

Precisa Balances Series XT

Operating Instructions



350-8106-000f1

Identification

The present operating instructions apply to Precisa balance with tenkey control panel and multifunction display.

Customer service

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Introduction

What you should know about these Operating Instructions

Precisa balances are simple and functional to operate.

Nevertheless, you should read through these operating instructions in their entirety, so that you can make optimal use of the full potential and the diverse possibilities of the balance in your daily work.

These operating instructions contain guidance in the form of pictograms and keyboard diagrams, which should help you in finding the required information:

- Key names are presented in quotation marks and are accentuated by printing in semi-bold script: «ON/OFF» or «^C/₂».
- In the explanation of the operating steps, the appropriate display for the current operating step is shown for clarity at the left alongside the list of operating steps:



List of the Operating steps

 \bullet Press « \Downarrow » button repeatedly

"Sprache Deutsch", "Langue Francaise" or "Language English" appears in the display.

• For the labelling of dangers and advice, please see Chapter 1 "Safety".

Guarantee-card

A guarantee-card, which was filled in by your Precisa dealer before handing over the balance, is enclosed with the instruction manual.



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1 Safety

1.1 Representations and symbols

Important instructions, which involve safety, are highlighted with the appropriate action:

DANGER

Warning of a possible danger, which can lead to death or to serious injuries.

CAUTION

Warning of a possibly dangerous situation, which can lead to less severe injuries or damage.

NOTE

Tips and important rules on the correct operation of the balance.

1.2 Safety recommendations

- In using the balance in surroundings with increased safety requirements the corresponding regulations must be observed.
- The balance may only be used with the power adaptor supplied exclusively for use with the balance.
- Before inserting the power adaptor, make sure that the operating voltage stated on the power adaptor agrees with the mains voltage. If not, please refer to customer service.
- If the power adaptor or its cable is damaged, the balance must immediately be disconnected from the electricity supply (pull out the power adaptor). The balance may only be operated with a power adaptor in perfect condition.

1 Safety

- If there is any reason to believe that it is no longer possible to operate the balance without danger, the balance is to be immediately unplugged from the electricity supply (pull out power adaptor) and secured against inadvertent operation.
- In carrying out maintenance work, it is essential to heed the recommendations in Chapter 11 "Maintenance and servicing".
- The balance must not be operated in an area subject to explosion risks.
- Take care when weighing liquids that no liquid is spilt into the inside of the balance or into connections on the rear of the equipment or the power adaptor.

If liquid is spilt on the balance, the latter must immediately be unplugged from the mains electricity supply (pull out power adaptor).

The balance may be operated after it has first been re-checked by a service technician.

• The operating instructions must be read by each operator of the balance and must be available at the workplace at all times.

2 Your balance

2.1 Construction and functions

2.1.1 Construction of the balance

The balance consists of the balance body (1), the scale-pan holder (4) and the pan (5), which depending on the model may be square (fig. 2.1, right) or round (fig. 2.1, left).

Depending on the model (see Chapter 2.3 "Data and parameters") the balance additionally has a small (fig. 2.1, right) or large (fig. 2.1, left) windshield (2) and/or a protective ring (3).



Fig. 2.1 Your balance

2.1.2 Functions of the balance

The balances of the XT-Series are high-quality electronic precision balances with a readability of 0.0001 grammes to 1.0 gramme, according to type.

2 Your balance

The versatile weighing programs allow you to use the balances of the XT-Series not only for simple weighings but also in a simple manner for carrying out various weighing applications such as, for example, percentage- or component counting weighings and document the measurements obtained accurately and unequivocally.

Within the XT-Series, both Dual-Range Balances and Floating-Range Balances (with a relocatable area with a 10-fold increase in precision) are available. In addition, in the XT series of balances, we also offers balances protected against water and dust to the international IP65 standard.

Virtually all models of the XT-Series can be delivered in calibratable design to EG/OIML specification.

The most important basic production features of the XT-Series include:

- Anti-theft encoding with four-figure numerical code
- Multi-stage password protection for the program menus
- ICM-Autocalibration (intelligent calibration mode)
- Simple-to-use 10-key multifunction control panel
- Fluorescent display with multi-line display
- ISO- and GLP-compliant reporting of results of measurements
- RS232/V24 serial interface for data transfer
- Capacity and residual tare display
- Storable user-configuration (UMM User Menu Memorized)
- Functions programmed ex-works for:
 - Parts counting
 - Percentage weighing
 - Receipting
 - Animal weighing (dynamic weight recording)
 - Check and reference weighings
 - Density determinations
 - Weighing in different, internationally-valid units
- Generously designed statistics program
- Computer functions
- Appliance for under-floor weighings



6

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- 1 Cover of the device for under-floor weighings
- 2 Nameplate
- 3 Adjustable feet (for levelling)
- 4 Scale pan
- 5 Multifunction display
- 6 10-key control panel
- 7 Serial No. plate
- 8 Connecting socket for power adaptor
- 9 RS232-Interface
- 10 Bubble level
- 11 Eyelet for attaching a safety chain

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2.2 Application, conformity, labelling

2.2.1 Correct use of the balance

The balance may only be used for the weighing of solid-materials and of liquids filled into secure containers and for animal weighing and density determinations.

The maximum allowable load of the balance must never be exceeded, otherwise the balance may be damaged.

In using the balance in combination with other appliances, the current regulations for the safe use of the relevant attachments and their application in accordance with instructions must be observed.

2.2.2 Conformity

The balance has been manufactured and tested in accordance with the standards and recommendations set out in the enclosed certificate of conformity.

The power adaptor produced for the operation of the balance and intended exclusively for this application, complies with the electrical protection class II.

Label	Location of label
Manufacturer's name- plate (1)	Casing-front, middle
Nameplate (2)	Casing-front, left
Weighing range (3)	Casing-front, right, first column
Calibration value (4)	Casing-front, right, second column above
Readability (5)	Casing-front, under the calibration value
Model plate (6)	Casing-underside, centre rear
Serial No. plate (7)	Casing-rear, left, under the bubble level

2.2.3 Labelling

Tab. 2.1 List of appliance labels



The balance shows the following labels:

Fig. 2.3 Balance labels

2.3 Data and parameters

The balances of Series XT are divided into five main-groups A, C, D, G and M. The letter in the name corresponds to the design specification (e.g. A = analytical balance, M = Milligramme balance) the number before it corresponding in each case to the maximum allowable load (in grammes).

The allowable weighing range, the calibration value and the readability of the balance are printed on the casing (see Tab. 2.1 List of appliance labels) and are therefore not presented here.

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2.3.1 Technical data

• XT-A (e.g. XT 120 A)

- with closed glass-cover "TOP" as standard
- round scale pan, \varnothing 80 mm
- LCD-Display
- also available as Floating-Range version

XT-M (e.g. XT 320 M)

- with windshield "simple" as standard
- square scale pan, 135 x 135 mm
- LCD- or Fluorescent Display
- also available as Floating-Range version
- also available as Dual-Range version

• XT-C (e.g. XT 1200 C)

- square scale pan, 170 x 170 mm
- Fluorescent Display
- also available as Floating-Range version
- also available with dust and water splash protection to IP65

• XT-D (e.g. XT 3200 D) and XT-G (e.g. XT 10200 G)

- square scale pan, 200 x 200 mm
- Fluorescent Display
- also available as Floating-Range version
- also available with dust and water splash protection to IP65

The following applies to all XT-balances:

Mains connection

- 115 or 230V (+15/-20%); 50 to 60Hz
- Power consumption
 - without peripheral appliances 6.0 VA
- RS232/V24 Interface
- Calibration with built-in calibration weight (SCS)

• Allowable ambient conditions

- Temperature: 5°C ... 40°C
- Relative humidity: 25%... 85%, non-condensing

If you have any questions on the technical data or require detailed technical information on your balance, please contact your Technical Representative.

3 Starting up

3.1 Unpacking the balance

The balances are delivered in an environmentally-friendly package, specifically developed for this precision instrument, which provides optimal protection for the balance during transportation.

D NOTE

Retain the original packaging in order to avoid transportation damages when shipping or transporting the balance and to allow the balance to be stored in the best conditions if it is out of operation for an extended period.

In order to avoid damage, attention must be given to the following points when unpacking the balance:

- Unpack the balance quietly and carefully. It is a precision instrument.
- When outside temperatures are very low, the balance should first be stored for some hours in the unopened transport package in a dry room at normal temperature, so that no condensation settles on the balance when unpacking.
- Check the balance immediately after unpacking for externally visible damage. If you should find transport damages, please inform your services representative immediately.
- If the balance is not to be used immediately after purchase but only at a later time, it should be stored in a dry place where fluctuations in temperature are as low as possible (see Chapter 12 "Transport, storage and disposal").
- Read through these operating instructions, even if you already have experience with balances, before you work with the balance and pay attention to the Safety recommendations (see Chapter 1 "Safety").

3.2 Scope of delivery

Inspect delivery for completeness immediately on unpacking all components.



Fig. 3.1 Scope of delivery (broken down by groups)

Component delivered	present yes / no
Balance	
Scale-pan support	
Weighing pan	
Power adaptor	
Protection-cover for the display	
Windshield Top (group A)	
Windshield simple (group M)	
Protective ring (groups A, M and C)	
Operating instructions	
Guarantee-card	
Conformity note	

Tab. 3.1: Check list for the scope of delivery

3.3 Assembly of the balance

The balance is delivered in partly dismantled condition. Assemble the individual components in the following sequence (see fig. 2.1 and fig. 2.2).

- Install the dust-protection cover on the balance
- Install the windshield as well as the protective ring with the two screws supplied
- Place the scale-pan holder in position and add the weighing pan
- Insert the power adaptor cable plug into the socket at the rear of the balance.

NOTE

A screwdriver is required for assembly.

All parts must fit together easily. Do not apply force. customer service will be pleased to help you with any problems.

