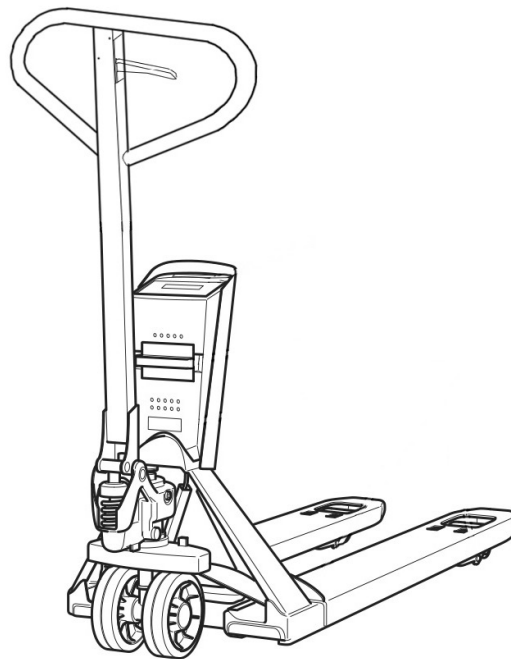


# PTM 2.0 Scale PRO+

Operating instructions

09.2022

en-GB



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# Contents

<b>A</b>	<b>About this manual .....</b>	<b>5</b>
1	Scope and target group .....	5
2	Information and instructions .....	6
<b>B</b>	<b>Security .....</b>	<b>7</b>
1	Correct Use and Application .....	7
2	Duties of individuals .....	8
3	Safety information for specific operating phases .....	9
3.1	Transport .....	9
3.2	Operation .....	9
3.3	Maintenance .....	11
4	Conversions and modifications .....	12
5	Residual risks .....	13
<b>C</b>	<b>Structure and function .....</b>	<b>14</b>
1	Controls .....	15
2	Weigher .....	16
3	Marking and labelling .....	19
3.1	Warning and information signs .....	19
3.2	Data plate .....	20
<b>D</b>	<b>Technical Specifications .....</b>	<b>21</b>
1	Dimensions .....	21
2	Performance data .....	21
<b>E</b>	<b>Commissioning and transport .....</b>	<b>23</b>
1	Using the Truck for the First Time .....	23
2	Transport .....	23
2.1	Attaching the device .....	23
<b>F</b>	<b>Operation .....</b>	<b>24</b>
1	Checking the device before daily use .....	24
2	Raising the load .....	25
3	Moving the load .....	26
4	Lowering the load .....	27
5	Braking the device .....	27
6	Applying the parking brake .....	28
7	Parking the device .....	28
8	Weighing the load .....	29
8.1	Preparing the weigher .....	29
8.2	Weighing the load .....	29
8.3	Taring the weigher .....	30
8.4	Adding weights and resetting .....	34
8.5	Entering a code .....	36
8.6	Choosing between kilogrammes and pounds .....	37
8.7	Printing weighing data (option) .....	37

8.8	Adjusting user settings.....	45
<b>G</b>	<b>Maintenance and repair.....</b>	<b>53</b>
1	Faults and troubleshooting.....	53
2	Maintenance.....	57
2.1	Maintenance intervals.....	57
2.2	Consumables.....	58
3	Repairs.....	58
3.1	Replacing the batteries of the weigher operating and display unit.....	58
3.2	Charging the batteries of the weigher's operating and display unit.....	60
3.3	Safety tests to be performed at intervals and after unusual events.....	61
<b>H</b>	<b>Shutdown, storage and disposal.....</b>	<b>62</b>
1	Decommissioning.....	62
1.1	Shutting down the device.....	62
1.2	Returning the device to service after shutdown.....	62
2	Storage.....	62
2.1	Storing the device.....	62
2.2	Storing the batteries of the weigher's operating and display unit.....	62
3	Disposal.....	63
3.1	Decommissioning the device.....	63
3.2	Disposing of the device.....	63
3.3	Disposing of the batteries of the weigher's operating and display unit....	63

# A About this manual

These operating instructions describe the correct use of the products listed in the "Scope" chapter – see page 5. All Jungheinrich products are developed and produced according to the current state of the art. However, risks can arise in the case of incorrect use. Please observe the corresponding information and read through the operating instructions carefully. The operating instructions form part of the device and are valid for all specified device versions. The operating instructions describe the safe and correct use of the device in all operating phases.



Any technical questions should be directed to your authorised service partner.

The device described in these operating instructions is an industrial truck that is designed for lifting and transporting loads.

## 1 Scope and target group

### Scope

This document applies to the following device:

- PTM 2.0 Scale PRO+

### Target groups

For the purposes of these operating instructions the "owner" or "operator" is defined as any natural or legal person who either uses the described device himself or on whose behalf it is used. In special cases (e.g. rental), the owner is considered to be the person who is charged with the specified operational duties in accordance with existing contractual agreements between the owner and operator of the device.

Target group	Tasks
Owner	<ul style="list-style-type: none"><li>– Keep these operating instructions accessible at the usage location of the device, including for later reference.</li><li>– Ensure that the device is used correctly and only by trained and authorised personnel.</li><li>– Instruct employees to read and observe these operating instructions and other applicable documentation, particularly the safety instructions and warnings – see page 7.</li><li>– Observe additional device-specific provisions and regulations.</li></ul>
Operator	<ul style="list-style-type: none"><li>– Read and observe these operating instructions and other applicable documentation, particularly the safety instructions and warnings see page 7.</li><li>– Ensure that the device is used correctly and in accordance with the safety regulations.</li></ul>

*Tab. 1: Owner and operator duties*

## 2 Information and instructions

### General information

- Indicates additional information and explanations.

### Structure of warnings

Warnings are used in this document to highlight potential causes of personal injury or material damage.

- Always read and observe these warnings.
- Follow all measures highlighted by the relevant warning.

The following warning levels are used to reflect the severity and probability of the relevant hazard:

#### **DANGER!**

Indicates an extremely dangerous situation. Failure to observe this warning can lead to serious, irreversible injuries or death.

#### **WARNING!**

Indicates an extremely dangerous situation. Failure to observe this warning can lead to serious, irreversible injuries or death.

#### **CAUTION!**

Indicates a dangerous situation. Failure to observe this warning can lead to minor or moderate injuries.

#### **NOTICE**

Indicates a risk of material damage. Failure to observe this warning can lead to material damage.

### Structure of instructions

Instructions in this document are structured as follows:

#### ***Aim of the described activity***

##### *Requirements*

- Prerequisites for activity

##### *Tools and Material Required*

- Tools and materials required for an activity (optional specification)

- Step
- Step
  - Sub-step

##### *Result of action*

# B Security

The safety chapter provides important information on how to work safely with the described product. Failure to observe the specified measures can result in material damage and injuries, and potentially even death.

- Before commissioning and operating the device: Read the safety chapter thoroughly.
- Use the described device only as specified in this document.

## 1 Correct Use and Application

The device described in these operating instructions is designed for safe transport of heavy loads and is intended for private and commercial use. Any damage resulting from incorrect operation or improper use shall render all liability and warranty claims null and void.

### **Correct environmental conditions**

The device will be permanently damaged if exposed to extreme environmental conditions.

- Only use the device under the permitted conditions – see page 21.
- Do not use the device in areas or environments with high levels of humidity.
- Do not use the device in areas or environments at risk of explosion or fire.
- Do not use the device in very dusty areas or environments.
- Do not use the device in outdoor areas.
- Do not use the device in corrosive areas or environments.
- Do not use the device in temperatures outside the permissible temperature range – see page 22.

### **Possible incorrect use**

Inappropriate use of the device poses a risk of injury and reduces the service life of the device.

The device is not suitable for the following applications:

- Transporting persons
- Transporting loads on slopes or inclines
- Transporting insufficiently secured loads
- Transporting loads that are too heavy or placed on one side
- Moving the device with electrical or mechanical aids
- Picking up pallets from the side

### **Attaching accessories to the device**

Obtain written authorisation from the manufacturer and the responsible authority before attaching accessories to the device.



The authority's approval does not replace the manufacturer's permission.

## **Possible incorrect use of the weigher**

Using the weigher incorrectly will produce incorrect weighing results.

- Position the device on a solid, level surface.
- Place the load centrally on the pallet.
- Remove any objects blocking the load handler.
- Reduce the inclination of the device to  $< 2^\circ$ .
- Do not exceed the maximum capacity.
- Raise the load slowly and evenly.

## **2 Duties of individuals**

### **Duties of the owner**

Incorrect preparation of the device can result in serious damage or injuries. The owner must:

- Ensure that the device is used as intended.
- Ensure that the device is in perfect technical condition.
- Ensure that all warnings and information signs are present on the device and in a language that the operator understands.
- Replace any damaged or missing warnings and information signs on the device.
- Ensure compliance with all regulations concerning accident prevention, safety and disposal as well as those regarding operation, maintenance and repairs.
- Provide suitable protective equipment for the operator.
- Make the operating instructions available at the usage location.
- Retain test reports for at least 2 years.

### **Duties of the operator**

Irresponsible operation of the device can result in serious damage or injuries. The operator must:

- Provide evidence of his or her ability to use the device.
- Provide evidence of his or her commissioning by the owner or their legal representative.
- Prevent unauthorised use of the device.
- Wear safety shoes or safety equipment in accordance with statutory and operational regulations when operating the device.
- Assume responsibility for the correct use of the device during operation.
- Independently take the device out of service and inform the relevant supervisor(s) in the case of damage to the device during operation.
- Ensure that the load to be picked up is packaged correctly and does not exceed the permitted weight.



## **3 Safety information for specific operating phases**

### **3.1 Transport**

#### **Transporting the device safely**

Incorrectly secured transports can result in material damage and personal injury.

- Remove any load before transporting the device.
- Use lifting gear with sufficient capacity.
- Secure the HGV or trailer against rolling away before loading the device.
- Attach lifting accessories only to the designated attachment points.
- Correctly secure the device to the lashing rings on the HGV or trailer.
- When jacking up, prevent slipping or tipping by means of wedges or wooden blocks.

### **3.2 Operation**

#### **Operating the device safely**

Unsafe operation of the device can result in significant material damage and severe personal injury.

- Never transport persons on the load handler.
- Always look in the direction of travel.
- If the load is obscuring your view, travel backwards or instruct an additional person to proceed in front of the device as a lookout.
- Never place feet or other body parts in the vicinity of moving rollers.
- Adapt your travel speed to local conditions.
- In corners, at and in passageways and at blind spots, reduce your speed and be aware of the device dimensions.
- Do not travel on slopes or inclines.
- Maintain a sufficient stopping distance from trucks travelling in front.
- Adapt the stopping distance to the condition of the ground.
- Restrict (sudden) braking to hazardous situations.
- Avoid quick changes in direction.
- Do not overtake at blind spots.
- Do not lean or reach out of the operating area.
- Lower the load as far as possible for transport.
- If the load threatens to become unstable, stop and lower the load.

## Requirements for travel paths and work areas

Failure to observe the specific environmental conditions can result in significant material damage and severe personal injury.

- Only travel on level surfaces that are designated as traffic routes.
- Maintain a sufficient safety clearance between the tiller and racks/walls.
- Do not travel on slopes or inclines unless expressly permitted in this document.
- Traffic route conditions have a significant influence on the stopping distance. Adjust the travel behaviour to the prevailing conditions.
- Visibility conditions have a significant influence on the travel path. Ensure that you have clear visibility.
- Keep unauthorised persons out of the work area.
- Always set down and store the load at the designated locations.
- Never deposit the load and device on traffic, escape or rescue routes or in front of passageways, roller shutter gates and doors.
- Before working under a raised load, secure the load handler against lowering using a sufficiently strong chain.

## Preventing injuries to third parties

A heightened accident risk exists for unauthorised persons in the hazardous area.

- Instruct unauthorised persons to leave the hazardous area.
- In the case of a potential risk to persons, issue a warning signal in a timely manner.
- If endangered persons fail to leave the hazardous area, stop the device immediately.



The hazardous area is classed as the area in which persons are exposed to a direct risk by the movements of the device or are endangered indirectly, e.g. due to a falling load.

## Travelling onto lifts and loading bridges

A heightened risk of material damage and personal injury exists in lifts and on loading bridges.

- Before travelling onto lifts and loading bridges, ensure that they offer sufficient capacity for the individual weight of the device including the load and operator.
- Before travelling onto lifts and loading bridges, ensure that they are suitable and approved for such use by the owner.
- Travel load-first onto lifts and loading bridges and maintain a sufficient distance from the side walls.
- Park the device securely before any persons step into the lift or onto the loading bridge.

## **Moving loads safely**

An inadequately secured load poses a heightened risk of material damage and personal injury.

- Ensure that the load is in correct condition.
- Do not move loads unless they have been safely and securely applied.
- If there is a risk of parts of the load tipping or falling, take suitable safety measures (e.g. load backrest).

