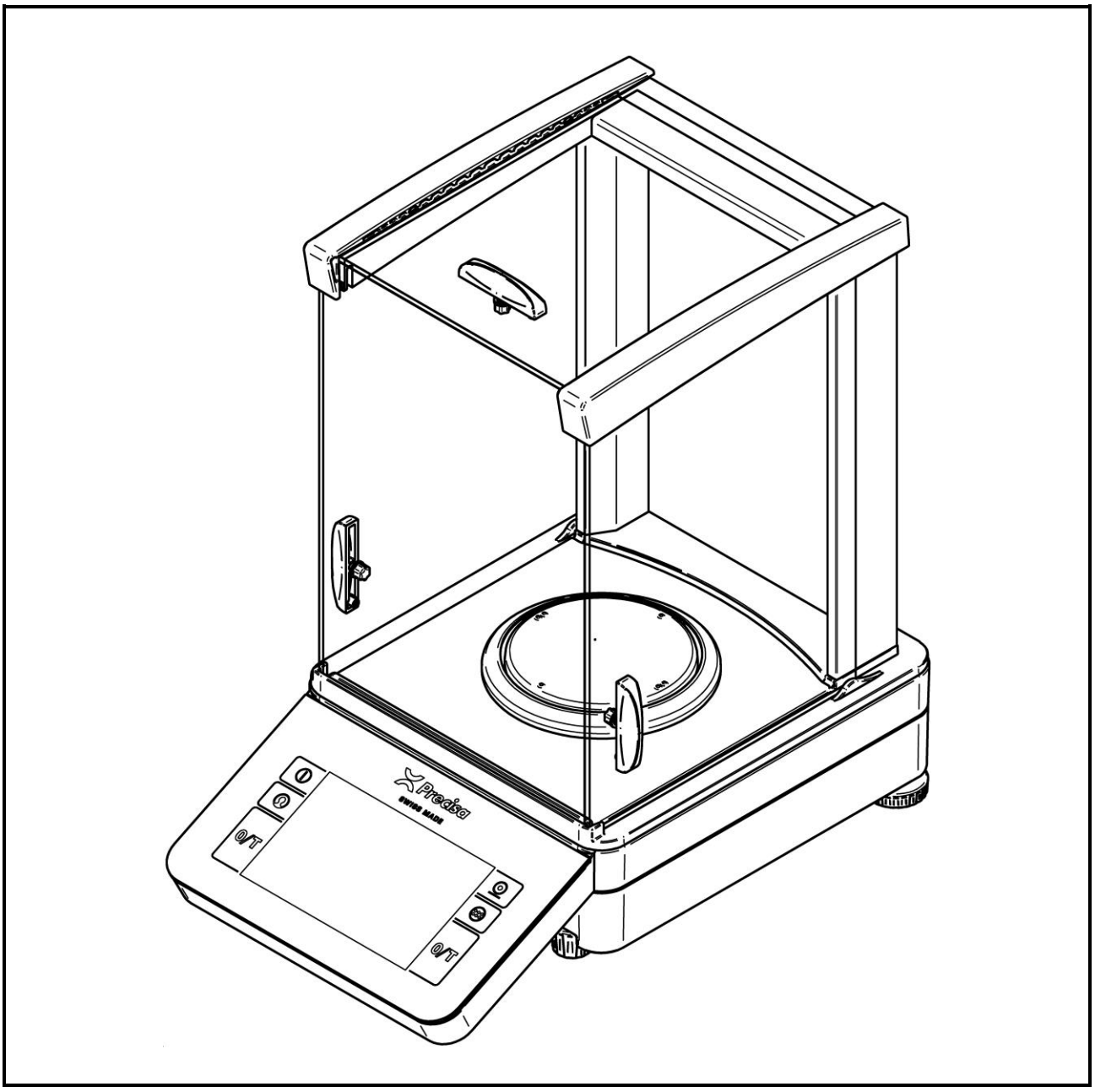
0000SWISS MADE

520 PT



Operating Instructions

350-8182-000 a2

Precisa
THE BALANCE OF QUALITY

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 cofnromitá per apparecchi contrassegnati con la marcatura CE

English We hereby declare that the product to which this declaration refers conforms with the following standards.

Deutsch Wir erklären hiermit, dass das Produkt, auf das sich diese Erklärung bezieht, mit den nachstehenden Normen übereinstimmt.

Français Nous déclarons avec cela responsabilité que le produit, auquel se rapporte la présente déclaration, est conforme aux normes citées ci-après.

Español Manifestamos en la presente que el producto al que se refiere esta declaración est´´a de acuerdo con las normas siguientes

Italiano Dichiariamo con ciò che il prodotto al quale la presente dichiarazione si riferisce è conforme alle norme di seguito citate.

Electronic Balance: Precisa Series 520 PT
Precisa Series 520 PB

Mark applied	EU Directive	Standards
CE	2014/30/EU 2014/35/EU	EN61326 EN61010

Date: 12.06.2020

Signature:

R. Grolimund R & D Manager

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

350-7579-020a.docx

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 or 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 spilled 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 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!

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

Identification, Support and Copyright

Subject to technical modifications.

Refer to our website for information about local customer service centers and details of their addresses. **www.precisa.com**

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1 Your new balance

Thank you for purchasing a new Precisa balance from the 520 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.

Keys, Icons, soft buttons or functions to be pushed, held or selected are printed between quotations marks e.g. call up 'Adjustment' or specially marked e.g. press **[On/Off],** press **[Help,?]** or hold **[Transfer]**.

1.2 Unpacking

Our balances are delivered in packages which provide optimum protection during transportation. 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, 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 not become damp (condensation).

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

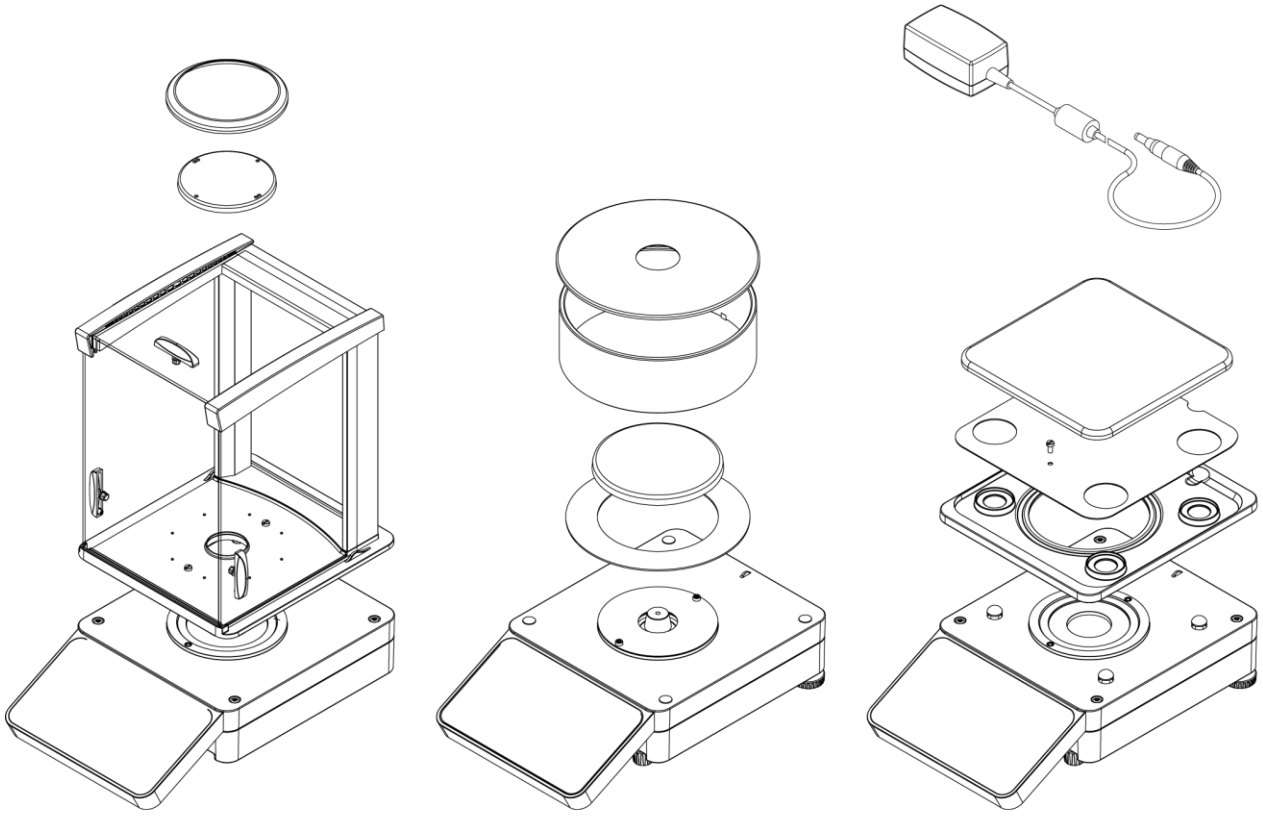
1.4 Storage

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 Inspection and assembly

Inspect delivery for complete supply immediately on unpacking all components.



A **M** **C, D, G**

Components supplied, depending on balance type

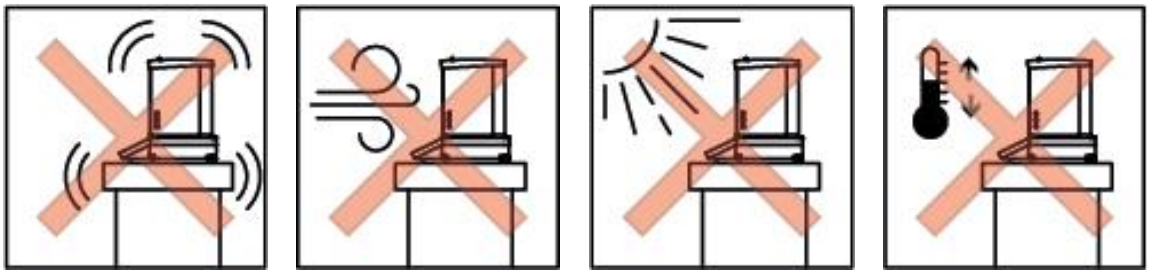
- Balance
- Pan holder
- Weighing pan
- Protective ring for A
- Centring ring for M balances
- Protection and shield plate for C, D, G balances
- Draft shield for A or M balances
- Power adaptor
- Protection cover for the balance
- Short instructions

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:

- Enter the application screen,
- Call up 'Settings',
- Call up 'Weighing parameters', and
- Set all parameters upon your requirements.

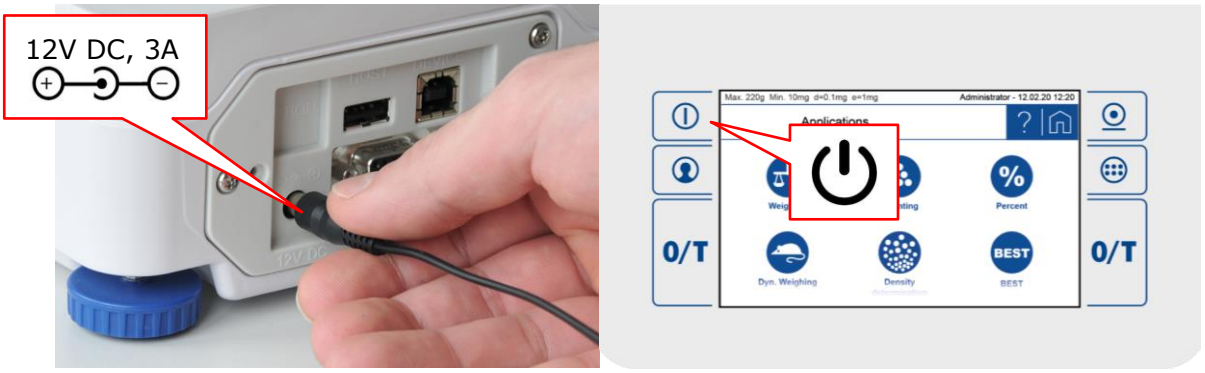
NOTE
Pressing [Help,?] calls up the contextual help which provides detailled information about the point you currently are. For quitting help, press [Close].

2.3 Turning on the balance

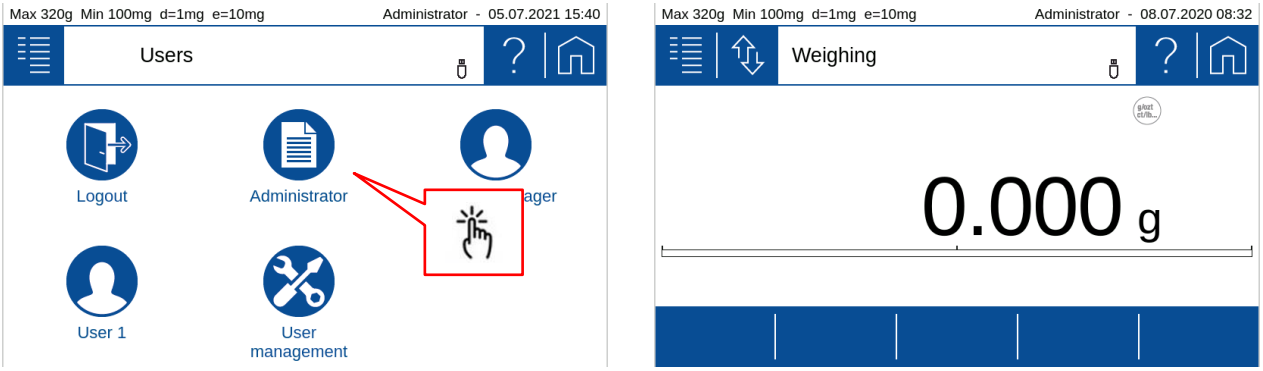
The following safety recommendations must be observed when connecting the balance to the mains:

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]**. The balance starts-up and halts at the user screen.



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



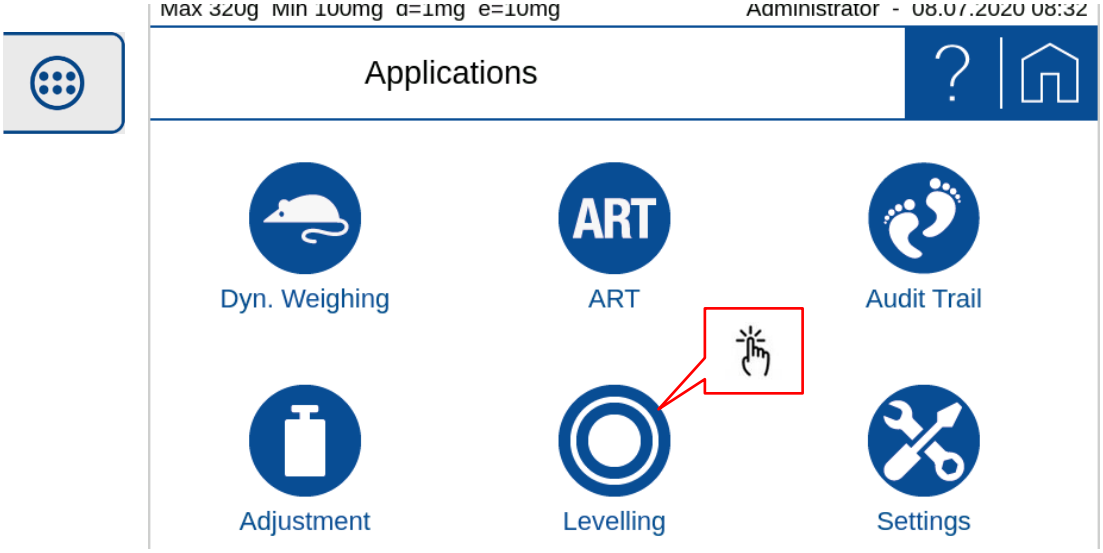
NOTE
If users already have been defined the user screen will appear after starting up

NOTE
To get exact measurements, ensure the balance has reached its operating temperature, see 2.6.

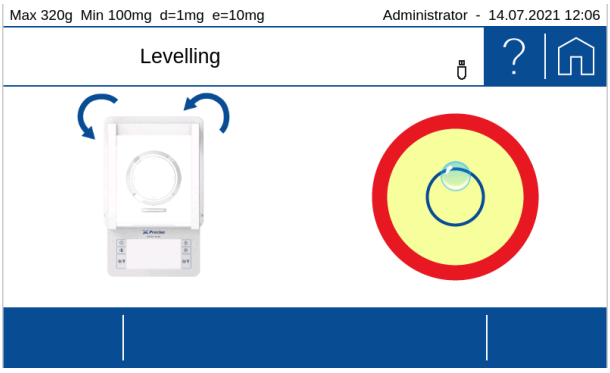
2.4 Levelling

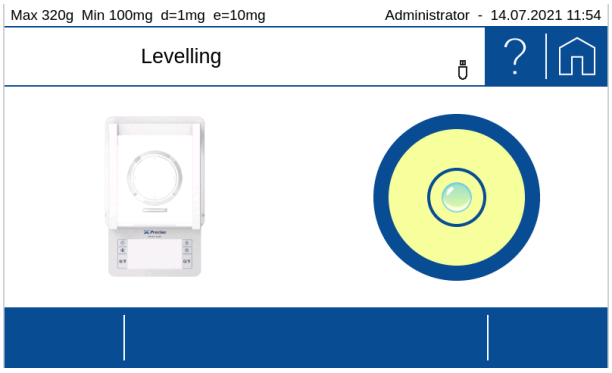
To function properly, the balance must be precisely horizontal. Thatfor it is equipped with an electronic levelling device which makes appear a visual warning on the display if the balance is tilted outside the internally stored levelling tolerances. To readjust the levelling:

- Enter the application applications screen and call up 'Levelling'.

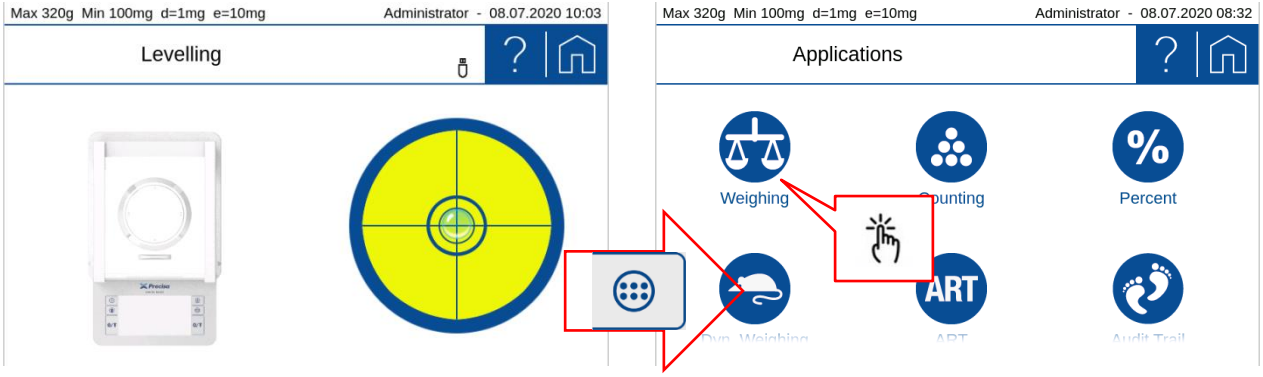


- Keep adjusting the levelling feet as instructed by the display, until the bubble is right in the center of the displayed bubble level.





- Enter the application screen for returning to the weighing application.



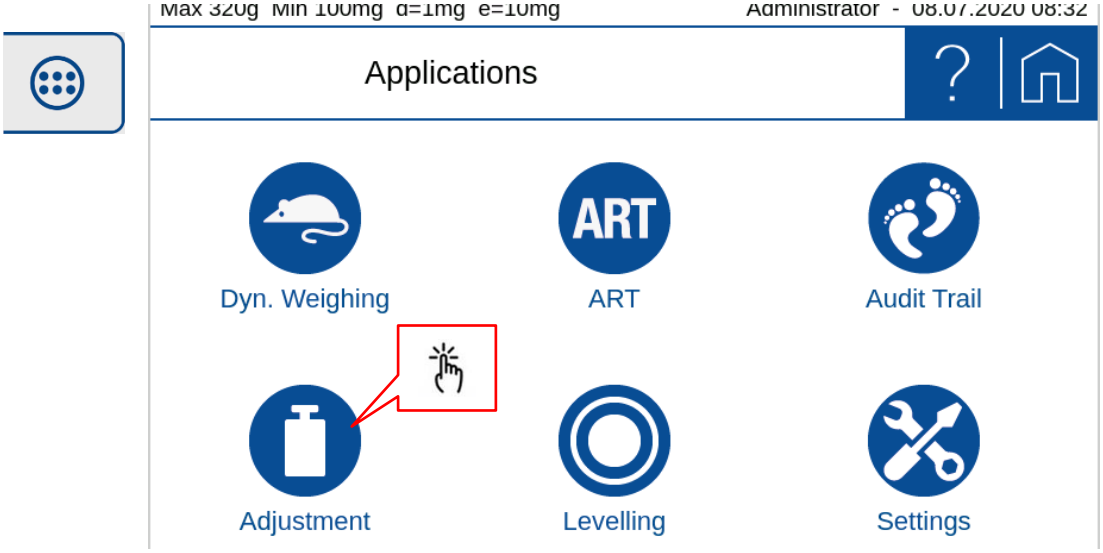
NOTE
To get exact measurements, the balance must again be carefully levelled after each relocation.

NOTE
Pressing [Help,?] calls up the contextual help which provides detailed information about the point you currently are. To close, press [Close].

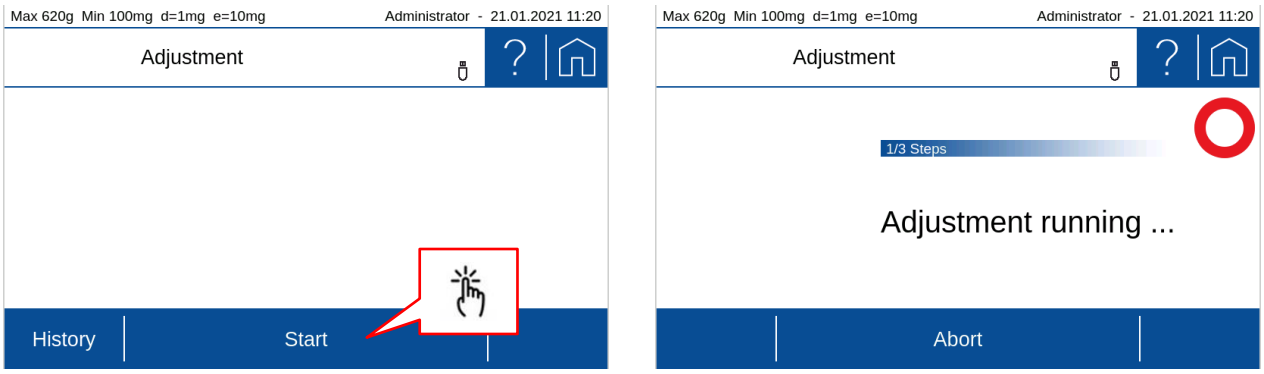
2.5 Adjusting the balance

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. To get exact measurements, it is recommended moreover, that the balance should also be adjusted periodically.

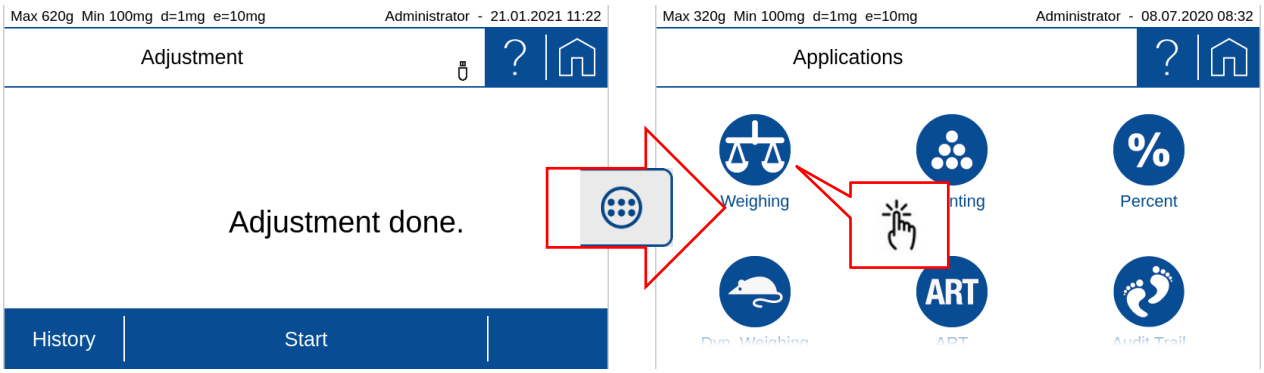
- Ensure the balance has reached its operating temperature.
- Enter the application screen and call up 'Adjustment'.



- 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.
- Open the application screen and call up 'Weighing'.



If you start the adjustment by a softkey within an application, quit the adjustment with the softkey **[Close]**.

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,

- Open application screen,
- Call up 'Settings',
- Scroll down, call up 'Adjustment',
- Press 'Adjustment mode' and
- Select the mode you wish.

NOTE
Pressing [Help,?] calls up the contextual help which provides detailed information about the point you currently are. For quitting help, press [Close].

2.6 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 2.7 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, to reduce possible mechanical tensions.

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

NOTE
To get exact measurements, always choose a suitable location for the balance, ensure its draft shield works 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.

2.7 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 turn off the balance, restart the balance or to abort the process.

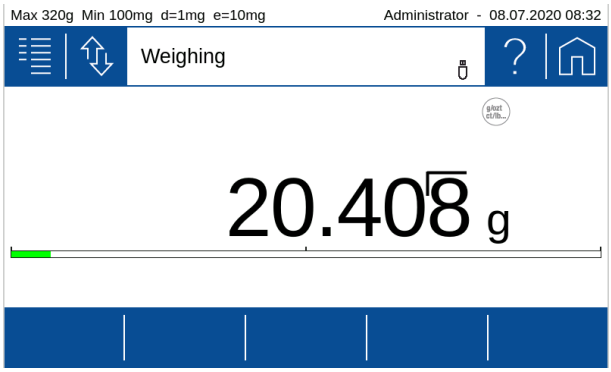
For turning the balance totally off, disconnect it from the mains.

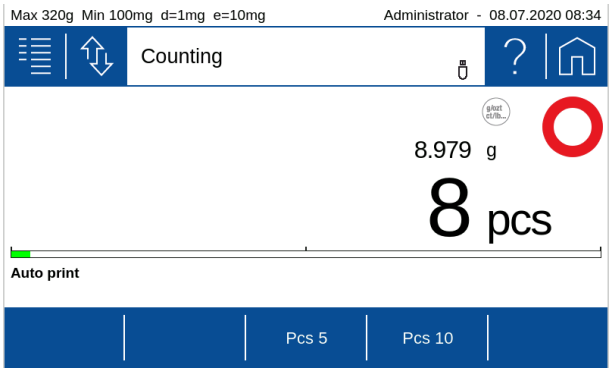
DANGER
Be sure to hold the plug, not the cable, when disconnecting the balance from an electrical outlet!

2.8 Verified balances

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

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





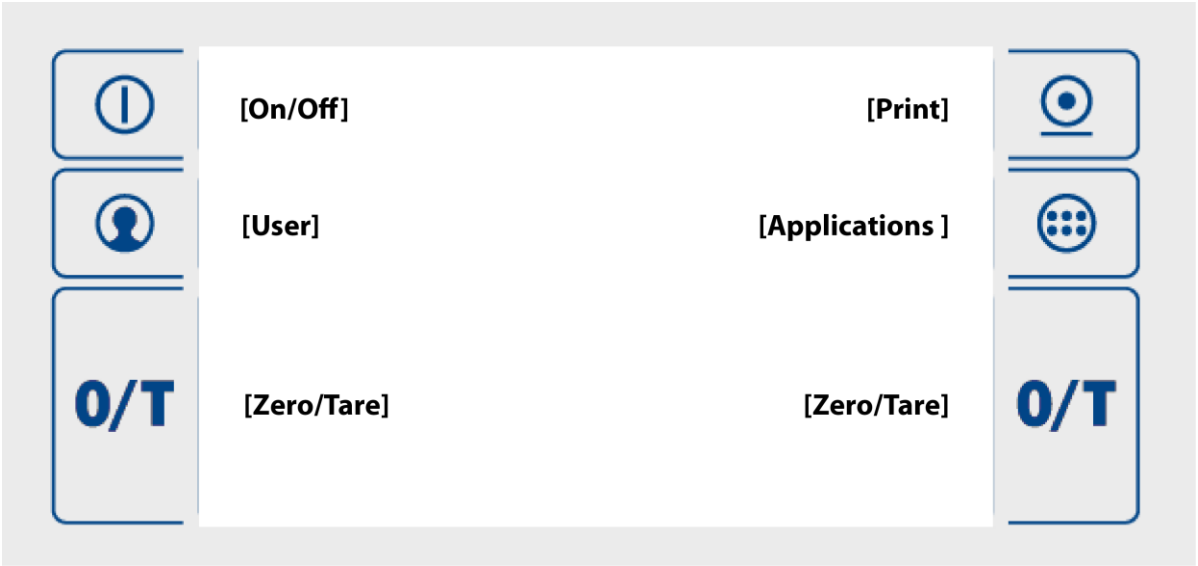
NOTE
Your local dealer will be happy to assist you at any time if you have any questions about verifying your balance or working with verified balances.

3 Discover the balance

The balance is equipped with a high-resolution touch screen panel and 6 fix integrated operation keys. The ease of operation is maintained by a highly intuitive user Interface. The touch panel is operable through standard laboratory rubber and silicon gloves as well as cotton gloves.

3.1 Keypad

The 6 fixed operation keys serve to perform the most used operations as:

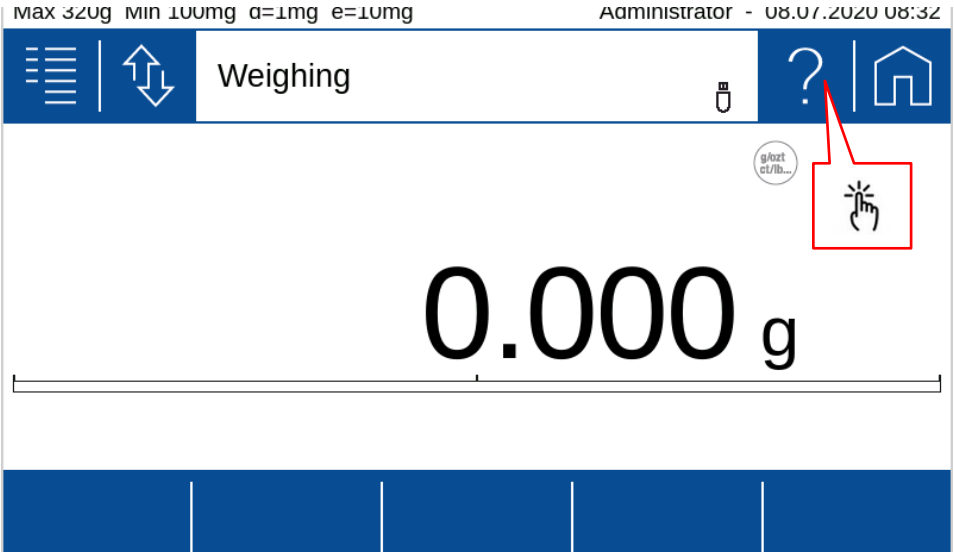


3.2 Operation of Touch Screen

The series 520 balances is equipped with a high resolution Touch Screen panel. The ease of operation is maintained by a highly intuitive user interface.

3.3 Help, ?

No matter where you are, press the **[Help,?]** icon to get context-sensitive help.

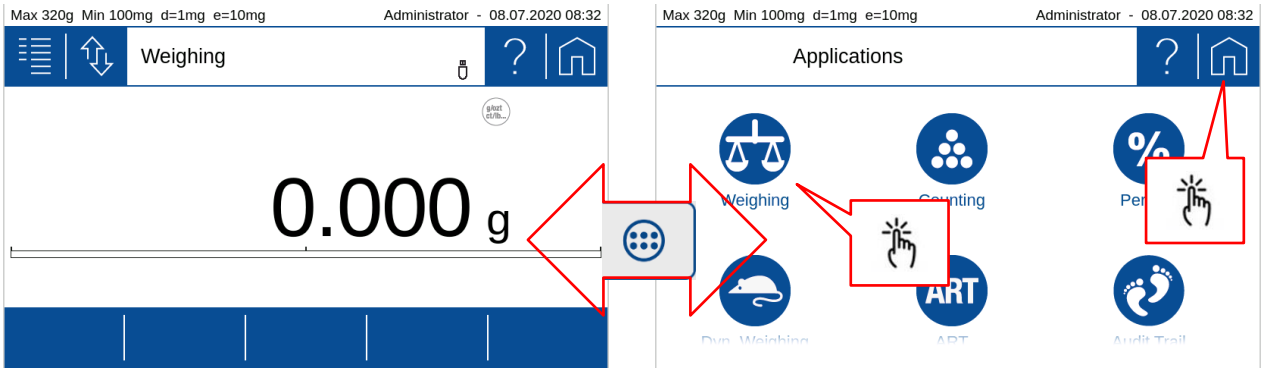


3.4 Navigation

There are 3 main screens:

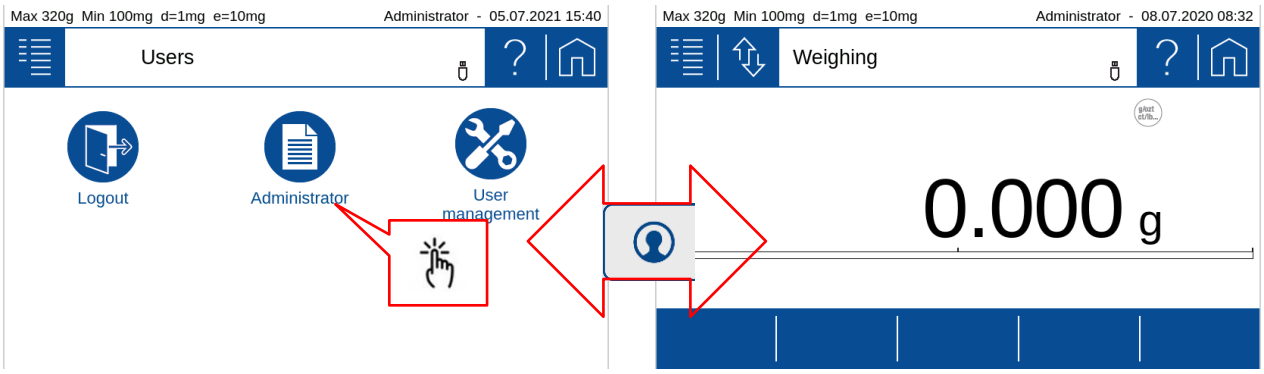
- Current application screen where you perform the weighings and measurements (Weighing, Counting, …)
- Application screen to choose the application and the device settings.
- User screen to select the user or to define new users

Press the [Applications] key to enter the application screen



- At the Application Screen click on an **[Applications icon]** e.g. 'Weighing' to open the chosen application.
- If you don't want to change the application go back to the current application b y clicking the **[Home]** icon.