3.4 Choice of a suitable location

The balance location must be chosen in such a way as to guarantee perfect functioning of your balance, so that the allowable ambient conditions (see Chapter 2.3.1 "Technical data") are maintained and, in addition, so that the following prerequisites are met:

- Put the balance on a solid, firm and preferably vibration-proof, horizontal base
- Make sure that the balance cannot be shaken or knocked over
- Protect from direct solar radiation
- Avoid drafts and excessive temperature fluctuations

NOTE

With difficult environment-conditions (where the balance may be easily shaken or subject to vibration) the balance can nevertheless provide accurate results through suitable adjustment of the stability control (see Chapter 5.7 "Weighing mode").

3.5 Checking the mains voltage

The following Safety recommendations must be observed when connecting the balance to the mains:

DANGER

The balance may only be operated with the power adaptor supplied.

Check before connecting the power adaptor to the mains supply, that the operating voltage stated on the power adaptor agrees with the local mains voltage.

If the operating voltage is not the same as the mains voltage, the power adaptor must on no account be connected to the mains supply. Contact the customer service.

3.6 Levelling the balance

To function properly, the balance must be precisely horizontal.

The balance is fitted with one "bubble level" and two adjustable feet for level-control, with the aid of which it is possible to compensate for small height differences and/or unevennesses in the surface on which the balance is standing.

The two screw feet must be adjusted so that the air bubble is precisely in the centre of the sight glass of the bubble level (see Fig. 3.2 Correct levelling with the aid of the bubble level).



Incorrect

Correct

Fig. 3.2 Correct levelling with the aid of the bubble level

NOTE

In order to get exact measurements, the balance must again be carefully levelled after each relocation.

3.7 Calibration of the balance

Since the Earth's gravity is not the same everywhere, each balance must – in accordance with the underlying physical weighing principle – be adjusted to compensate for the gravity at each location. This adjustment process, known as "calibration", must be carried out on initial installation and after each subsequent relocation. In order to get exact measurements, it is recommended moreover, that the balance should also be calibrated intermittently during the weighing operation.

) NOTE

The balance must be calibrated on initial installation and after every relocation.

If you work in accordance with "Good Laboratory Practice GLP" observe the prescribed intervals between calibrations (adjustments).

The setting of the calibration is effected in the configuration menu. Depending on the model of balance, this may be done externally, internally or automatically (see Chapter 5.6 "Calibration functions").

With the aid of the "Intelligent Calibration Mode" ICM the balance can itself determine the size of the calibration weight, which enables an exact calibration with different size weights (in 10 g, 50 g, 100 g and 500 g steps, depending on implementation).

3.8 Dual Range and Floating Range balances

With the Dual Range balances, weighing is always first carried out in the small, more exact range. Only when the small range is exceeded will the balance switch automatically into the bigger range.

The Floating Range balances have a 10-fold more precise fine range, which is movable over the entire weight range. By pressing the tare key (T) the fine-area can be called up as often as required over the entire weight range.

3.9 Standardized balance

The standardized balances of the XT-Series are provided with the EU/ OIML licence or meet the local standardisation regulations.

The balance program and certain functions of the weighing output differ from the standard program in the case of the standardized XT balances – in accordance with the EU/OIML provisions.

D NOTE

If a circle appears in the main-display of a standardized balance, so the indicated value is unstandardised.

In balances of class (1) the circle also stands for the warm-up phase.

Your customer service will be happy to assist you at any time if you have any questions on the standardization of the balance or on working with standardized balances of the XT-Series.

3.10 Under-floor weighing

Objects which, because of their size or shape, cannot be put on the scale, can be weighed by means of under-floor weighing.

Proceed as follows:

- Turn off the balance.
- Remove the scale-pan and the scale-pan support and turn the balance around.
- Push the metal-cover (1) on the floor of the balance to one side.
- Hang a small hook (available as an accessory, see Chapter 13 "Accessories") into the aperture (3) of the now visible metal casting (2).
- Place the balance over an opening.
- Replace the scale-pan support and the scale-pan.
- Level the balance (see Chapter 3.6 "Levelling the balance").
- Switch on the balance.

• Hang the object to be weighed on the hook and carry out the weighing.



Fig. 3.3 Setting up the balance for under-floor weighings

CAUTION

Take care that the hooks used for the under-floor weighing are stable enough to hold the goods which you wish to weigh.

D NOTE

Take care that no dirt or moisture can get into the balance with the scale-pan carrier removed.

After completing the under-floor weighing, the opening in the floor of the balance must be closed again (dust protection).

4 Modes of operation and operating

4.1 Switching on the balance

• Press «ON/OFF» to switch on the balance.

The balance carries out a self-diagnosis in order to check the most important functions. After completion of the start-up process (approximately ten seconds) "Zero" appears in the display.

The balance is ready for operation and is in the weighing mode.

4.2 Auto-Standby Mode

The balance is equipped with an Auto-Standby mode, which can be activated or deactivated in the configuration menu.

If the Auto-Standby mode is activated, the balance automatically switches to Standby some time after the last weighing or key operation (current-saving function).

The delay before switching to Standby is defined in the configuration menu (see Chapter 5.7 "Weighing mode").

• Press any button or put on a weight in order to switch the balance from the Standby mode back to the weighing mode again.

4.3 Significance of the two main menus

The balance has two main menus available: the configuration menu and the application menu.

The basic-program of the balance is defined in the **configuration menu**. With this, you can either work with the basic-configuration programmed ex-works, or define and store a user-configuration adapted to your specific needs.

In the **application menu**, you define a working program, which is suited to the specific weighing problem.

In addition, you also define the parameters for the statistics program and the check-Reference weighing in the application menu.

4.4 Activating the two main menus

4.4.1 Activating the configuration menu

- Press «ON/OFF» to switch on the balance.
- Continue to hold down the «MENU» button during the start-up process (approximately 10 seconds), until "SET CONFIGURATION" appears in the display.
- Now you can change the configuration menu.

4.4.2 Activating the application menu

• Press «**MENU**», after the start-up process has finished in order to reach the application menu.

4.5 How the menu control operates

The configuration menu and the application menu each have a main path and up to two sub-paths in which the parameters for the different function programs of the balance are defined.

You can move within the paths with the cursor keys «(\clubsuit)», « \clubsuit », «



NOTE

The menu-tree-diagrams illustrated correspond in their geometry to the path occupancy of the two main menus.

4.5.1 Control panel

Eight of the ten keys of the Multifunctional Control Panel serve multiple functions (functions for the weighing mode and for the programming mode respectively).



Fig. 4.1 The Ten-key Control Panel

4.5.2 Operating in the weighing mode

In the **weighing mode** the **grey background key symbols** are applicable.

	Name	Function during weighing	
ON/OFF	«ON/OFF» • Switching the balance on and off		
MENU	«MENU» • Calling up the Configuration Menu and the Application Menu		
T ins T	«T» • Initiate Tare Function and/or Calibration Function		
Cor	«©»	 Switches between the Basic program and the chosen application 	
PRINT	«PRINT»	• Start print function	
	«֏» «⇐» «➡»» «ሁ»	• Function keys. Start the functions in the info-line (see Chapter 4.5.5 "Info-line and function keys").	

Tab. 4.1 Key functions during weighing

For the operation of the «T», «©» and « PRINT » see Chapter 7 "Special operating keys".	

4.5.3 Operation in the programming mode

In the **programming mode**, the **key symbols with a blue background** apply to the Control Panel.

Key(s)	Name	Function during weighing
	«⟨ ⇐ », « ━ ҈⟩»	 Changes from menu main path into sub-paths and back
	«飰» «ሁ»	 Up/Down movements within the main and sub-paths Changes selected parameters
T	«حِتَّا»	Selects parametersStores the changed parameters
MENU	«esc»	Interrupts an inputLeaves the menu
Tins	«ins»	 Places insert marker (in text entry)
Olr	«clr»	• Deletes input (in text entry)
PRINT	«PRINT»	• Inputs a point (in text entry)

Tab. 4.2 Key functions in the programming mode

The balance can also be operated by remote control. For the corresponding remote control-commands see Chapter 8 "Data transfer to peripheral devices".

For an illustration of the method of operation see Chapter 10 "Practical examples".

4.5.4 Display

The balance display has two lines (1 and 2).



Fig. 4.2 Display

The upper display-line (1) includes the 8-figure measurement display (3) as well as various symbols (4).

The lower line (2) serves as a 20-character info-line in connection with the cursor keys for controlling the working programs.

4.5.5 Info-line and function keys

If an application (a working-program) is employed, the four-column info-line (2) will also appear at the lower margin of the display in addition to the measurement display (1).

Each of the functions indicated in the info-line corresponds to the function key lying directly below it (marked with a \triangle (3)).



Fig. 4.3 Info-line and function keys

The cursor keys (4) «(>», «>», « \uparrow » and «(\downarrow ») serve in the applications as function keys.

These initiate the functions indicated in the info-line (2).

4.5.6 Example of display: Statistics program

• Display of the balance in the statistics program



Fig. 4.4 Display in the statistics program

• Corresponding representation shown in the Instruction Manual

*	163.	456	9	normal weight display
STO O		RES	ITF	Info-line
\triangle	\bigtriangleup	\bigtriangleup	\bigtriangleup	
«〈Þ»	«⊨⋛»	«Դ»	«Ū»	Function keys

• Function key assignments in this example:

- STO initiates the manual storage-function "STO"
- RES activates the "RES" (Reset) function
- INF activates the "INF" function (display-sequence for the statistics parameters: Median value, standard deviation, relative standard deviation, maximum, minimum, ...).

NOTE

If the statistics program is activated in parallel to a working-program, then « Ψ » is reserved for the storage ("STO" function), and/ or for calling up the statistics parameters ("INF" function).

4.6 Password protection of the menus

The two main menus of the balance can be protected by a freely selectable, four-figure password against unintentional changes.

- With password protection deactivated, any operator can change the balance configuration and application menus.
- With "med" password protection activated, only the configuration menu is protected against unintentional changes.
- With "high" password protection activated, both the configuration menu and the application menu are protected against unintentional changes. Only after entering the correct, four-figure password can changes be made to the configuration menu and the application menu.

NOTE

The password protection is deactivated at the works.

