agris®

Manual

Weighing Display XK3

Content

1 Introduction 3
2 Scope of delivery 3
3 Intended use 3
4 Security 4
4.1 Safety Instructions for the Buyer 4
4.2 Safety instructions for the operator 4
4.3 Residual Hazards 5
5 Technical specifications 5
6 Getting started 6
6.1 Connecting the load cells 6
6.2 Connecting the power supply 7
7 Weighing 7
7.1 Turning on the weighing display 7
7.2 Zeroing 7
7.3 Standard weighing procedure 7
7.4 Weighing with Tare function 8
7.5 Weight summation 8
7.6 Animal weighing mode 10
8 Parameter 11
9 Calibration 13
9.1 Performing a calibration 13
9.2 Calibration parameters 14
10 RS232 Interface 15
10.1 Connection pin-out 15
10.2 Configuration 16
11 Troubleshooting 17
12 Disposal 18
13 Imprint 18

1 Introduction

Thank you for choosing this XK3 weighing display. You have just purchased a robust appliance for everyday use.

Please read this manual carefully before putting the weighing display to use.

As in common parlance, the word 'load' is used instead of 'mass' in this user manual.

2 Scope of delivery

The Weighing Display XK3 consists of:

- The weighing display itself
- Brackets for wall and table mounting
- This user manual

3 Intended use

The weighing indicator XK3 is intended to be use in dry locations. The protection class is IP63.

The display can be connected to most of the common load cells, weighing platforms or other weighing devices.

The XK3 isn't officially calibratable and therefore not authorized to determine weights for legal transactions.

4 Security

4.1 Safety Instructions for the Buyer

Important!

Make sure that each person who works for the first time with the XK3 Weighing indicator, has read and understood this manual.

4.2 Safety instructions for the operator

DANGER!

The XK3 Weighing indicator may only be operated by persons who are familiar with the operation of the device.

PRECAUTION!

Keep the work area clean! Soiled areas contributes to accidents.

ATTENTION!

Repairs and other technical interventions on the device may only be performed by qualified personnel. There is a danger of electric shock.

4.3 Residual Hazards

Working with the device residual risks may arise for persons and objects that cannot be prevented by design or technical protection measures.

WARNING!

The AWeighing indicator XK3 must not be operated in explosive enviroment.

5 Technical specifications

Size (W/H/D)	280mm / 160mm / 100mm for table mounting 280mm / 150mm / 145mm for wall mounting
Weight:	1.685g
Operationg temperature:	-10 bis +40 °C
Maximum load:	adjustable
Resolution:	adjustable
Unit:	choice between kg or lb
Power supply:	AC 85 to 245V, 50 / 60Hz
Accumulator:	internal
Accumulator power:	DC 6V, 4Ah
Accumulator runtime:	~. 24h (4 load cells without energy saving mode)
Accumulator charging time:	ca. 24h
Accuracy class:	III, n=3000
Input sensitivity:	>= 1.5uV/e
Weighing frequency:	10x per second
Power supply load cells:	DC +5V
No of load cells:	1 to 6 load cells with 350 Ohms in parallel operation

6 Getting started

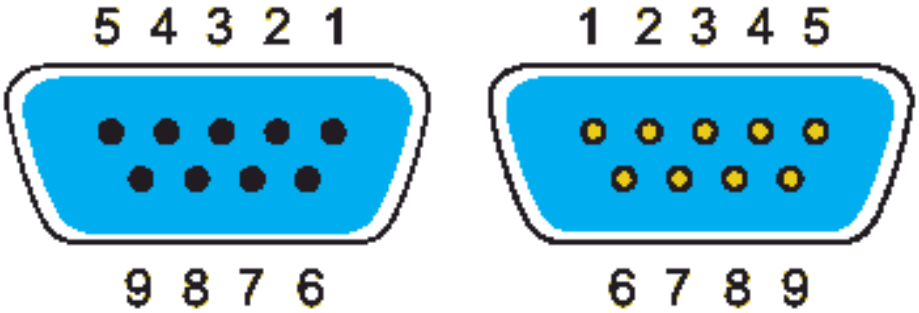
6.1 Connecting the load cells

Scale sets are supplied with a connection cable that fits in the weighing display. In this case, connect the 9-pin D-SUB connector of the cradle cable to the matching port on the back of the weighing indicator.

