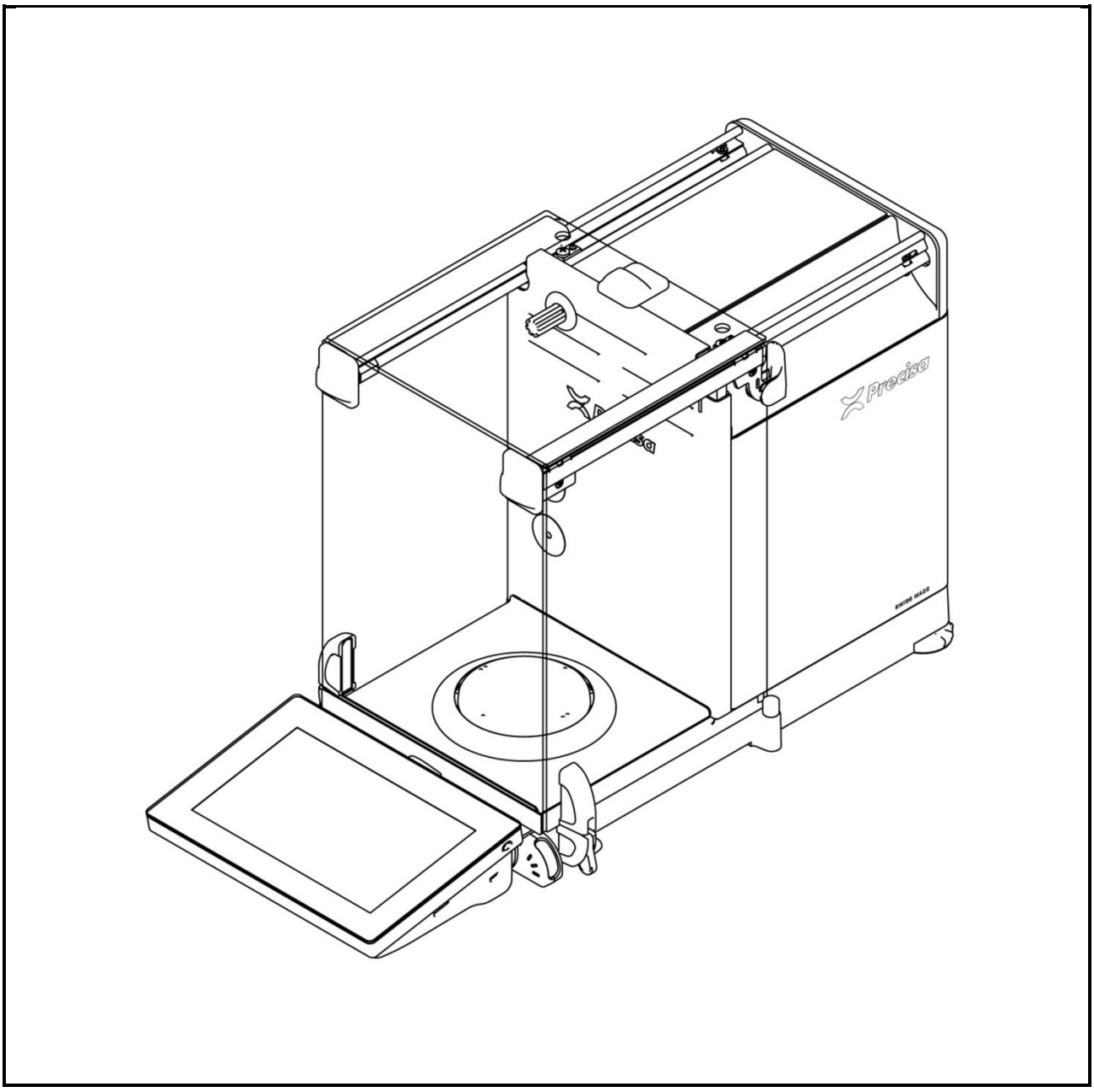
SWISS MADE

390 HF/HA/HE/HM



Operating Instructions

350-8182-000 --

Precisa
THE BALANCE OF QUALITY

Identification

Operating Instructions, Precisa 390, Semi-micro and analytical balances HF/HA/HE/HM
Item number 350-8182-000
Index --
June 2020
Subject to technical modifications

www.precisa.com

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1 Your new balance

Thank you for purchasing a new Precisa balance from the 390 series.

1.1 About this manual

This manual has been written to help you working with your new balance. Read this manual thoroughly before use and keep it where all those who use the instrument will read it.

1.1.1 Symbols and conventions

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

WARNING
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.

1.1.2 Illustrations and buttons

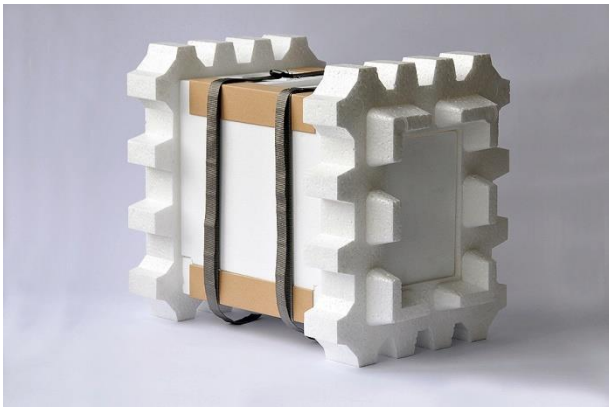
Illustrations and screenshots shown in this manual may differ from actual display.

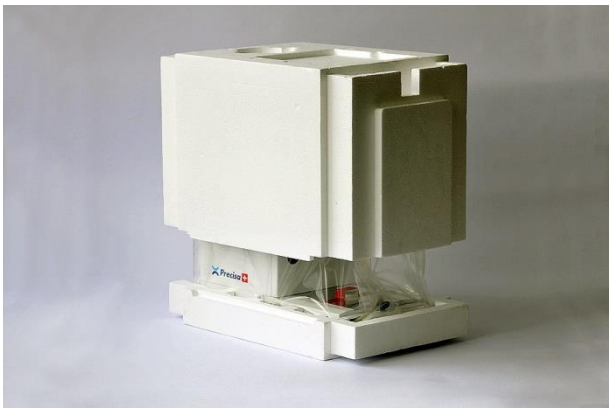
Buttons, icons and keys to be pushed or held are printed between quotation marks, e.g. "push Tare", call up "Adjuastment" or "hold ON/OFF".

1.2 Unpacking

Our balances are delivered in packages which provide optimum protection during transportation. In order to avoid damage, attention must be given to the following points when unpacking the balance:

- Unpack the balance carefully. It is a precision instrument.
- When outside temperatures are very low, the balance should be first 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. Should you find transport damage, 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.





NOTE
Retain the original packaging in order to avoid damaging the balance during shipping or transport and to enable the balance to be stored in ideal conditions (5 .. 40°C / 41 .. 104°F) when out of use for long periods.

1.3 Transport and shipping

- Your balance is a precision instrument. Treat it with care.
- Avoid shaking, severe impacts and vibrations during transportation.
- Ensure that there are no significant temperature fluctuations during transportation and that the balance does notbecome damp (condensation).

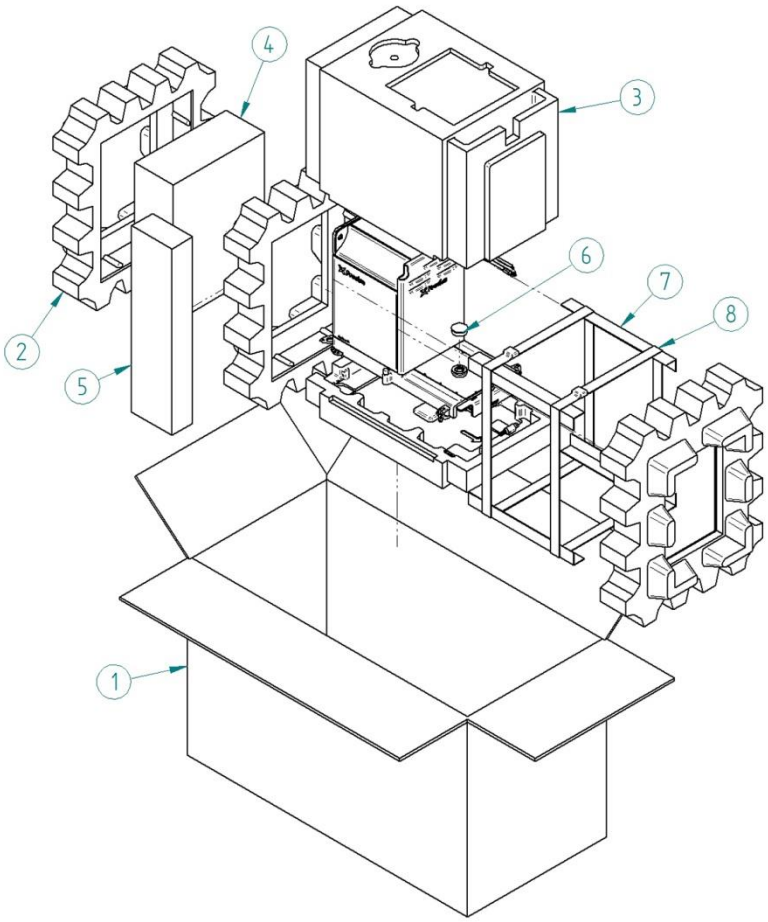
NOTE
The balance should preferably be dispatched and transported in the original packaging to avoid transportation damage.

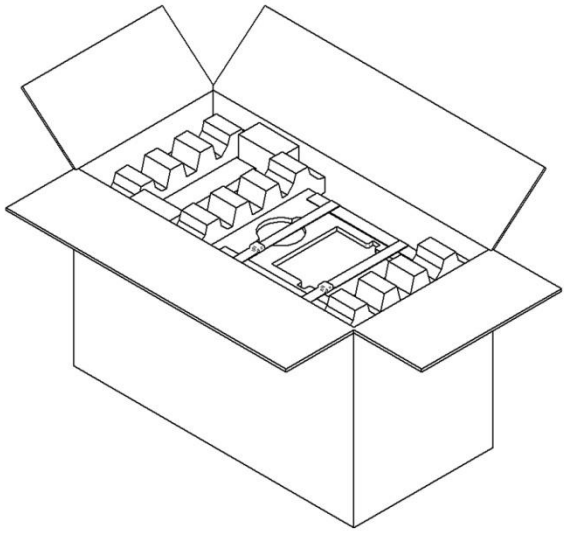
1.4 Storage

When taking the balance out of service for an extended period, disconnect it from the mains, clean it thoroughly and store it in a place which meets the following conditions:

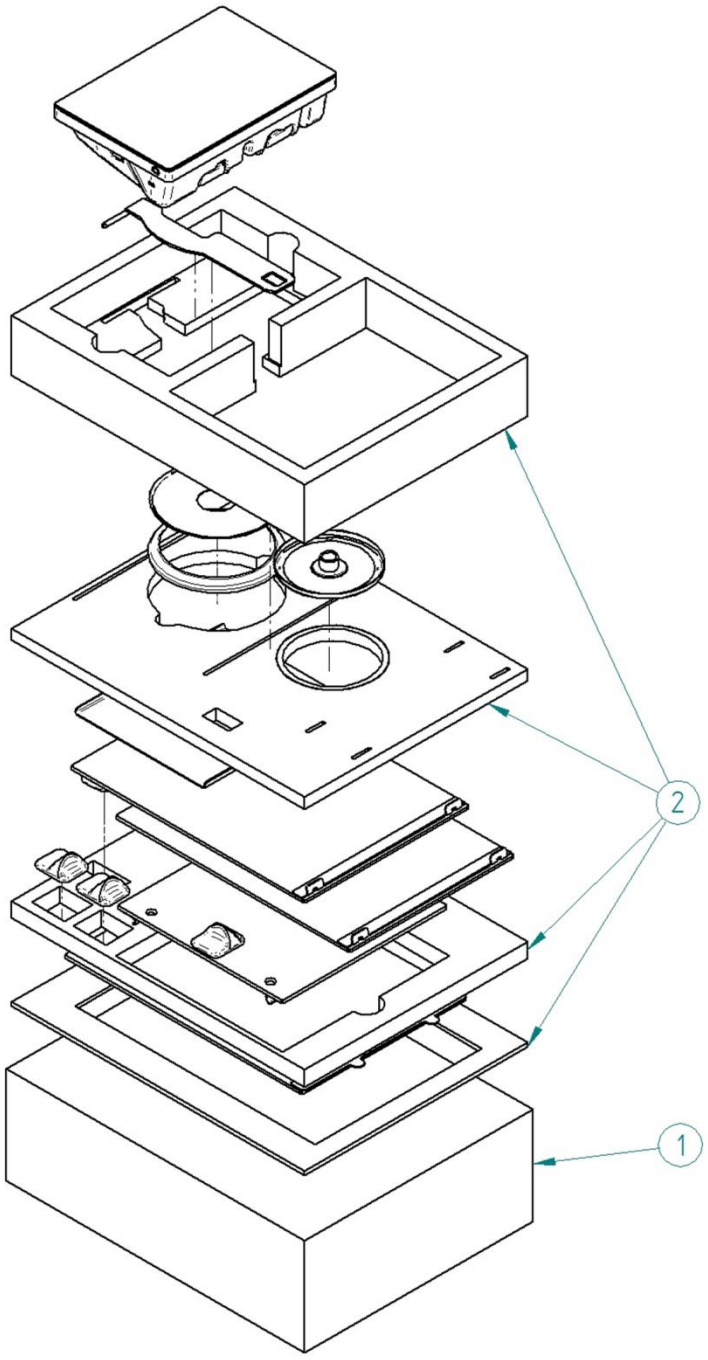
- No violent shaking, no vibrations
- No significant temperature fluctuations
- No direct solar radiation
- No moisture

1.5 Scope of delivery

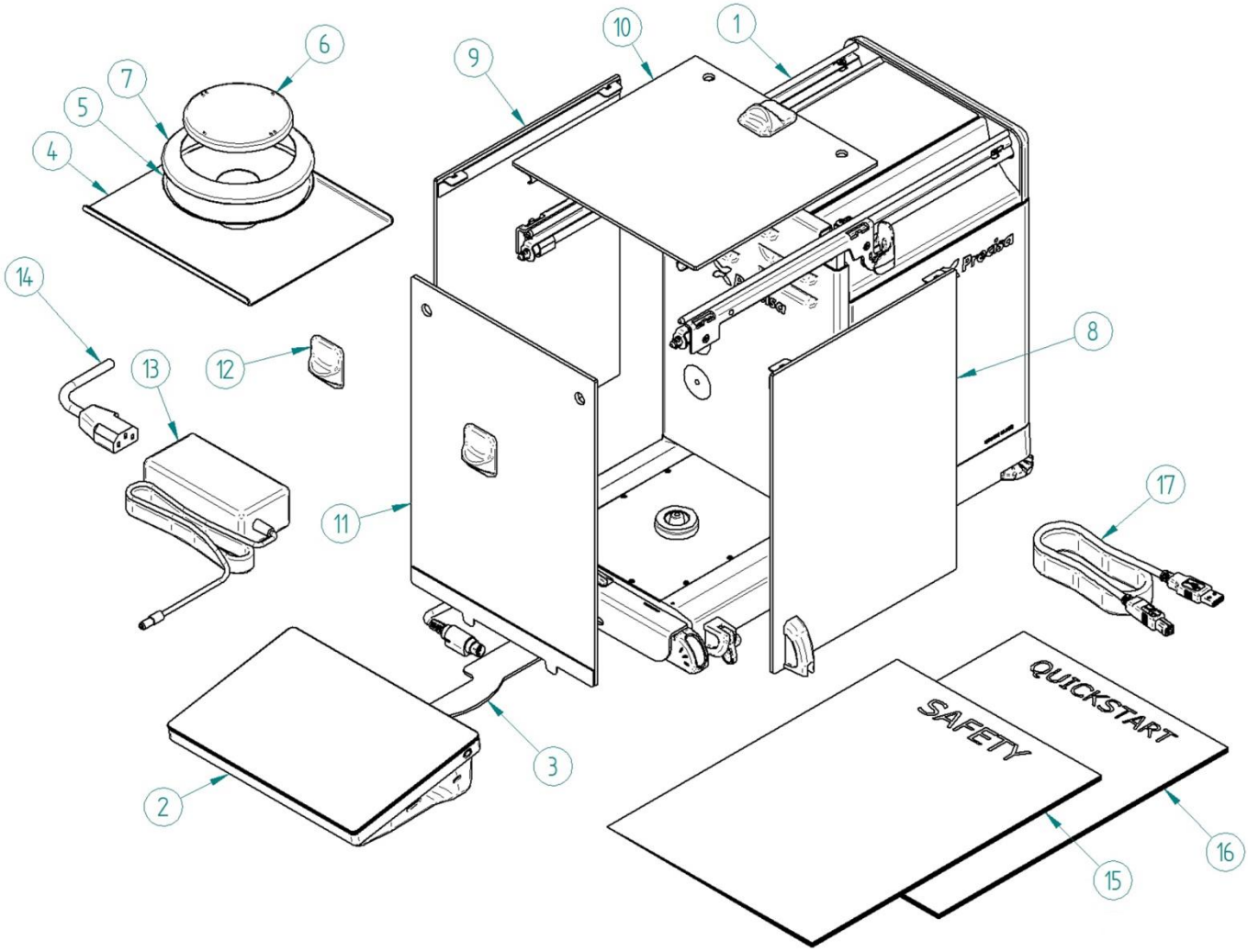




Pos.	Pcs.	Item number	Item
1	1	390-4038	Cardboard box
2	3	290-4047	Cushion
3	1	390-7017	Cushion set
4	1	390-7058	Cardboard box with contents
5	2	390-4040	Spacer cushion
6	1	PN 1053-025	Protective plug
7	4	PN 2000-202	Edge protector
8	2	PN 2000-201	Retention belt with buckle
9	1	PN 2000-137	Plastic bag
10	1	390-8xxx-xxx	Balance

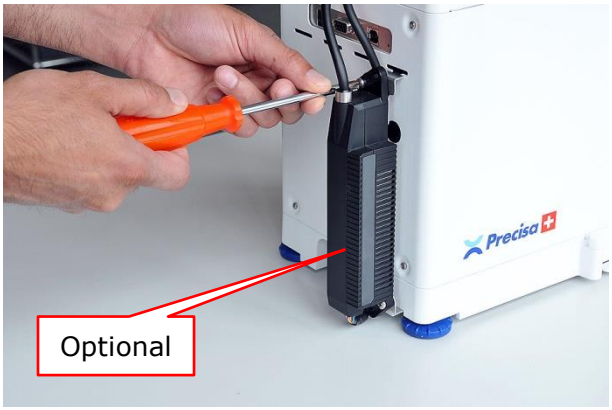


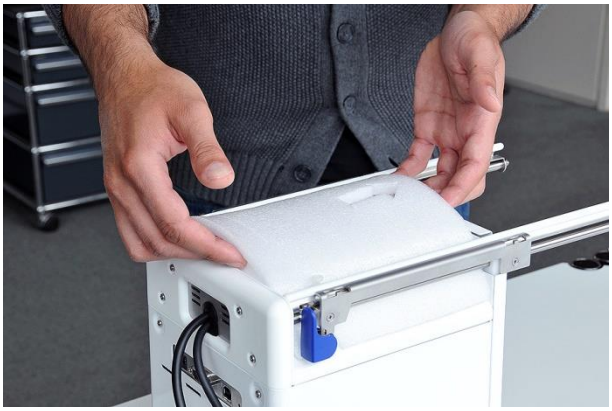
Pos.	Pcs.	Item number	Item
1	1	390-4037	Cardboard box
2	1	390-7060	Cushion inlay set

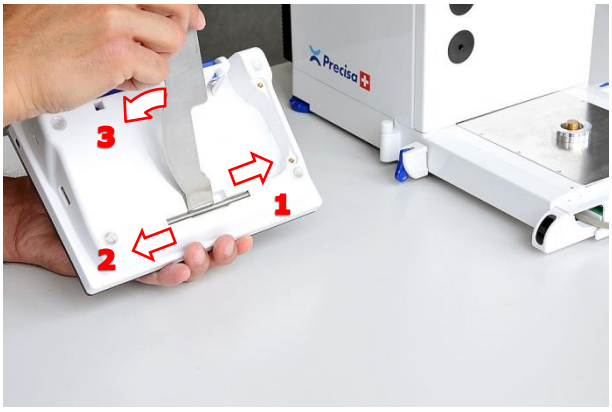


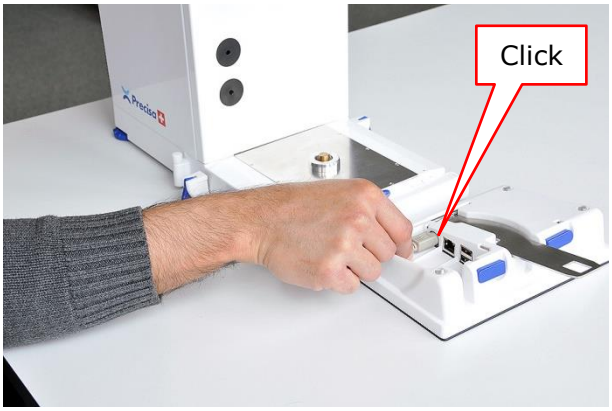
Pos.	Pcs.	Item number	Item
1	1	390-8xxx-xxx	Balance
2	1	390-8004	Terminal
3	1	390-7007	Terminal docking
4	1	390-2063	Bottom plate
5	1	390-2022	Protective ring holder
6	1	390-8002	Weighing pan D80
	1	390-8007	Weighing pan D90
7	1	290-2035	Protective ring D80
	1	360-2016	Protective ring D90
8	1	390-7021	Side slide right
9	1	390-7022	Side slide left
10	1	390-7023	Top slide
11	1	390-7020	Front glass
12	2	390-8009	Handle blue
13	1	PN 3953-005	Desk power adapter
14	1	PN 3602-400	Power cable, Schuko
	1	PN 3602-401	Power cable, Swiss type
	1	PN 3602-402	Power cable, USA
	1	PN 3602-403	Power cable, UK
	1	PN 3951-021	Power cable, AUS
15	1	350-8180-900	Leaflet "Safety"
16	1	350-8181-900	Leaflet "Quick start"
17	1	PN 3950-125	USB cable A-B

1.6 Assembling









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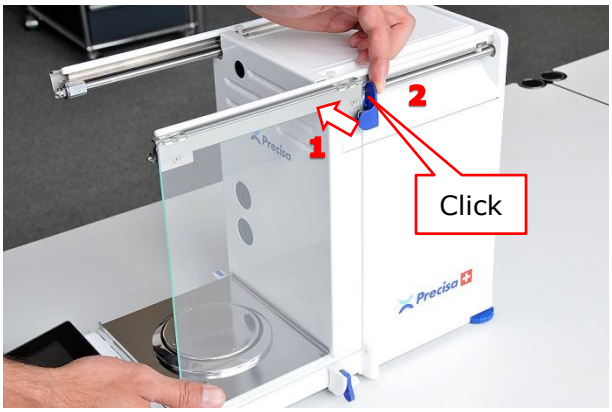
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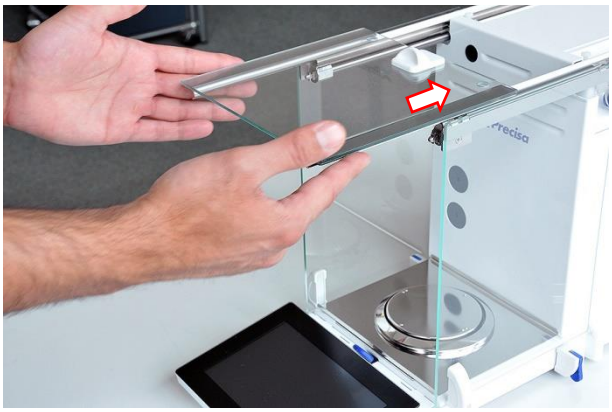
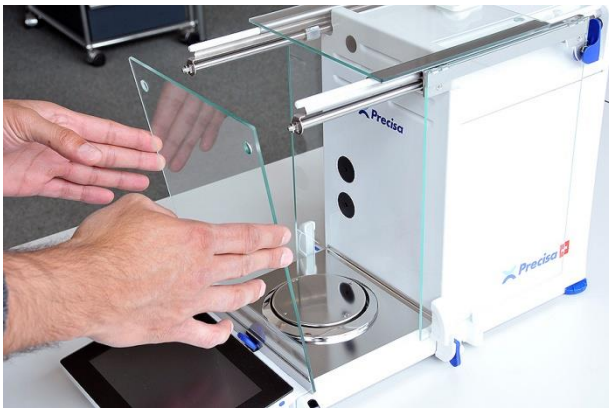
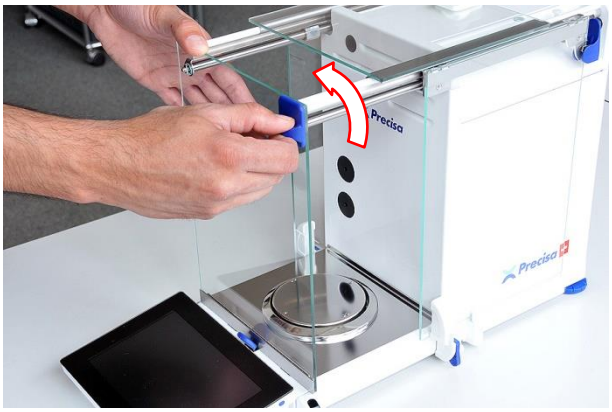
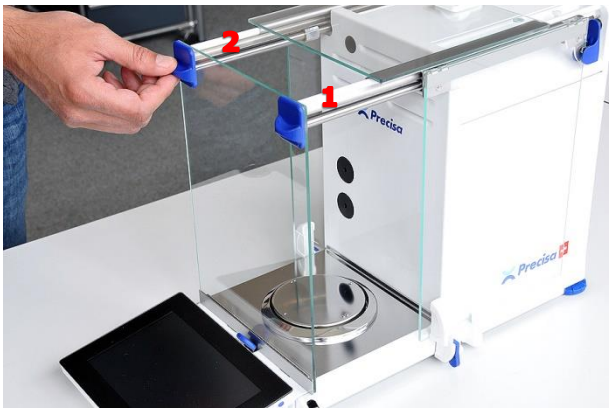







2
1

1.7 Safety instructions and conformity

1.7.1 Safety instructions

When the balance is used in environments with increased safety requirements, the relevant precautions must be taken.

- The balance must only be operated with a power adapter and power cable in perfect conditions.
- The balance may only be operated with the power adapter and power cable supplied.
- Be sure to hold the plug, not the cable, when disconnecting the device from an electrical outlet.
- If the cable, the power adapter or its cable is damaged, unplug the device immediately from the electrical outlet and keep it from inadvertent operation.
- If safe operation of the balance is not possible, it must be disconnected from the power supply and secured against unintentional use.
- Do not operate the device in an area subject to explosion risks or caustic atmospheres.
- Take care when handling with liquids, that no liquid is split into the inside of the balance, on connections of the device, on the power cable and the power adapter. Should this although happen, unplug the device immediately from the electrical outlet and keep it from inadvertent operation. The balance may only be operated again after a re-check made by a service technician.
- The device may only be used for weighing of solid materials, of liquids filled into secure containers, and for running applications designed especially for the device (e.g. density determination).
- Do not exceed the maximum permissible load of the balance.

When using the balance in combination with other appliances made by the original manufacturers as well as with appliances produced by other manufacturers, the current regulations for the safe use of the relevant attachments and their application in accordance with instructions must always be observed.

DANGER
Before connecting the device to the mains, be sure thet the operating voltage stated on the device and on the power adapter and power cable agrees with the local mains voltage. If it doesn't, the equipment must not be connected to the mains at all!

NOTE
If any damage or injury occurs, liability and responsibility rest with the user.

1.7.2 Conformity

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

Declaration of conformity

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 conformitá per apparecchi contrassegnati con la marcatura CE

English We hereby declare that the product to which this declaration refers conforms with the Following standards. **This declaration is only valid with the certificate of conformity by a notified body.**

Deutsch Wir erklären hiermit, dass das Produkt, auf das sich diese Erklärung bezieht, mit den Nachstehenden Normen übereinstimmt. **Diese Erklärung gilt nur in Verbindung mit der Konformitätsbescheinigung einer benannten Stelle.**

Français Nous déclarons avec cela responsabilité que le produit, auquel se rapporte la présente déclaration, est conforme aux normes citées ci-après. **Cette déclaration est valide seulement avec un certificat de conformité dún organisme notifié.**

Español Manifestamos en la presente que el producto al que se refiere esta declaración est´´a de acuerdo con las normas siguientes. **Esta declaratión solo será válida acompañada del certificado de conformidad de conformidad de la parte nominal.**

Italiano Dichiariamo con ciò che il prodotto al quale la presente dichiarazione si riferisce è conforme alle norme di seguito citate. **Questa dichiarazione sarà valida solo se accompagnata dal certificato di conformità della parte nominale.**

Electronic Balance: Precisa Series 390 HM
Precisa Series 390 HE
Precisa Series 390 HA
Precisa Series 390 HF

EU Directive	Standards	EC-type-approval	Issued by
2014/31/EU	EN 45501: 2015	T11031	NMi

Date: 02.05.2018 Signature:

R. Grolimund R & D Manager

Precisa Gravimetrics AG , Moosmattstrasse 32 , Postfach 352 , CH-8953 Dietikon

350-7579-019a.docx

2 Basics

2.1 Choosing a suitable location

The balance location must be chosen in such a way as to guarantee perfect operation of your balance, so that the allowable ambient conditions and prerequisites are met and maintained:

- Place the balance on a solid, firm and vibration-proof, horizontal base.
- Protect the balance from direct solar radiation.
- Avoid drafts and excessive temperature fluctuations.
- Ensure the balance cannot be shaken or knocked over.

NOTE
With difficult 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 2.2.