The pre-programed password set in the works is: 7 9 1 4

This password is the same for all balances and is always valid, in parallel with a self-selected password.

Make a note of your personal password.

For the activation of the password protection and changing the password, see Chapter 5.10 "Password protection".

4.7 Anti-theft encoding

The balance can be protected against theft by a freely selectable, four-figure numerical code:

- With anti-theft encoding deactivated, the balance can be switched on again and operated after interruption of the power supply without entering a code.
- With anti-theft encoding activated, the balance requires the entry of the four-figure code after each interruption to the power supply.
- If the code is input incorrectly, the balance is blocked.

4 Modes of operation and operating

- If the balance is blocked, it must first be disconnected from the power supply, then reconnected and unblocked by entering the correct four-figure code.
- After seven consecutive incorrect entries the display will read "NO ACCESS, CALL SERVICE". In this case, only a service engineer can unblock the balance again.

NOTE

The anti-theft-encoding is deactivated in the works.

The pre-programmed code set by the works is: 8 9 3 7

This code is the same for all balances. For reasons of security you should therefore always select your own code.

Keep your personal code in a safe place.

To activate the anti-theft encoding and to alter the code programmed in the works to one which you have chosen yourself, see Chapter 5.11 "Anti-theft encoding".

5 Working with the Configuration menu

This chapter describes the Configuration Menu and its functions. To activate the menu, see Chapter 4.4 "Activating the two main menus" and Chapter 4.5 "How the menu control operates".

5.1 Structure of the configuration menu

The basic adjustment of the balance is defined in the configuration menu:

Main path	Definable functions		
SET CONFIGURATION	Selection of basic configuration (Works setting, user setting or storing a new user setting)		
UNIT-1	Unit in which the results of the weighing are dis- played		
SET DATA PRINT	Print formats; Type of values to be printed (indivi- dual values, continuous printout, time or load change dependent values, date, time, user, etc.)		
SET CALIBRATION	Method of calibration		
SET WEIGHING MODE	Stability mode (Quality of the balance location), Auto-Standby mode, zero correction, tare method (rapid or standard tare)		
SET INTERFACE	Baud-rate, parity, handshake functions of the peri- pheral interface		
SET DATE AND TIME	Date and time (standard format or American for- mat p.m. and a.m.)		
PASSWORD	Password protection for defining the menus		
THEFTCODE	Activating/deactivating and changing the anti-theft code.		
LANGUAGE	Language (E, G, F)		
KEY TONE	Activation of the keypad sound		
CONTRAST	Screen contrast (only for LCD display)		

Tab. 5.1 Contents of the Configuration menu

Printing conventions used in this document:

- The settings in the sub-paths pre-programmed in the works are printed in **bold** in these operating instructions.
- For greater clarity, only that part of the menu tree which corresponds to the function is shown with each description of the function.
- You will find the entire menu tree for the configuration menu in Chapter "".
- Explanations of the menu functions are printed in *italics*.

5.2 Language-function

To activate the menu see Chapter 4.4 "Activating the two main menus" und Chapter 4.5 "How the menu control operates".

• LANGUAGE

SPRACHE DEUTSCH	select language
LANGUAGE ENGLISH	
LANGUE FRANCAISE	

In order to alter the language, proceed as follows:

- Activate the configuration menu (see Chapter 4.4.1 "Activating the configuration menu")
- Press « I »repeatedly, until the currently activated language is shown.
- Press « In display begins to blink.
- Press « I » repeatedly until the language you require is shown.
- Press « In order to confirm the selection.
- Press «esc», in order to quit the menu.

5.3 Working with the Configuration menu

To activate the menu see Chapter 4.4 "Activating the two main menus" and Chapter 4.5 "How the menu control operates".

• SET CONFIGURATION		
	FACTORY CONFIG.	
	USER CONFIG.	
	STORE CONFIG.	

In this function field you can select the basic configuration you would like to work with. Press « ${ I \ }$ » to select the configuration indicated or to store the current configuration.

5.4 Selecting the weight unit

To activate the menu see Chapter 4.4 "Activating the two main menus" and Chapter 4.5 "How the menu control operates".

• UNIT-1	
UNIT-1 g	Gramme
kg	Kilogramme
Bht	Baht

The balance can show results in different units, although with some balances display is not possible in milligrammes or kilogrammes because of the corresponding weight range.

Display	Weight unit	Conversion to grammes
g	Gramme	
(mg)	Milligramme	0.001 g
(kg)	Kilogramme	1000 g
GN	Grain	0.06479891 g
dwt	Pennyweight	1.555174 g
ozt	Troy ounce	31.10347 g
OZ	Ounce	28.34952 g

Display	Weight unit	Conversion to grammes
Lb	Pound	453.59237 g
ct	Carat	0.2 g
C.M.	Carat Metric	0.2 g
tLH	Tael Hong Kong	37.4290 g
tLM	Tael Malaysia	37.799366256 g
tLT	Tael Taiwan	37.5 g
mo	Momme	3.75 g
t	Tola	11.6638038 g
Bht	Baht	15.2 g

Tab. 5.2 Possible weight units and conversion factors

5.5 Print functions

To activate the menu see Chapter 4.4 "Activating the two main menus" and Chapter 4.5 "How the menu control operates".

• SET DATA PRINT				
	AUTO-S	TART	ON/ OFF	Start print automatically on swit-
				ching on/off
	MODE	U	NSTABLE	Individual print, each value
	MODE		STABLE	Individual print, stable value
	MODE	LOAD	CHANGE	Print after load changes
	MODE	CON	TINUOUS	Continuous print after every Inte-
				gration time
	MODE	Т	IMEBASE	Continuous print with time basis
	TIMEBA	SE	2.0	Time basis (in seconds) freely sel-
				ectable

Menu continued on following page.
SET PRINTFORMAT	DATE AND	TIME	ON/OFF
	BALANCE-	ID	ON/ OFF
	PRODUCT-	ID	ON/ OFF
	GROSS AN	ID TARE	ON/ OFF
	UNITS		ON/ OFF
	OPERATOR	R-ID	ON/ OFF
	LINEFEED	OFF /1//FO	RMFEED
	PRODUCT	ttt	
	PRODUCT	NODE	HOLD
	PRODUCT	NODE	DELETE
	PRODUCTI	NODE	COUNT
	OPERATOR	}	ttt
	-		

Menu continued on following page.

With "SET PRINTFORMAT", elements which are switched on are printed in each case:

- With "UNITS" all momentarily active units are printed out,
- with "PRODUCT ttt..." the product name can be entered alphanumerically,
- with "PRODUCTMODE HOLD" this product name is stored,
- with "PRODUCTMODE DELETE" it is deleted after each expression,
- with "PRODUCTMODE COUNT" a counter, which is incremented by 1 after each expression,
- "OPERATOR ttt..." is the alphanumeric input of the operator.

When a peripheral device (for example a printer) is connected, the balance interface must be configured in the submenu "SET INTER-FACE" (see Chapter 5.8 "Interface-functions").

5.6 Calibration functions

To activate the menu see Chapter 4.4 "Activating the two main menus" and Chapter 4.5 "How the menu control operates".

• SET CALI- BRATION			
	MODE	OFF	Closed
	MODE	EXTERNAL	External
	MODE	EXT-DEF.	External with user-defi-
			ned weight (DEF n.nnn g)
	MODE	INTERNAL	with internal weight
	MODE	AUTO	Automatic (AUTOCAL)
	DEF.	0.000 g	Calibration weight for
			EXTDEF. mode
	AUTOCAL.	TIME	Autocalibration on time
	AUTOCAL.	TIME/TEMP.	Autocal. on time and tem-
			perature
	AUTOCAL.1	EMPERATURE	Autocal. on temperature
	AUTOCAL	TIME 6 h	Time for Autocalibration

For the calibration of the balance see Chapter 3.7 "Calibration of the balance" and Chapter 14.2 "Notes on calibration".

The works setting depends on the model of balance.

5.7 Weighing mode

To activate the menu see Chapter 4.4 "Activating the two main menus" and Chapter 4.5 "How the menu control operates".

• SET WEIGH-			
ING MODE			
	FLOATINGDISPLA	Y 0.04	Input Integration time
	FLOATINGDISPLA	AY 0.08	(in seconds)
	FLOATINGDISPLA	Y 0.16	
	FLOATINGDISPLA	AY 0.32	
	STABILITY	LOW	Setting the Stability
	STABILITY	MEDIUM	control (instability of
	STABILITY	HIGH	the balance location)
	AUTO-STANDBY	OFF	Auto-Standby not-acti-
	AUTO-STANDBY	0.5 MIN	ve or active after
	AUTO-STANDBY	1 MIN	nn minutes
	AUTO-STANDBY	5 MIN	
	AUTO-STANDBY	10 MIN	
	AUTO-ZERO	ON/OFF	Automatic zero correc-
			tion on/off
	QUICK-TARE	ON/ OFF	Quick tare on/off

With the aid of the weighing mode functions, you describe the quality of the balance location (see Chapter 3.4 "Choice of a suitable location").

With the aid of the AUTO-STANDBY function, you can define the period of non-use before the balance goes over automatically into the energy-saving mode.

D NOTE

The Auto-Standby function only works with the automatic zerocorrection activated (see Chapter 5.7 "Weighing mode").

5.8 Interface-functions

To activate the menu see Chapter 4.4 "Activating the two main menus" and Chapter 4.5 "How the menu control operates".

• SET			
INTERFACE			
	BAUDRATE	300	Select baud-rate
	BAUDRATE	600	
	BAUDRATE	1200	
	BAUDRATE	2400	
	BAUDRATE	4800	
	BAUDRATE	9600	
	BAUDRATE	19200	
	PARITY	7-EVEN-1STOP	Select parity
	PARITY	7-ODD-1STOP	
	PARITY	7-NO-2STOP	
	PARITY	8-NO-1STOP	
	HANDSHAK	E NO	Enter handshake
	HANDSHAK	E XON-XOFF	function
	HANDSHAK	E HARDWARE	

With the aid of the interface functions, the RS232/V24 interface of the balance is matched to the interface of a peripheral device (see Chapter 8 "Data transfer to peripheral devices").