## **Transporting liquids safely**

When transporting liquids, the centre of gravity can vary according to the position of the device, which will significantly impact upon overall stability (e.g. in tanks).

- Avoid sudden/jerky braking or acceleration.
- Reduce the speed before and in corners.

## **3.3 Maintenance**

### **Conducting maintenance work safely**

Thorough and expert servicing is one of the most important prerequisites for safe operation of the device. Failure to perform regular maintenance can result in a malfunction of the device and poses a potential hazard to personnel and equipment.

- Perform maintenance and repair work in line with the specified maintenance intervals – see page 9.
- Maintenance and repair work must only be completed by specialist personnel with the requisite training.
- In the case of uncertainty, contact the manufacturer's customer service department.
- Use only original spare parts from the manufacturer.
- When repairing or replacing components, observe the device-specific settings.
- When replacing rollers, ensure that the device remains level (e.g. always replace left and right at the same time).
- Immediately after any maintenance work, complete all steps for returning the device to service – see page 9.
- Do not clean the device with flammable liquids.
- Before working on the hydraulic unit: Fully lower the load handler.
- Before working on the pump: Secure the return spring.

## Using batteries/accumulators safely



Within this document, the term "battery" is used generically and also refers to accumulators.

Batteries contain chemicals which can escape in the case of incorrect use and consequently cause material damage or personal injury.

- If the device remains unused for an extended period or if the batteries are fully discharged, remove the batteries from the device.
- Always replace all batteries at the same time.
- Ensure correct polarity when inserting the batteries.
- Use only batteries of the same type. Do not mix different types of battery or used batteries with new ones.
- Do not expose batteries to extreme conditions.
  - Do not place on radiators or other hot surfaces.
  - Do not expose to direct sunlight.
  - Do not throw into open fires.
- If battery acid has escaped, avoid contact with the skin, eyes and mucous membranes. In the event of contact with acid, immediately rinse the affected areas with plenty of clear water and contact a doctor immediately.
- Unless otherwise instructed, do not charge batteries or reactivate them by other means.
- Do not short-circuit batteries.
- Do not forcibly open batteries.

## 4 Conversions and modifications

### Modifying the design and function of the device

Any conversions or changes to the design of the device which have not been approved by the manufacture can result in severe personal injury and significant material damage. All warranty and liability claims will be void.

If modifications are to be made, they require written permission from the manufacturer, an authorised representative or a legal successor. This includes, but is not limited to, the following actions:

- Changes affecting the capacity
- Changes affecting the stability
- Changes affecting the control function
- Changes affecting the visibility
- Addition of attachments.

Under no circumstances must the operating speed of the device be changed, not even with the manufacturer's approval.

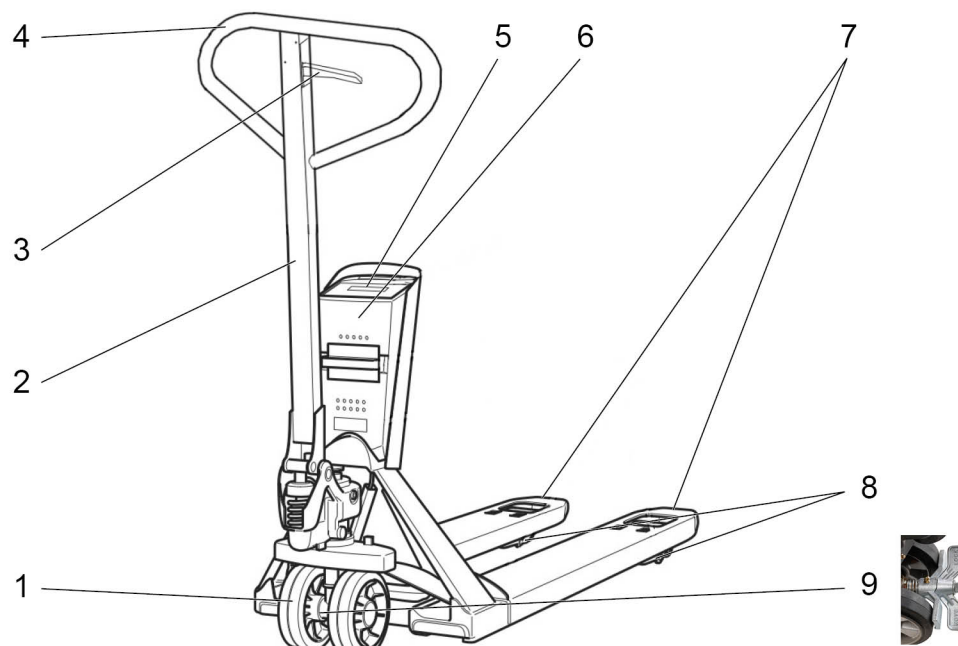
## **5 Residual risks**

### **Using consumables**

Improper handling of consumables is hazardous to health, life and the environment.

- Use consumables in the correct manner and in accordance with the manufacturer's specifications.
- Work with consumables must only be performed by qualified specialist personnel.

## C Structure and function

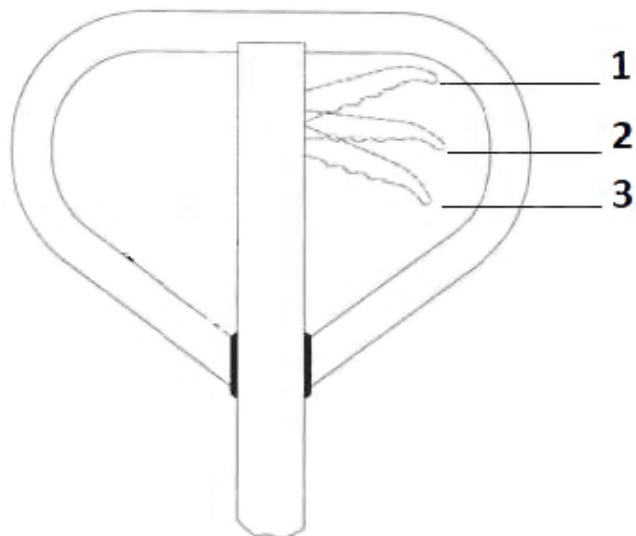


*Fig. 1: Assemblies and functional description*

Item	Description	Function
1	Steering wheels	Controls the device.
2	Tiller	<ul style="list-style-type: none"> <li>– Controls the device.</li> <li>– Generates hydraulic pressure.</li> </ul>
3	Lever	Raises/lowers the load handler.
4	Handle	<ul style="list-style-type: none"> <li>– Moves the device.</li> <li>– Generates hydraulic pressure.</li> </ul>
5	Weigher operating and display unit	Weighs the load.
6	Data plate for weigher operating and display unit	Provides information.
7	Load handler	Carries the load.
8	Load rollers	Moves the device forward and back.
9	Foot brake	Brakes the device.

# 1 Controls

The control lever with the control handle is located on the tiller.



*Fig. 2: Control lever*

Item	Description	Function
1	Control handle in "lower" position	Lowers the load.
2	Control handle in "neutral" position	Moves the tiller freely.
3	Control handle in "lift" position	Raises the load with the movement of the tiller.

## 2 Weigher

For weight recording, 4 load cells are bolted to the load frame and the load handler. The load cells and the connection cables to the evaluation and display unit are installed so that they are protected.

### Operating and display unit

The operating and display unit of the weigher shows the weights and system states. All functions of the weighing system can be accessed via the buttons on the display.

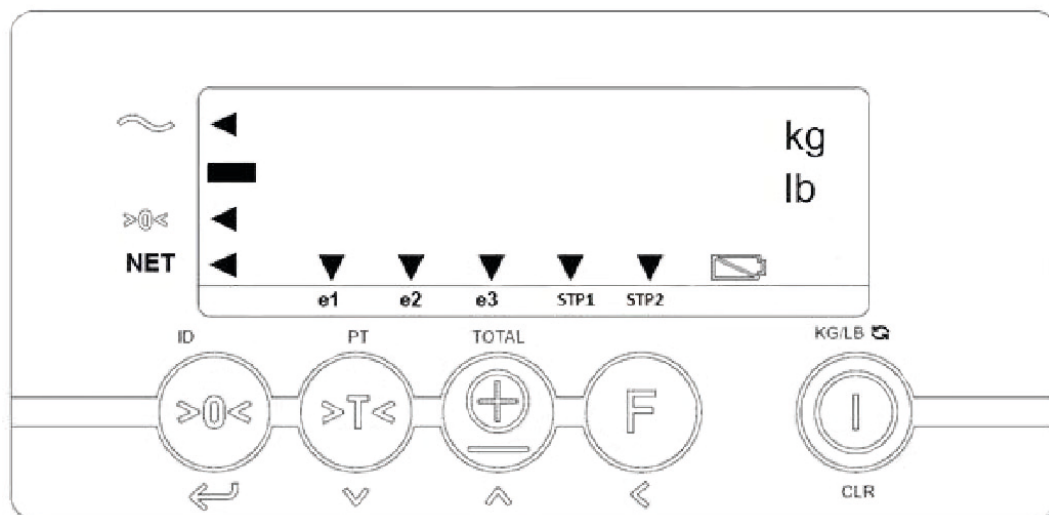








Fig. 3: Weigher operating and display unit

Symbol		Description	Meaning
~	◀	Weight display	The weighing system including the load is stable.
	—	Negative sign	The displayed weight has a negative value.
>0<	◀	Zero range	The displayed weight is in the zero range.
NET	◀	Net weight	The displayed weight is a net weight.
e1	▼	Multi-range 1	The displayed weight is within range 1 (multi-range option).
e2	▼	Multi-range 2	The displayed weight is within range 2 (multi-range option).
e3	▼	Multi-range 3	The displayed weight is within range 3 (multi-range option).
stp1	▼	Setpoint 1	Setpoint 1 (for relay function) is displayed.



Symbol		Description	Meaning
stp2	▼	Setpoint 2	Setpoint 2 (for relay function) is displayed.
kg		Kilogramme	The weight is displayed in kilogrammes.
lb		Pound	The weight is displayed in pounds.
		Battery level	A low battery level is displayed.

→ Only if the load is stable and the "Stable load" segment (~) is activated will button operations be accepted and functions executed.

Button	Standard function (short button press)	Special function (long button press)	Value input function (input mode)
	Reset to zero	Code input	Create input.
	Automatic tare	Tare preset	Reduce value of flashing digit.
	Print weight and add to total	Check intermediate total and print/reset total sum.	Increase value of flashing digit.
	Start special function, if active	No function	Move left to next digit.
	On switch Switch to pounds or kilogrammes	Off switch	Delete input.

### Multi-range display

The resolution of the weight display depends on the weight.

Weight range	Standard (●)
0 to 200 kg	0.2 kg
200 to 500 kg	0.5 kg
500 to 2000 kg	1.0 kg

Weight range	Optional (○)
0 to 200 kg	0.1 kg
200 to 400 kg	0.2 kg
400 to 2000 kg	0.5 kg

## Display adjustment during incremental weighing

The display increment adapts to the relevant measuring range. For example, if a total weight of 650 kg is weighed, the display increment will change from 1 kg to 0.5 kg as soon as the weight falls below 500 kg.

## Power supply and operating time

Power is supplied by a rechargeable battery module.



Charge the empty battery module using the supplied battery charger.

The device is deactivated automatically when not used for a period of approx. 20 minutes.