2.2 Stability control

For setting all different weighing parameters:

- Swipe left for switching the applications screen,
- Call up "Settings",
- Call up "Weighing parameters", and
- Set all parameters upon your requirements.

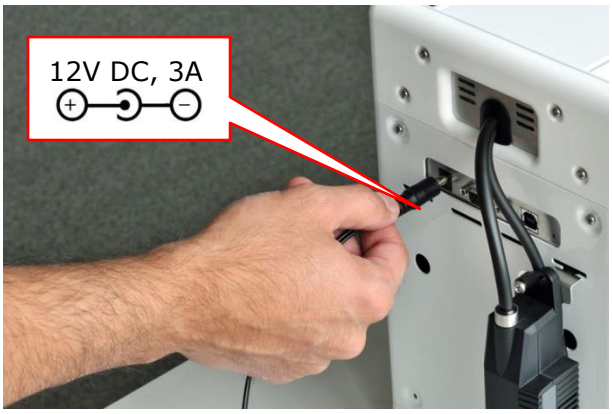
NOTE
Pressing "?" calls up the contextual Help which provides detailled information about the point you currently are. For quitting Help, press "Close".

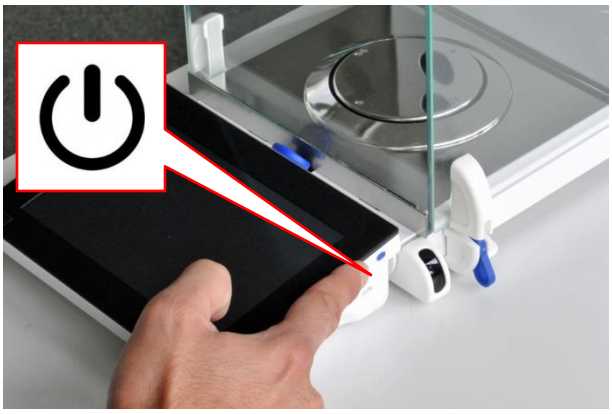
2.3 Turning on the balance

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

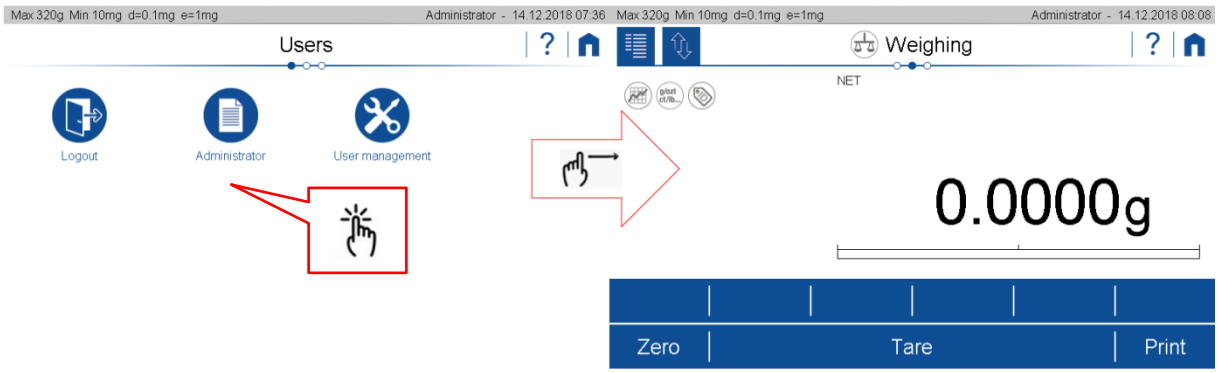
DANGER
The balance may only be operated with the power adapter and power cable supplied.
Before connecting the device to the mains, be sure that the operating voltage stated on the device and on the power adapter and power cable agrees with the local mains voltage. If it doesn't, the equipment must not be connected to the mains at all!

- Connect the balance to the mains with the supplied power adapter and power cable.
- Turn on the balance by pressing "ON/OFF" on the right side of the terminal for about 2 seconds. The balance starts-up and halts at the user screen.





- Select Administrator by calling up "Administrator". The balance starts-up executing the Weighing application.



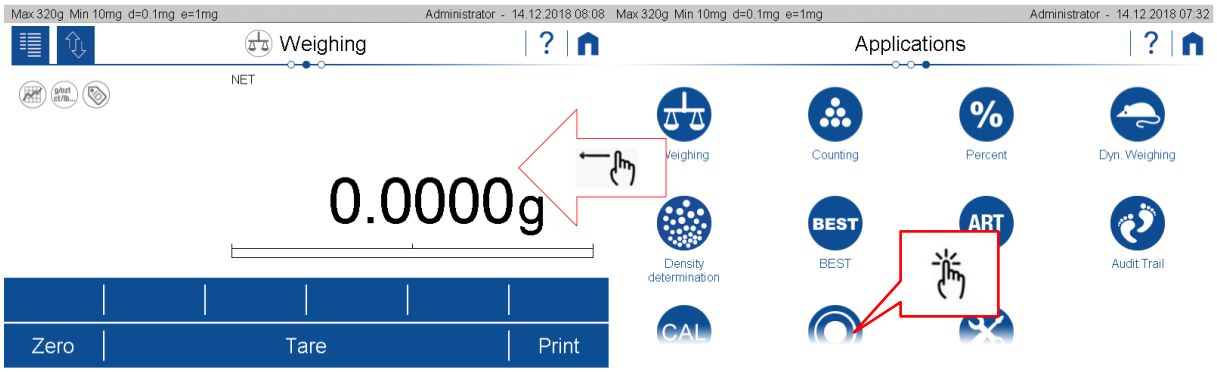
NOTE
If users already have be defined the user screen could appear after starting up

NOTE
In order to get exact measurements, ensure the balance has reached its operating temperature, see 2.8.

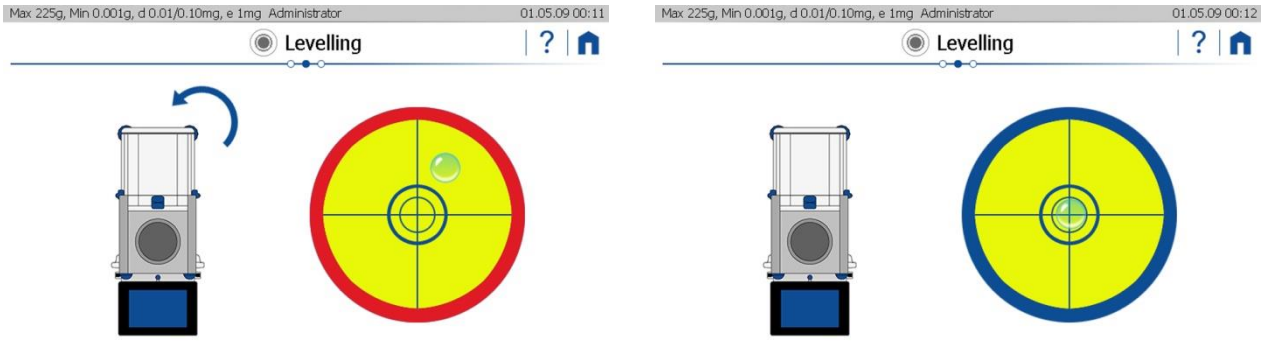
2.4 Levelling

To function properly, the balance must be precisely horizontal. Thatfor it is equipped with an electronic levelling device which makes appear a visual warning on the display if the balance is tilted outside the internally stored levelling tolerances. To readjust the levelling

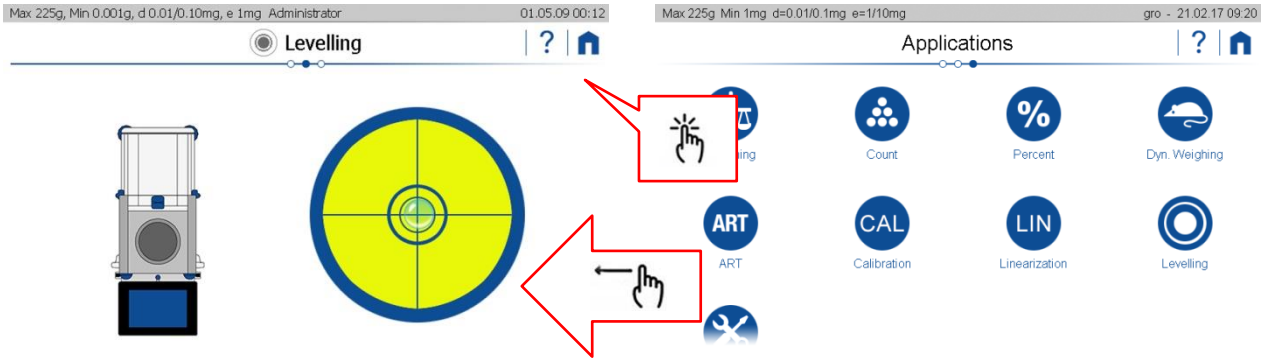
- Swipe left for switching the applications screen and Call up "Levelling".



- Keep adjusting the levelling feet as instructed by the display, until the bubble is right in the center of the displayed bubble level.



- Press "Home" for returning to the weighing application.

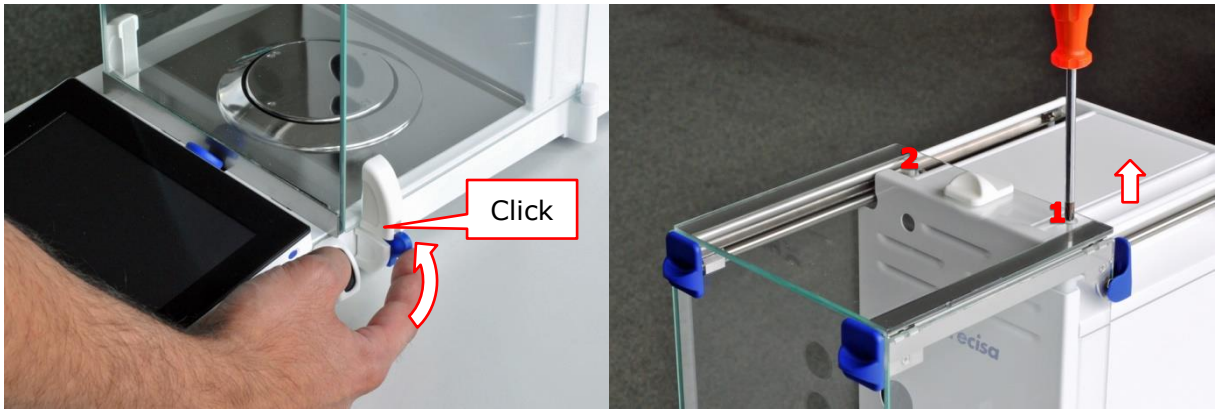


NOTE
In order to get exact measurements, the balance must again be carefully levelled after neach relocation.

NOTE
Pressing "?" calls up the contextual Help which provides detailled information about the point you currently are. For quitting Help, press "Close".

2.5 Customizing and adjusting the draft shield (models HF/HA/HE only)

For customizing, the slide glasses can be individually coupled with the draft shield carriage.



The draft shield has been well adjusted in the factory and should work perfectly even after relocating or dismantling and reassembling the glass slides. Should the draft shield, however unlikely, jam or not open and close properly, please adjust it as follows.

NOTE
If it should still not open or clamp correctly, contact Precisa Service

2.6 Setting the touchless sensors (TLS) (optional)

Touchless sensors are very helpful. They not only allow you to open and close the draft shield, they let you perform a lot of other routines without touching the balance, too. Operating the balance by simple hand gestures is a smart way for avoiding vibrations.

For assigning all different hand gestures to certain functions,

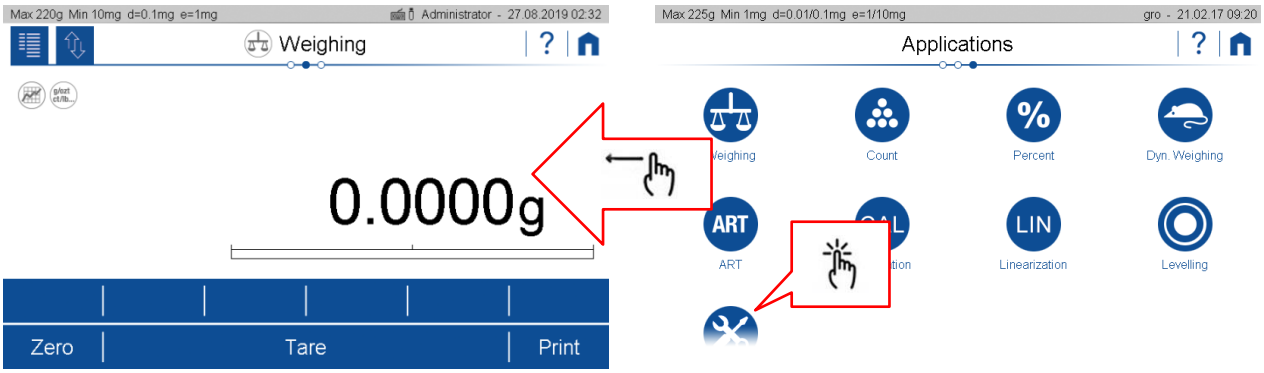
- Swipe left for switching the applications screen,
- Call up "Settings",
- Scroll down and call up "TLS", and
- Do all settings upon your requirements.

NOTE
Pressing "?" calls up the contextual Help which provides detailled information about the point you currently are. For quitting Help, press "Close".

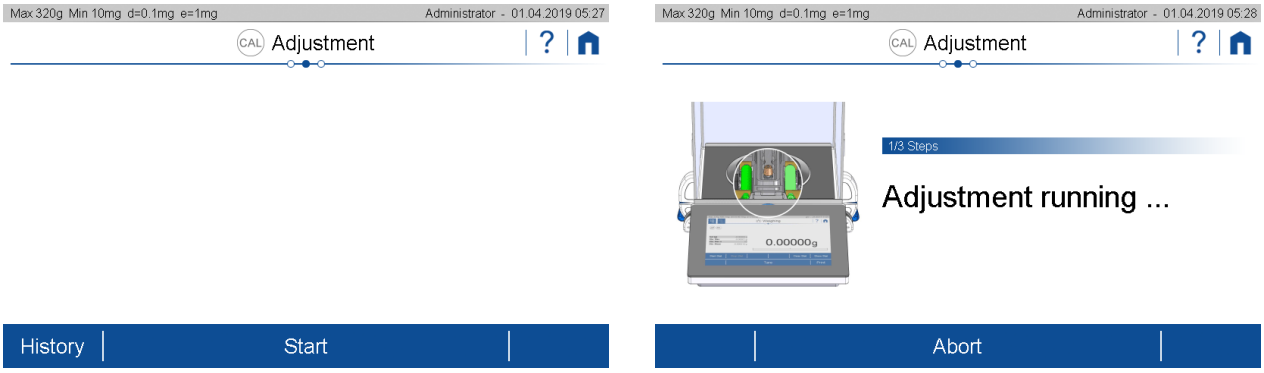
2.7 Adjusting the balance

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 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 adjusted periodically.

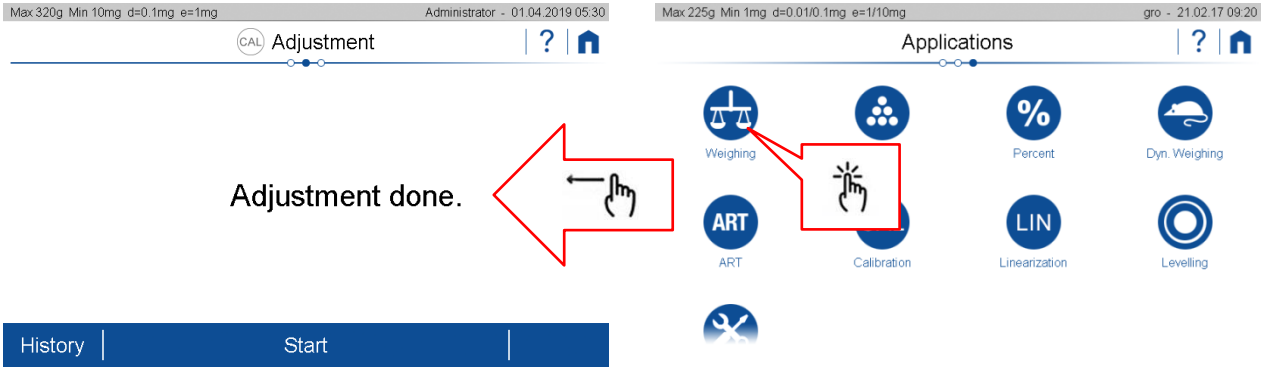
- Ensure the balance has reached its operating temperature.
- Swipe left for switching the applications screen and
- Call up "Adjustment".



- Press "Start" ⇒ the balance automatically adjusts itself by meanings of the built-in self calibration system (SCS). When this is done it shows the message "Adjustment done".



- As soon as calibration has been completed, the message "Calibration completed" appears.
- Move left to the application screen and call up "Weighing.



NOTE
The balance must be adjusted on initial installation and after every relocation.
If you work in accordance with Good Laboratory Practice (GLP), observe the prescribed intervals between calibrations (adjustments).

For setting all different adjustment modes,

- Swipe left for switching the applications screen,
- Call up "Settings",
- Scroll down, call up "Adjustment",
- Press "Adjustment mode" and
- Select the mode you wish.

NOTE
Pressing "?" calls up the contextual Help which provides detailled information about the point you currently are. For quitting Help, press "Close".

2.8 Working with the balance

Always choose a suitable location for the balance as described in chapter 2.1.

Before starting to work with the balance, always ensure the balance has been warming-up for at least two hours. Best never disconnecting it from the mains, just turning off its display by pressing "ON/OFF" when not in use, see 2.9 Turning off the screen, restarting and turning off the balance. When restarting to work with the balance again, turn on the screen and place and remove full load for a moment, in order to reduce possible mechanical tensions.

Place all loads always carefully and, whenever possible, in the center of the weighing pan!

NOTE
In order to get exact measurements, always choose a suitable location for the balance, ensure its draft shield workes properly, ensure it has reached its operating temperature, ensure it is levelled and adjusted, and place loads carefully in the center of the weighing pan.

2.9 Turning off the screen, restarting and turning off the balance

When the balance is running, the ON/OFF switch has two functions.

Pressing "ON/OFF" briefly turns the screen off and on. When not using the balance, this is the best way for saving the screen and keeping the balance always at operating temperature at the same time.

Holding "ON/OFF" for a few seconds calls up the power mode window, giving you the possibility to restart the balance or to abort the process.

For turning the balance totally off, disconnect it from the mains.

DANGER
Be sure to hold the plug, not the cable, when disconnecting the balance from an electrical outlet!

2.10 Dual range (DR) and floating range (FR) balances

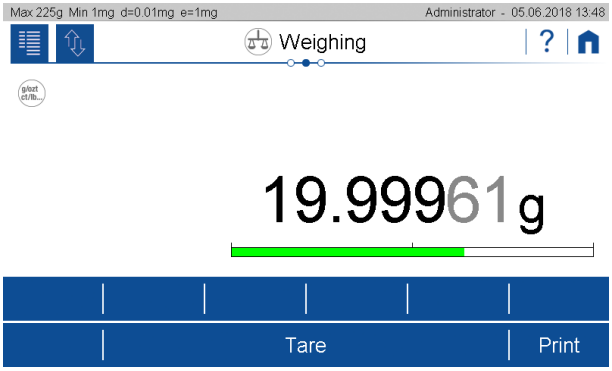
With the dual range balances, weighing is always first carried out in the fine range, which is 10 times mor precise. When the fine range is exceeded, the balance switches automatically to the coarse range.

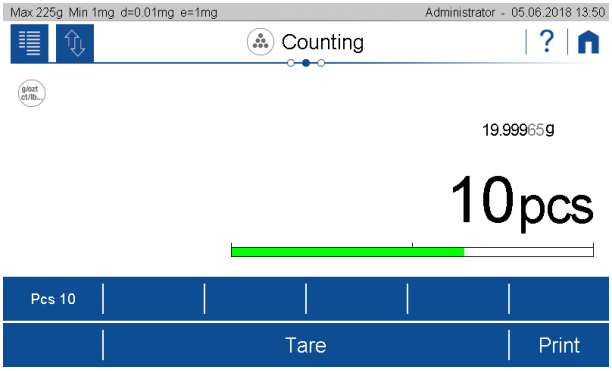
The floating range balances have a fine range (10 times more precise), which moves over the entire weighing range. By pressing "Tare", the finerange can be called up as often as required over the entire weighing range.

2.11 Verified balances

Verified balances are provided with the EC/OIML certification, or meet the local verification regulations.

On verified balances, the balance range and certain weighing functions differ from standard.





NOTE
Your local dealer will be happy to assist you at any time if you have any questions about verifying your balance or working with verified balances.

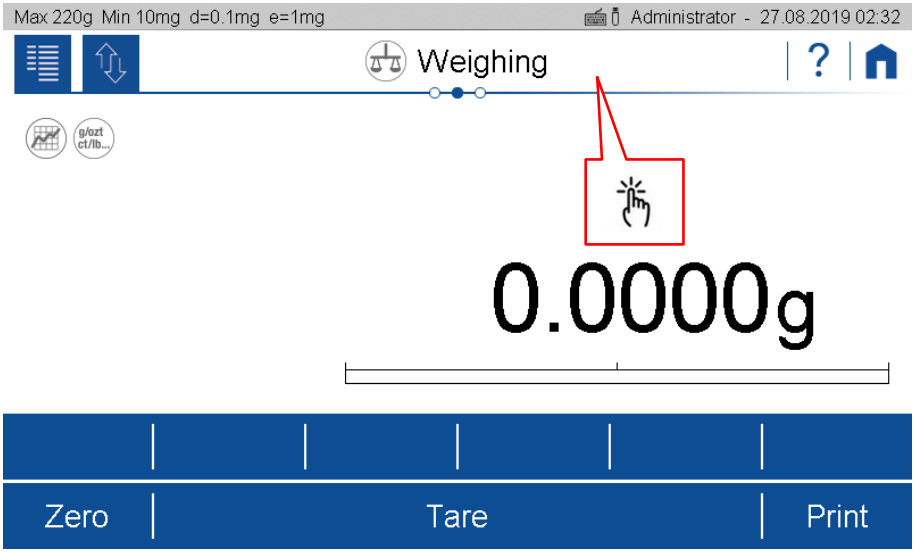
3 Discover the Capabilities of the series 390

3.1 Operation of Touch Screen

The series 390 balances is equipped with a high resolution 7'' touch screen panel. The ease of operation is maintained by a highly intuitive user Interface. The multi gesture touch screen is operable through standard laboratory rubber and silicon gloves. Also thin cotton gloves are possible.

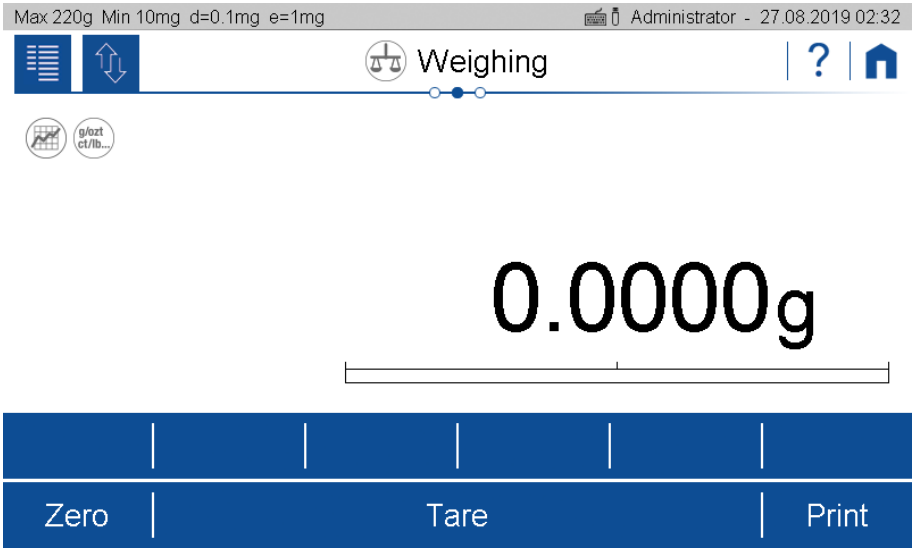
3.2 Help

No matter where you are, press the help icon to get context-sensitive help.Navigation Basics.

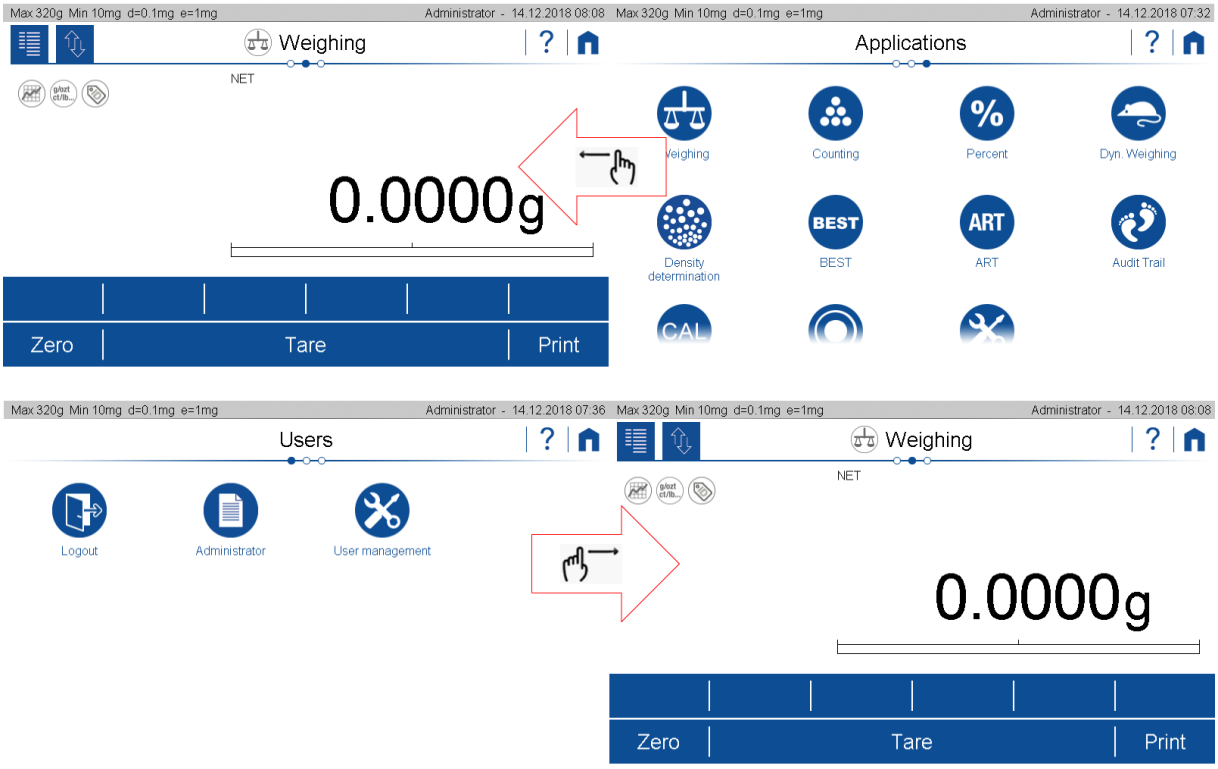


3.3 Navigation

The central screen shows the current application.

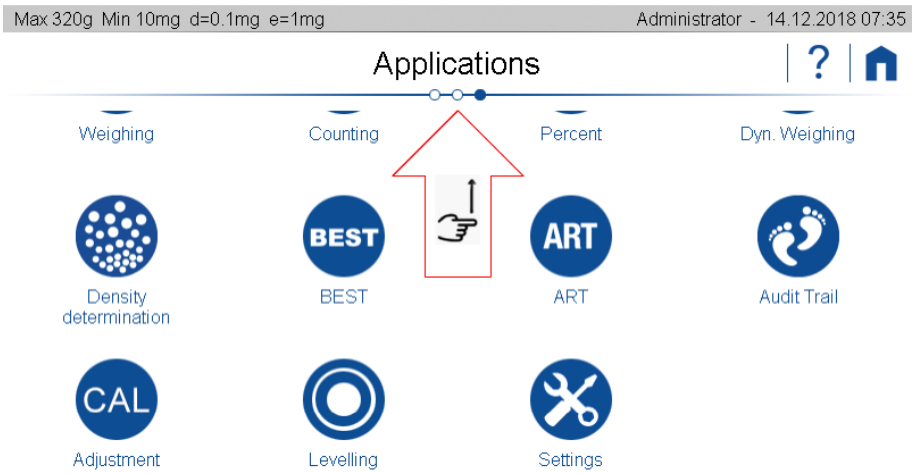


- Navigation to the User Screen or the Application Screen is done by swiping left or right. Thus a quick change of applications or user can be performed very easy.



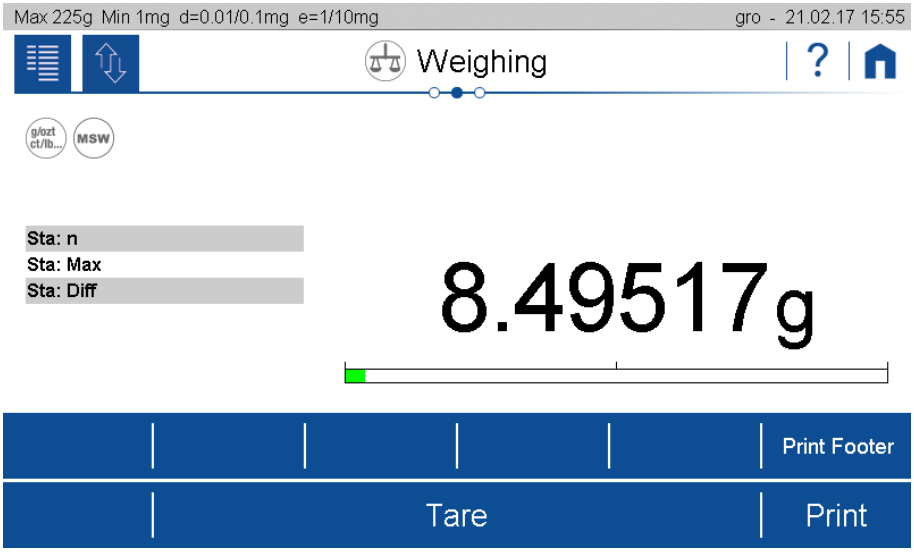
NOTE
If you have already defined users, the user screen might be shown after starting up.