5.9 Date and time

To activate the menu see Chapter 4.4 "Activating the two main menus" and Chapter 4.5 "How the menu control operates".

• SET DATE AND TIME			
	DATE TIME	[DD.MM.YY] [HH MM SS]	Set date and
	FORMAT	STANDARD/US	

ΝΟΤΕ

The date and time display continues in the event of a power failure. If this is not the case, the balance backup battery is exhausted and must be replaced by the customer service.

5.10 Password protection

To activate the menu see Chapter 4.4 "Activating the two main menus" and Chapter 4.5 "How the menu control operates".

 PASSWORD 			
PASSWORD	DATA-PROTECTION	OFF	No protection
	DATA-PROTECTION	MED	The Configuration menu
			is protected
	DATA-PROTECTION	HIGH	The Configuration menu
			and the Application
			menu are protected
	NEW PASSWORD		Enter new password

The password protection permits you to protect the application menu and/or the configuration menu against unintentional changes.

See Chapter 4.6 "Password protection of the menus" and Chapter 10.1.4 "Activation of password protection" for further information on password protection.

5.11 Anti-theft encoding

To activate the menu see Chapter 4.4 "Activating the two main menus" and Chapter 4.5 "How the menu control operates".

• THEFTCODE		
THEFTCODE	THEFT-PROTECTION ON/OFF	Switch encoding on/off
	NEW CODE	Enter new code

If the anti-theft encoding is activated, a four-figure code must be entered after every interruption of the power supply in order to release the balance for use.

For further information on the anti-theft encoding see Chapter 4.7 "Anti-theft encoding".

To activate the anti-theft encoding, proceed as described for password protection.

5.12 Key tone

To activate the menu see Chapter 4.4 "Activating the two main menus" and Chapter 4.5 "How the menu control operates".



If the key tone is switched on, a short audio signal sounds each time a key is pressed.

5.13 Contrast

To activate the menu see Chapter 4.4 "Activating the two main menus" and Chapter 4.5 "How the menu control operates".

• CONTRAST		
CONTRAST 6	Set contrast	Only with LCD displays

Setting the display contrast in balances with LCD readout.

6 Working with the Application Menu

This chapter explains which working programs the balance has and how these are operated (see also Chapter 4.4 "Activating the two main menus" and Chapter 4.5 "How the menu control operates").

If «PRINT» is operated in an application, a report corresponding to the application is printed out.

6.1 Structure of the application menu

To activate the menu see Chapter 4.4 "Activating the two main menus" and Chapter 4.5 "How the menu control operates".

The working programs of the balance are called up using the application menu and adapted to the user's needs:

Main path	Definable functions
SET APP.	Select application program:
SETUP APPLICATION	Specify parameters for the working program selected under "Application»
SET STATISTIC	Statistics and storage functions
SET CHECK +/-	Define nominal weight and limits for comparison weighings
AUTO-START ON/OFF	The selected working program can, if required, be loaded automatically every time the balance is swtiched on

Tab. 6.1 Structure of contents of the application menu

Printing conventions:

- The settings for the sub-menus programmed in works are printed in **bold** in these operating instructions
- For a greater clarity, only that part of the menu tree which corresponds to this application is shown with each application description.

- You will find the complete menu tree for the application menu in Chapter "Application Menu Tree".
- Explanations of the menu functions are printed in *italics*.

6.2 Selecting a working program

See Chapter 4.4 "Activating the two main menus" and Chapter 4.5 "How the menu control operates" for the activation of the Application menu.

• SELECT APPLICA	TION	
SET APP. OFF		Normal weighing
UNI	TS	Different units
COL	JNT	Parts counting
PER	CENT	Percent weighings
CAL	CULATOR	Conversions
PAP	ER	Determine paper weight (in g/cm ²)
NET	-TOTAL	Add weighing results with intermediate tare
SUN	1	Add weighing results without intermediate tare
ANI	MAL	Animal weighings
DEN	SITY	Density determinations

In this function-field, select the desired working program.

If a working-program is selected in the "SET APP." menu, then only those sub-menus, which contain functions and parameters necessary to define the chosen working program are shown in the "SETUP AP-PLICATION" menu.

To activate the menu see Chapter 4.4 "Activating the two main menus" and Chapter 4.5 "How the menu control operates".

6.3 Setup for "SET APP. UNITS":

See Chapter 4.4 "Activating the two main menus" and Chapter 4.5 "How the menu control operates" for the activation of the Application menu.

SETUP APPLICATION			
UNITS	UNIT-2	kg	kilogramme
	UNIT-2	mg	milligramme
	UNIT-2		
	UNIT-2	OFF	not active
	UNIT-3	GN	Grain
	UNIT-3		
	UNIT-3	OFF	not active
	UNIT-4	C.M.	Metric carat
	UNIT-4		
	UNIT-4	OFF	not active

• Assigning the function keys:

- «g»: "Show measurement in unit 1" e.g. gramme
- «kg»: "Show measurement in unit 2" e.g. kilogramme
- «GN»: "Show measurement in unit 3" e.g. Grain
- «ct»: "Show measurement in unit 4" e.g. Carat or Statistics functions (if statistics-program activates)

ΝΟΤΕ

For basic operation, Unit 1 is defined in the Configuration menu (standard unit for all weighings, if the working-program "UNITS" is not called up, see Chapter 5.4 "Selecting the weight unit").

*			8.07	0 9
	9	K9	ТЬН	CT
	\bigtriangleup	\triangle	\triangle	\triangle
	«Œ»	«Ę≫»	«Ŷ	«ᠿ»

• Display in the "UNITS" application:

By pressing the relevant function key the weight display is switched to the corresponding unit.

6.4 Setup for "SET APP. COUNT"

See Chapter 4.4 "Activating the two main menus" and Chapter 4.5 "How the menu control operates" for the activation of the Application menu.

SETUP APPLICATION			
COUNT	KEY-1	5	Reference-number of pieces = 5
	KEY-2	10	Reference-number of pieces = 10
	KEY-3	25	Reference-number of pieces = 25
	KEY-4	50	Reference-number of pieces = 50

With the aid of the "COUNT" program you can count items of uniform weight (screws, balls, coins, etc.).

For this, you must first weigh a defined number of items (for example 5 items) and assign the reference number of pieces to the reference weight so obtained by pressing the corresponding function key.

Depending on the weight and tolerances of the objects to be counted, you should count a representative number of items for the regulation of the reference-weight.

• Assigning the function keys:

«5» definition of 5 items as the reference number

to

«50» definition of 50 items as the reference number

44

÷			123,45	69
	5	10	25	50
	\bigtriangleup	\bigtriangleup	\bigtriangleup	\bigtriangleup
	«<>»	«⇒»	«֏»	«ᠿ»

• Display in the "COUNT" application:

*				5 PCS
	5	10	25	50
	\bigtriangleup	\triangle	\bigtriangleup	\triangle
	«Œ»	«Ę∕>»	«Ŷ	«۳»

The measurement is first shown in grammes

Then press e.g. «5»

The measurement is shown or printed out recalculated in items (PCS)

6.5 Setup for "SET APP. PERCENT"

See Chapter 4.4 "Activating the two main menus" and Chapter 4.5 "How the menu control operates" for the activation of the Application menu.

SETUP APPLICATION			
PERCENT	DECIMALS	AUTO	Enter number of decimal
		0	places
		1	
		2	
		3	

With the aid of the "PERCENT" program you can display and print out the weight of different measurements as a percentage of a previously defined reference weight.

Place the reference weight on the balance and press «SET» to set the reference weight equal to 100%.

• Assigning the function keys:

«SET» Define reference weight to the number of decimal places indicated under «DECIMALS»

*		13,49	i 6 9
SET			
\triangle	\triangle	\bigtriangleup	\bigtriangleup
«全»	«=>»	«TP»	«⊕»

• Display in the "PERCENT" application:

The measurement is first shown in grammes

Then press «SET»

*		100.00	%
SET			
\triangle	\triangle	\bigtriangleup	\bigtriangleup
«Æ»	«Ę∕»	«Ŷ»	«Ψ»

The measurement will be set equal to 100%. All subsequent measurements will now be shown or printed out as percentages of the reference weight so defined.

6.6 Setup for "SET APP. CALCULATOR"

See Chapter 4.4 "Activating the two main menus" and Chapter 4.5 "How the menu control operates" for the activation of the Application menu.

SETUP APPLICATION			
CALCULATOR	SET KEY-1	NAME	nnnnn
		FACTOR	n.nnn e+n
		DECIMALS	n
		DISPLAY-TEXT	nnn
		PRINTER-TEXT	nnnnnnn
	SET KEY-2	NAME	nnnnn
		FACTOR	n.nnn e+n
		DECIMALS	n
		DISPLAY-TEXT	nnn
		PRINTER-TEXT	nnnnnnn
	SET KEY-3/-4	as for Keys 1 ar	nd 2

In activating the "CALCULATOR" application, each of the four function keys is first assigned a name and then a particular conversion factor, the definition of the number of decimal places, the display unit and the printer unit.

• Display in the "CALCULATOR" application:

+		123.45	6 9/m
NRITTE I	UBWE 5	NRME 3	NRME 4
\triangle	\bigtriangleup	\bigtriangleup	\bigtriangleup
«Æ»	«Ę∕»	«TP»	«⊕»

The measurement is recalculated and printed out accordingly.

In the program operation, the previously defined names of the keys appear over the function keys.

After pressing a function key, the current measurement is converted in accordance with the factor assigned and the result shown or printed out after pressing the Print key.

Thus, for example, you can convert and display the weights of sample materials of known size directly into "grammes per cubic metre".

6.7 Setup for "SET APP. PAPER"

See Chapter 4.4 "Activating the two main menus" and Chapter 4.5 "How the menu control operates" to activate the Application menu.

The setting up of the "paper" program is similar to that for the calculator. See Chapter 6.6 "Setup for "SET APP. CALCULATOR"".

