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Installation instructions

U-shaped weighing bridge

KERN KFU V20 / V30

Version 1.2

10/2024

E



KFU-IA-e-2412



KERN KFU

Version 1.2 10/2024

Installation instructions U-weighing bridge

Table of contents

1	General information	3
2	Technical data	3
2.1	Device overview	4
3	Basic information (general)	5
3.1	Documentation	5
3.2	Intended use	5
3.3	Improper use	5
3.4	Warranty	5
3.5	Test equipment monitoring	6
4	Basic safety instructions	6
4.1	Observe the notes in the operating instructions	6
4.2	Staff training	6
5	Transportation and storage	6
5.1	Control on takeover	6
5.2	Packaging/return transportation	6
6	Unpacking, installation and commissioning	7
6.1	Installation site, place of use	7
6.2	Unpacking and setting up	8
6.3	Setting up, leveling	9
6.4	Connecting a display device.....	13
7	Operation	13
7.1	Operating limits.....	14
7.2	Weighbridge loading/unloading	14
8	Maintenance, servicing, disposal	15
8.1	Daily checks	15
8.2	Cleaning	15
8.3	Maintenance, servicing.....	15
8.4	Waste disposal	15
8.5	Small breakdown service.....	16
9	Service documents	17
9.1	Overview, setting instructions, tolerances	17
9.2	Checking and adjusting the corner load	19
10	Dead load and Overload protection	21

1 General information

These installation instructions contain all the information required for the installation and commissioning of the following weighing platforms:

KERN KFU 600V20M

KERN KFU 1500V20M

KERN KFU 600V30M

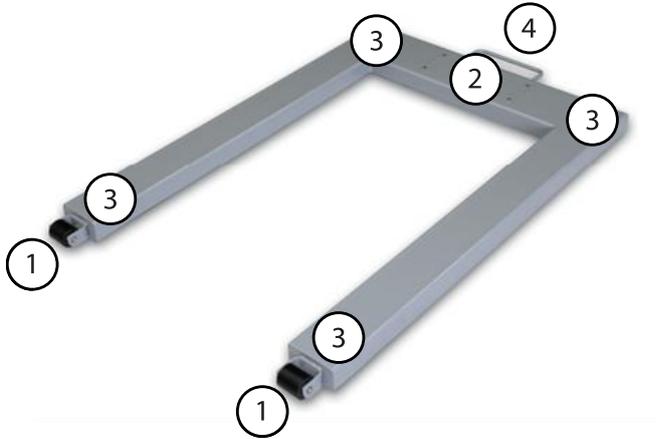
KERN KFU 1500V30M

2 Technical data

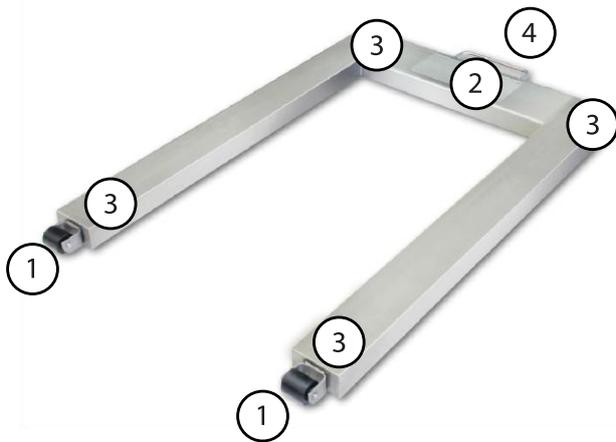
Model	Max. weighing range kg	Readability (d) kg	Calibration values (e) kg	Min. load min kg	Cable length approx. m	Net weight approx. kg
Steel, powder-coated						
KFU 600V20M	600	0,2	0,2	4	5	55
KFU 1500V20M	1500	0,5	0,5	10	5	55
Stainless steel						
KFU 600V30M	600	0,2	0,2	4	5	55
KFU 1500V30M	1500	0,5	0,5	10	5	55

2.1 Device overview

KFU 600V20M
KFU 1500V20M



KFU 600V30M
KFU 1500V30M



- 1 Castors for transportation
- 2 Terminal box cover
- 3 Cover screws for leveling
- 4 Handle for transportation

3 Basic information (general)

3.1 Documentation

These installation instructions contain all the information for setting up and commissioning the KERN KFU U-shaped weighing platforms.

In combination with a display unit, hereinafter referred to as a weighing system, the operation and configuration can be found in the instructions for the display unit.

3.2 Intended use

The KERN KFU is designed for determining the weight of Euro pallets and containers with the dimensions of Euro pallets. It is intended for use as a "non-automatic scale". Once a stable weight value has been reached, the weight value can be read off.

3.3 Improper use

Do not leave a permanent load on the weighing platform. This can damage the measuring system damage.

Avoid shocks and overloading the weighing system above the specified maximum load (Max), minus any existing tare load. This could damage the weighing system.

Never operate in potentially explosive atmospheres. The standard version is not explosion-proof.

The weighing system must not be modified in any way. This can lead to incorrect weighing results, safety-related defects and the destruction of the weighing system.