- Vertical scrolling is performed by a simple pan. Typically used for screens with more than 12 Icons or for menu items exceeding the standard screen height.



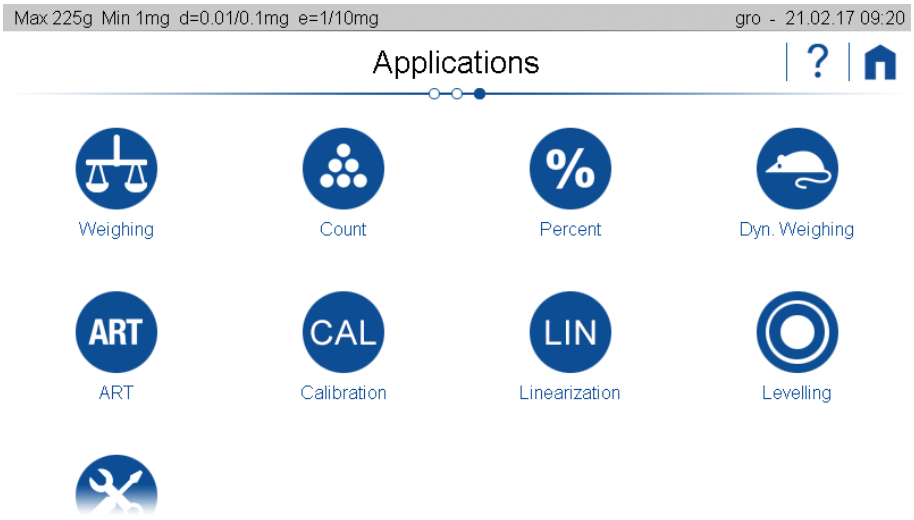
3.4 Current application

All work resp. Measurements that you carry out with the balance run on the current application screen; no matter whether it is a simple weighing, an adjustment or a complex application such as density determination. Due to the variety of applications, the appearance of the application screen can differ considerably.



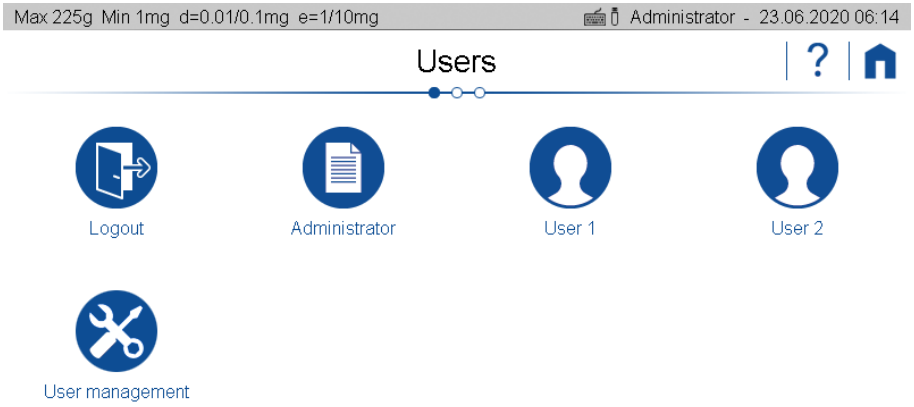
3.5 Application screen

The application screen provides access to the various applications and the basic settings of the balance. The appearance remains basically the same on your scale.



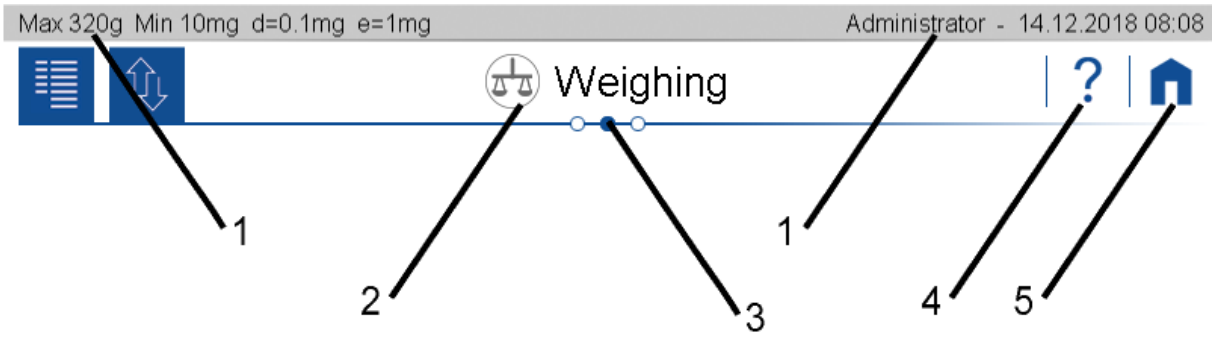
3.6 User screen

The user screen is used to access and define the different user profiles. In principle, the appearance always remains the same regardless of the newly defined users who join them


Max 225g Min 1mg d=0.01/0.1mg e=1/10mg
Administrator - 23.06.2020 06:14
Users
Logout
Administrator
User 1
User 2
User management

4 The basic structure of the screen

Some components of the screen are always present and therefore fix positioned.



4.1 Header

The header shows scale-specific information such as the maximum weighing range "Max", the minimum weight "Min", the readability "d", the veryfication scale interval "e" and the user "Administrator", date and time. In addition, other symbols such as active network connection or WLAN and connected peripherals such as keyboard, UBS stick etc. are shown.

4.2 Description: user applications or name of the current application

Here it's shown where you are. This can be the user screen, the application screen or the screen of the current application, which is indicated with the currently running application, e.g. Weighing, counting, density determination, adjustment etc.

4.3 Navigations Info

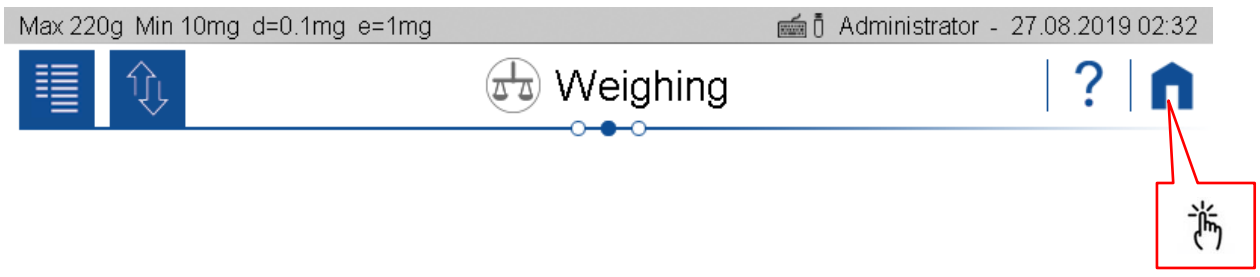
The filled in dot shows on which of the three screens you are currently located.

4.4 Hilfe

The help is context-sensitive. Consequently, by tapping the help button, the help appropriate to the application or the current screen or application is loaded and displayed..

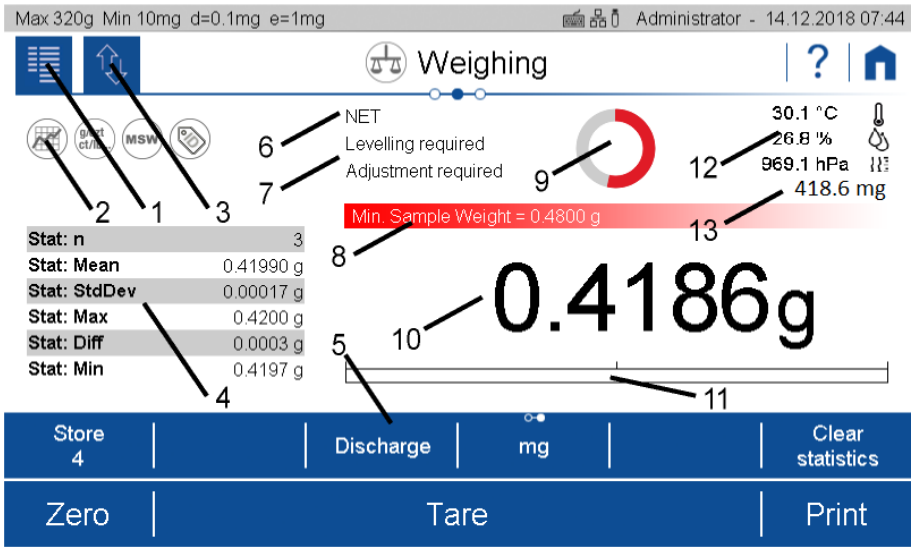
4.5 Home

The home symbol leads back to the set application from any situation. This is extremely helpful in more complex hierarchies, which can be exited very quickly.



5 Current application screen

Depending on the application and its settings, various components are displayed on the screen.



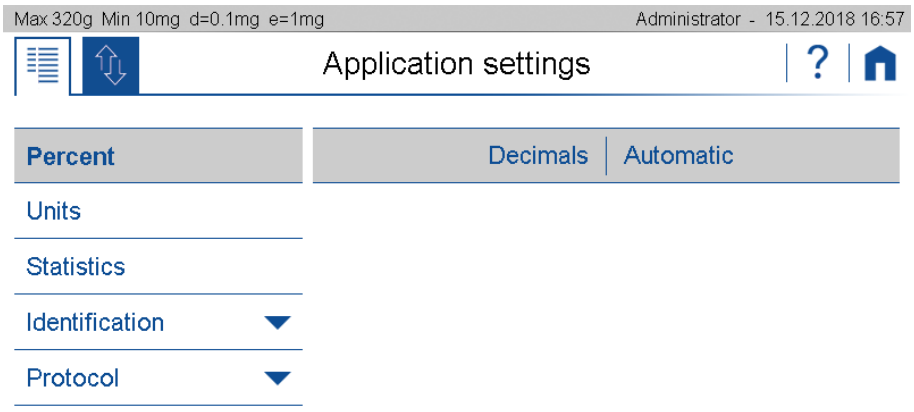
5.1 Context Menu, Add On's

By tapping the context menu, the "Add-Ons" functions and other specific settings available for the current application are opened. The add-ons and settings can be set and saved separately for each application.

With an add-on, the functionality of applications can be expanded. A typical example is the "Statistics" add-on, which statistically evaluates the weighed weights.Add-On Function

The add-ons are:

- **Percent** stands for the current application and is used to set the functions belonging to the application. There is no function here for normal weighing
- **Units** to enable a quick display of the weight in a second unit, see 7 Add-On: Units / Free Conversion.
- **Statistics** to statistically evaluate the determined values, see 8 Add-On: Statistics
- **Identification** to add additional information to the measured values, e.g. a batch number, a measured value counter and much more, see 9 Add-On: Identification.
- **Protocol** to adapt the printout of the application, see 10 Add-On: Protocol and 6.3 Protocol, GLP Header, GLP Footer.



NOTE
Further information on add-ons settings can be found in the cross-reference.

5.2 Active Add On's and Functions, MSW

At this point the activated add-ons will be shown with the corresponding icon.

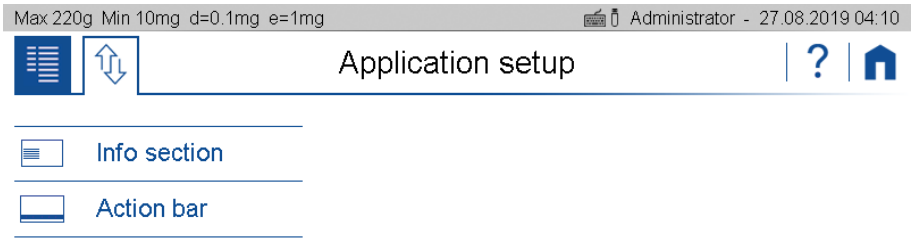
The "MSW" symbol stands for the activated minimum sample weight and is also displayed here. The minimum sample weight is not activated in the context menu but in the global settings of the scale. We do so because the minimum sample weight should mostly apply to all weighings and not only for a specific application, see 6.7 Minimal Sample Weight and Quality Management, MSW

5.3 Customizer Tab

The Customizer Tab leads to an easy to handle screen layout and protocol editor. By providing drag and drop features, additional buttons, info-lines or protocol stacks can be executed fast and intuitively.

The following are available for adaptation:

- **Information** area to display various information on the screen, see 5.4 Info.
- **Action bar** to trigger frequently used functions by pressing a soft button, 5.5 Action Bar



5.4 Info section

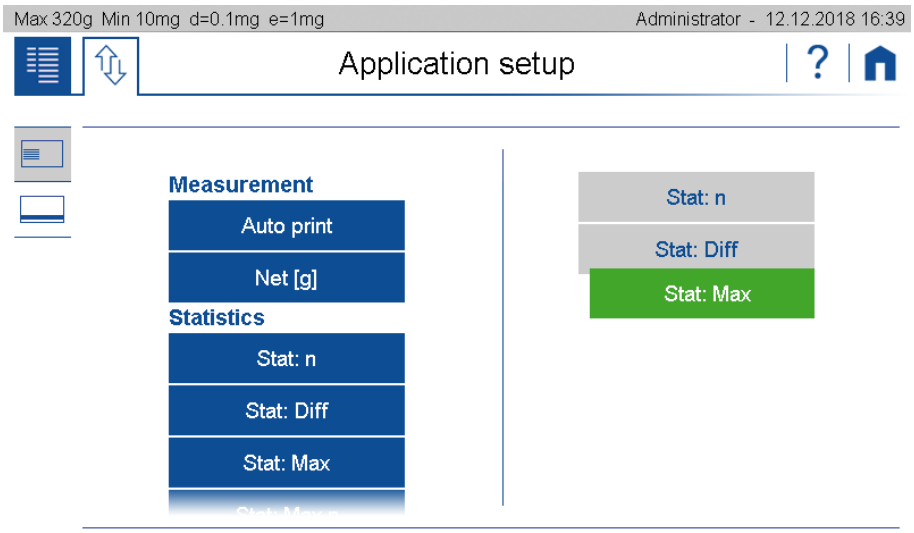
Various information is available that can be displayed in the notification area. The layout can be set and saved separately for each application.

To ensure easy orientation, the information or components divided into groups:

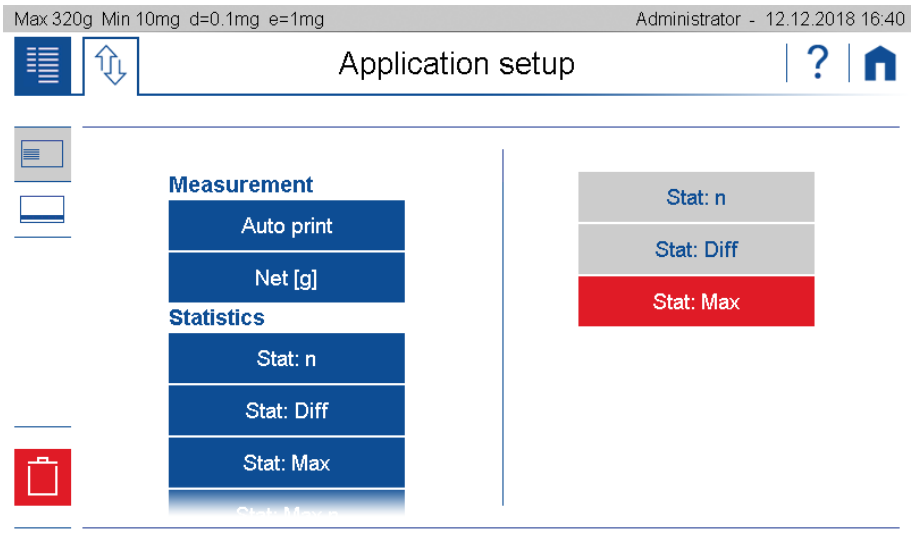
- **Measurement** contains the information about the measurement such as the current net weight or the status of the automatic printout if this is set in the measurement log.
- **Statistics** contains information on statistics such as the number of values, the difference between the maximum and minimum value, the mean, the standard deviation, etc.
- **Identification** contains the information on the various defined identifications or labels such as batch number, measured value counter, etc.
- **Control** contains information about options such as the AOS (Ambient Observation System).

5.4.1 Layout definition

- If you click on a module on the left, it is attached to the list on the right.
- If a block in the list on the right is held fr approx. 2 seconds, it appears green and can be moved.



- If you click on a module on the rightappears red and is and is deleted by pressing the trash can.



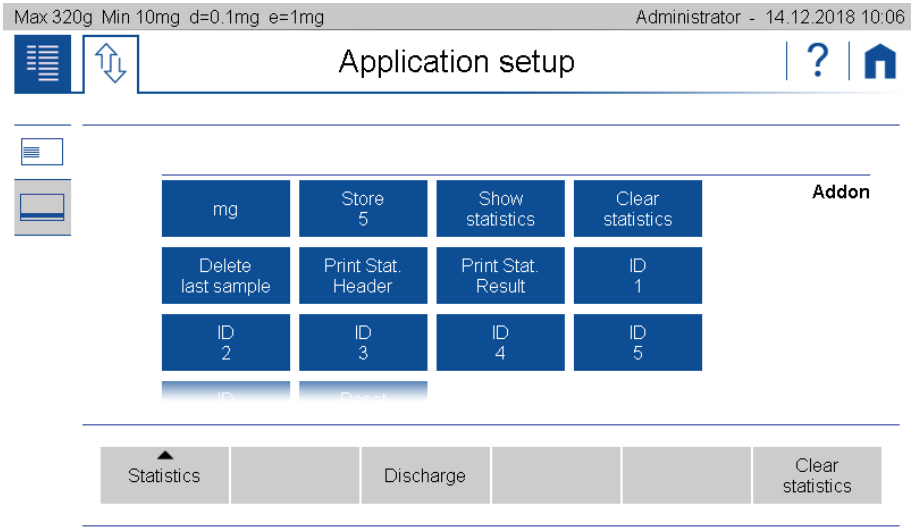
5.5 Action Bar and Soft Buttons customizing

The 390 Series provides an extensive list of dedicated soft buttons. By using the customizer they can be placed in a pre-defined area on the screen, called action bar.

A soft button is a soft-coded button, located alongside the display, which performs a function displayed near or right above it in the soft button bar at that moment. In each application you may assign a choice of various functions to the soft button.

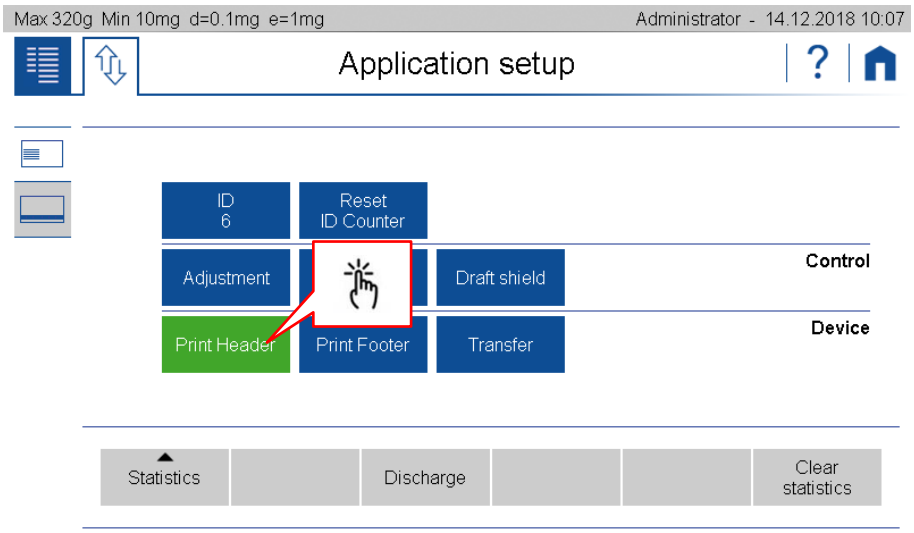
To ensure easy orientation, the functions are divided into groups:

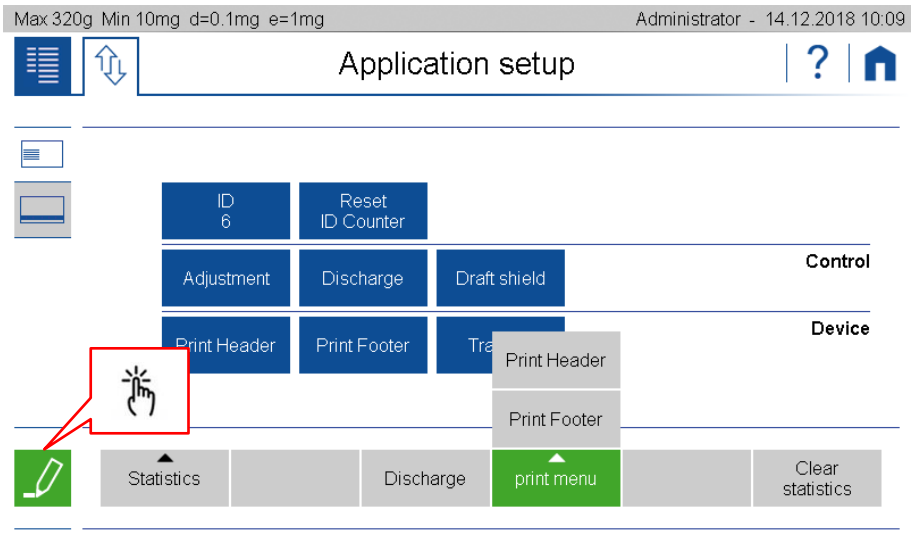
- **Addon** contains functions for the add-ons such as switch to the second unit, start statistics, delete statistics ... or e.g. to enter any identification.
- **Control** contains the functions for adjustment, control of the option ECS (Electrostatic Cancellation System) or to move the draft shield.
- The **device** contains the functions for controlling printing, data transfer etc.



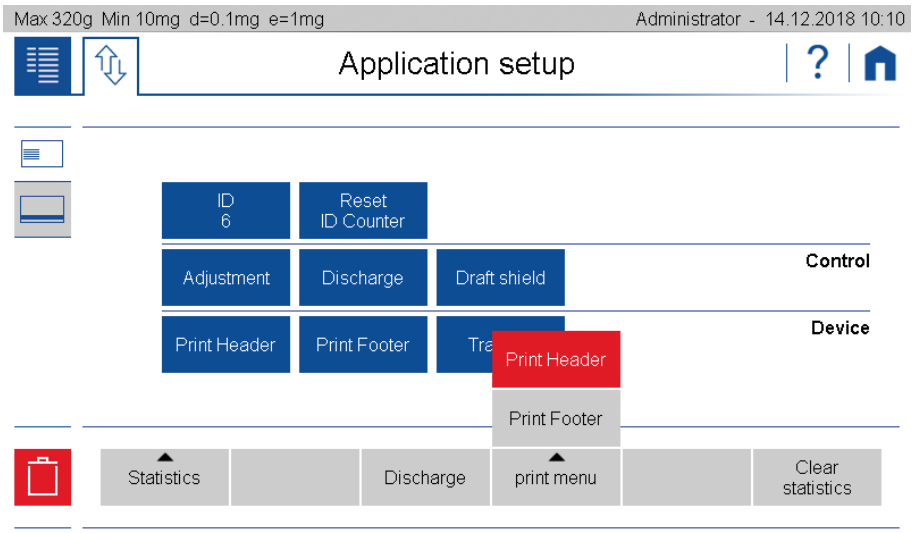
5.5.1 Define the layout

- By selecting the key the background colour changes to green. This indicates that the button is ready to be placed in the action bar.
- If a second function is positioned on an occupied button, a group is formed. This group can be given a name with the pencil.





- If a button on the Action Bar is selected, it appears red and is deleted by pressing the trash can icon.



5.6 Status symbol

Symbols for the status of the balance are displayed here:

- **NET** indicates that the balance has been tared and the displayed value is the net weight.
- **PT** indicates that an externally entered tare value is stored in the balance.

5.7 Notes

At this point, notices such as are displayed. that the scale should be leveled or adjusted.

- Level the balance,2.4 Levelling
- Adjust the balance, 2.7 Adjusting the balance

5.8 Warnings, status reports

At this point, warnings are displayed, e.g. that the minimum weight has not yet been reached or status messages about the printing process or that the discharge with the ECS is currently active.

- Minimum sample weight, see 6.7 Minimal Sample Weight and Quality Management, MSW
- Printout active, waiting for printout,… see 10 Add-On: Protocol
- ECS status, see 12.5 Electrostatic neutralisation system ECS (optional)

5.9 Stability Indicator

The stability indicator combines a variety of functions such as the release of results, an indication of the environmental conditions and a prediction of when a stable display of the weight value has been reached.

After a weight change, the indicator appears as a red annulus, which decreases with increasing stability. Basically, a weight value is considered to be stable and thus valid if the indicator (red ring) is no longer visible. In case the inidator decreases only very slow or not at all, this means the weighing is disturbed e.g. by drafts, vibrations of the location or other influences, see 2.1 Choosing a suitable location

5.10 Main display

The value that matches the application is shown in large format in the main display. Appropriate work instructions and notes are displayed during a workflow.

5.11 Capacity display

Graphic display how much of the entire weighing range is being used.

5.12 Option information

At this point, information about options is displayed in certain applications, e.g. in the application BEST the current measured values of the AOS (Ambient Observation System).

5.13 Second display

For certain applications, the weight is displayed here. For example, in the application counting in the main display shows the number of pieces and in the second display the actual weight.

5.14 Levelle information in De nicht vorhanden

All balances of the series 390 are equipped with a supervising levelling system. If balance is unlevelled you are informed that levelling is required.

5.15 MSW Minimal sample weight

By activating the Minimum Weighing Weight (MSW), the minimum weight can be entered for several tare ranges. If the weight is below the specified limit, a warning message appears above the weighing value.

5.16 Weight value

The weighing value is displayed in the selected unit.

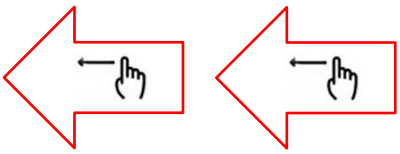
5.17 AOS “Ambient observation system” (Optional)

Display of air temperature, humidity and pressure

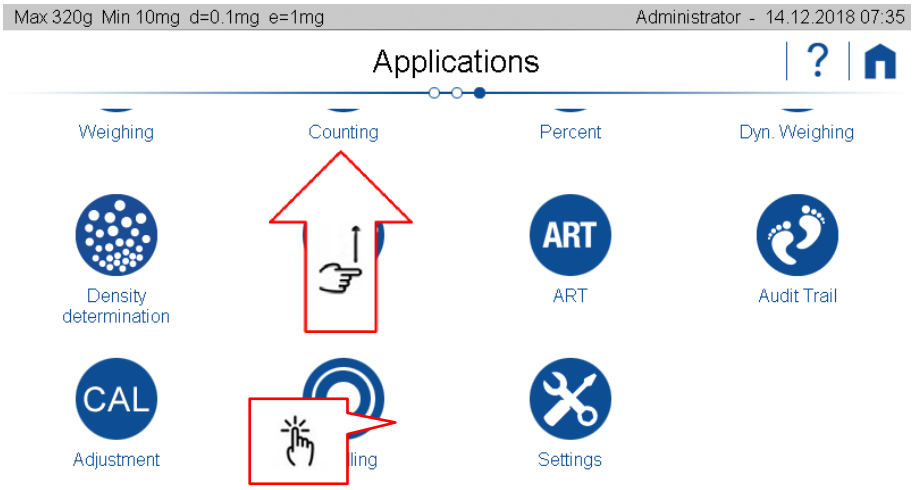
6 System Settings

The basic settings of the balance can be found on the application screen.

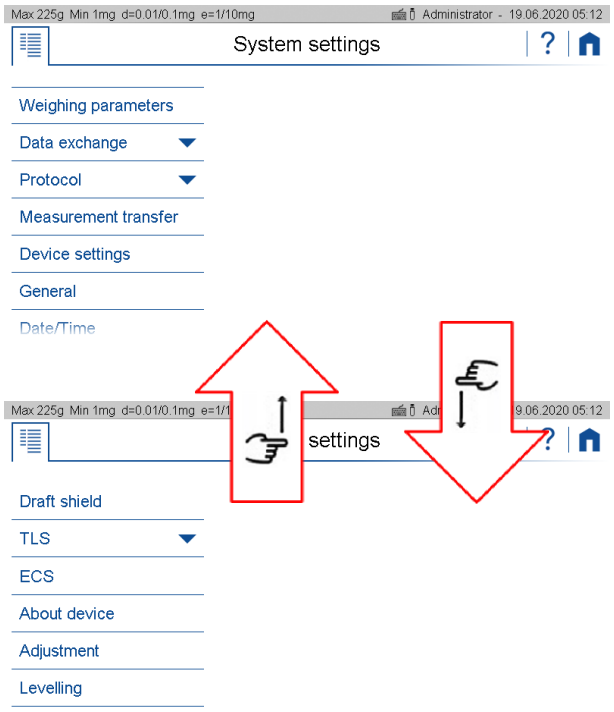
- If you are not already on the application screen, swipe left twice.



- Swipe up to see the settings button and press it.