With the aid of this program you can convert and display the weights of paper samples of standard sizes (for example 100 cm², 20x25 cm, A4, 40x25 cm) directly in "grammes per square metre".

• Display in the "PAPER" application:

*	÷		123.45	sme ð
	100	50X52	RY	40X25
	\bigtriangleup	\bigtriangleup	\bigtriangleup	\triangle
	«<>»	«⊒>»	«֏»	«ᠿ»

The measurement is recalculated and displayed or printed out accordingly.

This application is a special use of the calculator (see Chapter 6.6 "Setup for "SET APP. CALCULATOR"").

6.8 Setup for "SET APP. NET-TOTAL"

See Chapter 4.4 "Activating the two main menus" and Chapter 4.5 "How the menu control operates" for the activation of the Application menu.

• SETUP	There is no Setup menu for
APPLICATION	this application!
NET-TOTAL	

With the aid of the "NET TOTAL" program you can add individual weighings, where the balance is tared to zero again before each individual weighing.

• Assignment of the function keys:

«STO i»:	Take stable value and add to the sum of the components
«WAIT i»:	Value not stabilized yet

«RES»: Reset

«INF»: Change to display of total weight, residual capacity, individual components and again back to the current value.

Exit INF-Display with «esc»-button.

• Display for "NET TOTAL" application:

*		70.456	9
STO 2		RES	INF
\triangle	\bigtriangleup	\triangle	\bigtriangleup
«《=>»	«=>»	«Ŷ	«⊕»

Sequence, if display is changed with «⊕»:

+		100.57	9 9
TOTRL 100.5	79 9		
\triangle	\bigtriangleup	\triangle	\bigtriangleup
«〈卆»	«⊒>»	«Դ»	«Ŀ»

+		100.579	9
RES. CRP. 20	9.421 9		
\triangle	\bigtriangleup	\triangle	\bigtriangleup
«《=»	«Ę>»	«TP»	«ᠿ»

Display-sequence:

TOTAL: 100.579 g RES. CAP.: 209.421 g "individual components"

Exit with «esc»

6.9 Setup for "SET APP. SUM"

See Chapter 4.4 "Activating the two main menus" and Chapter 4.5 "How the menu control operates" for the activation of the Application menu.

• SETUP	There is no Setup menu for
APPLICATION	this application!
SUM	

With the aid of the "SUM" program, you can add individual weighings, without the balance being tared to zero before each individual weighing.

• Assignment of the function keys:

- «STO i»: Take stable value and add
- «WAIT i»: Value not stabilized yet
- «RES»: Reset
- «INF»: Change to display of total weight, residual capacity, individual components and again back to the current value.

Exit INF-Display with «esc»-button.

÷		70.45	69
STO 2		RES	INF
\triangle	\triangle	\triangle	\triangle
«《=>»	«Ę>»	«Ŷ	«ᠿ»

• Display for "SUM" application:

• Sequence, if display is changed with \ll :

*		70.456	9
TOTRL 10.45	69		
\triangle	\triangle	\bigtriangleup	\bigtriangleup
«《□»	«Ę∕»	«Դ»	«ψ»

Display-sequence:

TOTAL: 70.456 g RES. CAP.: 239.543 g "individual components"

Exit with «esc»

etc.

Δ

«Æ»

÷

RES. CRP. 239.543 9

Δ

«⇒»

6.10 Setup for "SET APP. ANIMAL"

70.456

 \wedge

«IP»

See Chapter 4.4 "Activating the two main menus" and Chapter 4.5 "How the menu control operates" for the activation of the Application menu.

9

∆ «∿»

SETUP APPLICATION			
ANIMAL	MEASURETIME	4	Enter time in seconds

With the aid of the "ANIMAL" program you can weigh living animals accurately, even if they move on the scale-pan.

The balance measures continuously throughout the period defined by the user in the Setup menu, averages the stored values at the end of the measuring period and displays average-measurement thus obtained.

• Assignment of the function keys:

- «MAN»: Manual release of the measurement
- «AUTO»: Automatic release of the measurement with a second delay after each load-change
- «STO»: Statistics and storage functions

• Display for "ANIMAL" application:

*			56.879	9
	MAU	RUTO		STO
	\triangle	\triangle	\triangle	\triangle
	«<>»	«Ę≫»	«Ŷ	«ŀ»

6.11 Setup for "SET APP. DENSITY"

See Chapter 4.4 "Activating the two main menus" and Chapter 4.5 "How the menu control operates" for the activation of the Application menu.

SETUP APPLICATION		
DENSITY	MODE SOLID ON BOTTOM MODE SOLID IN AIR MODE LIQUID	Solid body Solid (under-floor) Measure liquids
	MODE SOLID POROUS	Solid porous bodies
	INDEX ON/ OFF	Index on/off
	REFERENCE 8.000	Reference for index
	TIMEBASE 0.0	<i>Time base for repeat in seconds</i>
	REF. DENSITY 0.9988205	Density of the liquid used for the measure- ment (set at works for water at 20°C)
	TEMPERATURE 20.0 C	<i>Temperature of the water used for the measurement</i>

DECIMALS 3	Decimal places for
	density calculation

You can carry out density determinations with the aid of the "DENSITY" program.

ΝΟΤΕ

A Density Measurement Set (see Chapter 13 "Accessories") is available as an optional extra.

You can also determine the density of solids without this accessory (see Chapter 14.3 "Notes on density determination").

• Assignment of the function keys on initialization:

«OK»:	Accept current reference density
«CAL»:	Calculate reference density of the measuring liquid
«T-H2o»:	Set reference density to water at nn.n °C
«20.0C»:	Set reference density to water at nn.n °C

• Display for "DENSITY" application on initialization:

*		0	058866	S 9/ccm
	OK	KRL	05H-T	20.00
	\triangle	\triangle	\triangle	\triangle
	«〈二》	«⊨⋛»	«֏»	«ŀ»

• Assignment of the function keys on measurement:

«AIR», etc	Invitation to measure the corresponding value
$\ll < - > $ »:	"Switch" from index to density
«SET»:	Executes corresponding step
«STO»:	Stores corresponding value (statistics)

STEP	*		123,456	9
1	RIR			SET
2	BOTTOM			SET
3	CLOSED PORES	I		SET
4	LIQUID			SET
5	DENSITY		<->	STO
6	INDEX		<->	STO
	\triangle	\bigtriangleup	\bigtriangleup	\bigtriangleup
	«全»	«Ę∕≫»	«TP»	«ψ»

• Display for "DENSITY" application with the measurement:

The associated signs appear in the Info-line for up to six necessary operating steps.

If the tare key (T) is pressed in step 5 or 6, it effects a reset.

The program leads the operator through the individual operating steps.

See Chapter 14.3 "Notes on density determination" for further explanations of density determination.

6.12 Setup for the statistics-program

See Chapter 4.4 "Activating the two main menus" and Chapter 4.5 "How the menu control operates" to activate the Application menu.

• SET STATISTIC		
STATISTIC	MODE OFF	Statistics program off
	MODE STATISTIC	Statistics only
	MODE RECORDER	Data storage only
	MODE STAT./RECORDER	Stat. and storage
	COUNT 100	Number of values to be
		stored automatically
		(1999)
	RECORDING MANUAL	With «STO» function
		key
	RECORDING TIMEBASE	On a time basis
	RECORDING LOADCHANGE	After every weight
		change
	TIMEBASE 2.0	Time base for "storage"
		in seconds

- Functions of the statistics program and storage functions:
- MODE
 - In this function-field, you define, whether only the statistics-program, only the storage-program or both programs simultaneously should be used.
- RECORDING
 - With "MANUAL", the «STO» function key must be pressed for each value to be stored.
 - With "LOADCHANGE" the balance stores the measured value automatically after a load change.
 - With "TIMEBASE" the balance stores every value measured after a defined period (works setting: 2.0 seconds).
- TIMEBASE
 - Definition of the time span for the recording of data in accordance with "RECORDING TIMEBASE" (for example, every 2 seconds).

• NUMBER

 A number of measurements is laid down, after which automatic storage is to be terminated.

NOTE

In storing the first value a range of $\pm 50\%$ is determined. Subsequent values must be within this range otherwise an error message will be issued.

• Assigning the function keys for "Stat./Recorder":

«STO»:	Take value, start/stop of automatic recording
«AUTO i»:	Automatic recording is running
«WAIT i»:	Value not stabilized yet
«END»:	Permanently store data (only with recording activated)
«RES»:	Before a new series of measurements the storage must be reset using «RES».
«INF»:	To change display to «mean value (MEAN)», «standard deviation (STDE.)», «relative standard deviation (STDE%)», «Maximum (MAX)», «Minimum (MIN)», recorder values, and again «current value»

Exit INF-Display with «esc»-button.

• Display in the statistics-program

÷		123.49	56 9
STO		RES	INF
\triangle	\bigtriangleup	\bigtriangleup	\triangle
«全»	«Ę≫»	«֏»	«IJ»

*		123,4	56 9	Display seq	juence:
ME	RU UR	153	3.456 9	MEAN:	123.456 g
\triangle	Δ	\triangle	\bigtriangleup	STDE.:	0.001 g
«< <u>~</u>	r» «⊐>	» «Ŷ»	«ᠿ»	STDE%:	0.01 %
then:				MAX:	123.457 g
*		123,49	56 9	MIN:	123.456 g
STO	E	0	.001 9	"individual	values"
\triangle	Δ	\triangle	\triangle		
«<=	°» «⊒>:	» 《①»	«∿»	Exit with «	esc»

6.13 Setup for Check-Weighing

See Chapter 4.4 "Activating the two main menus" and Chapter 4.5 "How the menu control operates" for the activation of the Application menu.

• SET CHECK +/-			
CHECK +/-	MODE	ON/ OFF	Switch application on/off
	NOM.	100.000 g	Enter nominal weight
	то	120.000 g	Define over load
	TU	80.000 g	Define under load

With the aid of the «CHECK +/-» program you can check each measurement for its agreement with a defined reference-value plus/minus allowable deviations.