The weighing system may only be used in accordance with the specifications described. Deviating areas of use/application must be approved in writing by KERN.



⇒ If the weighing platform is to be used in the EX area, please contact KERN.

3.4 Warranty

Warranty expires with

- Non-compliance with our specifications in the operating instructions
- Use outside the described applications
- structural changes to the device
- mechanical damage and damage caused by media, liquids
- natural wear and tear
- improper installation or electrical installation
- Overload of the measuring system

3.5 Test equipment monitoring

As part of quality assurance, the metrological properties of the weighing system and any test weight must be checked at regular intervals. The responsible user must define a suitable interval as well as the type and scope of this check. Information regarding the test equipment monitoring of weighing systems and the test weights required for this is available on the KERN homepage (www.kern-sohn.com). In its accredited DKD calibration laboratory, KERN can calibrate test weights and weighing systems quickly and cost-effectively (traceability to the national standard).

4 Basic safety instructions

4.1 Observe the notes in the operating instructions



Read the operating instructions carefully before installation and commissioning, even if you already have experience with KERN scales.

All language versions include a non-binding translation.

The original German document is binding.

4.2 Staff training

The appliance may only be operated and maintained by trained personnel. An indicator may only be installed by a specialist with in-depth knowledge of scales.

5 Transportation and storage

5.1 Control on takeover

Please check the packaging immediately upon receipt and the appliance for any visible external damage when unpacking.

5.2 Packaging/return transportation



- ⇒ Keep all parts in the original packaging for any necessary return transportation.
- ⇒ Only the original packaging is to be used for return transportation.
- ⇒ Disconnect all connected cables and loose/movable parts before shipping.
- ⇒ Refit any transportation locks provided.
- ⇒ Secure all parts against slipping and damage.

6 Unpacking, installation and commissioning

6.1 Installation site, place of use

The weighing platforms are designed to achieve reliable weighing results under normal operating conditions.

You can work accurately and quickly if you choose the right location for your weighing system.

Observe the following at the installation site:

- Place the weighing platform on a stable, level surface.
The surface at the installation site must be able to safely bear the weight of the maximum load of the weighing platform at the support points. At the same time, it should be stable enough to prevent vibrations during weighing operations.
- If possible, there should be no vibrations at the installation site, e.g. from neighboring machines.
- Do not use the weighing platform in potentially explosive atmospheres.
- Avoid extreme heat and temperature fluctuations, e.g. by placing next to the heating or in direct sunlight.
- Protect the weighing platform from direct draughts, e.g. from open windows and doors.
- Only use the weighing platform in a dry environment, protect it from high humidity, vapors and dust.
- Do not expose the appliance to high humidity for long periods of time. Unauthorized condensation (condensation of humidity on the appliance) can occur if a cold appliance is brought into a much warmer environment. In this case, acclimatize the appliance disconnected from the mains for approx. 2 hours at room temperature.
- Avoid vibrations during weighing.
- Avoid static charging of items to be weighed and weighing containers.
- Chemicals (e.g. liquids or gases) that could attack and damage the inside or outside of the scales must be kept away.
- Comply with the IP protection of the device
- Large display deviations (incorrect weighing results) are possible if electromagnetic fields (e.g. from cell phones or radios), static charges or an unstable power supply occur. The location must then be changed or the source of interference removed.

6.2 Unpacking and setting up



CAUTION
Danger for your back!

The weighing system is relatively heavy. Always use an appropriate lifting device to lift it out of the packaging or to transport it to the required installation location

Scope of delivery:

- Weighing bridge
 - Load cell feet
 - Installation instructions
 - 2 eyebolts
1. Remove outer packaging and packaging material.
 2. Remove the covers.
 3. Installing eyebolts
 4. Lift the weighing platform evenly from the packaging material, see caution note. Secure the weighing platform so that it cannot fall when it is lifted.
 5. Ensure that the package contents are complete.

6.3 Setting up, leveling

Only an exactly horizontally aligned weighing platform provides accurate weighing results. The weighing platform must be leveled during initial installation and every time it is moved.