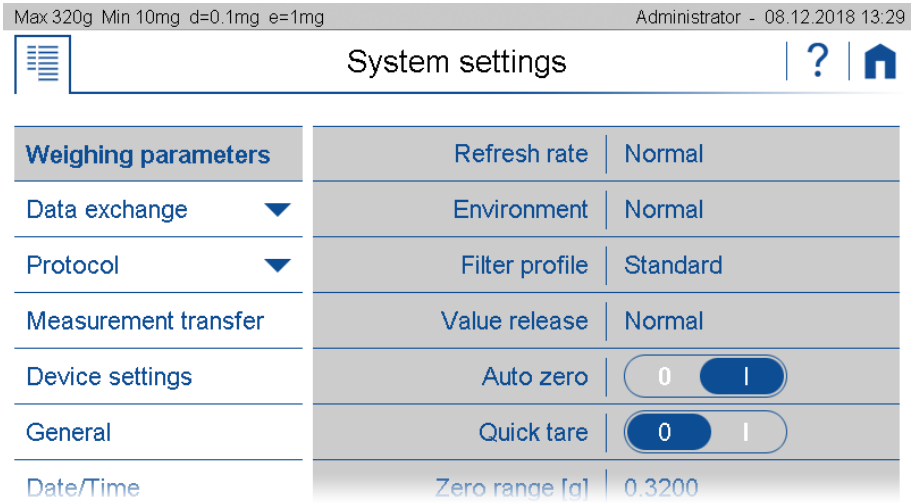


- Swiping up and down gives you access to all system settings.



6.1 Weighing parameter

To ensure proper operation of your balance, the balance location must be selected so that the permissible ambient conditions are met. Individual adjustments of the weighing parameters allow further improvements to be achieved.



NOTE
Further information on settings can be found in the context help.

6.1.1 Refresh rate

The value set 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 set appropriately.

- **Extra:**
  Slow For best results where response time is less important
- **Slow:**
  Increased repeatability
- **Normal:**
  Best suited for most of the applications
- **Fast:**
  Fast response where repeatability is less important

6.1.2 Environment

Adjust the balance to the quality of the balance location.

- **Uncritical:**
  Best suited for very stable environment conditions
- **Normal:**
  Ideal for most environments
- **Critical:**
  For harsh and unstable conditions

6.1.3 Filter profile

The filter profiles are used to adapt the transient response of the balance to the special requirements of the application, e.g. for slow processes such as weight loss due to evaporation or dynamic processes such as dosing applications with liquids or powders.

- **Standard:**
  For all standard weighing applications. Optimal for most applications regarding speed and repeatability
- **Dosing:**
  Optimal for dosing with liquids or powder. Ultra fast response also to very small changes in weight

6.1.4 Value release

The value release defines when the weighing result is recognized as stable and reliable. In addition, there are settings from very slow for highly reproducible results in which the speed is subordinate to very fast if a quick value release is necessary to e.g. to recognize a trend.

- **Very slow:**
  For best results where response time is less important
- **Slow:**
  Increased repeatability
- **Normal:**
  Best suited for most of the applications
- **Fast:**
  Fast response where repeatability is less important
- **Very fast:**
  For application where speed has highest priority

6.1.5 Auto zero

When the automatic zero-correction is activated the balance holds a stable zero (e.g. even with fluctuations in room temperature) within a certain level of zero drift.

6.1.6 Quick tare

The balance executes a fast tare, even at not yet stabilized weight.

6.1.7 Zero range

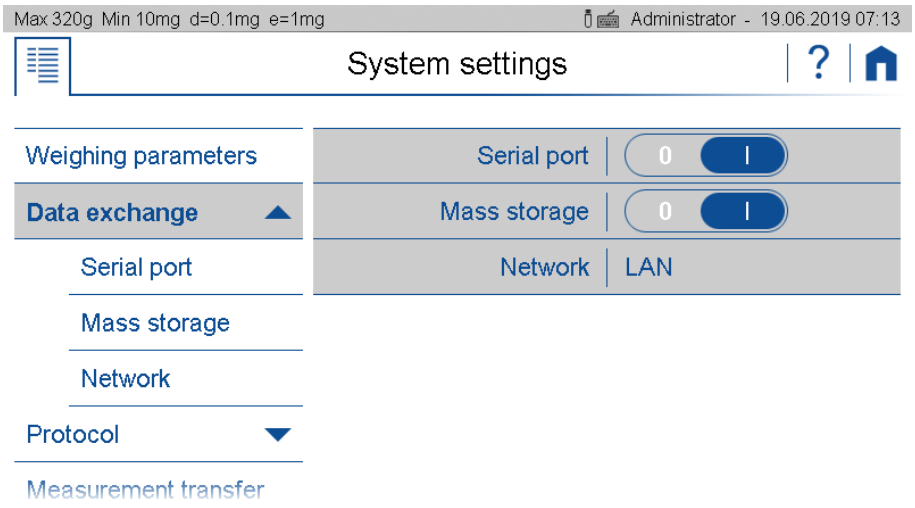
For certain applications a individual zero range is beneficial. This is very useful feature in combination of a combined zero/tare button. Thus the range of zeroing or taring can be controlled within certain limits.

6.2 Data exchange

There are several channels for data exchange and the two modes protocol or Measurement transfer available. For example, parallel a protocol via the serial interface on a printer and a protocol as a text or CSV file on a mass storage connected to the USB interface resp. Memory stick. A measured value transfer of the individual values to a PC or to a LIMS could also be triggered on the network channel at the push of a button.

The following channels are available:

- **Serial interface** on the back of the scale
- **Mass storage** resp. USB stick inserted on the right of the terminal of the balance
- **Network** LAN cable or USB WLAN adapter plugged in at the bottom of the terminal.



NOTE
If a channel is not physically available, the transfer may take a long time, because the scale only stops the transfer after a certain timeout.

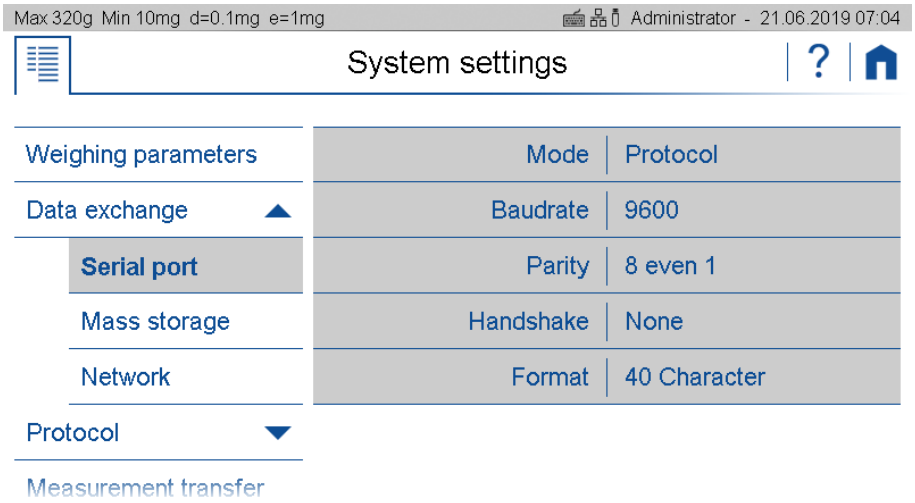
NOTE
Further information on settings can be found in the context help.

6.2.1 Serial Port

For correct data transmission, a printer or other device must be connected to the DB9 connector on the back of the balance and the usual parameters of the RS232 / V24 serial interface must be set the same.

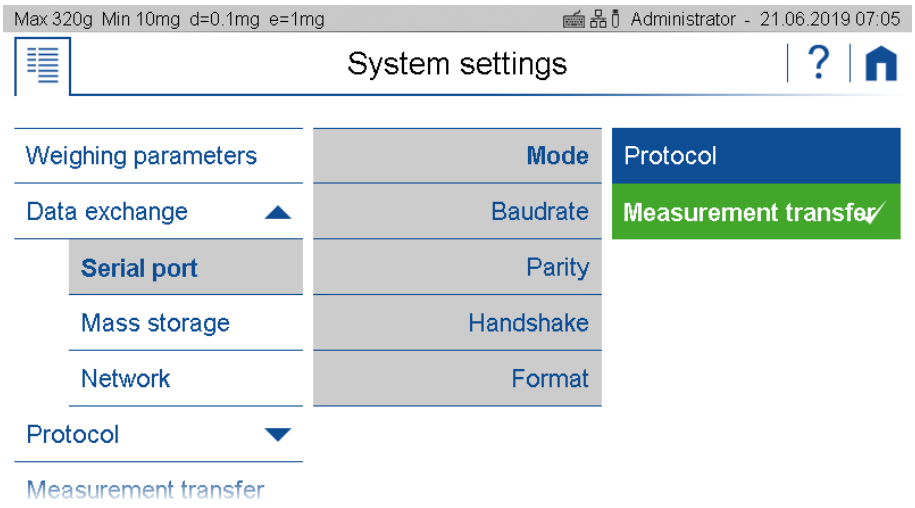
6.2.1.1 Protocol mode

The protocol defined for the application is output in the protocol mode. It is triggered automatically or with the print button, as set in the active application. With the format setting, the width of the log can be adjusted, e.g. on a printer with 40 or 24 characters.



6.2.1.2 Measurement transfer mode

In the measured value transfer mode, the current weight value is transferred at the push of a button, if desired with a time stamp, device ID, net / gross / tare. For the definition of the format of the measured value transmission, see 6.4 Measurement transfer.



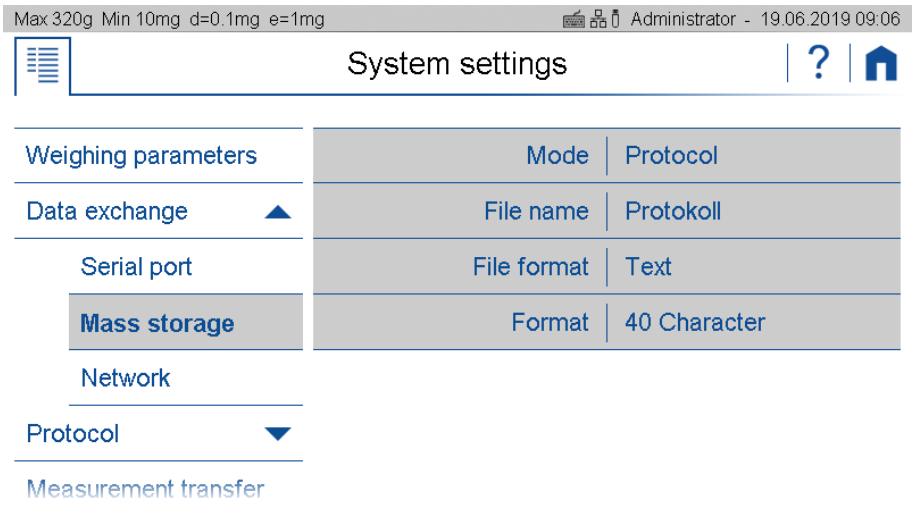
The "Transfer" soft button must be activated in the action bar (see 5.5 Action Bar and Soft Buttons customizing) for the measurement transfer.

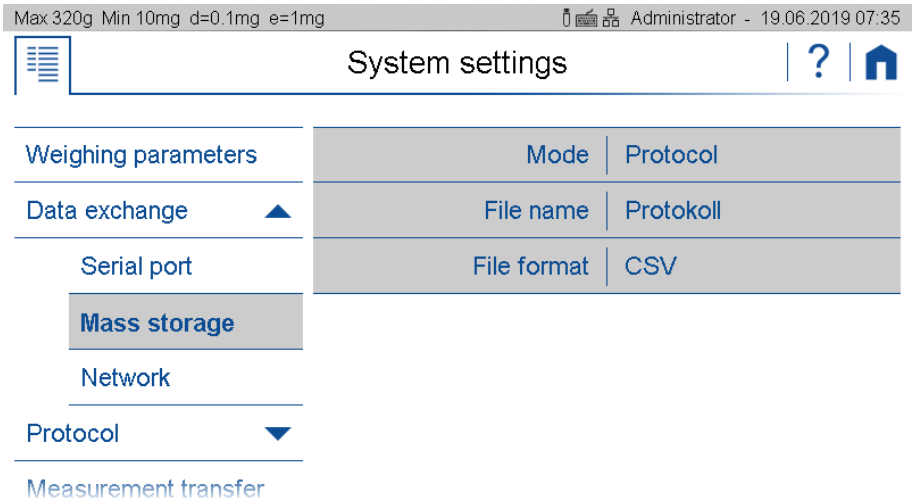
6.2.2 Mass storage

Select Mass storage to transfer the data to a USB stick. If an existing USB flash drive is used, the log or measured value output (depending on the setting) is saved in a file on the stick in the selected format.

6.2.2.1 Mode protocol

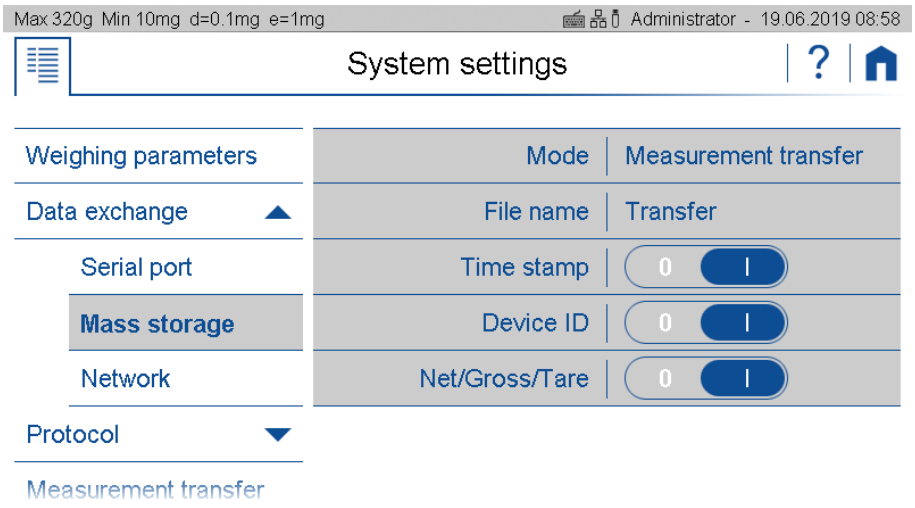
In protocol mode, the protocol defined for the application is output, depending on the setting, automatically or with the <Print> key. In addition to the file name, the file format text ".txt" or CSV ".csv" (comma separated values) can be selected. With the text file format, the width of the log can also be selected with 40 or 24 characters.





6.2.2.2 Mode Measurement transfer

In the measured value transfer mode, the current weight value is transferred at the push of a button, including the time stamp and device ID. With net / gross / tare, two lines with the gross and tare value are transferred to the line with the net value. The format of the measured value transfer must be defined in see 6.4 Measurement transfer.



For the measured value transfer, the softbutton "Transfer" must also be activated in the action bar, see 5.5 Action Bar and Soft Buttons customizing.

6.2.3 Network

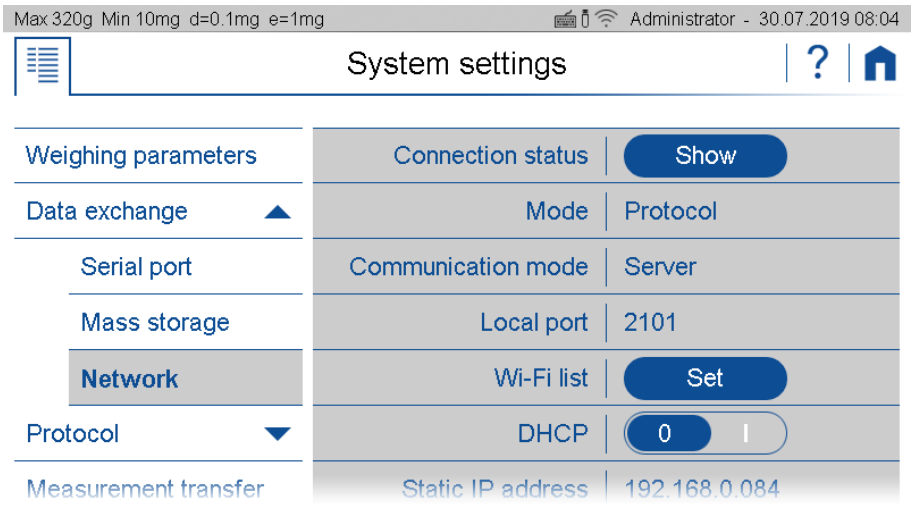
The balance can be integrated into a network. For this purpose, a LAN cable or a USB WLAN adapter must be plugged at the bottom side of the balance terminal. For correct data transmission, the usual parameters of a network connection must be set appropriately on the scale and the receiver.

6.2.3.1 Connection status

Click on to display and print out the network settings

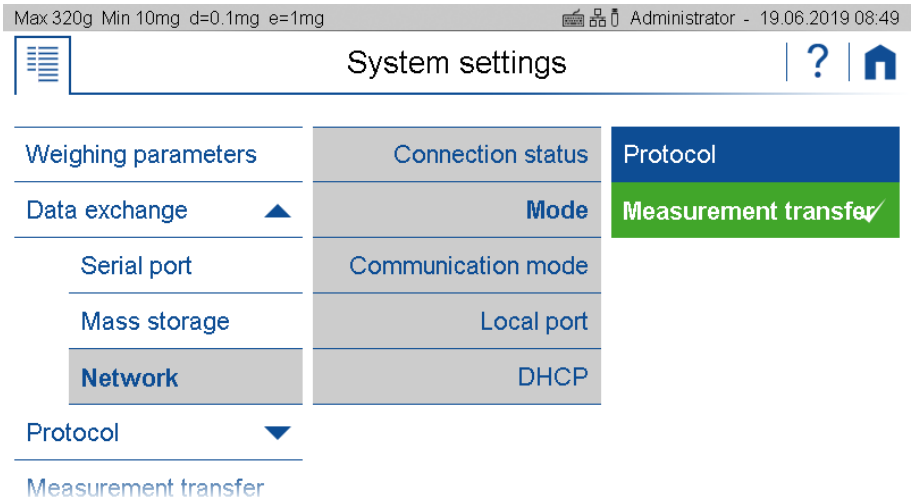
6.2.3.2 Mode Protocol

In mode "Protocol", the protocol defined for the application is output automatically or with the <Print>-key, depending on the setting.



6.2.3.3 Mode Measurement transfer

In the measured value transfer mode, the current weight value is transferred at the push of a button. The format of the measured value transfer must be defined as in 6.4 Measurement transfer.



For the measured value transfer, the softbutton "Transfer" must also be activated in the action bar, see 5.5 Action Bar and Soft Buttons customizing.

6.2.3.4 Mode of the communication

Server

The Server communication mode is used when a PC, LIMS or other device wants to connect to the balance. It is recommended to use a static IP address, as the balance can always be reached with the same address. Further details about the setup and the local port can be found below.

Client

The Client communication mode is used when the balance wants to connect to a passive device such as a printer. The use of an automatic IP address proivided by a DHCP server is usually sufficient, since the address of the balance is not relevant. Further details about the setup and the remote host port as well as the remote host address can be found below.

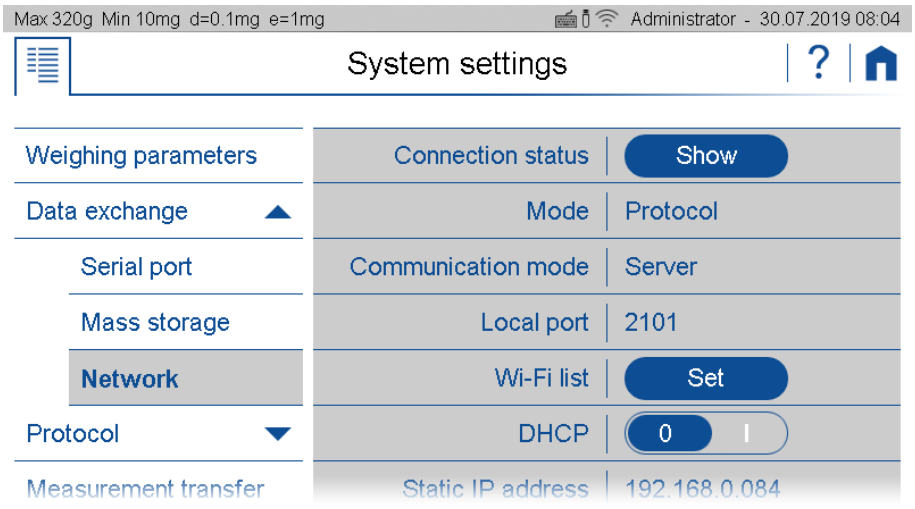
Using DHCP or a static IP address

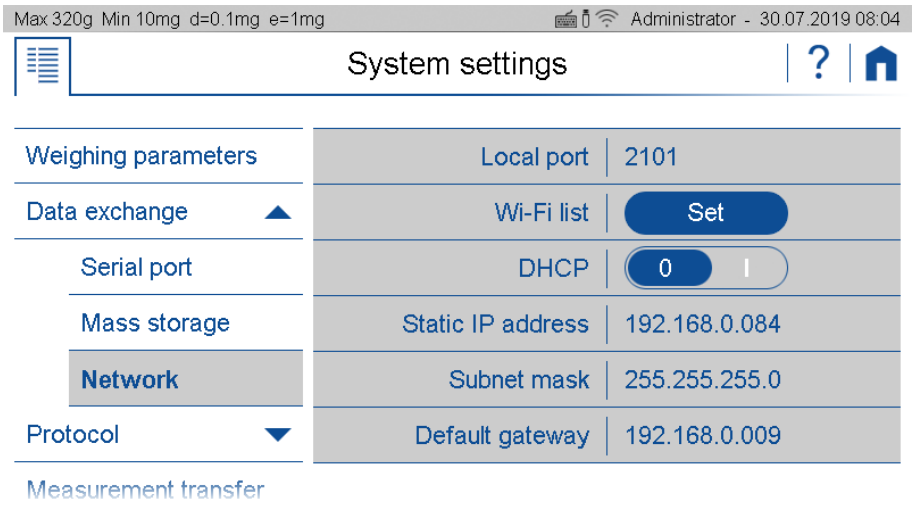
To connect the balance to the network, the details must be discussed with the network administrator. It is important to know whether to assign to the balance a static IP address or an automatic IP address from a DHCP server. In addition, the network administrator knows the port of the remote terminal of the network connection; for Precisa printers or software, this is normally port 2101 or 4001.

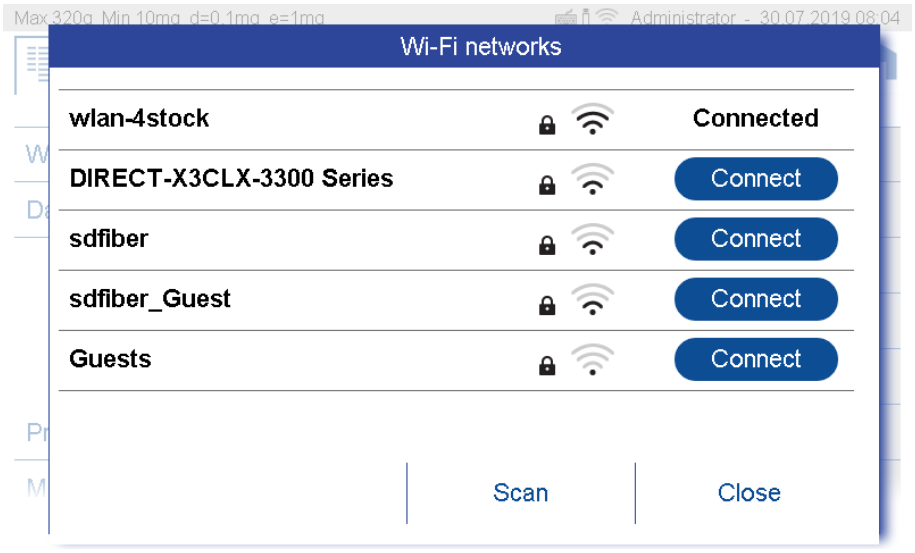
If an automatic IP address of the DHCP server is sufficient, switching on DHCP automatically connects the balance into the network.
In case a static IP address must be used, the network administrator knows the settings of the IP address, subnet mask and default gateway.

Connecting to the LAN or WLAN

In case you have selected in the menu "Data Exchange" WLAN the additonal entry "WiFi list" appears in the selection. Press "Set" to select the network with the password, according your network administrator.



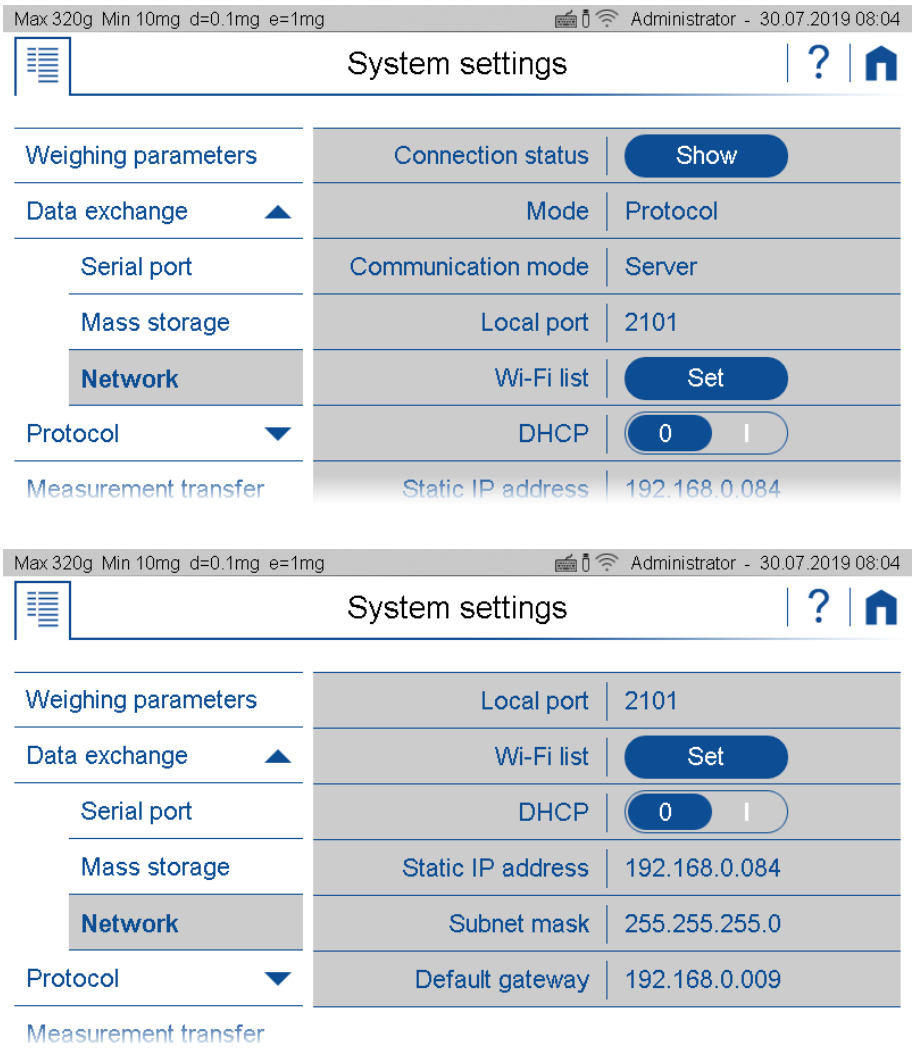




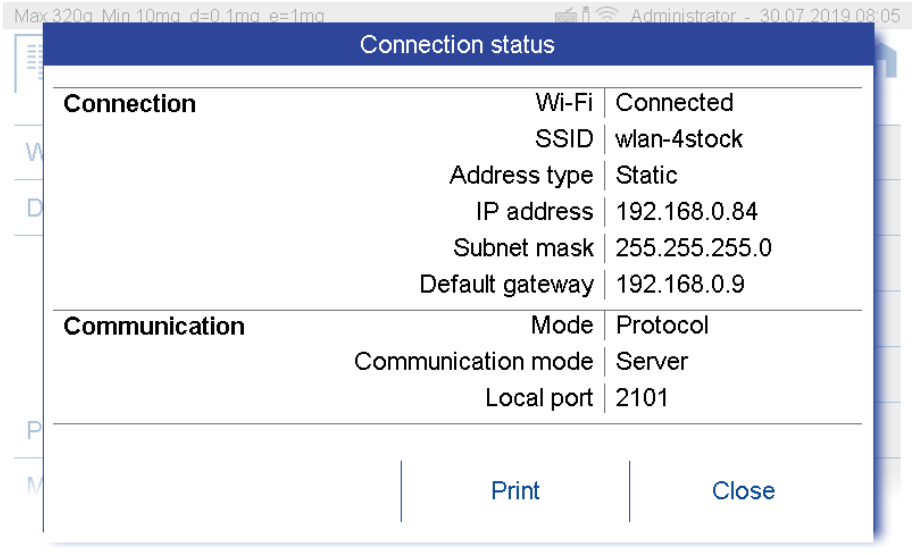
Setting Up in Server Communication Mode

In this mode, a device connects to the balance. In addition to the IP address of the balance, the device must also know the local port of the balance. If this is not explicitly given, use port 2101.

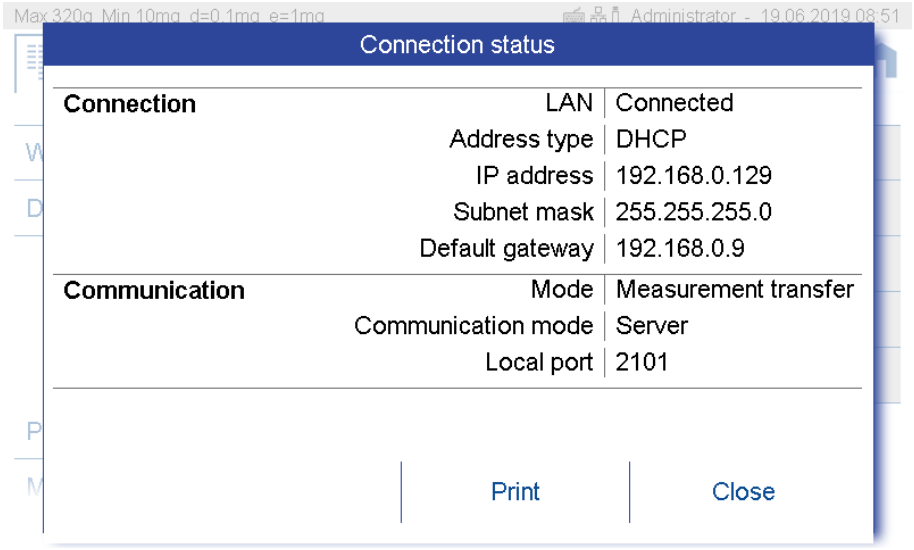
- Mode of data output as "Protocol" or "Measurement transfer"
- Local port of the balance which must be set on the other device



Connection status of the balance as a Server with LAN and DHCP set in the mode “Protocol”.



