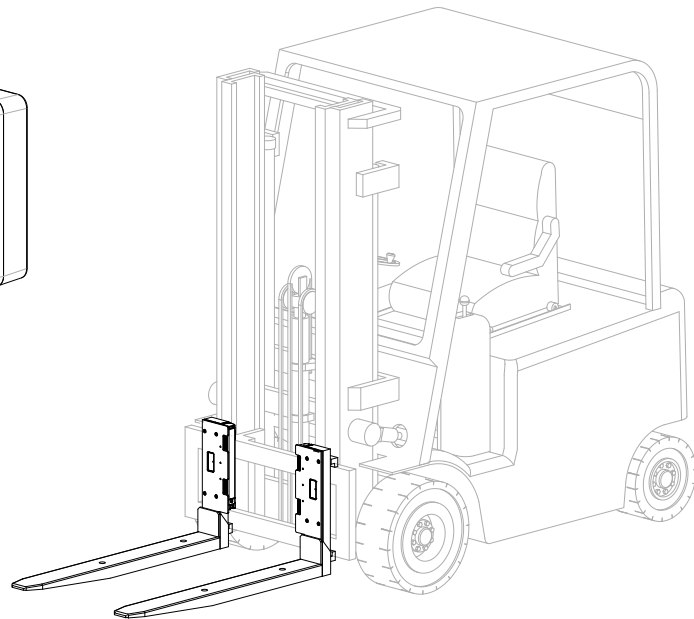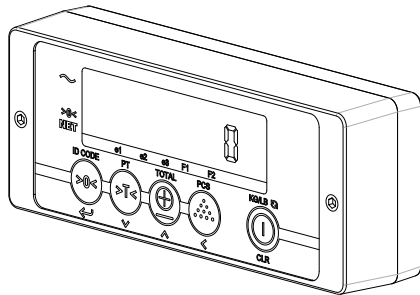# RAVAS

OWNERS MANUAL
iForks

PLEASE RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE
If you have any queries concerning the duration and terms of the guarantee, please contact your supplier. We would also refer you to our General Sale and Supply Conditions, which are available on request.

The manufacturer accepts no liability for any damage or injury caused by failure to follow these instructions, or from negligent operation or assembly, even if this is not expressly stated in this instruction manual.
In light of our policy of continuous improvement, it is possible that details of the product may differ from those described in this manual. For this reason, these instructions should only be treated as guidelines for the installation of the relevant product. This manual has been compiled with all due care, but the manufacturer cannot be held responsible for any errors or the consequences thereof. All rights are reserved and no part of this manual may be reproduced in any way.

Table of contents

1.   Introduction

This manual describes the installation and use of the **iForks**. Read this manual carefully. The installer must be informed of the contents of this manual. Follow the contents of the manual precisely. Always do things in the correct order. This manual should be kept on a safe and dry place.
In case of damage or loss the user may request a new copy of the manual from RAVAS.

2.   Warnings & Safety measures

When using the **iForks**, please observe carefully the instructions and guidelines contained in this manual. Always perform each step in sequence. If any of the instructions are not clear, please contact RAVAS.

READ CAREFULLY

- All safety regulations that apply to the forklift truck remain valid and unchanged.
- No weighing operations are allowed if any persons or objects are in the vicinity; around, under or close to the load.
- RAVAS is not responsible for any physical harm done to the operator because of the presence of the indicator in the cabin.
- Any modifications done to the system must be approved in writing from the supplier, prior to any work being completed.
- It is the sole responsibility of the purchaser to train their own employees in the proper use and maintenance of this equipment.
- Do not operate this unit unless you have been fully trained of its capabilities.
- Check the accuracy of the scale on a regular basis to prevent faulty readings.
- Only trained and authorized personnel are allowed to service the scale.
- Always follow the operating, maintenance and repair instructions of the forklift truck and ask the supplier when in doubt.
- RAVAS is not responsible for errors that occur due to incorrect weighings or inaccurate scales.
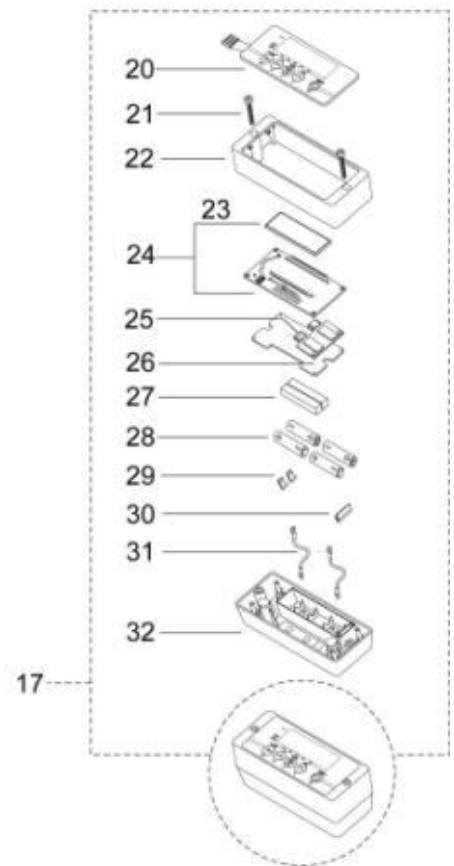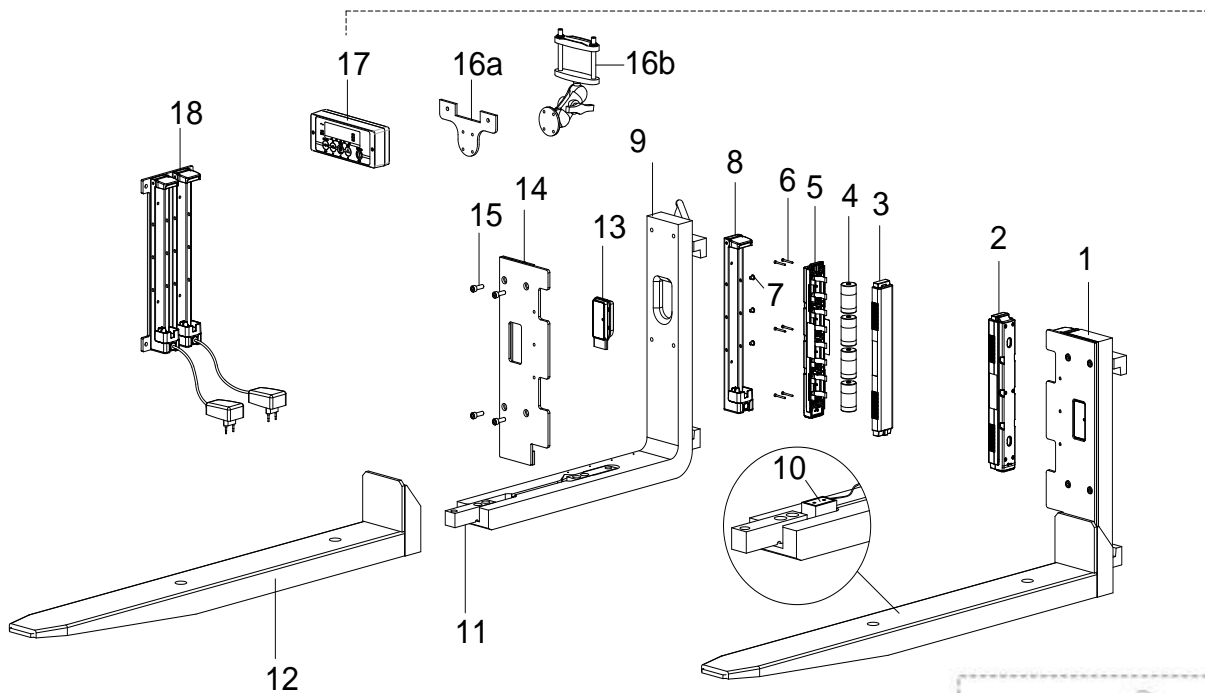
IP65

min -10°C
15°F

max 40°C
105°F
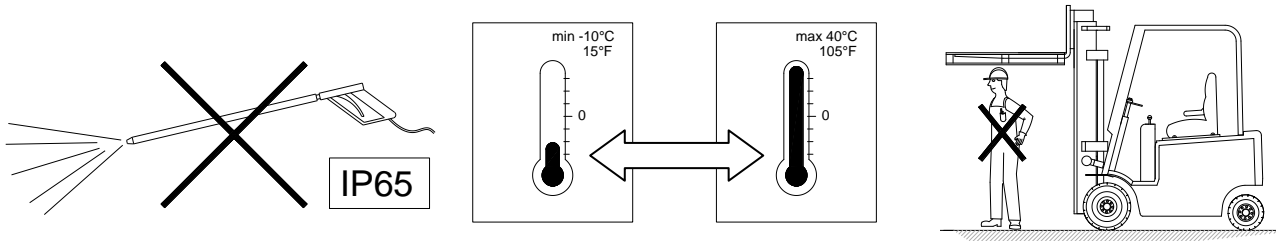
Should you have any further questions after reading this manual then you can contact us at:

RAVAS USA LLC
975 Deerfield Parkway
Buffalo Grove, IL
60089 USA
Phone 224 - 676 - 2238
Fax   224 - 676 – 2136
info.usa@ravas.com
www.ravasusa.com
Rev.22.01.09.01
Changes reserved

3.   Exploded-view & parts list

| Part nr.	Designation	Article code	Number	Supplier
1	Assembled weighing fork		2	-
2	Battery pack (assembly)		-	-
	A = with standard 1.5 V (standard)	BA-IFORK	2	RAVAS
	B = with rechargable 1.2 V (option)	BA-IFORK-CH	2	RAVAS
3	Top housing battery pack		2	-
4	Batteries (D-cell)		-	-
	A = regular 1.5 V D-cells (standard)		8	Buy locally
	B = rechargeable 1.2 V D-cells (option)		8	Buy locally
5	Bottom housing battery pack		2	-
6	Philips-head screw M3 x 25		12	Buy locally
7	Round-head screw M6 x 8		6	Buy locally
8	Holder battery pack	SA-MP-SUP-WF-BLT	2	RAVAS
9	Weighing fork	SA-WF-2A-100-45-608 (or 2B)	2	RAVAS
10	Level correction sensor (option)	EP-LEVELSENSOR	1	RAVAS
11	Loadcell	LC-2000	4	RAVAS
	Loadcell fixation ring	MP-RING-LC-FIXATION	4	RAVAS
12	Fork shoe	FS-WF-25-1150-10-Ø15-RAL7021	2	RAVAS
13	Bluetooth transmitterbox (assembly)	HO-JUNC-IFORKS	2	RAVAS
14	Coverplate forks (left)	MP-CP-RF-LEFT-FEM2A (or 2B)	1	RAVAS
	Coverplate forks (right)	MP-CP-RF-RIGHT-FEM2A	1	
15	Socket-head screw M8 x 20		8	Buy locally
16a	Mounting bracket indicator	MP-BRACKET-RAM-BB	1	RAVAS
16b	Indicator mounting support	MP-SUP-RAM-LIFTTRUCK	1	RAVAS
17	Indicator (assembled)	SA-IN-31-IFORK	1	RAVAS
18	Charger (option)	CH-IFORK	1	RAVAS
20	Touch panel	FR-3100N-BB	1	RAVAS
21	Socket head screw M6x40	MP-BOLT-M6-40-CYL	2	RAVAS
22	Top housing indicator (red)	HO-RAV-RAL3000	1	RAVAS
23	Display	INP-31-DISPLAY	1	RAVAS
24	Indicator board	IN-31-N-noAD	1	RAVAS
25	Bluetooth receiver board	EB-31-N-BLUETOOTH-DUAL	1	RAVAS
26	Middle cover	HOP-MC	1	RAVAS
27	Cellrubber block	HOP-PACK-XTRA-RU-STRIP	1	RAVAS
28	AA battery 1.5V		4	Buy locally
29	Contact snap single	BAP-SNAP-SINGLE	2	RAVAS
30	Contact snap dual	BAP-SNAP-DUAL	1	RAVAS
31	Strain relief	HOP-RAV-STRAINRELIEF	1	RAVAS
32	Bottom housing indicator	HOP-RAV-RAL9005-LOWER	1	RAVAS