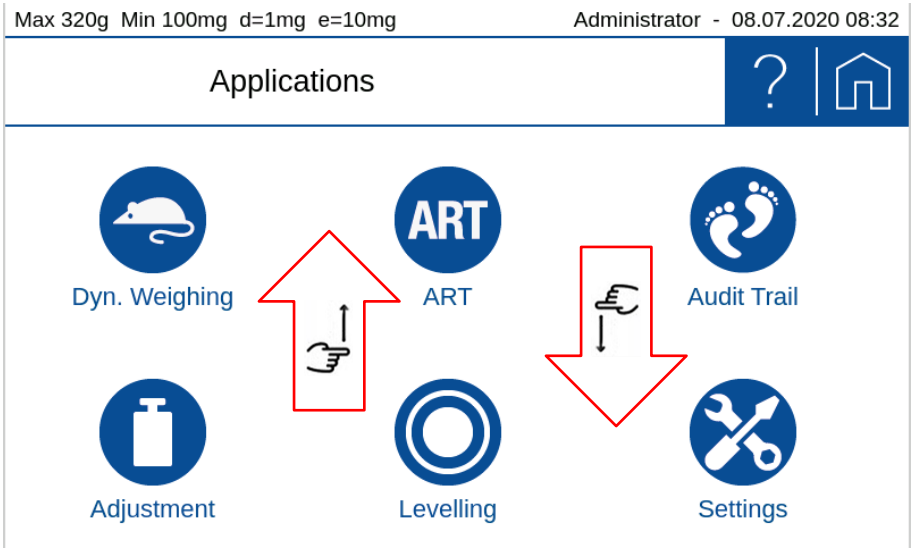
Press the [User] key to enter the user screen



- At the User Screen click on an **[User icon]** e.g. 'Administrator' to open the chosen user or task.
- If you don't want to change the user go back to the current application by clicking the **[Home]** icon.

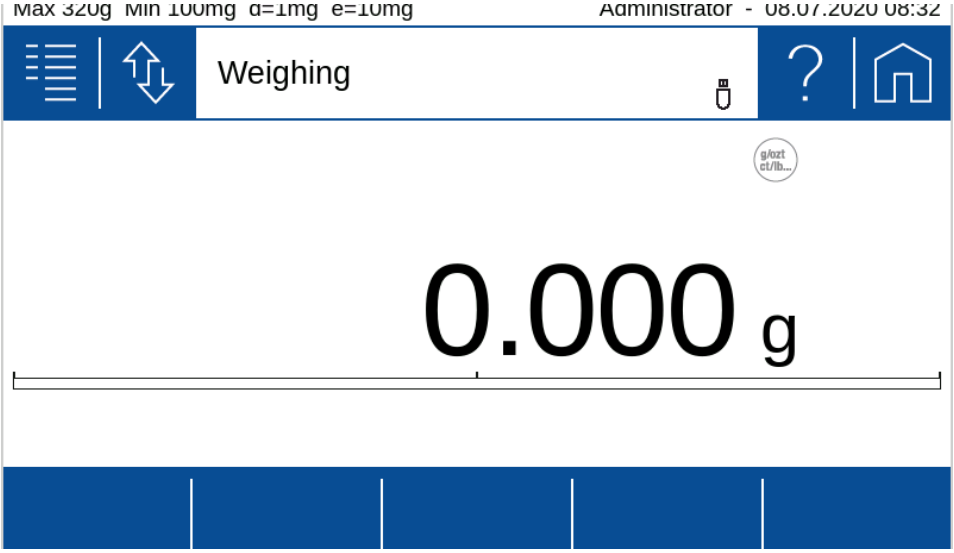
NOTE
If you have already defined users, the user screen might be shown after starting up. In this case you have to choose first a user to enter the balance software and as consequence no [Home] icon is shown.

Vertical scrolling is performed by a simple pan. Typically used for screens with more than 6 icons or for menu items exceeding the standard screen height.



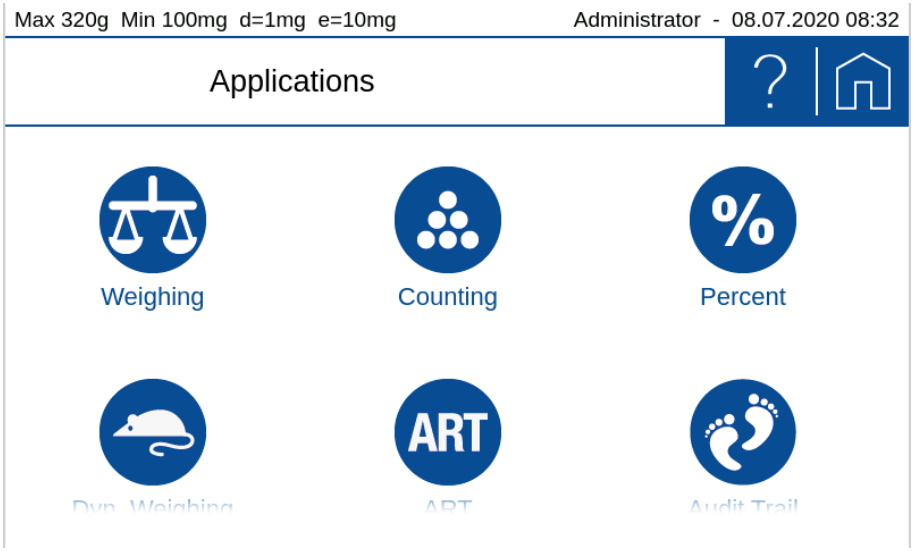
3.5 Current application

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.



3.6 Application screen

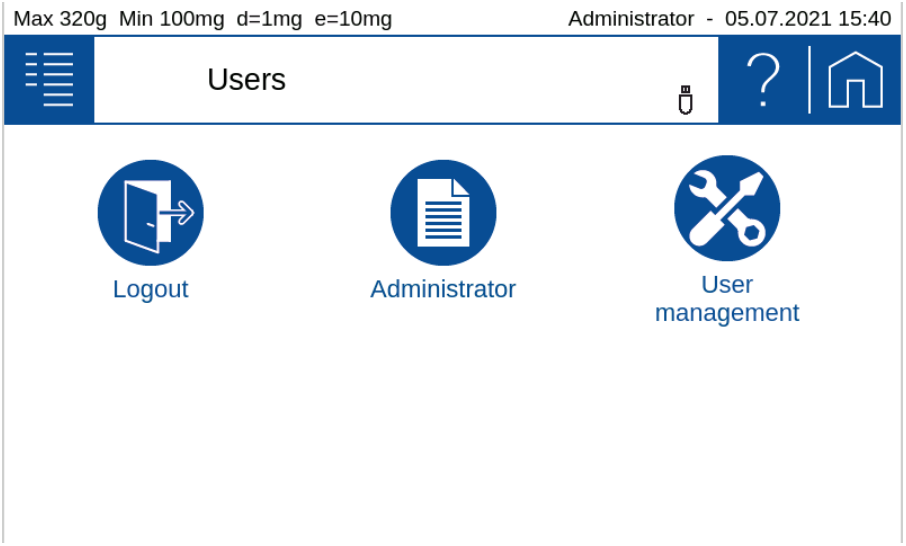
The application screen provides access to the various applications and the basic settings of the balance. The appearance remains basically the same on your scale.



- At the Application Screen click on an **[Applications icon]** e.g. 'Weighing' to open the chosen application.

3.7 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

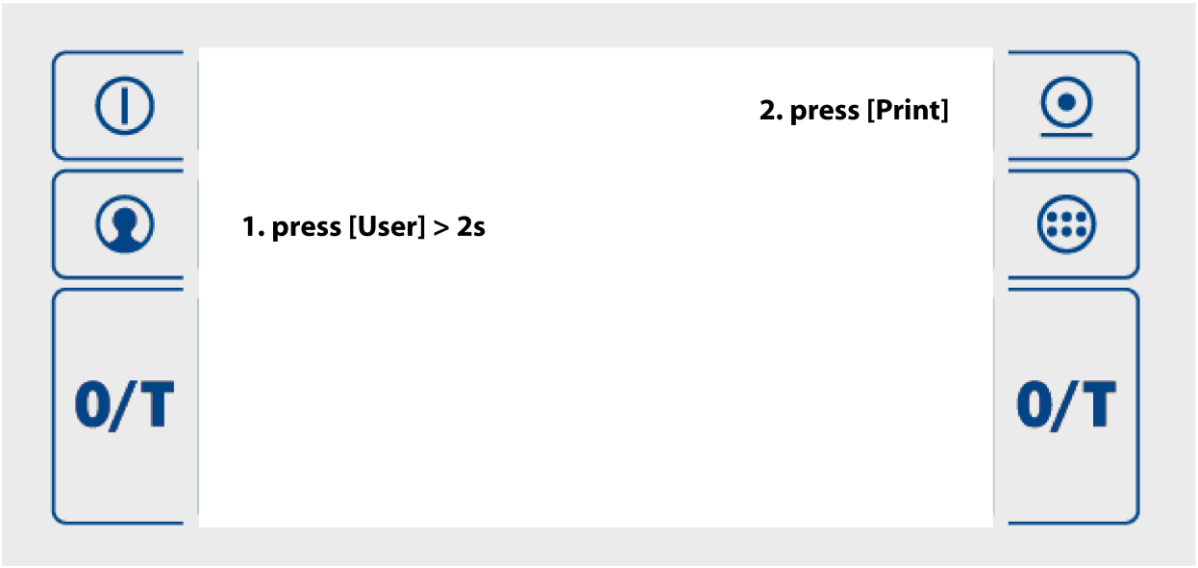


- At the User Screen click on an **[User icon]** e.g. 'Administrator' to open the chosen user or task.

3.8 Screen shots

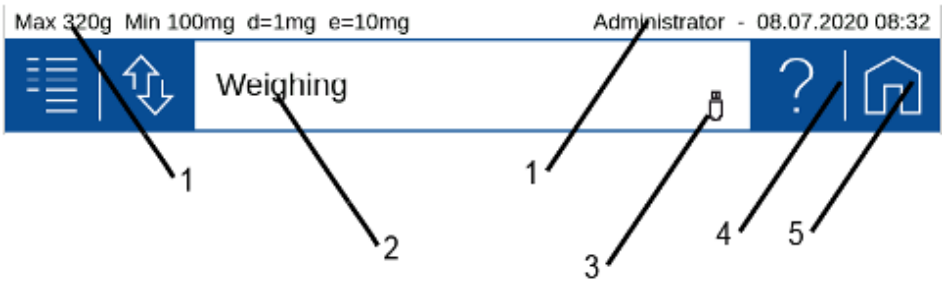
To create meaningful SOP's or in a disscusion with customer service and support a screen shot is often very useful. To save a screen shot:

- Plug a USB memory stick into the USB HOST connector on the backside of the balance
- Press the **[User]** key for about 2 seconds
- Press the **[Print]** key until a sound informs the screen shot is saved on the USB memory stick in the folder "screenshot" as bitmap ".BMP".


2. press [Print]
1. press [User] > 2s
0/T
0/T

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 like a keyboard, UBS stick etc. are shown.

4.2 Designation of the applications or 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 Auxiliary information

Symbols for connected peripherals such as keyboard, UBS stick, etc. or active network connections or a WLAN are displayed here.

4.4 Help, ?

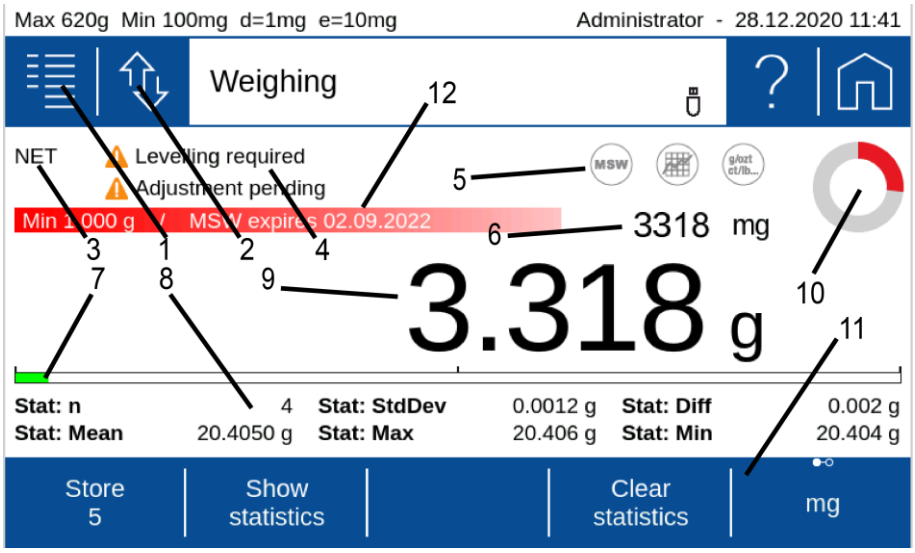
The help is context sensitive. Consequently, by press the **[Help,?]** icon, the help appropriate to the application or the current screen or application is loaded and displayed.

4.5 Home

The **[Home]** icon leads back to the set application from any situation. This is extremely helpful in more complex hierarchies, which can be executed very quickly.

5 Current application screen

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



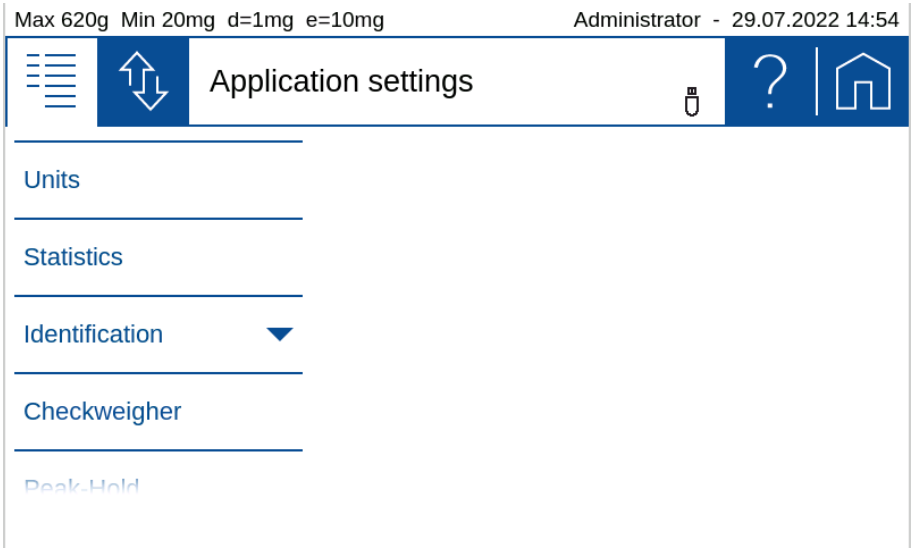
5.1 Context Menu, Add-Ons

By tapping the context menu, the Add-On functions and other specific settings available for the current application are opened. The Add-On 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 Add-On 'Statistics', which statistically evaluates the weighed values.

The Add-On are:

- **The first entry** stands for the current application and is used to set the functions belonging to the application. No function is available 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.
- **Checkweigher** to check the current value against a nominal value, a upper and lower limit, see 10 Add-On: Checkweigher.
- **Peak Hold** helps to capture a maximum value e.g. during filling, see 11Add-On function Peak-Hold.
- **Protocol** to adapt the printout to the application, see 12 Add-On: Protocoland 6.3 Protocol, GLP Header, GLP Footer.



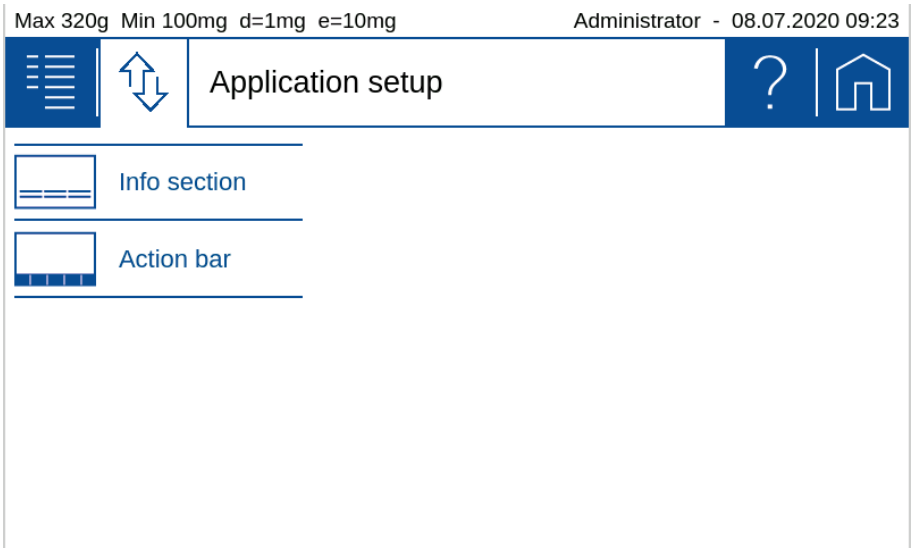
NOTE
Further information on add-ons settings can be found in the corresponding Chapters.

5.2 Customizer Tab

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

These are the options for adaptation:

- **Information** area to display various information on the screen, see 5.8 Info section.
- **Action bar** to trigger frequently used functions by pressing a soft button, see 5.11 Action bar and soft button customizing.



5.3 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.

5.4 Notes

At this point, notices are displayed, as e.g:

- Level the balance, 2.4 Levelling
- Adjust the balance, 2.5 Adjusting the balance

5.5 Active Add-Ons and Functions, MSW

At this point the activated Add-On will be shown with the corresponding icon.

Basically, all applications can be extended in their functionality by so-called Add-On. A typical example is the Add-On 'Statistics', which statistically processes the values measured, for example, in the 'Weighing' application.

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 e.g. 6.8 Minimal Sample Weight and Quality Management, MSW.

5.6 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.

5.7 Capacity display

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

5.8 Info section

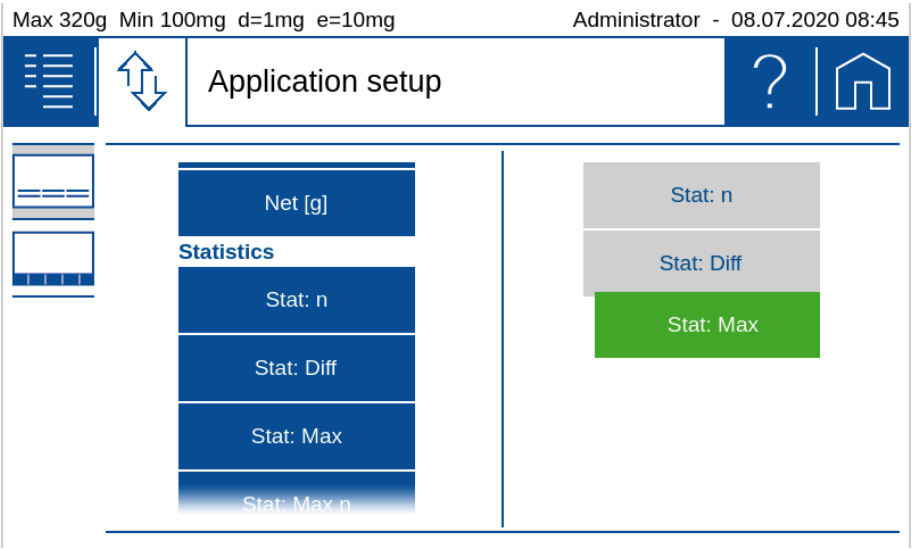
Various information is available that can be displayed in the notification area. The layout can be set and saved separately for each application.

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

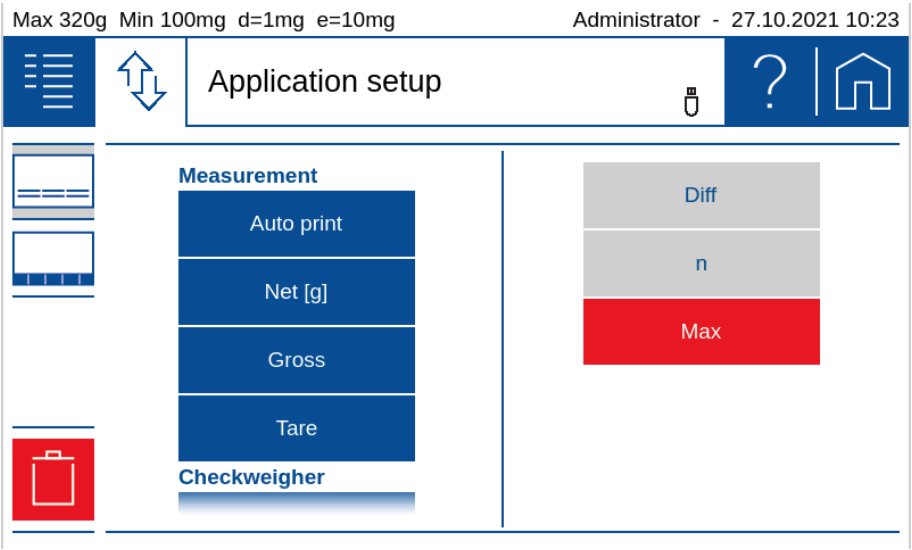
- **Measurement** contains the information about the measurement such as the current net weight or the status of the automatic printout if this is set in the measurement log.
- **Checkweigher** contains information of the check weigher such as the nominal value
- **Statistics** contains information on 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.

5.8.1 Define the layout

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



- If you click on a module on the right, it appears red and is deleted by pressing the trash can.



5.9 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.

5.10 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 as 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.

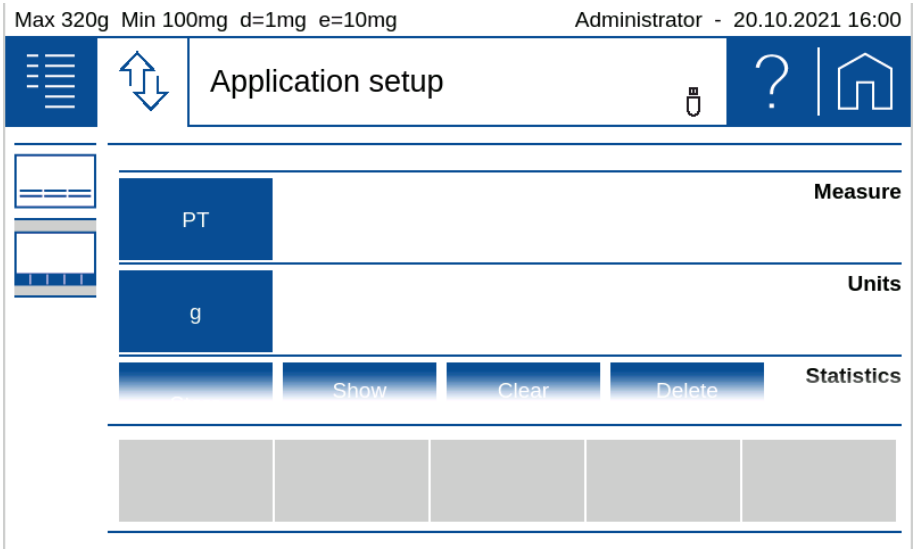
5.11 Action bar and soft button customizing

The 520 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'.

When a soft button is pressed it performs the assigend function. In each application you may assign a choice of various functions to the soft button of the 'Action bar'.

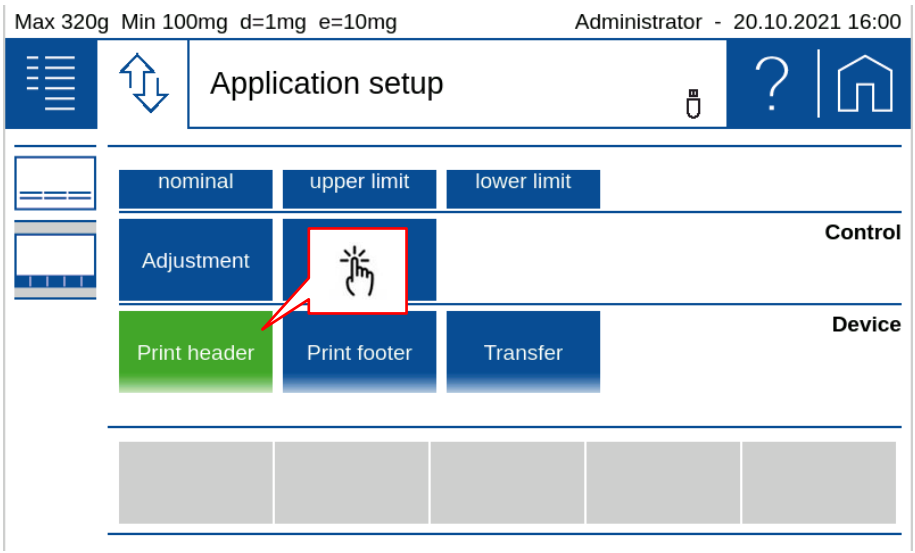
To ensure easy orientation, the functions are divided into groups:

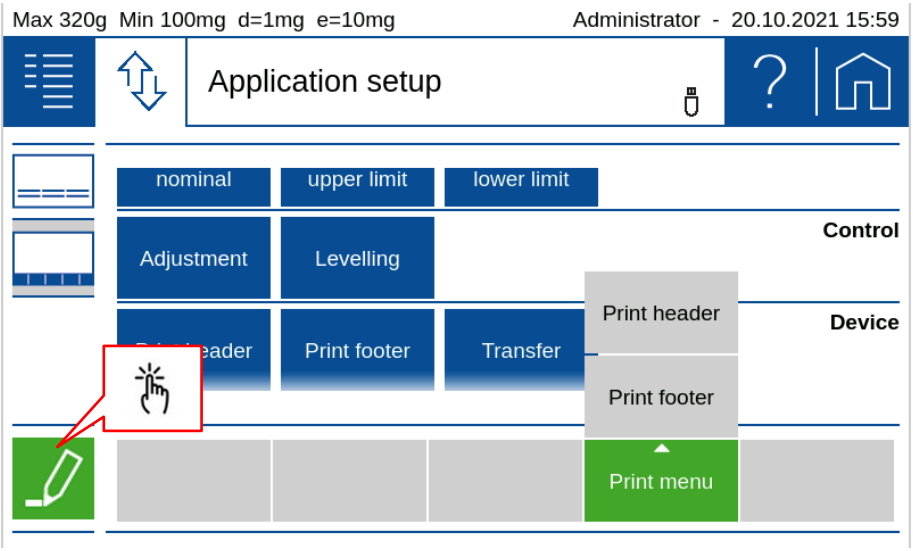
- **Measurement** contains functions for the current measurment like enter a manual tare with 'PT'.
- **Units** contains the functions for using the second unit.
- **Peakhold** contains functions for the Add-On 'Peakhold' such as start/stop the capturing.
- **Statistics** contains functions for the satistics such as start statistics, delete statistics etc.
- **ID** contains the functions for the identifications or labels like entering an ID or resetting the counter.
- **Checkweigher** contains the functions for the checkweigher like e.g. to capture a new nominal value, set limits, etc.
- **Control** contains the functions for adjustment, leveling, ….
- **Device** contains the functions for controlling printing, data transfer etc.



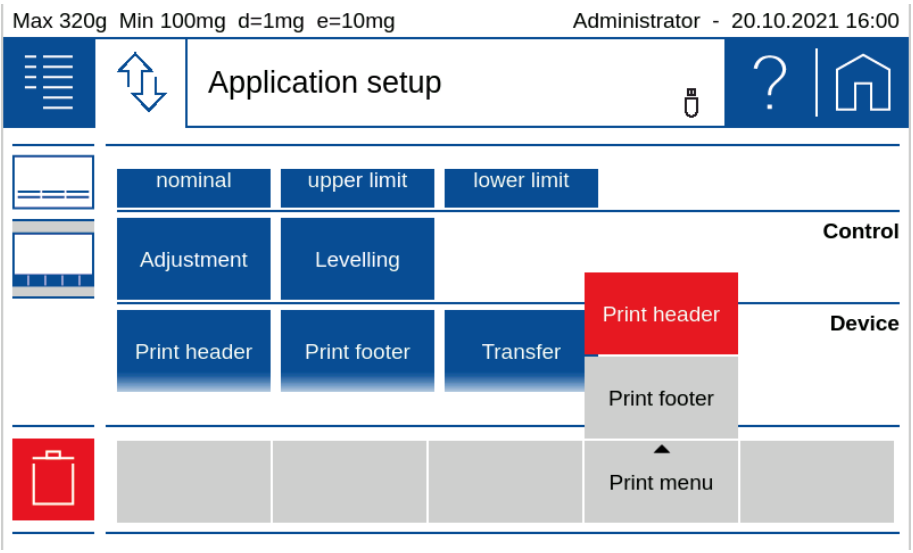
5.11.1 Define soft buttons

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





- If a soft button from the 'Action bar' is selected, it appears red and is deleted by pressing the trash can icon.



5.12 Warnings, status reports

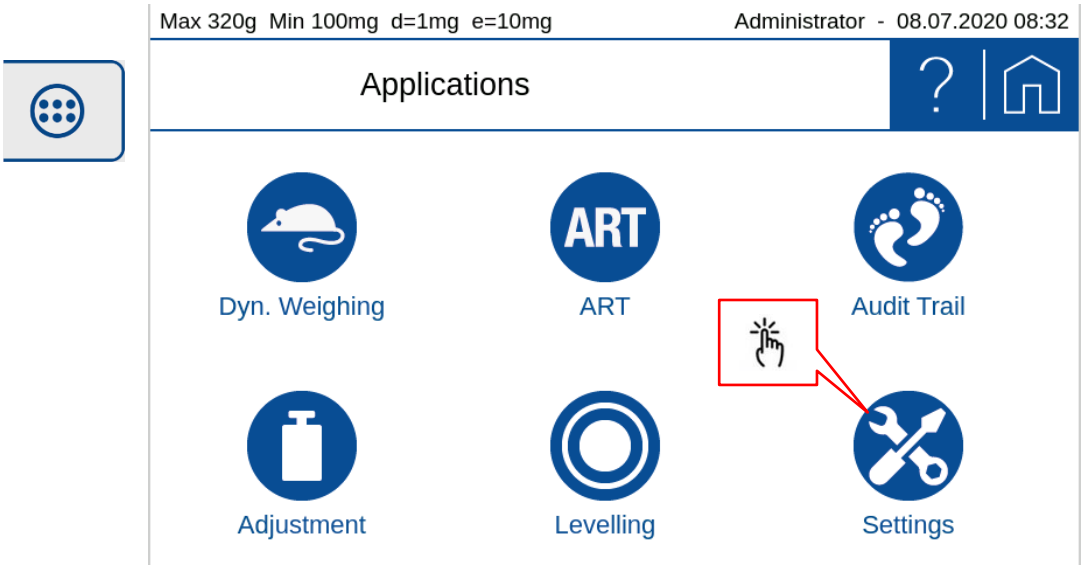
Warnings are displayed at this point, such as that the minimum sample weight has not yet been reached or status messages about the printing process or that unloading with the ECS is currently active.

- Minimum sample weight, see 6.8 Minimal Sample Weight and Quality Management, MSW
- Printout active, waiting for printout, ...

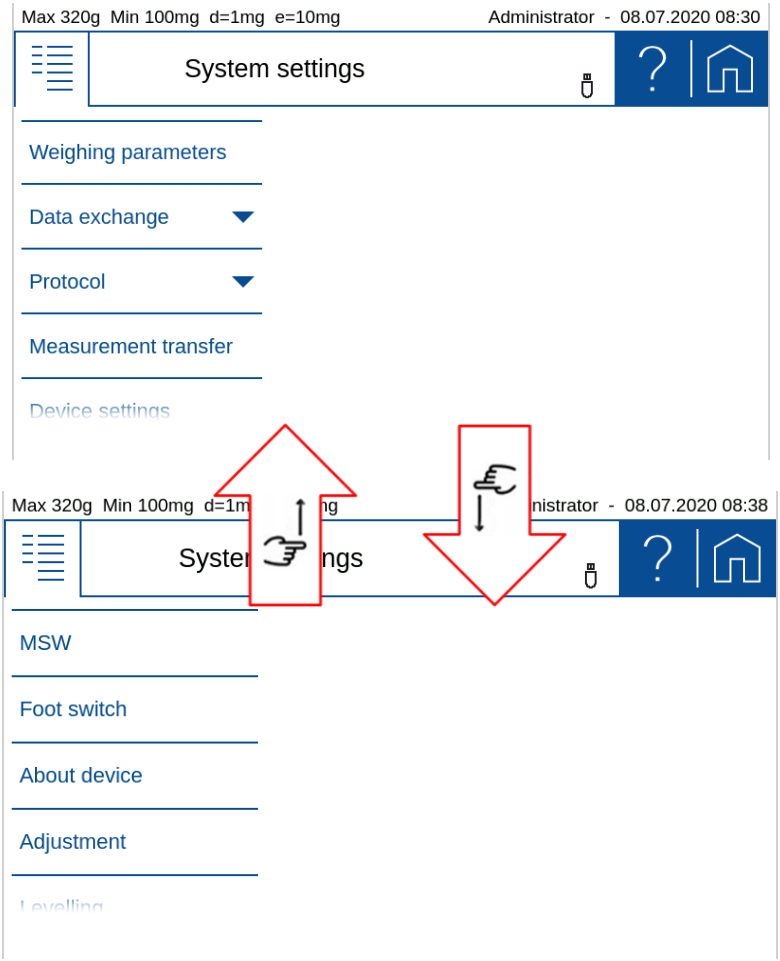
6 System Settings

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

- Enter the application screen and select 'Settings”.

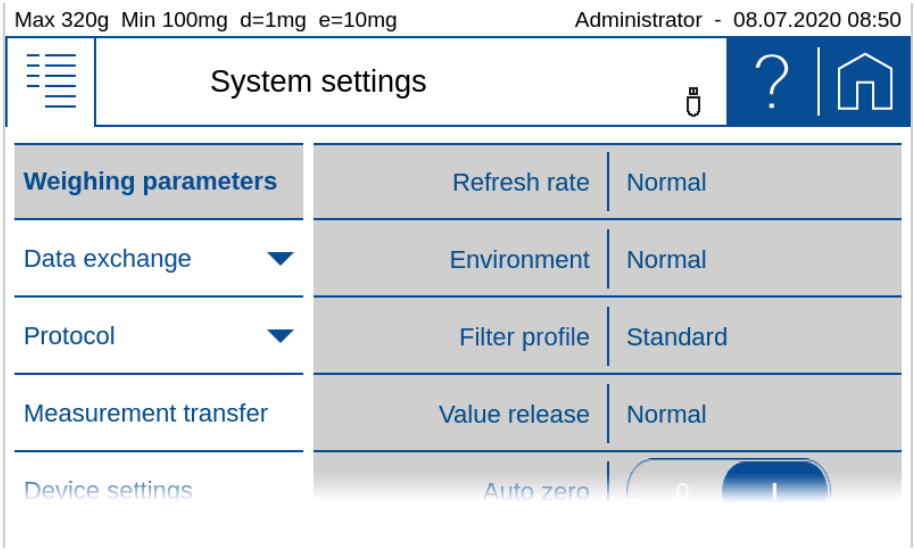


- Swiping up and down gives you access to all system settings.