Operating time
Up to 75 hours continuous operation (for a system without a printer)

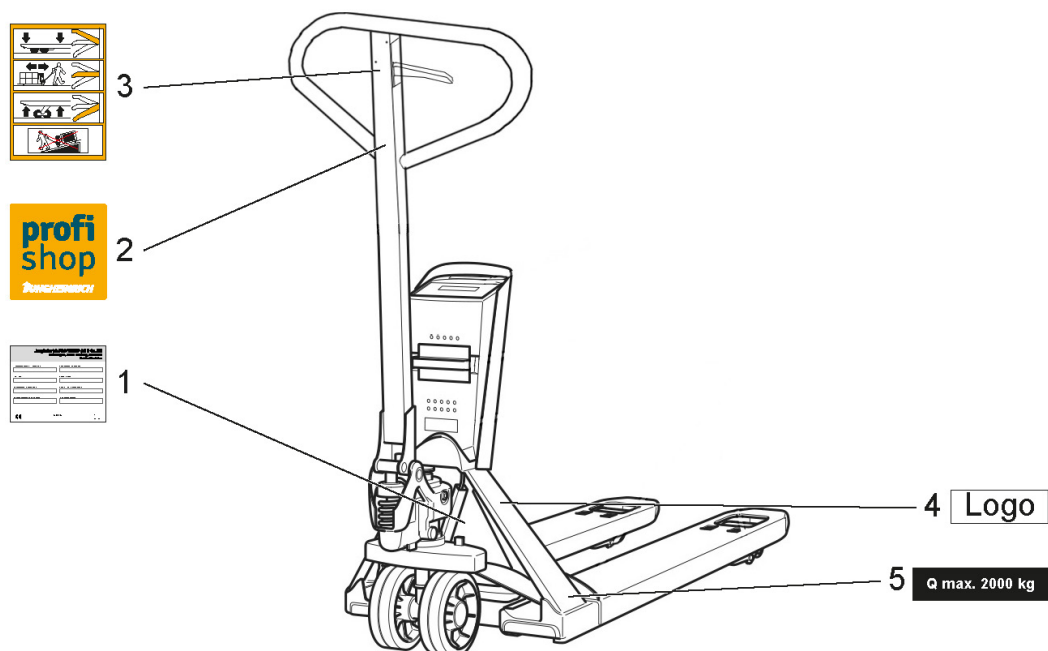
## Calibration (○)

Weight range	Resolution
10 to 500 kg	0.5 kg
500 to 1000 kg	1.0 kg

### 3 Marking and labelling

#### 3.1 Warning and information signs

##### Locations of the warning and information signs



Item	Description
1	Data plate
2	Jungheinrich PROFISHOP
3	Information sign: correct operation
4	Logo (both sides)
5	Q <sub>max</sub> XXXX kg

## 3.2 Data plate

**Jungheinrich PROFISHOP AG & Co. KG**  
Haferweg 24, 22769 Hamburg, GERMANY  
Hersteller / Manufacturer

9 Produktbezeichnung / Product Type

2 Artikelnummer / Item Number

8 Typ / Type

3 Option / Option

7 Seriennummer / Serial Number

4 Baujahr / Year of Manufacture

6 Nenntragfähigkeit / Rated Capacity

5 Leergewicht / Weight

CE Made in

Fig. 4: Data plate (schematic)

Item	Information
1	Name and address of manufacturer
2	Article number
3	Option
4	Year of manufacture
5	Net weight
6	Rated capacity
7	Serial number
8	Type
9	Product designation

# D Technical Specifications

## 1 Dimensions

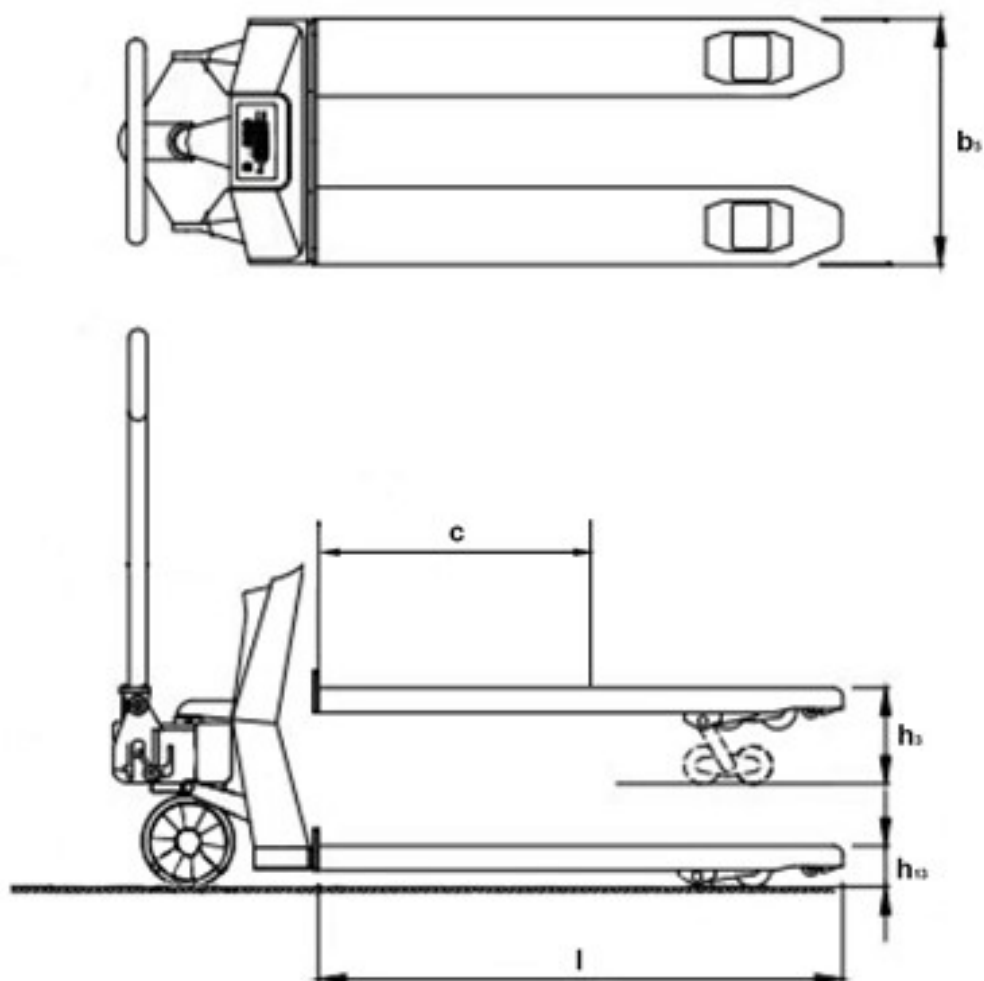


Fig. 5: Device dimensions (schematic)

## 2 Performance data

### Technical data

Description	Item	Value	Unit
<b>Identification</b>			
Manufacturer's type designation	-	PTM 2.0 Scale PRO+	-
Capacity	Q	2.0	t
<b>Basic dimensions</b>			
Fork arms length	l	1150	mm

Description	Item	Value	Unit
Load centre distance	c	600	mm
Lowered height	$h_{13}$	90	mm
Lift (standard mast)	$h_3$	200	mm
Overall width	$b_5$	555	mm

Assembly	Degree of protection
Weigher operating and display unit	IP65
Load cells	IP67

### Battery

Quantity	Capacity	Voltage
1	5 Ah	14.8 V

### Correct environmental conditions

Condition	Value
Application area	Indoor application
Permitted ambient temperature	+5°C to +40°C
Minimum illumination	50 Lx

# E Commissioning and transport

## 1 Using the Truck for the First Time

### *Preparing for commissioning*

- Verify that the warning and information signs are present and undamaged. Replace any damaged or missing signs.
- Check all supplied components for transport damage.
- Check the functionality of the actuators, rollers, wheel axles and scissor lift axles.
- Immediately notify the carrier of any transport damage or missing components.

## 2 Transport

### **⚠ CAUTION!**

#### **Inadequately secured transport!**

Risk of material damage and personal injury due to unsecured loads.

- ▶ The device must be sufficiently secured when transported on an HGV or trailer.
- ▶ Use the lashing rings on the HGV or trailer.
- ▶ The device must only be loaded by specially trained personnel while observing the applicable regulations.

### **⚠ WARNING!**

#### **Inadequately secured load!**

Risk of material damage and personal injury due to falling loads.

- ▶ Always use cranes and lifting gear with sufficient capacity.
- ▶ Attach lifting gear only to the designated attachment points.
- ▶ Ensure that there are no persons in the area under the suspended load.
- ▶ Instruct all persons to leave the hazardous area during crane loading.

### 2.1 Attaching the device

#### *Attaching the device*

- Remove all loads from the load handler.
- Lower the load handler fully and secure it with lashing straps.
- Attach the lifting gear to the designated attachment points and secure it.

*The device is attached and ready for transport.*

# F Operation

## CAUTION!

### **Collisions with persons in the vicinity!**

Risk of personal injury.

- ▶ Before moving the device, raising or lowering the load, instruct persons to leave the hazardous area.
  - ▶ In the case of a potential risk to persons, issue a warning signal in a timely manner.
  - ▶ If endangered persons fail to leave the hazardous area, stop the device immediately.
- 

## **1 Checking the device before daily use**

Regular inspection allows faults or malfunctions to be recognised at an early stage and rectified promptly. This increases the service life of the product and helps to ensure safe operation.

### ***Checking the device for damage and defects before start-up at the beginning of a shift***

- Remove any loads from the device and move the load handler to its lowest position.
- Visually inspect all assemblies for deformation or cracks.
- Check the lift mechanism for correct function and ease of movement. Look out for any unusual noises and blockages.
- Check the load handler and carriage for wear and damage.
- Check the hydraulic system for leaks.
- Check the rollers for correct function and ease of movement.
- Check the hydraulic oil level and top up if necessary.
- Check the vertical elongation of the lift mechanism.
- Verify that all screws and nuts are securely fastened.
- Verify that all signs and warnings are present and legible.
- Immediately notify the relevant supervisor(s) of any damage or defects on the device or attachments.
- Take any devices with damaged or defective safety-relevant components out of service and repair them before next use.



## 2 Raising the load

### **WARNING!**

#### **Falls from great heights!**

Risk of fractures and head injuries due to falling.

► Never lift or carry persons with the load handler.

---

### **WARNING!**

#### **Inadequately secured load!**

Risk of material damage and personal injury due to falling loads.

► Only lift adequately secured loads.

► Position the load's centre of gravity centrally on the device.

► If there is a risk of parts of the load tipping or falling, take suitable safety measures (e.g. load backrest).

---

### **NOTICE**

#### **Exceeding the permitted load capacity!**

Risk of damage to the device due to excessive loads.

► Note the permissible maximum capacity.

---

#### ***Raising the load***

##### ***Requirements***

- The load is correctly palletised and secured against tipping.
- Load handler fully lowered.
- Slowly move the load handler under the load until the load is resting against the fork shank.
- Move the control handle to the "lift" position.
- Move the tiller up and down with a "pumping" action until the load has reached the desired height. Ensure that the load is positioned evenly on the load handler.
- Move the control handle to "neutral" position.

*The load has been raised.*

### 3 Moving the load

#### **WARNING!**

##### **Unevenly distributed loads!**

Risk of personal injury and material damage due to sudden tipping of the load.

- ▶ Ensure that the load is in correct condition.
- ▶ Only move loads if they have been safely and securely applied.
- ▶ Take suitable precautions if there is a risk of the load tipping or falling down (e.g. load backrest).

#### **CAUTION!**

##### **Unintentional lowering of the load!**

Risk of personal injury due to crushing.

- ▶ Before tilting the tiller, ensure that the control handle is in "neutral" or "lift" position.
- ▶ Do not place any part of your body between the load handler and the ground.

#### **CAUTION!**

##### **Unsafe operating condition!**

Risk of personal injury and material damage due to faults or unexpected breakdowns.

- ▶ In the case of faults or unexpected breakdowns, cease operation immediately.
- ▶ Switch off the device and secure it against reactivation.
- ▶ Inform the relevant supervisor(s) or the manufacturer's service department.



The tiller is connected to the swivel castors and transmits the steering and travel movements performed by the operator.

##### ***Moving the load***

###### ***Requirements***

- The load is raised sufficiently high.
- Move the control handle to "neutral" position.
- Push or pull the tiller to move the device forward or back.
- Move the tiller to the side to move left or right.

*The device moves in the desired direction.*

## 4 Lowering the load

### CAUTION!

#### **Lowering heavy loads!**

Risk of personal injury due to crushing.

- ▶ Always lower the load slowly and carefully.
- ▶ Do not place any part of your body between the raised load and the ground.
- ▶ Wear safety shoes.

### NOTICE

#### **Increased impact load!**

Risk of device damage and malfunction due to excessively fast lowering of the load.

- ▶ Always lower the load slowly and carefully.



If the device is to be moved after depositing the load, ensure that there is sufficient room for manoeuvring.

#### ***Lowering the load***

- Move the control handle to the "lower" position.
- To stop the lowering process: Release the control handle.
- Before continued operation: Move the control handle to "neutral" position.

*The load has been lowered.*

## 5 Braking the device

#### ***Braking the device slowly***

- Move the tiller in the opposite direction to the travel direction until the device comes to a stop.

*The device has been stopped.*

#### ***Braking the device quickly (emergency stop)***

- Move the control handle to the "lower" position.
- Lower the load.

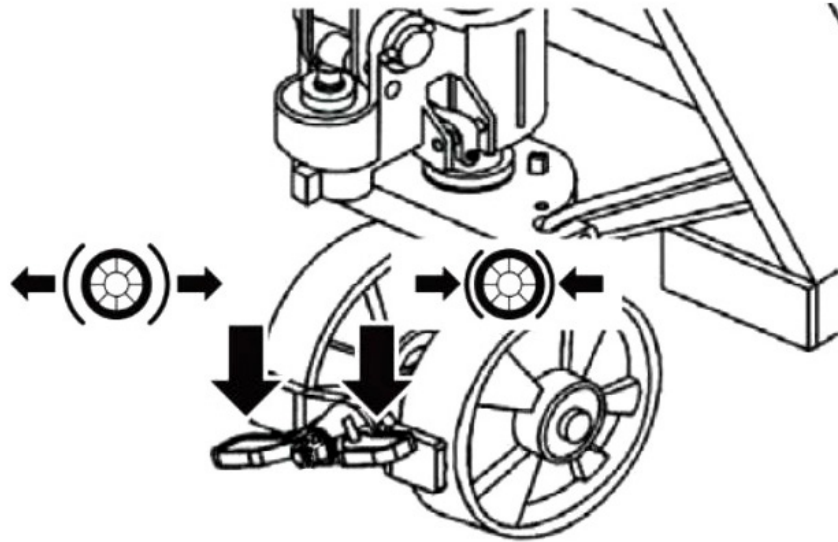
*The lowered load brakes the device.*

## 6 Applying the parking brake

### ***Applying the parking brake***

- To apply the brake, use your foot to press the right side of the brake all the way down.