To connect to other weighing scales you use the connection diagram as explained by the following table:

Calbe connector

Rear view (soldering side) Front view



No	Description	Function
1	EX -	Power supply -
2	FB -	Feed Back -
3		
4		
5	SHI	Shield
6	EX +	Power supply +
7	FB +	Feed Back +
8	SI -	Signal -
9	SI +	Signal +

If you have load cells without FeedBack lines PINs 1 and 2 and the PINs 6 and 7 are to be connected.

6.2 Connecting the power supply

Connect the small round plug of the power cord into the socket provided on the back of the display and plug the power adapter into the power outlet.
The display can also be used with the built-in battery. Charge the battery completely before the first use definitely on.

7 Weighing

7.1 Turning on the weighing display

Press the *[⏻]* button. The weighing display will now run a self-test. The display is ready for use when the weight readout appears.

In standard mode the display isn't put to zero, but shows the actual load, based on the null position that was last used.

NOTE: Calibration parameter 3 allows you to configure if and up to what load the display automatically reverts to the zero position during start-up.

7.2 Zeroing

With the [→0←] button the display's zero position is reset. Use this function before every weighing if the display isn't set to zero.

If the display is zero the LED (Zero) lights.

NOTE: Calibration parameter 2 allows you to configure the range for manual zero positioning.

7.3 Standard weighing procedure

- Make sure that the display is set to zero.
- Put the weighing object on the scale.
- Wait until the display shows a stable value or until the LED (◣●◢) lights.
- Read the weighing result.

7.4 Weighing with Tare function

When you'd like to weigh an object in a container or package, the weight of the empty container can be automatically subtracted without changing the zero position, by using the tare function.

- Make sure the display is set to zero.
- Put the empty container on the scales.
- Wait until the display shows a stable value, or until the LED (◣●◢) lights.
- Press the [Tare] button. The display goes back to zero and the LED (Net) lights.
- Now put the weighing object in the container.
- Wait until the display shows a stable value and until the LED (◣●◢) lights.
- Read the weighing result. This is the net weight of the object without container.
- If you would like to weigh several objects in the same container, you can put them on the scales one after the other. As long as the NET – LED ist lighting, the previously measured tare will be subtracted and only the net weight shown.
- To end the tare function you take the load from the scales and press the [Tare] button again.

7.5 Weight summation

Do the following if you would like to perform several weighings and add up all the loads:

- Make sure the display is set to zero.
- Put the weighing object on the scales.
- Waid until the display shows a stable value and the LED (◣●◢) lights.
- Read the weighing result.
- Shortly press the [∑] button. The display will show the sum of the objects weighed so far, followed by the amount of weighed objects so far (n 0001), after which it returns to the normal weighing mode. The LED (∑) lights up as long as the sum and amount of weighed objects are displayed.
- Remove the first load from the scales and introduce the next load.

- Shortly press the [∑] button again. Again, the display shows the sum of the objects weighed so far, followed by the amount of weighed objects so far (n 0002) after which it returns to the normal weighing mode.
- Repeat this procedure with all weighing objects.

ATTENTION: The summation function will only start after a load of at least 5 increments (for instance: for scales with a 1 kg resolution the summation function starts at a load of 5 kg)

Displaying the sum

To display the sum of weighed loads permanently press the [Σ] key and keep it pressed until a beep sounds. If you release the button the sum of the weights is displayed and the two LEDs (Fn) and (Σ) light.

While the sum is displayed, you can use the [↵] button to switch to the amount of weighed objects. By pressing the [↵] button again you return to the normal weighing mode. The sum remains stored, so you can add additional weighings.

Deleting the sum

- Press the [Σ] key and keep it pressed until a beep sounds. If you release the button the sum of the weights is displayed and the two LEDs (Fn) and (Σ) light (as above).
- Press the button [→], the display shows „CLEAR“.
- Press the [↵] button to confirm the deletion. The sum and amount are set to 0 again, and the display reverts to the normal weighing mode
- Press the [Fn] button to cancel the deletion.