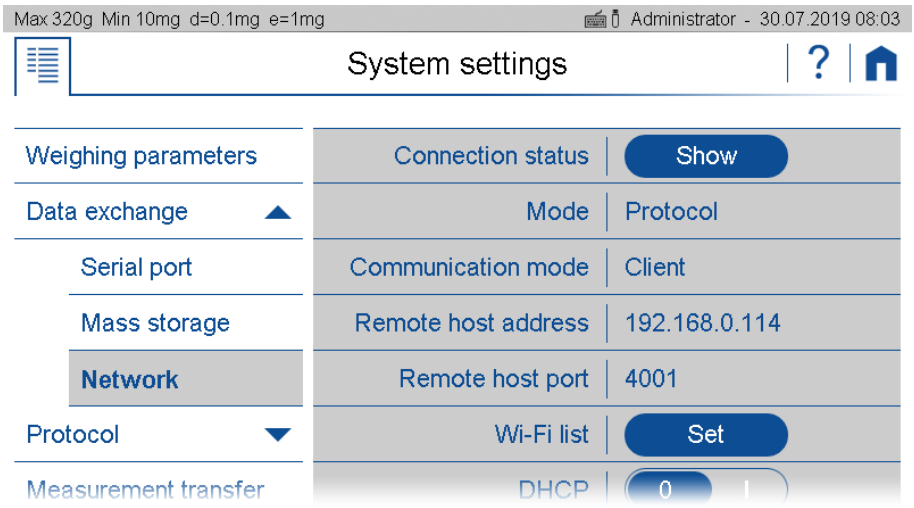
Connection status of the balance as a Server with LAN and DHCP set in the mode “Measurement transfer”.



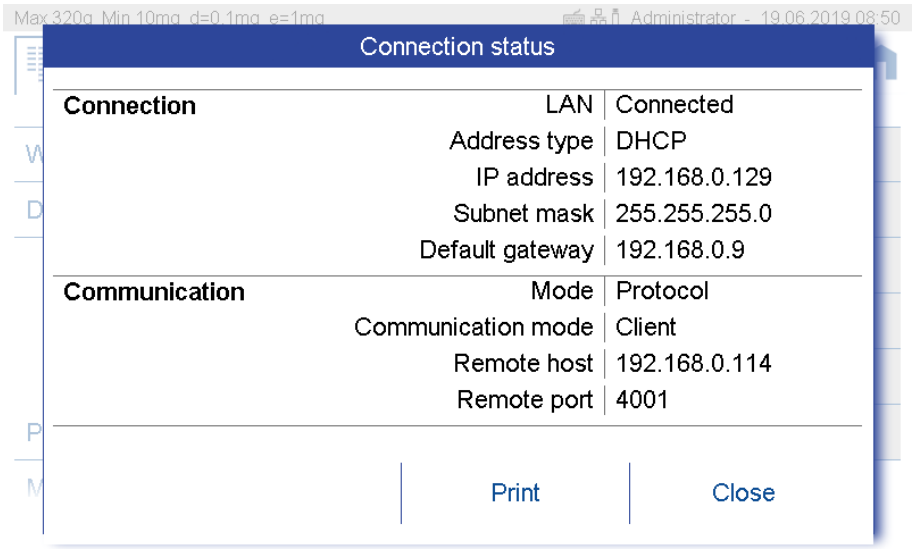
Setting Up in Client Communication Mode

In this mode, the balance connects to a device, or often to a printer. To do this, the balance must know the IP address and the local port of the printer. If this is not explicitly given, use port 4001.

- **Mode** of data output as "Protocol" or "Measurement transfer"
- **Remote host address** or network name of the device to which the balance is to connect
- **Remote host port** or the local port to which the scale is to connect onto the device



Connection status of the balance as a Server with LAN and DHCP set in the mode “Protocol”.

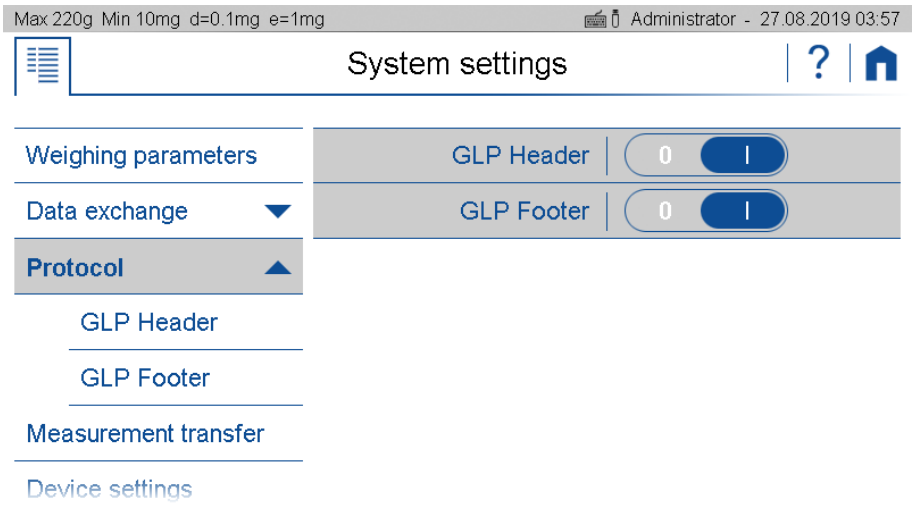


NOTE
Further information on settings can be found in the context help.

6.3 Protocol, GLP Header, GLP Footer

An application protocoll consists of a header, the output of the measurement and the footer.

In many companies it is common to use a uniform appearance for the header and footer. So that this layout does not have to be defined separately in all applications, the GLP header and the GLP footer can be defined here once. If the GLP header and the GLP footer should not be available for the application, they are deactivated here.



NOTE
Further information anout ndefining a pürotoclal ca be found in 10 Add-On Function Protocol .

NOTE
Further information on settings can be found in the context help.

For example, a protocoll might look like this:

Company
Street 123
8953 Dietikon
Abt: Development

Date/Time 05.07.2018 09:24:58

Device-ID Laboratory 1
User Administrator
ID 1:
Net value + 17.6017 g
Gros value + 17.6017 g
Tare value 0.0000 g

AOS 31°C/42%/967hPa

Levelling levet
Adjustment Gut
Last adjustment 23.08.1918 06:42

Signatur

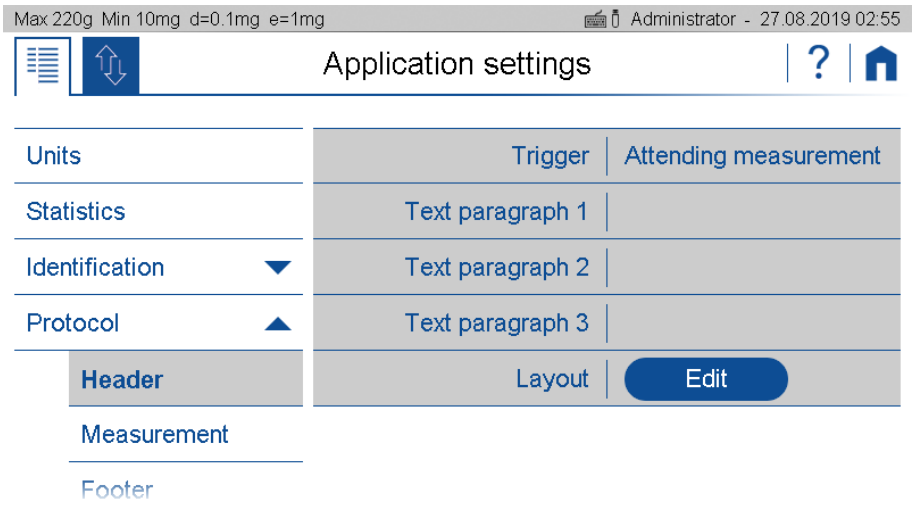
_____

Checked

.....

6.3.1 GLP Header

The globally available GLP header consists of header-specific text sections 1 to 3 and various modules that are available for the layout of the GLP header.

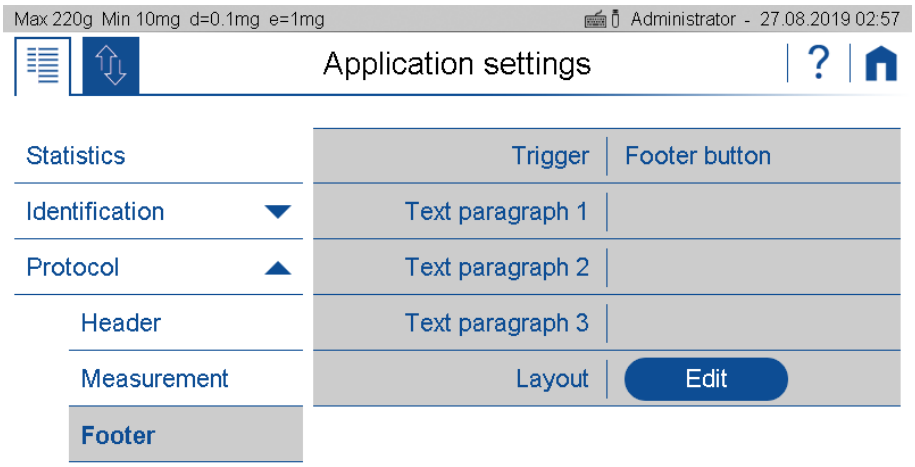


To ensure easy orientation, the building blocks are divided into groups:

- **General** contains blocks such as Date, time, user, the 3 text sections 1..3, line rewriting, etc.
- **Application** contains blocks for the application.
- **Device** contains blocks such as Device ID, device name, etc.

6.3.2 GLP Footer

The globally available GLP footer consists of footer-specific text sections 1 to 3 and various building blocks that are available for the layout of the GLP footer.



To ensure easy orientation, the building blocks are divided into groups:

- **General** contains blocks such as Date, time, user, the 3 text sections 1..3, line rewriting, etc.
- **Control** contains blocks such as the status of the leveling, the status of the adjustment and the date of the last adjustment.

6.3.3 Define text paragraph of GLP header-and GLP-footer

The description of how a text section is defined can be found in 10 Add-On: Protocol resp.10.4 Protocol text paragraph.

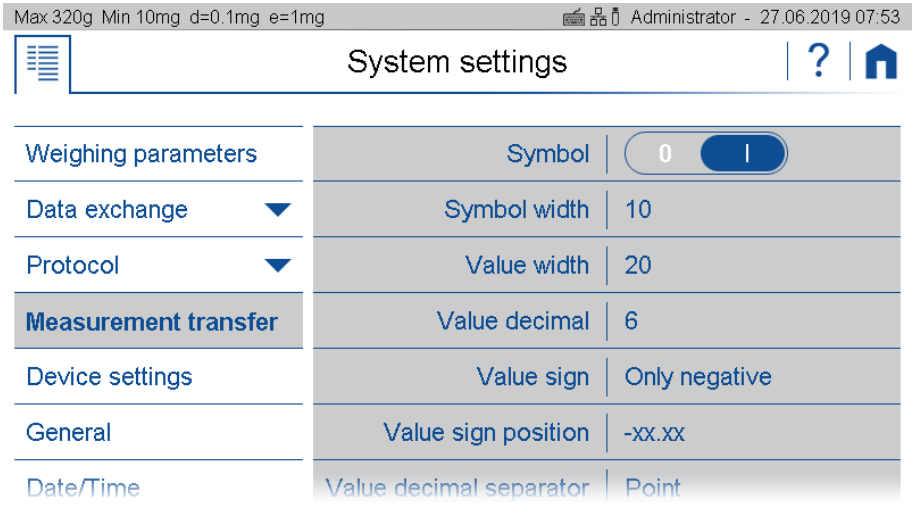
6.3.4 Define layout der GLP-header and GLP footer

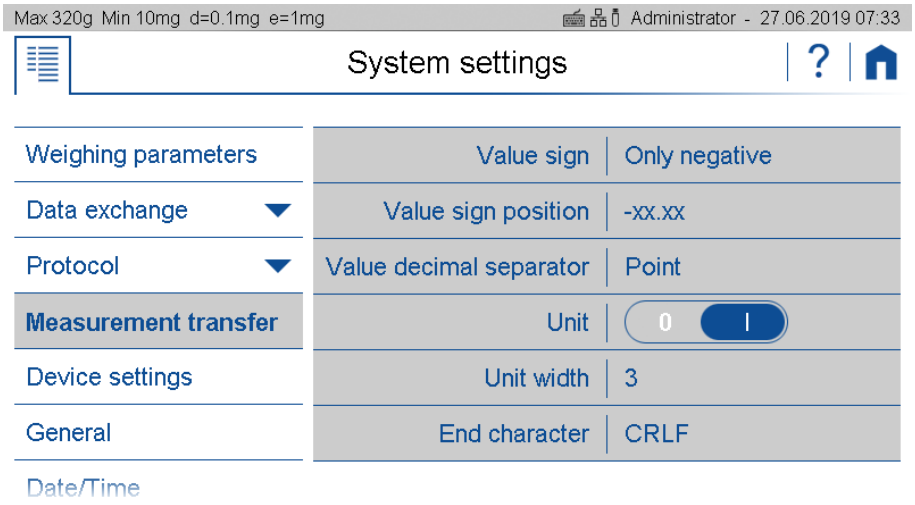
A description of how a protocol layout is defined can be found in 10 Add-On: Protocol resp.10.5 Protocol.

6.4 Measurement transfer

Here you can set the format of the measured value for "Data exchange" with "Measurement transfer" see 6.2 Data exchange.

- **Symbol** indicates whether the symbols for net, gross, tare, etc. are transferred.
- **Symbol width** is the number of characters or placeholders for the symbols
- **Value width** is the width of the weight value including the decimal places
- **Decimal places** which are transferred in the weight value, not available decimal places are filled with '0'
- **Value sign** always or only for negative numbers
- **Value sign position** left-justified (- xx.xx) or directly bevore the weight value (-xx.xx)
- Value decimal separator with point or comma
- **Unit** transferred on or off
- **Unit width** in number of characters or how many placeholders, right-justified
- **End character** with <CR> <LF>, <CR> only or <LF> only

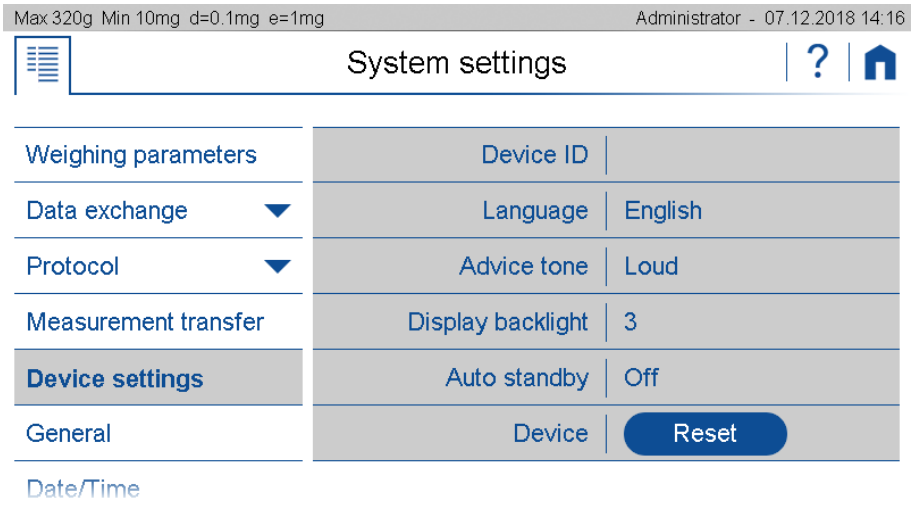




NOTE
If a channel is not physically available, the transfer may take a long time, because the scale only stops the transfer after a certain timeout.

NOTE
Further information on settings can be found in the context help.

6.5 Device settings



General settings can be changed in the Device Settings menu.

6.5.1 Device ID

Allows to put in an alpha-numerical identification (max. 20 characters) which is also displayed during the start-up sequence, when the balance is switched on.

6.5.2 Language

Defines the dialogue language English*, German, French, …

6.5.3 Advice tone

Adjust the volume.

6.5.4 Display Backlight

Adjusts the level of display backlight for adaption to different ambient light situations

- **Low** for low light emission environment
- **Medium** standard light conditions
- **High** best suited for working place with high light emission

6.5.5 Auto standby Off / On

Select if and when the scale is to be put into standby mode when not in use.

6.5.6 Device reset

Here the device can be reset to factory settings. All user and administrator data will be deleted. Before the reset, you must confirm a security question.

6.6 Setting Date and Time

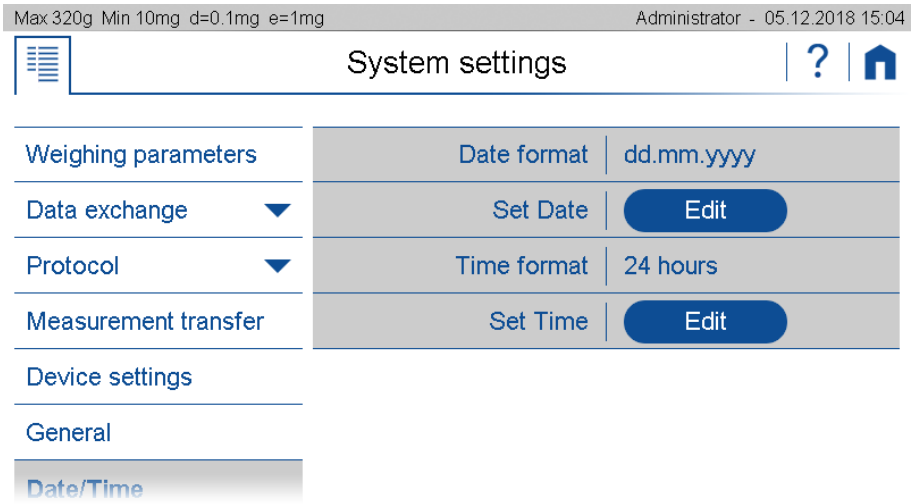
Allows for all users to set date and time as well as set the format.

- **Date format:**

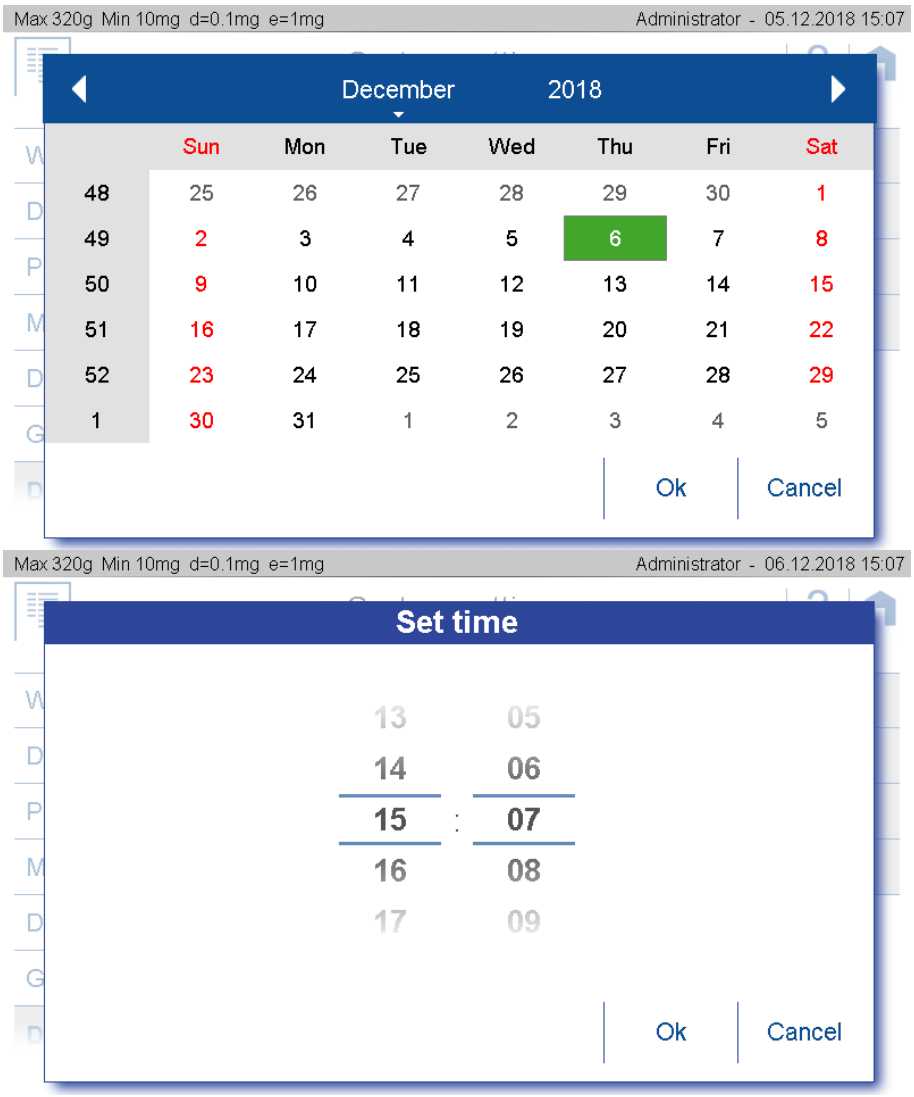
  The date can be displayed in two formats:

- Classic form (dd.mm.yyyy): e.g. 12.01.2017 (12 January 2017)
- USA Format (mm.dd.yyyyy) : e.g. 2017.02.08 (8 February 2017)

- **Time format:**
  The time can be displayed in two formats:
  - 24 hours: Time representation based on the 24 hours model (ex.19:16, 04:10 etc)
  - 12 hrs: Time representation based on the 12 hrs model (e.g. 09:02 am, 02:10 pm etc))



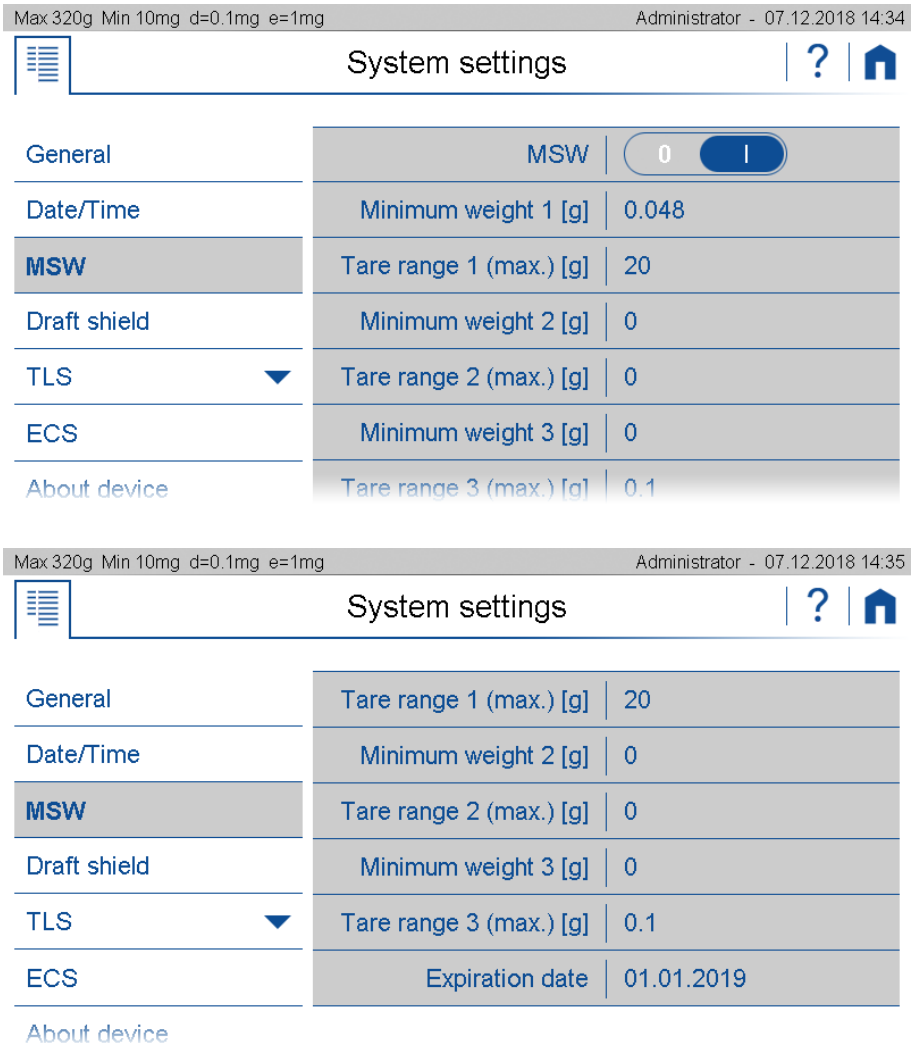
- **Set Date / Set Time:**
  Setting the date/time



Note:
The internal clock is equipped with a backup battery, which guarantees perfect functioning for several years. If the time or dates are incorrect after a cold start, in most cases this indicates the end of the lifespan of the backup battery. This must be replaced by qualified personnel.

6.7 Minimal Sample Weight and Quality Management, MSW

With the minimum wine scale MWS, weighing can always be ensured in accordance with required QS guidelines such as GLP, GMP or USP (United States Pharmacopeia).



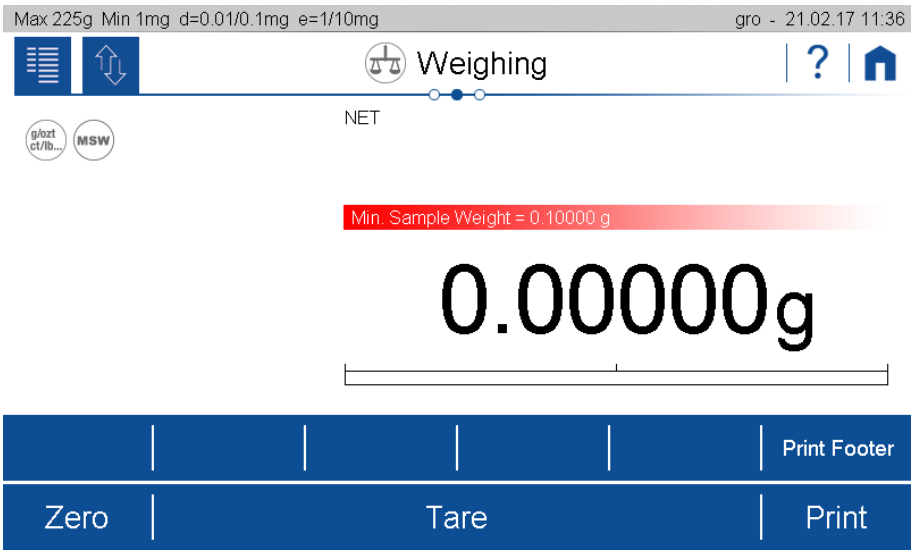
By activating the minimum weight (MSW,) the minimum weight can be entered for several tare ranges.

- **Minimum sample** weight use or not
- **Minimum weight i [g]** is the minimum weight that is required in tare range i
- **Tare range i (max) [g]** is the maximum tare value below which the minimum weight i is used
- **Expiry date** when a new check of the minimum sample weight according to your QM system is due. We certainly recommend checking once a year.

In many applications only very small quantities are used, thus, only a small part of the balance's weighing capacity is used. The smaller the used sample quantity, the greater the relative uncertainty of the measurement. Therefore the minimum weight which is required is determined on the basis of the QM criteria and of the statistical data from repeated weighing procedures. The

minimum weight which is required is determined on the basis of the QM criteria and of the statistical data from repeated weighing procedures.

If the weight is below the minimum weight a warning is appears on the balance display warning you of this; these values are also marked in the printout.



The required minimum weights should be determined on the basis of the QM specifications by means of the statistical analysis of certain series of measurements.The balance's own „Statistics" function could be used for this purpose, for example. It is used to perform and subsequently log the requisite series of measurements. Once the minimum weight(s) has/have been determined, it/they can be input into the balance. Up to three tare ranges can be defined with the corresponding minimum weights.

The balance's weighing modes, as well as measuring time and stability, are also fixed in such a way as to guarantee compliance with tolerances in future measurements. Tare ranges, minimum weights and weighing modes cannot be changed by the user.

The values which are input can be logged by means of an configuration status print and could, along with the report on the statistical measurement series, be used as a QM certificate.

If work is performed on the basis of the minimum weight application, this serves to ensure that the weighing results conform to the certificate specifications and, thus, to your QM guidelines.

The minimum weight is dependent on the ambient conditions. Therefore, it must be determined on-site and must be reviewed periodically.The following parameters influence the minimum weight:

Calculation of the Minimum Weight = k * R / U

R: Repeatability means the calculated standard deviation of at least 10 measurement of the same small weighed on-site. For USP the value must always be at least 0.41d.