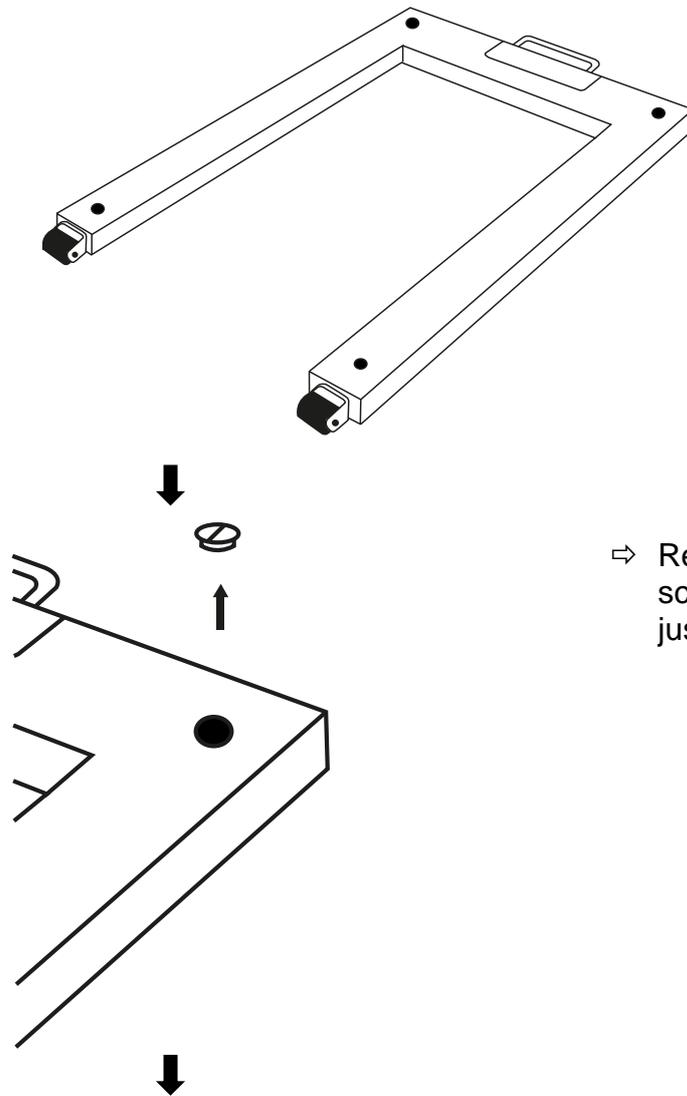


All adjustable feet must rest evenly.

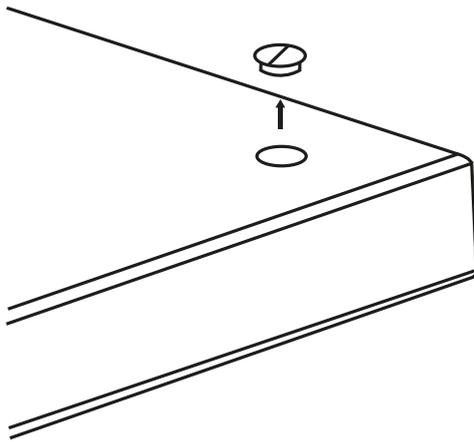
Calibrated weighing systems:

With calibrated weighing systems, the weighing platform must be firmly fixed to the floor. This is essential for the reproducibility of the measurement results and can be implemented with the aid of pairs of base plates.

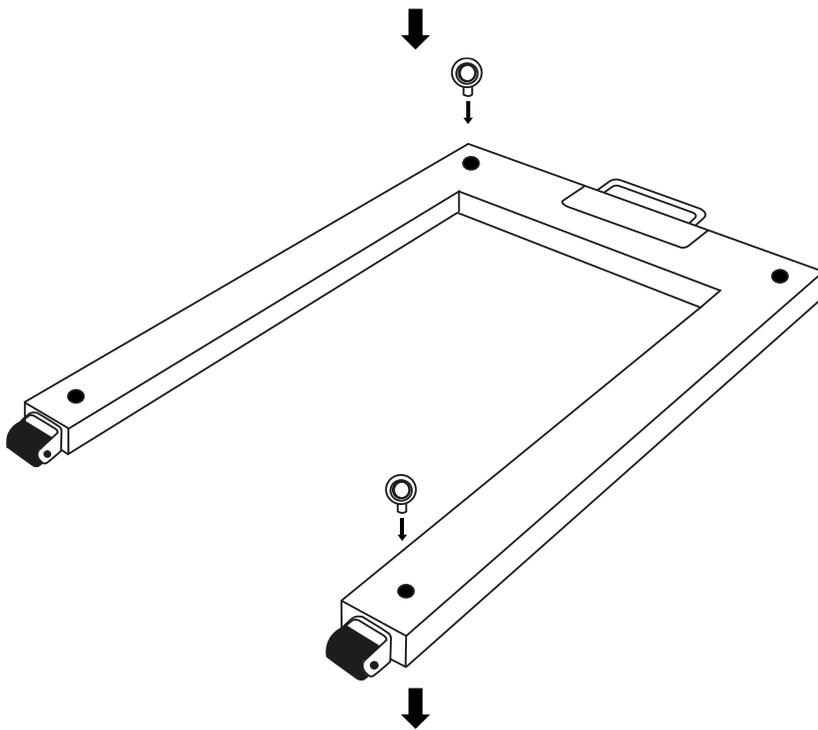
Implementation:



⇒ Remove the cover screws from the adjustable feet (4x)



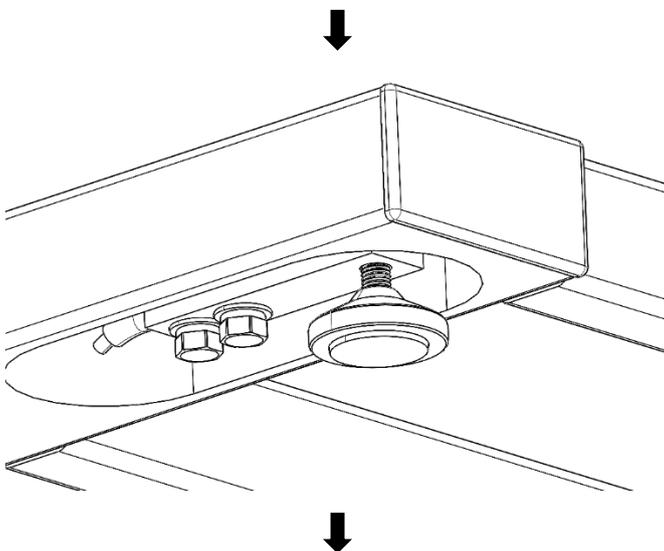
⇒ Remove the cover screws from the adjustable feet (4x)