4.   System setup

4.1   Installing the iForks

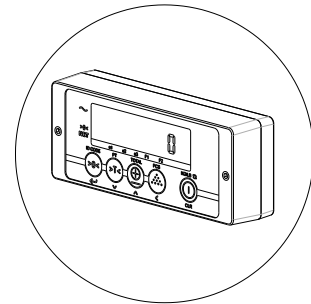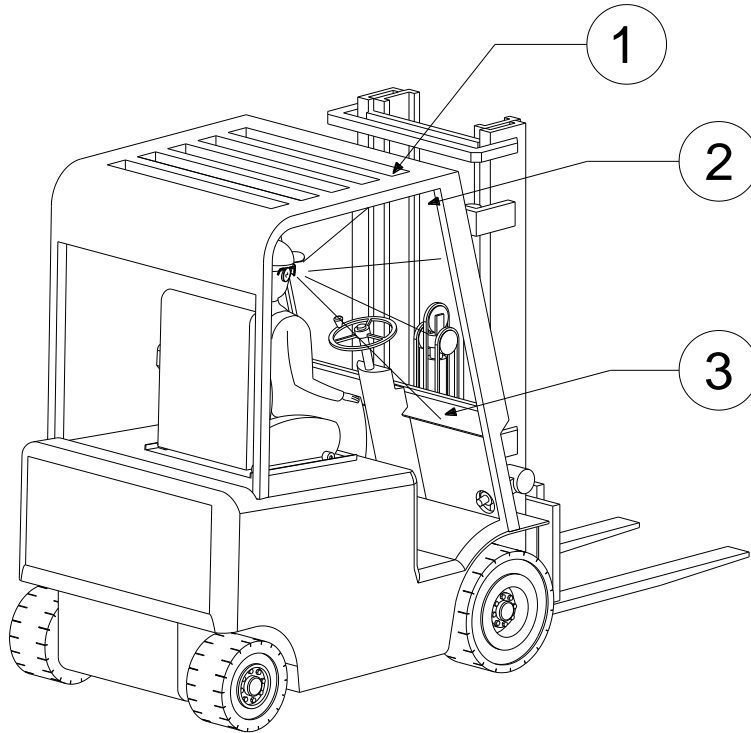The standard forks must be taken from the carriage plate. The iForks are placed on the carriage plate.
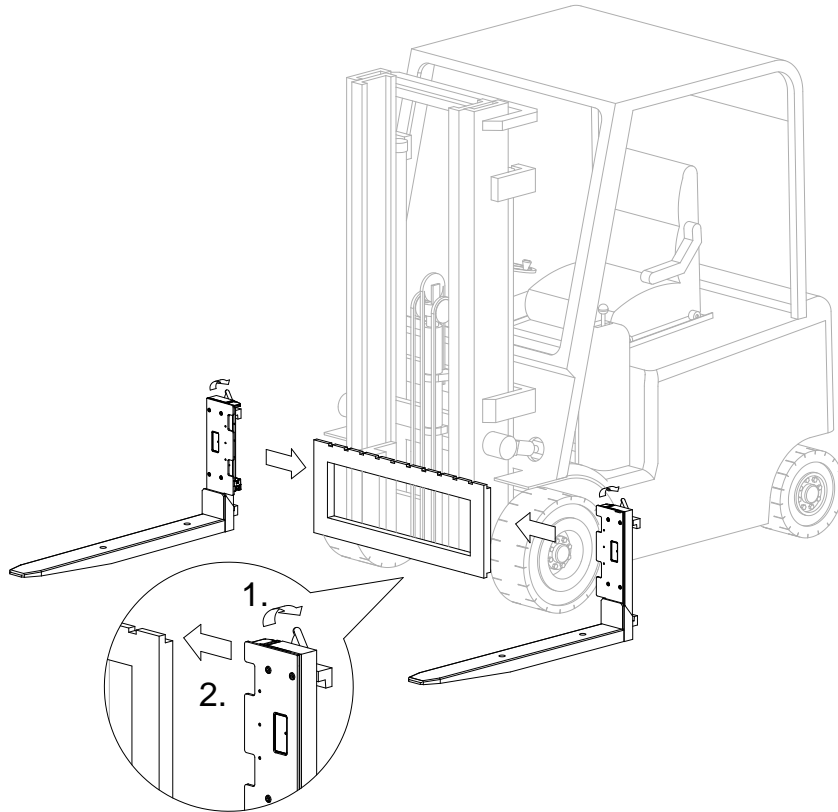
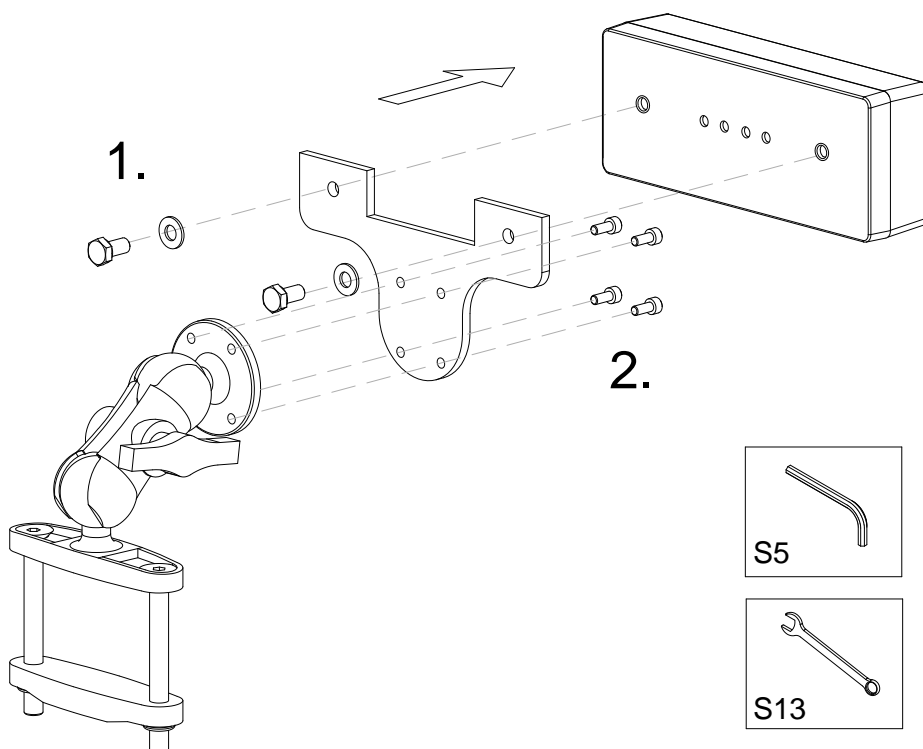Locking the iForks
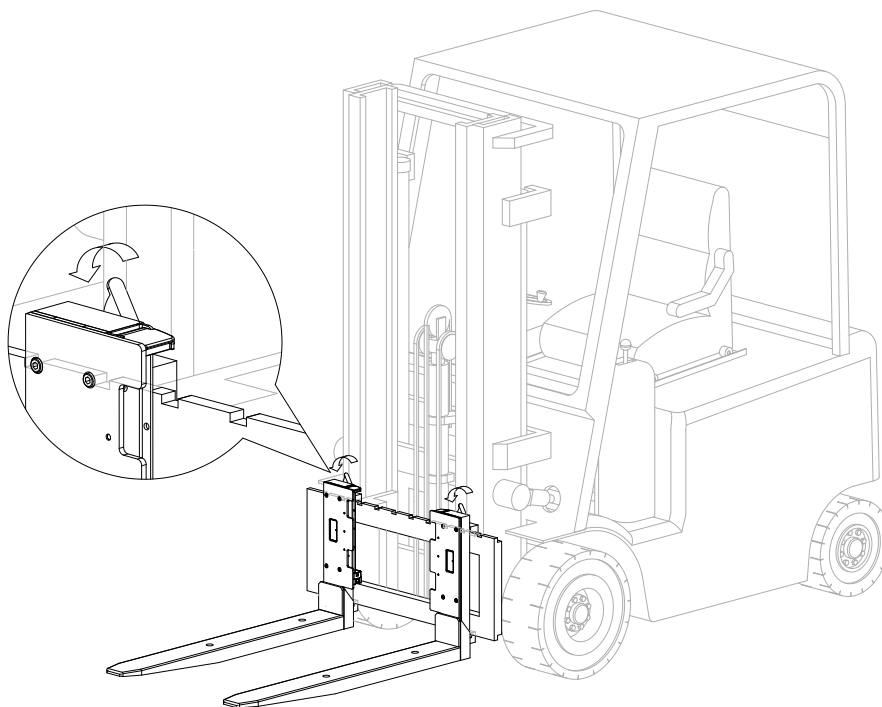
4.2 Installing the indicator

Find a suitable position for the indicator:

1. at the cabin's roof
2. at the right side of the cabin, mounted onto a side-rail
3. at the dashboard

The indicator should be easy to reach and read out !
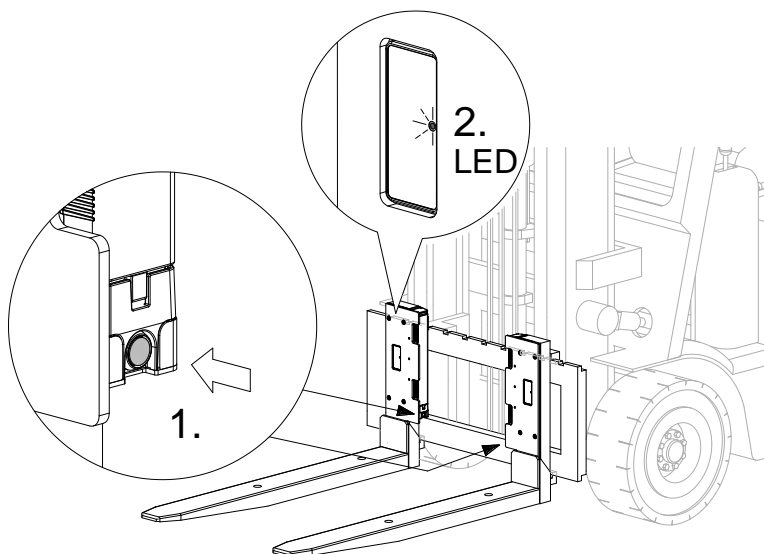
Installation of the indicator bracket & support

1.

2.