K: The extension factor. The factor is defined by the user or is defaulted. (USP = 2)

U: Relative uncertainty (USP = 0.1 %)

6.7.1 USP Chapter 41, Determinatin, Calculation

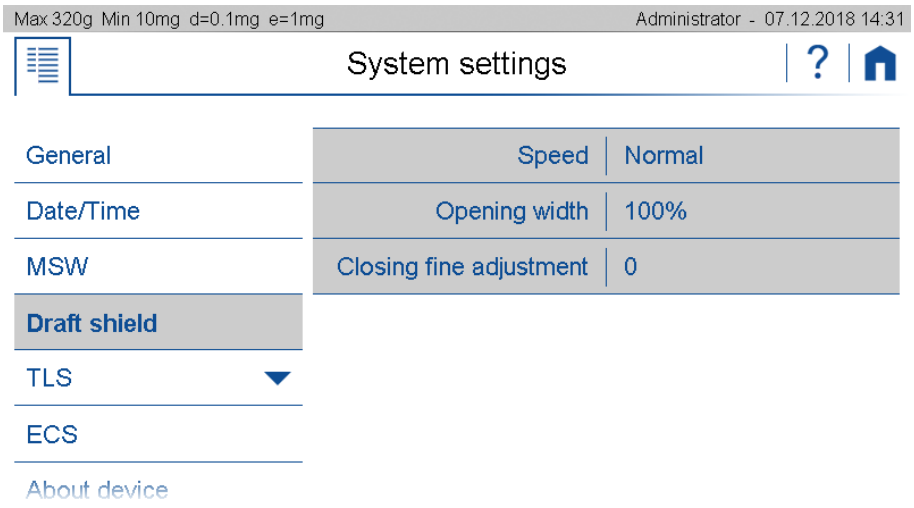
Minimum Weight = k * R / U

To determine and calculate the minumium weight according USP 41 the following settings have to be taken for k=2 and U=0.1 %. In addition, no value <0.41d may be used for the determined repeatability. "d" corresponds to the last digit on the right of the weight display of the balance or for a balance with a readability of 1 mg, d = 1 mg and W would therefore be R > = 0.41 mg.

6.8 Draft shield

This is where the movements of the electric draft shield are defined. The movements must be triggered by a soft button on the Action Bar (5.5 Action Bar and Soft Buttons customizing) and/or with the Touch Less Sensor (6.9 Touch Less Sensor TLS (Option).

- **Speed** at which the draft shield is to be moved
- **Opening width** in % of the maximum opening
- **Closing fine adjustment** to ensure complete closing



6.8.1 Speed

Define the speed of the draft shield door movement.

- **Slow:**
  Speed of opening /closing is reduced for minimized disturbance
- **Normal:**
  Normal speed. Best suited for most applications
- **Fast:**
  Speed of opening /closing is increased for time optimized applications

6.8.2 Opening width

Defines the opening width of the draft shield door. Hereafter some recommendations:

- **20%:**
  Ideal for small weighing goods for minimizing air current disturbances by reduced opening
- **60 %:**
  Suitable for small weighing goods for minimizing air current disturbances by reduced opening
- …
- **100%:**
  Maximum opening for ease operation

6.8.3 • Closing fine adjustment

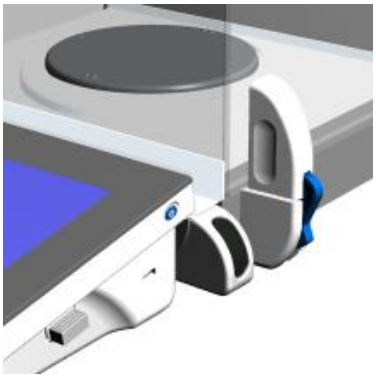
The gap of the draft shield door to the front glass can be adjusted for optimizing the protection grade of the draft shield.

NOTE
The movement oft he draft shield can be triggered by Action Bar and/or with the Touch Less Sensor

6.9 Touch Less Sensor TLS (Option)

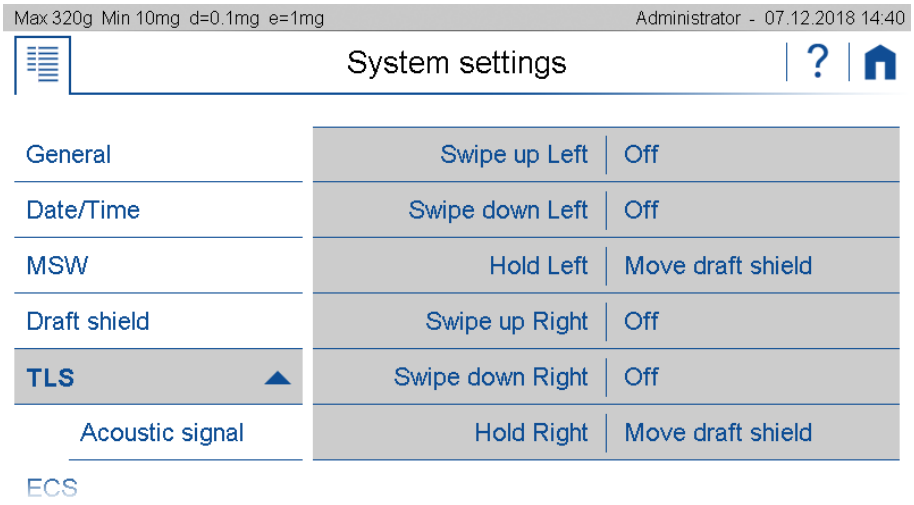
The Touch Less Sensor can be used to trigger a wide variety of actions such as opening the draft shield, closing the draft shield, moving the draft shield, tare the scale or starting a printout.

The balance is equipped with 2 ultra small state of the art IR-arrays sensors. Due to their architecture gesture recognition is possible.

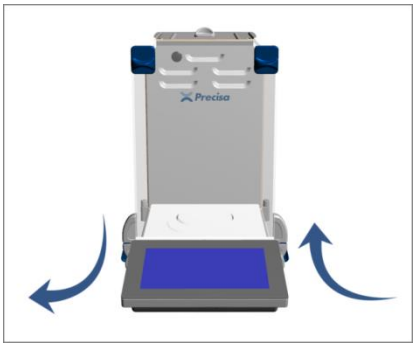


6.9.1 Swipe

Gesture recognition capability allows the reliable processing of swipes (refer also to the follwing pic). Thus, the likelyhood of false triggering is virtually recuced to zero. Therfore unintented manipulations close to the IR-Sensors are suppressed reliably.



Gesture left or right with gestures swipe up/down:

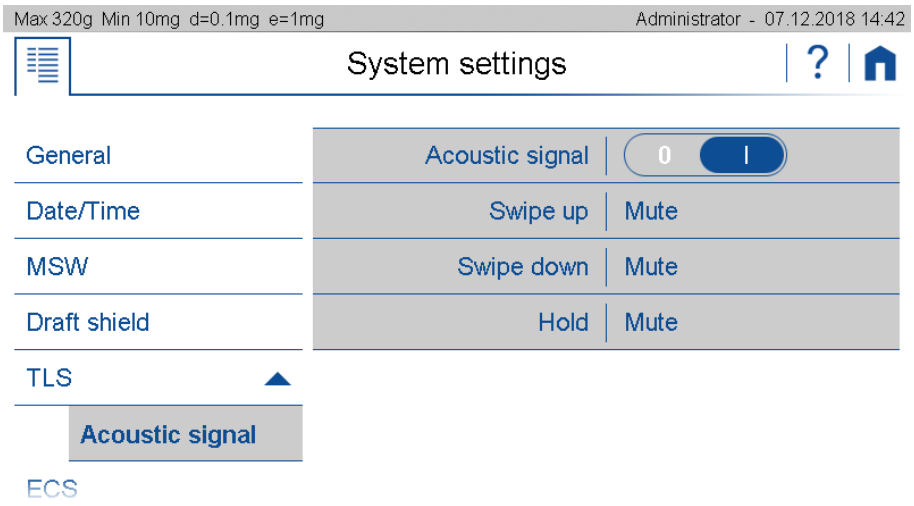


Note
If your balance is not yet equipped with the TLS, ask your Precisa representative whether this option can be retrofitted.

6.9.2 Audible feedback

So that it can be recognized whether the gesture has been recognized and the action triggered, the gesture can be assigned an acoustic signal as feedback.

- Acoustic signal switch on/off
- **Swipe up** Assign feedback (e.g. acoustic signal "Mute" or none)
- **Swipe down** Assign feedback (e.g. acoustic signal "medium")
- **Hold assigne** feedback (e.g. acoustic signal "loud")



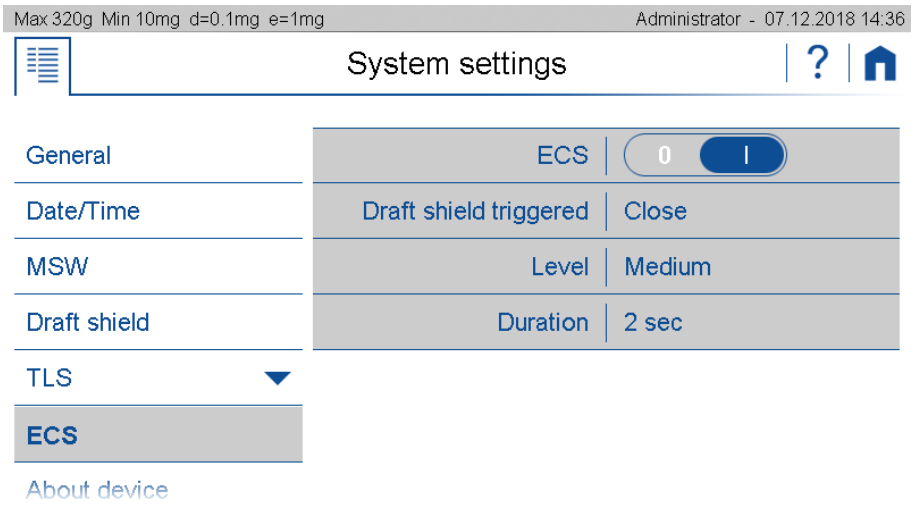
6.10 Settings Ionizer/ECS (Electrostatic Cancellation System)

Different materials such as plastics or powders tend to become electrostatically charged. This effect can be seen, among other things. in that the displayed weight value is not stable or drifting.

With the ECS electrostatic neutralization system, the goods to be weighed can be discharged electrostatically and neutralized, see 12.5Electrostatic neutralisation system ECS (optional)

The neutralization can be triggered via a soft button on the Action Bar (5.5 Action Bar and Soft Buttons customizing) and / or draft shield triggered.

- **ECS** switch on/off
- **Draftshield triggered** we recommend when closing
- **Level** of ECS neutralisation. The optimal has to be found empirically. In case of doubt choose high.
- **Duration** of ECS neutralisation. The optimal has to be found empirically. In case of doubt choose a long time.



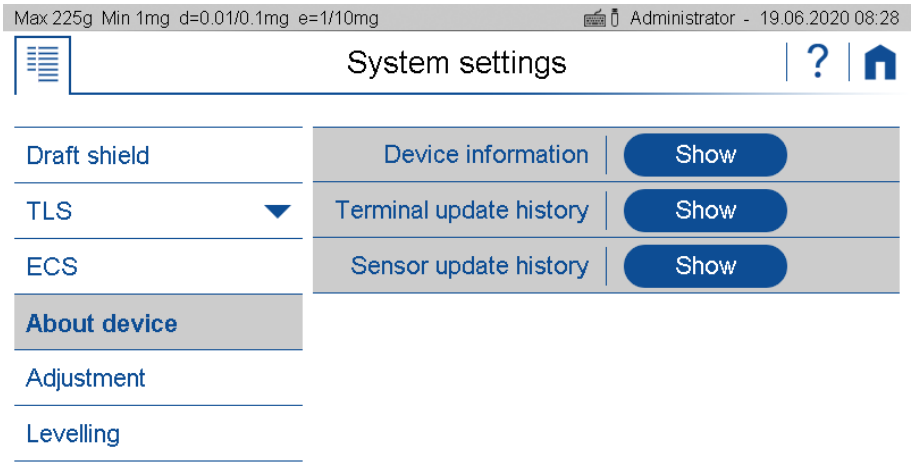
Note
If your balance is not yet equipped with the ECS, ask your Precisa representative whether this option can be retrofitted.

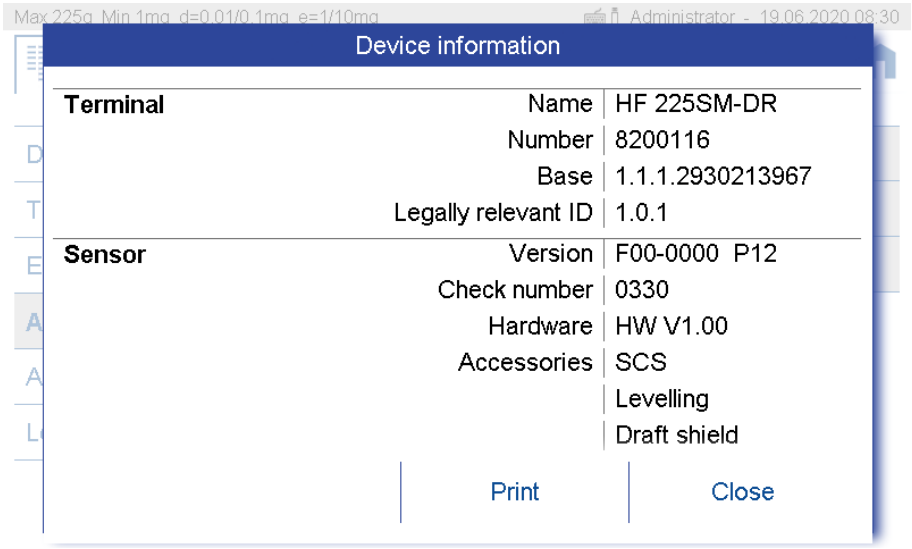
6.11 Device

Here you will find information about the device, which consists of a touch terminal and the weighing sensor.

In the device information you find the overview with the product name, the serial number, the current software version, the installed accessories and the installed applications.

In the terminal and sensor updates you can see the history of installed updates.



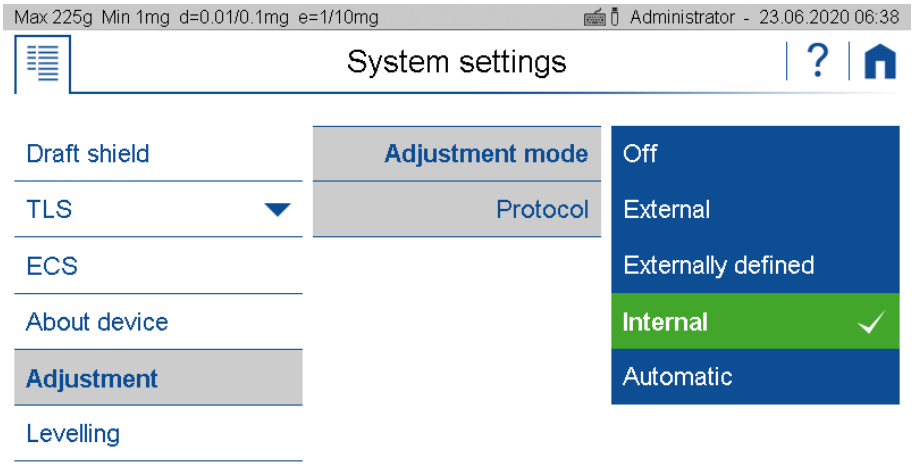


6.12 Adjustment

Various factors influence the weighing system, e.g. gravity, air temperature, air pressure, humidity, etc. In order to achieve and guarantee the most accurate weighing results over time, the weighing system should therefore be routinely readjusted.

Due to the numerous adjustment modes and their settings, you can set the balance so that it always meets your requirements.

With the automatic adjustment mode, the greatest interference effects are automatically minimized or. eliminated or the balance at least warn you that an intervention is necessary.
If the Ambient Observation System AOS is installed, the air temperature, air pressure and humidity can be included, which results in an optimally monitored and precise system, see 12.3Ambient Observation System AOS (optional).
Parallel to these adjustment modes, the balance can always be adjusted explicitly in the Adjustment application, see 2.7 Adjusting the balance.



Common settings:

- **Protocol:**
  After the adjustment, a protocol is output via the corresponding interface. If the balance is integrated in an EDP system, this can lead to problems, which is why the output can be suppressed with the Protocol setting.

NOTE
Further information on settings can be found in the context help..

NOTE
Indipendend to these adjustment modes, the balance can always be adjusted explicitly in the Adjustment application, see 2.7 Adjusting the balance.

6.12.1 Adjustment mode off

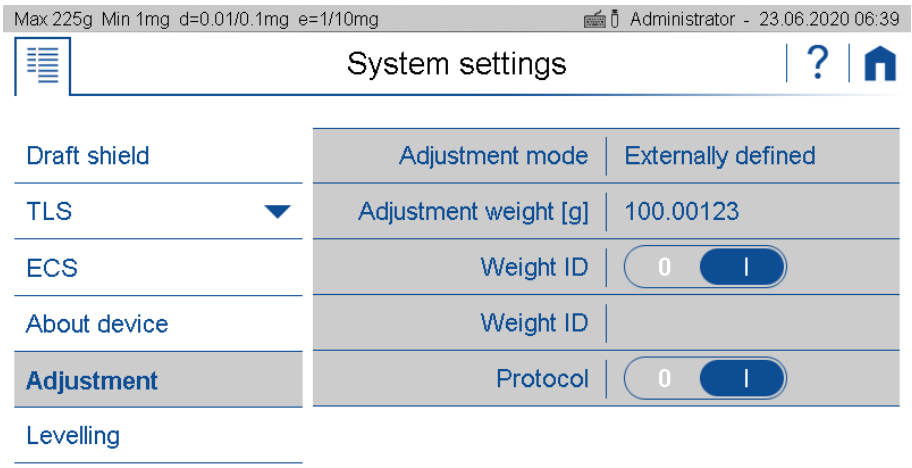
This modus prevents the balance from adjustment.

6.12.2 Adjustment mode external

If you have very precise standard calibration weights which correspond to the accuracy of the balance, you can adjust the balance with these weights if necessary. Depending on the type of balance, calibration weights in 10g, 50g and 100g steps can be used.

6.12.3 Adjustment mode External Defined

The real value of an external weight can be entered here. This is often used for weights with a known deviation from the nominal weight. By using this feature the systematic error can be eliminated.



6.12.4 Adjustment mode Internal

The adjustment is triggered manualy and executed by the internal weight SCS.

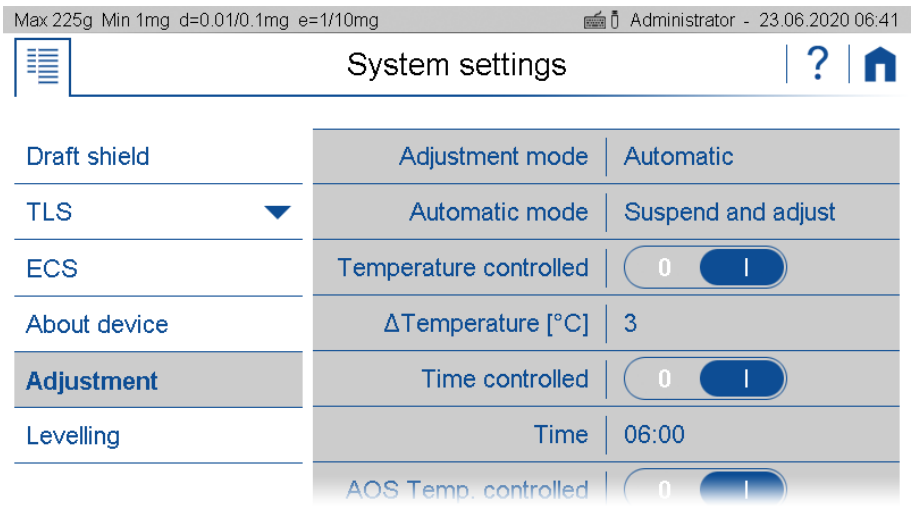
6.12.5 Adjustment mode Automatic

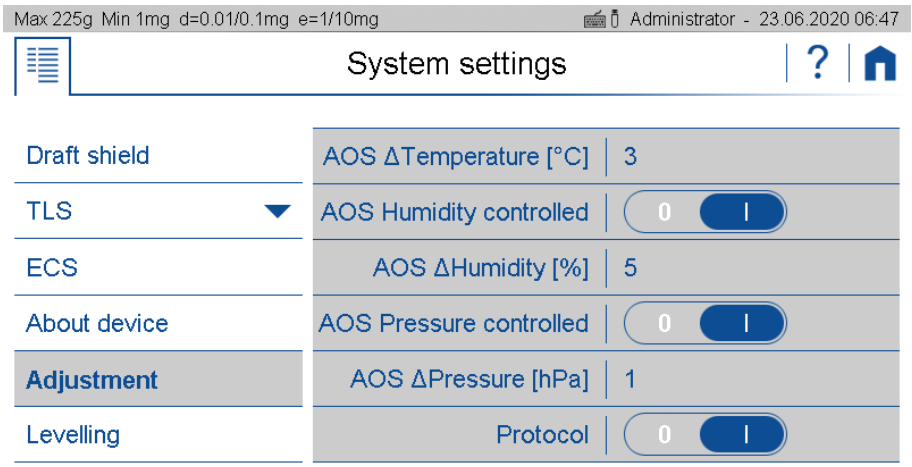
Thebalance can be set so that it automatically adjusts with the built-in weight or at least indicates that an adjustment is necessary.

To trigger the adjustment and determining the behavior of the balance various settings are available, some of which can also be combined.

- **Automatic:**
  As soon as an adjustment has been triggered, the balance shows a warning that the balance should be adjusted or operation is suspended and the balance starts to adjust automatically.

- **Temperature controlled:**
  The balance monitors the current ambient temperature. If the deviation from the ambient temperature during the last adjustment is greater than the threshold, an adjustment is triggered.
- **Delta temperature:**
  Threshold at which deviation triggers a new adjustment.
- **Time controlled:**
  Always triggers an adjustment at the set time.
- **Time:**
  Time when the time-controlled adjustment should take place.
- **AOS temp. Controlled:**
  The scale uses the AOS to monitor the current air temperature. If the deviation from the air temperature during the last adjustment is greater than the threshold, an adjustment is triggered.
- **AOS Delta temperature [° C]:**
  The threshold triggers a new adjustment if it deviates.
- **AOS humidity controlled:**
  The scale uses the AOS to monitor the current air humidity. If the deviation from the air humidity during the last adjustment is greater than the threshold, an adjustment is triggered.
- **AOS Delta humidity [%]:**
  The threshold triggers a new adjustment if it deviates.
- **AOS pressure controlled:**
  The scale uses the AOS to monitor the current air pressure. If the deviation from the air pressure during the last adjustment is greater than the threshold, an adjustment is triggered.
- **AOS Delta pressure [hPa]:**
  The threshold triggers a new adjustment if it deviates.





NOTE
Indipendend of these adjustment modes, the balance can always be adjusted explicitly in the Adjustment application, see 2.7 Adjusting the balance.

6.13 Setting Levelling

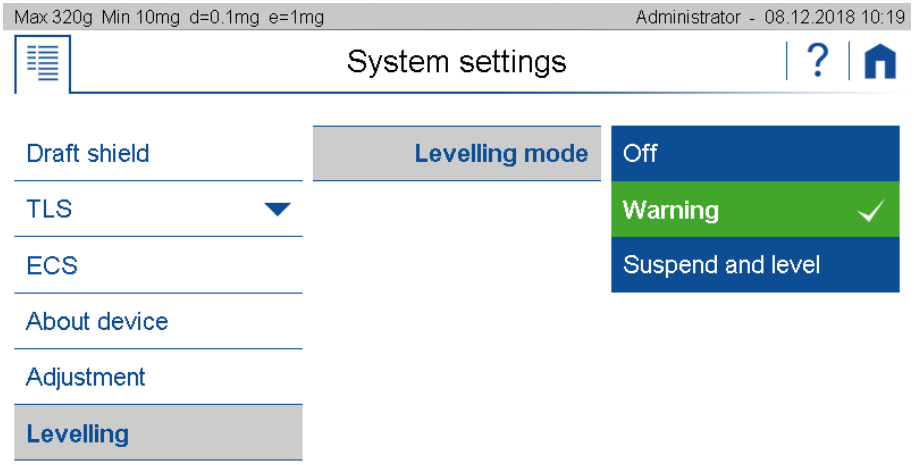
The balance must be set up exactly horizontally in order to function properly. The balance is therefore equipped with an electronic level indicator for level control and two rotating feet, which can be used to compensate for small differences in height or unevenness in the balance area.

The leveling itself is carried out in the leveling application, see chapter2.4 Levelling.

In order to achieve and guarantee the most accurate weighing results over time, the balance can be set so that the correct position is continuously monitored and the balance indicates when an intervention is necessary or is even blocked until the scale is correctly leveled again.

Various settings are available to determine the monitoring of the position and the behavior of the scale.

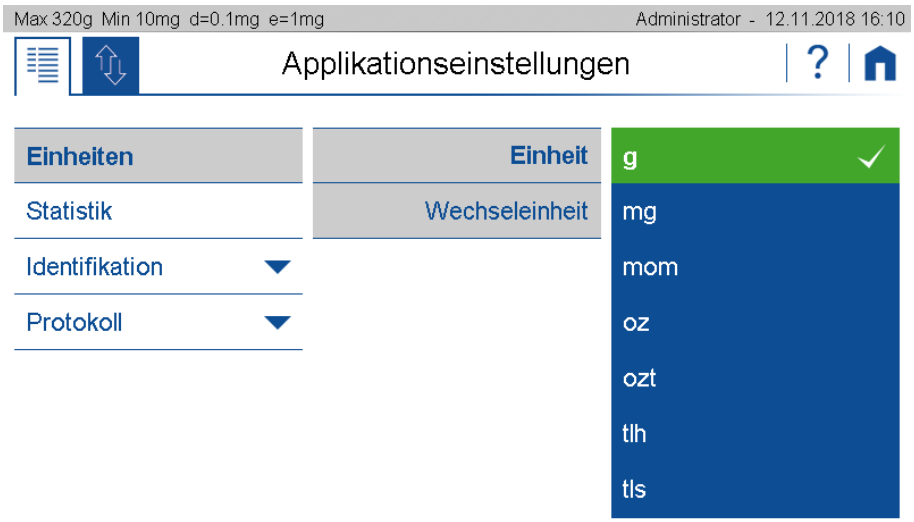
- **OFF**:
  No warning
- **Warning:**
  As soon as it is determined that leveling is necessary, the scale shows a warning until the scale is correctly leveled.
- **Suspend and level:**
  As soon as the leveling is necessary, the operation is stopped until the scale is correctly leveled.



NOTE
Further information on settings can be found in the context help..

NOTE
Indipendend of this monitoring, the balance can always be adjusted explicitly in the LEvelling application.

7 Add-On: Units / Free Conversion



7.1 Unit

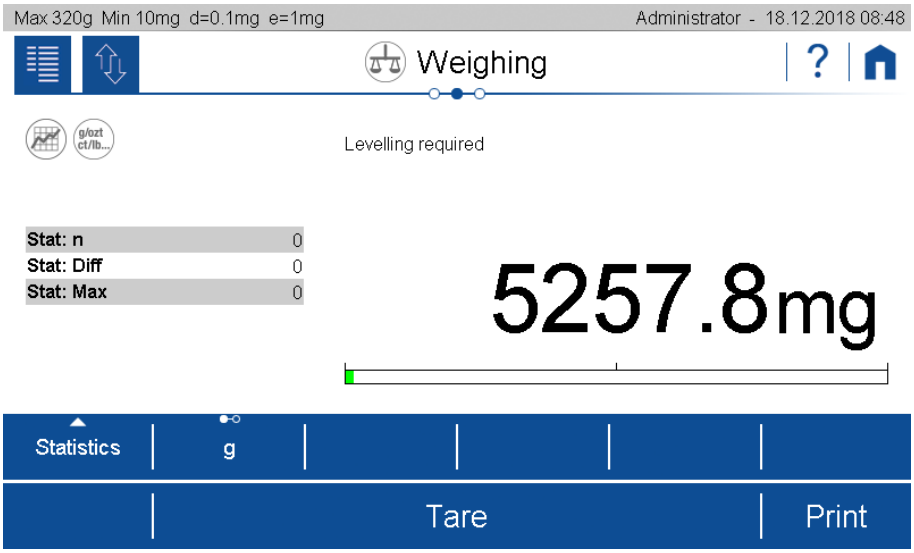
With the aid of the add-on function "Units" you can display and print out the measuring result in different units. The activity of the add-on function is indicated in current application screen by a small icon.

7.2 Interchangeable unit

With interchangeable unit you have a second display available. With the soft button you can switch between the displays of the two units back and forth.

Set the soft button (the set unit is displayed in the add-on) in order to switch between the units of change in the application.

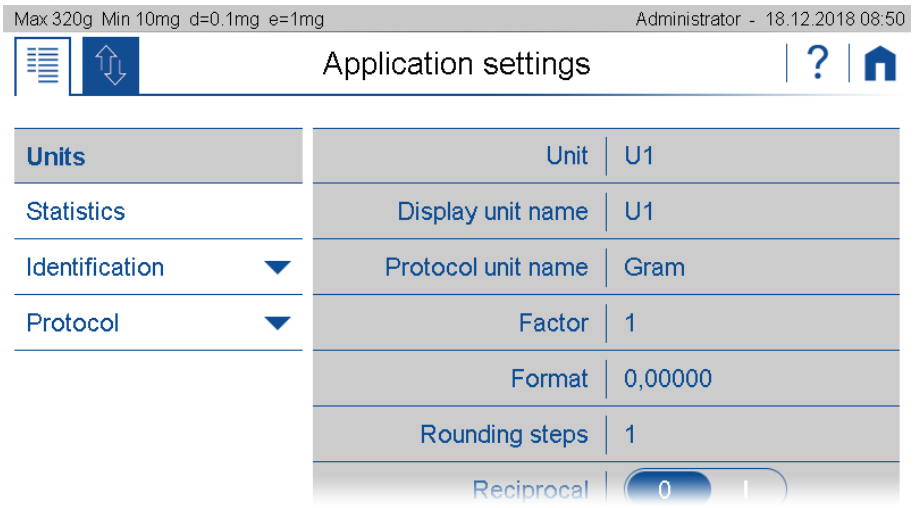
Remark: Further information can be found in the context help of the Soft Button Management.