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 these 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 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 an individual zero range is beneficial. This is a very useful feature together with a combined **[Zero/Tare]** key. Thus the range of zeroing or taring can be controlled within certain limits.

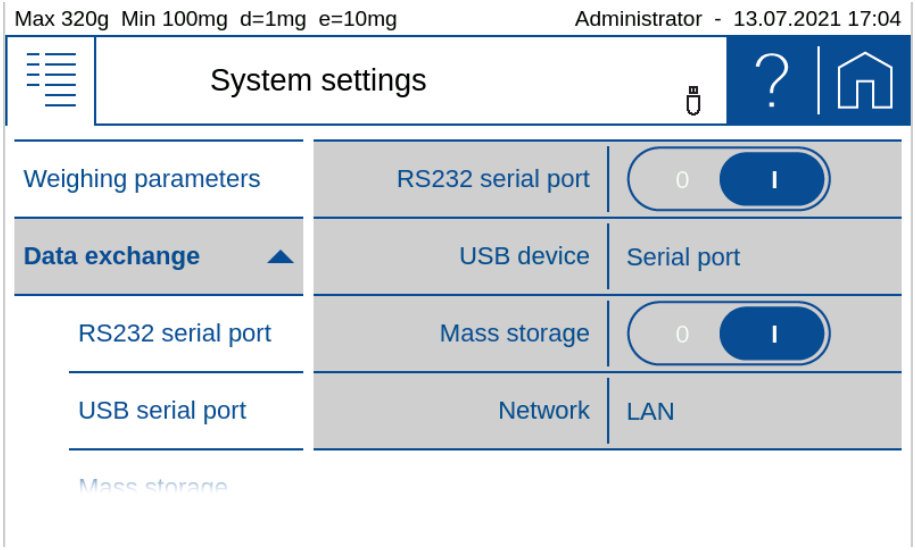
6.2 Data exchange

There are several channels available for data exchange and for each channel with the mode 'Protocol' or 'Measurement transfer'.
Die enables for example a parallel output of the protocol via the serial interface on a printer and as a text or CSV file on a mass storage/memory stick connected to the USB interface.
Additionally, a 'Measurement transfer' of the current displayed value to a PC or a LIMS over e.g. the network channel can be triggered by the push of the soft button **[Transfer]** or simultaeuously with the **[Print]** key.

6.2.1 Data exchange channels

The following channels are available, see also 14.1 Hardware connections

- **RS232 serial port:** DB9 connector on the backside of the balance
- **USB serial port or USB HID**: USB DEVICE connector to the backside of the balance
- **Mass storage or memory stick**: USB HOST connector on the backside of the balance
- **Network:** LAN connector on the backside of the balance or with an USB-WLAN adapter plugged into the USB HOST connector

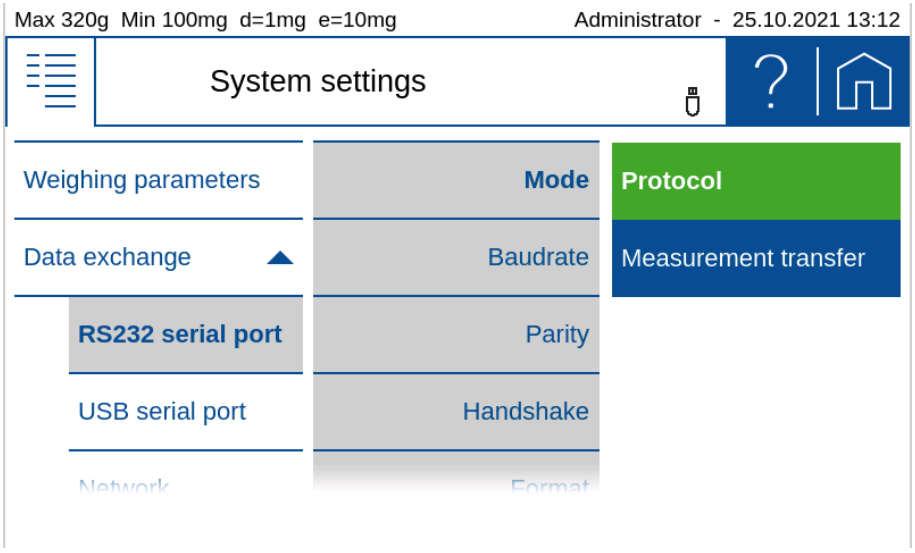


NOTE
If a channel is not physically available, the transfer may take a long time, because the balance only stops the transfer after a certain timeout.

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

6.2.2 Data exchange modes 'Protocol' and 'Measurement transfer'

For each channel you can choose the mode for the data exchange.



6.2.2.1 Mode 'Protocol'

The mode 'Protocol' is the most used and simply outputs the protocol as define in the application via the chosen channel and the format depending on the channels capability.

Depending on the type of channel different settings must be adjuted like e.g. simply choose the printout format with 24 or 40 characters per line or more setting as e.g. for the massstorage with filename and file format or for a network connection where even more settings are need.

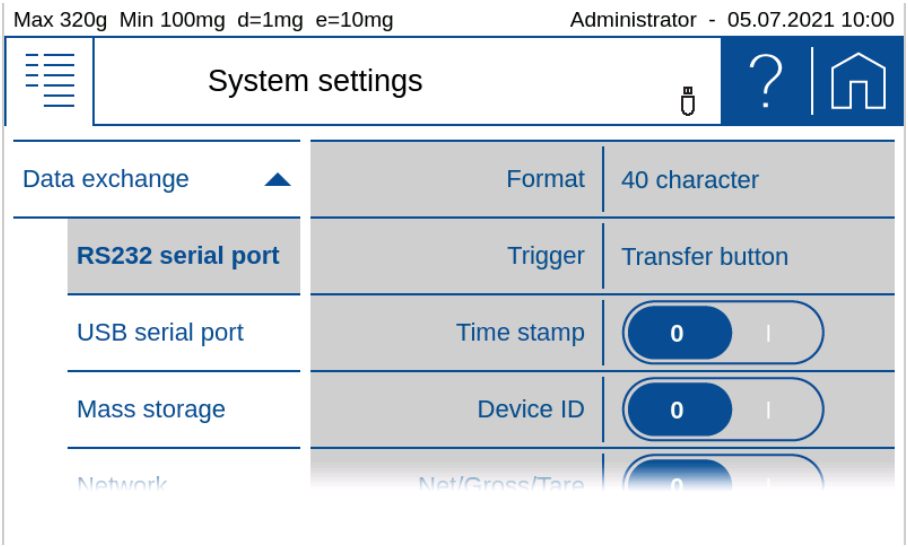
The output is triggered by the **[Print]** key and its assoziated function as this is set in the active application.

6.2.2.2 Mode 'Measurement transfer

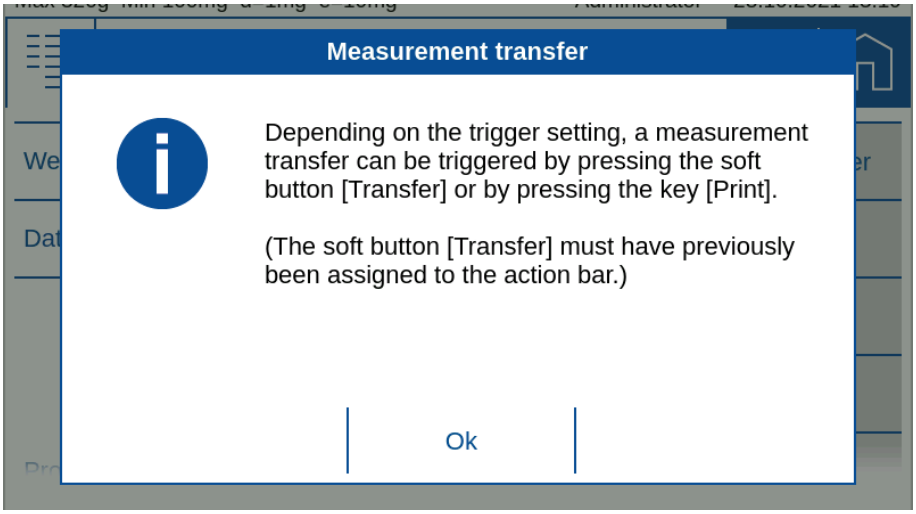
The mode 'Measurement transfer' is used to transfer the current displayed value via the chosen channel direct to a PC, a LIMS, a mass storage or wherever.

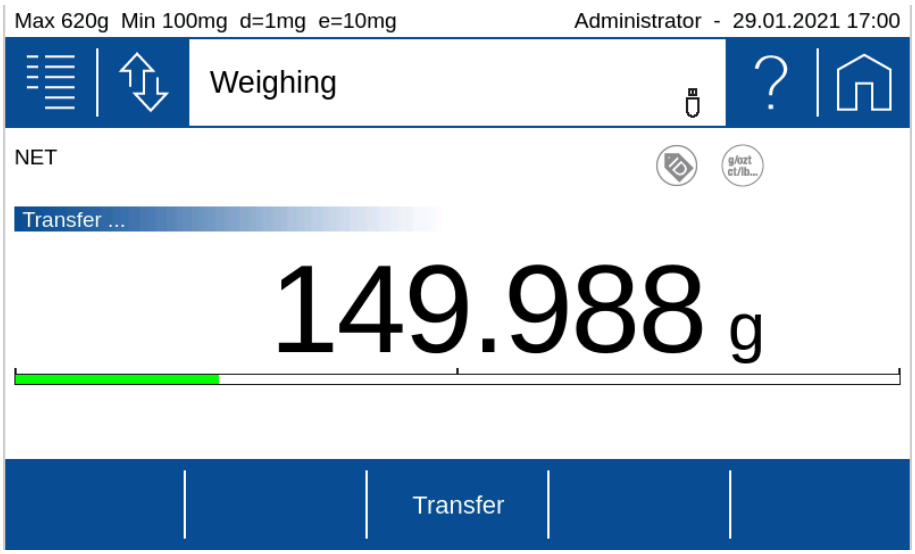
If needed more information like “Time stamp”, “Device ID” and “Net/Gross/Tare” can be transferred at the same time. Fore some channels the 'Separator' to separate the information can be chosen otherwise a tabulator is inserted. For the definition of the transmission format of the displayed value, see 6.4 Measurement transfer.

Depending on the type of channel, further settings must be made, such as the print format with 24 or 40 characters per line or for the mass storage the file name or for a network connection the required network settings.



Since the transfer requires a separate trigger, a corresponding message always appears when the 'Measured value transfer' mode is selected.
If the trigger is set to 'Print button', the transfer is triggered with the **[Print]** button or synchronously with the protocol output and thus automatically depending on the settings of the active application.
If the trigger is set to 'Transfer button', make sure that the **[Transfer]** softbutton is activated in the 'Action bar' of the active application, see Action bar and soft button customizing Action bar and soft button customizing.

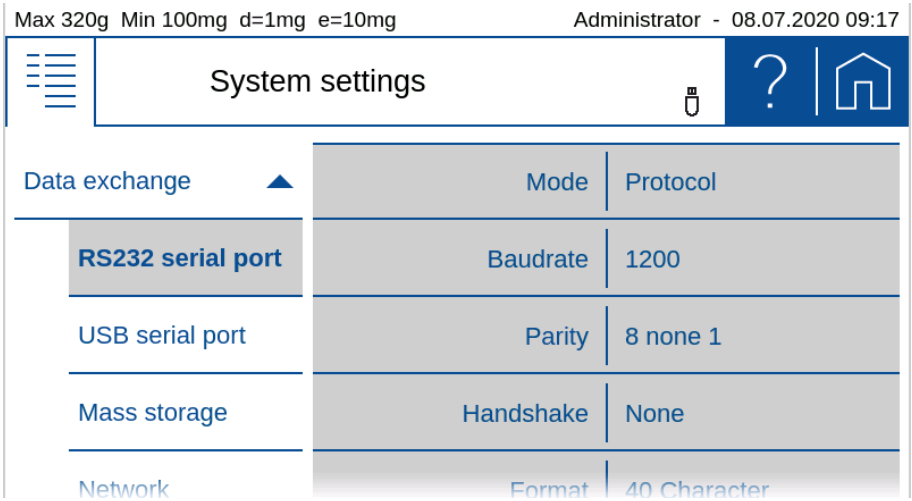




6.2.3 RS232 serial port

For a correct data transmission to a PC, a printer or any other device what can be connected to the DB9 connector on the backside of the balance and the usual parameters of an RS232 / V24 serial interface must be set.

Baudrate, parity and handshake must match with the interface parameters of the connected peripheral device. In an environment with high levels of interference, it is recommended to keep the baudrate as low as possible.
If necessary, you can adjust the format from 40 to 24 characters per line.



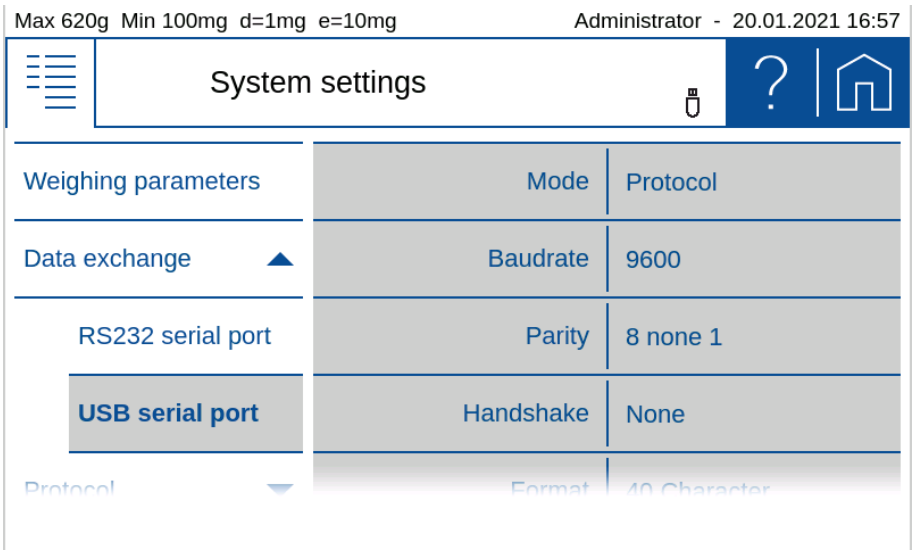
As with all channels, you must select the mode for data exchange. For the 'Measurement transfer', the trigger must be defined as well as the information to be transferred 'Time stamp', 'Device ID' and 'Net/Gross/Tare'. For the definition of the transmission format of the display value, see 6.4 Measurement transfer.

6.2.4 USB device as USB serial port

A PC can be connected directly to the USB DEVICE connector on the backside of the balance.

Baudrate, parity and handshake must match with the interface parameters of the connected peripheral device. In an environment with high levels of interference, it is recommended to keep the baudrate as low as possible.

If need, adjust the format with 40 or 24 characters per line.



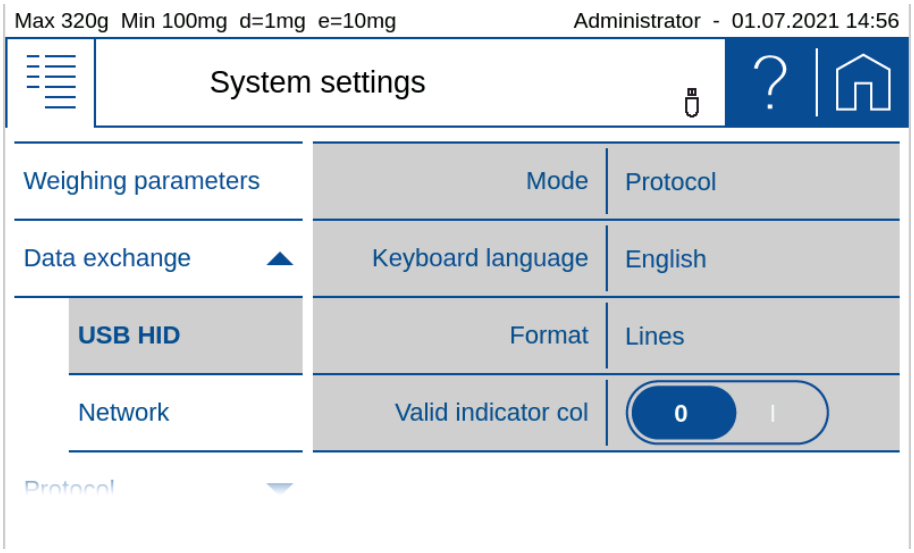
As for a channels you must choose the mode for the data exchange.
For 'Measurement transfer', depending on the needs the trigger must be chosen as well as the items “Time stamp”, “Device ID” and “Net/Gross/Tare” to be transferred with a character for the separation. For the definition of the transmission format of the displayed value, see 6.4 Measurement transfer.

6.2.5 USB device as USB HID

A PC can be connected directly to the USB DEVICE connector on the backside of the balance.

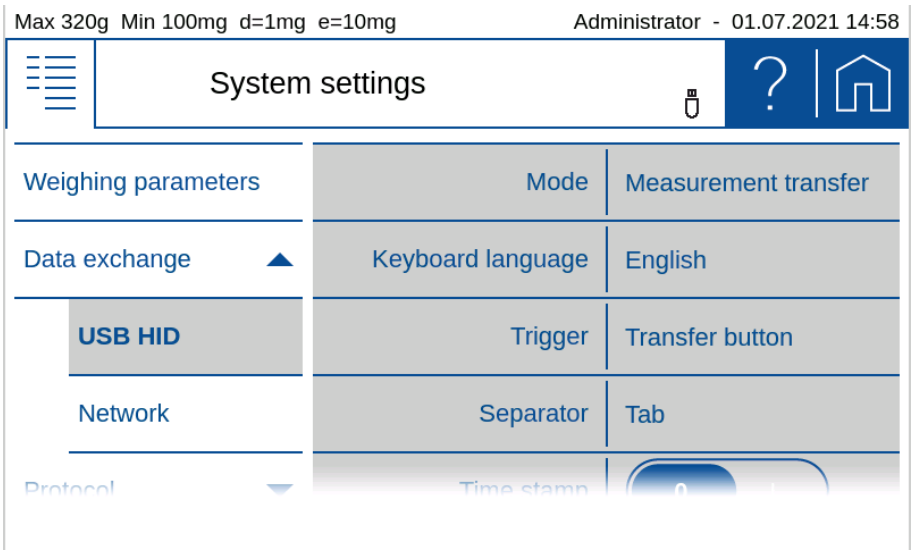
The values transferred from the balance to the PC look like as they would have been entered via a computer keyboard.

6.2.5.1 Mode 'Protocol'



- **Keyboard language:** Select character set for the PC according to the English, German, French, Turkish or Spanish keyboard of your PC.
- **Format:** Select output format in lines mode or in table mode which includes a tab stop for each column.
- **Valid indicator col:** Select output of a separate column for the valid indicator "o".

6.2.5.2 Mode 'Measurement transfer'



- **Keyboard language:**
  Select character set for the PC according to the keyboard of your PC with English, German, French, Turkish or Spain.
- **Trigger:**
  Select type of trigger which initiates the transfer by the **[Print]**-key or the soft button **[Transfer]**.
- **Separator:**
  Select the character what separates the items for "Time stamp", "Device ID", "Net/Gross/Tare" when chosen.

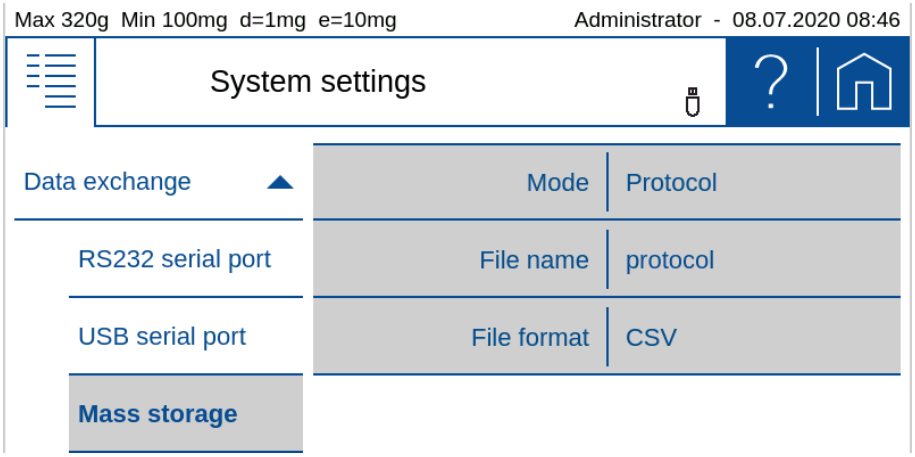
6.2.6 Mass storage

The Mass storage channel transfers the data to a mass storage device or USB memory stick, which is plugged in on the right side of the balance terminal. Depending on the setting, the

protocol or the measured value output in the selected format is saved to a file on the mass storage device. If a corresponding file already exists, new dates are always appended.

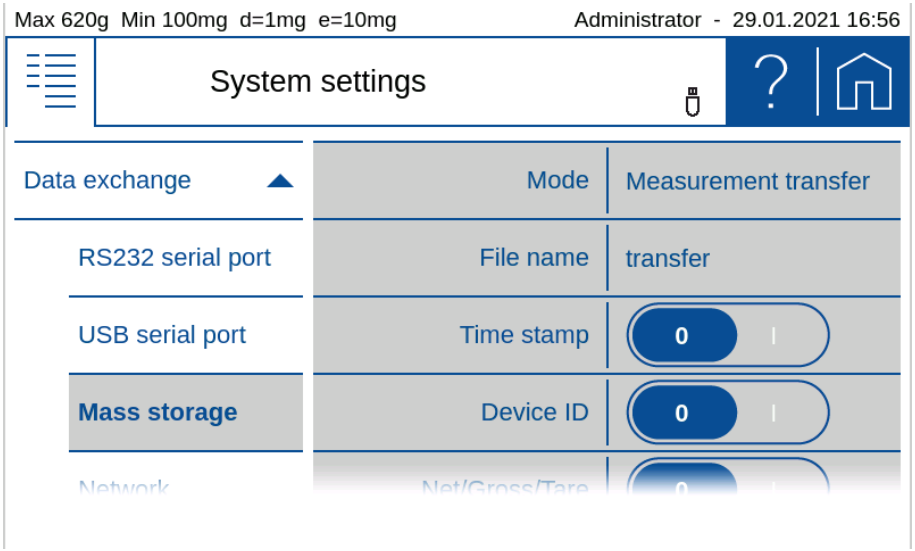
6.2.6.1 Mode 'Protocol'

Beside the file name, the file format text “txt” or comma separated values “.csv” can be selected. For the text file format, the width of the log can also be selected with 40 or 24 characters.



- **File name:**
  Choose the name of the file to store the date on the USB flash drive.
- **File format:**
  Choose the format 'Text' ".txt" or Comma Separated Values 'CSV' ".csv".

6.2.6.2 Mode 'Measurement transfer'



- **File name:**
  Choose the name of the file to store the date on the USB flash drive.
- **Trigger:**
  Select type of trigger which initiates the transfer by the **[Print]**-key or the soft button **[Transfer]**.
- **Separator:**
  Select the character what separates the individual items for “Time stamp”, “Device ID”, “Net/Gross/Tare” when chosen.

6.2.7 Network

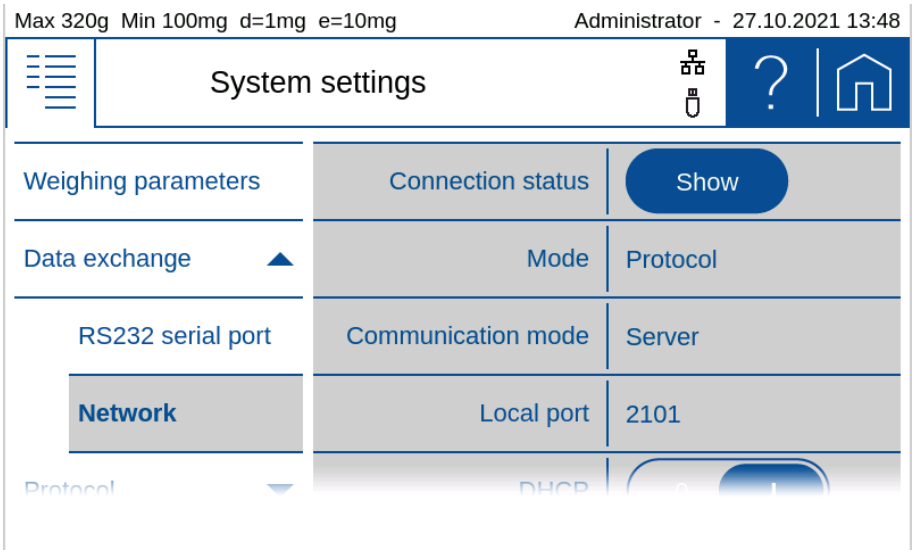
The balance can be integrated into a network. For this purpose, a LAN cable or a USB WLAN adapter must be plugged at the bottom side of the balance terminal. For correct data transmission, the usual parameters of a network connection must be set appropriately on the scale and the receiver.

As for a channels you must choose the mode for the data exchange.
For 'Measurement transfer', depending on the needs the trigger must be chosen as well as the items “Time stamp”, “Device ID” and “Net/Gross/Tare” to be transferred with a character for the separation. For the definition of the transmission format of the displayed value, see 6.4 Measurement transfer.

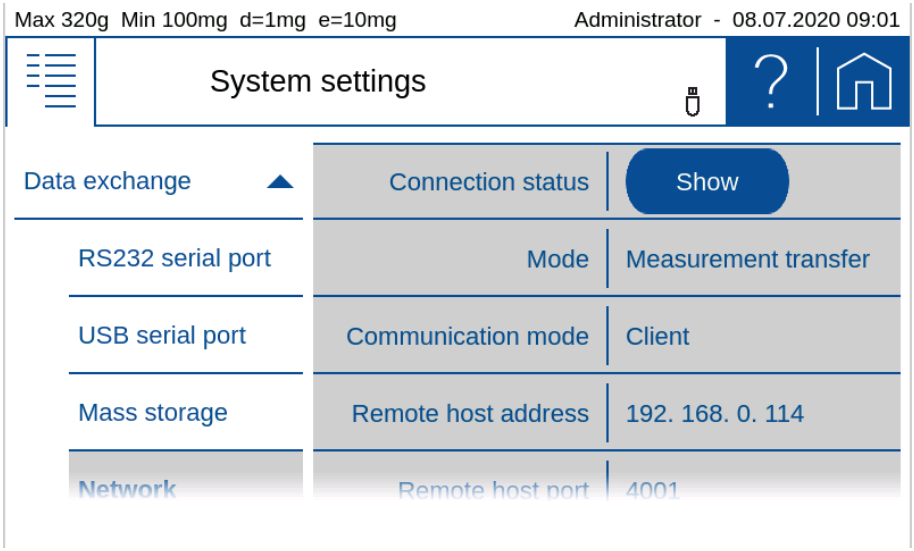
In a network each participant must have a defined rule. As consequence the rule of the balance in the network communication must be defined, see 6.2.7.3 Rule in the network communication. In case of uncertainty try first with the rule as a “server”.

In a network each participant must have a defined address or identification. The details what is need and how to setup is a standard taks and must be discussed with the network administrator, see **Fehler! Verweisquelle konnte nicht gefunden werden. Fehler! Verweisquelle konnte nicht gefunden werden.**. In case of uncertainty try first with DHCP set to “ON”.

6.2.7.1 Mode 'Protocol'



6.2.7.2 Mode 'Measurement transfer'



- **Trigger:** Select type of trigger which initiates the transfer by the **[Print]**-key or the soft button **[Transfer]**.
- **Separator:** Select the character what separates the individual items for “Time stamp”, “Device ID”, “Net/Gross/Tare” when choosen.

6.2.7.3 Rule in the network communication

In a network each t participant must have a defined rule. As consequence the rule of the balance in the network communication must be defined.

Server (mostly used)

The Server communication rule 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 rule is used when the balance wants to connect itself to another participant 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.

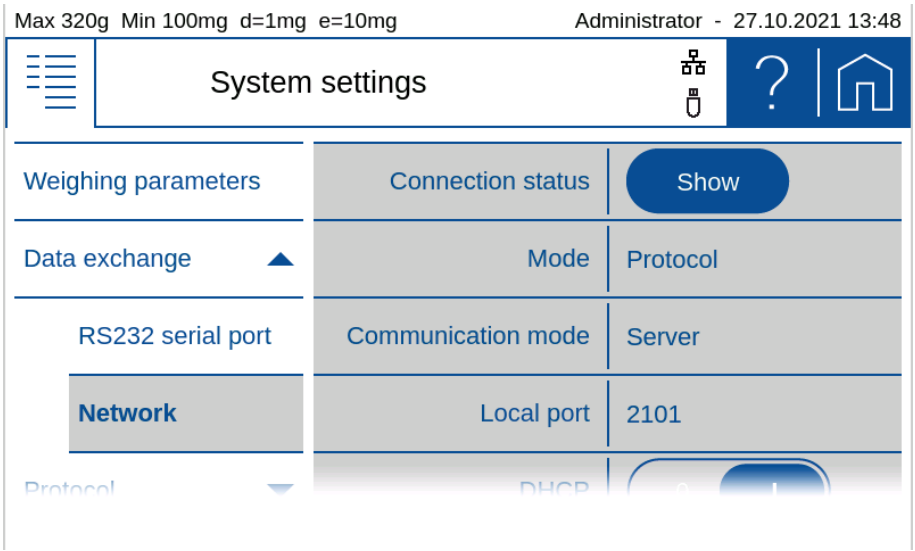
6.2.7.4 Using DHCP or a static IP address

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.

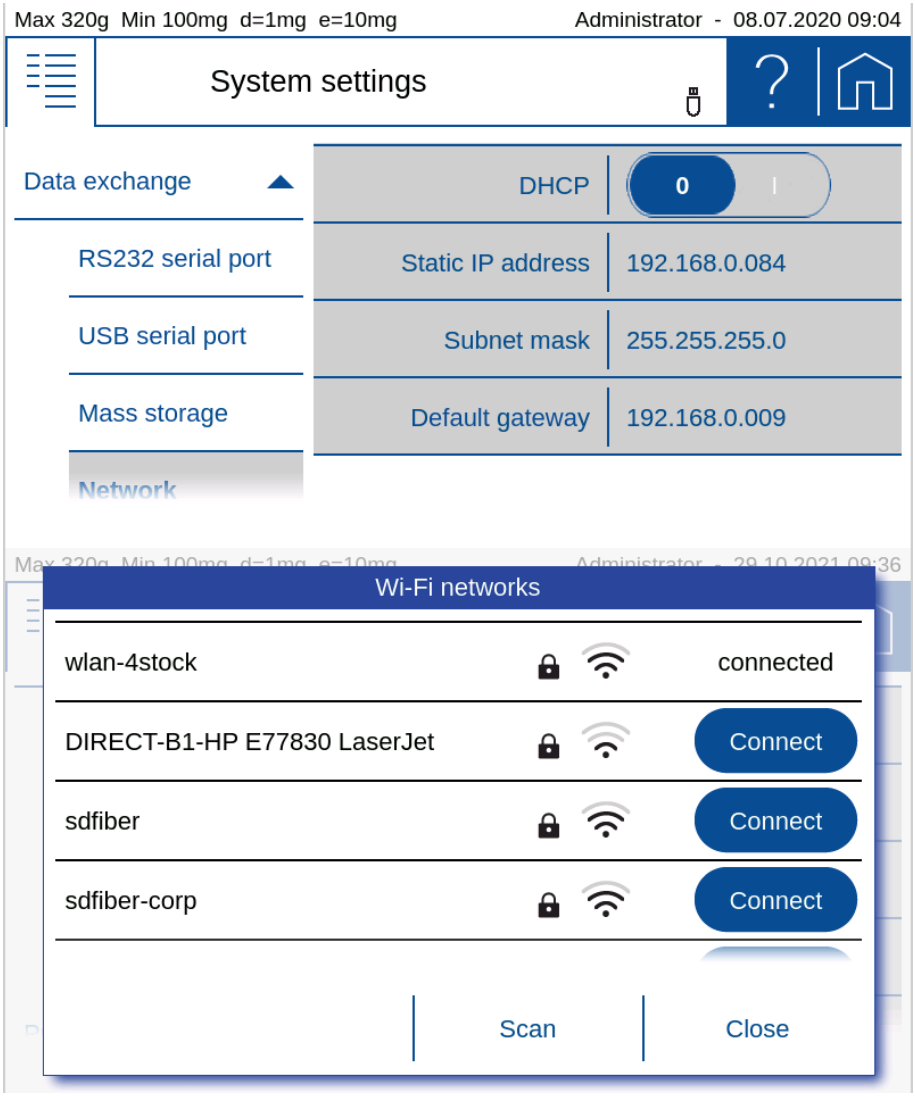
If an automatic IP address of the DHCP server is sufficient, switching DHCP “ON” automatically connects the balance into the network.
In case a static IP address must be used, the network administrator knows the settings of the IP address, subnet mask and default gateway.

6.2.7.5 Connecting to the LAN or WLAN (WiFi)

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 to your network administrator.



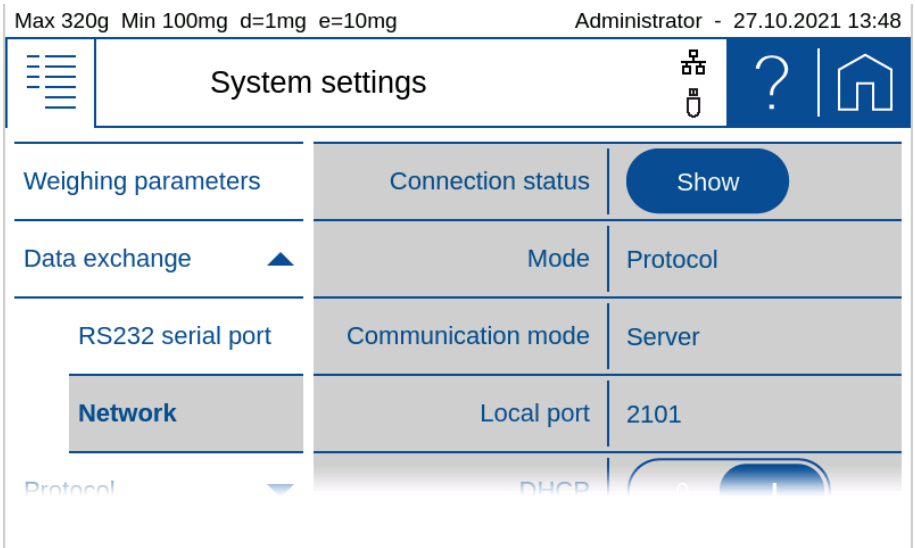
- **Connection status:** Click [SHOW]to display or print out the network connection status and settings.