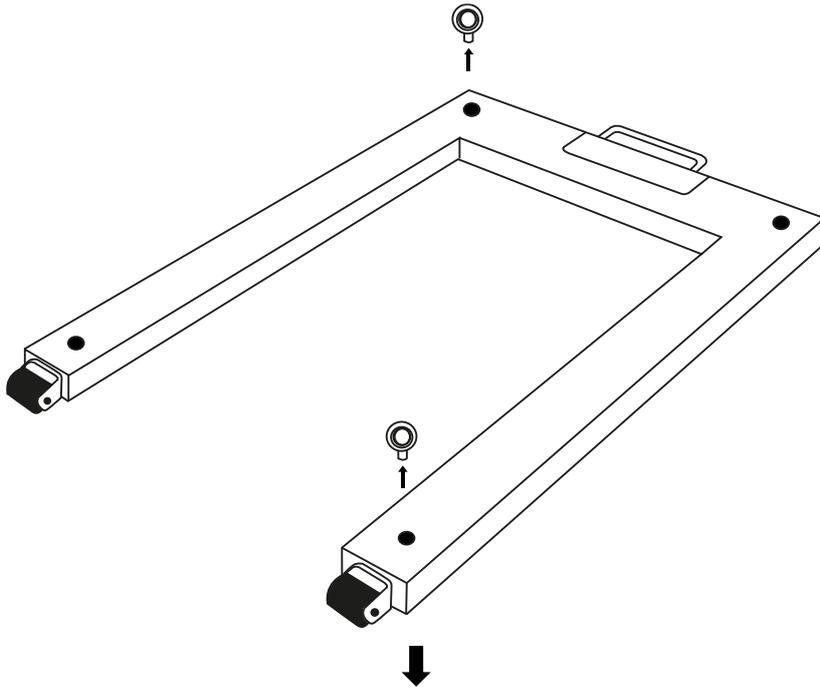
⇒ Insert 2x eyebolt (diagonally to each other)

⇒ Have the weighing platform lifted by qualified personnel using a lifting aid (crane or similar)

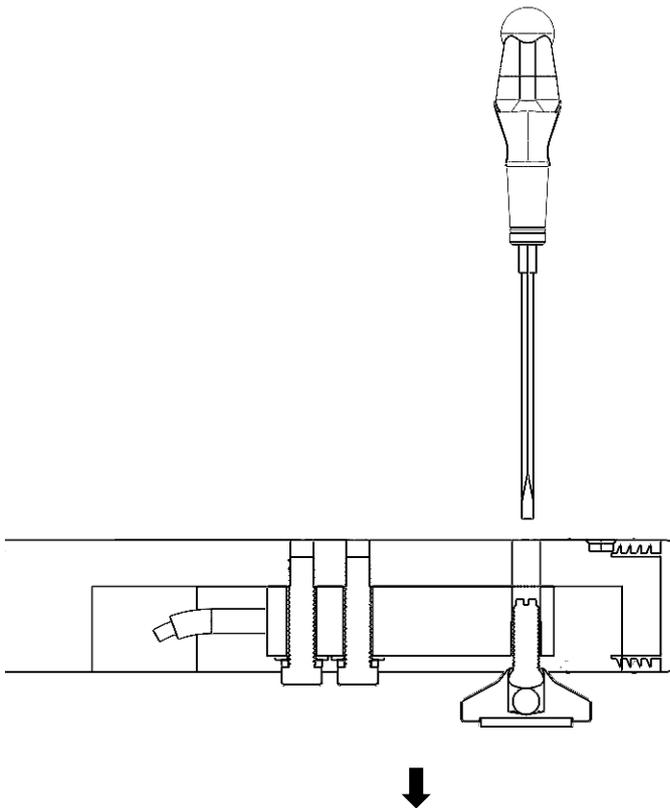
Ensure that the connection cable is not crushed or damaged.



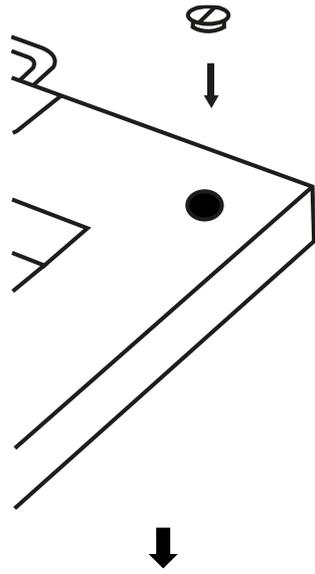
⇒ Before parking: Insert the foot bolts (4x)



- ⇒ Set down the weighing platform and check that the weighing platform is positioned level and that all 4 feet are touching the floor
- ⇒ Ensure that the connection cable is not crushed or damaged.
- ⇒ Remove eyebolts



- ⇒ Level with a Phillips screwdriver.
- ⇒ There is a level bubble in the connection box for leveling.