*The brake shoe is pressed against the wheels and blocks them.*



### ***Releasing the parking brake***

- To release the brake, use your foot to press the left side of the brake all the way down.

*The spring pushes the brake shoe back and releases the wheels.*

## 7 Parking the device

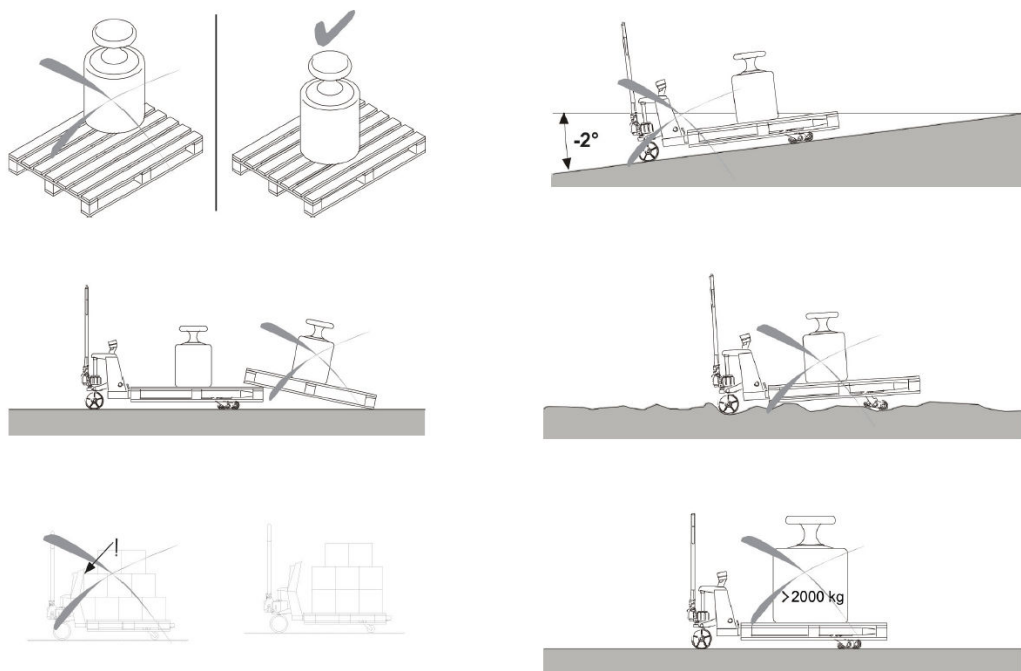
### ***Parking the device securely***

- Position the device on a smooth, level surface.
- Fully lower the load handler.
- If possible, apply the parking brake.
- Fold up the tiller so that it doesn't hinder other operations.

*The device is parked securely.*

## 8 Weighing the load

### 8.1 Preparing the weigher



### 8.2 Weighing the load

#### NOTICE

##### Material damage due to temperature fluctuations

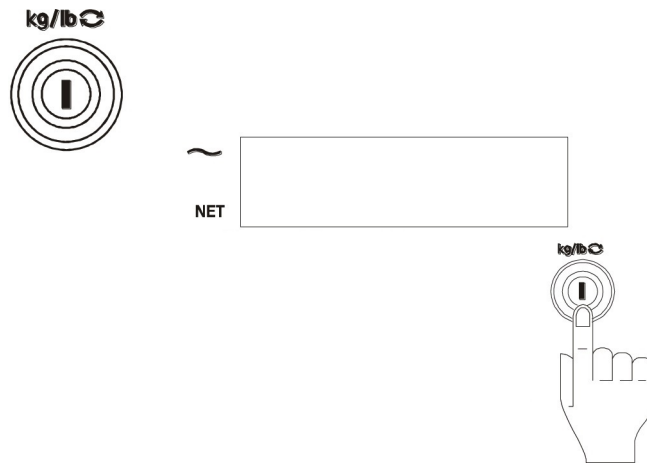
Strong temperature fluctuations can lead to the formation of condensation in the electronics.

- Switch off the scales for acclimatisation in the case of large temperature differences.

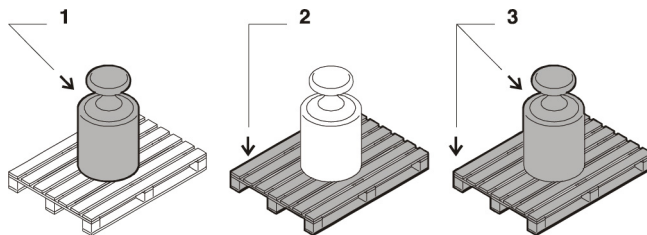


The illustrations may differ.

- Switch on the weigher.



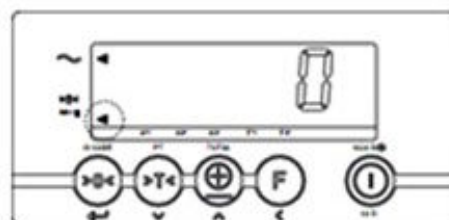
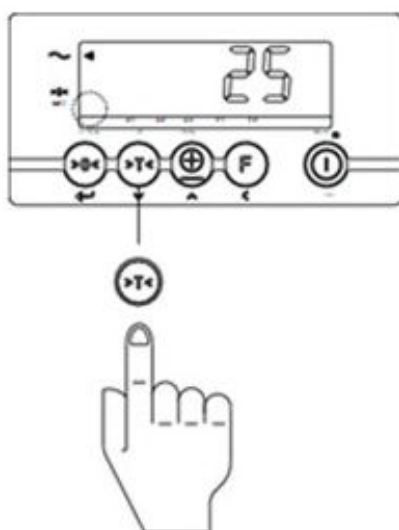
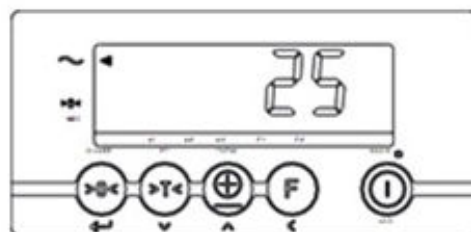
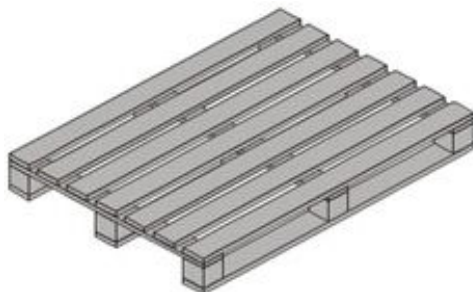
- Determine the gross weight.



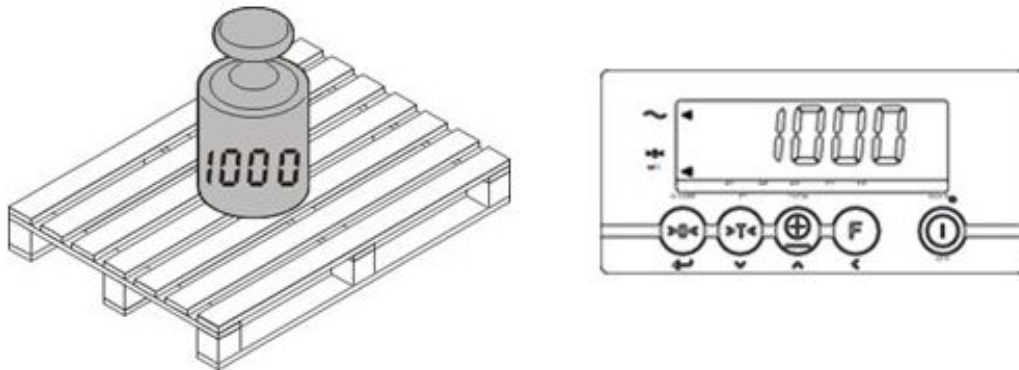
After the load is picked up, the display shows the gross value of the measured weight.

## 8.3 Taring the weigher

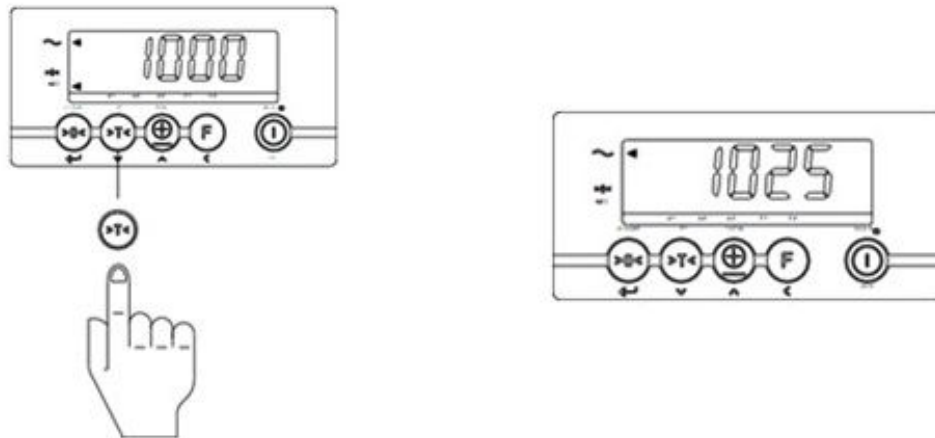
**Net: Automatic tare**



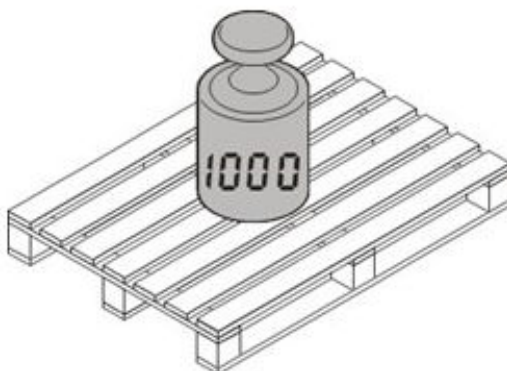
The display is reset to zero. The "NET" indicator shows that the tare weight is activated.



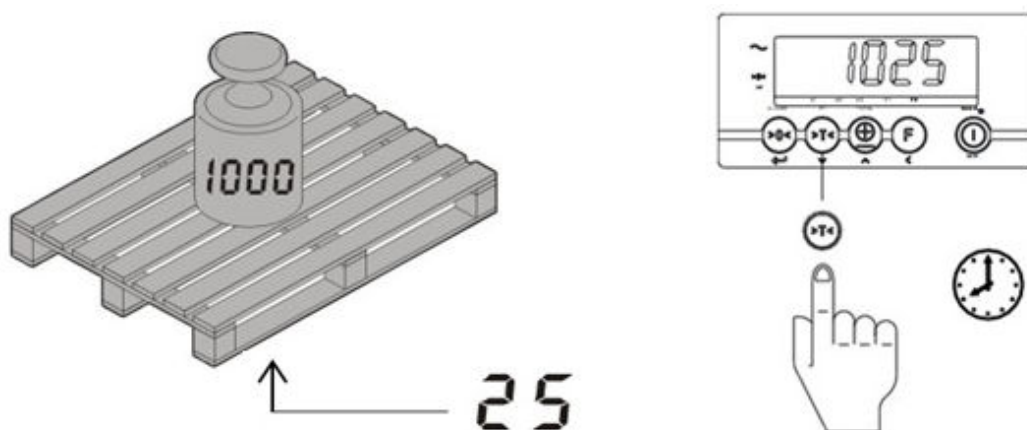
The net weight of the measured load appears on the display.



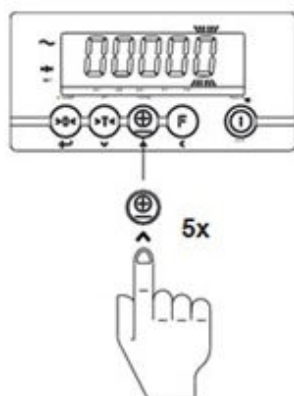
The gross weight is displayed again.