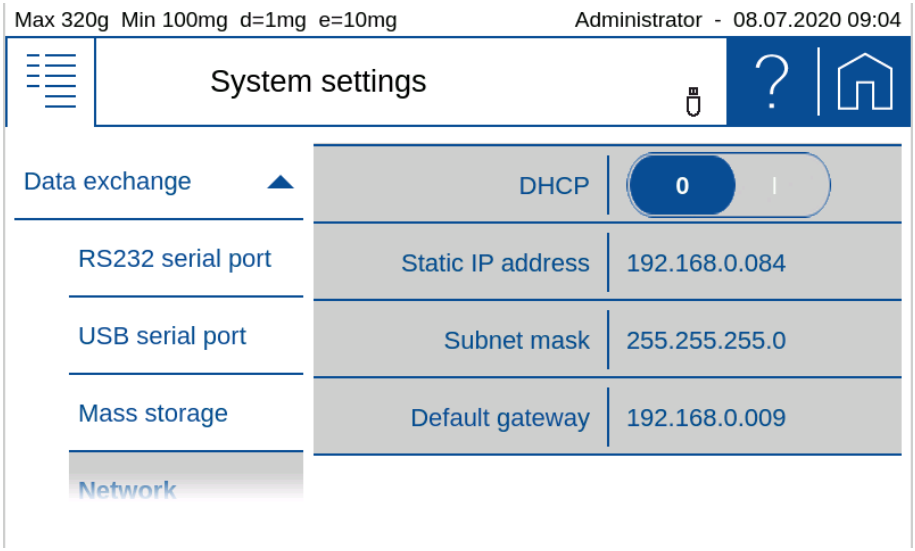
6.2.7.6 Setting Up in Server Communication Mode (mostly used)

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.

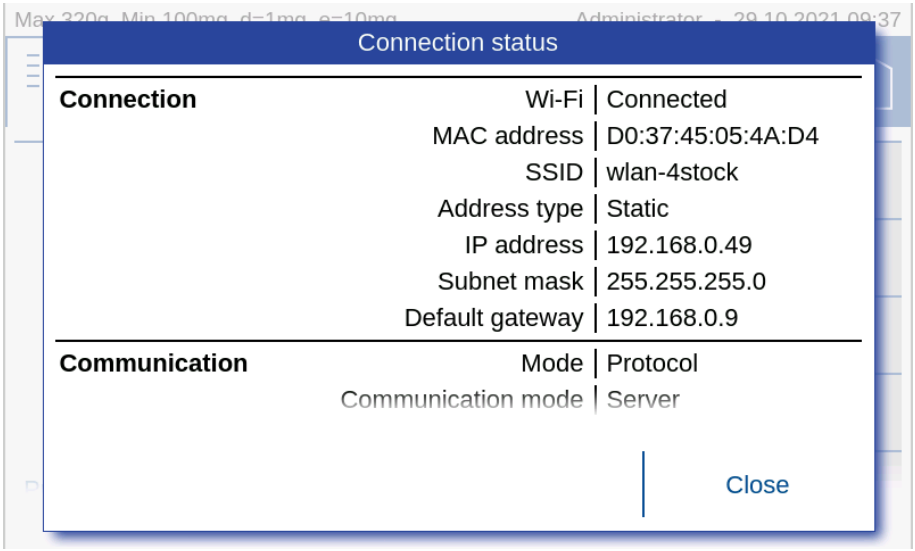
- Mode of data output as 'Protocol' or 'Measurement transfer'
- Local port of the balance which must be set on the other device



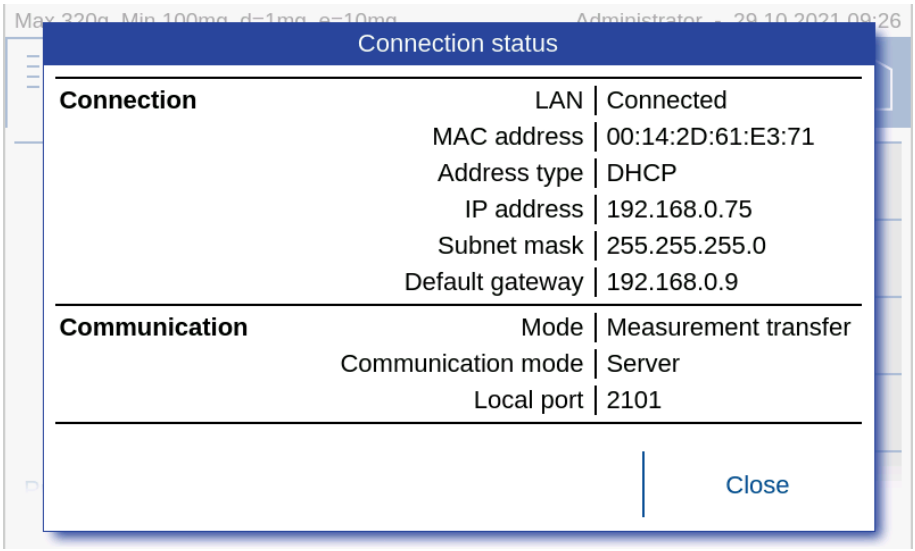
- **Connection status:** Click [SHOW]to display or print out the network connection status and settings.



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



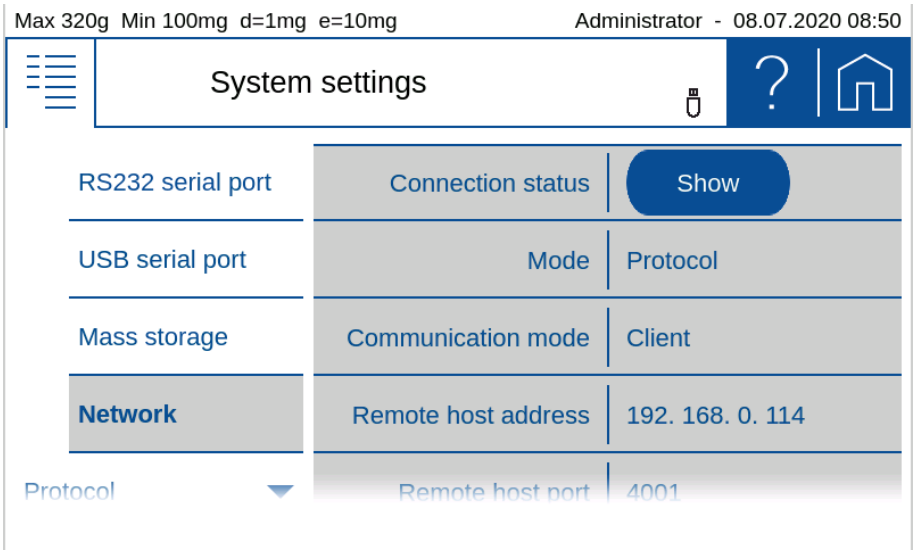
Connection status of the balance as a Server with LAN and DHCP set in the mode 'Measurement transfer".



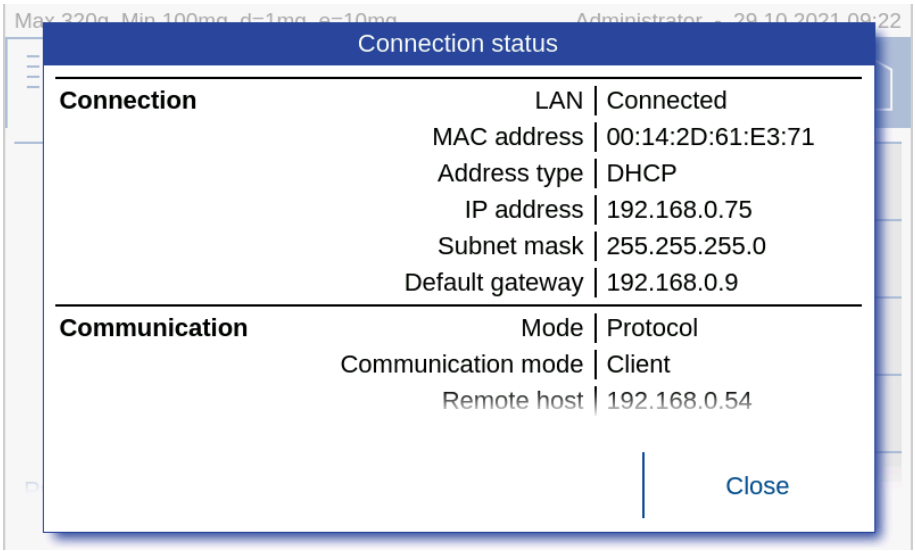
6.2.7.7 Setting Up in Client Communication Mode

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".

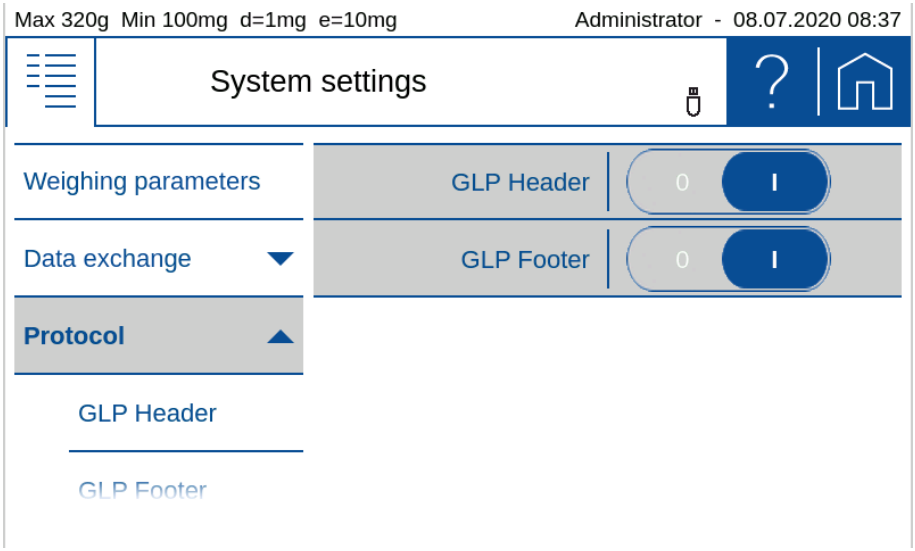


NOTE
Further information on these settings can be found in the context help.

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 on these settings can be found in the context help.

NOTE
Further information on these 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

Levelling levet
Adjustment Gut
Last adjustment 23.08.1918 06:42

Signatur

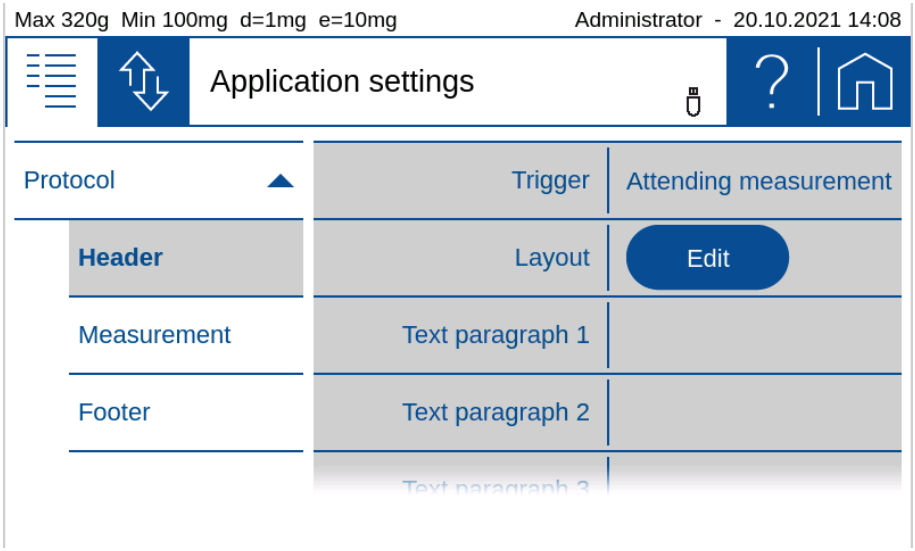
_____

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.

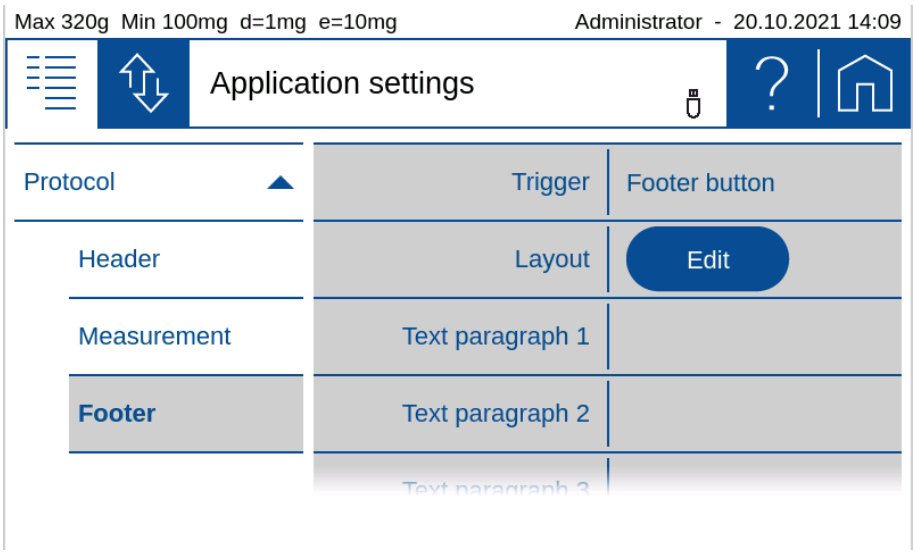


To ensure easy orientation, the building blocks are divided into groups:

- **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 12.4 Protocol text paragraph.

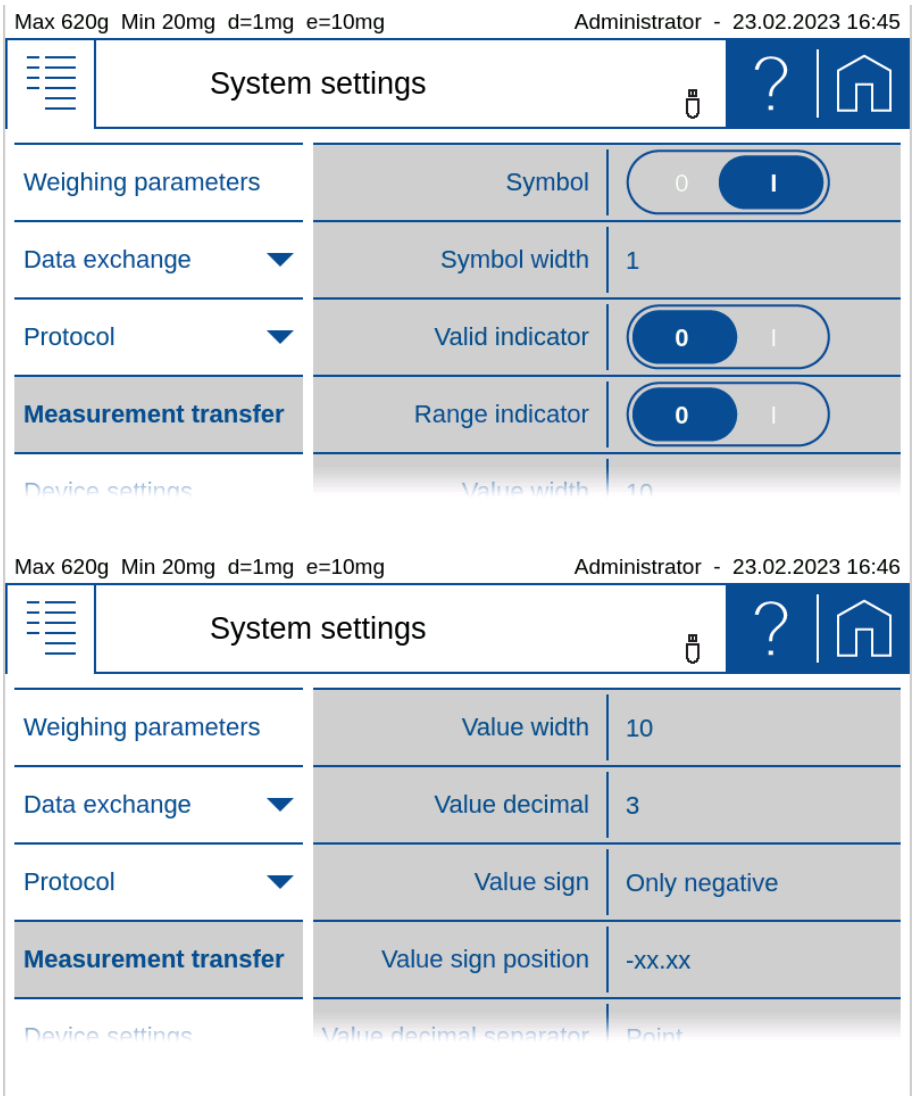
Define layout der GLP-header and GLP footer

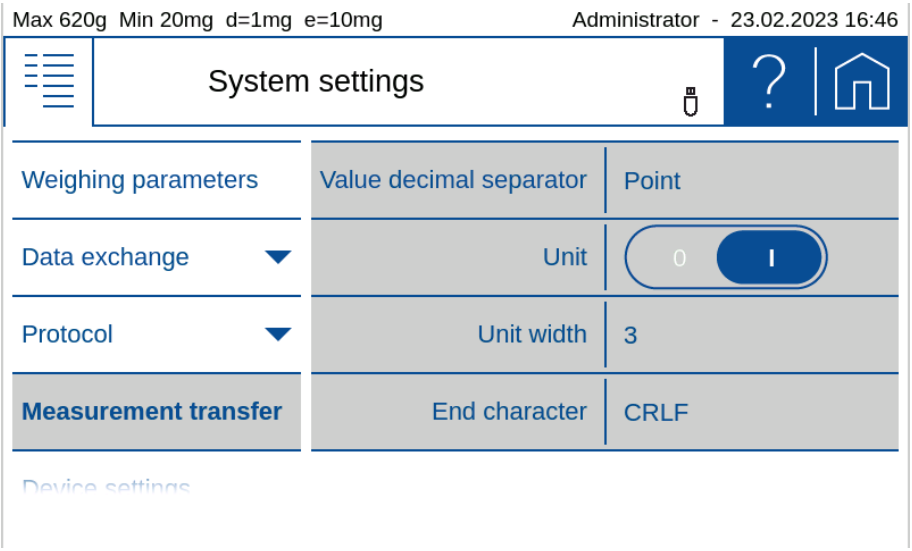
A description of how a protocol layout is defined can be found in and 12.5.1 Insert Protocol items.

6.4 Measurement transfer

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

- **Symbol** indicates whether the symbols for net, gross, tare, etc. are transferred.
- **Symbol width** is the number of characters or placeholders for the symbols
- **Valid Indicator** indicates whether the symbol "o" is output for invalid values.
- **Range Indicator** indicates whether the symbol ">" or "<" is output for values that are too large or too small.
- **Value width** is the width of the weight value including the decimal places
- **Value decimal** 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

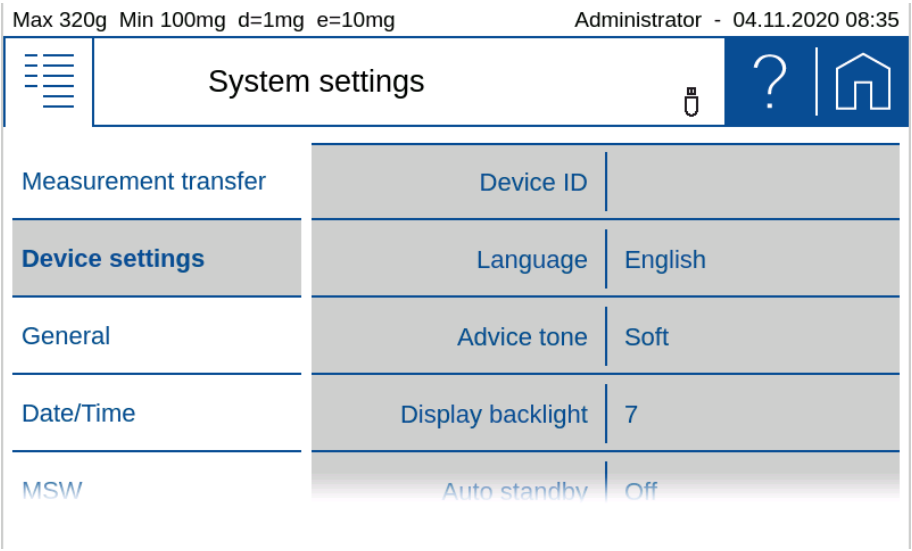




NOTE
If a channel is not physically available, the transfer may take a long time, because the scale only stops the transfer after a certain timeout.

NOTE
Further information on these 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 (mute, soft, loud).

6.5.4 Display Backlight

Adjusts the level (1-7) of display backlight for adaption to different ambient light situations

- **1 Low** for low light emission environment
- **7 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. If selected you can choose the time to go into standby mode from 1 min to 1 h.

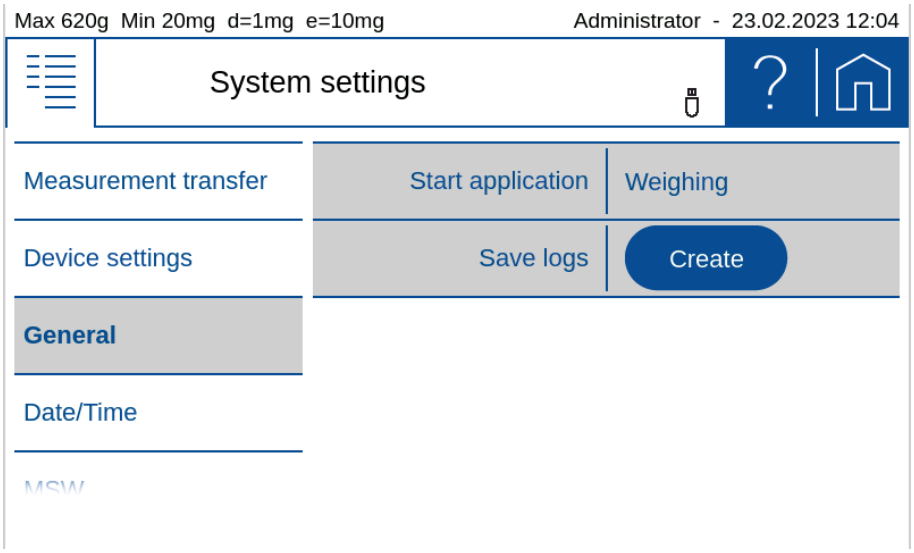
6.5.6 Reference unit

Select the unit to be used in the system settings for weight entries. Note that the reference unit can only be changed by a user with administrator or quality manager rights.

6.5.7 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 General



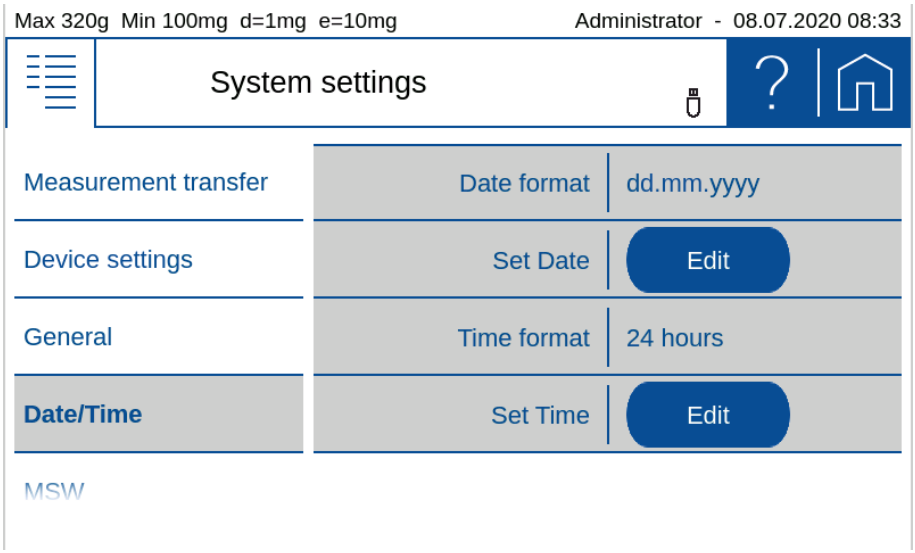
- **Start application** to choose what is activated after starting the scale.
- **Save logs** to save a log file to the USB memory stick connected to the right of the terminal, to simplify analysis in service and support.

6.7 Setting Date and Time

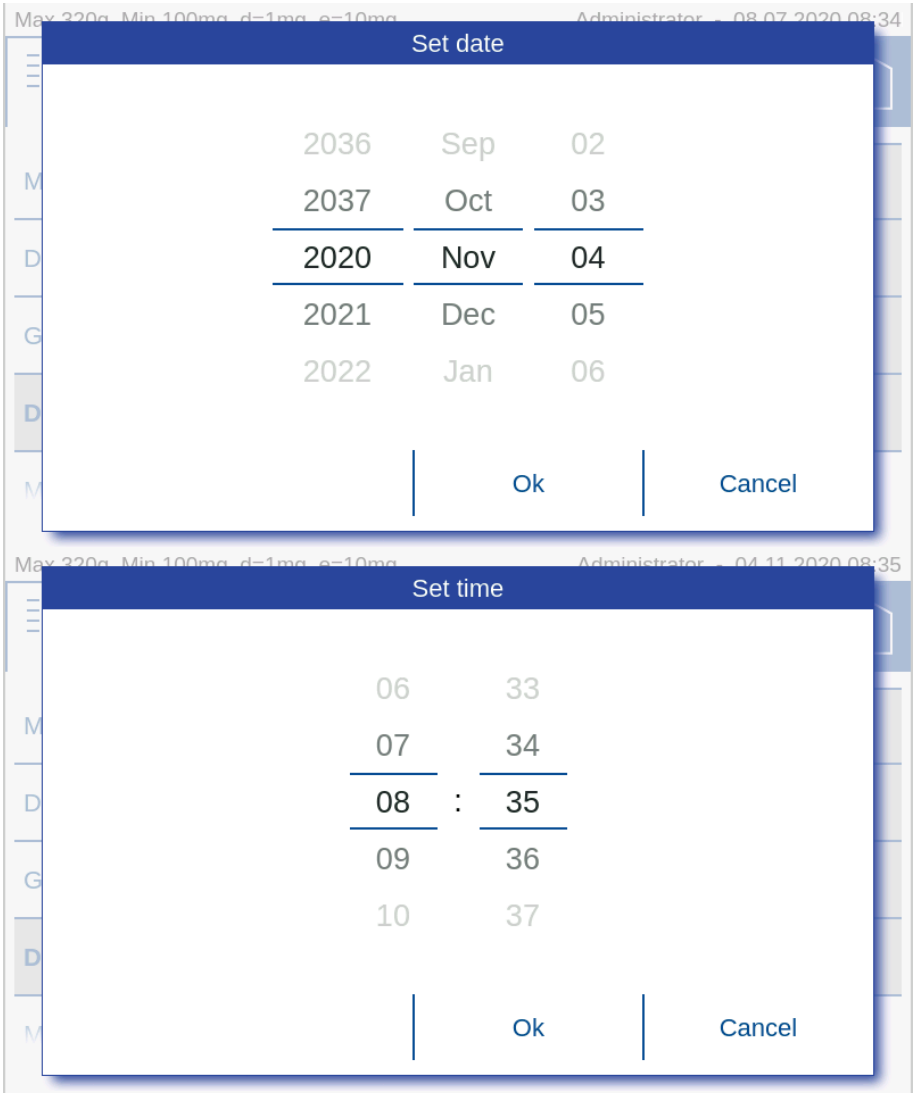
Allows for all users to set date and time as well as set the format.

- **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

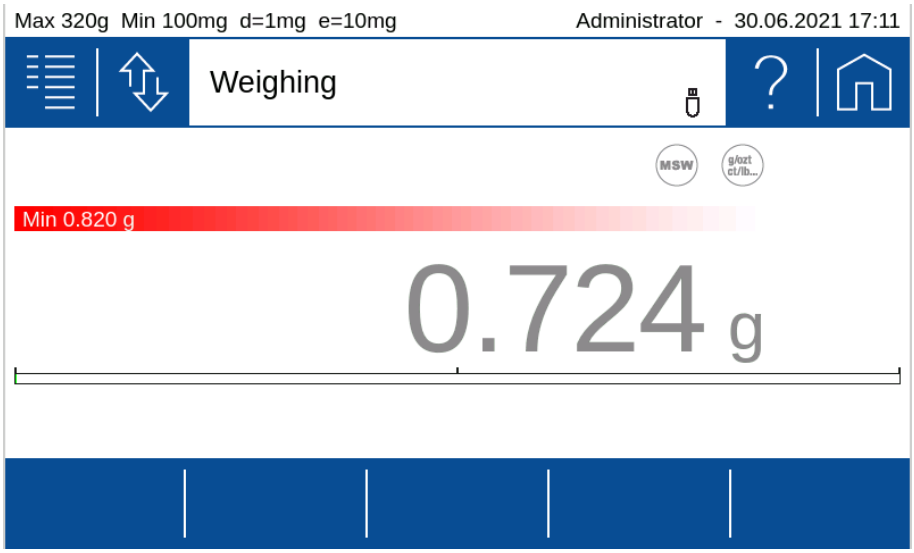


Note:
The internal clock is equipped with a backup battery, which guarantees perfect functioning for several years. If the time or dates are incorrect after a cold start, in most cases this indicates the end of the lifespan of the backup battery. This must be replaced by qualified personnel.

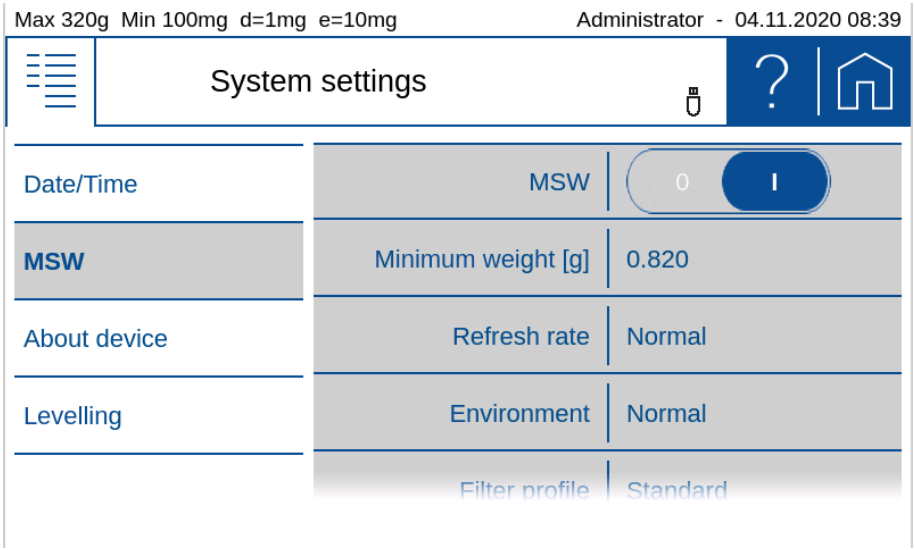
6.8 Minimal Sample Weight and Quality Management, MSW

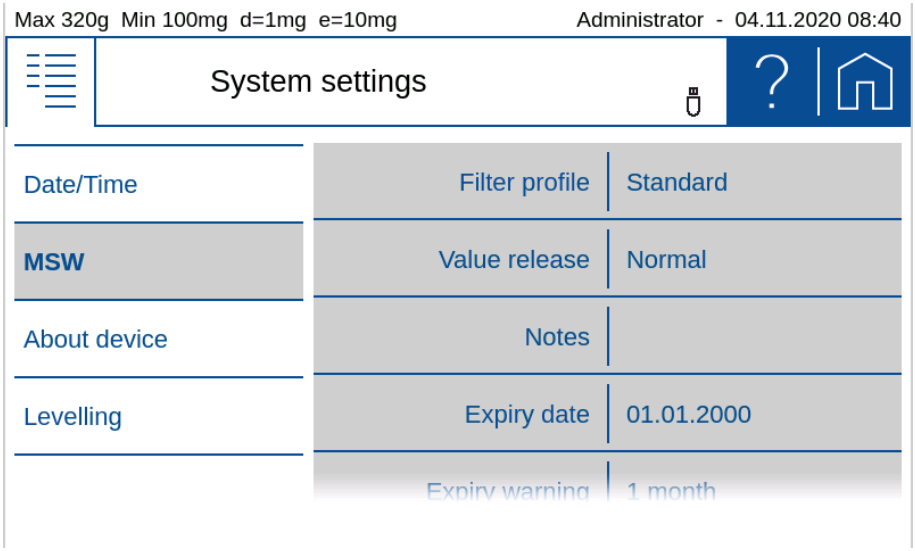
Only very small quantities are used in many applications and, thus, only a small part of the balance's weighing capacity is used. However the lower the weight the greater the relative measuring uncertainty. The minimum weight which is required is determined based on the QM criteria and of the statistical data from repeated weighing procedures. If work is performed based on the minimum weight application, this serves to ensure that the weighing results conform to the certificate specifications and, thus, to your QM guidelines.

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



6.8.1 Parameters for the Minimal Sample Weight





The balance's weighing parameters settings (refresh rate, environment etc.) are also fixed in such a way as to guarantee compliance with tolerances in future measurements and can only be changed by a user with Administrator or Quality Manager access rights.

- **Minimum sample** weight use or not
- **Minimum weight [g]** Sets the minimal weight as determined and calculate as described below.
- **Refresh rate** Fix this setting as used to determine the repeatability to calculate the minimal weight. For more information see the settings in "Weighing parameters".
- **Environment** Fix this setting as used to determine the repeatability to calculate the minimal weight. For more information see the settings in "Weighing parameters".
- **Filter profile** Fix this setting as used to determine the repeatability to calculate the minimal weight. For more information see the settings in "Weighing parameters".
- **Value release** Fix this setting as used to determine the repeatability to calculate the minimal weight. For more information see the settings in "Weighing parameters".
- **Notes** Space to enter notes.
- **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.
- **Expiry warning** Time when a warning is displayed in advance to the expiry date.

6.8.2 Determination of the Minimal Sample Weight

The required minimum weight should be determined based on 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 is determined it can be input into the balance. Up to three tare ranges can be defined with the corresponding minimum weights.

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

If work is performed based on 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.