S5

S13

4.3   Placing the batterypacks in the iForks

1. Lift up the locking clips on the battery holders.
2. Position the batterypacks in both forks.
3. Click the batterypacks into the battery holders.
4. Push the locking clips down to secure the batterypacks.
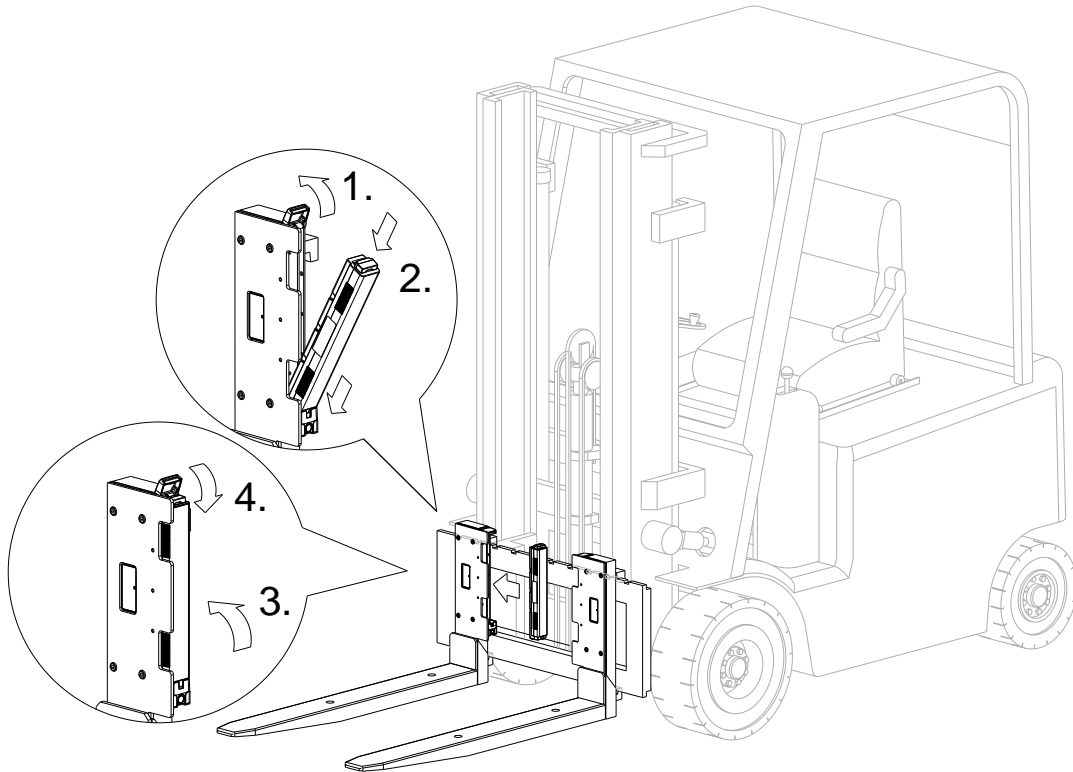
4.4   Switching on the iForks
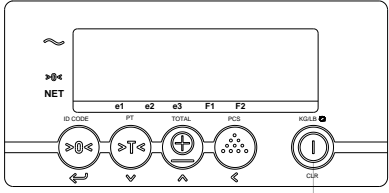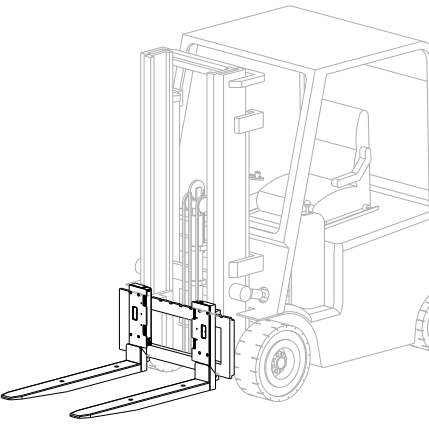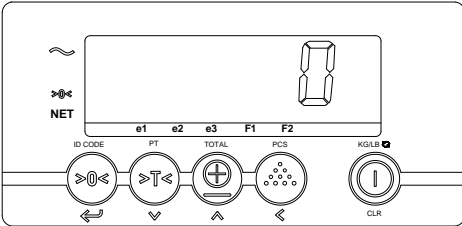
1. **Switch on the forks by pressing the blue buttons on both batterypack holders.**
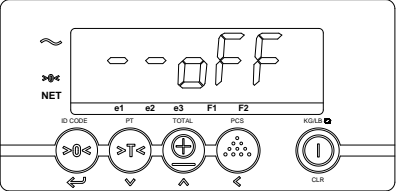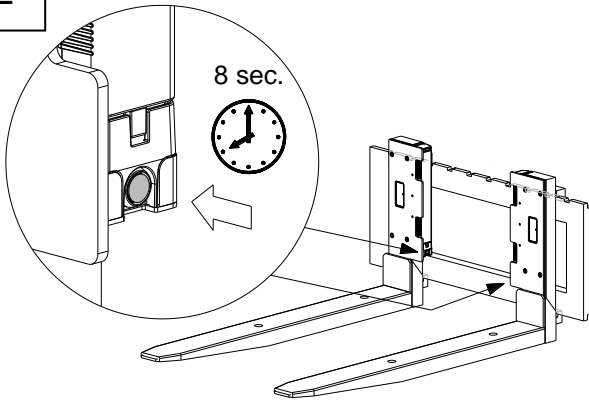
2. **The blue LED's on the iForks will start blinking automatically.**

4.5   Switching on the indicator

1

Start up the indicator. Press the on/off key.

2

3

5 sec.

Weigh !

4.6   Switching off the system

1

Switch off the indicator by pressing the on/off key for 3 seconds.

3 sec.

2

8 sec.

Switch off the forks by pressing the blue buttons for 8 seconds.

5. Changing batteries

5.1 Low battery indication iForks

Exchangeable batterypacks supply power to the **iForks**.

When the voltage level of the batterypacks is running low, the low bat indicator will light up and the pointer of the relating fork - "F1", "F2" or both - will start blinking in the display.
The blue LED's on the relating fork will start blinking very slowly (twice every 10 sec). The **iForks** will switch off automatically after 10 minutes.
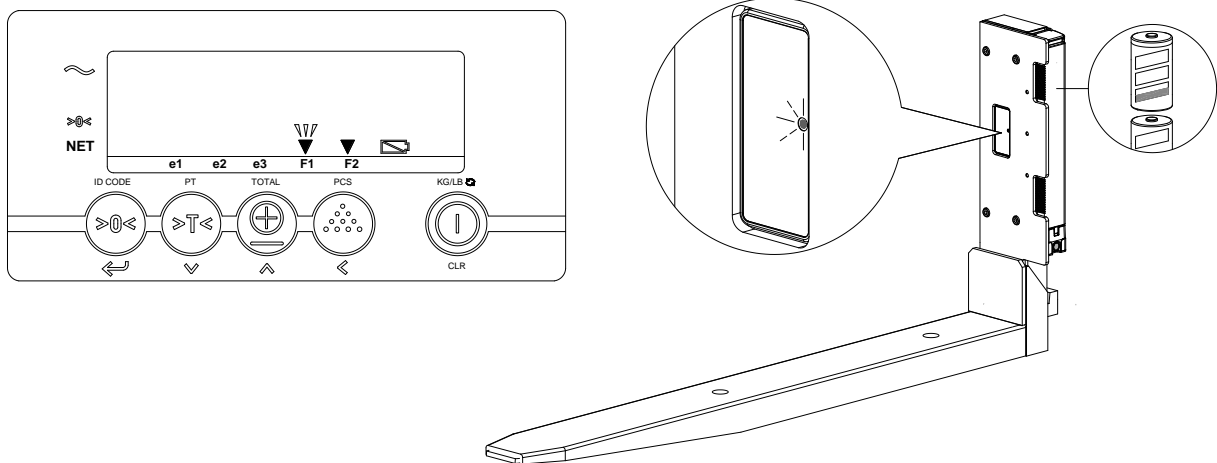
FUNCTIONALITY BLUE LED	
DURING POWERING ON	ON for 5 sec.
FULL BATTERY	*Blink time interval*
Working mode	Once every 1,5 sec.
Sleep mode	Once every 4 sec.
LOW BATTERY	
Working mode	Twice every 10 sec.
Sleep mode	Twice every 10 sec.

5.2   Changing the batterypacks of the iForks

5.2.1   Take out both batterypacks
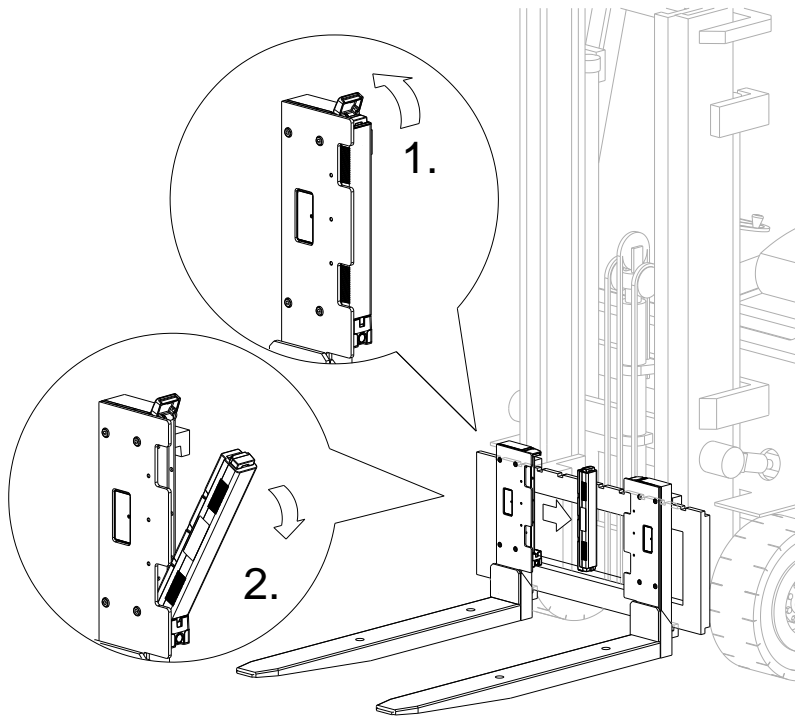
5.2.2   Change the D-Cells inside the batterypacks