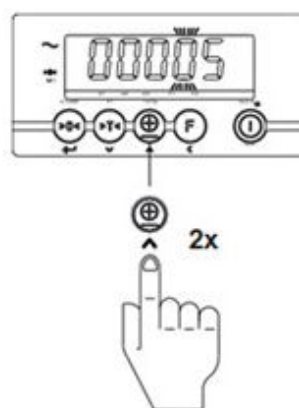
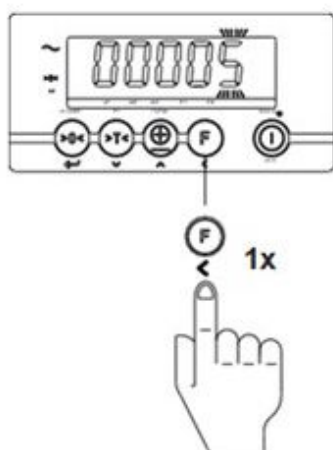
## Net: Manual tare (PT)



Press the **>T<** button for three seconds.

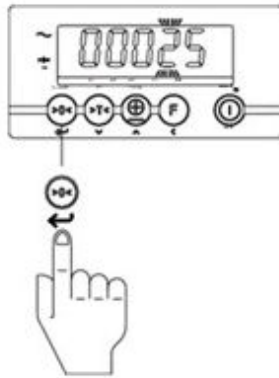


Press the up or down button until the desired value is reached.

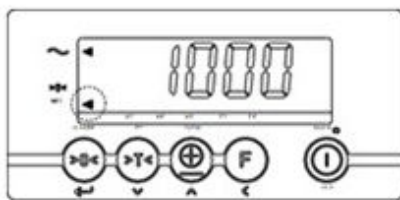


Press the up or down button until the desired value is reached.

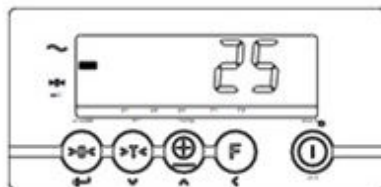
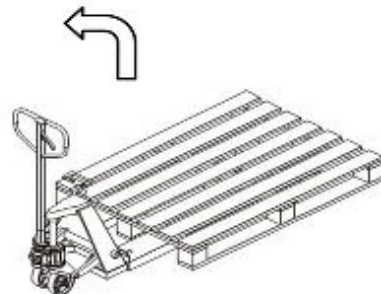
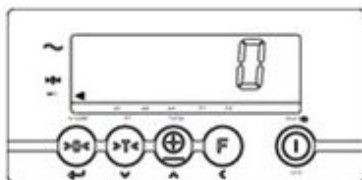




Press **ENTER** to activate the tare weight.

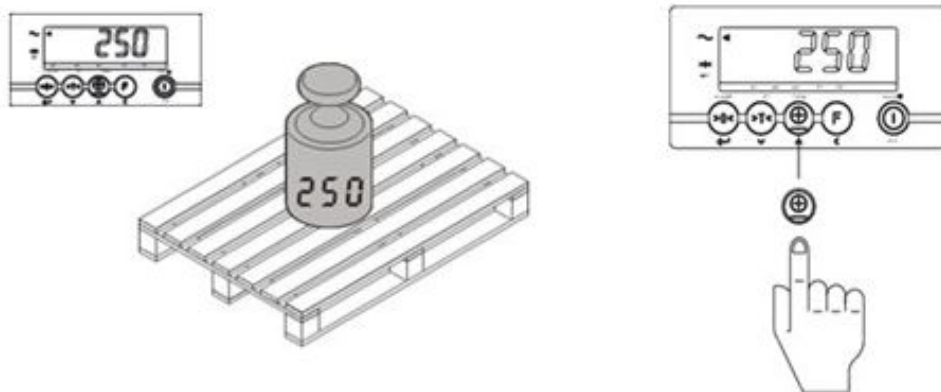


The **NET** indicator lights up.



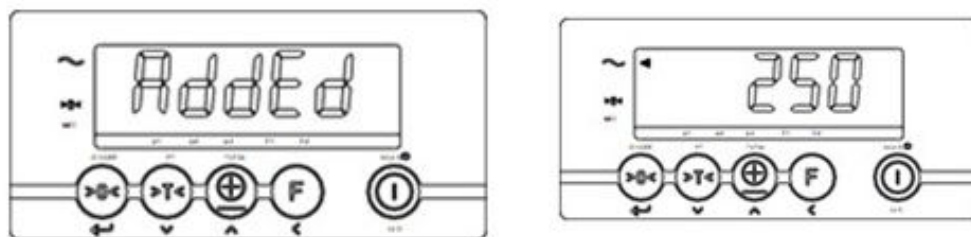
When the pallet truck has been fully unloaded, a negative tare value displayed.

## 8.4 Adding weights and resetting

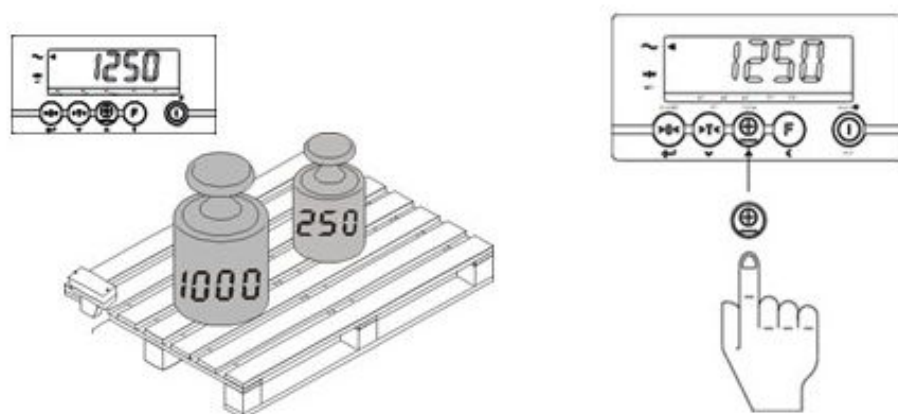


Press the **TOTAL** button to add the measured weight to the total weight.

If a printer is installed, a printout is created. The gross, net and tare weights are printed.

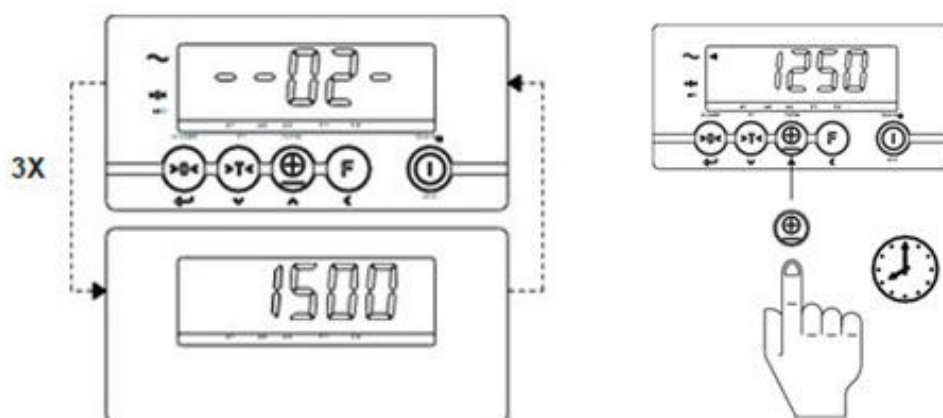


The display automatically reverts to weighing mode.

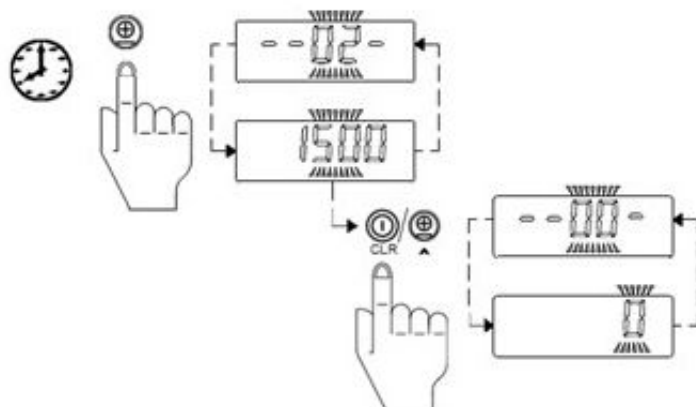


Press the **TOTAL** button to add the measured weight to the total weight.

If a printer is installed, a printout is created. The gross, net and tare weights are printed.



Check the intermediate total by pressing the **TOTAL** button for three seconds.

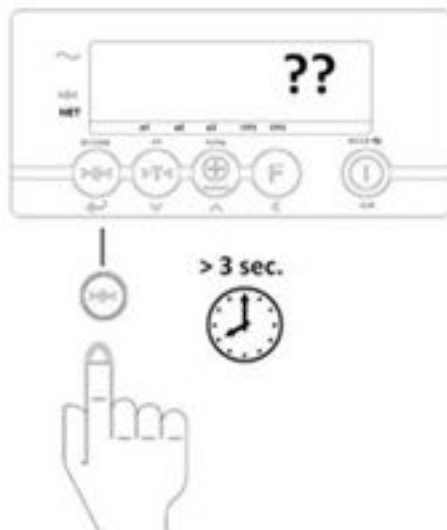


= reset total and print



= reset total

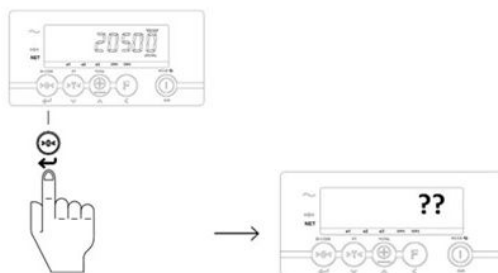
## 8.5 Entering a code



Press the code button for three seconds.



The last code to be used is displayed (e.g. 20500). The right digit flashes.

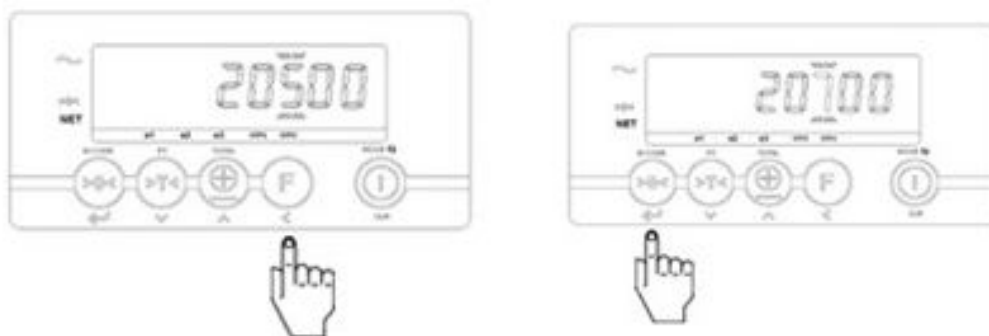


Press **ENTER** to reuse the old code.

The code is activated and the display reverts to weighing mode.

➔ If the code is 00000, it is ignored and does not appear on the printout.

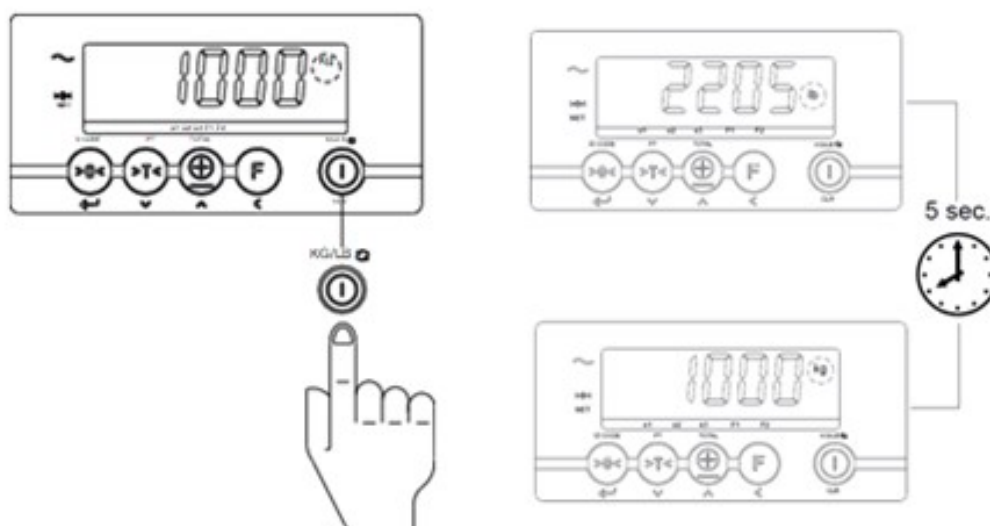
**OR**



Press **<** to select the relevant digit and press the up or down button until the desired value is reached.

Press **ENTER** to confirm the new value.

## 8.6 Choosing between kilograms and pounds



## 8.7 Printing weighing data (option)

### Requirements

- The weighing system is equipped with a printer.