In the «CHECK +/-» application the four function keys are not active. In the display "+", "-" and « $\rightarrow II \leftarrow$ » are active.

If $\ll \exists I \in \mathbb{R}$ lights up, the measured value lies within the specified tolerances.

NOTE

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As an accessory, a signal light is available for this type of display. See Chapter 13 "Accessories".

7 Special operating keys

7.1 The Tare key «T»

• Effects taring

- Ensure that the balance is in the weighing mode
- Briefly press «T»
- The balance performs a tare operation.

• Effects a calibration

- Ensure that the balance is in the weighing mode
- Keep «T» pressed until "CALIBRATION" is displayed
- Release «T»
- The balance carries out a calibration in accordance with the settings in the configuration menu (cf. Chapter 5.6 "Calibration functions") and reports these by means of a printout.

NOTE

A calibration can be cancelled with «ON/OFF».

7.2 The Print key «PRINT»

· Print out an individual value or a report

- Ensure that the balance is in the weighing mode
- Briefly press «PRINT»
- The individual value or report will be printed out.

• Reset product counter to 1

- Ensure that the balance is in the weighing mode
- Keep «**PRINT**» pressed until "RESET PROD.-COUNTER" is displayed
- Release «**PRINT**»
- The product counter will be reset to 1.

• Print out a balance status

- Ensure that the balance is in the weighing mode
- Keep «**PRINT**» pressed until "PRINT STATUS" is displayed
- Release «PRINT»
- The balance status will be printed out.

• Print out the application-setup

- Ensure that the balance is in the weighing mode
- Keep «**PRINT**» pressed until "PRINT APPLICATIONS" is displayed
- Release «PRINT»
- The application-setup will be printed out.

7.3 The Change key «^C/₂»

• Switch to other applications

 As long as you keep «C» pressed, all active applications are shown one after the other:

if, for example, the statistics program, the check + /- program and the «COUNT» application are activated, «BALANCING»,

«CHECK +/-», «STATISTIC» and «COUNT» appear in the info-line one after the other:

 Release «^C/₂» when the application to which the balance should be switched, appears in the display.

8 Data transfer to peripheral devices

For data-transfers to peripheral devices, the balance is equipped with an RS232/V24-interface.

Before the data-transfer, the RS232 interface must be matched with the one in the peripheral device in the balance's configuration menu (see Chapter 5.8 "Interface-functions").

Handshake

The handshake is set to "NO" (none) in the works. It can be set to software handshake XON/XOFF, or to hardware handshake.

• Baud rate

Possible baud rates: 300, 600, 1200, 2400, 4800, 9600 or 19200 baud.

• Parity

Possible parity: 7 even 1 stop, 7 odd 1 stop, 7 No 2 stop or 8 No 1 stop.

Parity	SB	1	2	3	4	5	6	7	8	SP
7-even-1	SB	1.DA	2.DA	3.DA	4.DA	5.DA	6.DA	7.DA	PB	SP
7-odd-1	SB	1.DA	2.DA	3.DA	4.DA	5.DA	6.DA	7.DA	PB	SP
7-no-2	SB	1.DA	2.DA	3.DA	4.DA	5.DA	6.DA	7.DA	1.SP	2.SP
8-no-1	SB	1.DA	2.DA	3.DA	4.DA	5.DA	6.DA	7.DA	8.DA	SP

SB: Start bit DA: Data bit PB: Parity bit

SP: Stop bit

8 Data transfer to peripheral devices

8.1 Connection to peripheral devices

• Standard, duplex connection

Balance	RJ 45	D25 / D9	Peripheral device
RS 232 out	2 —	► 3/2	RS 232 in
RS 232 in	6 🚽	<u> </u>	RS 232 out
GND	5 —	— 7 / 5	GND

• Standard, duplex connection with additional hardware handshake in the peripheral device

Balance	RJ 45	D25 / D9	Peripheral device
RS 232 out	2	► 3/2	RS 232 in
RS 232 in	6 🚽	<u> </u>	RS 232 out
GND	5	— 7 / 5	GND
CTS	3 ┥	<u> </u>	DTR
DTR	7	► 5/8	CTS

• Pinout of RJ45 socket

Balance	RJ 45	Remark
n.c.	1	Not connected
RS 232 out	2	Out (V24)
CTS	3	In (V24)
VDC	4	Out (916V)
GND	5	0V
RS 232 in	6	In (V24)
DTR	7	Out (V24)
EXTBUS	8	In (5V, logic)



8.2 Data-transfer

• Display

S D7 D6 D5 D4 D3 D2 D1 D0 UUU

The data-transfer takes place in ASCII code:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	 	
В	В	В	S	D7	D6	D5	D4	D3	D2	D1	DP	D0	В	U	 CR	LF

- B Blank (space)
- **S** Sign (+, -, space)
- DP Decimal Point
- D0...D7 Digits
- U ... Unit (only when weight is stable, else no unit transfered)
- **CR** Carriage Return
- LF Line Feed

NOTE

Unused positions are filled with spaces.

The decimal-point DP can be between D0 and D7.

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8.3 Remote control-commands

Command	Function					
ACKn	Handshake $n = 0$ off; $n = 1$ on					
CAL	Start calibration (only where INT or EXT selected)					
DN	Reset weight display					
D	Describe weight display (right-aligned)					
@N	Reset Info display					
@	Describe Info display					
In	Set FLOATINGDISPLAY time n = 0 t = 0.04 s					
	n = 1 t = 0.08 s					
	n = 2 t = 0.16 s					
	n = 3 t = 0.32 s					
Ν	Reset balance					
OFF	Switch off balance					
ON	Switch on balance					
PCxxxx	Enter anti-theft code					
PDT	Print out date and time					
PRT	Start printing (Press "Print" key)					
PST	Start print status					
Pn (ttt.t)	Set print mode					
	n = 0 Individually print each value (unstable)					
	n = 1 Individually print each value (stable)					
	n = 2 Print after change of load					
	n = 3 Print after each integration period					
	n = 4 Print on time basis in s (ttt.t)					
R%k	Set current weight = 100%					
	with $k = 07$ decimal places ($k = A$: use automatic					
	positioning of decimal point)					
REF%k rrr	Set reference weight rrr for 100%					
	with $k = 07$ decimal places ($k = A$: use automatic					
	positioning of decimal point)					
Rnnn	Set current weight = nnn items					
REFrrr	Set reference weight rrr for 1 item					

Command	Function	
Sn	Set stability n n = 0 low	
	n = 1 medium	
	n = 2 high	
SDTttmmjj	Set date and time (German) (Tag, Monat, Jahr,	
hhmmss	Stunde, Minute, Sekunde)	
SDTmmdd	Set Date and Time (English) (Month, Day, Year,	
yyhhmmss	Hour, Minutes, Seconds)	
T (ttt)	Tare or set tare to a specific value	
Uxnn	Set unit x (14) of the balance with nn ($0 = g$,	
	1 = mg, 2 = kg,)	
UxS	Switch balance to unit x (14)	
ZERO	Zero balance (provided weight is stable and within	
	the zero position range)	

Tab. 8.4 Remote control-commands

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Each remote control-command must terminate with «CR» «LF». The commands are acknowledged if required.

8.4 Examples for the remote control of the balance

Input	Description of the function executed
D	Five dashes will be shown
DTEST123	Will show: tESt123
D	The display will be dark
T100	-100.000g (Tare set to 100 g)
T1	-1.00000 g (Tare set to 1 g)
Т	Balance will be tared

Tab. 8.5 Examples for remote control

9 Error messages and correction of faults

The balance shows a description of the fault in the info-line.

D NOTE

If an error occurs without a description of the error in the info-line, a service engineer must be called.

9.1 Notes on correcting faults

The following table shows faults and their possible causes. If you cannot clear the fault on the basis of the table, please contact a service engineer.

Fault	Possible cause
Weight dis- play does not light	 Balance not switched on Connection to power adaptor is interrupted Power supply has failed (interruption to current) The power adaptor is defective
"OL" is shown in display	• The weight range has been exceeded (Observe information on the maximum weight range)
"UL" is shown in display	• The weight range is below the range of the ba- lance (Scale pan or scale pan holder missing)
The weight display fluctuates continuously	 The draft is too strong at the balance location The balance support is vibrating or varying The scale pan is touching a foreign body The time chosen for FLOATINGDISPLAY is too short The material being weighed is absorbing moisture The material being weighed is being blown away, is evaporating or is subliming Strong temperature variations in the material being weighed

Fault	Possible cause
Results of weighing are clearly incor- rect	 The balance was not correctly tared The balance is not correctly levelled The calibration is no longer correct There are strong temperature variations
There is no display or only dashes	 The stability control (Balance functions) is set too sensitively The time selected for FLOATINGDISPLAY is unsatisfactory
Configuration menu cannot be changed	 The password lock is activated in the configu- ration menu
The display flashes conti- nuously du- ring calibration	 The balance location is not quiet enough (Interrupt calibration with «ON/OFF» and relocate the balance in a better position) Use of an imprecise calibration weight (only applies to external calibration)

Tab. 9.1 Possible faults and their removal

10 Practical examples

10.1 Changing the Configuration menu

See Chapter 4.4.1 "Activating the configuration menu", for the activation of the Configuration menu.

10.1.1 Setting the choice of language

In order to alter the display language, proceed as follows:



10.1.2 Setting the Weight unit

In order to alter the weight unit, proceed as follows:



- Press « I » repeatedly until "UNIT-1" appears
- Press « 🖉 »
- The display will flash
- Press «¹/₄» repeatedly until the desired unit appears
- Press «<">∠"> to confirm the selection

10.1.3 Setting the Print functions

In order to alter the print parameters proceed as follows:

Set data print	 Press «
Rutostart on	 Press «→»to get to the function field ("AUTO-START OFF" or "AUTO-START ON" is displayed) Press «<¹/_√»
RUTOSTART OF	 The display flashes
	 Press « I » to switch between "ON" and "OFF" Press « I » to confirm the
	selection
mode stable	 Press «⊕» to select the next function ("MODE STABLE" is dis- played) Press «⇐¹»
mode stable	 The display flashes
	 Press « Image: white wh
MODE LORDCHRIGE	 Press «<">∠"> to set the new parameter

Press « \Downarrow » again to select the next function ("TIMEBASE 2.0" appears, then "SET PRINTFORMAT" then again "AUTOSTART ON", etc.).