1. remove the 6 Philips-head screws M3 x 25
2. remove the top housing of the battery pack
3. take out the D-cells
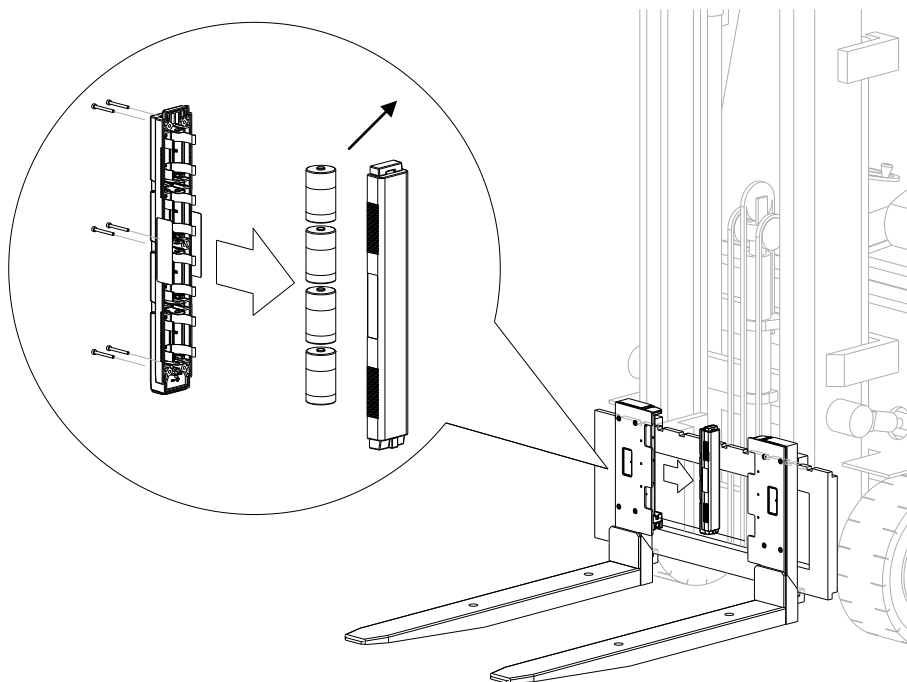
5.2.3   Place 4 full D-cell batteries in each batterypack. Replace the top housing of the batterypack and tighten the 6 Philips-head screws M3 x 25 (not too tight).
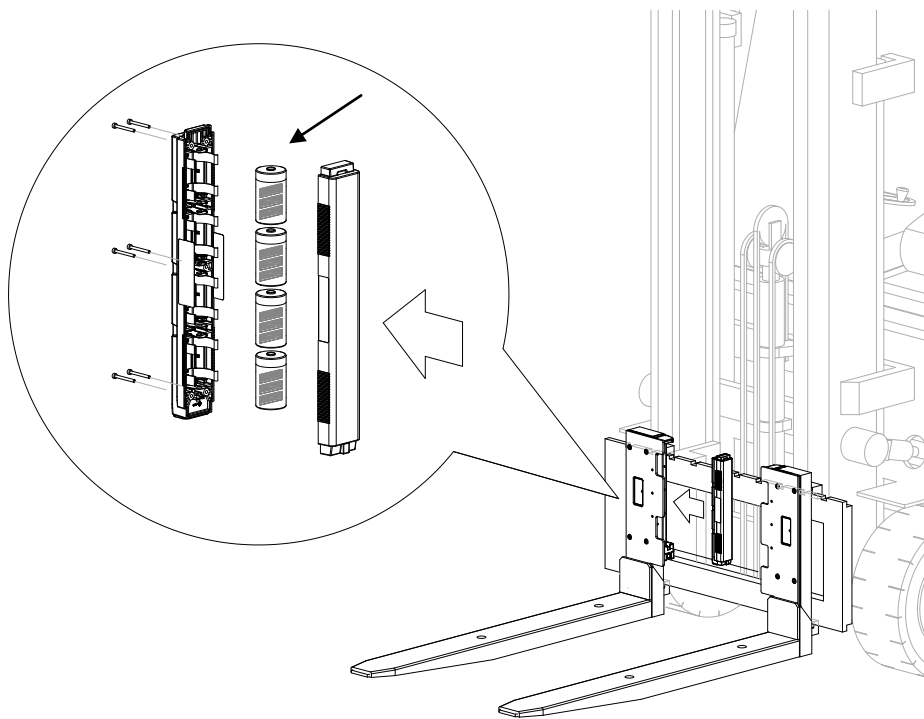
5.2.4   Replace the batterypacks of the **iForks** (see step 4.3, page 8)

5.2.5   Charge the rechargeable batterypacks (option)
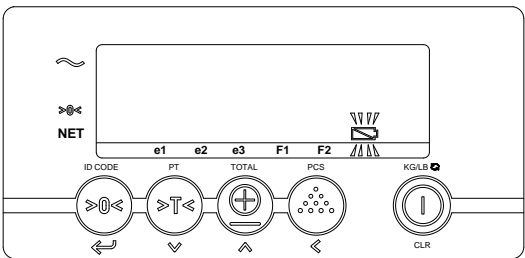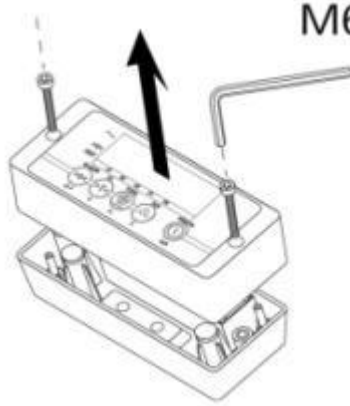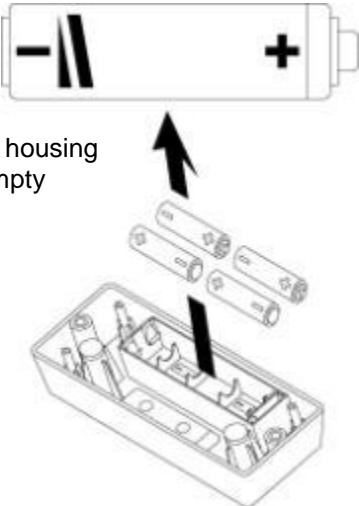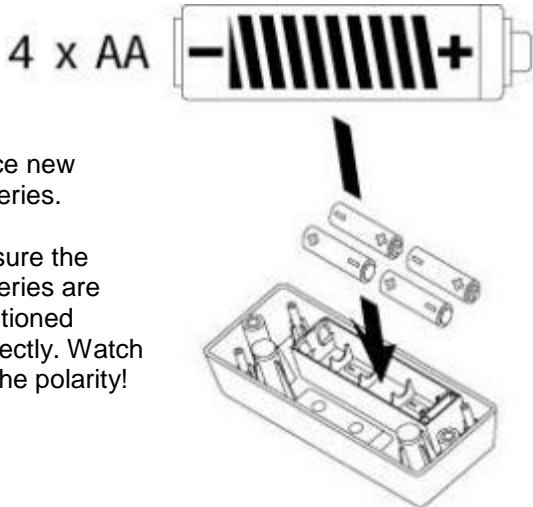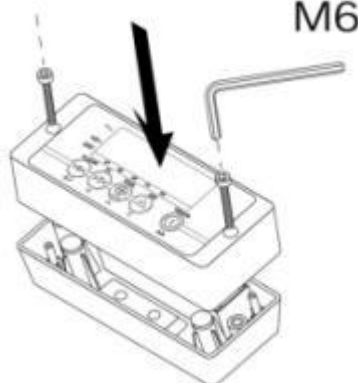
The system additionally can be equipped with rechargeable batterypacks and a charger.
Charge the battery for at least 8 hours. This will prevent loss of battery capacity. First read the label on the batterypack to check if the batterypack is rechargeable!
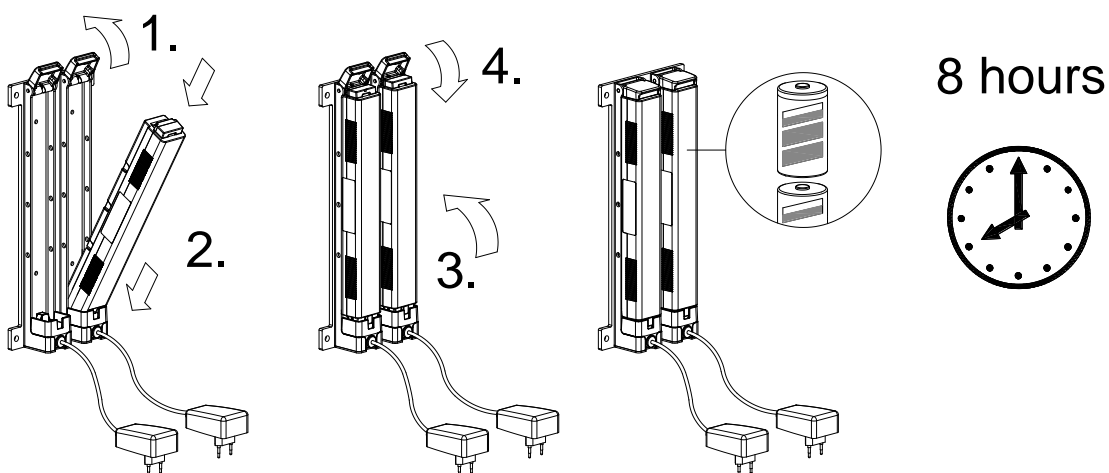
First position the batterypack inside the charger module, then plug the adaptors into the mains voltage. When the battery is being charged, the red LED on the charger is lit. After at least 8 hours charging, the batterypacks are full again. The red LED will stay on, even when the batterypacks are fully charged.