⇒ Replace the cover screws

6.4 Connecting a display device

Attention

Route the connection cable to the display unit so that it is protected from possible damage.

Description of the connection cables:

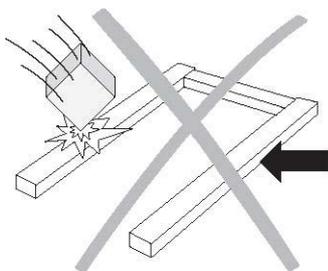
Clamp	Color	Condition
+EXE	Red	Voltage +
+SEN	Brown	Sense +
+SIG	Blue	Signal +
-SIG	Green	Signal -
-SEN	White	Sense -
-EXE	Black	Voltage -

7 Operation

Information about

- **Mains connection**
Power is supplied via the connection cable of the display unit.
- **Initial commissioning**
- **Connection of peripheral devices**
- **Adjustment, linearization and verification**
Only the complete scale, i.e. U weighing platform in conjunction with a suitable indicator, can be verified.

For correct operation, please refer to the operating instructions supplied with the display unit.

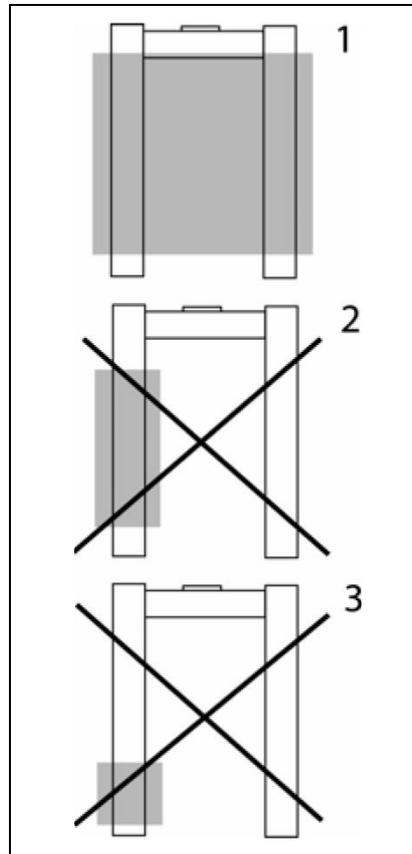


This ensures continuous optimum performance:

- Avoid falling loads, shock loads and lateral impacts!
- The forks of the forklift truck must not touch the pallet or the scales during weighing.
- Never move the scales when they are loaded.
- Check the adjustment at regular intervals.

7.1 Operating limits

The U-shaped weighbridge is only designed for an evenly distributed load.



7.2 Weighbridge loading/unloading

- Place the load on the scale using a pallet truck, crane or forklift. Ensure that the load does not swing when it is placed on the scale.
- First lift the load at least 10 cm above the scales before removing or repositioning it.

8 Maintenance, servicing, disposal



Disconnect the appliance from the power supply before carrying out any maintenance, cleaning or repair work.

8.1 Daily checks

- ⇒ Ensure that all 4 feet are touching the floor.
- ⇒ Ensure that the connection cable to the display unit and the mains connection cable of the display unit are not damaged.
- ⇒ Ensure that the scales are free of dirt, especially under the edges of the scales.

8.2 Cleaning

- ⇒ Clean stainless steel parts with a soft cloth soaked in a cleaning agent suitable for stainless steel.
- ⇒ Do not use cleaning agents containing caustic soda, acetic, hydrochloric, sulphuric or citric acid on stainless steel parts.
- ⇒ Do not use metal brushes or cleaning sponges made of steel wool, as this causes surface corrosion.
- ⇒ Wipe surfaces with a damp cloth.
- ⇒ Only use common household cleaners.
- ⇒ Do not use a water jet or high-pressure cleaner
- ⇒ Remove the weighing plate and remove any dirt and foreign objects that have accumulated underneath. Do not use any hard objects to do this.
- ⇒ Protect load cells from splashing water.
- ⇒ Remove corrosion-causing substances regularly.
- ⇒ Comply with IP protection.
- ⇒ When using optional ramps or base plates, keep the air gap at the edge of the weighing platform free of dirt.

8.3 Maintenance, servicing

- ⇒ The device may only be opened by trained service technicians authorized by KERN.
- ⇒ Ensure that the weighing system is calibrated regularly, see section 3.5 Test equipment monitoring.

8.4 Waste disposal

- ⇒ The operator must dispose of the packaging and appliance in accordance with the applicable national or regional legislation at the place of use.

8.5 Small breakdown service

In the event of a fault in the program sequence, the scale should be switched off briefly and disconnected from the mains. The weighing process must then be restarted from the beginning.