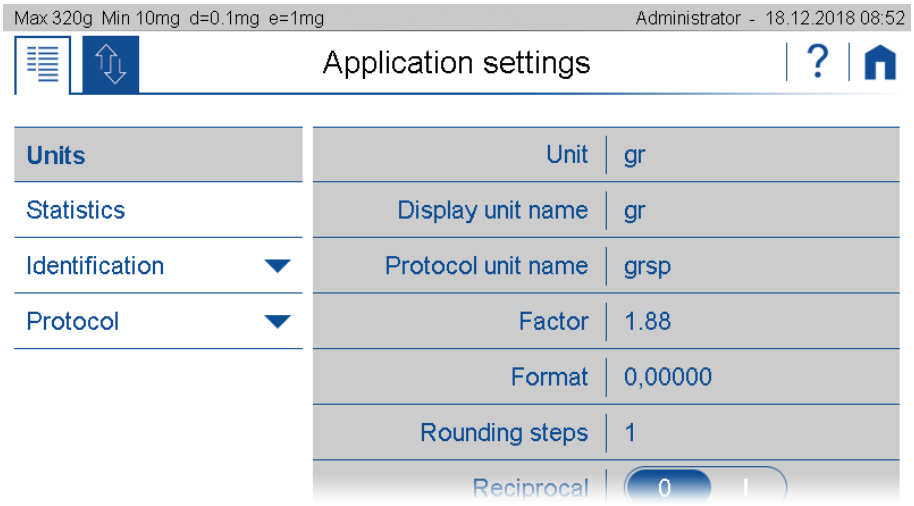


7.3 Unit with free conversion

For some applications non standard units or customized units are needed.

By using one of the basically named as "Unit1" until "Unit4" a free unit with the following settings can be made.





- **Display unit name:**
  Name of the units displayed in the units list
- **Unit Name:**
  Name of the units displayed in the units list. The designation of a free unit is restricted to prevent misinterpretations with the standard units.
- **Print Unit:**
  Designation of the printed free unit. The lenght of the name is limited to 5 figures.
- **Factor:**
  Conversion factor for which is multiplied/divided by the net-value
- **Format:**
  Number of digits
- **Reciprocal:**
  Depending on the settings, the result is calculated as follows:
- **Reciprocal**:
  - Off: Free unit = Factor x net value [g]
  - On: Free unit = 1/Factor x net value [g]

8 Add-On: Statistics

The statistics function logs all measuring data in order to provide you any time with a wide range of statistical information for a series of measurements. All data can be displayed and printed out upon your requirements.

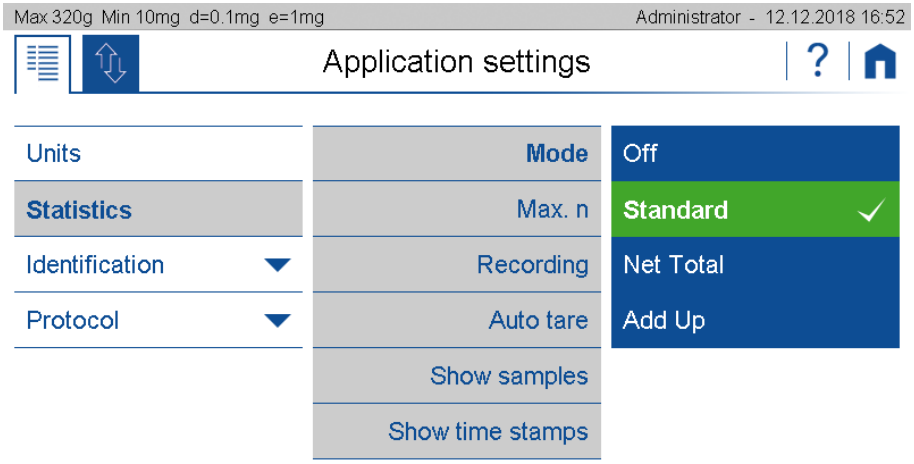
To use this add-on efficiently, you should adapt the scale to your needs using the customizer.
Assign the action bar with softbuttons or function what this add-on provides, such as: Save, Delete Last Sample, Show Statistics, Print Statistics, Delete Statistics, etc.
Define the appearance of the info area with the statistics information such as mean value, standard deviation, number, maximum, etc.

8.1 Statistics Mode

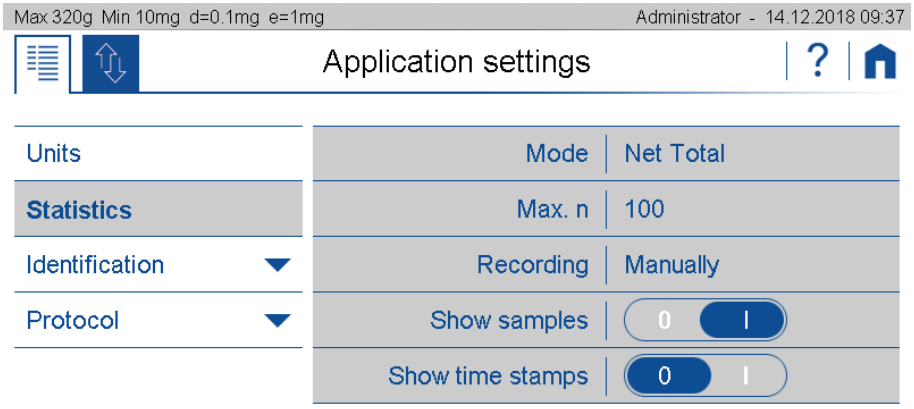
By selecting a mode, the Add-On function Statistics is switched on for the current application, in mode off the Add-On is not active.

The different modes cause the Add On to be preset for frequent applications:

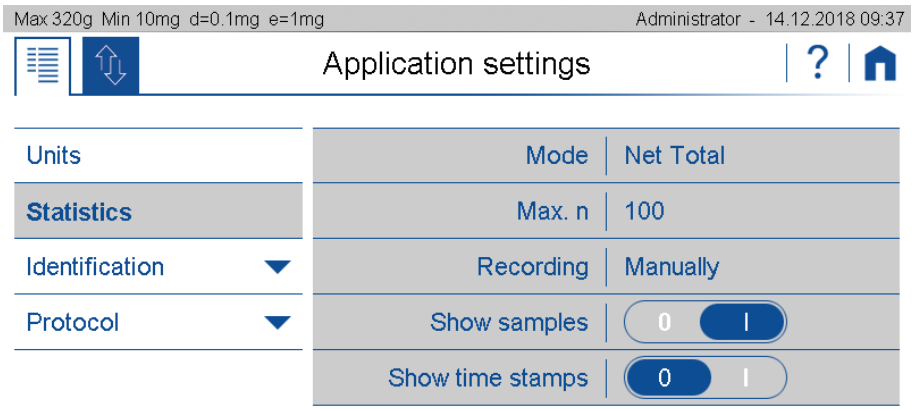
- **Standard:**
  Normal statistics without special additional functions.



- **Nettototal:**
  Serves to mix or weigh different components directly in one container on the scale.
  - The automatic tare is activated and is performed after each recorded sample.
  - Only the total and the number of samples or components are displayed as the result.



- **Add up:**
  Serves for different components which in total exceed the weighing capacity and are mixed or weighed in a separate container.
  - The automatic tare is switched off.
  - Only the total and the number of samples or components are displayed as the result.



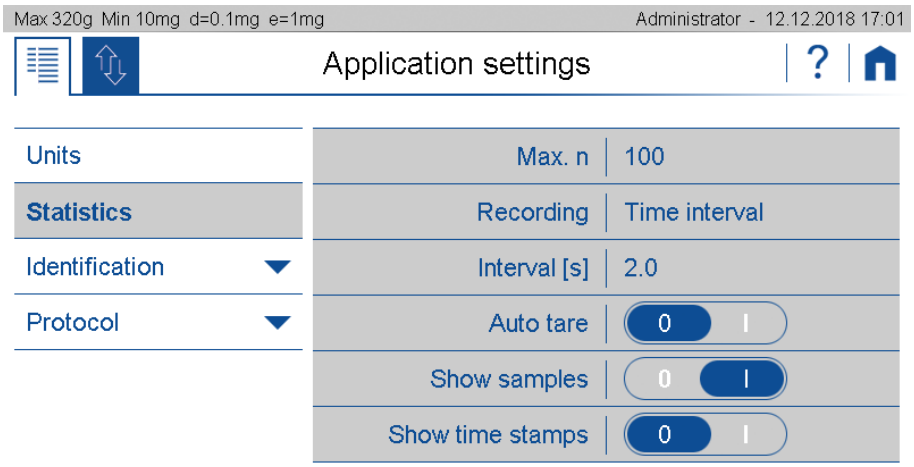
8.2 Statistics Settings, Common

- **Max. n:**
  Number of measurements after which the recording is terminated. The numerical value is entered via the displayed keyboard.
- **Automatische Tara:**
  After a weight value has been stored, the balance is tared.
  Not possible for automatic value recording with time interval.
- **Probe anzeigen:**
  When activated, the individual measured values are displayed.
- **Zeitstempel anzeigen:**
  Only possible with activated sample display. The measured values are displayed with a time stamp.

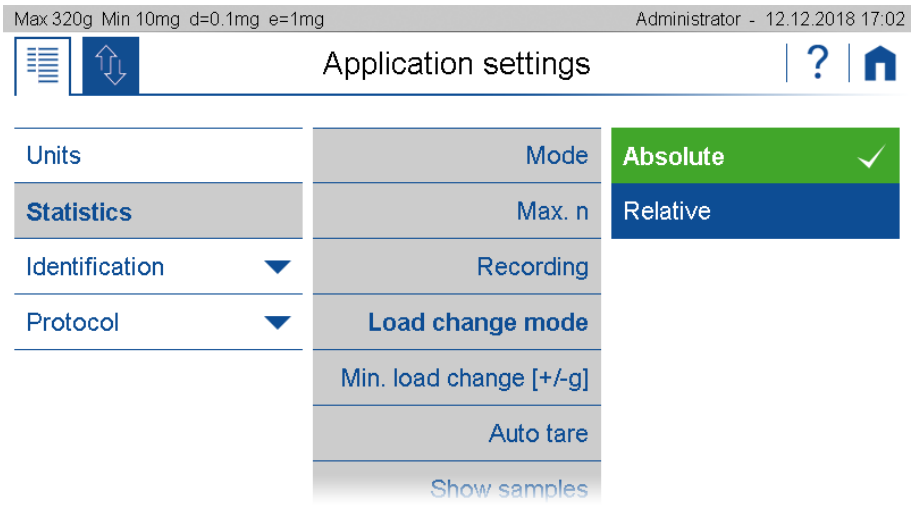
8.3 Statistics Settings, Recording

The data recording can be carried out either manually or automatically in a variety of ways:

- **Manually:**
  Manual Value are stored by pressing a smart button. Depending on the settings the smart button must be activated first.
- **Time interval:**
  Time-interval Stores value automatically after a defined time interval. The time range must be within 1 and 999s



- **Load-change-Mode ansolute and relative:**



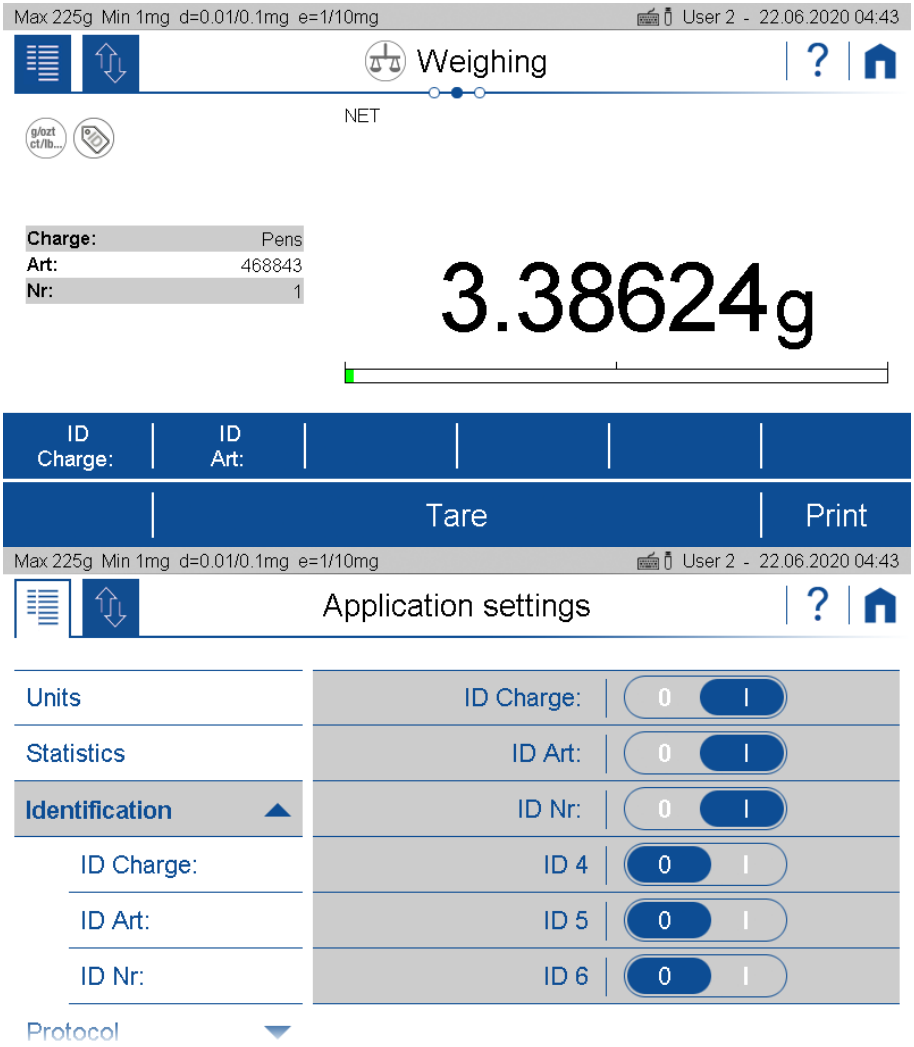
Load-change-Mode absolute:
In this mode the load change must exceed a certain limit to be recognized as such.
Enter the minimum load change between measurements in g.
This setting is not possible for automatic value acquisition with time interval.

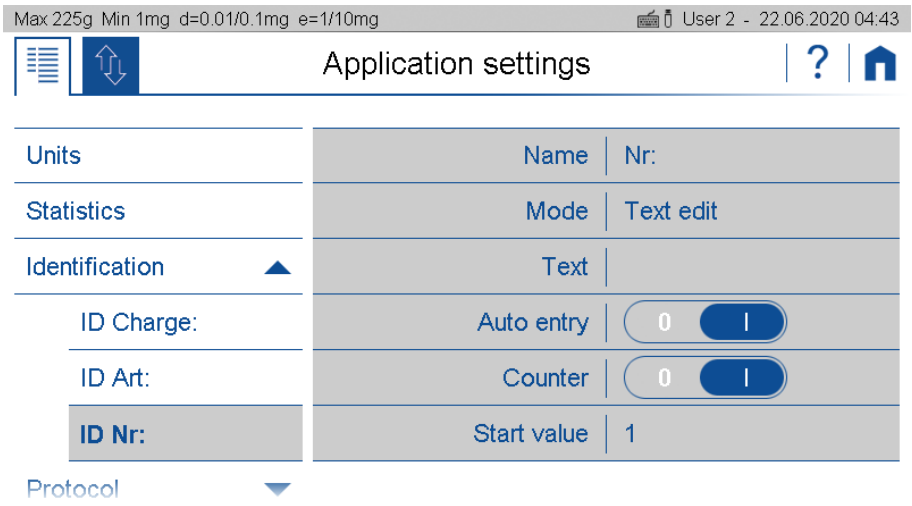
Load-change-Mode relative:
The percentage value defines both the range which must be left between measurements and the limits within which the sample values must lie.
This mode allows the measurement of series with samples of the same weight, e.g. a series with samples of 100 g, where the first sample is used as reference. When the next sample is placed on the weighing pan, the weight must be below 50 g or above 150 g for a short time in between (load change +/- 50%) and the weight of all subsequent samples must be in the range between 50 g and 100 g (sample range +/- 50%).

9 Add-On: Identification

With the help of the identifications you can insert up to 6 free identifications, labels, batch numbers, measured values or sample counters and much more into your protocol. The same information can also be shown on the display, see 5.4 Info section

The behavior of the identifications can be defined in many different ways and is explained here using an example.
Different types of products are to be tested. For this, 3 samples are weighed from each article. The article number is entered with a barcode reader.





- **Name:**
  Is the name of the identification which is shown on the display and the printout, e.g. Batch, sample, no. This name always remains the same.
- **Mode:**
  Describes how the identification behaves, see below.
- **Text:**
  Enter the default Text
- **Automatic entry** (not available for mode fixed text)**:**
  - On: Before printing, the text field is automatically opened for editing
  - Off: Identification to be processed must be opened using a softkey.
- **Counter:**
  Automatic incrementation of a with stzart value
- **Start value:**
  For automatic incrementation of counter

9.1 Identification, Mode

Describes how identification works:

- **Text fixes:**
  The text cannot be changed.
- **Ttext edit:**
  The text can be changed, the change is retained for the next weighings.
- **Text volatile:**
  The text can be changed, but the changes are not stored and only apply to one printout. Therfore a trigger shall be defined to print out the data for a measurement.

NOTE
Further information on settings can be found in the context help..

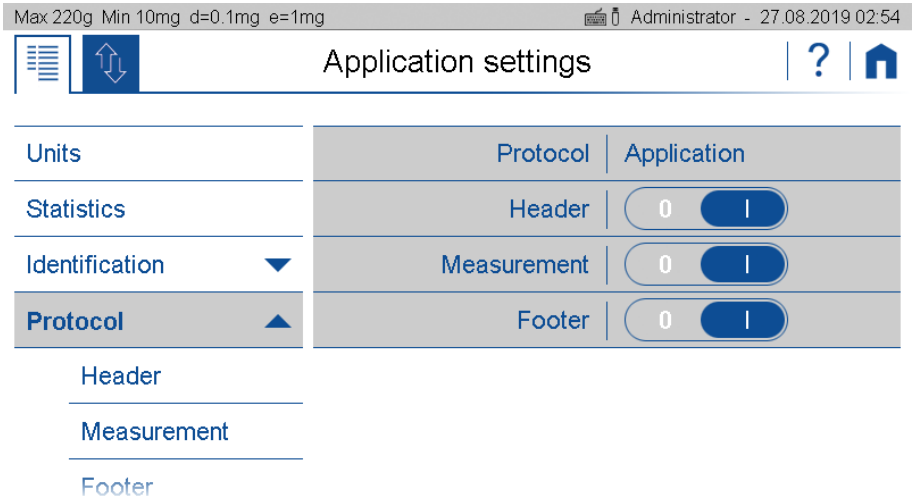
10 Add-On: Protocol

A protocol consists of the 3 blocks header, measurement with the corresponding outputs and the footer and must be defined separately for each application.

The following description is for all blocks header, measurement and footer very much identical.

Each of the blocks:

- Must be activated (on/off switch)
- Needs a trigger that controls the time of the printout.
- Must be fileld with content as text paragraphs and layout with various protocol items.

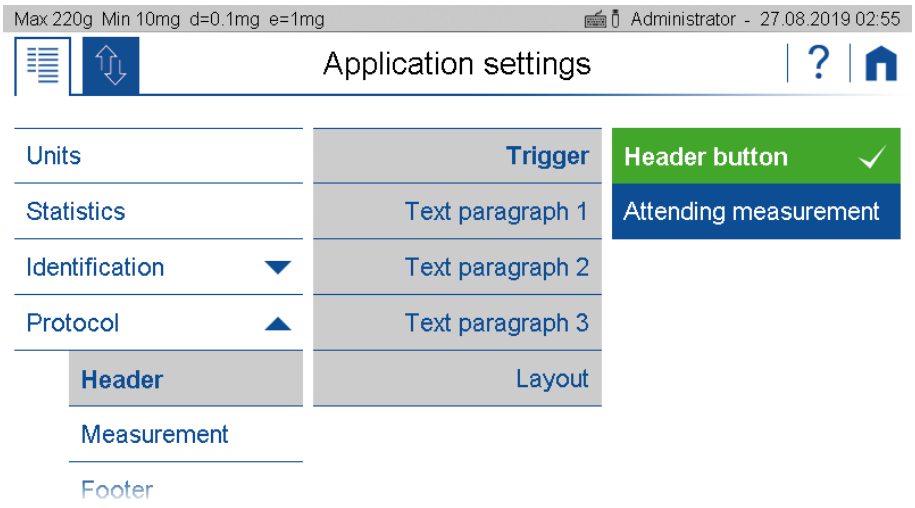


- **Header:**
  Is usually printed out at the beginning with information about company, laboratory, device identification, date, time, batch, etc.
  The "GLP header" block is a globally available header what is defined in the system settings, see 6.3 Protocol, GLP Header, GLP Footer.
- **Measurement:**
  Is printed out after the measurement of the weight resp. the determined value.
- **Footer**:
  Is usually printed out at the end with information about the user, signature, information about the status of the device such as Adjusted on ...
  The "GLP footer" block is a globally available footer what is defined in the system settings, see 6.3 Protocol, GLP Header, GLP Footer.

10.1 Protocol Header

The header is usually printed out at the beginning with information about the company, laboratory, device identification, date, time, batch, etc.

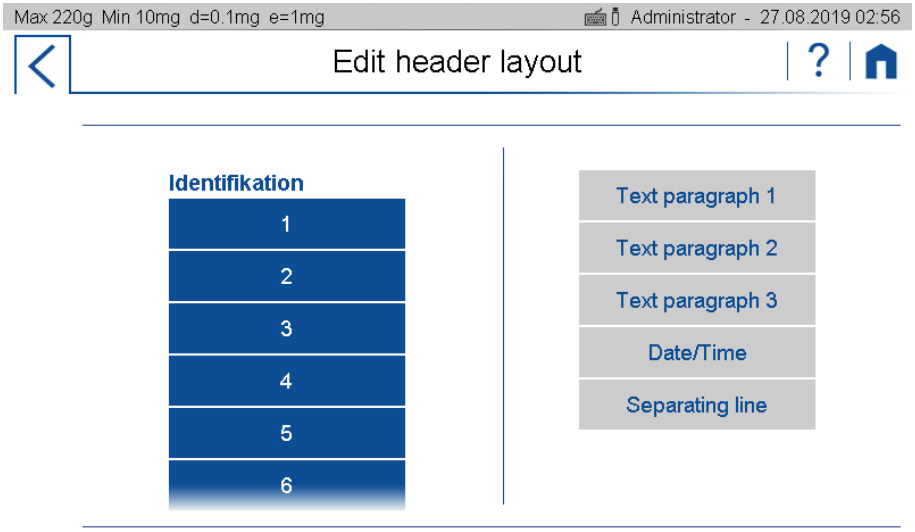
The trigger for the printout must be defined.



- **Header button:**
  The header is print out immediate after pressing the soft button for printing the header. Therefore you need to place this button onto the action bar what can be found in the group "Device", see 5.5 Action Bar and Soft Buttons customizing.
- **Attending the measurement:**
  The header is print out immediate before the measurement of the application.

The layout can be change by pressing "Edit" what is displayed right from “Layout”.
In the edit mode you will find various items to choose from. Please note the text paragraps are also items and must therefore be placed in the layout to appear at the correct place in the printout.

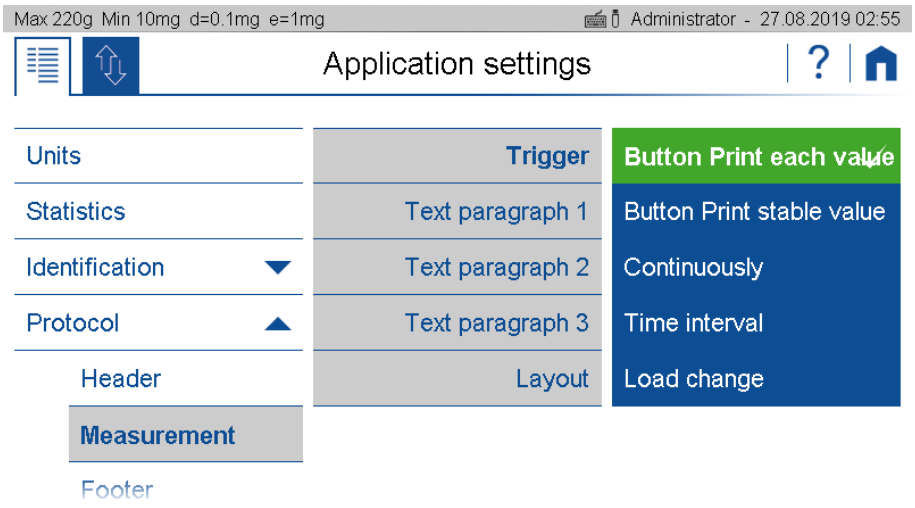
Excample of a header block



10.2 Protocol Measurement

The measurement block isusually printed once a weight or value has been measured or a value determinated.

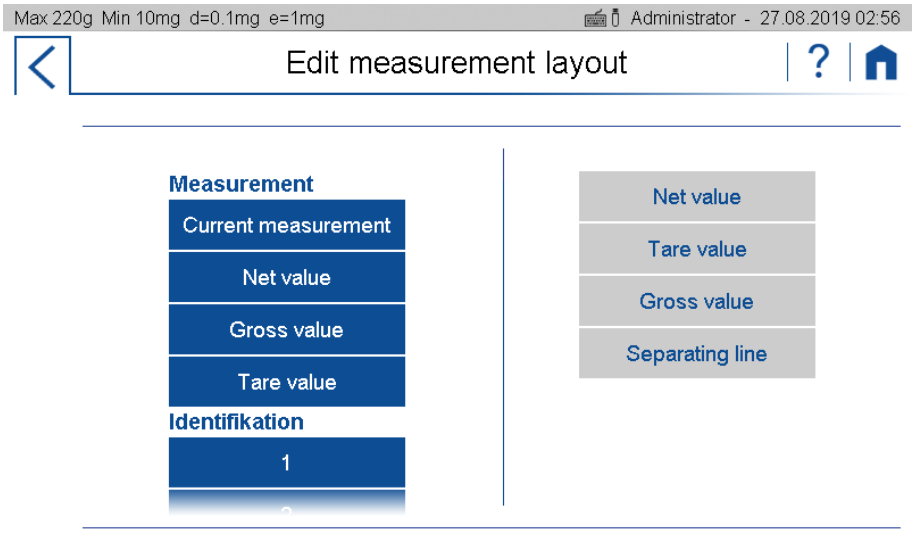
The trigger for the printout must be defined.



- **Button Print each value:**
  After pressing the print button once, immediate printout, even if the scale has not yet released the weight value as stable and thus valid.
- **Button print stable value:**
  After pressing the print button, one-time printout as soon as the weight value has been approved by the scale as stable and valid.
- **Continuously:**
  After pressing the Print button start / stop a continuous printout of the displayed weight in the speed of the repetition rate, which is set in the weighing parameters,see 6.1.1 Refresh rate.
- **Time interval:**
  After pressing the print button start / stop a continuous printout of the displayed weight in time with the interval.
- **Load change:**
  After pressing the Print button Start / Stop printout of the displayed weight, whenever a new weight is placed on the scale and the weight value is approved as stable and valid. To do this, a load change mode must be set as an absolute value in grams or in% of the first load.

The layout can be change by pressing "Edit" what is displayed right from”Layout”.
In the edit mode you will find various items to choose from. Please note the text paragraps are also items and must therefore be placed in the layout to appear at the correct place in the printout.

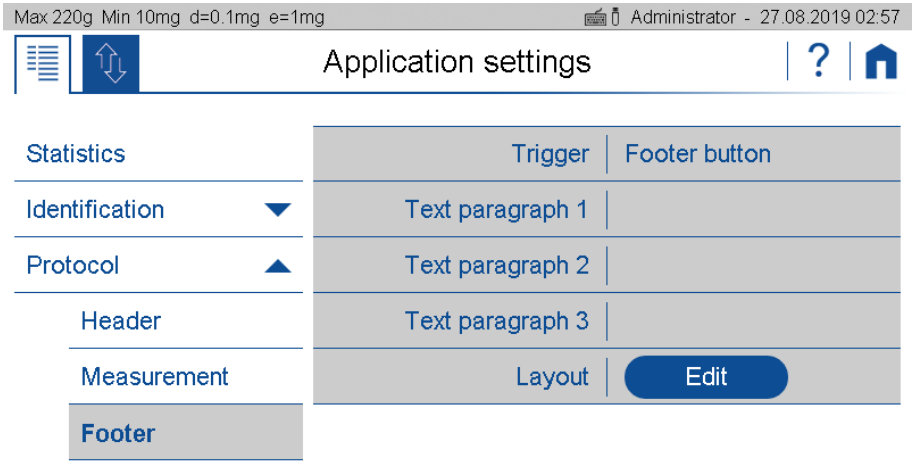
Example of a measurement block



10.3 Protocol Footer

The footer is usually printed out at the end with information about the user, signature, information about the status of the device as e.g. Adjusted on ..., etc.

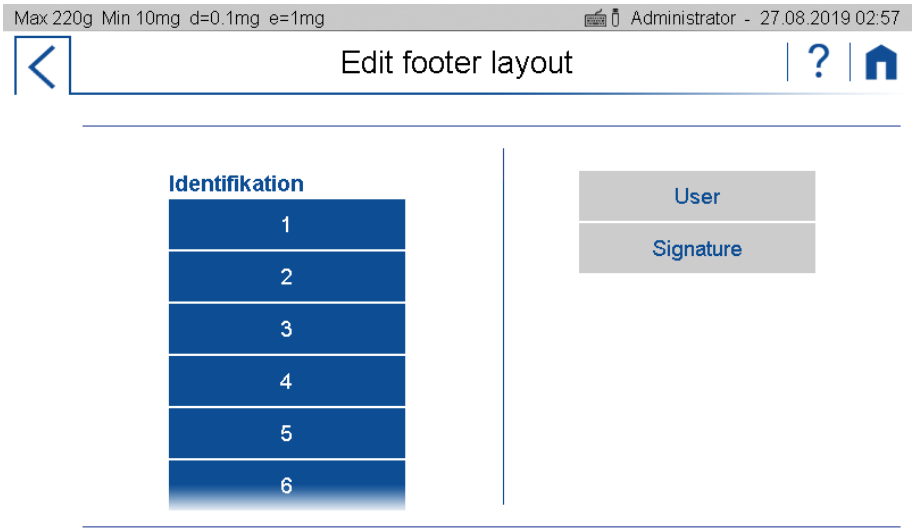
The trigger for the printout must be defined.