Press « ${}^{<\!\!\!<\!\!\!}$ "» to select the parameter which you want to change. Change the value of the functions in a similar way to that described for changing the "AUTOSTART" and "MODE" functions and confirm the changes in each case with « ${}^{<\!\!\!}$ "».

10.1.4 Activation of password protection

The possibilities for setting the password protection are described in Chapter 5.10 "Password protection".

In order to activate password protection, proceed as follows:



In order to alter the password, proceed as follows:

DRTR-PROTECTION MED

NEW PRSSWORD

DRTR-PROTECTION MED

- Enter the password and press $\ll \frac{1}{2}$ »
- Now the current data-protection status is displayed
- Press « I »
- Enter the new password (procedure as described above)

10.2 Selection of an Application program

See Chapter 4.4.2 "Activating the application menu" for the activation of the Application menu.

10.2.1 Setting for Counting by weighing

For Setup, see Chapter 6.4 "Setup for "SET APP. COUNT"" To count uniformly heavy objects such as coins, screws or similar things, proceed as follows:


When you have set the values for "KEY-3" and "KEY-4" in the same way, press <code>«MENU»</code>, in order to return to the weighing mode.

The balance now shows "0.00 g".

You can switch to "COUNT" by prolonged pressing of the Change key « $\ensuremath{\mathbb{C}}$ ».

The following display appears:

		0.00	9 9	• Place five of the items to
5	8	25	50	be counted
Δ	\triangle	\triangle	\triangle	scale pan.
«Æ»	«Ę∕»	«֏»	«Ū»	
			-	l _ _
		3.78	209	• Press «5»
5	8	25	50	count = 5
\bigtriangleup	\bigtriangleup	\bigtriangleup	\bigtriangleup	
«Œ»	«Ę∕»	«TP»	«Ū»	
			-	
			5 PCS	 The weight is now received and
5	8	25	50	displayed as pieces (PCS)
\triangle	\bigtriangleup	\triangle	\triangle	
«全»	«Ę∕»	«TP»	«ψ»	
				l na marta
		65	II PCS	 Now place all the items to be counted on the
5	8	25	50	scale pan
\triangle	\bigtriangleup	\triangle	\triangle	•
«⟨=»	«⊑∑»	«۲۴»	«۳»	• The number will now be
				displayed

NOTE

Depending on the weight and tolerances of the items to be counted you should count out a representative number of items for the determination of the reference weight.

10.2.2 Setting the statistic-functions

In order to store measurements, and subsequently be able to appraise them statistically, proceed as follows:





Press «**MENU**», in order to return to the weighing mode again. The balance now shows "0.00 g".

If you hold down the Change key $\ll 2$ », "COUNT", then "STATI-STICS", then "WEIGH", then again "COUNT" and so on appear in the info-line one after the other.

Hold down the Change key, until "STATISTICS" is shown and then release the key. The following display appears:

		0.00	9
STO 0		RES	INF
\triangle	\bigtriangleup	\bigtriangleup	\triangle
«全»	«Ę∕»	«Ŷ»	«ᠿ»
		8.05	0 9
STO I		RES	INF
\triangle	\triangle	\triangle	\triangle
«〈칻»	«=>»	«Դ»	«Ŀ»
		8.15	09
STO 2		8.15 RES	0 9 INF
5TO 2	Δ	8.15 RES	09 INF
STO 2 	∆ «E>>»	8.15 RES △ «Ŷ»	0 9 INF △ «∜»
STO 2 △ «⟨==>»	∆ «⊐>>»	8.15 RES △ 《介》 7.82	0 9 INF ∝⊕» 0 9
5TO 2 △ «<;>»	∆ «⊐>>»	8.15 RES △ «♈» 7.82 RES	09 INF (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)
STO 2 △ «<>» STO 3 △		8.15 RES △ «Ŷ» 1.82 RES △	0 9 INF △ «↓» 0 9 INF △

- Place the first item (e.g. a pin) on the scale pan.
- Press «STO 0» to start the recording.
- Place the second pin on the scale pan
- Place the third pin on the scale pan

■ 10 Practical examples

Now you can call up the statistics-parameters. Press « \Downarrow ».

The following display appears (mean value):

		0.00	30 9	 Press «⊕» repeatedly
MEAN			8.006 9	to scroll through the
\triangle	\triangle	\triangle	\triangle	statistics parameters one
«Œ»	«Ę∕»	«Ŷ»	«Ū»	after the other
		0.00	9 9	 Standard deviation
STDE			0.169 9	
\triangle	\bigtriangleup	\triangle	\triangle	
«Œ»	«Ę∕»	«Ŷ»	«Ψ»	
		0.00	9 9	 Relative standard
STDE-%			2.11 %	deviation
\triangle	\triangle	Δ	Δ	
«Æ»	«⊒>»	«Ŷ»	«Ŀ»	
		0.00	9 9	 Maximal value
MRX			8.150 9	
\triangle	\bigtriangleup	\triangle	\bigtriangleup	
«Œ»	«Ę∕»	«Ŷ»	«Ψ»	
		0.00	NO -	Minimal value
		0.00	<i>)</i> U 9	
min			9 058.7	 Press «esc» to exit the
\triangle	\bigtriangleup	\triangle	\triangle	Info-Display
«Œ»	«Ę∕»	«۳»	«ψ»	
		0.00	<u>ا</u> م	 «BES» resets the
670 D		0.00		memory.
5103		RES	80-	The balance is then ready
Δ	\bigtriangleup	\triangle	Δ	for the next series of
«〈〉	«Ę∕»	«"IP»	«Ф»	measurements.

11 Maintenance and servicing

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The balance must be treated carefully and cleaned regularly. It is a precision instrument.

DANGER

For maintenance-work, the balance must be separated from the power supply (remove power adaptor plug from socket). Also ensure that the balance cannot be reconnected to the power supply during the work by a third party.

Take care during cleaning that no liquid penetrates into the appliance. If liquid is spilt on the balance, the latter must immediately be disconnected from the electricity supply. The balance may only be used again after it has first been checked by a Service Engineer.

The connections on the rear of the appliance and the power adaptor may not come into contact with liquids.

Regularly dismantle the scale pan and the scale pan holder and remove any dirt or dust from under the scale pan and on the balance housing with a soft brush or a soft, lint-free cloth, moistened with a mild soap solution.

The scale and the holder can be cleaned under running water. Take care that both parts are completely dry, before they are re-installed on the balance.

Never use solvents, acids, alkalis, paint thinners, scouring powders or other aggressive or corrosive chemicals for cleaning, since these substances attack the surfaces of the balance housing and can cause damage.

The regular maintenance of the balance by your Service Representative will guarantee unrestricted functioning and reliability over many years and will extend the lifespan of the balance.

12 Transport, storage and disposal

12.1 Transportation and shipping of the balance

Your balance is a precision instrument. Treat it carefully.

Avoid shaking, severe impacts and vibration during the transportation.

Take care that there are no marked temperature fluctuations during the transportation and that the balance does not become damp (condensation).

NOTE

The balance should preferably be dispatched and transported in the original packaging to avoid transportation damage.

12.2 Storage of the balance

If you would like to take the balance out of service for an extended period, disconnect it from the electricity supply, clean it thoroughly (see Chapter 11 "Maintenance and servicing") and store it in a place which fulfils the following conditions:

- No violent shaking, no vibrations
- No large temperature fluctuations
- No direct solar radiation
- No moisture

NOTE

D

The balance should preferably be stored in the original packaging, since this provides optimal protection for the balance.

13 Accessories

13.1 Accessories

Accessory	Article-number
Second display, free-standing	350-8504
Second display, built-in	350-8505
Second display, wall mounted	350-8516
Interface RS232	350-8506
Interface 20 mA current loop passive	350-8526
Analog output -10 V + 10 V (Resolution 10 mV)	350-8508
Smartbox Module for various applications: Parts counting with stored values and part numbers	350-8511-001
Finished pack control to FPVO	350-8511-002
Signal-lamp with 3 bulbs (green, yellow, red)	350-8510
Input/Output module (6 TTL inputs, 8 Relay outputs)	350-8509
Multiplexer for up to 7 balances (RS232)	350-8513
Data-cable RJ45 - RJ45, 0.75 m	350-8525
Data-cable RJ45 - RJ45, 1.5 m	350-8520
Data-cable RJ45 - RJ45, 3 m	350-8521
Data-cable RJ45 - DB9 female (PC), 1.5m	350-8557
Data-cable RJ45 - DB25 female (PC), 1.5m	350-8558
Data-cable RJ45 - DB25 male (Printer), 1.5m	350-8559



■ 13 Accessories

Accessory	Article-number
Density determination kit	350-8636
Density determination kit without glass body (solids only)	350-8637
Windshield for M- and C-balances	
Heighth 180 mm	350-8518
Heighth 260 mm	350-8519
Dust cover for display, set of 20 pieces	350-8590
Night cover	350-4097
Hooks for under-floor weighing	350-8527

14 Further information

14.1 Notes on the Weighing mode

14.1.1 Set Weighing mode: FLOATINGDISPLAY

The value set for FLOATINGDISPLAY defines the period, after which each new measurement is displayed.

For the definition of this period, the quality of the balance-location is crucial. The stability control must also be suitably chosen.

Recommended values:

- Optimal balance location:
- Good balance location:
- Critical balance location:

FLOATINGDISPLAY 0.04 or FLOATINGDISPLAY 0.08 FLOATINGDISPLAY 0.16 FLOATINGDISPLAY 0.32

NOTE

The value of the Floating Display is a function of the stability control and the balance location. For balance location, see Chapter 3.4 "Choice of a suitable location" and Chapter 5.7 "Weighing mode".