- ➔ The date and time are only printed if the optional Bluetooth WLAN module is installed.
- ➔ The printout shows the weights with the following letters:  
 Gross weight: B/G  
 Net weight: N  
 Tare weight: PT  
 Total net weight: TOT

The following print options are available:

### Standard printout without code

B/G	1234.5 kg
T	34.5 kg
N	1200.0 kg
No.	1
10/07/03	17:45

#### **Standard printout with code**

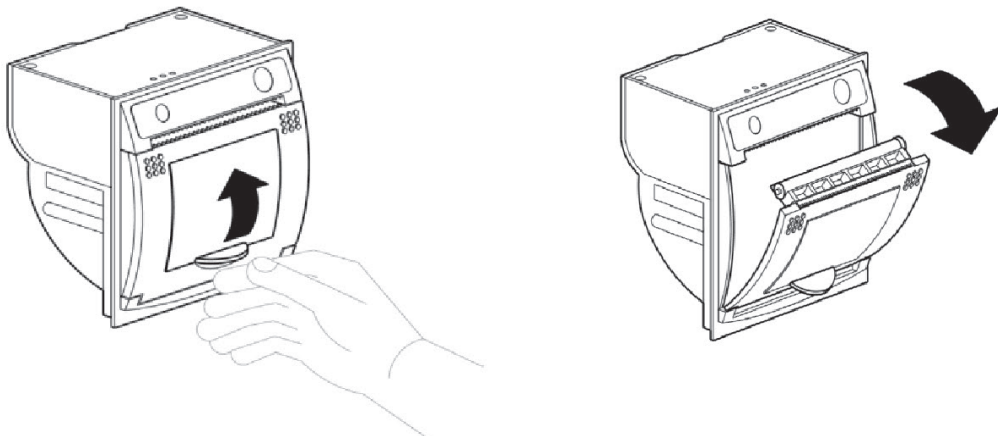
CODE 12345

B/G	1234.5 kg
T	34.5 kg
N	1200.0 kg
No.	1
10/07/03	17:45

#### **Cumulative printout (always without code)**

Tot. B/G	1234.5 kg
Tot. T	34.5 kg
Tot. N	1200.0 kg
Tot. No.	999
10/07/03	17:45

#### **Replacing the paper of the built-in printer**



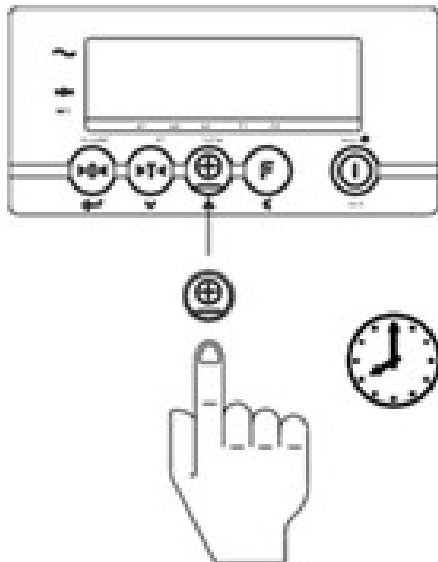
#### ***Replacing paper***

- To open the built-in printer, pull the handle until it is released from the locked position.
- Remove the empty paper roll from the holder.
- Unroll new paper roll by approx. 5 cm.
- Insert the new paper roll, leaving the unrolled 5 cm of paper hanging outside the printer.

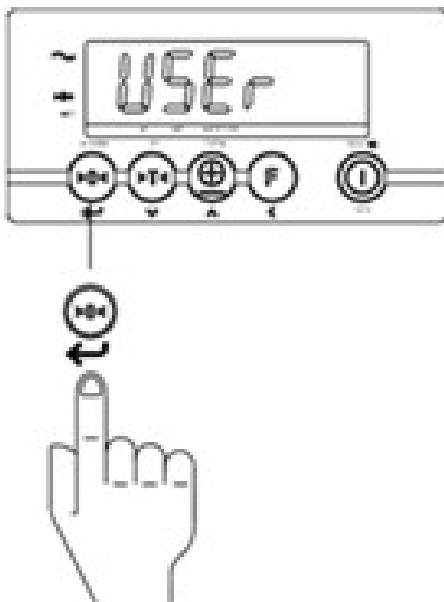
- Close the flap by pressing evenly on both sides.
- Remove the excess paper.

*The paper has been replaced.*

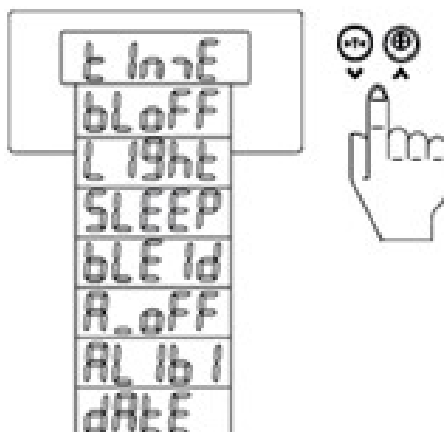
### 8.7.1 Changing the time and date on the printout



Open the user menu by pressing the **TOTAL** button for ten seconds.

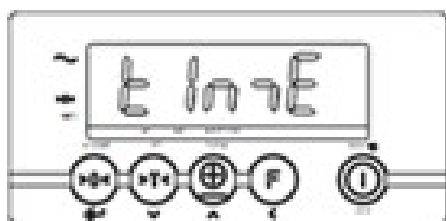


Press **ENTER** to select.

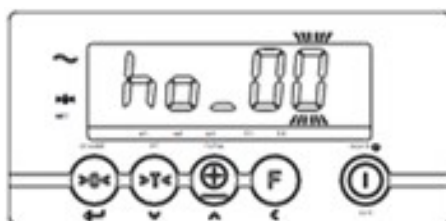


In the user menu, select **TIME** to change the time.

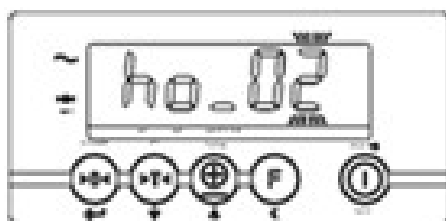




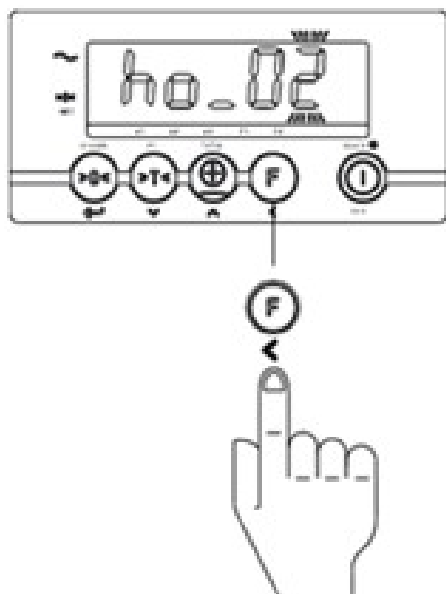
Press **ENTER** to change the time.



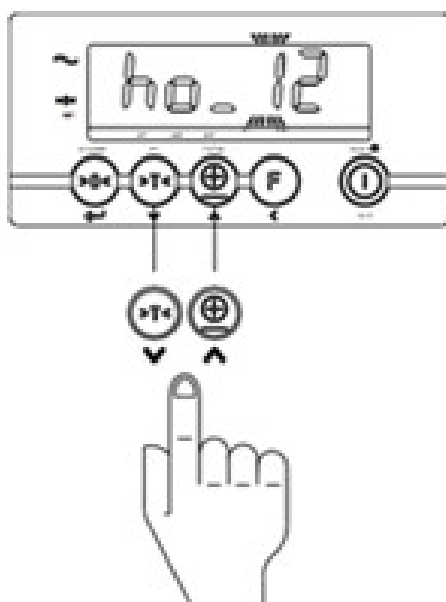
**ho\_00** or the previous time setting in hours appears on the display.



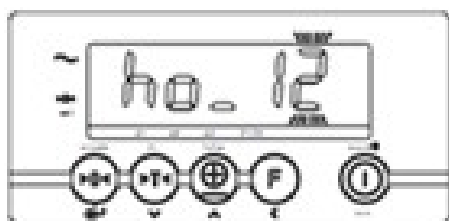
If a printer is installed, a printout is created. The gross, net and tare weights are printed.



Press < to move to the next digit.



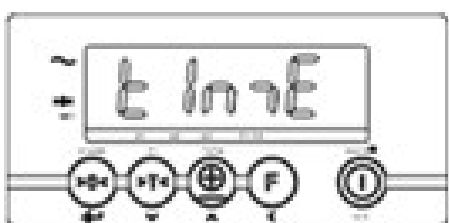
Press the up or down button until the desired value is reached.



Press **ENTER** to confirm the new value.



Repeat the process to confirm or change: Minute setting **m\_00**.

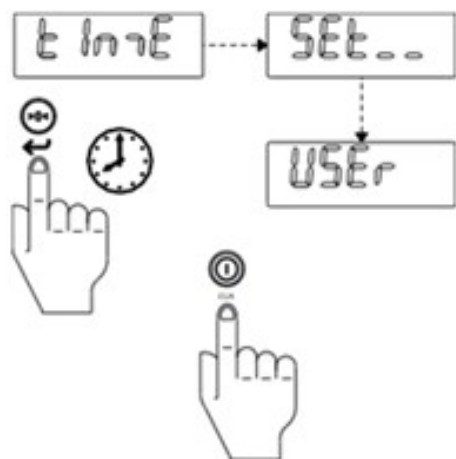


Press **ENTER** for three seconds to confirm the new setting.



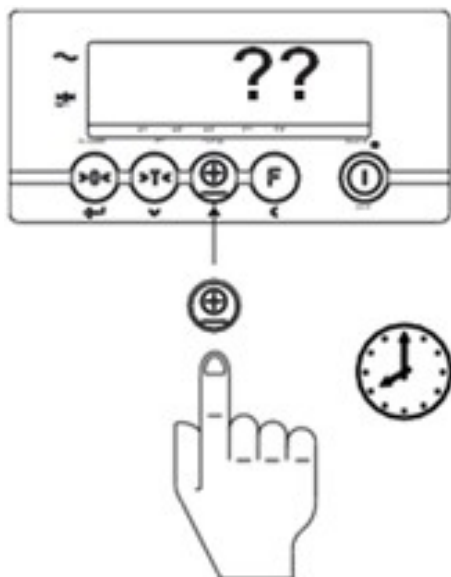
3 sec.



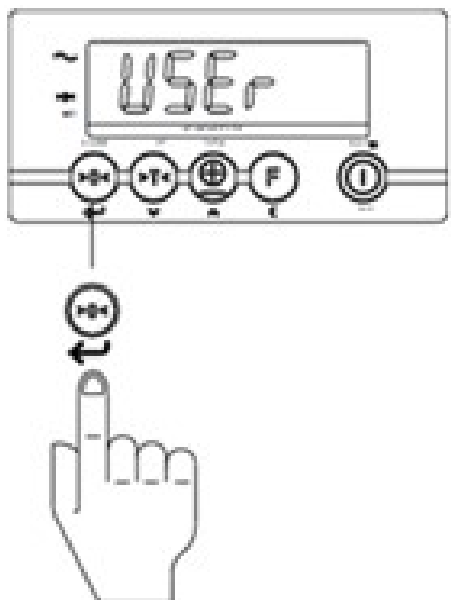


The display reverts to weighing mode.

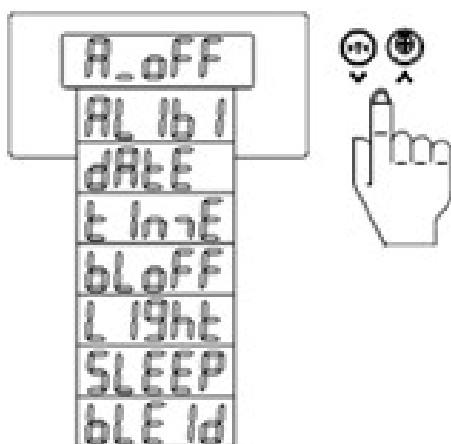
## 8.8 Adjusting user settings



Open the user menu by pressing the **TOTAL** button for ten seconds.

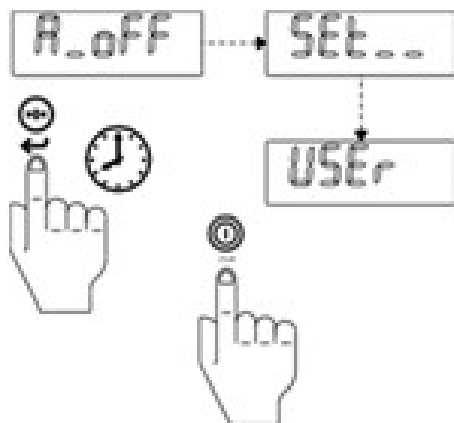


Press **ENTER** to select.