Calculation of the Minimum Weight = k * R / U

The following parameters influence the minimum weight:

- **Extension factor (k)** (generally 2 or 3)**:** The extension factor determines the likelihood of occurrence. The factor is defined by the user or is defaulted.
- **Repeatability:** The repeatability is determined by the standard deviation of the balance on-site. It is determined by the ambient conditions, the nature of the goods being weighed and the balance settings.
- **Uncertainty (U):** The tolerable uncertainty in % is determined by the user or defined by standards.

6.8.3 USP Chapter 41, Determinatin, Calculation

Minimum Weight = k * R / U with per definition k = 2 and U = 0.1%

If work is conducted in accordance with the USP 41 (United States Pharmacopeia), the workflow differs from the previously described procedure. USP requires that the repeatability is determined based on at least 10 comparable weighed values. Additionally, the accuracy of the balance must be determined.

To determine the standard deviation according USP 41 the following steps are required:

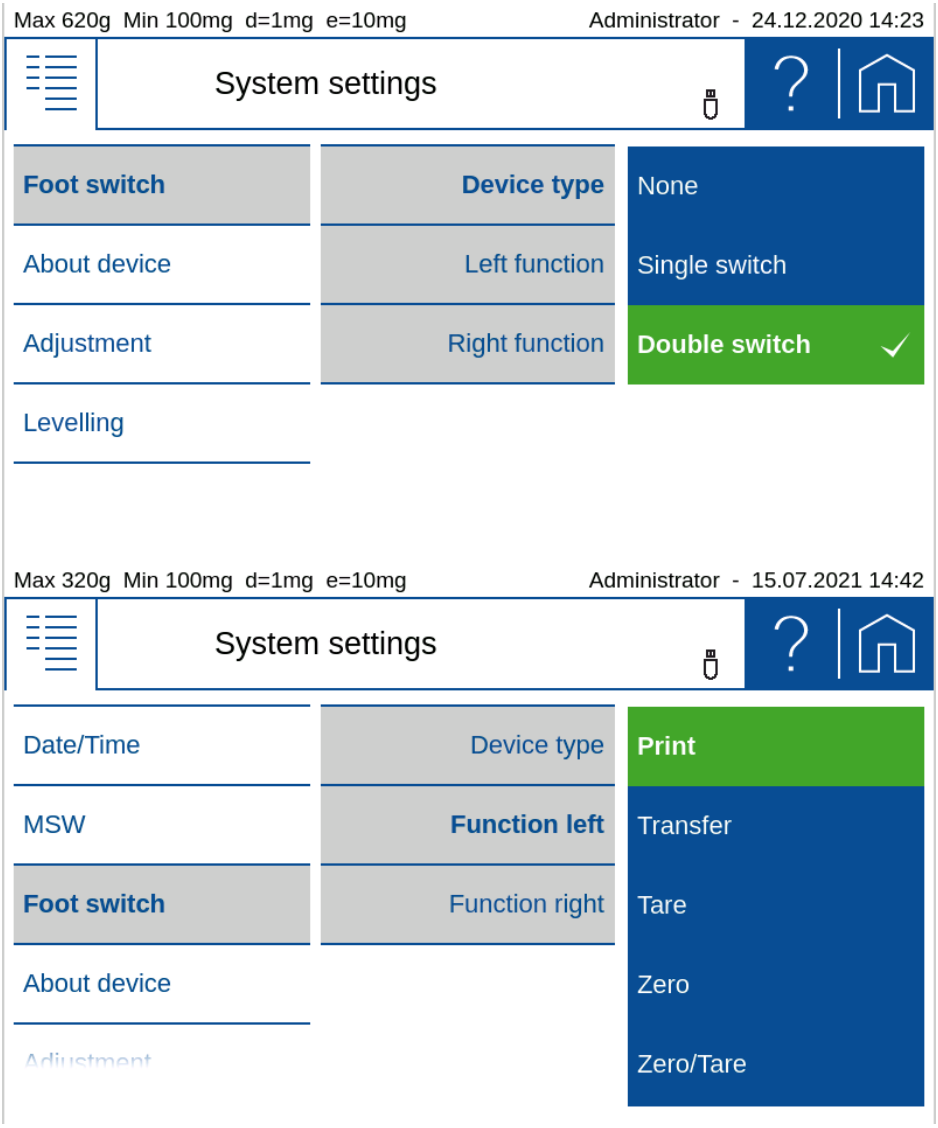
1. Determined the repeatability (Precisa recommend 10 measurements at 50% of the capacity)
2. Calculate the smallest possible weighing sample:
   - If the standard deviation < 0.41 digits: The smallest sample weight is 820 digits
   - If the standard deviation is >= 0.41 digits: The smallest sample weight is the calculated as follows:
   Minimum Weight = k * R / U =
   2 * repeatability / 0.1%
   or
   2 * repeatability * 1000
3. Check the accuracy of the balance by using a weight (maximum permissible error) of 0.03%.
   - The displayed value must not differ more than 0.1%
   - The value of the weight must be within 5% and 100% of the capacity
4. **Minimum Weight = k * R / U**

6.8.4 Notes for the Minimal Sample Weight

- Carry out the tests locally and if possible under the conditions that normally prevail.
- Ensure the best possible environmental conditions.
- Make sure that these conditions will not deteriorate significantly during normal operation.
- First configure the weighing parameters.
- Define the due date for the next review according to your QA requirements.
- Define the coverage factor and relative uncertainty according to your QA requirements.

6.9 Setting Foot switch

Different type of foot switches can be attached to the balance over the USB type A connector on the backside of the balance to enable to trigger functions by a foot instead by hand.



Device type
Define the type of foot switch what is attached

Function left / right
Define the function of the switches:

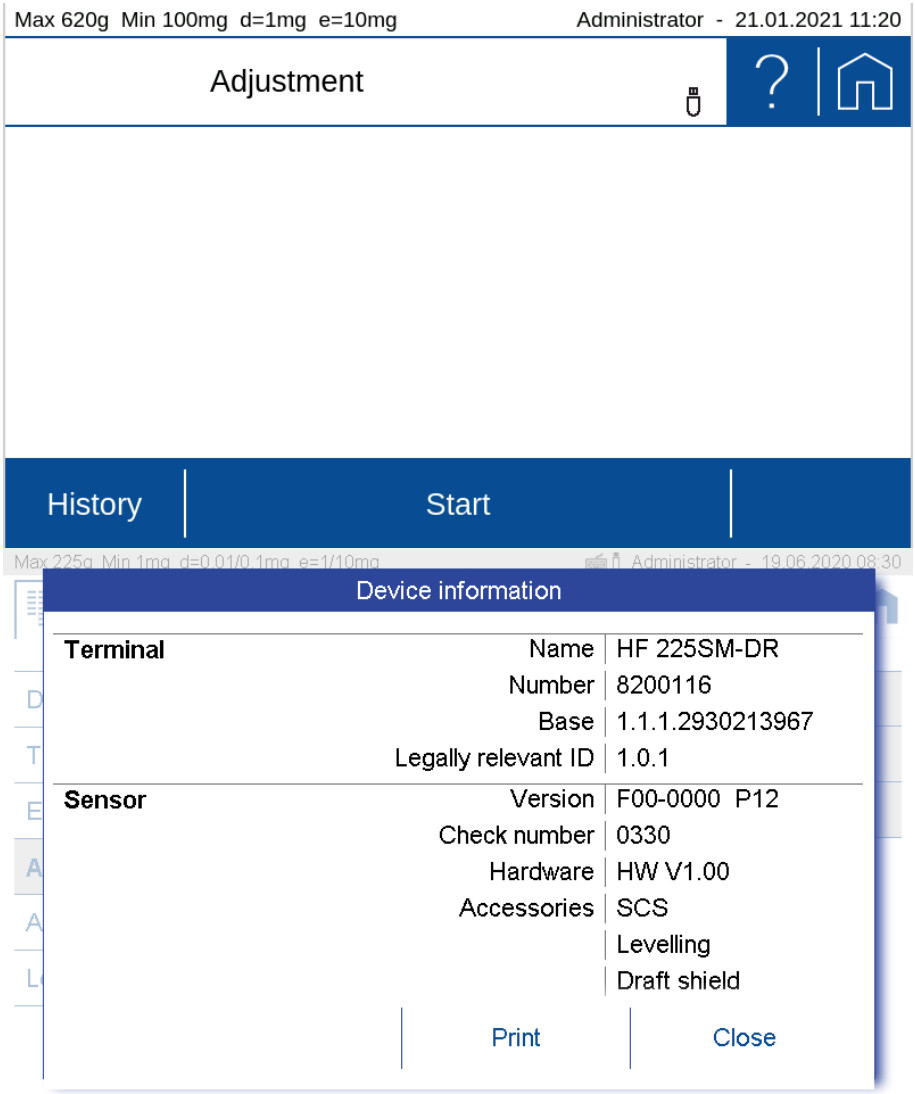
- **Off** for no functrion of the switch
- **Print** starts a printout, just like the **[Print]** key
- **Transfer** starts a measured value transfer, just like the **[Transfer]** key
- **Tare** Tare the balance, if the current load on the balance is out of the zero range => in this case the same function as the **[Zero/Tare]**key
- **Zero** Zero the balance, if the current load on the balance is within the zero range => in this case the same function as the **[Zero/Tare]** key
- **Zero/Tare** zero or tare the balance => exactly the same function as the **[Zero/Tare]** key
- **Stat. capture** stores the current weight into the statistics, if the Add-On 'Statistics' is activated

6.10 About 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.

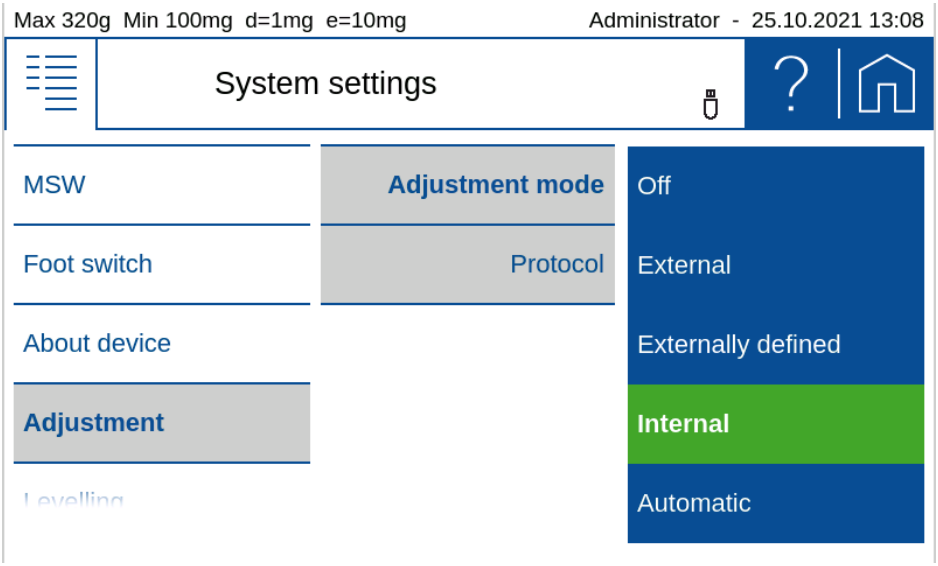


6.11 Adjustment

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.



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 these 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 2.5 Adjusting the balance.

6.11.1 Adjustment mode off

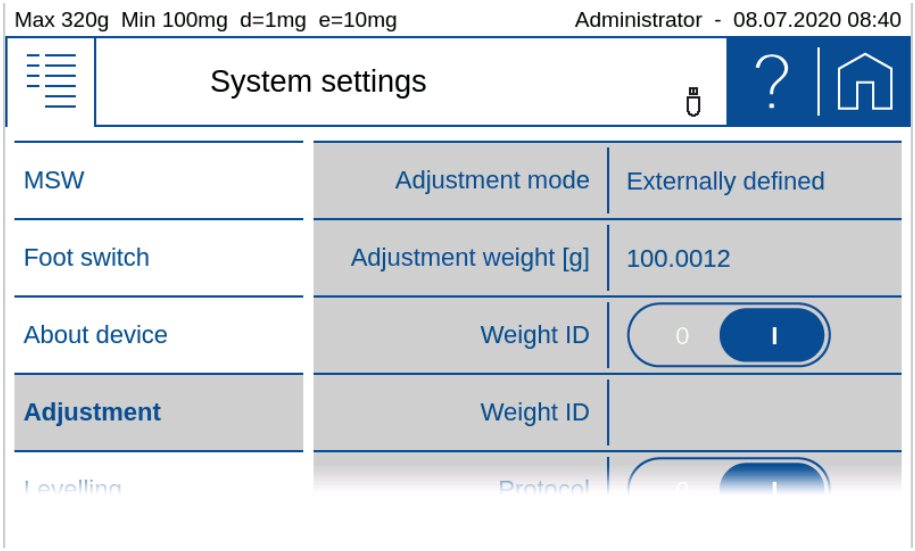
This modus prevents the balance from adjustment.

6.11.2 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.

6.11.3 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.



6.11.4 Adjustment mode Internal

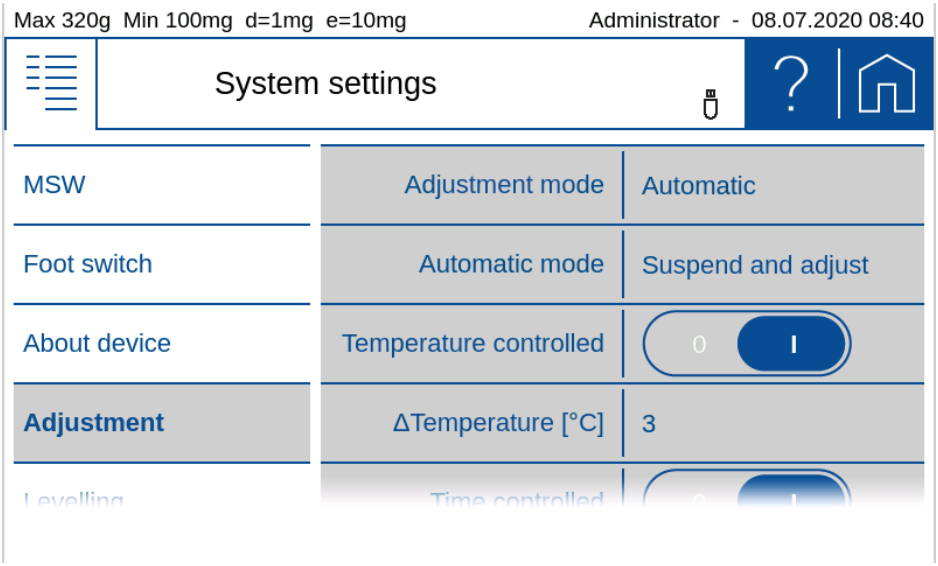
The adjustment is triggered manualy and executed by the internal weight SCS.

6.11.5 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.



NOTE
Indipendend of these adjustment modes, the balance can always be adjusted explicitly in the Adjustment application, see 2.5 Adjusting the balance.

6.12 Levelling

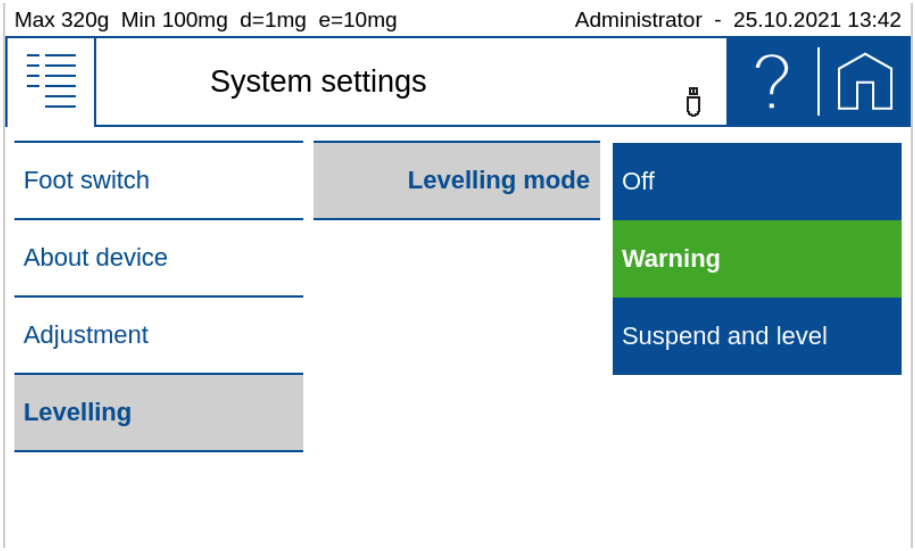
The balance must be set up exactly horizontally in order to function properly. The balance is therefore equipped with an electronic level indicator for level control and two rotating feet, which can be used to compensate for small differences in height or unevenness in the balance area.

The leveling itself is carried out in the leveling application, see 2.4 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.

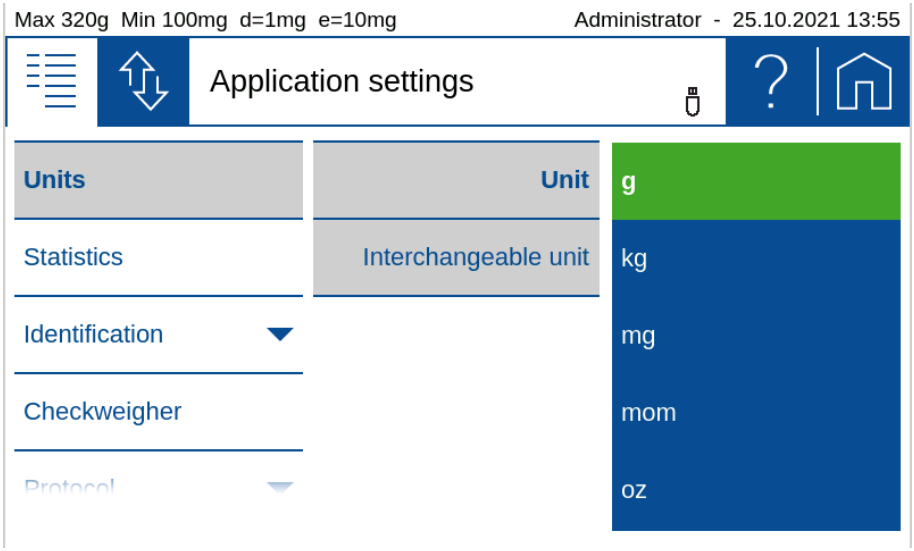
- **OFF**:
  No warning
- **Warning:**
  As soon as it is determined that leveling is necessary, the scale shows a warning until the scale is correctly leveled.
- **Suspend and level:**
  As soon as the leveling is necessary, the operation is stopped until the scale is correctly leveled.



NOTE
Further information on these 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

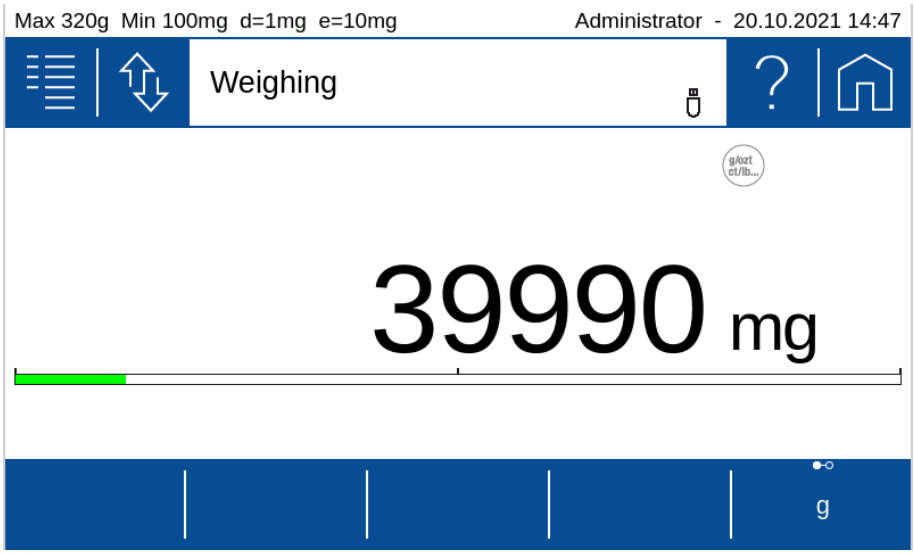
With the aid of the Add-On function 'Units' you can display and print out the measuring result in different units. The activity of the Add-On function is indicated in current application screen by a small icon.

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.

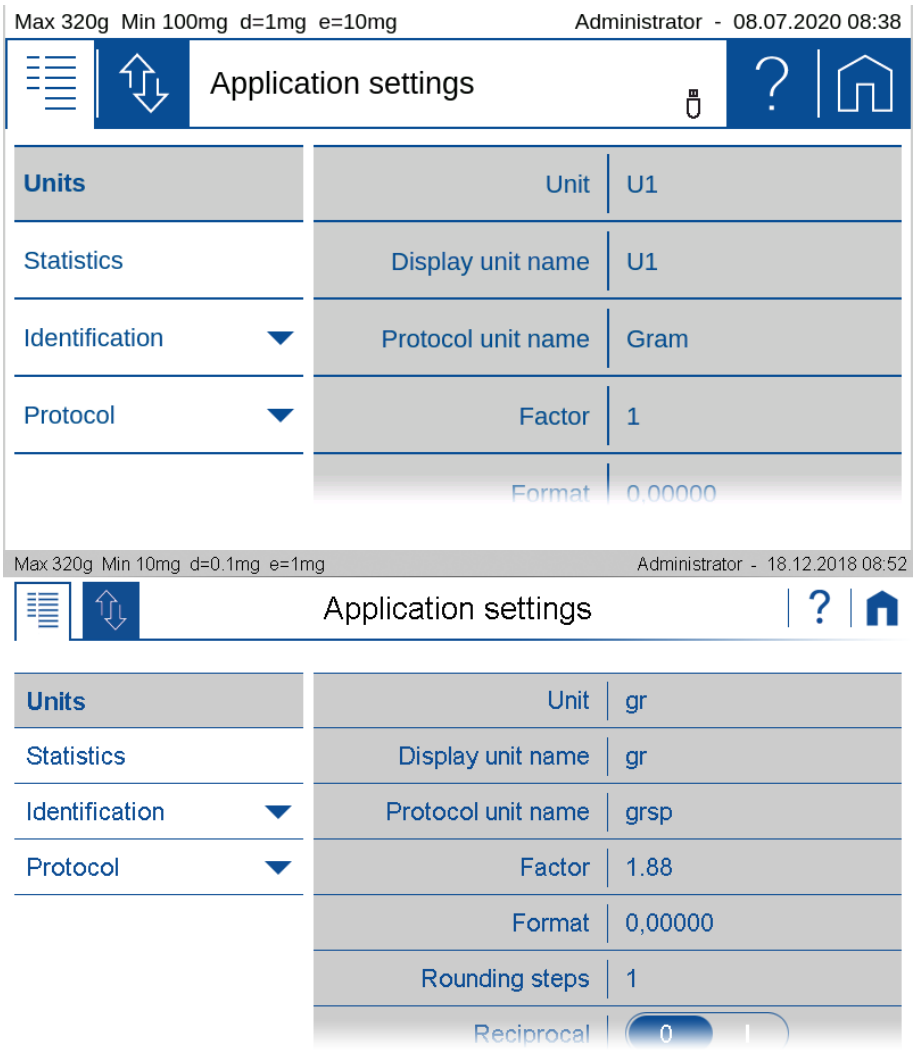
Remark: Further information can be found in the context help of the soft button Management.



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 Add-On function 'Statistics' can log all measuring data in order to provide you 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 soft buttons of the functions what this Add-On provides, such as: **[Save], [Delete Last Sample]**, **[Show]**, **[Print Statistics]**, **[Delete Statistics]**, etc. Define the appearance of the Info section with the statistics information such as mean value, standard deviation, number, maximum, etc.

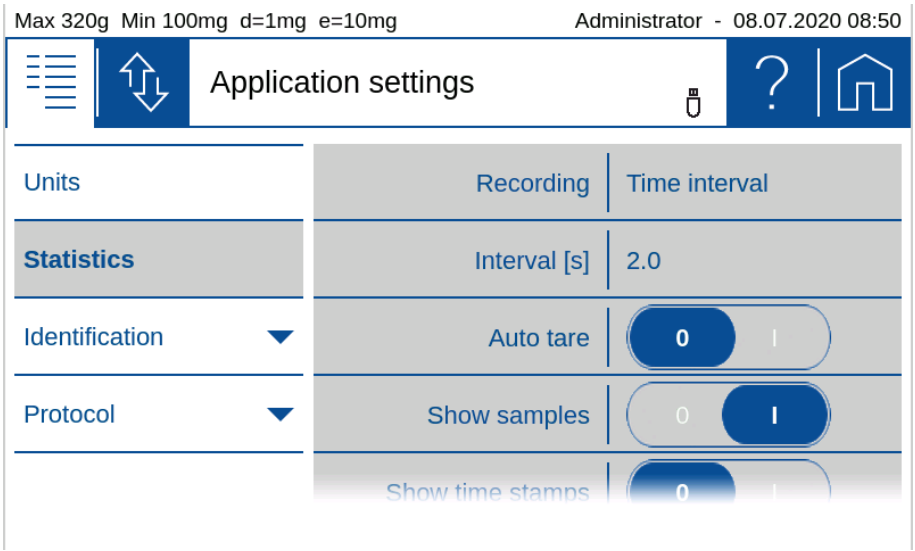
8.1 Statistics Generall settings

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

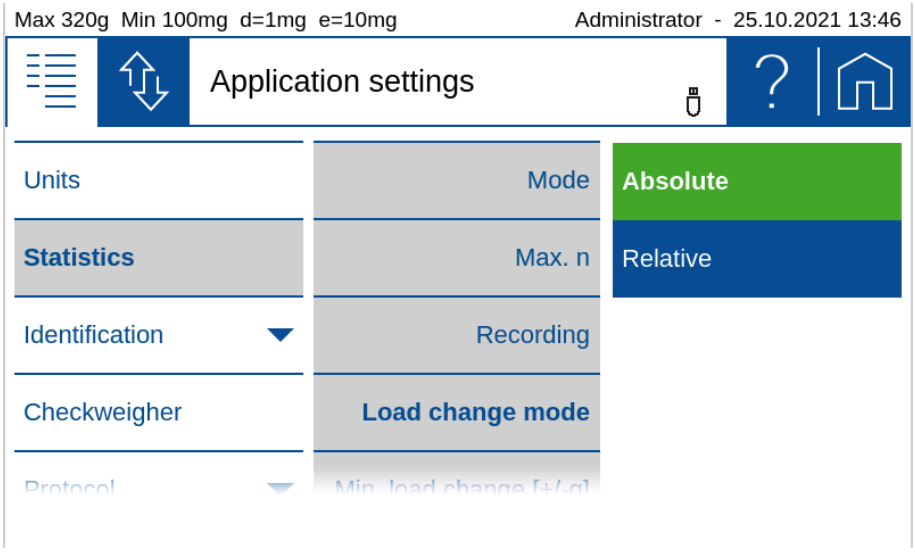
8.2 Statistics Recording settings

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

- **Manually:**
  Manual Value are stored by pressing a soft button. Depending on the settings the soft 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 600 s



- **Load-change-Mode absolute 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.

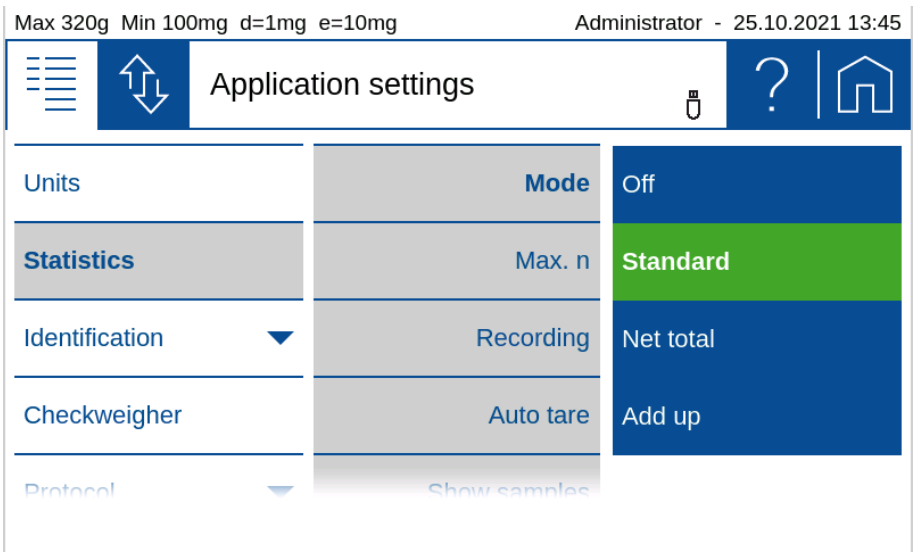
Load-change-Mode relative:
The percentage value defines both the range which must be left between measurements and the limits within which the sample values must lie.
This mode allows the measurement of series with samples of the same weight, e.g. a series with samples of 100 g, where the first sample 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%).

8.3 Statistics Mode

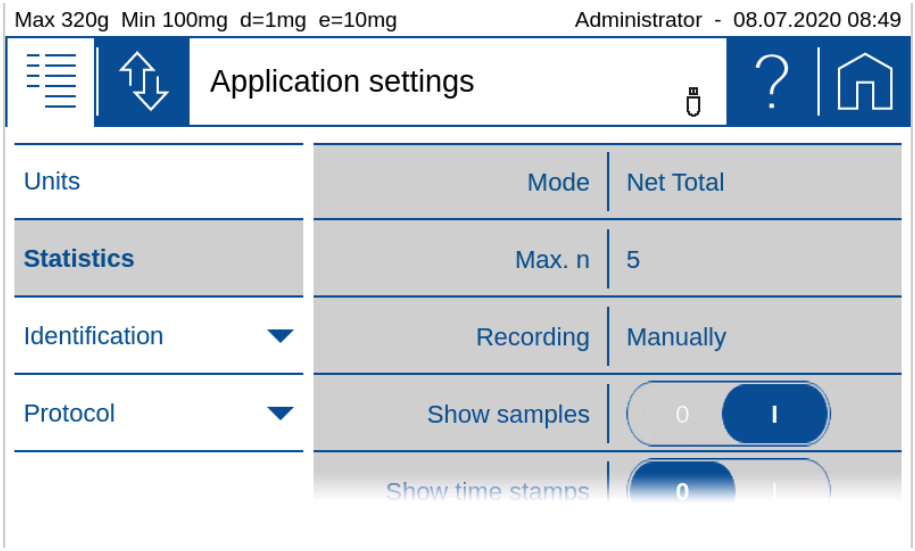
By selecting a mode, the Add-On function Statistics is switched on for the current application, in mode off the Add-On is not active.

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

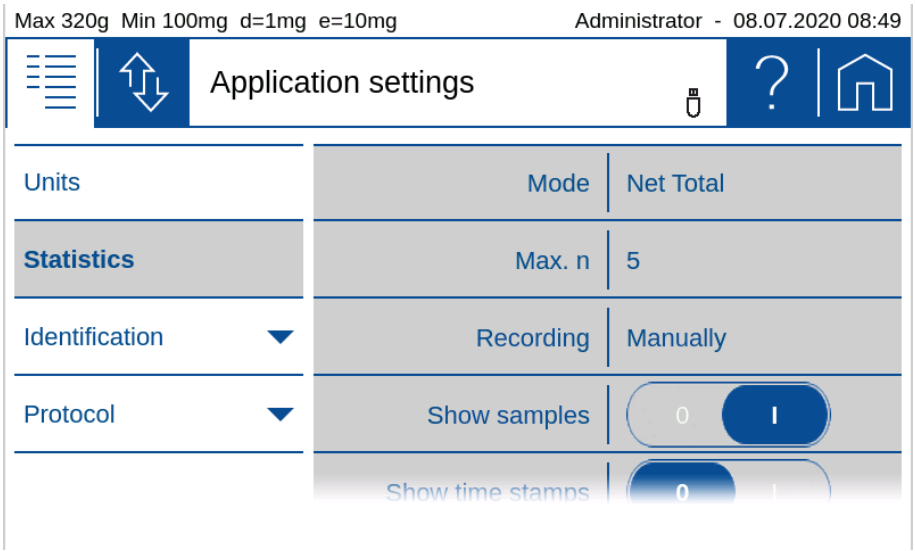
- **Standard:**
  Normal statistics without special additional functions.



- **Net Total:**
  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.



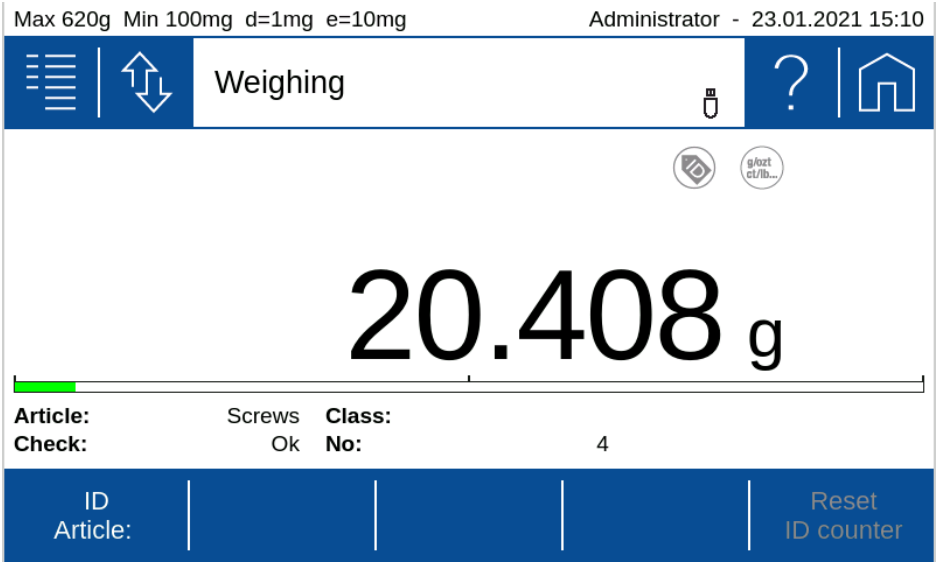
- **Add Up:**
  Serves for different components which in total exceed the weighing capacity and are mixed or weighed in a separate container.
  - The automatic tare is switched off.
  - Only the total and the number of samples or components are displayed as the result.