14.1.2 Set Weighing mode: Stability control

The value set for the stability control depends on the quality of the balance location and must be correctly chosen in order to obtain optimal, reproducible results. Choose:

- "HIGH STABILITY" at an optimal balance location,
- "MEDIUM STABILITY" at a good balance location or
- "LOW STABILITY" at a critical balance location

14.1.3 Set Weighing mode: Auto-Standby

The Auto-Standby mode turns off the balance automatically, if:

- the balance is tared and has shown "Zero" for at least 5 minutes
- the balance has received no remote control command via the interface for at least 5 minutes,
- the automatic zero correction "Auto-Zero" is activated.

It is possible to start the balance again after it has been switched off by an automatic Auto-Standby:

- Briefly depress any key
- Put a weight on the scale
- Give a remote control command via the interface

14.1.4 Set Weighing mode: Auto-Zero

If the automatic zero correction "Auto-Zero" is activated, the balance always gives a stable zero (e.g. even with room temperature fluctuations).

14.2 Notes on calibration

The calibration of the balance is fixed in the Configuration menu (see Chapter 3.7 "Calibration of the balance" and Chapter 5.6 "Calibration functions").

Possible types of calibration, depending on the model of balance:

- External calibration by means of ICM (Intelligent Calibration Mode)
- External calibration with freely selectable weight
- Internal calibration
- Automatic calibration

Ο ΝΟΤΕ

The calibration can be interrupted at any time by pressing $\langle ON/OFF \rangle$.

14.2.1 External calibration by means of ICM

Depending on the type of balance, calibration weights in steps of 10 g, 50 g, 100 g and 500 g can be used, where the calibration weight must correspond to the precision of the balance.

For an external calibration by means of ICM, "SET CALIBRATION MODE EXTERNAL" must be selected in the Configuration menu (see Chapter 5.6 "Calibration functions").



14.2.2 External calibration with freely selectable weight

For an external calibration with user-definable weight, "SET CALIBRA-TION MODE EXT. -DEF." must be selected in the Configuration menu (see Chapter 5.6 "Calibration functions").

Then, the effective value of the calibration weight (DEF. n'nnn g) must be entered with up to tenfold precision compared with the balance.



If calibration is carried out with the free weight, then only this weight may be used.

Then proceed as follows:



14.2.3 Internal calibration

For an internal calibration with the built-in calibration weight "SET CA-LIBRATION MODE INTERNAL" must be selected in the Configuration menu (see Chapter 5.6 "Calibration functions").

Then proceed as follows:

- Switch to "BALANCING" with the Change key
- Press «T» until "CALIBRATION" is shown.
- The calibration is finished after a certain period of time.

14.2.4 Automatic calibration

For an automatic calibration with the built-in calibration weight "SET CALIBRATION MODE AUTO" must be selected in the Configuration menu (see Chapter 5.6 "Calibration functions").

The balance now calibrates itself automatically every 24 hours and/or after each temperature change of 3 degrees Celsius, depending on the definition in the Configuration menu "SET CALIBRATION AUTOCAL".

The time of the automatic calibration is as determined in the Configuration menu under "SET CALIBRATION AUTOCAL. -TIME n h". (e.g. 6 h for 06.00 o'clock in the morning).

NOTE

For the automatic calibration by time and by time/temp. the date and time of the balance must first be correctly set (see Chapter 5.9 "Date and time").

The calibration can also be effected manually any time while autocalibration is activated.

The automatic calibration then takes place only if no weight is placed on the pan for at least five minutes.

It is recommended, that the time for the auto-calibration be set at a time outside the normal business hours (for example, in the early morning).

14.3 Notes on density determination

With the aid of the "Density" program the density of solids and liquids can be determined (with accessories for the density determination, see Chapter 13 "Accessories").

For this, different types of weighing can be selected:

14.3.1 Density determination "Solid on bottom mode"

A temperature-controlled reference-liquid (water) is poured into a bowl, placed on the scale pan and tared.

The solid is then placed into the liquid and weighed. Subsequently, the solid is suspended so that it is still completely immersed in the water, but no longer touches the base. It is weighed again.

From the weights, the balance determines the density of the solid.

14.3.2 Density determination "Solid in air mode"

With this weighing method, the solid is weighed with the aid of underfloor weighing (see Chapter 3.10 "Under-floor weighing").

The solid is then placed in the temperature-controlled reference liquid (water) so that it does not touch the base of the bowl, but is nevertheless fully immersed in the water. Weighing is again carried out.

From the weights, the balance determines the density of the solid.

14.3.3 Density determination "Liquid mode"

The density of a liquid is determined using this method of weighing.

The procedure is exactly the same as with the density determination by the "Solid in air" method. A glass object with a volume of 10 cm^3 or 100 cm^3 is used as the solid (available as accessories, see Chapter 13 "Accessories").

14.3.4 Density determination "Solid porous mode"

The density of a porous solid is determined with this method of weighing.

In order to carry out such measurements, you will require the Density Determination Kit (see Chapter 13 "Accessories"). The instruction manual supplied with this kit describes the procedure for the density-measurement.

15 Configuration menu tree

• SET CONFI- GURATION			
	FACTORY CONFIG.		
	USER CONFIG.		
	STORE CONFIG.		
• UNIT-1			
UNIT-1 g			
mg			
kg			
 Bht			
• SET			
	AUTO-STARTON/OFF		
	MODEUNSTABLE		
	MODESTABLE		
	MODELOADCHANGE		
	MODECONTINUOUS		
	MODETIMEBASE		
	TIMEBASE 2.0		
	SET PRINTFORMAT		ON/OFF
		PRODUCT-ID	ON/OFF
		GROSS AND TARE	ON/OFF
		UNITS	ON/ OFF
		OPERATOR-ID	ON/\mathbf{OFF}
		LINEFEED OFF//FC	RMFEED
		PRODUCT ttt	
		PRODUCTMODE HO	LD

 SET CALI- BRATION 		
	MODE	OFF
	MODE E	XTERNAL
	MODE E	XTDEF.
	MODE II	NTERNAL
	MODE	AUTO
	DEF.	0.000 g
	AUTOCAL. TIN	/IE/TEMP.
	AUTOCAL. TEMP	ERATURE
	AUTOCAL.	TIME
	AUTOCALTIME	6 h
• SET WEIGH- ING MODE		
	FLOATINGDISPLA	AY 0.04
	FLOATINGDISPLA	AY 0.08
		AY 0.16
		AY 0.32
	STABILITY	
	STABILITY	HIGH
	AUTO-STANDBY	OFF
	AUTO-STANDBY	0,5 MIN
	AUTO-STANDBY	1 MIN
	AUTO-STANDBY	5 MIN
	AUTO-STANDBY	10 MIN
	AUTO-ZERO	ON/OFF
	QUICK-TARE	ON/ OFF
• SET INTERFACE		
	BAUDRATE	300
	BAUDRATE	600
	BAUDRATE	1200
		2400 4800
	BAUDRATE	9600
	BAUDRATE	19200

	PARITY	7-EVEN-1STOP
	PARITY	7-ODD-1STOP
	PARITY	7-NO-2STOP
	PARITY	8-NO-1STOP
	HANDSHAK	(E NO
	HANDSHAK	E XON-XOFF
	HANDSHAK	E HARDWARE
• SET DATE		
AND TIME		
	DATE	[DD.MM.YY]
	TIME	[HH.MM.SS]
	FORMAT	STANDARD/US
• PASSWORD		
PASSWORD	DATA-PRO	TECTION OFF
	DATA-PRO	FECTION MED
	DATA-PRO	FECTION HIGH
	NEW PASS	WORD
• THEFTCODE		
THEFTCODE	THEFT-PRO	TECTION OFF
	THEFT-PRO	TECTION ON
	NEW CODE	
• LANGUAGE		
	LANGUAGE	ENGLISH
	SPRACHE [DEUTSCH
	LANGUE FF	RANCAISE
• KEY TONE		
KEY TONE	KEY TONE	OFF
	KEY TONE	ON
 CONTRAST 		
CONTRAST		

Application Menu Tree

• SET APP.		
OFF UNITS COUNT PERCENT CALCULATOR PAPER NET-TOTAL SUM		
ANIMAL		
DENSITY		
• SETUP APPLICATION		
	Division dep	ends on the current
	<i>application, see</i> Unapter 6	
	Application Menu"	
	, ipplication	
• SET STATISTIC	MODE	0.55
	MODE	UFF STATISTIC
	MODE	RECORDER
	MODE	STAT./RECORDER
	COUNT	100
	RECORDING	MANUAL
	RECORDING	TIMEBASE
	RECORDING	LOADCHANGE
	TIMEBASE	2.0
• SET CHECK +/-		
	MODE	ON/ OFF
	NOM.	100.000 g
	то	120.000 g
	TU	80.000 g
• AUTO-START		
	AUTO-STAR	T ON /OFF

16 Declaration of confirmity

Declaration of conformity for apparatus with CE mark Konformitätserklärung für Geräte mit CE-Zeichen Déclaration de conformité pour appareils portant la marque CE Declaración de conformidad para aparatos con disitintivo CE Dichiarazione di cofnromitá per apparecchi contrassegnati con la marcatura CE

- **English** We hereby declare that the product to which this declaration refers conforms with the following standards.
- Deutsch Wir erklären hiermit, dass das Produkt, auf das sich diese Erklärung bezieht, mit den nachstehenden Normen übereinstimmt.
- Français Nous déclarons avec cela responsabilité que le produit, auquel se rapporte la présente déclaration, est conforme aux normes citées ci-après.
- Español Manifestamos en la presente que el producto al que se refiere esta declaración est ´a de acuerdo con las normas siguientes
- Italiano Dichiariamo con ciò che il prodotto al quale la presente dichiarazione si riferisce è conforme alle norme di seguito citate.

Electronic Balance:

Precisa Serie 320 XB Precisa Serie 320 XT

Mark applied	EU Directive	Standards
CE	2004/108/EC 2006/95/EC	EN61326 EN61010

Date: 1.10.2008

Signature:

R. Grolimund Ř & D Manager

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