5.4 Changing the batteries of the indicator

As standard, the indicator is equipped with 4 AA batteries. As an option the power supply can be sourced via the truck's main battery. This must be ordered separately, since the indicator needs to be equipped with an integrated power regulator or converter.

1	2
Replace batteries as soon as the low bat indicator starts blinking.	Use a M6 hex key to release the bolts of the indicator housing.

3	4
Open the indicator housing and remove the empty batteries.	Place new batteries. Be sure the batteries are positioned correctly. Watch for the polarity!

5	
Close the indicator housing and tighten the bolts by using a M6 hex key.	

6. Use

6.1 Use (accurate weighing)

3 - 5 min.

M1
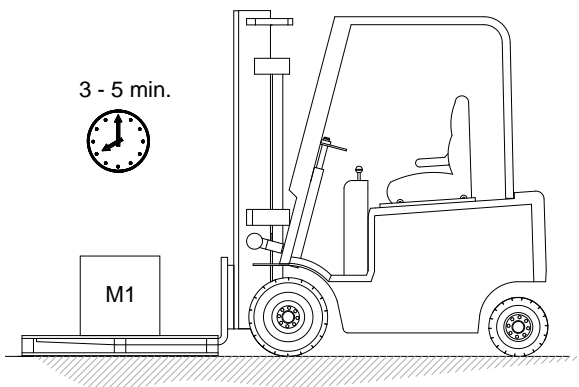
After 3 to 5 minutes the load cells have reached the operational temperature. Don't lift loads before the zero-point correction has been executed.

OK

✕

✕

✕

M1

min -10°C
15°F

max 40°C
105°F

0

0
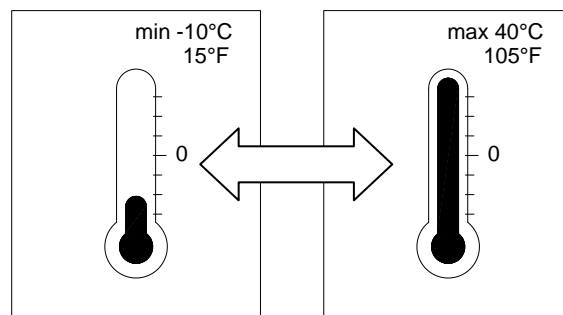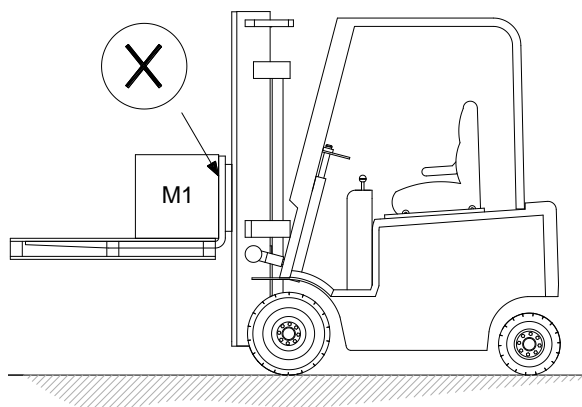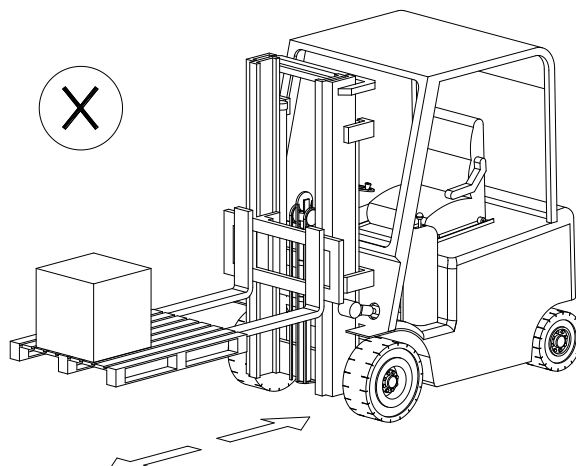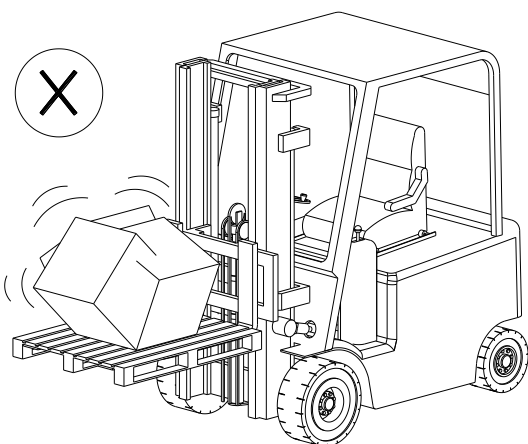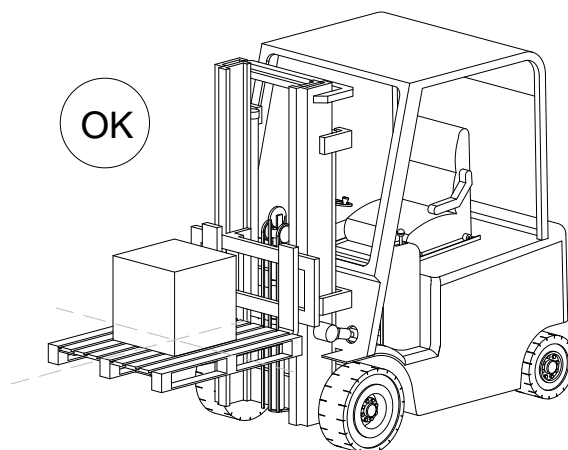
6.2 Level correction (option)

Legal for trade:

OK

> α

a

NTEP: OK if α = +/- 5% (3˚)
OIML: OK if α = +/- 5˚
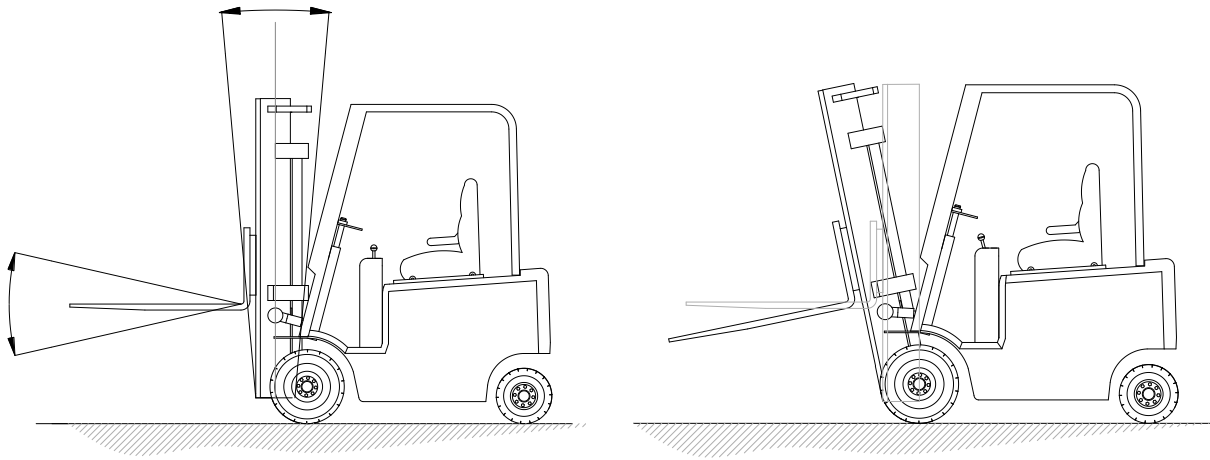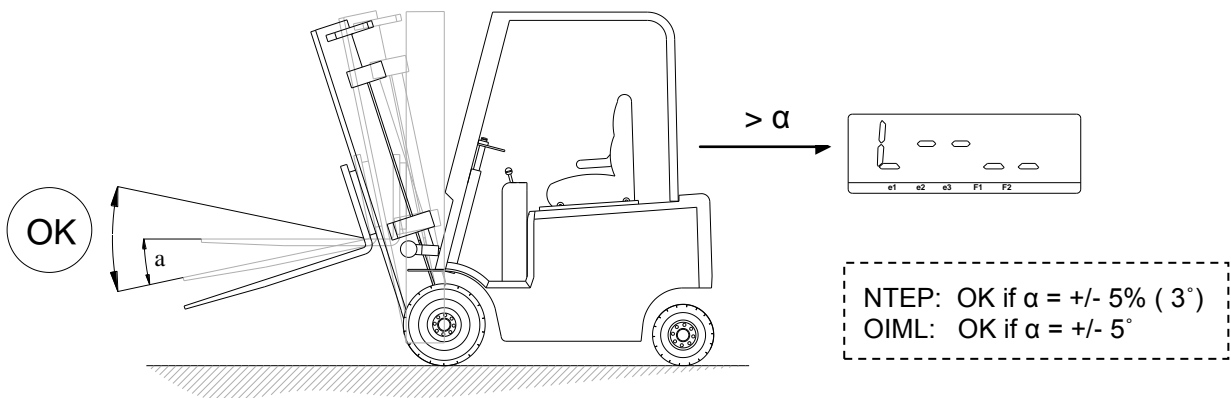
6.3   Establish Bluetooth communication and weigh!
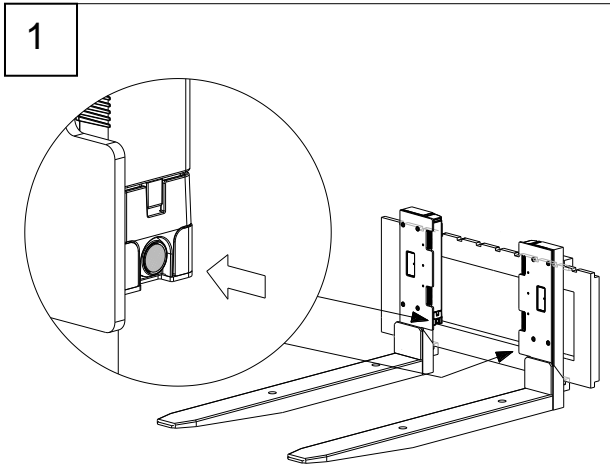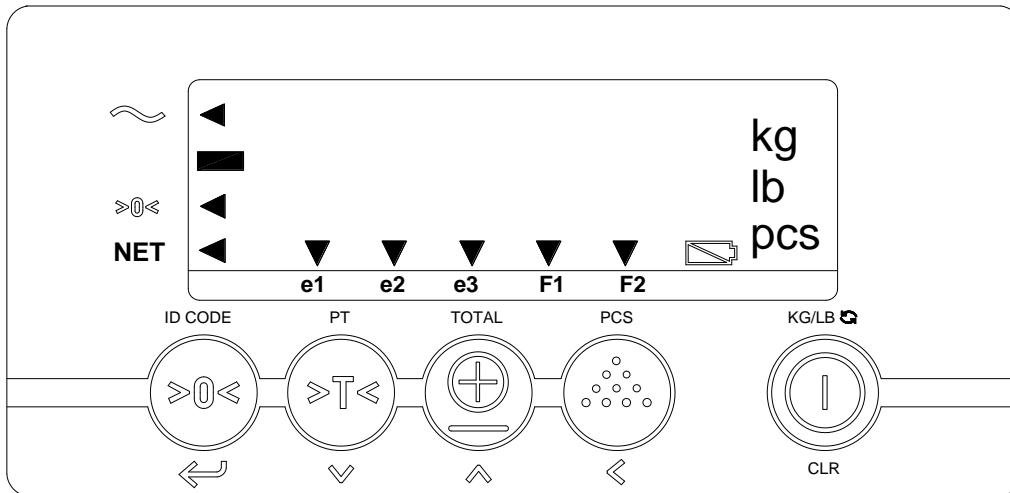
1

Switch on the iForks:
press the blue button below both batterypacks.

2

Start up the indicator:
press the on/off key.

3

5 sec.

4
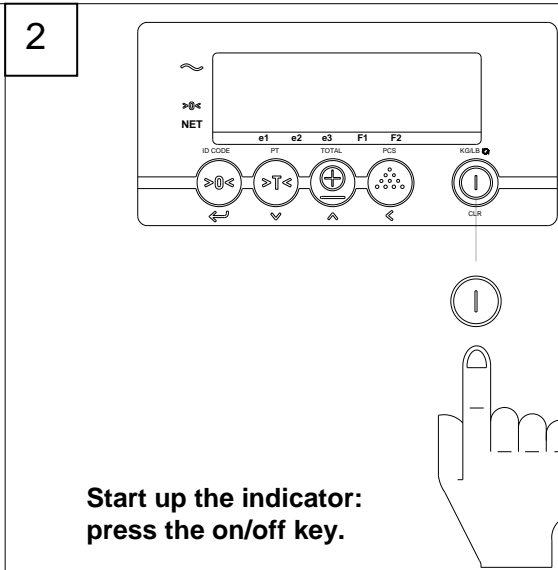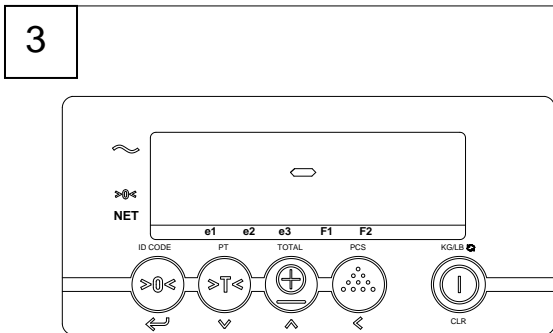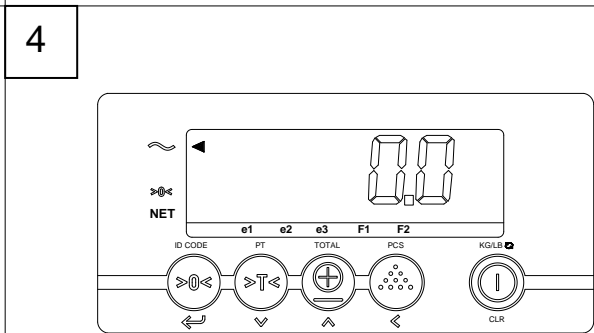
Before each weighing: check the zero point!