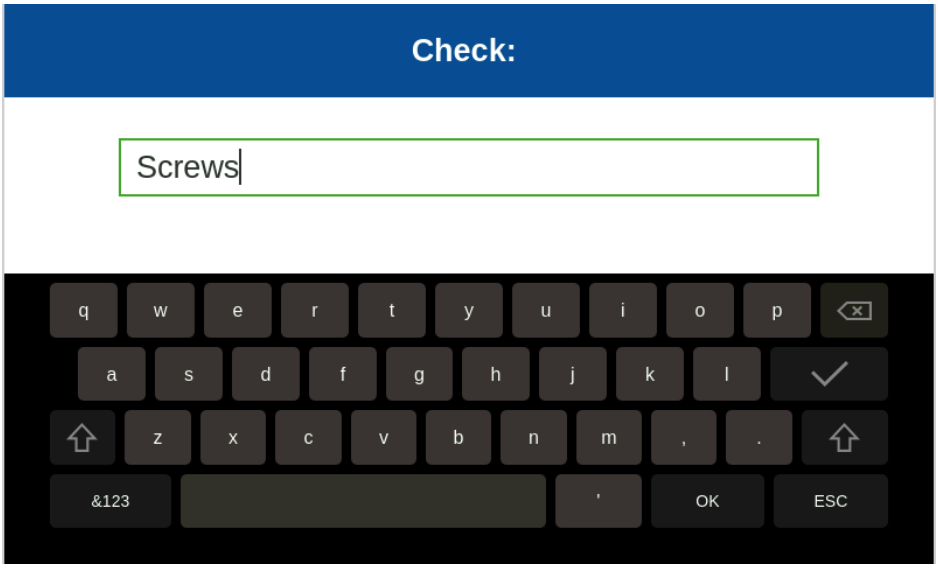
9 Add-On: Identification

With the Add-On function 'Identification' you can insert free identifications, labels, batch numbers or sample counters for measured values and much more into your protocol. The same information can also be shown on the display, see 5.3 Info section.

Identifications can be used in many different ways as e.g. different types of articles are to be tested in different lots and different quantities/samples of the article per lot. The number is entered e.g. with a barcode reader, the lot number per keyboard and the number of the sample is counted automatically.

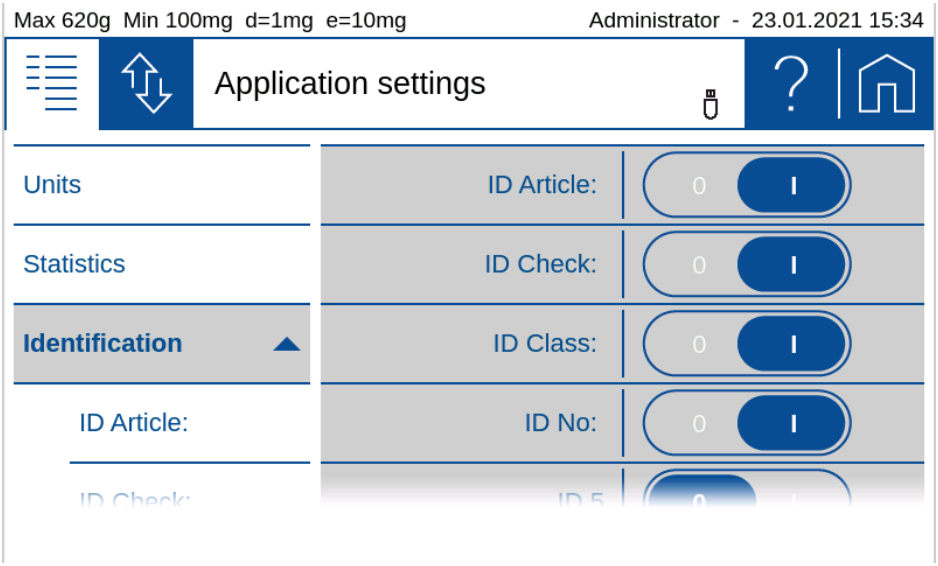


To change the content of an identifier you can place the soft button of the identifier (e.g. ID Article) on the 'Action bar' or use 'Auto entry' what open a text field automatically for each printout.

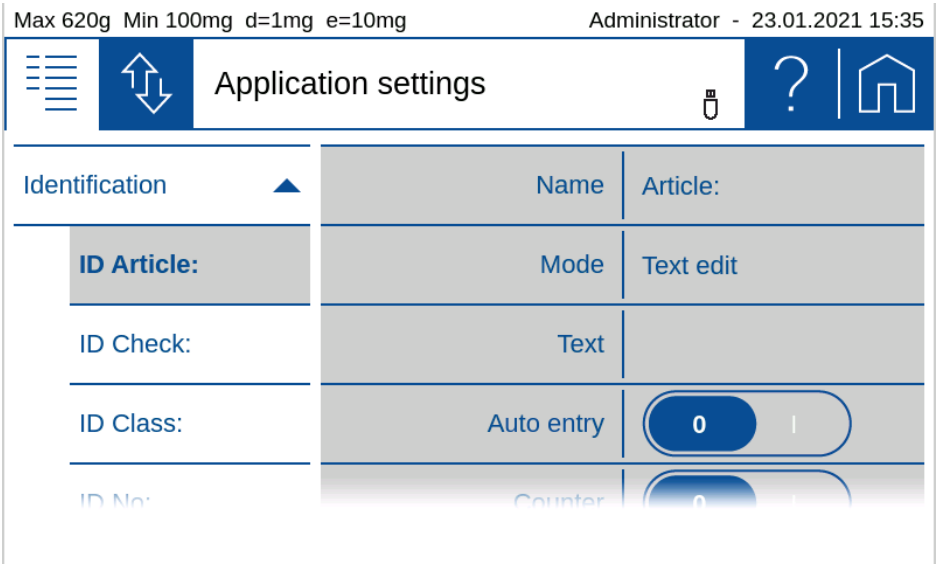


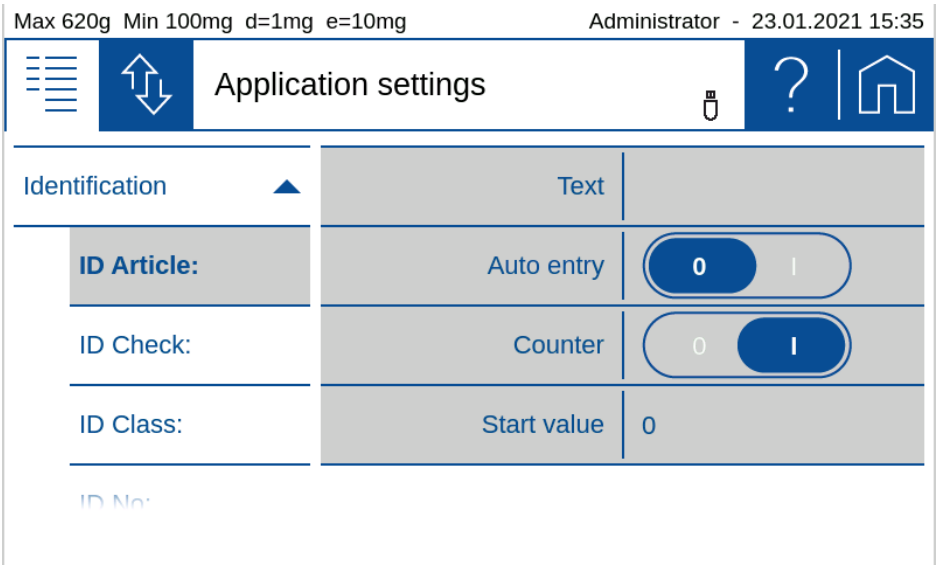
9.1 Setting up identifications

The behavior of the identifications can be defined in many different by selection of one of the available identifications. The identifications have default names ID 1, ID 2, ID 3, … what different than shown.



Once an identification has been selected the menu as below appears to set it according to the requirement.





- **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:** see 9.1.1 Identification, Mode
  Describes how the identification behaves, see below.
- **Text:**
  Enter the default text
- **Auto 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 soft button.
- **Counter:**
  Switches on the counter what is printout after the name and the text content. Additional it enables to enter a start value for the counter what is increment before each printout
- **Start value:**
  For automatic incrementation of counter

9.1.1 Identification, Mode

Describes how the identification works:

- **Text fixed:**
  The text cannot be changed.
- **Text edit:**
  The text can be changed, the change is retained for all subsequent weighings until it is overwritten.
- **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.

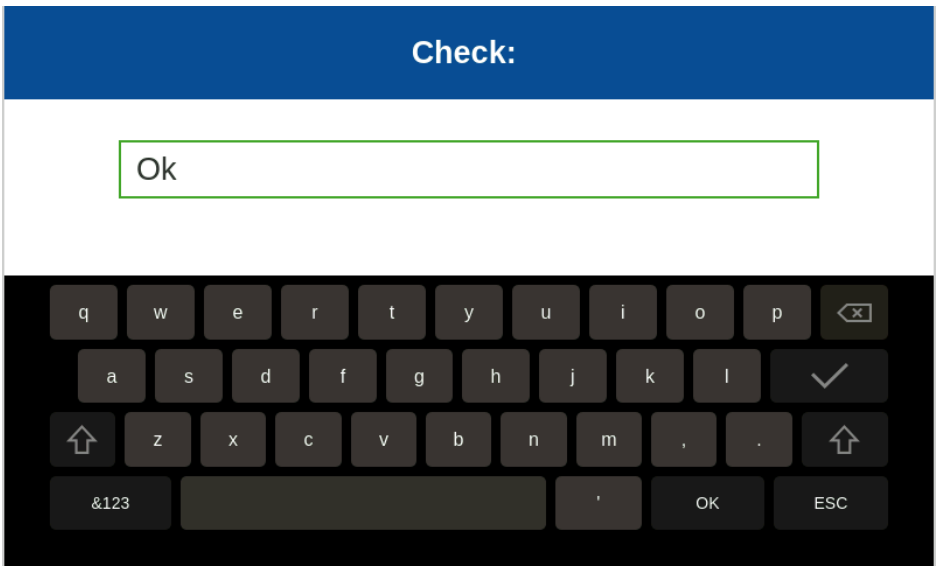
9.1.2 Example for Identifications

- Identifier ID 1 is used as to printout the article name which can be changed anytime by pressing the soft button **[ID Article:]** on the 'Action bar'
- Identifier ID 2 is used to printout a check has passed with "Ok" or "No" what needs to be input for each weighing
- Identifier ID 3 is used to printout a classification about how the check was passed with "A", "B", … what needs to be input for each weighing
- Identifier ID 4 is used to printout a counter for the checks

Setting	ID 1	ID 2	ID 3	ID 4
Name	Article:	Check:	Class:	No:
Mode	Text edit	Text edit	Text volatile	Text fixed
Text	-	Ok	-	-
Auto entry	Off	On	On	Off
Counter	Off	Off	Off	On
Start value	-	-	-	0

To get a report printout as below you need to place the identifiers in the protocol layout with the Add-On 'Protocol'.

As soon as the **[Print]-key** is pressed an input field pops up to input the check result and another one to input the classification.



The report for 4 subsequent weighings could look like this:

```
Article: Screws
Check: Ok
Class: A
No: 1
+ 20.407 g

Article: Screws
Check: Ok
Class: B
No: 2
+ 20.405 g

Article: Screws
Check: No
Class:
No: 3
+ 20.400 g

Article: Screws
Check: Ok
Class: A
No: 4
+ 20.408 g
```

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

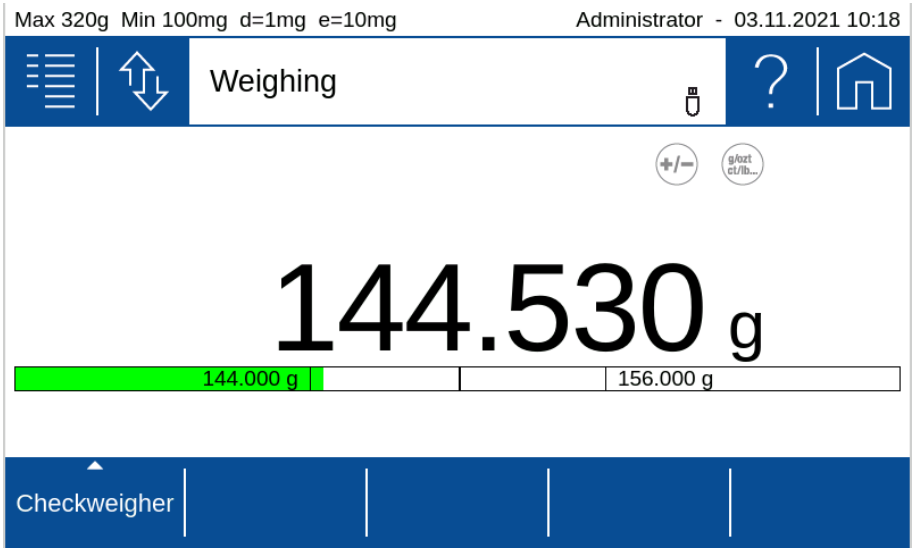
10 Add-On: Checkweigher

With the Add-On function 'Checkweigher' you check the measured values of an application for its agreement with a defined reference (nominal weight, nominal pieces or nomila percentage) plus/minus an allowable tolerance limit (upper limit, lower limit).

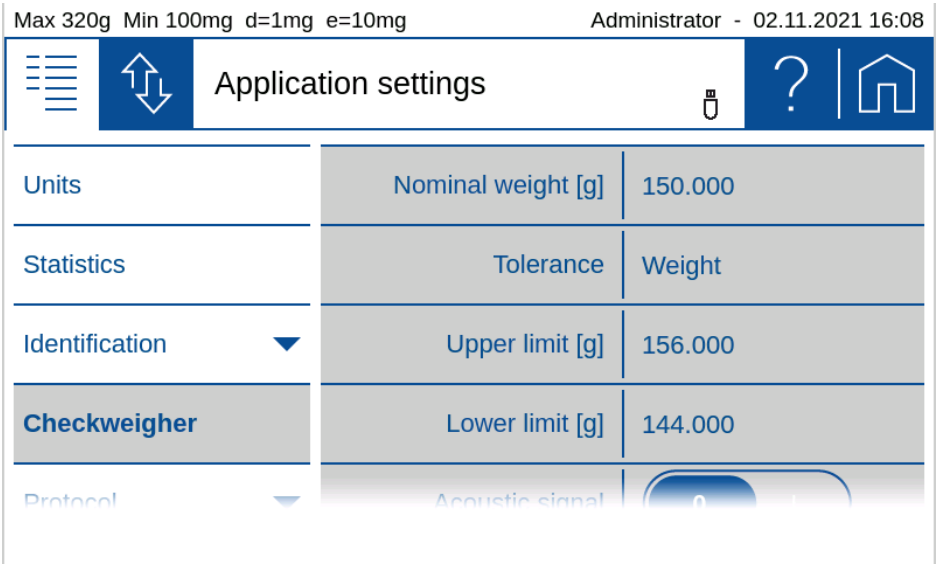
The nominal value can either be set manually in the menu or with the soft button **[Set nominal]** as well as be captured directly by the balance with the soft button **[Capture nominal]**; the tolerance limits can be set manually in the menu or with the soft buttons **[Set upper limit]** and **[Set lower limit]**.

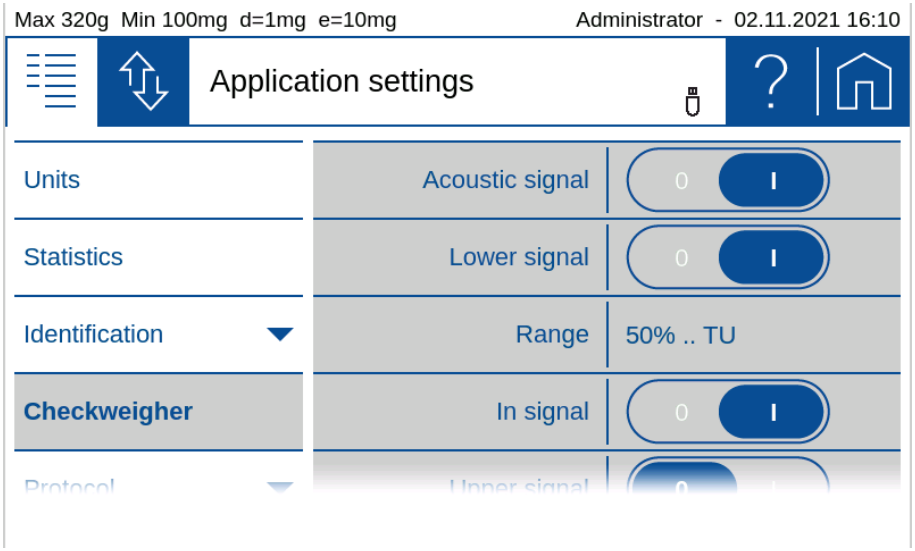
When the Checkweigher is activated, by default the soft button group **[Checkweigher]** is placed on the 'Action bar' with the soft buttons **[Capture nominal]**, **[Set upper limit]** and **[Set lower limit]**.

To use this Add-On efficiently, you should adapt the balance to your needs using the customizer. Assign the 'Action bar' with the necessary soft buttons and define the appearance of the 'Info section' with the checkweigher information.



10.1 Setting up the Checkweigher

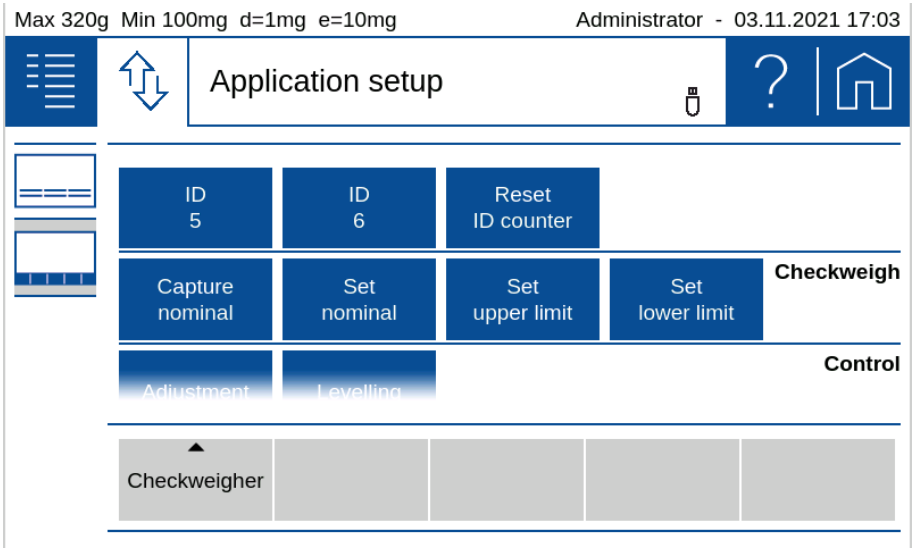


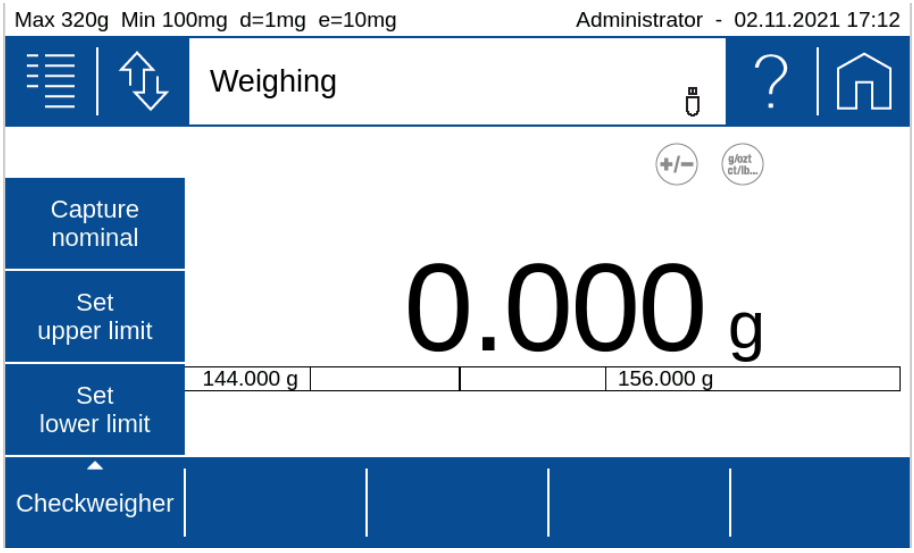


- **Mode:**
  Switch on/off the check weigher
- **Nominal [g, pcs, %]:**
  Manually set a value as the target value
- **Tolerance [Weight, Percent, PCS]:**
  Choose to set the limits/ tolerances as a weight, in % or as pcs
- **Upper limit** or **Tolerance +[g, pcs, %]:**
  Manually set a upper limit or positvis tolerance what is still judged as good
- **Lower limit** or **Tolerance - [g, pcs, %]:**
  Manually set a lower limit or negative tolerance what is still judged as good
- **Accustic Signal:**
  Switch on/off the accustic signal
- **Lower Signal:**
  Switch on/off the accustic signal for values below the lower limit
- **Range (of the lower signal):**
  Choose in wich range the lower signal is appearing
- **In Signal:**
  Switch on/off the accustic signal for values in ther range from lower to upper
- **Upper Signal:**
  Switch on/off the accustic signal for values above the upper limit

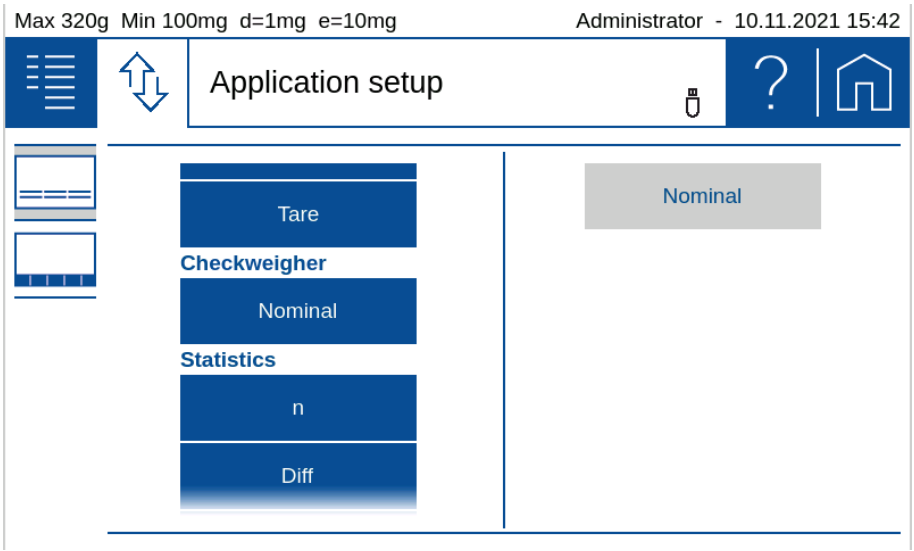
10.2 Customize the Checkweigher

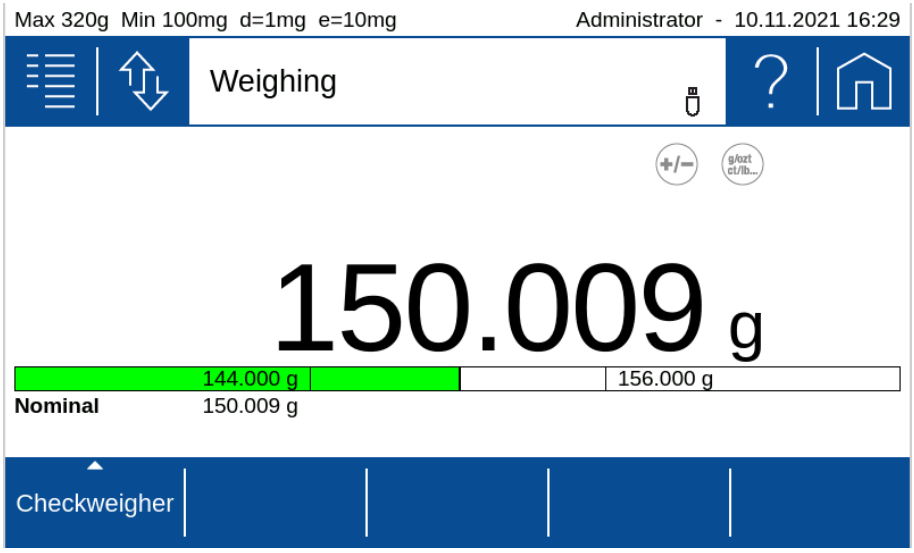
As mentioned above assign the 'Action bar' the necessary soft buttons like **[Set nominal], [Capture nominal]** to easy change the nominal value or set new tolerance limits with the soft buttons **[Set upper limit]** and **[Set lower limit]**.





Add in the 'Info section' the necessary checkweigher information to be showed.





10.2.1 Example for protocol output

Values in the lower or upper range are marked on the protocol output with '<' or '>'.

For a protocol with current measurement:

```
< +  143.513 g
  +  144.530 g
> +  167.605 g
```

For a protocol with Net value:

```
Net                < +  143.513 g
Net                  +  144.530 g
Net                > +  167.605 g
```

For a protocol with Net value, Gross value, Tare value:

```
Net                < +  143.513 g
Gross              < +  243.513 g
Tare                 +  100.000 g
```

For a protocol with Nominal, Upper limit, Lower limit:

```
Nominal                 150.009 g
Upper limit             156.000 g
Lower limit             140.000 g
```

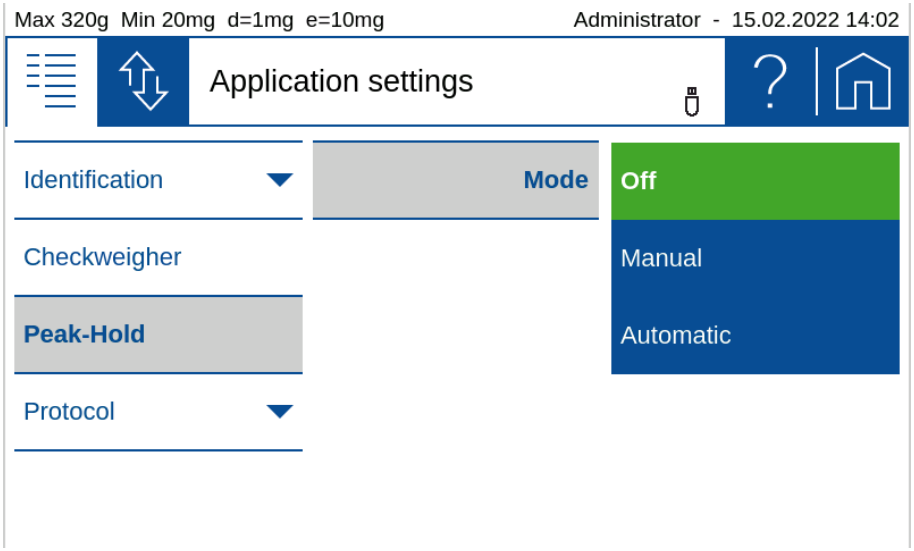
For Statistics protocol with current samples:

```
  10:               < +  143.513 g
  11:                 +  144.530 g
  12:               > +  167.605 g
```

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

11 Add-On function Peak-Hold

With the aid of the Add-On function Peak-Hold you can determine/hold the maximum value of a weighing or a series of weighings.



11.1 Application examples

To explain the function, the possible applications are shown here by means of examples.

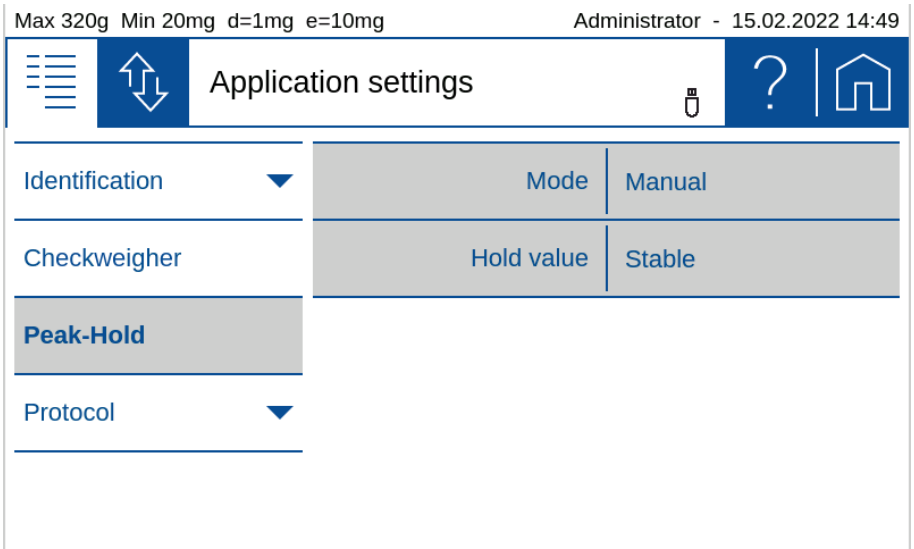
Case 1 "Hold value Stable "

The item to be weighed covers the display. The value can only be read after the goods to be weighed have been removed. The hold function freezes the measured value for a specific time, see 11.1.1.1 Hold value Manual / Stable and 11.1.1.2 Hold value Manual / Each.

Case 2 "Hold value each (any)"

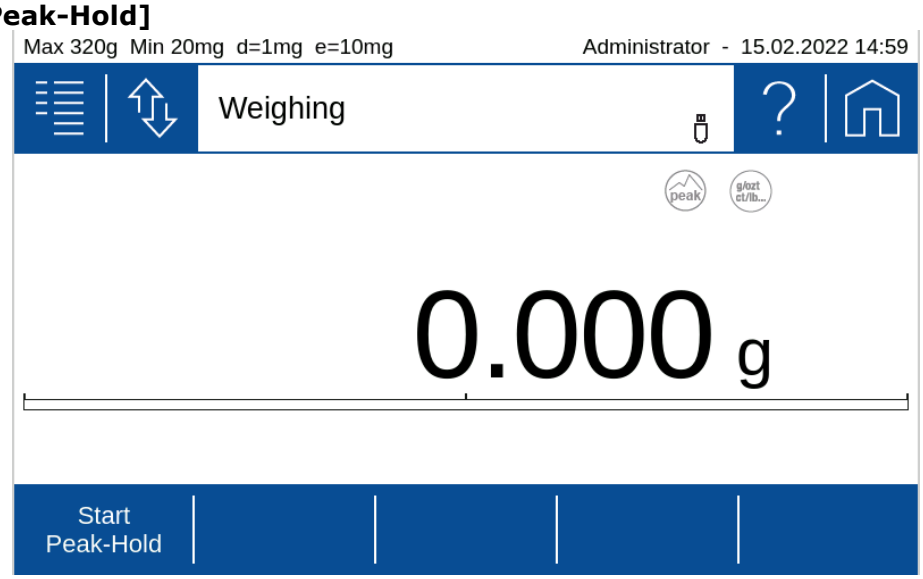
For measuring rudimentary material properties, e.g. force required for a certain degree of deformation or for rudimentary testing of a release force, see 11.1.2.1Hold value Automatic / Stable and 11.1.2.2 Hold value Automatic / Each.

11.1.1 Mode Manual

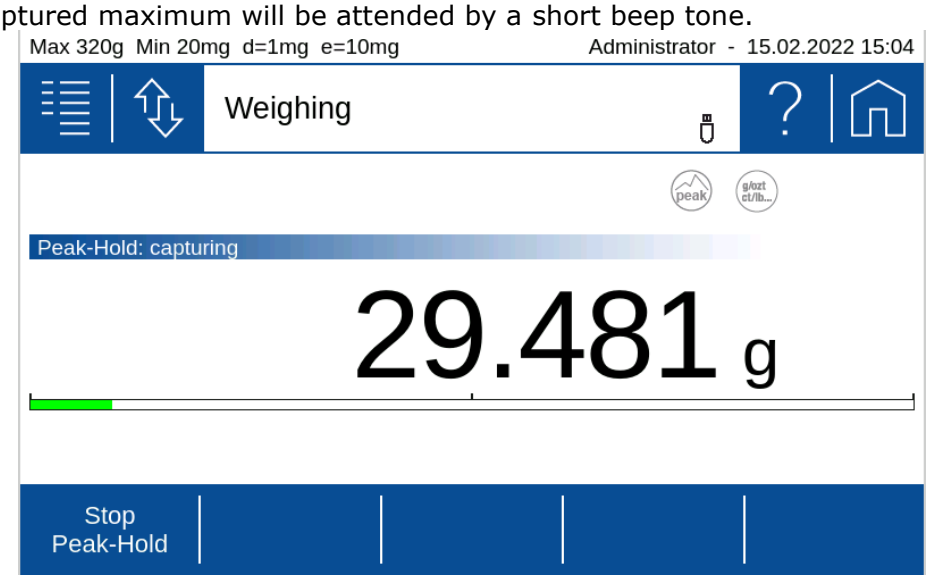


11.1.1.1 Hold value Manual / Stable

Press **[Start Peak-Hold]**

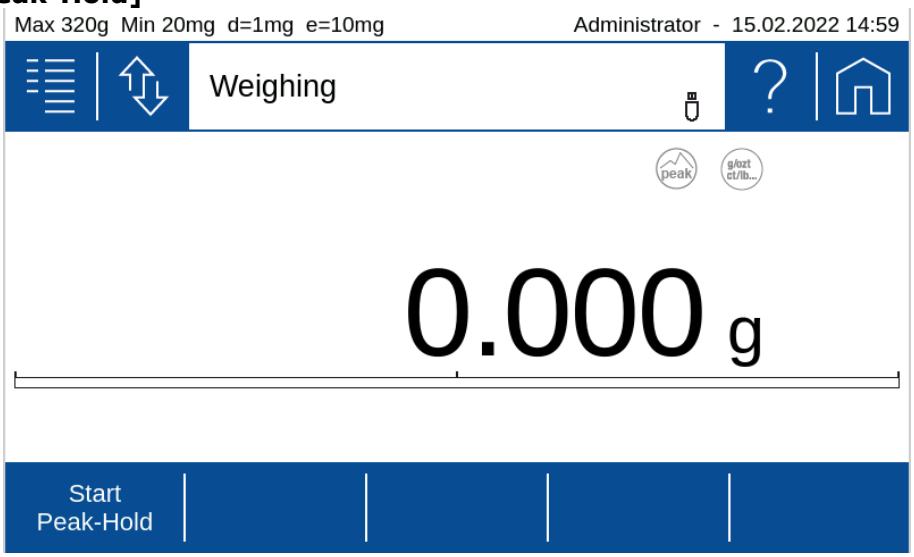


Place the weight on the weighing pan. The maximum measured **stable** weight value is displayed and held until **[Stop Peak-Hold]** is pressed.
Each newly captured maximum will be attended by a short beep tone.