Malfunction

The weight display changes continuously

Possible cause

- Draught/air movement
- Vibrations of the floor
- The weighbridge is in contact with foreign objects.
- Electromagnetic fields / static charge (choose a different installation location / switch off interfering device if possible)
- Load cell damaged/defective

The weighing result is obviously incorrect

- No zero display when the scales are unloaded
- The adjustment is no longer correct.
- There are strong temperature fluctuations.
- The scales are not level.
- Electromagnetic fields / static charge (choose a different installation location / if possible, switch off the interfering device)

If other error messages occur, switch the scales off and on again. If the error message remains, contact the manufacturer.

9 Service documents

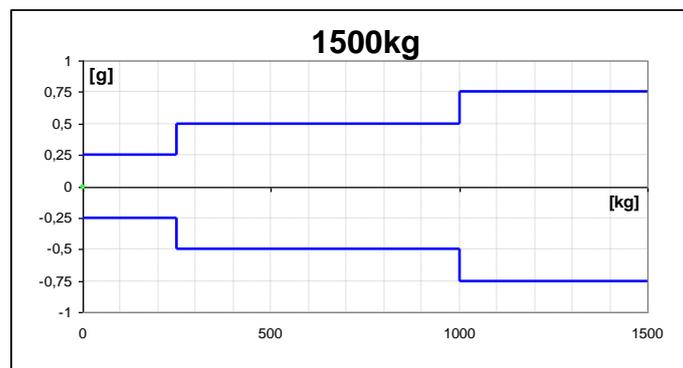
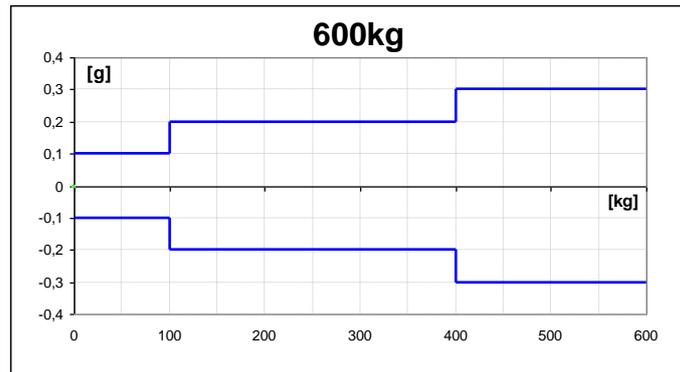
- i**
- This chapter is only intended for a scale specialist!
 - The weighing bridges are designed using strain gauge sensor technology, with a strain gauge load cell at each corner.
 - The analog-to-digital conversion takes place in the display unit. All scale and country-specific data is also stored there.

9.1 Overview, setting instructions, tolerances

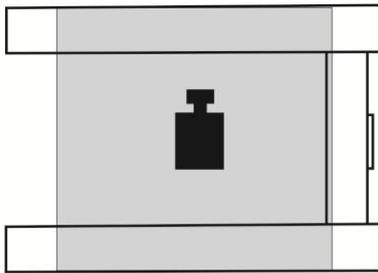
Test and adjustment instructions:

Capacity	600 kg	1500 kg
Readability	0.2 kg	0.5 kg
Min	4 kg	10 kg
Max	600 kg	1500 kg
1/3 corner load	200 kg	500 kg
Tolerance	0.2 kg	0.5 kg

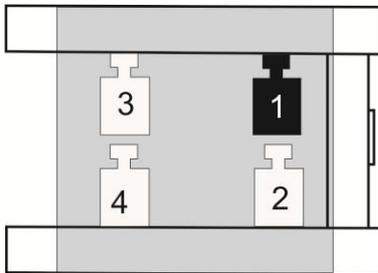
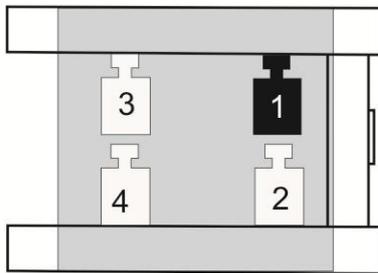
Calibration data and tolerances according to OIML :



9.2 Checking and adjusting the corner load



0.00 kg



Checking the corner load

- Place pallet
- Place the test weights in the center of the pallet and tare them.
- Scale displays -0-.
- Set up test weights one after the other at all 4 corners, observe sequence 1, 2, 3, 4...
- Deviations are now displayed with a sign, note the values. If there are deviations that are outside the tolerances (see section 9.1), an adjustment is required.