7.6 Animal weighing mode

If you'd like to weigh restless animals or unstable loads, you can use the animal weighing mode. Take the following steps:

- Press the [Fn] key shortly to activate animal weighing mode. The display shows “ON” for a short time.
- Make sure that the display is set to zero.
- Put the weighing object on the scale.
- If the weight is in the range r for the time t the average of this time is calculated, shown and freezed on the display until the weight is out of the range. The red point above the “Fn” is illuminated.
  Example: Put an animale on the scale, the weight is going up and down. If the weight is in a range of 20 kg for 3 seconds, the average weight of this 3 seconds is calculated and displayed. Now you can take the weight. When the animal goes away from the scale the range is exceeded and the scale is showing the actual weight again.
- The parameters r (range) and t (time) can be adjusted.
- To turn off the animal weighing mode press the [Fn] key shortly. The display shows “OFF” for a short time.

CAUTION: The animal weighing mode is only working if the [Fn] key is assigned with the function ANL.

CAUTION: The animal weighing mode is started only if the weight is above the minimal weight which is set in the parameter LO.

CAUTION: If you press the [Fn] button too long, parameter configuration will start up instead of animal weighing mode.

8 Parameter

The Weighing Display HD1 has several configurable parameters that influence the way the system functions. Normally these parameters have been pre-configured correctly and need only be altered in special circumstances.

Take the following steps to start parameter configuration:

- To enter the parameter menu press and hold down the [Fn] key until a signal sounds
- Pressing the [↵] button confirms the entry and returns to the next parameter. After the last parameter the parameter menu is closed and the display returns again in weighing mode.
- The [↑] button allows you to select the desired parameter value.
- The [→] button allows you to switch between digits for multi-digit entries.
- The parameters are described in the following table.

Parameter Nr	Description	Display	Comment
1	Function of the [Fn] button	Fn **	Lb = switch between kg and lb ANL = animal weighing mode function (standard) -- = no function
2	Power Save Mode	PS **	OFF = no power save mode (standard) oN = power save mode after 5 minutes without change in weight onP = turn off the display after 5 minutes without change in weight
3	Baudrate RS232 Interface	Br ****	600 1200 2400 (standard) 4800 9600

4	Communication mode RS232 interface	Co *	1 (standard) see chapter: RS232 interface
5	Target weight range HI	H*****	Is the weight display higher than the value set here, then the (LED HI) lights. Default value: 75% of the rated load of the load cells (3000 in a display without weighing technology)
6	Target weight range LO	L*****	Is the weight display lower than the value set here, then the (LED LO) lights. Default value: 0
7	Range for animal weighing mode	r *****	standard: 20.0
8	Time for animal weighing mode	t *	standard: 3

9 Calibration

If you bought the weighing display together with loadcells, the display is already fully calibrated and checked.

Calibration is only needed:

- If you didn't buy the weighing display together with loadcells.
- If you use the scales for a special construction, for example when you want to retrofit mechanical scales.
- If for whatever reason you do not succeed in using the scales in the prescribed mounting position.

9.1 Performing a calibration

ATTENTION: A calibration determines the accuracy of the scales. A calibration cannot be undone!

To perform a calibration you need a reference load that is as close as possible to the nominal load. It should be at least 20% of the nominal load of the load cells. This means that scales with a nominal load of 4000 kg need to be calibrated with at least 800 kg.

Take the following steps to start the calibration procedure:

For entry into the calibration, remove the protective cover on the back and press the inner button until the display shows the word CAL.

- Pressing the button [↵] confirms the entry and returns to the next parameter. After the last parameter the parameter menu is closed and the display returns into weighing mode
- Press the [↑] the desired value or the desired setting can be selected within a parameter.
- The [→] button allows you to switch between digits for multi-digit entries
- All the steps of the calibration process are described in the following table. They must be performed in this order.

Step Nr	Description	Display	Comment
1	Division	E **	01 02 05 10 20 50 Depending on the weighing scales
2	Amount of decimal places	dC ****	0 0.0 0.00 0.000 Depending on the weighing scales
3	Nominal load	F *****	Nominal load of the load cells
4	Zero position	noLoAd	No load on the scales
5	Calibrating load	AdLoAd ******	Introduce the calibrating load and enter the weight of the calibrating load

9.2 Calibration parameters

ATTENTION: These parameters change the characteristics of the weighing display. Improper use can cause a distortion of weighing results.