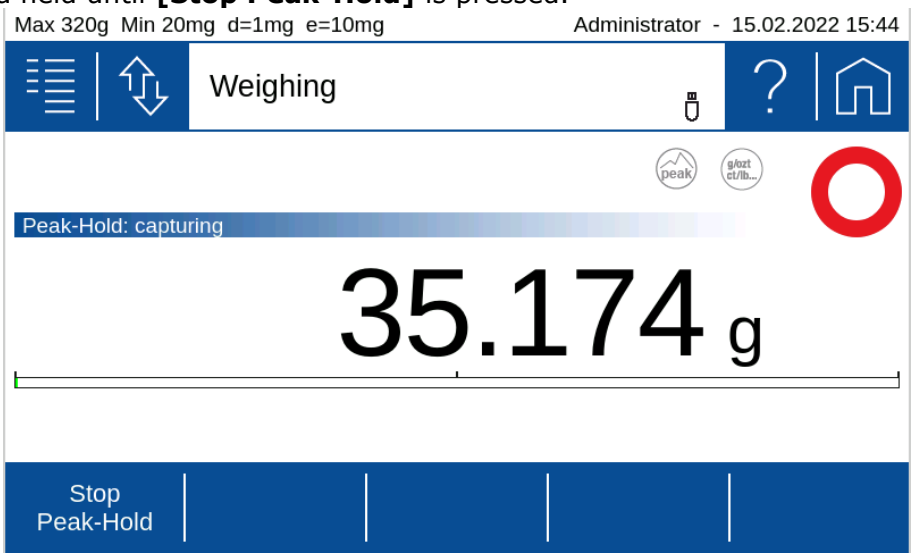


11.1.1.2 Hold value Manual / Each

Press **[Start Peak-Hold]**

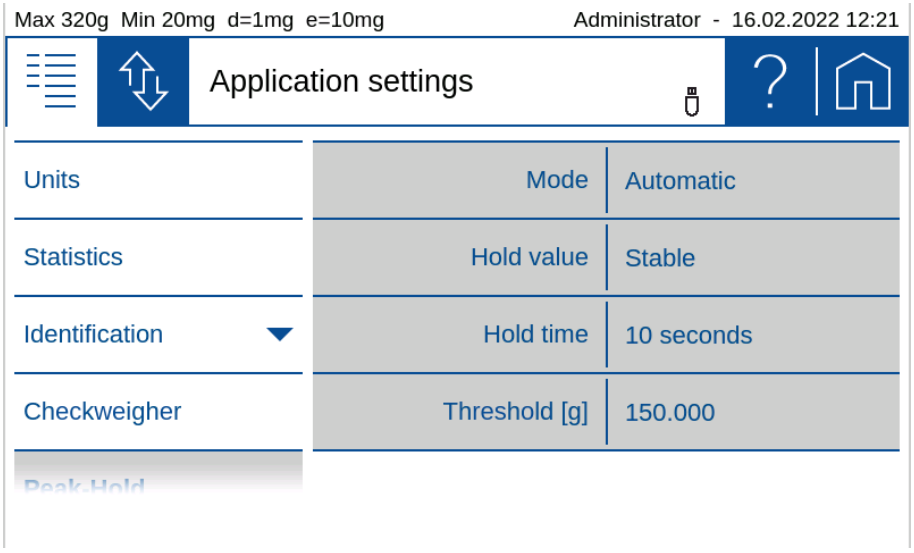


Place the weight on the weighing pan. The maximum measured **unstable or stable** weight value is displayed and held until **[Stop Peak-Hold]** is pressed.

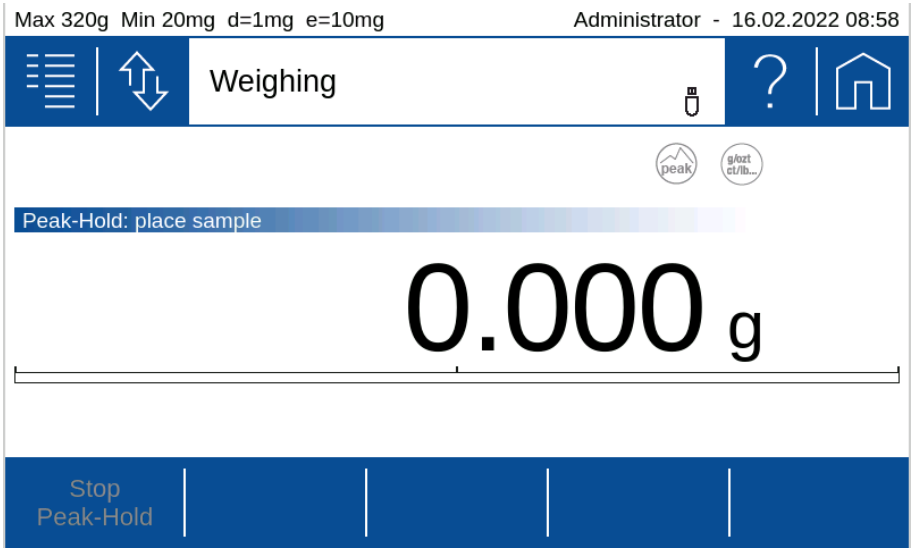


11.1.2 Mode Automatic

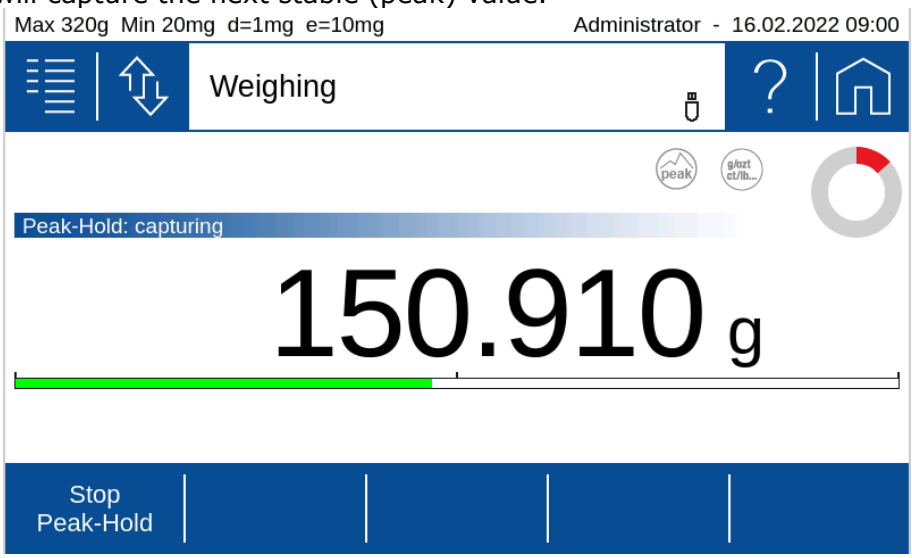
11.1.2.1 Hold value Automatic / Stable



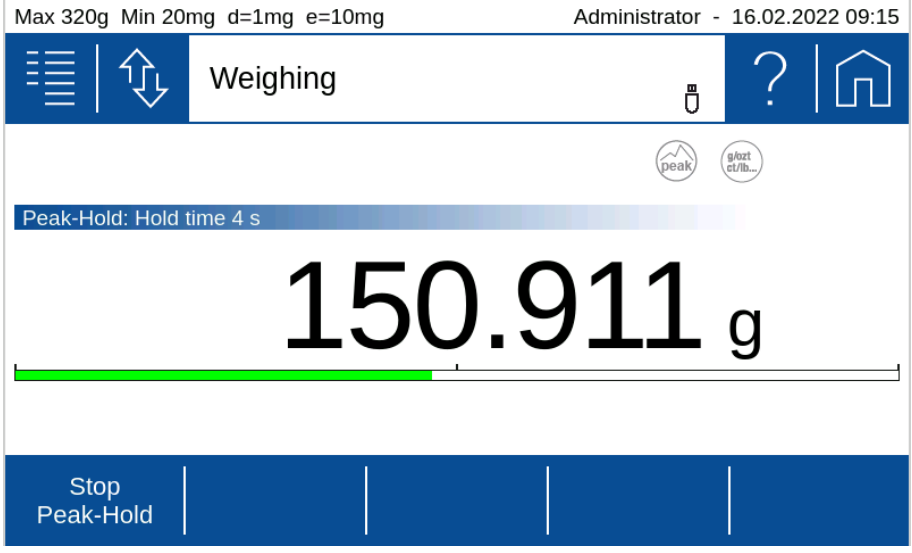
Example:
The item to be weighed covers the display. The value can only be read after the goods to be weighed have been removed. The hold function freezes the measured value for a specific time.



Place your item on the weighing pan. As soon as the **threshold** value of 15g has been exceeded the Peak-Hold will capture the next stable (peak) value.

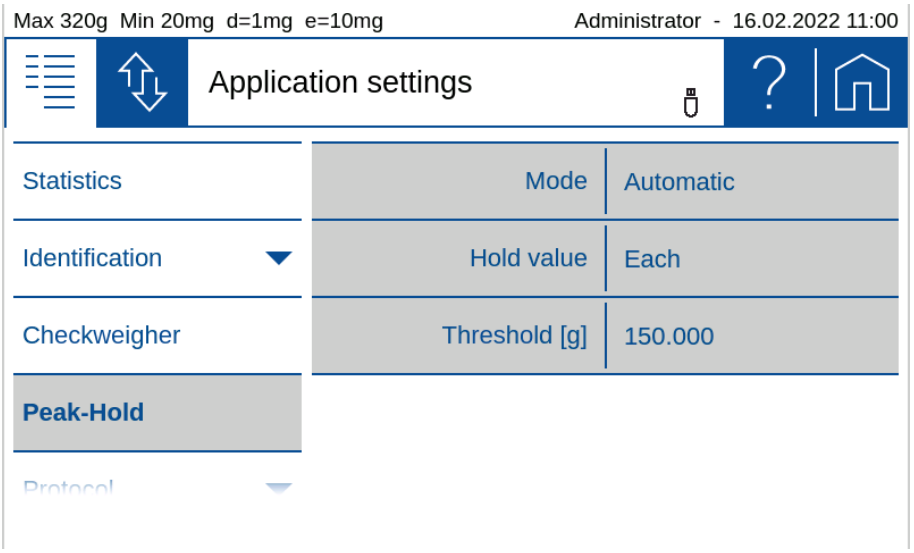


As soon as the weight on the pan is stable, Peak-Hold indicates it by a **short beep tone** and displays the **stable weight value** for 10 seconds **(hold time).** During this time you can remove the item from the balance pan and view the captured weight value on the balance display.



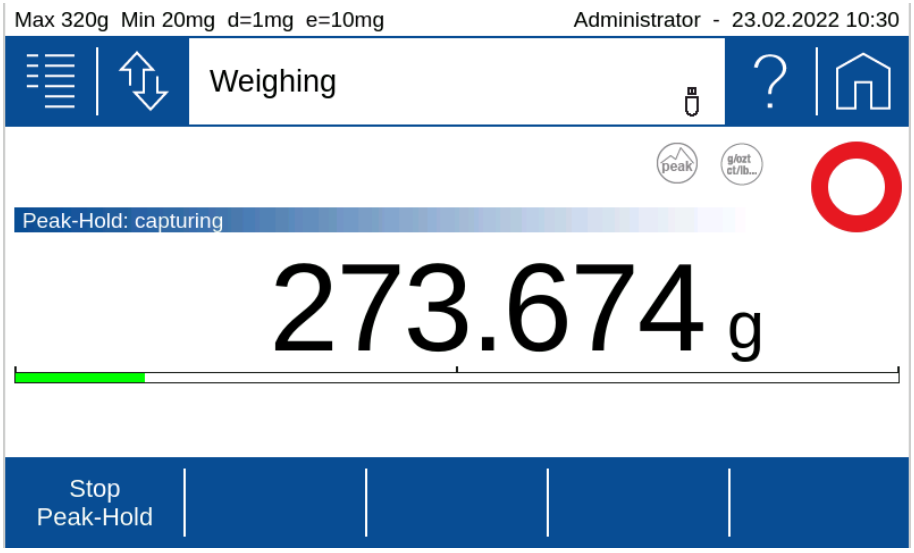
(After the hold time has run out. the peak-hold is cleared and the display shows the current weight on the pan again.)

11.1.2.2 Hold value Automatic / Each



Example:
For measuring rudimentary material properties, e.g. force required for a certain degree of deformation or for rudimentary testing of a release force.

Load the balance with the weight force you want to examine. As soon as the **threshold value** of 150 g has been exceeded the Peak-Hold will constantly show **the peak of the measured values**.



To end the examination press [Stop Peak-Hold].

11.1.3 Indication in protocols

The displayed peak value is represented with the protocol item "Current measurement".

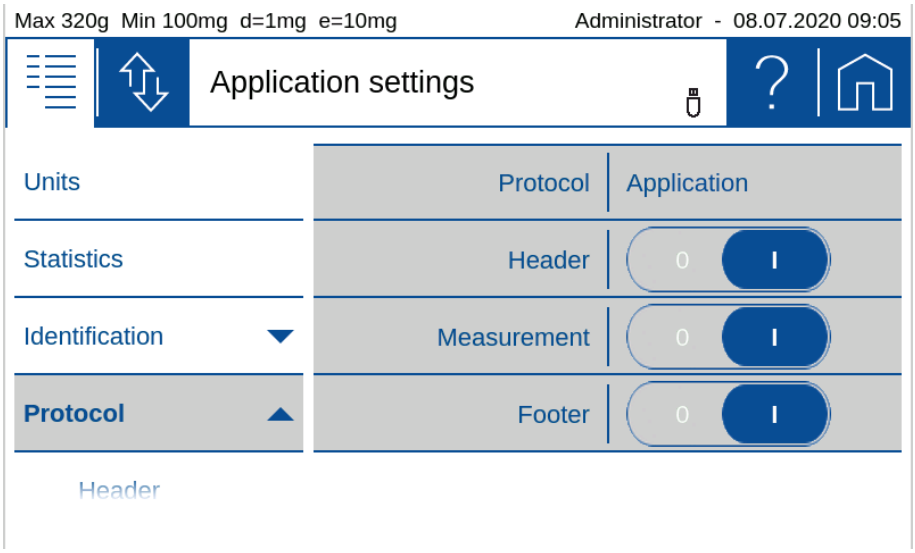
12 Add-On: Protocol

A protocol consists of the 3 blocks 'Header', 'Measurement' with the corresponding outputs and the 'Footer'. These blocks must needs to 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 filled with content as text paragraphs and layout with various protocol items.

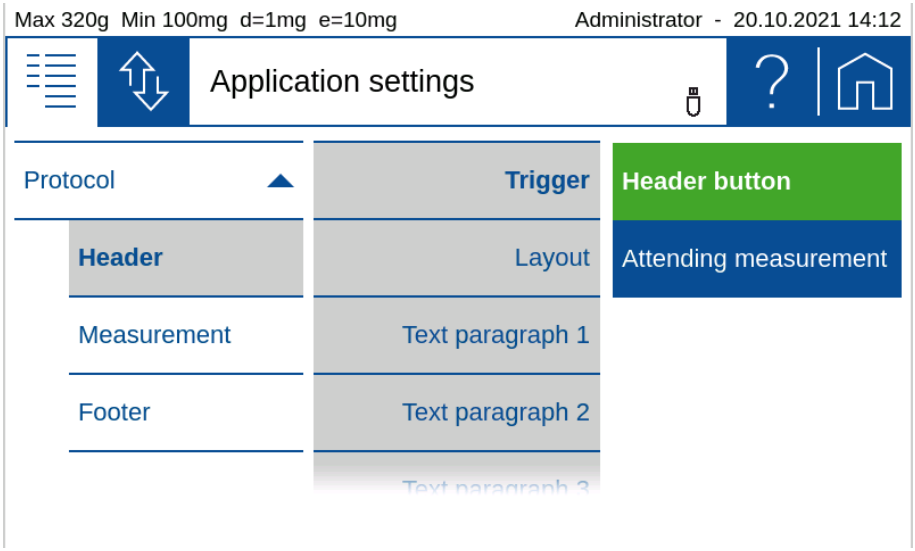


- **Header:**
  Is usually printed out at the beginning with information about company, laboratory, device identification, date, time, batch, etc.
  The 'GLP header' block is a globally available header which is defined in the system settings, see 6.3 Protocol, GLP Header, GLP Footer.
- **Measurement:**
  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.

12.1 Protocol Header

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

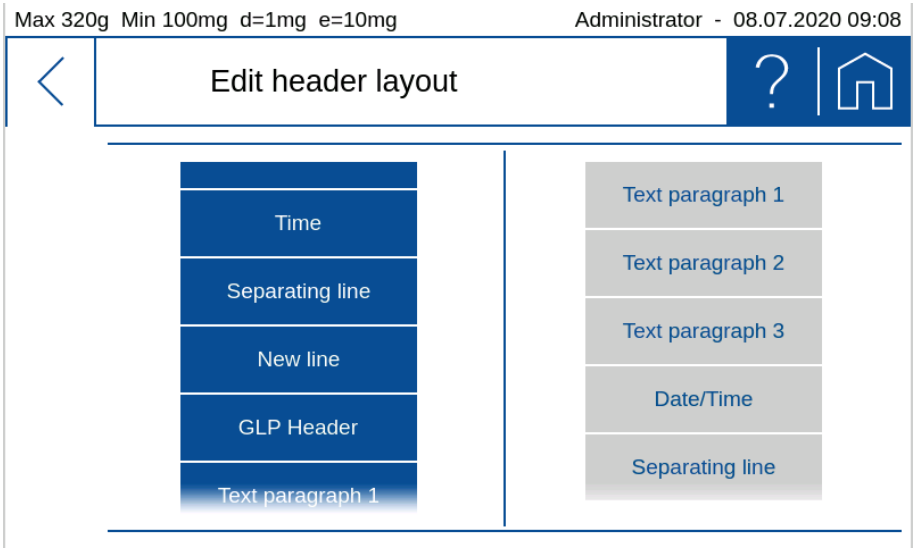
The trigger for the printout must be defined.



- **Header button:**
  The header is printed out immediately after pressing the soft button for printing the header. Therefore you need to place this soft button onto the 'Action bar' what can be found in the group 'Device', see 5.11 Action bar and soft button customizing.
- **Attending the measurement:**
  The header is printed out immediately before the measurement of the application.

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

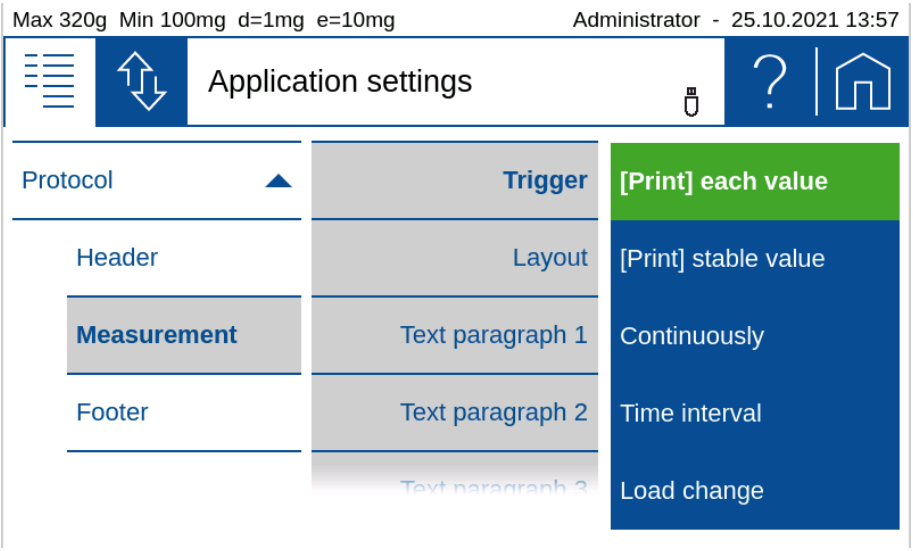
Example of a header block



12.2 Protocol Measurement

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

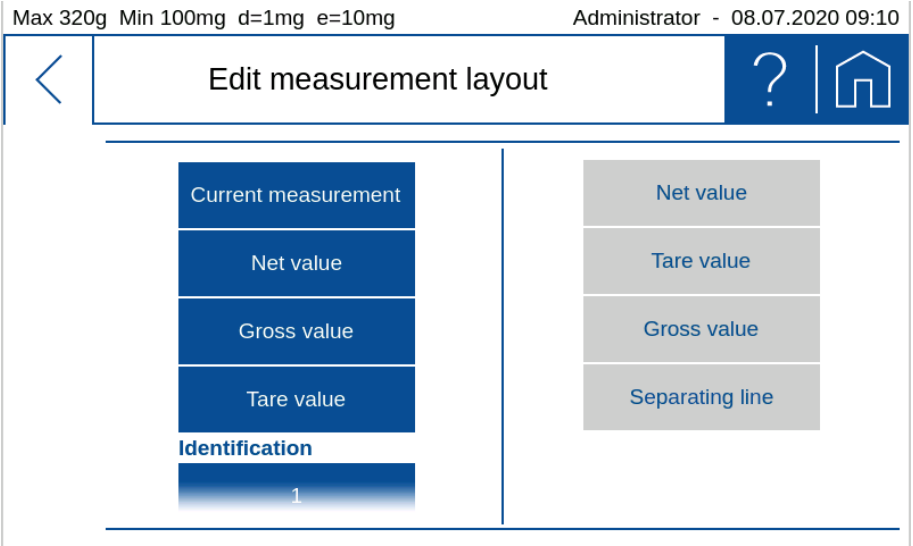
The trigger for the printout must be defined.



- **[Print] each value:**
  After pressing the **[Print]** key once, immediate printout, even if the scale has not yet released the weight value as stable and thus valid.
- **[Print] stable value:**
  After pressing the **[Print]** key, one-time printout as soon as the weight value has been approved by the scale as stable and valid.
- **Continuously:**
  After pressing the **[Print]** key 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]** key start/stop a continuous printout of the displayed weight in time with the interval.
- **Load change:**
  After pressing the **[Print]** key 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.

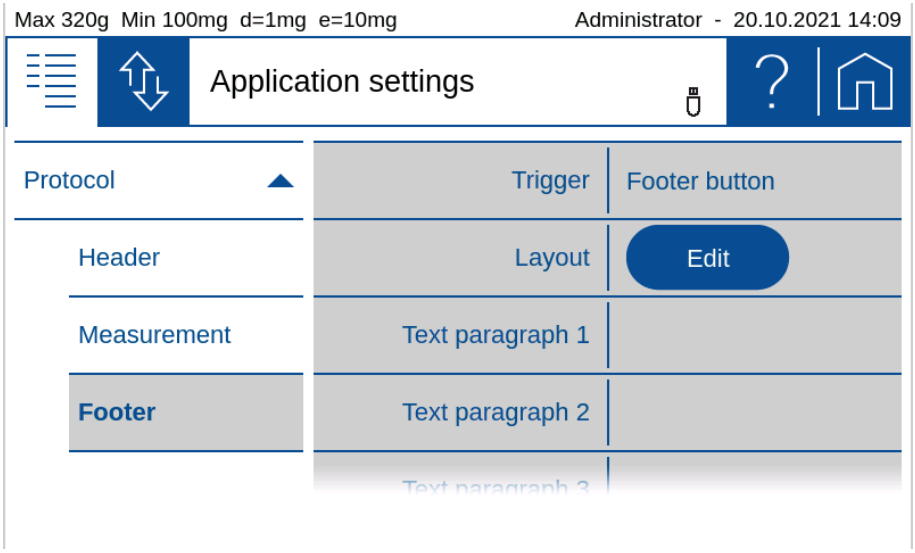
Example of a measurement block



12.3 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.

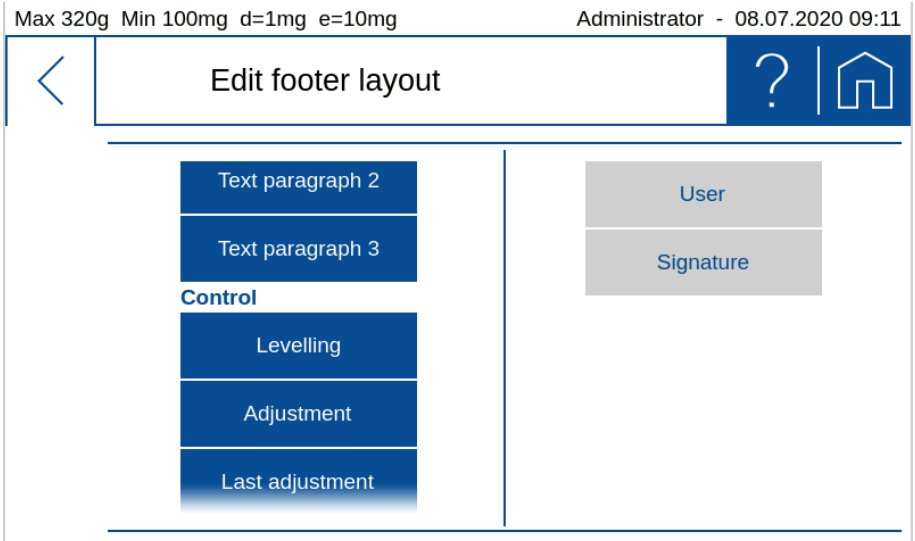
The trigger for the printout must be defined.



- **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 5.11 Action bar and soft button customizing.
- **Attending the measurement:**
  The header is print out immediate after the measurement of the application.

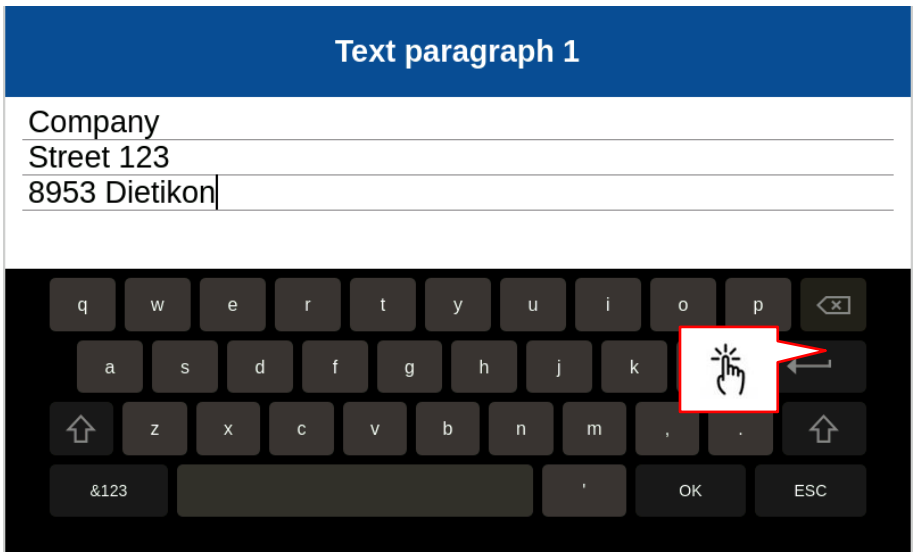
The layout can be change by pressing **(Edit)** hat is displayed right from 'Layout".
In the edit mode you will find various items to choose from. Please note the text paragraps are also items and must therefore be placed in the layout to appear at the correct place in the printout.

Example of a footer block



12.4 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 "¬".



12.5 Protocol items

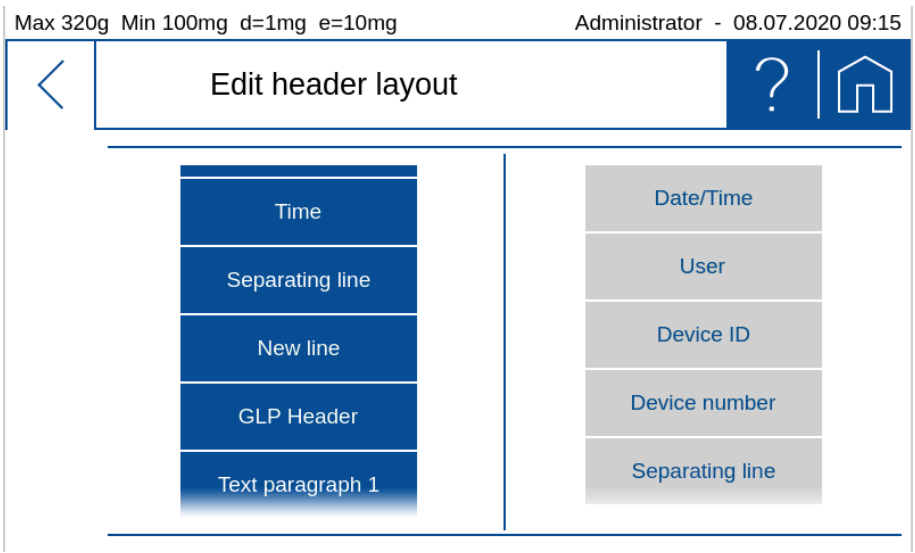
Most protocol items are self-explanatory or have a description of where they are defined.

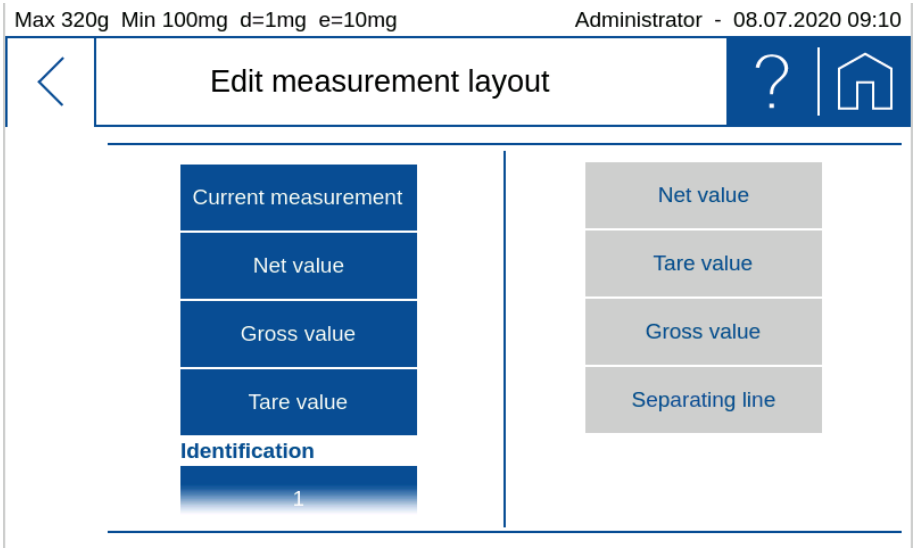
To ensure easy orientation, the building blocks are divided into groups:

- **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 current 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.

12.5.1 Insert Protocol items

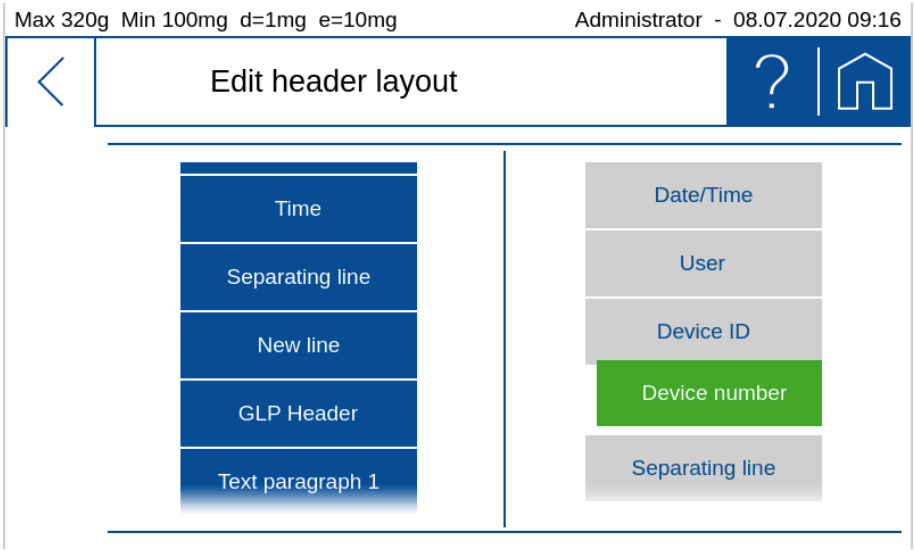
By clicking the **(Edit)** button an extensive selection of pre-defined text/functions items are presented on the left side. By selecting one this is moved to the right side.





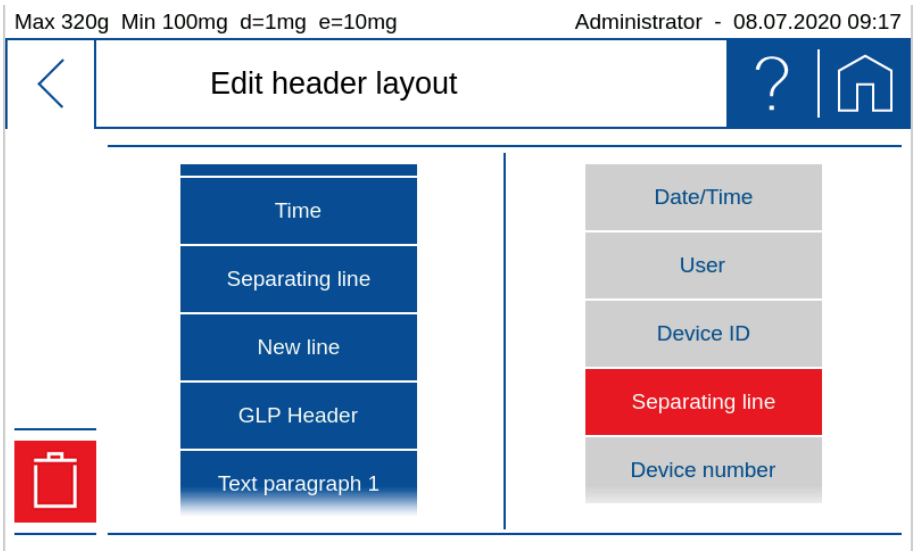
12.5.2 Move items

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



12.5.3 Deletes items

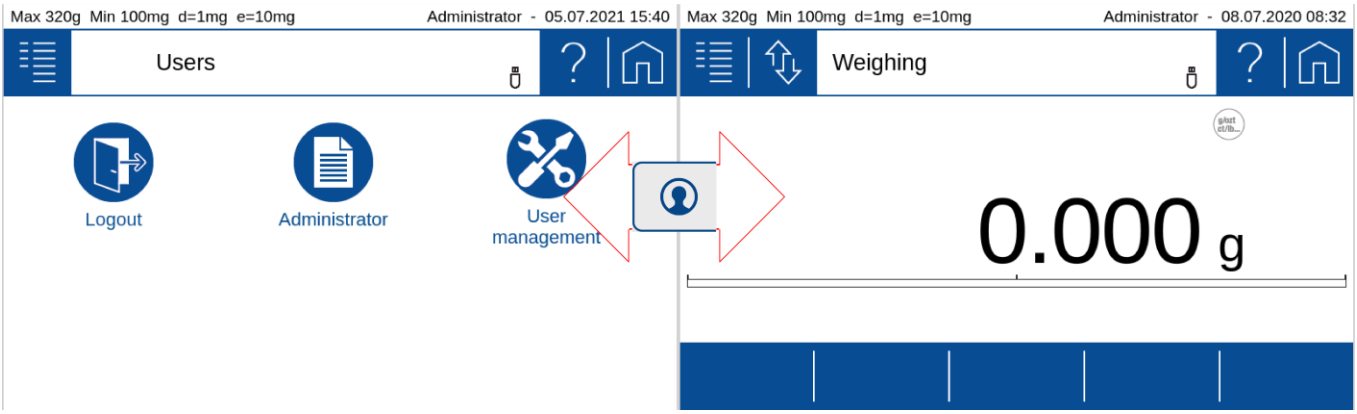
By selecting an item this turns to red. Pressing the waste bin symbol deletes it.