Adjusting the corner load

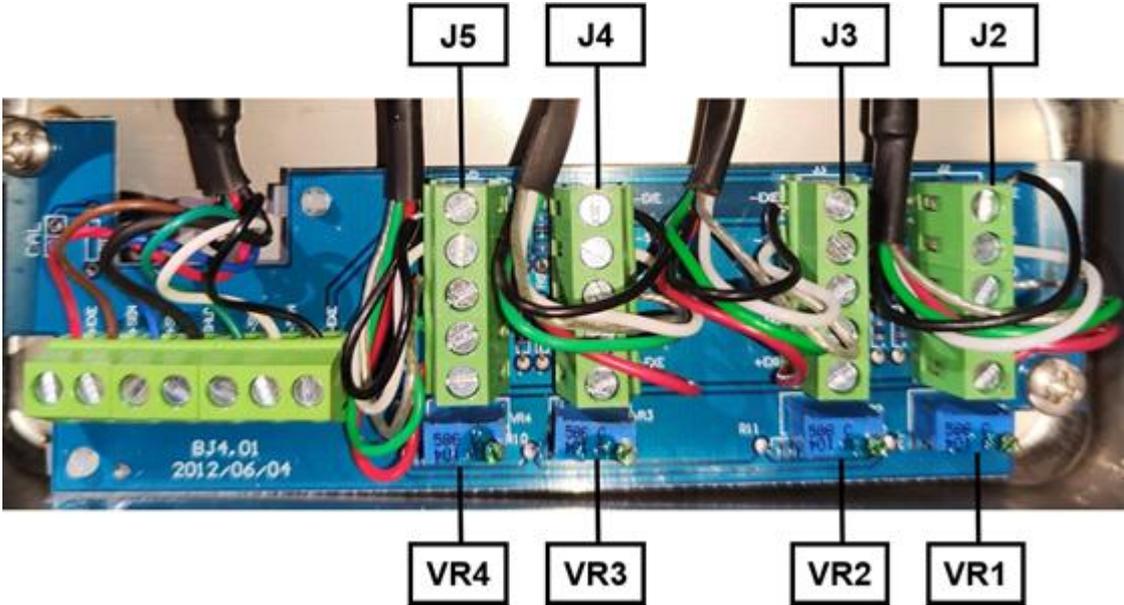
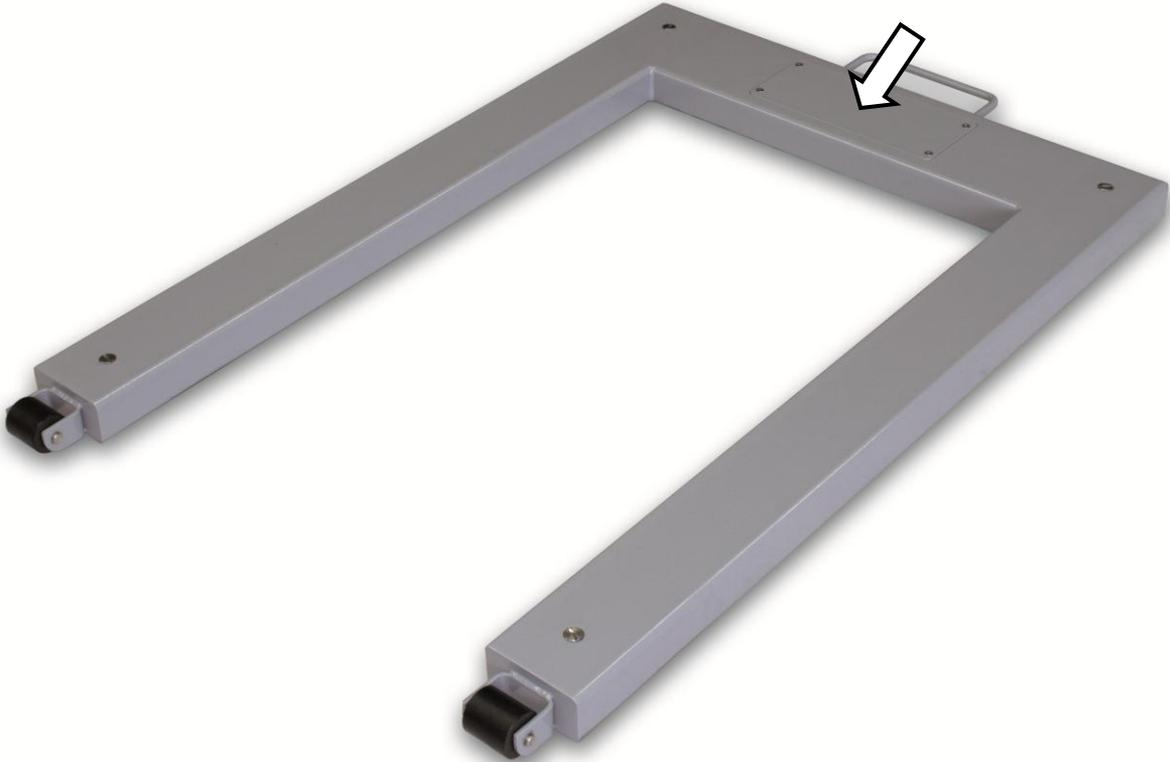
Preparation:

- For better control of the changes that occur during adjustment, select maximum readability for control purposes in the configuration menu.
- Opening the terminal box

Adjustment rule:

The corner (load cell) with the largest negative deviation must be set to zero. Do not adjust this corner even after several adjustment runs.