- **Footer button:**
  The footer is print out immediate after pressing the soft button for printing the footer. Therefore you need to place this button onto the action bar what can be found in the group "Device", see 5.5 Action Bar and Soft Buttons customizing.
- **Attending the measurement:**
  The header is print out immediate after the measurement of the application.

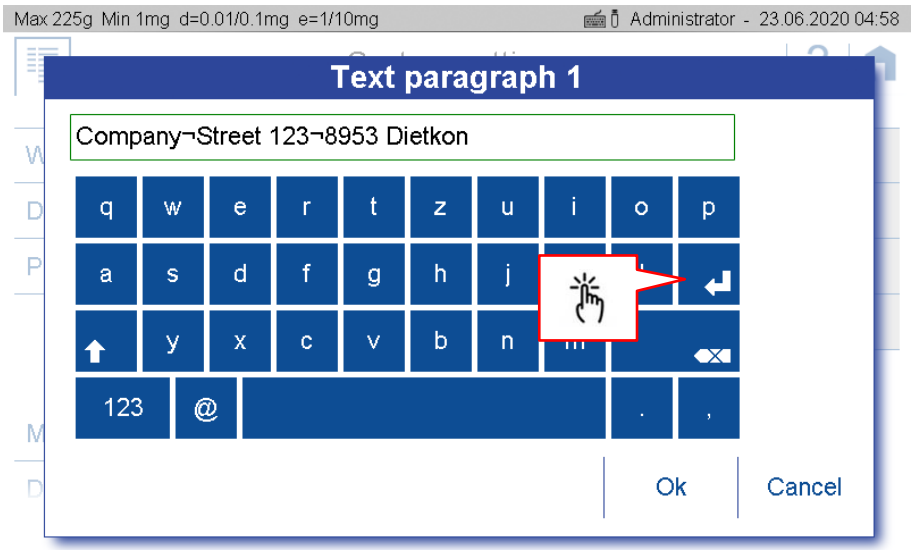
The layout can be change by pressing "Edit" what is displayed right from “Layout”.
In the edit mode you will find various items to choose from. Please note the text paragraps are also items and must therefore be placed in the layout to appear at the correct place in the printout.

Example of a footer block



10.4 Protocol text paragraphs

Text paragraphs can be defined as multi-line text blocks. Press the marked symbol to insert a line break in the text section. The line break is then displayed as "¬".



10.5 Protocol items

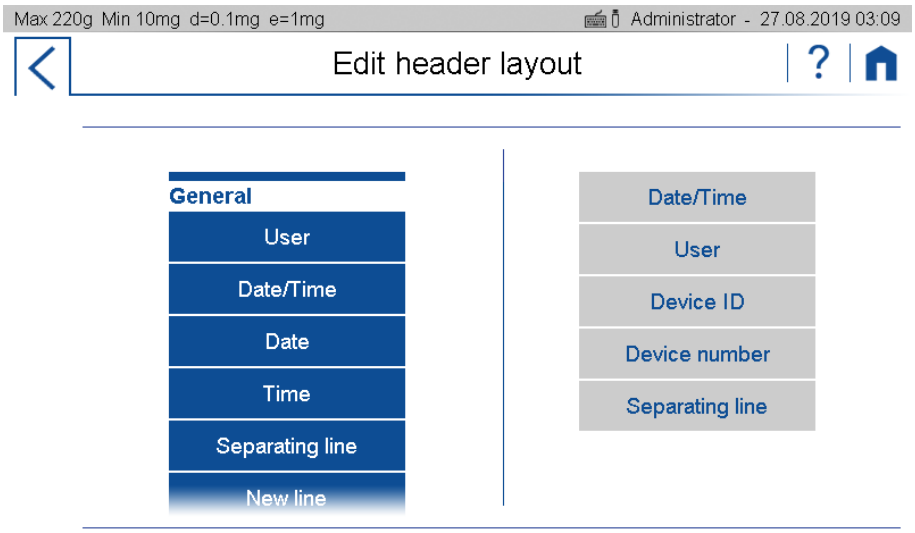
Most protocol items are self-explanatory or have a description of where they are defined.

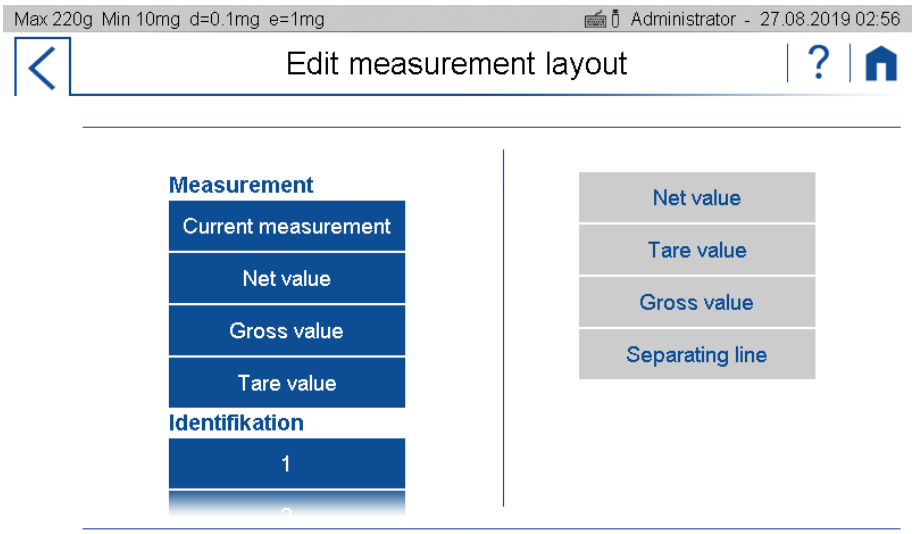
To ensure easy orientation, the building blocks are divided into groups:

- **General** contains date, time, user, GLP header resp. GLP footer, paragraphs, line breaks, etc.
- **Device** contains information about the balance such as device ID, device name etc.
- **Identification** contains freely programmable information such as identifications, labels, batch numbers, measured value counters, etc., see 9 Add-On: Identification.
- **Application** contains information about the application.
- **Measurement** contains the application-specific measured value, the net value, gross value, tare value etc.
- **Statistics** contains the information on statistics such as number of values, mean value, standard deviation, difference between the maximum and minimum value, etc.
- **Control** contains blocks such as the status of the leveling, the status and the date of the last adjustment, as well as further information, etc. for options such as the AOS (Ambient Observation System), see 12.3 Ambient Observation System AOS (optional.

10.5.1 Insert Protocol items

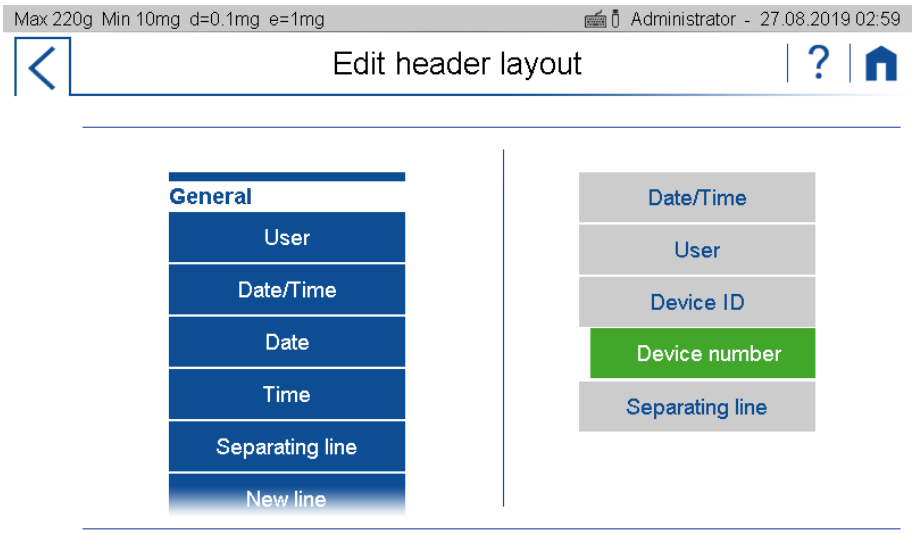
By clicking the <Create> button an extensive selection of pre-defined text/functions items are presented on the left side. By selecting one this is moved to the right side.





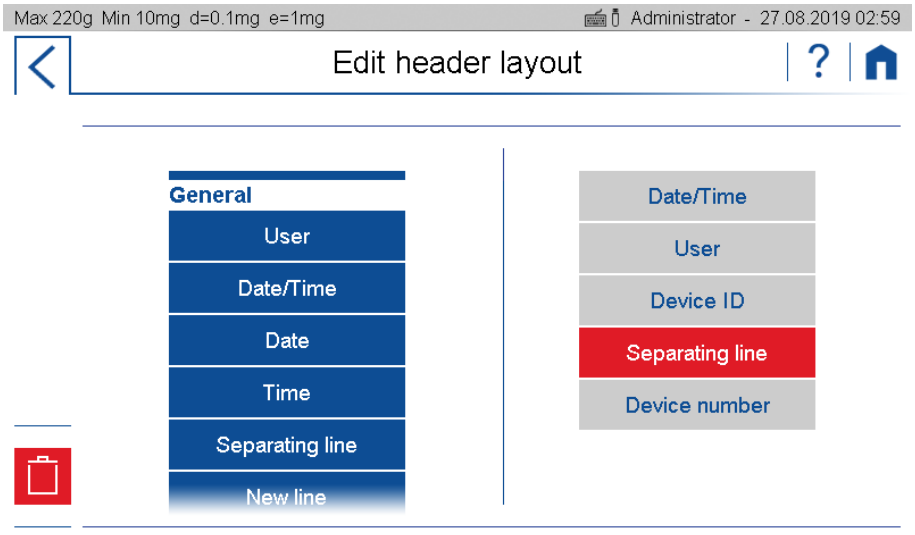
10.5.2 Move items

The items can be moved by drag & drop functionality, but it has been hold for approx. 2S until it appears in green.



10.5.3 Deletes items

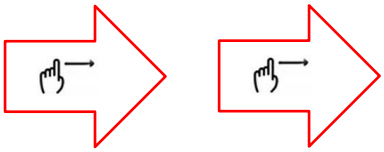
By selecting an item this turns to red. Pressing the waste bin symbol deletes it.



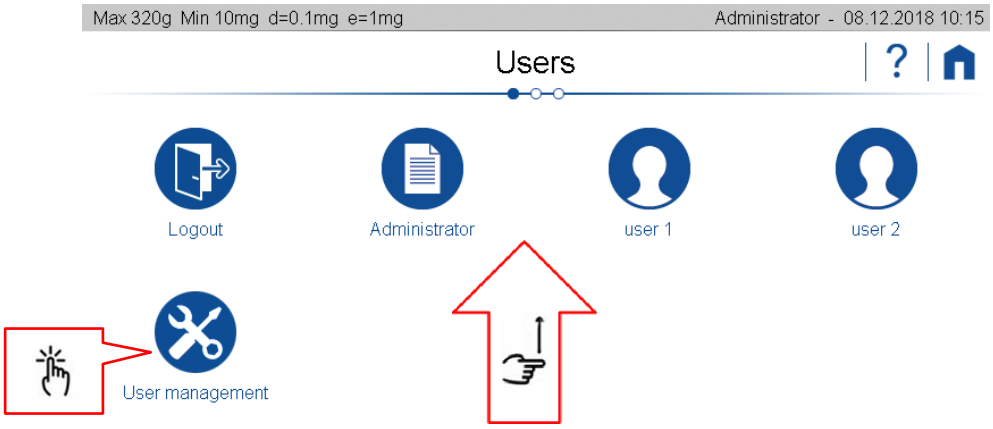
11 The User Management

The user management is found at the user screen

Change to the user screen by swiping twice to the right.



You might to have to swipe onto the top to find the button of a user of administrator, to log out or to see the user administration.



11.1 Change user

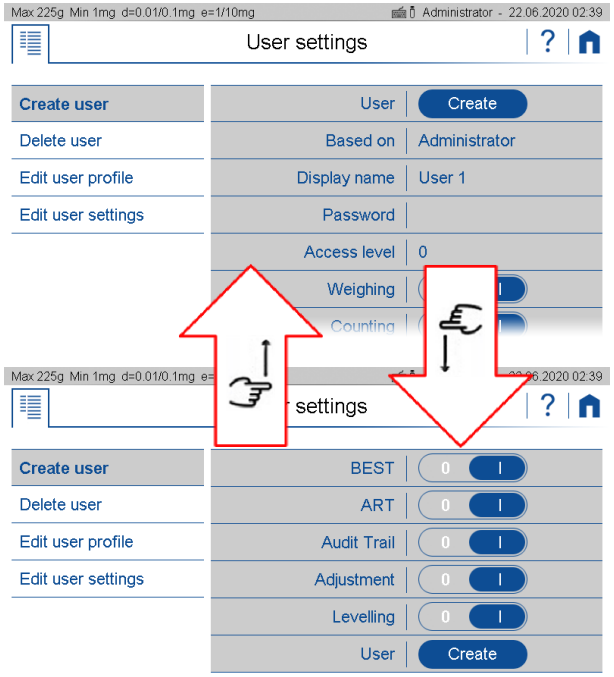
By clicking on a user, his profile settings are loaded and the user switches to the standard application. To return to the user screen, swipe right.

11.2 Benutzerverwaltung

The series 390 includes a user friendly user management. The user menu provides access to up to 15 different password protected user profile settings. Based on a existing user profile a new profile, individually set, can be created. Depending on the requirements the user profiles can be deleted, edited/modified individually. To do so, administrator access rights are mandatory.

Tapping on the user management takes you to the user settings.

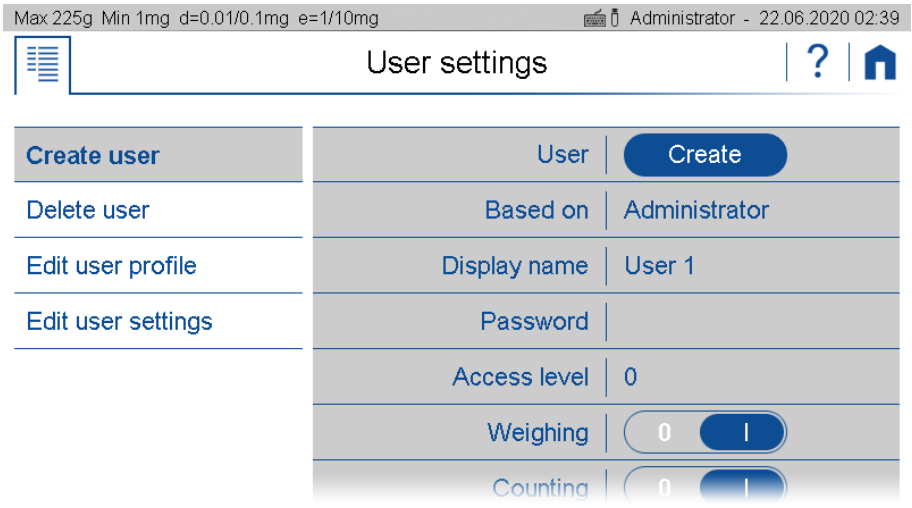
Swipe up and down to access all settings.



NOTE
Further information on settings can be found in the context help..

11.2.1 Creating a user

Creating a new user profile is basically done by a copy of an existing profile. However induvidual settings can be made afterwards. You're guided through the creation process by several steps. In addition, the new name and password are set, the access level respectively. Access depth defined and the individual applications and access rights to special settings unlocked or blocked.



- **User:**
  Click on create to create a user as it is defined at that moment.
- **Based On:**
  Defines from which user/administrator a copy is taken from. If you create a user the very first time, the copy template is the administrator profile
- **Display name:**
  Sets the name displayed as an alphanumeric data entry. This can be accomplished by the virtual keyboard or the by an external HID device (e.g. keyboard)

- **Password:**
  Type in an alphanumeric string for the password. Important : Keep the password safe. However, if the password get lost, Unlocking the profile is only possible with admin access rights
- **Access Level:**
  The user managment provides several predefined access levels. In most cases they will cover the standard requirements.

	User: create, delete, Access level, Min.-Sample, Applikctions	Set: Balance-Identification, Weighing parameter, Adjustment, Levelling, Date and Time Peripherie-parameter	Set: AddoOn's, Infoscreen, Actionbar	Set: Applications
Level 0	yes	yes	yes	yes
Level 1	no	yes	yes	yes
Level 2	no	no	yes	yes
Level 3	no	no	no	ja
Level 4	no	no	no	no

- **Weighing, count, ….., adjust, level:**
  Enabling or blocking the various applications that can be selected on the application screen.

NOTE
Further information on settings can be found in the context help..

11.2.2 Deleting a user

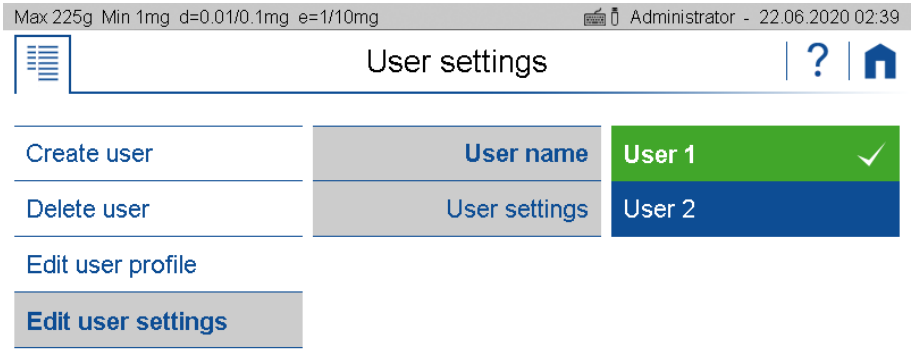
By pressing the delete item a list with the existing users is popping up. After selecting the user a message box appears, asking for confirmation.

11.2.3 Edit user Profile

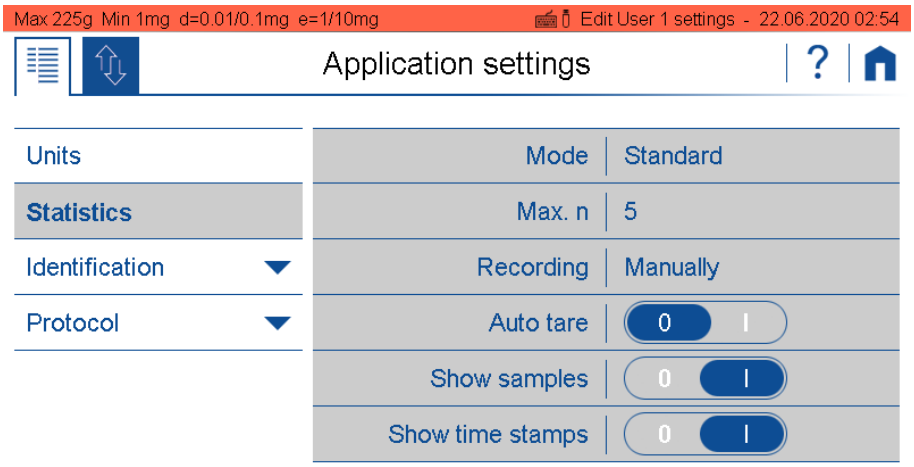
An already existing user profile can be edited here. Select the user to view and edit the current settings, as described in 11.2.1 Creating a user, see 11.2.1 Creating a user

11.2.4 Edit user Settings

Depending on the access authorization, the user is not allowed to make the settings himself. Here, as an administrator (or user with autorisation of level 0), you can set the settings for each user as you would be the user himtself. For example, the administrator or QM manager can completely set the balance for a user and then block it by only giving the user access to level 4.



As long as the settings of another user are edited, the header appears in red. To finish editing, simply select another user in the user screen



12 Weighing Optimization

12.1 Ambient air temperature, pressure and humidity

The ambient air temperature, air pressure and humidity have a significant influence on the weighing system and the goods to be weighed.

When weighed in the air, the load is buoyed just as any body in the water is buoyed by the water. The same applies to the complete weighing system.
By adjusting the system, the balance is adjusted according to the ambient conditions prevailing at that time, so that the balance displays the weight of a normal weight with a density of 8.00g/ccm absolutely correctly. If the ambient conditions or the density of the sample change, however, the display is no longer 100% correct.

Humidity can also be a problem. If the humidity is too low, it can happen that electrostatic charges do not dissipate, which can happen at normal humidity in the range of 25% .. 80% was still the case. This effect can be seen in the fact that the displayed weight value is not stable or runs up or down.

For high-precision weighing, changes in ambient air temperature, air pressure and humidity should at least be monitored or even better taken into account.

For materials with a density significantly lower than 8.00g/ccm, you should also consider correcting the weighing result from the normal weight with a density of 8.00g/cc to the actual density of the sample.

12.2 Electrostatic charges

Various materials such as plastics or powders tend to charge electrostatically. This effect is shown among other things by the fact that the displayed weight value is not stable or runs upwards or downwards.

12.3 Ambient Observation System AOS (optional)

The Ambient Observation System AOS measures the ambient air temperature, air pressure and humidity directly in the weighing chamber and thus where these influence the weighing.

With the AOS, the scale becomes an optimally monitored and precise system that, in addition to logging the relevant environmental conditions, can even intervene in the weighing process to guarantee optimum operation.

In addition, the BEST application even enables the automatic correction of weighing results to the actual density of the sample.

NOTE
If your balance is not yet equipped with the AOS, ask your Precisa representative if this option can be retrofitted.

12.4 Buoyancy Error Suppression Technology BEST (optional)

The Buoyancy Error Suppression technology application BEST corrects measured weights directly with the density of the weighed material.

The error due to air buoyancy can be corrected by entering the density of the sample and the ambient parameters of temperature, air pressure and humidity.

In conjunction with the AOS option, the balance becomes a fully automatic system with buoyancy correction.

NOTE
If your balance is not yet equipped with BEST, ask your Precisa representative if this option can be retrofitted..

12.5 Electrostatic neutralisation system ECS (optional)

The electrostatic neutralization system ECS can discharge the sample electrostatically and thus neutralize the disturbing influences.

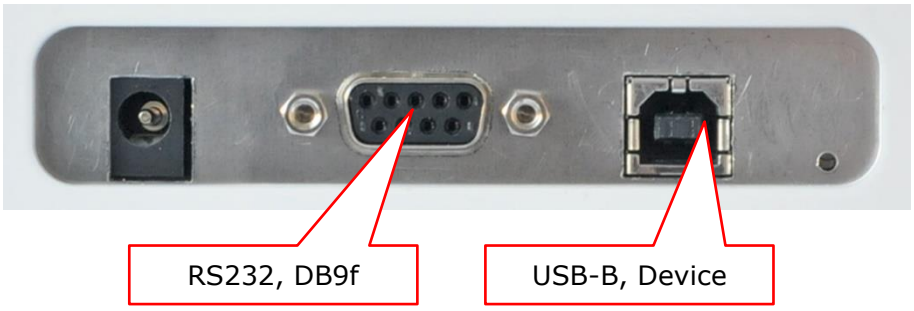
With the ECS, the balance becomes a system which is optimally suited for determining the weight of plastics, powders or generally all materials which tend to become electrostatically charged.

NOTE
If your balance is not yet equipped with the ECS, ask your Precisa representative if this option can be retrofitted.

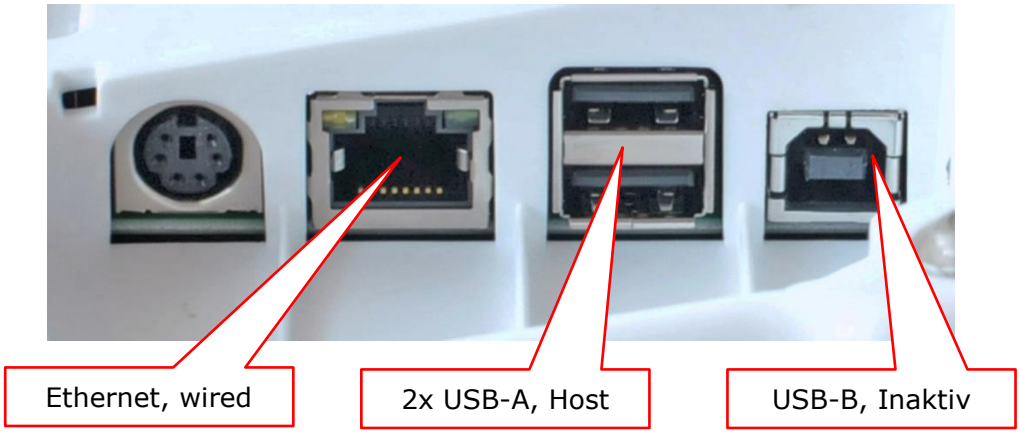
13 Data tranfer

13.1 Connection

The data can be transfered through different connections from tha balance to a peripheral device.
At the back of housing:



At the bottom side of terminal:



At the right side of terminal:

NOTE
The most common and simplest is data transmission via RS232 and USB on the back of the housing. When used individually, they are bidirectional, which means that e.g. Remote control commands can be sent to the scale and data can be received from it. When used at the same time, USB has priority and works bidirectionally, while the RS232 connection only functions as a unidirectional output, which also uses the data from the scale e.g. to a line-oriented printer.

13.2 Interface

Before transferring data, make sure that the interface settings of the balance and peripheral device match. On the balance side, see .6.2.1 Serial Port.

13.3 Daten cables

Purpose	Order number	Specification
For RS232:	350-8672	Data cable DB9m-DB9f, length 1.5m, to PC/Printer LP 4024
For USB:	PN 3950-125	USB cable A-B, 1.5m, to PC

13.4 Remote command

Each remote command has to be closed with CR LF which corresponds to pushing the [Enter] key. Commands can be acknowledge with ACK1.

Command	Specification
AOST:	Print out AOS-Temperature in °C
AOSH:	Print out AOS-Humidity in %
AOSP:	Print out AOS-Pressure in hPA
ACK0:	Acknowledge sending mode Off
ACK1:	Acknowledge sending mode On
BINFO:	Print out Balance information
CAL	Start adjustment
FWHISPRINT	Print out Sensor update history
WSMOVEP	Move draft shield
PDT	Print out date and time
PRT	Start printing (corresponds press «PRINT» key)
P0	Individually print each value (unstable)
P1	Individually print each value (stable)
P2 lll	Print after change of load (llll = min. load change necessary in g or in percent) ***E.g.:*** Exp. P2 12.3 or P2 50%
P3	Print after each display refresh (refresh rate)
P4 ttt.t	Print on time basis in s ttt.t in s, from 000.1s to 600.0s ***E.g.:*** *P4 002.0 individual print out every 2s without wating until stable.*

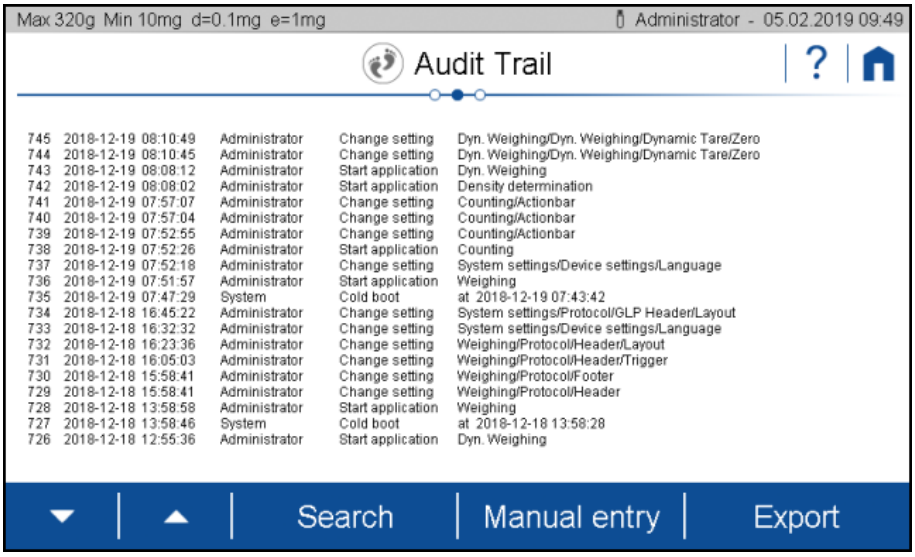
SDTddmmyyhhmmss: Set date/time if Date format = ddmmyy
SDTmmddyyhhmmss: Set date/time if Date format = mmddyy

SOUND:	Beep tone
SOUNDI:	Info tone
SOUNDW:	Warn tone
T (ttt):	Tare or set tare to a specific value
WSMOVE:	Move draft shield
Z0:	Auto-Zero mode Off
Z1:	Auto-Zero mode On
ZERO:	Zero balance (provided weight is stable and within the zero position range)

14 Audit Trail

The audit trail is a function embedded in the terminal software which automatically records and displays information about data generated, changed or deleted by the user or the system.

The audit trail is stored on the SD card in the terminal. There is no write access to the LOG files on the terminal.



14.1 Search data

Scroll with the arrows to the desired data record.

Data can be retrieved by date by clicking on Search and selecting the desired date.

Since the log entries and the file creation are strictly incremental, the temporal development can be recorded despite a faulty RTC (real-time clock).

14.2 Export

With an export function, audit trail logs can be stored externally. After connecting a USB stick (FAT32 file system formatted) to the terminal, the export function is enabled. Click the Export button.

Logged events:

- Cold boot with start time
- Warm boot
- Error message
- Change setting
- Service switch pressed
- System accessories changed
- System time changed
- System date changed
- Sensor changed
- Sensor firmware update
- Start Sensor Firmware update
- Terminal firmware update
- Support package created

- Calibration number update
- Delete user
- Create user
- Change application
- Change actionbar
- Change info field
- Levelling
- Adjust spirit level
- Adjust
- CRW
- Linearization
- Adjust draft shield
- Manuel entry, Administrator and Service user only