declaration of conformity	We hereby declare that the product to which this declaration refers conforms to the following standards.
<b>CZ</b>	Prohlášení o shode	Tímto prohlašujeme, že výrobek, kterého se toto prohlášení týká, je v souladu s níže uvedenými normami.
<b>E</b>	Declaración de conformidad	Manifiestamos en la presente que el producto al que se refiere esta declaración está de acuerdo con las normas siguientes
<b>F</b>	Déclaration de conformité	Nous déclarons avec cela responsabilité que le produit, auquel se rapporte la présente déclaration, est conforme aux normes citées ci-après.
<b>I</b>	Dichiarazione di conformità	Dichiariamo con ciò che il prodotto al quale la presente dichiarazione si riferisce è conforme alle norme di seguito citate.
<b>NL</b>	Conformiteit- verklaring	Wij verklaren hiermede dat het product, waarop deze verklaring betrekking heeft, met de hierna vermelde normen overeenstemt.
<b>P</b>	Declaração de conformidade	Declaramos por meio da presente que o produto no qual se refere esta declaração, corresponde às normas seguintes.
<b>PL</b>	Deklaracja zgodności	Niniejszym oświadczamy, że produkt, którego niniejsze oświadczenie dotyczy, jest zgodny z poniższymi normami.
<b>RUS</b>	Заявление о соответствии	Мы заявляем, что продукт, к которому относится данная декларация, соответствует перечисленным ниже нормам.

### Electronic Balance: KERN FKT / IKT

Mark applied	EU Directive	Standards
<b>CE</b>	2004/108/EC	EN 55011:1998+A1:1999+A2 :2002 EN 55022:1998-09+A1:2000-10+ A2:2003+01 EN 61000-3-2 :2006-04 EN61000-3-3 :2008 EN 55024:1998-09+A1:2001-10+A2 :2003-10 EN45501 :1992-10+AC :1993-08 OIML R 76-1 :2006
	2006/95/EC	EN60950

Date: 28.09.2010

Signature:

**Gottl. KERN & Sohn GmbH**  
**Management**

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