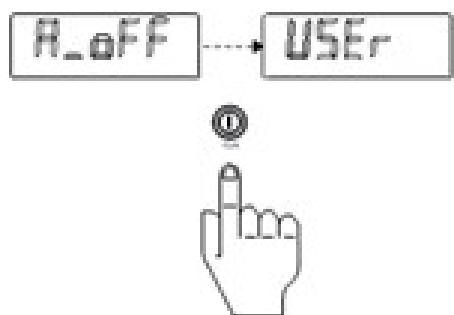
If desired, these settings can be changed by the user.

**Exit and save:**



Press the code button for 3 seconds.  
Press the ON switch.  
The display reverts to weighing mode.

#### **Exit without saving:**



Press the ON switch.  
The display reverts to weighing mode.

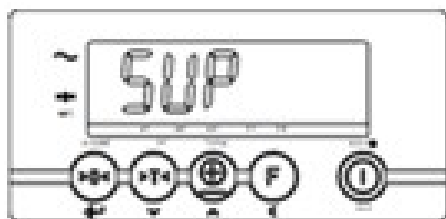
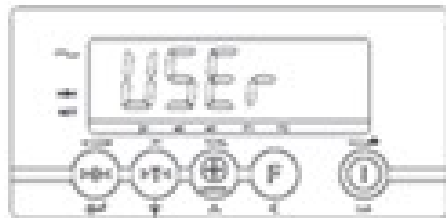
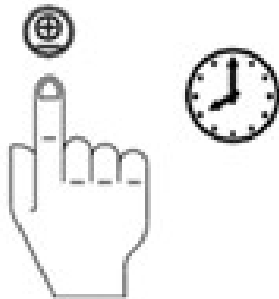
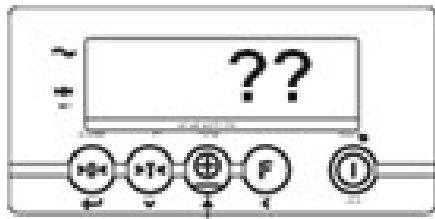
### **8.8.1 User menu explanations**

- ➔ If the designations "Primary/Secondary" for hierarchical administration appear in the user menu, these refer to the obsolete designations "Master/Slave".
- ➔ The following table refers to the figure above.

User menu	Function	Comments	Settings	Default value 1 AD
A_OFF	Setting of the automatic shutdown function in minutes.	A setting of "00" means always on (higher power consumption).	00–99	30
BLEId	Readout of the unique Bluetooth addresses of the secondary module on the main board or fork module 1/2.	Scrolling on the display upon selection.	SLAvE/For-1/ For-2	SLAvE
Alibi	Readout of the alibi memory (only for OIML or NTEP systems) based on entry of alibi no.	-	-	-
dAtE	Date setting.	-	da_xx/m_xx/ YE_xx	-

User menu	Function	Comments	Settings	Default value 1 AD
timE	Time setting.	-	ho_xx/m_xx	-
bLoFF	Setting of the self-deactivation time for the background illumination in seconds.	A setting of "0" means always on (higher power consumption).	0/20/40/80/160/320	20
LlGht	Setting of the brightness of the background illumination in percent.	A setting of "0" means always off.	0/25/50/75/100/125/150/175/200	100
SLEEP	Setting of the time for standby mode in minutes.	A setting of "00" means never in standby.	00–99	20

## 8.8.2 Supervisor menu (option)



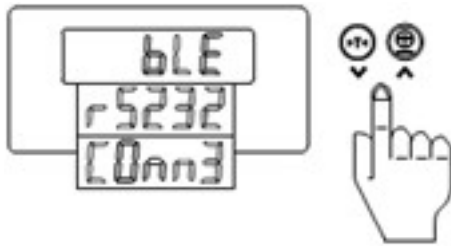
→ This function is password-protected.

Open the user menu by pressing the **TOTAL** button for ten seconds.

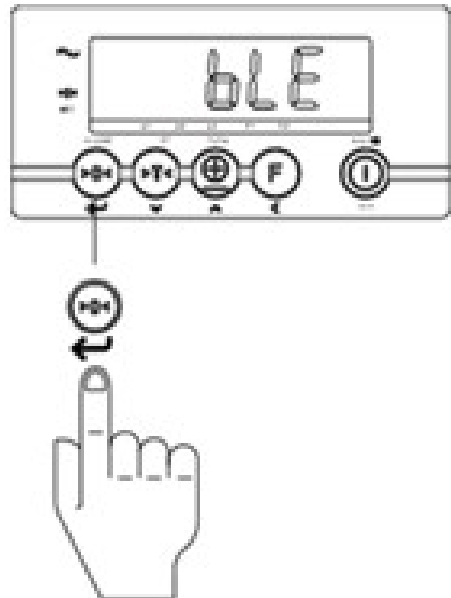
Press **>T<** to access the supervisor menu.

Press **ENTER** to select.

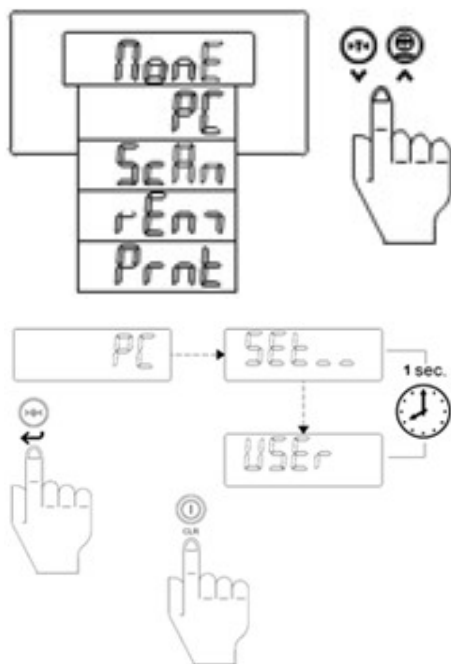




Select to change the relevant setting.



Press **ENTER** to select.



Select to change the relevant setting.

### 8.8.2.1 Supervisor menu explanations

- ➔ If the designations "Primary/Secondary" for hierarchical administration appear in the supervisor menu, these refer to the obsolete designations "Master/Slave".

Supervis or menu (Sup menu)	Function	Comments	Settings	Default value 1 AD
BLE	Setting of the function of the Bluetooth interface of the secondary module integrated on the main board.	See below for subfunctions.	PC/ScAn/rEm/ Prnt/NonE	PC bidir
rS232	Setting of the function of the RS-232 interface for wired options.	See below for subfunctions.	PC/ScAn/rEm/ Prnt/NonE	Prnt Prot- ASCII   LF 04 LAYou- Std   bArcd- NONE   SuPPL- Pr_On
COm3	Setting of the function of the COM3 interface for stacking options.	See below for subfunctions.	PC/ScAn/rEm/ Prnt/NonE	NonE
<b>Subfunctions</b>				
PC	Selection of the PC function.	bidir: Select when using PC commands from a host PC/terminal.	bidir/rdc-A/rdc-N	bidir
		rdc-A: Select when using the RDC application with confirmation.	-	-
		rdc-N: Select when using the RDC application without confirmation.	-	-
ScAN	Selection of the scanner function.	Not available; reserved for future use.	N/A	N/A
rEm	Selection of the remote display function.	Selection of the continuous transmission of display values to a RAVAS remote display.	N/A	N/A
Prnt	Selection of the printer function.	Prot: Select if the number of line feeds is to be changed upon shutdown.	0-8	4

Supervis or menu (Sup menu)	Function	Comments	Settings	Default value 1 AD
<b>Subfunctions</b>				
		LAYou: Select if the layout is to be changed.	Std/tot	Std
		bArcd: Select if a barcode is required on the printout. The net weight, the gross weight or the net and gross weight can be printed as a barcode. The values are also printed in text form. Once a barcode has been selected, the height and type ("family") of the barcode must be entered.	NONE/Net/ GroSS/NEtGr	NONE
		Height	20-90	50
		Family: There are two barcode types ("families"): barcode 128 and barcode 39. Select 128-1 or 39-1 for the printer type XTRA; select 128-2 or 39-2 for printer types MPP8250 and 7810v.	128-1/128-2/39-1/39-2	128-2
		SuPPL: Select if the power supply of the printer needs to be changed.	Pr_On/Cont	Pr_On
NonE	Do not select a function for this interface.			

### 8.8.3 RAVAS WeightsApp (option)

 This function is optional.

With the RAVAS WeightsApp, the data from the mobile weighing system can be displayed directly on a smartphone or tablet.

With the app, you can:

- Display the weight in large digits on a smartphone or tablet.
- Store the measured gross weight, tare weight, product code, date and time.
- Store the ID of the device or operator.
- Enter the ID of an operator or device.
- Enter a tare value (automatic or manual).
- Reset the weighing system to 0.

The data can be sent to any e-mail address in CSV format and subsequently opened in a PC spreadsheet program.

The date and time are generated automatically. If the smartphone or tablet features an integrated barcode scanner, it can be used to enter product codes.

The app also allows you to download a log file from the display unit, which can then be sent in CSV format for technical analysis in the event of a fault.

The RAVAS WeightsApp can be downloaded free of charge from the Google Play Store or the Apple App Store.

Instructions for using the RAVAS WeightsApp are available at [www.ravas.com](http://www.ravas.com).

# G Maintenance and repair

## 1 Faults and troubleshooting

- In the case of a device fault, carry out the following troubleshooting measures.
- If you encounter problems when carrying out the measures or if they fail to rectify the problem, contact the manufacturer's customer service department.

### **CAUTION!**

#### **Incorrect maintenance!**


Risk of material damage and personal injury due to failure of important components.

- ▶ Use only original spare parts from the manufacturer.
  - ▶ Maintenance and repair work must only be completed by specialist personnel with the requisite training.
  - ▶ When replacing rollers, ensure that the device remains level (e.g. always replace left and right at the same time).
  - ▶ Always observe the device-specific settings when carrying out repairs or replacing components.
-

## Fault table

<b>Fault</b>	<b>Possible cause</b>	<b>Fault rectification</b>
Control lever is in "lift" position, load handler not lifting.	Air in the hydraulic system.	Bleed the hydraulic system.
	Hydraulic pump faulty.	Check the hydraulic pump and replace if necessary.
Load handler not lifting even though the hydraulic pump is working correctly.	Load is too heavy (overload valve actuated).	Reduce the load.
	Control lever is not set correctly.	Set the control lever or piston rod.
	Lowering valve no longer closes or valve body is leaking due to oil contamination.	Clean the lowering valve or piston rod and replace if necessary.
	Oil level in hydraulic reservoir too low.	Lower the load handler and top up the hydraulic oil.
	Viscosity of hydraulic oil is too high.	Use suitable hydraulic oil.
	Lowering valve is not coordinated with control lever.	Adjust the piston rod nut.
Load handler does not reach the top position.	Oil level in hydraulic reservoir too low.	Lower the load handler and top up the hydraulic oil.
Raised load is lowered only slowly or not at all.	Ambient temperature too low, hydraulic oil too viscous.	Move to area with higher ambient temperature.
	Hydraulic cylinder is damaged or deformed.	Repair components or have them replaced.
Raised load handler lowers automatically.	Hydraulic unit is leaking.	Check the hydraulic unit and replace if necessary.
	Lowering valve no longer closes or valve body is leaking due to oil contamination.	Adjust, clean or replace the valve.
Button operations are not accepted and functions are not executed.	Load is not stable.	Stabilise load until stabilisation indicator is displayed.

## Errors and warning indicators on the weigher

Display	Possible cause	Fault rectification
Err01	Weighing cell signal is unstable.	Fault is rectified automatically.
Err02	Measuring range exceeded.	Fault is rectified automatically after partial unloading.
Err03	Negative weight, operation not permitted.	Fault is rectified automatically.
Err04	Outside zero range.	Press any button.
Err06	Input signal too high.	Fault is rectified automatically after input correction.
Err08	Calibration outside measuring range (negative).	Fault is rectified automatically.
Err09	Calibration outside measuring range (signal too low).	Fault is rectified automatically.
Err10	Calibration counter for 2nd point lower than counter for 1st point or calibration counter for 3rd point lower than counter for 2nd point.	Fault is rectified automatically.
Err14	Setpoint 2 < setpoint 1; this is not permitted.	Fault is rectified automatically.
CAL-J	Operation not permitted (version with calibration facility only).	If the process is intentional, remove jumper JP1. <sup>1</sup>
Err98	Calibration point must be higher than previous point.	Fault is rectified automatically.
Err99	Operation only permitted when starting devices.	Fault is rectified automatically.
----	Negative weighing cell signal.	Raise forks off the ground.
Err_L	Pallet truck is not horizontal (version with calibration facility only).	Park the pallet truck on a horizontal surface.
	Batteries of the display unit are discharged.	Charge battery set.

<sup>1)</sup> After this measure, a complete recalibration and configuration of the system is required.

<b>Display</b>	<b>Possible cause</b>	<b>Fault rectification</b>
OimL	Operation not permitted (version with calibration facility only).	Fault is rectified automatically.
ntEP	Operation not permitted (version with calibration facility only).	Fault is rectified automatically.
SCALL	Test path number out of range.	Contact service department.
-	Display shows only stripes if the inclination is greater than 2° (version with calibration facility only).	Position the weighing system on level ground.