13 Workign with Users

The user menu provides access to different password protected user profiles and settings. Please note, that the user menu cannot be switched if no user profile is enabled.

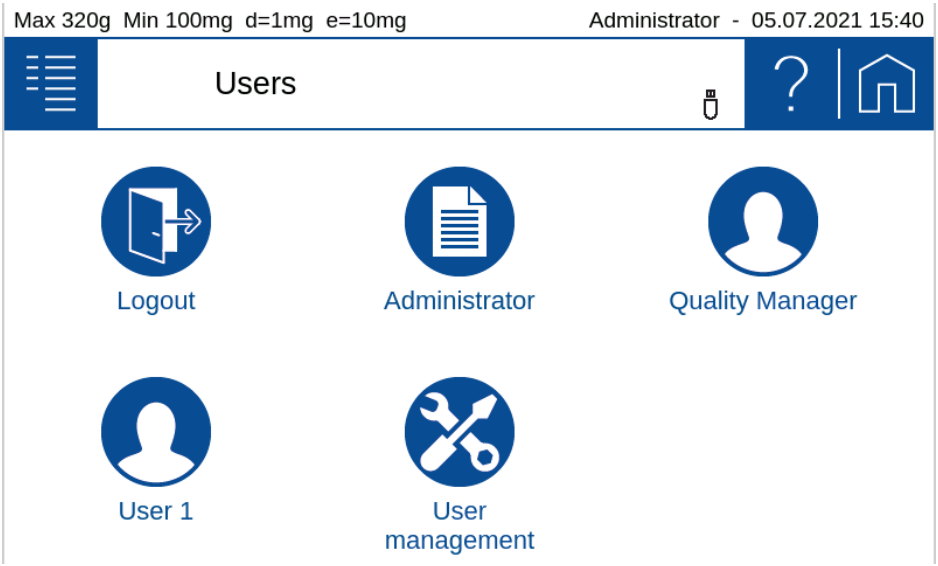
The balance can be adapted to the individual requirements of the application and the personal preferences.



In case in the last row icons of user profiles are faded out, this indicates more users are to choose below by a vertical flick.
By selecting one of the user's icons the customized settings are applied, and all subsequent settings are stored in this user profile.

13.1 Change/select user

By clicking a user, his profile settings are loaded and the balance switches to the standard application.



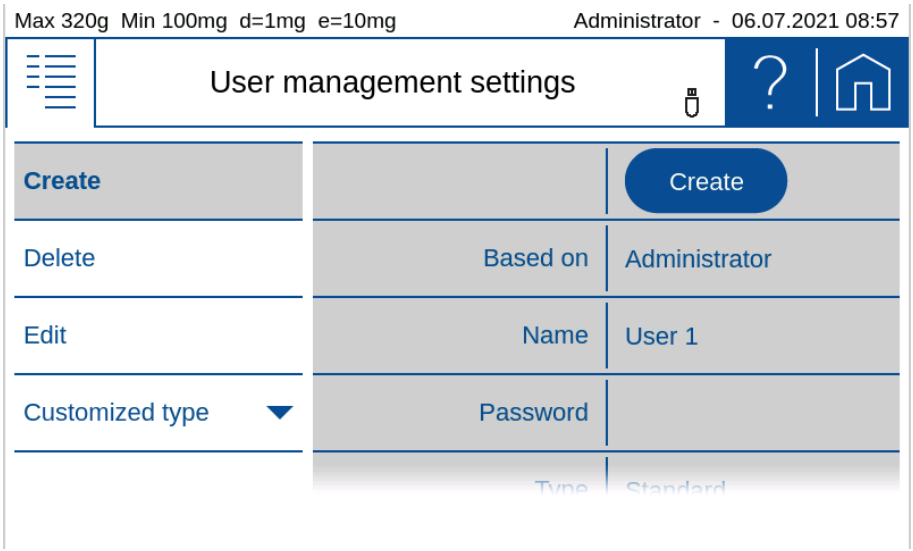
Navigating back to the Applications Screen is executed by pressing the **[Applications]** key.

13.2 User management

An administrator can create users, delete users, edit user profiles or edit user settings. New user profiles are created based on an existing profiles or predefined profile templates.
A normal user can change only his profile name and password.

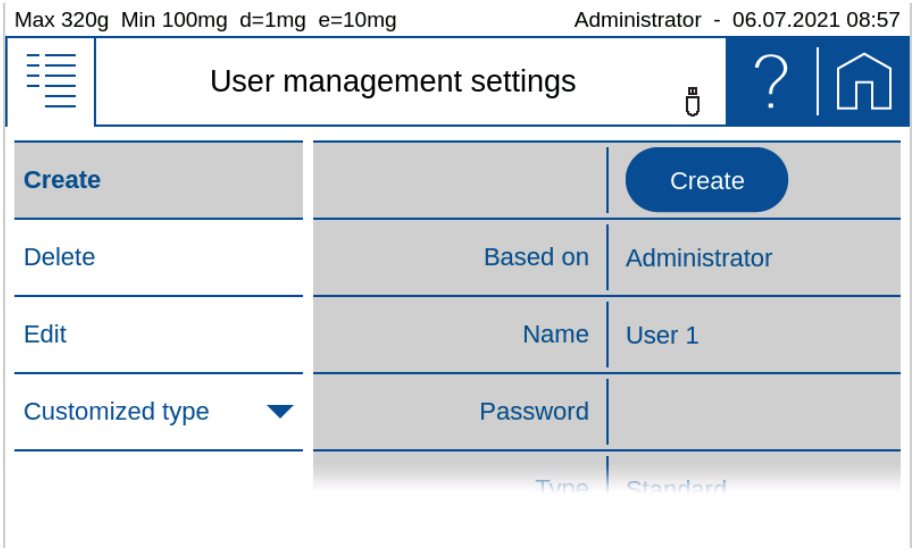
The menu offers the following options:

- **Create** user (for administrators only):
  Finally creates the user as defined here.
- **Delete** user (for administrators only):
  Delete an existing user.
- **Edit** user settings (for administrators only):
  Edit the setting of an existing user means like define the specific settings in functions and applications, what is is mainly used for restricted user.
- **Customized user** (for administrators only):
  Predefine a user access levels template with special settings compared to the already available templates 'Standard', 'Restricted' and 'Quality Manager'.



13.2.1 Create user (for administrators only)

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.

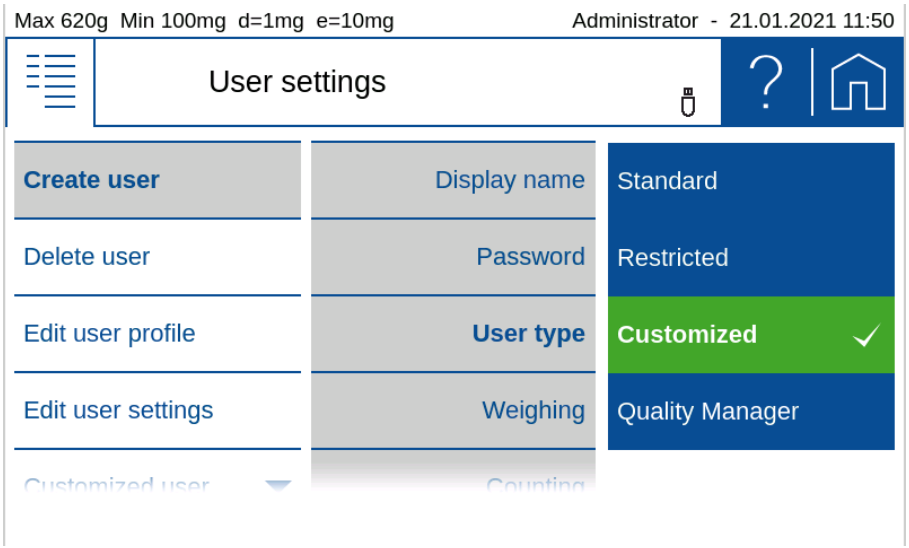


- **Create:**
  Click on create to create the user only after having defined the new user as below. User is than set as it is currently defined and displayed here. You will find the button at the end of the menue too.

- **Based On:**
  Defines from which already existing user a copy is taken. If you create a user the very first time, the copy template is the administrator profile.
- **Name:**
  Sets the user name as an alphanumeric data entry. This can be accomplished by the virtual keyboard or the by an external HID device (e.g. keyboard).

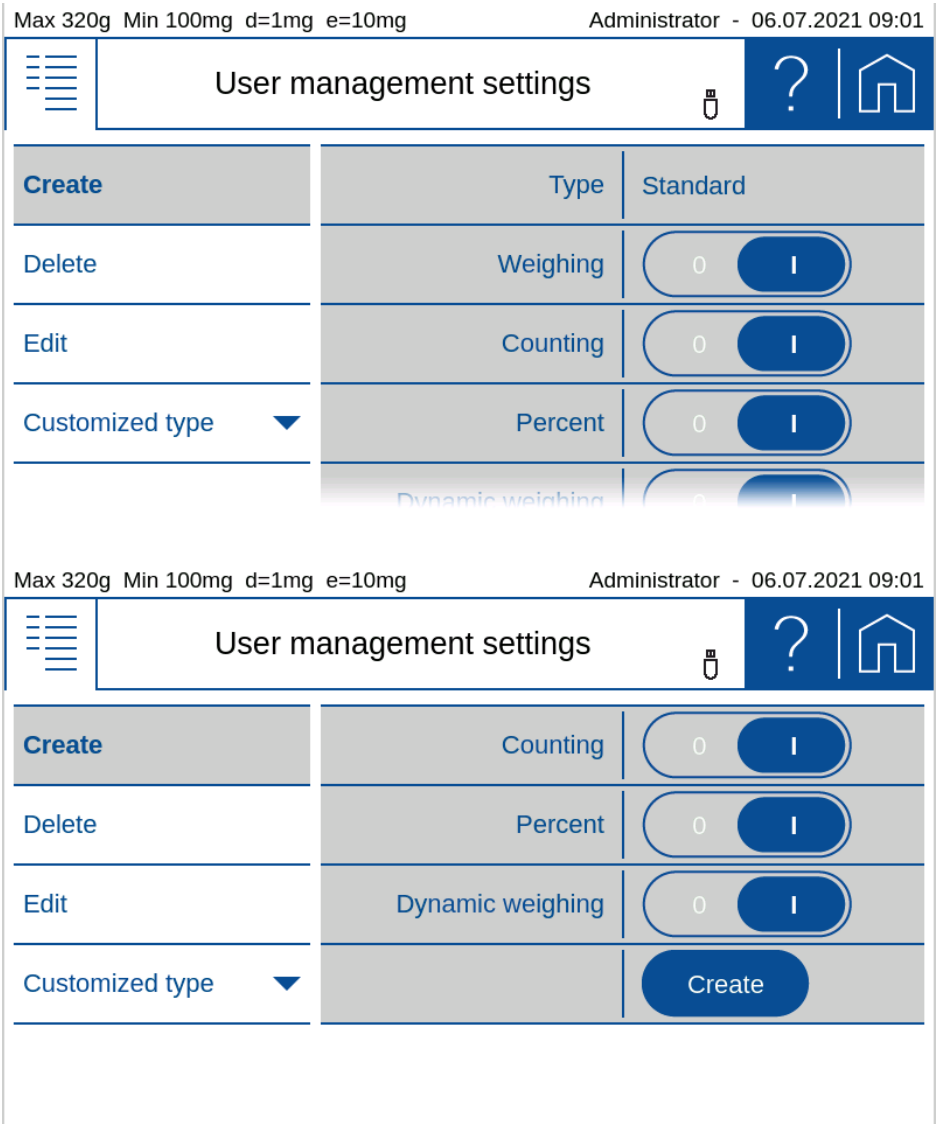
- **Password:**
  Type in an alphanumeric string for the password. Important: Keep the password safe. However, if the password gets lost, unlocking the profile is only possible for the administrator.

- **User type:**
  The user management provides several predefined access levels as Standard, Restricted and Quality Manager. In most cases they will cover the standard requirements. In case other access levels are need, you can define a "Customized user" and choose this as the type.



  - **Standard:** Has access to all applications and its settings, but not to setting related to weighing performance, quality aspects or system settings
  - **Restricted:** Has very limited access and can almost change nothing
  - **Customized:** Has access as defined for the 'Customized user"
  - **Quality Manager:** Access to all settings what has an effect on the weighing performance or quality matters as e.g. Minimum Sample Weight, GLP settings, Audit Trail, … Once a quality manager is created this option is no more available as only one quality manager is allowed.

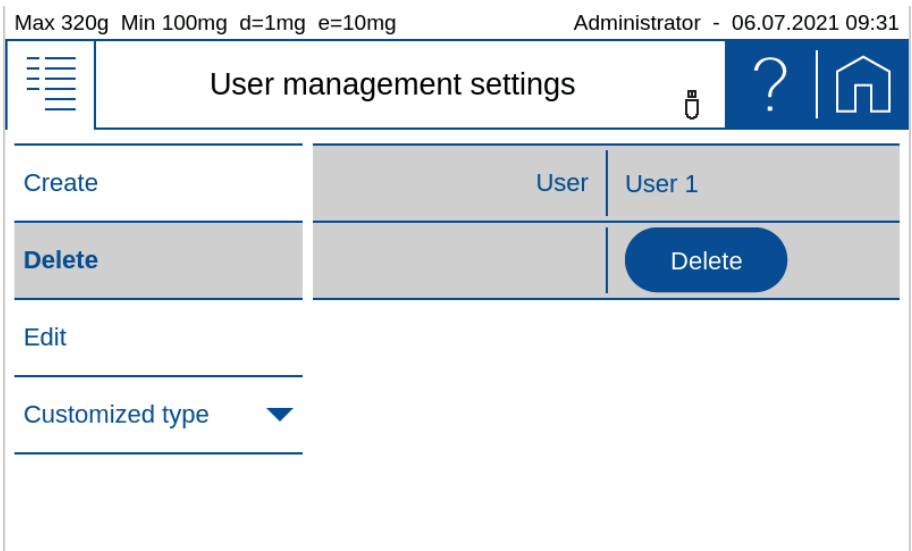
  Type in an alphanumeric string for the password. Important: Keep the password safe. However, if the password gets lost, unlocking the profile is only possible for the administrator.
- **Weighing, Counting, … Dynamic weighing:**
  Define what applications and functions are allowed for this user.



- **User Create:**
  Finally create the user as defined here.

13.2.2 Deleting a user (for administrators only)

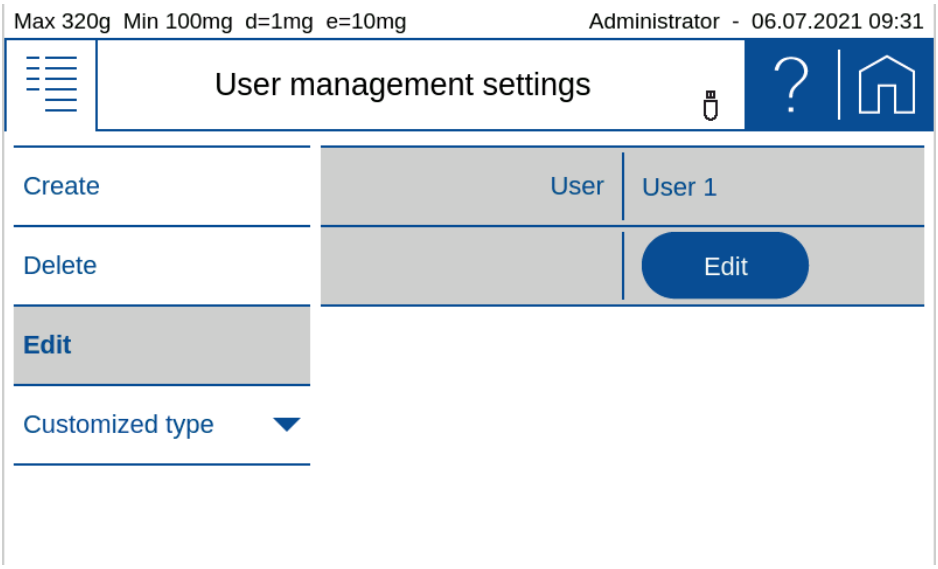
By pressing the delete item a list with the existing users is popping up. After selecting the user a message box appears, asking for confirmation.



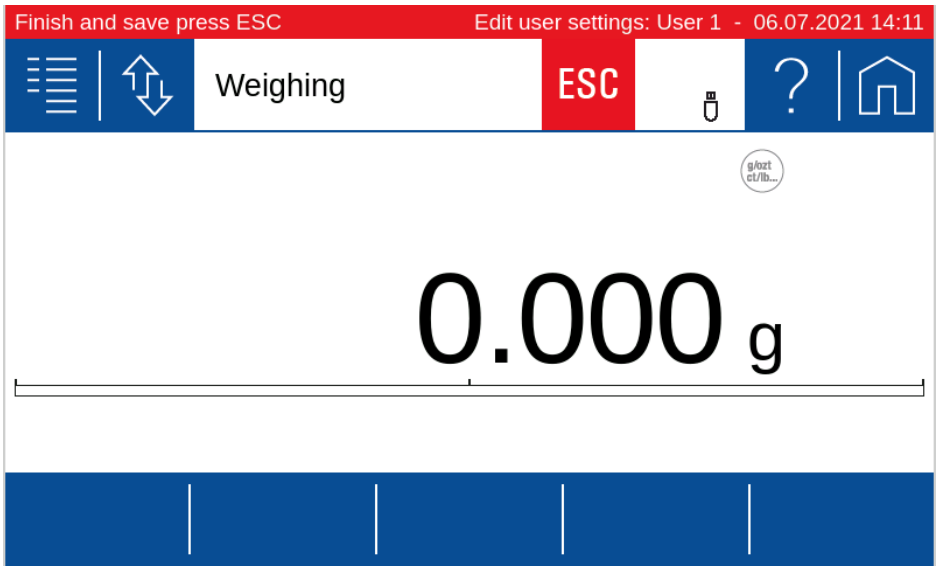
13.2.3 Edit the user Settings (for administrators only)

Depending on the access authorization, the user is not allowed to make the settings himself. Here, as an administrator, 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.

Edit an existing user and define its settings in applications. This option is mainly used for users of the type “Restricted”.



- **User name:**
  Select the user to edit
- **Edit:**
  Start to edit the settings of the selected user. The edit user settings mode is indicated by the red headline and the red ESC button. To change settings operate the balance exactly the same way as you do in normal operation and apply the settings. When leaving the edit user settings mode, all the current settings are preset for the selected user.



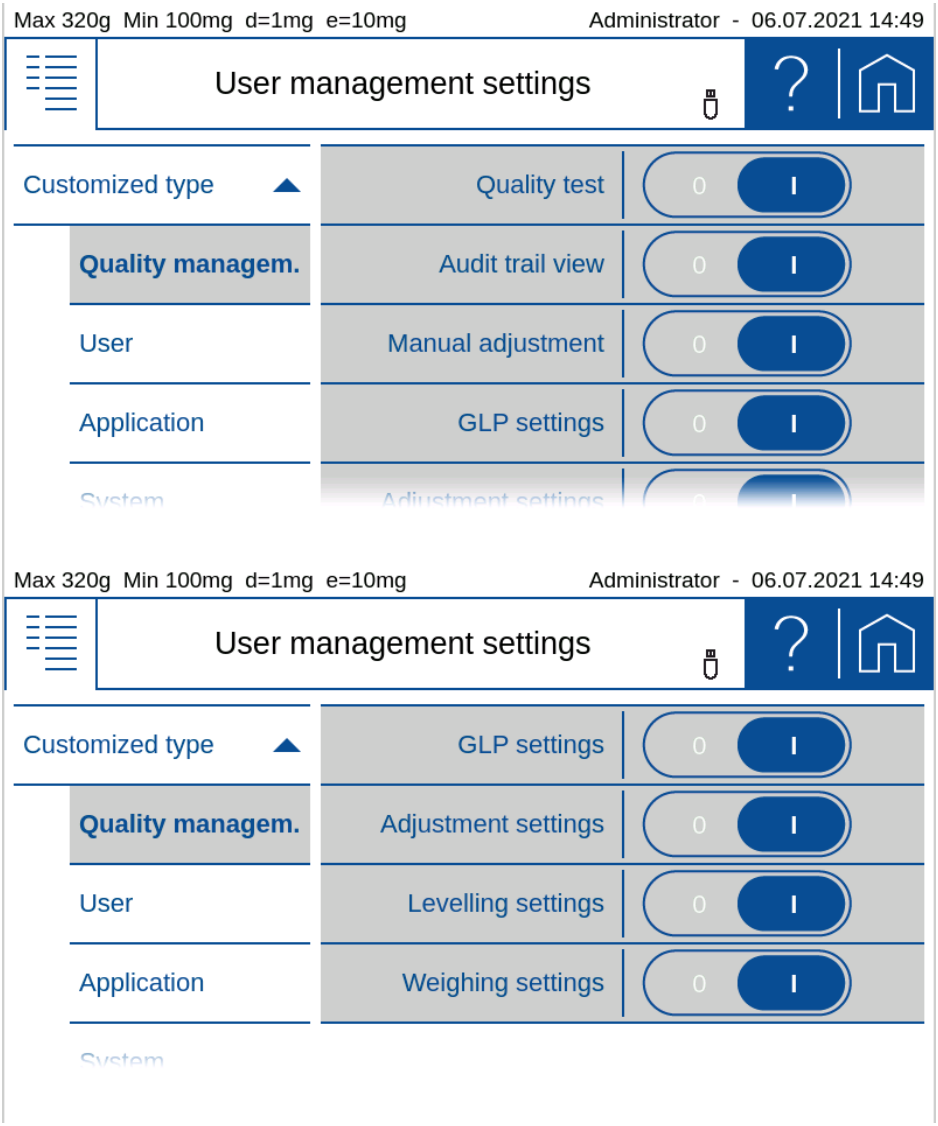
As long as the settings of another user are edited, the header appears in red.
To leave the edit user settings mode and save the settings press the **ESC** button.

To stop editing the user settings **Logout** on the **Users Screen**

13.2.4 Customized user (for administrators only)

"Customized" user type serves to predefine a user access level template with special settings compared to the already available access levels templates "Standard", "Restricted" and "Quality Manager".

Qualitiy management



Predefine the access rights what are in relation of quality management matters:

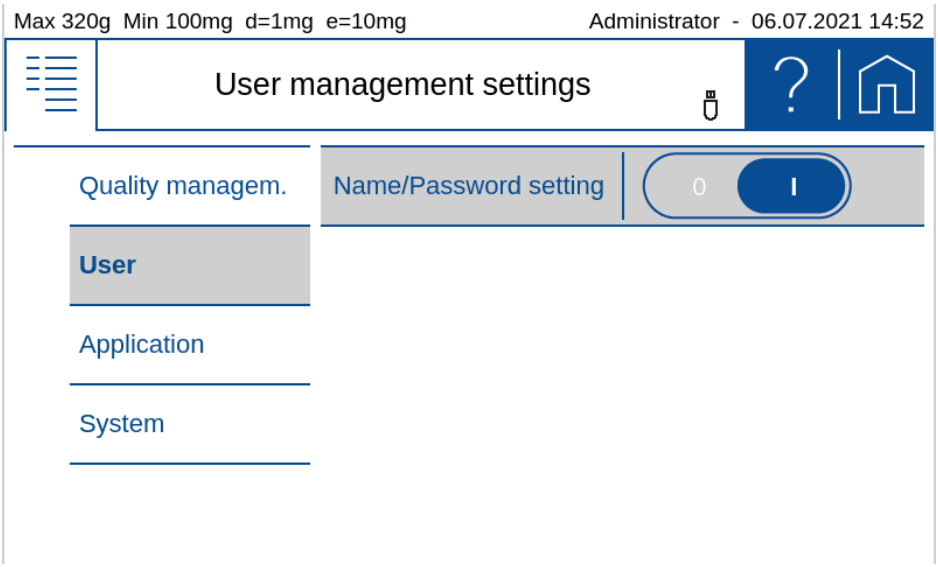
- **Quality Test:** Access to applications and functions in relation to quality aspects like weighing performance as e.g. the application ART
- **Audt Trail View:** Access to audit trail viewer to view and export the audit trail
- **Manual Adjustments:** Access to perform a manual, non automatic, balance adjustment of the weighing system
- **GLP settings:** Access to change the GLP header and GLP footer for the protocol printout
- **Adjustment settings**: Access to change settings of the adjustment of the weighing system
- **Leveling settings:** Access to change settings of the leveling system. To level the balance is always allowed

- **Weighing settings:** Access to change settings of the balance weighing system and parameters

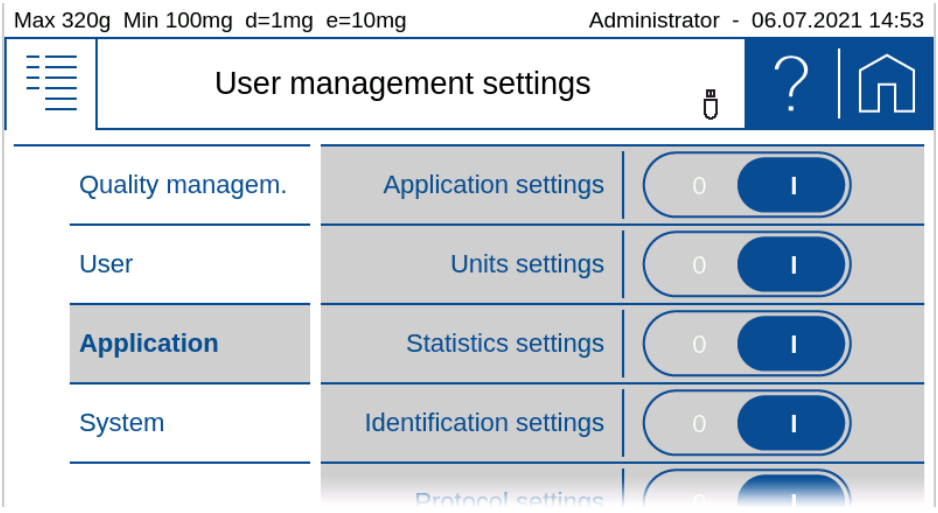
User

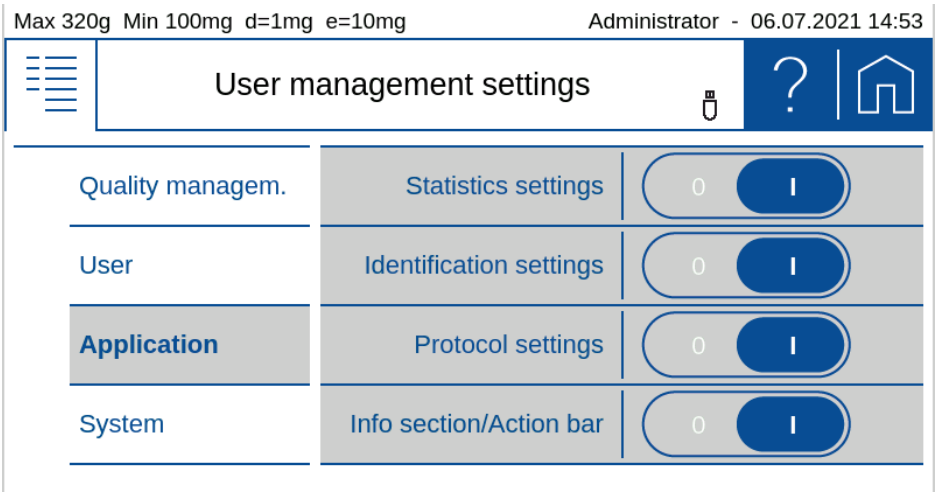
Predefine the access rights what are in relation with the user:

- **Name/Password setting:** Access to change the name and password of the user



Application

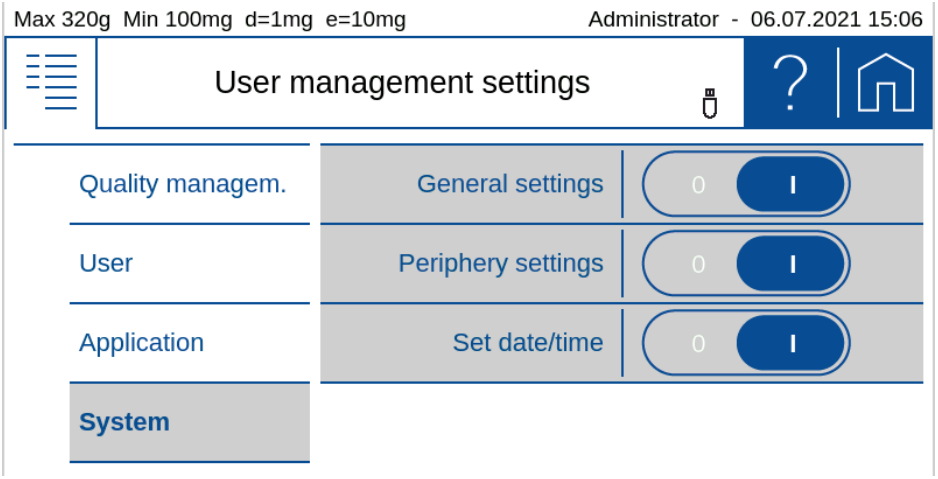




Predefine the access rights what are in relation to the applications:

- **Statistics settings:** Access to change settings of the Add-On 'Statistics'
- **Identification settings:** Access to change settings of the Add-On 'Identification'
- **Protocol settings:** Access to change settings of the Add-On 'Protocol'
- **Info section/Action bar:** Access to change settings of the 'Info section' and 'Action bar'

System



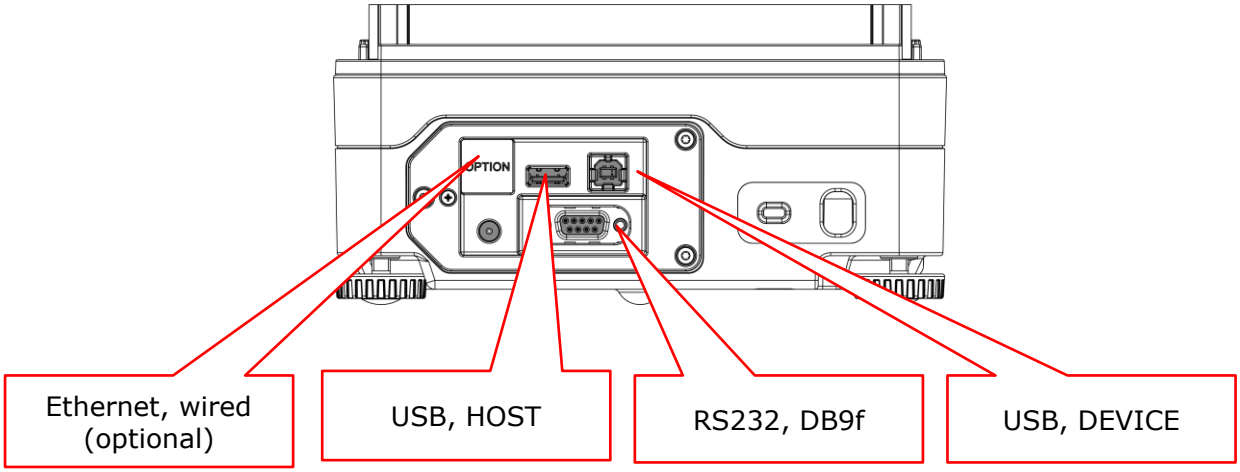
Predefine the access rights what are in relation to the system:

- **General settings:** Access to change general settings
- **Periphery settings:** Access to change settings in relation to of for peripherial connections
- **Set date/time:** Access to change date and time

14 Data transfer, data exchange

14.1 Hardware connections

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



NOTE
The most common and simplest is data transmission via RS232 or the USB DEVICE.
All connections can be used bidirectional and individually independent of other connections.
The USB HOST can work with an USB hub.

14.2 Interfaces

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

14.3 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

14.4 Remote command

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

Command	Specification
ACK0:	Acknowledge sending mode Off
ACK1:	Acknowledge sending mode On
BINFO:	Print out Balance information
CAL	Start adjustment
FWHISPRINT	Print out Sensor update history

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.*
Rnnn:	Set current weight=nnn items (corresponds to soft button "Set Pcs")
REFrrr:	Set reference weight rrr for 1 item (corresponds to soft button "Set piece weight")
RC:	Clear pieces unit (corresponds to soft button "Clr Pcs")
R%k:	Set current weight=100% with k=0...7 decimal places (k=A: use automatic positioning of decimal point) (corresponds to soft button "Set 100%")
REF%k rrr	Set reference weight rrr for 100% with k=0...7 decimal places (k=A: use automatic positioning of decimal point
R%C	Clear prercentage unit (corresponds to soft button "Clr %")

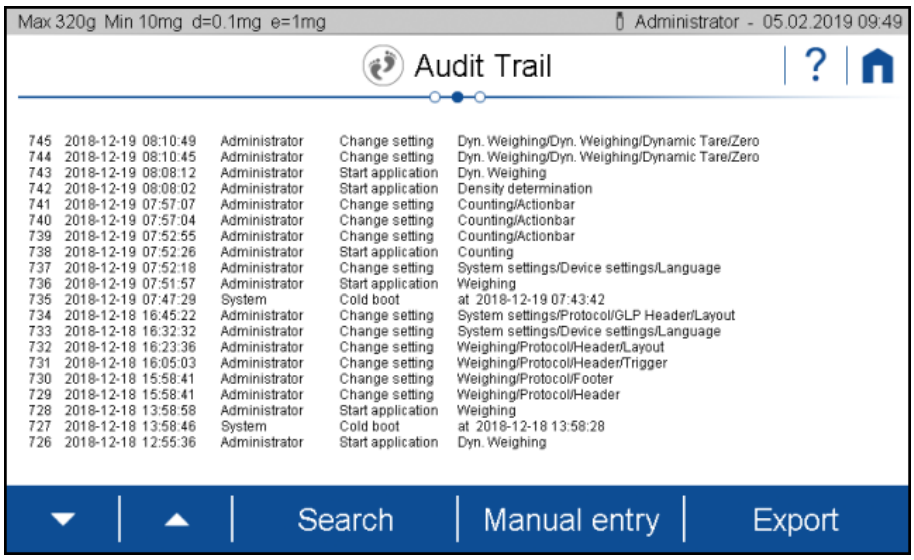
SDTddmmyyhhmmss: Set date/time if Date format = ddmmyy
SDTmmddyyhhmmss: Set date/time if Date format = mmddyy

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

15 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.



15.1 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).

15.2 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 Action bar
- Change Info section
- Levelling
- Adjust spirit level
- Adjust
- CRW
- Linearization
- Manuel entry, Administrator and Service user only