Take the following steps to enter the calibration settings:

- For entry into the parameters remove the small cover on the back and press the inner button until the display shows the word CAL. Then press successively the [↑] and [↵] keys.
- Press the [↵] confirms the entry and returns to the next parameter. After the last parameter the parameter menu is closed and the display returns into the weighing mode.
- The[↑] button allows you to select the desired parameter value.
- The [→] button allows you to switch between digits for multi-digit entries.
- The parameters are described in the following table.

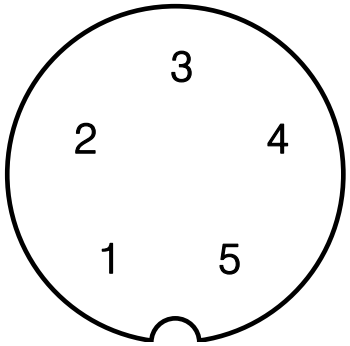
Parameter Nr	Description	Display	Comment
1	Zero point stabilisation	Zot **	0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 division units Standard setting: 2.0
2	Range for manual zero positioning	Nt ***	0 2 4 10 20 100 percent of nominal load can be zero positioned Standard setting: 100%
3	Range for automatic zero positioning	At	-- 0 2 4 10 20 100 percent of nominal load can be automatically zero positioned Standard setting: --
4	Responsiveness	FL ***	Stb: slow responsiveness Sen: fast responsiveness (standard)

10 RS232 Interface

The weighing indicator has a serial interface for controlling an additional display, a printer, or to communicate with a PLC or a PC.

10.1 Connection pin-out

Connector view display side (soldering side of connector)



1 RX

2 TX

3 GND

4 Input big display

5 Output big display

10.2 Configuration

With the parameter 3, the baud rate is set. The other interface parameters of the RS232 interface can be used by default.

The parameter 4, the operation of the interface is defined.

1: Automatic output of the net weight without a unit in toppled sequence of digits, 8 digits

i.e.: 23,45 kg -> 54.3200

-23,45 kg -> 54.320-

2: Automatic output of the gross weight without a unit in toppled sequence of digits, 8 digits

i.e.: 23,45 kg -> 54.3200

-23,45 kg -> 54.320-

3: Automatic output of the net weight with unit, 14-digit

i.e.: 23,45 kg -> 0023.45 (kg) + HEX(0D) + HEX(0A)

4: Automatic output of the gross weight with unit, 14-digit

i.e.: 23,45 kg -> 0023.45 (kg) + HEX(0D) + HEX(0A)

5: command mode, issue on the request

Gross weight request

command: HEX(02)+“A“+“HEX(03), answer: GW:0023.45 (kg)

Net weight request

command HEX(02)+“B“+“HEX(03): answer: NW:0013.45 (kg)

Tare weight request

command HEX(02)+“C“+“HEX(03): answer: TW:0010.00 (kg)

Trigger zero position

command HEX(02)+“D“+“HEX(03): answer: D

Trigger Tare funktion

command HEX(02)+“E“+“HEX(03): answer: E

6: Output of the weight when pressing the SUM function on the display, for connecting a printer directly

11 Troubleshooting

The following error messages can appear on the display screen:

Display	Description	Solution
Err 01	Range for zero positioning has been exceeded	Reduce the load on the scales or set calibration parameter 2 to a higher value.
Err 02	Load for this function is too low	Some functions are only available for loads of 5 increments onwards.
Err 03	Overloaded	Reduce the load on the scales.
Err 04	Weight not stable	The weight isn't stable during calibration. The calibration procedure can't be performed.
Err 05	Weight is too low	A higher load must be used for the calibration procedure. The calibration procedure can't be performed.
Err 06	Weight not stable	For some functions the weight must be stable.

12 Disposal

Dispose the product in the definitive shutdown or parts of environmentally friendly (metal to the respective metal scrap, plastic to plastic waste, etc. - Do not dispose as household waste!)

Detailed information can be found in Directive 2002/96/EC

13 Imprint

All information, specifications and images are correct according to the status in 2021, and subject to technical adjustments or changes in design.

Despite careful treatment and examination of the contents, no warranty is made with respect to information in this user manual. Any liability of the author is excluded.

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