## 2 Maintenance

### CAUTION!

#### **Uncontrolled movement of the device!**

Risk of personal injury and material damage due to sudden movements of the device.

- ▶ Park the device securely when not in use and before maintenance work.
  - ▶ If possible, switch off the device.
  - ▶ If possible, use the parking brake.
- 

### CAUTION!

#### **Safety equipment rendered ineffective!**

Risk of personal injury and material damage due to ineffective safety equipment.

- ▶ Under no circumstances must safety equipment (e.g. emergency disconnect switch) be rendered ineffective.
  - ▶ Repairs must only be carried out by qualified specialists.
- 

### 2.1 Maintenance intervals

#### *Requirements*

- The device is used in single-shift operation.
- The device is used under normal operating conditions – see page 7.
- Maintain the device at the specified intervals.
- If the device is operated in very dusty conditions, subjected to extreme temperature fluctuations or used in multi-shift operation, the intervals must be reduced accordingly.

Maintenance interval	Maintenance
Daily.	Check the device before use – see page 24
After all cleaning and repair work.	<ul style="list-style-type: none"> <li>– Lubricate the device at the designated points – see page 58.</li> <li>– Check and bleed the hydraulic system and/or top up oil.</li> </ul>
After the first 100 operating hours.	<ul style="list-style-type: none"> <li>– Re-tighten wheel nuts and bolts.</li> <li>– Check the hydraulic system for leaks.</li> <li>– Check that retaining rings, locking and cotter pins are in place.</li> </ul>
Monthly.	<ul style="list-style-type: none"> <li>– Lubricate all bearings and shafts with long-life lubricant.</li> <li>– Remove dirt and foreign bodies.</li> </ul>
Every 3 months.	Check the setting of the bleed valve.
Every 4000 operating hours or at least every 6 months.	<ul style="list-style-type: none"> <li>– Check the hydraulic oil and replace if necessary (more frequently if the oil is very dark, contaminated or flocculating).</li> <li>– Check all parts of the device for wear and replace faulty parts.</li> </ul>
Annually or after unusual events.	Have safety checks performed at regular intervals and following any unusual events – see page 61.

## 2.2 Consumables

### Lubricants

Lubricants		Value	Unit
Hydraulic oil	Oil type	ISO VG 32	-
	Viscosity	30	cSt at 40 °C
	Refill quantity	0.4	Litres
Multi-purpose lubricant		MoS2 anti-friction coating	-

## 3 Repairs

### 3.1 Replacing the batteries of the weigher operating and display unit

#### **⚠ CAUTION!**

#### **Escaping battery acid!**

Risk of chemical burns to the skin, eyes and mucous membranes.

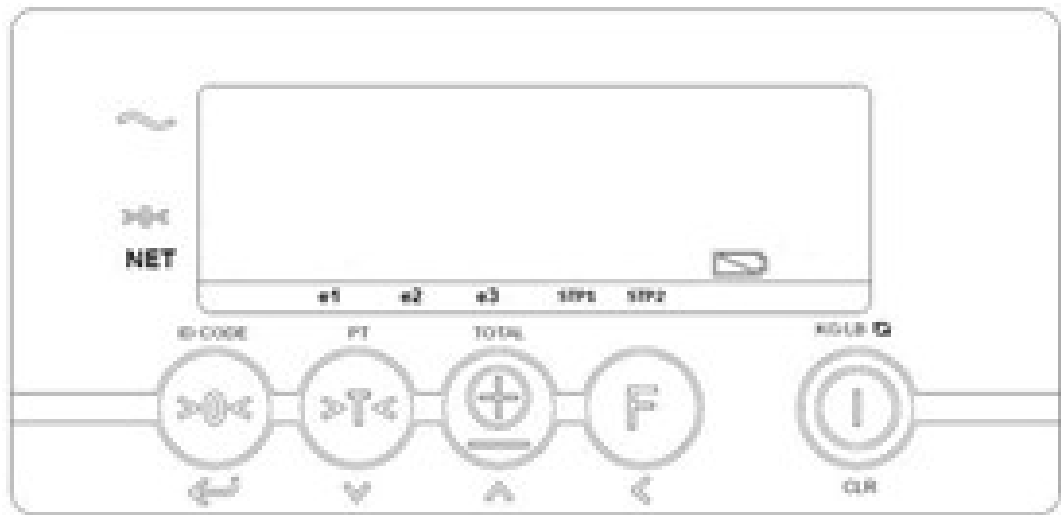
- ▶ To prevent battery acid escaping, observe the instructions for safe handling of batteries.
- ▶ If battery acid has escaped, avoid contact with the skin, eyes and mucous membranes.
- ▶ In the case of contact with battery acid, immediately rinse the affected area with plenty of clear water and contact a doctor immediately.

## NOTICE

### Leaking batteries!

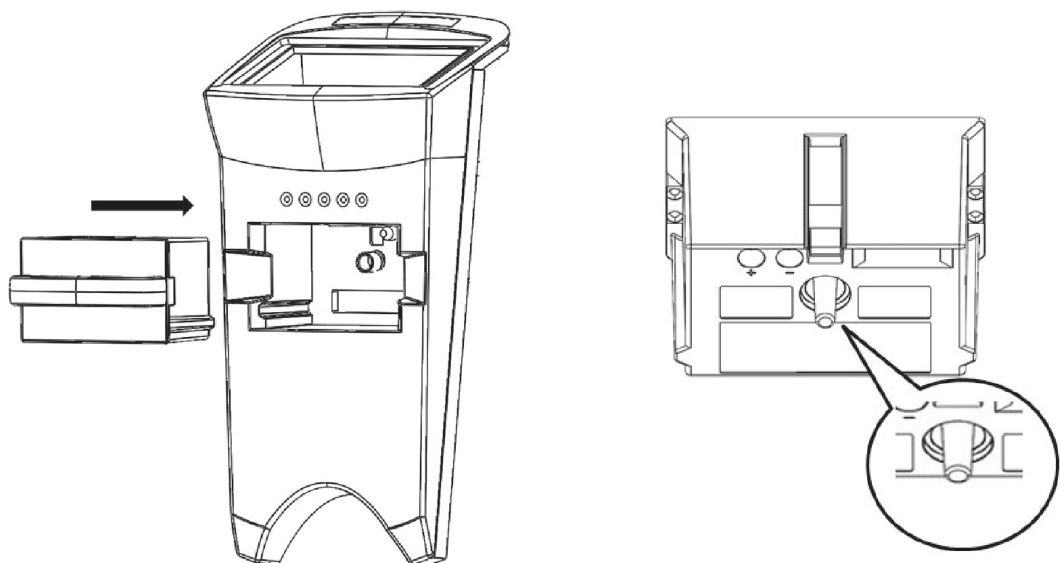
Risk of device damage due to battery acid.

- ▶ Do not expose batteries to extreme conditions such as heat.
- ▶ Remove dead batteries from the device immediately.
- ▶ If the device is not used for extended periods, remove the batteries from the device.



### Requirements

- The battery voltage is too low for continued operation.
- The "low battery" indicator lights up on the display.<sup>2</sup>
- Switch off the weigher.
- Turn the tiller 45° to gain access to the battery.
- Pull the dead battery out of the housing by the handle.
- Clean the battery and device contacts.
- Insert new or charged battery.
- Ensure correct polarity.



<sup>2</sup>) This indicator disappears automatically after two minutes.

## 3.2 Charging the batteries of the weigher's operating and display unit

- Charging a fully discharged battery takes approx. 7 hours. The time required to fully charge a partially discharged battery is correspondingly shorter.  
When the battery is fully charged, the charger stops automatically.  
Remove the battery from the charger after charging.

- Use only the supplied charger to charge the batteries.  
When using the device in multi-shift operation or if it is equipped with a printer, we recommend that you procure an additional battery.

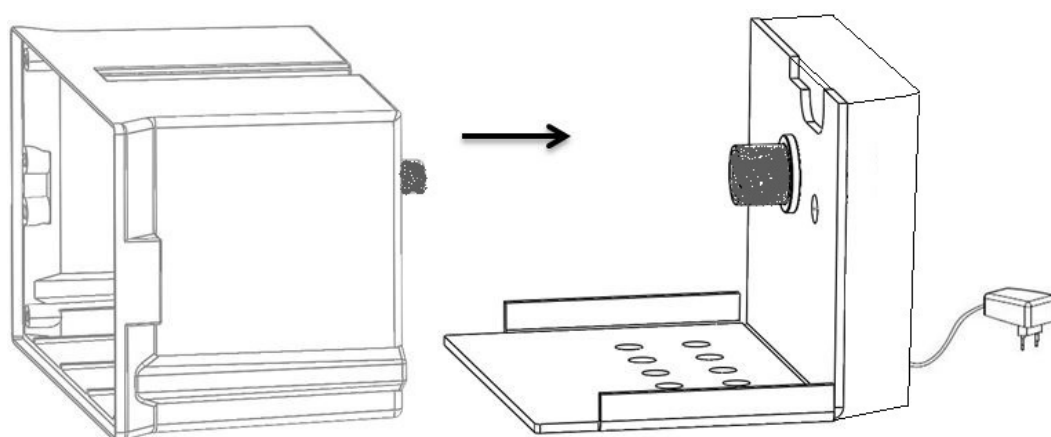
### Requirements

- The battery voltage is too low for continued operation.
- The "low battery" indicator lights up on the display.<sup>3</sup>
- Insert the battery to be charged into the charger.
- Supply power to the charger plug; supply voltage 220-240 VAC.

- Charge an empty battery for at least 8 hours to maintain the battery's capacity.

*Once charging is completed, the LED on the charger lights up green.*

- *The battery cannot be overcharged since the charger switches off automatically.*



- Disconnect the charger plug from the power supply.
- Remove the battery from the charger.

- If a charged battery remains in the charger, it will be discharged again and the battery capacity will decrease.

- The battery is a consumable article. Its capacity gradually decreases in line with its age and usage. If the operating time of the battery is becoming ever shorter, it has reached the end of its useful life.
- ▶ Order a new battery.
  - ▶ Correct usage and charging will extend the service life of the battery.

<sup>3)</sup> This indicator disappears automatically after two minutes.

### 3.3 Safety tests to be performed at intervals and after unusual events

- Always perform safety checks in accordance with national regulations. These may deviate from the steps listed below.

#### *Requirements*

- The inspecting person is qualified to conduct the following check.
  - The inspecting person is independent and unbiased (from an operational and business perspective) and assesses the device purely in terms of its safety.
  - The inspecting person possesses sufficient knowledge and experience to assess the condition of the device and the effectiveness of the safety equipment based on the rules of technology and the principles for testing the described device.
- 
- Inspect the technical condition of the device with regard to accident safety.
  - Thoroughly check the device for damage.
  - Produce a written test report and retain it for at least 2 years. Responsibility for the test report rests with the owner.
  - Rectify any identified defects before next using the device.
  - Following a successful inspection, attach an inspection plaque to the device in a visible location.

# H Shutdown, storage and disposal

## 1 Decommissioning

### 1.1 Shutting down the device

- Thoroughly clean the device.
- Check the hydraulic oil level and top up if necessary.
- Apply a thin layer of oil or grease to any non-painted mechanical components.
- Lubricate the device.

### 1.2 Returning the device to service after shutdown

- Thoroughly clean the device.
- Lubricate the device.
- Check the hydraulic oil for condensation water and replace the oil if necessary.
- Start up the device.
- Perform a complete function check immediately after start-up.

## 2 Storage

### 2.1 Storing the device

#### **NOTICE**

##### **Incorrect storage!**

Risk of material damage.

- ▶ Always store the device in a dry and frost-free environment.
- ▶ Jack up the device so that the rollers can spin freely.

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##### ***Storing the device***

###### *Requirements*

- Device is being taken out of service for more than 2 months (e.g. for operational reasons).
- Device has been prepared for storage as described, see page 62.
- Protect the device against dust and corrosion, e.g. using a tarpaulin.
- Before storing the device for longer than 6 months, discuss necessary additional measures with the manufacturer's customer service department.

### 2.2 Storing the batteries of the weigher's operating and display unit



If the weighing system is not used for an extended period, ensure that the remaining charge level is approx. 70%.

- Charge battery every six months and ensure that it does not fully discharge.
- Store the battery separately from the weighing system in a closed room.
- Protect the battery from direct sunlight and moisture.

## **3 Disposal**

### **3.1 Decommissioning the device**

- Observe the applicable regulations in the country of use when decommissioning the device.

### **3.2 Disposing of the device**

- Observe the country-specific regulations regarding disposal of the device and consumables.

### **3.3 Disposing of the batteries of the weigher's operating and display unit**

Lithium-ion batteries are valuable, recyclable resources.

- Observe country-specific regulations when recycling defective batteries.
- If in doubt, return the battery to the dealer to ensure correct disposal.