Adjusting the individual corners



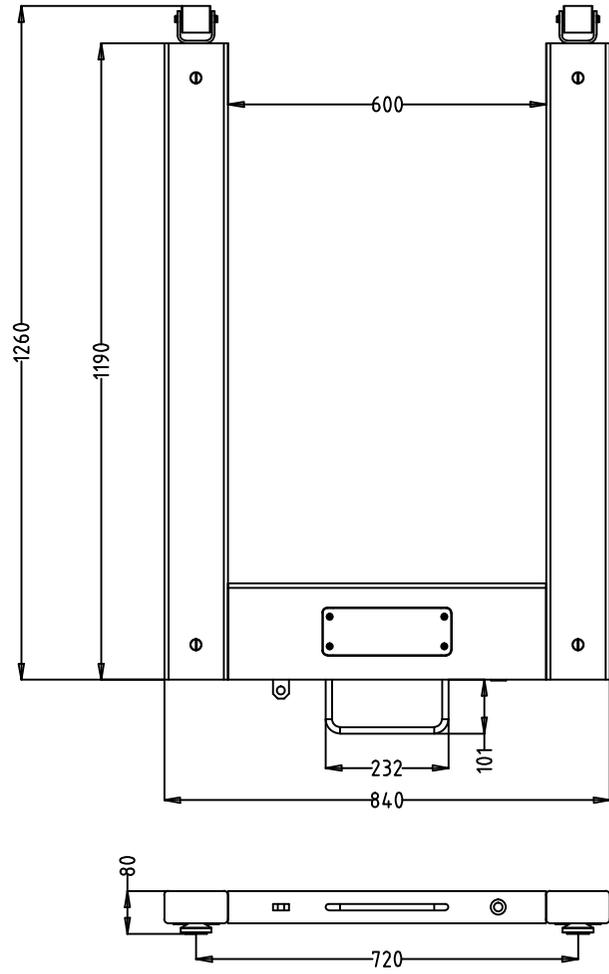
The load cell J2 is adjusted using the potentiometer pair VR1 and VR2. The load cell J3 is adjusted using the potentiometer pair VR3 and VR4. The load cell J4 is adjusted using the potentiometer pair VR5 and VR6. The load cell J5 is adjusted using the potentiometer pair VR7 and VR8. Turn value increase to the right, turn value decrease to the left.

10 Dead load and Overload protection

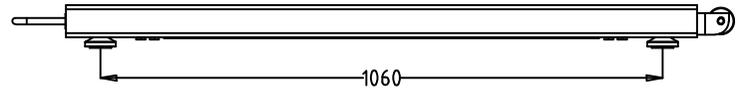
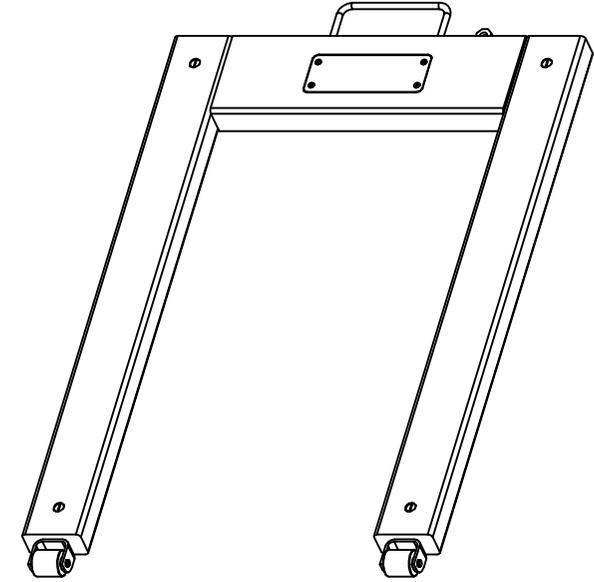
Platform type	Weighing platform dimensions mm	Weighing surface dimensions mm	Dead load kg	Overload security	Load cell type	Test certificate of the load cell	Nominal load kg	Accuracy
Steel, powder-coated								
KFU 600V20M	1361x840x80	1190x840	55	-	Zemic H8C	TC8012	500	C3
					Keli SQB*	TC6911		
KFU 1500V20M	1361x840x80	1190x840	55	-	Zemic H8C	TC8012	1000	C3
					Keli SQB*	TC6911		
Stainless steel								
KFU 600V30M	1361x840x80	1190x840	55	-	Zemic H8C	TC8012	500	C3
					Keli SQB*	TC6911		
KFU 1500V30M	1361x840x80	1190x840	55	-	Zemic H8C Keli SQB*	TC8012 TC6911	1000	C3

*Replacement option

A4



REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A0	Released	2024.03.25	Tim.Zhao



TOLERANCE UNLESS OTHERWISE SPECIFIED DEC ANGLES ±0.5 ±0.1 FOR 0.X ±0.05 FOR 0.XX		KERN® KERN & SOHN GmbH			
3RD ANGLE PROJECTION DRAWN Y.J.Zhao		TITLE: KFU 600V20M KFU 1500V20M KFU 600V30M KFU 1500V30M			
CHECKED	Tim.Zhao	MODEL NO.	TPF-600kg TPF-15T TPF-600kg TPF-15T	PART NO. 13099780069 13099780052 13099780035 13099780036	
APPROVED	Tim.Zhao	MATERIAL		FINISH	
UNIT	mm	SCALE		DO NOT SCALE DRAWING	SHEET OF