*Before each weighing it is necessary to check
whether the system is unloaded and free.
If the indicator does not determine the zero point
automatically, it must be done manually using the
>0< key.*

5

1000
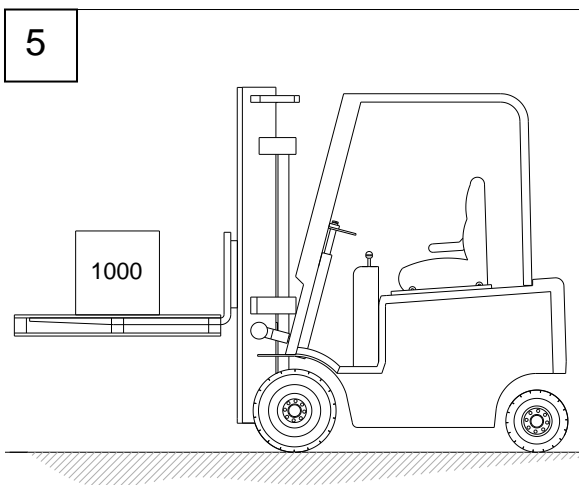
System is ready to weigh.

6
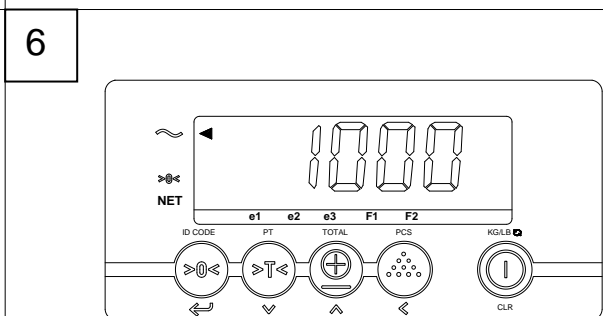
Before the next weighing,
check the zero point again.

6.4 **Auto shut-off indicator**

1	**2**

1
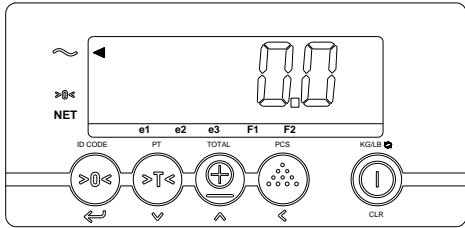
2 min.   **no action !**

2

20 sec.
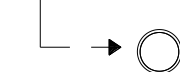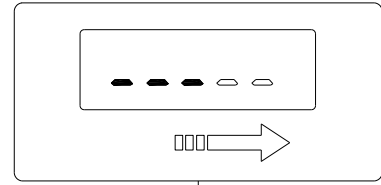
Countdown starts:
Press any key during to
cancel auto-shut-off and
go back to the weighing
mode.

3
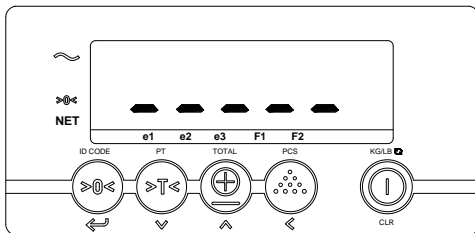
4
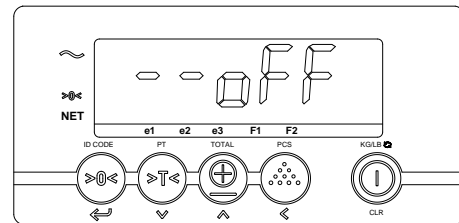
5
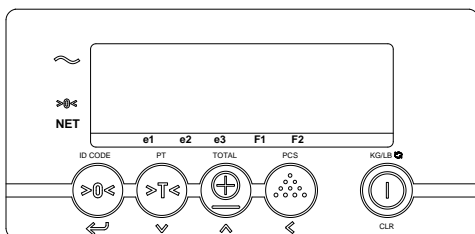
Indicator off

6.5   Auto shut-off iForks

1
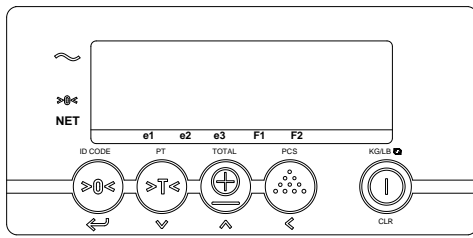
2 hour   **no weighing !**

2
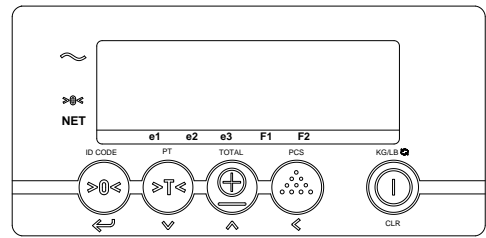
- iForks off
-Indicator off

3
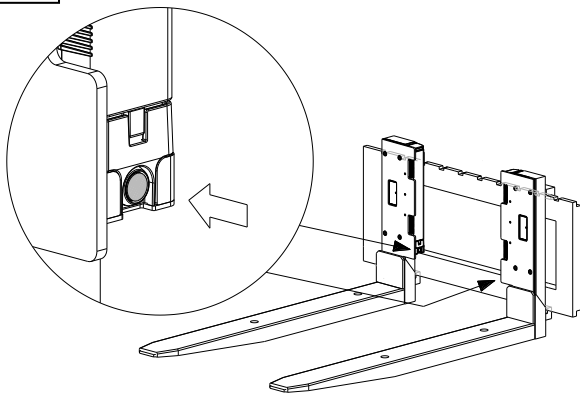
Switch on the iForks:
press the blue button below both batterypacks.

4
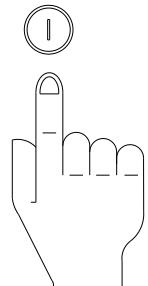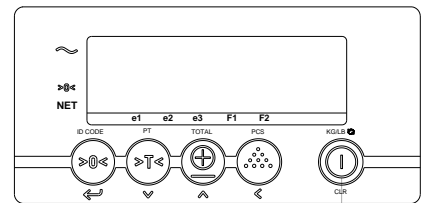
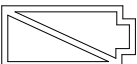**Restart the indicator:**
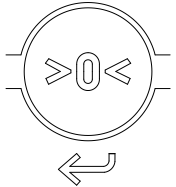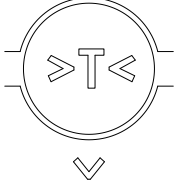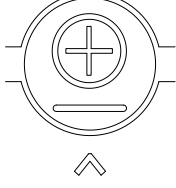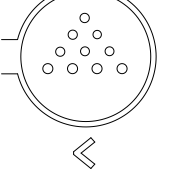**Press the on/off key.**

6.6   Indicator functions
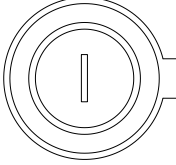
Display Functions

Symbol		Description
∿	◄	the weighing system (including load) is stable
	▬	the weight shown is negative
ZERO	◄	the weight shown is within the zero range
NET	◄	the display is showing the net weight
e1	▼	displayed weight shown is in range 1 (option multi range)
e2	▼	displayed weight shown is in range 2 (option multi range)
e2	▼	displayed weight shown is in range 3 (option multi range)
F1	▼	Fork 1 / setpoint 1 is activated (option relay output)
F2	▼	Fork 2 / setpoint 2 is activated (option relay output)
kg		displayed shows weight is kilograms
lb		displayed shows weight is pounds
pcs		number displayed represent number of pieces on the scale.
▱		low bat indicator

Key functions

Each key has 2 operational and one entry function

Standard function (Short key press)	Key	Special function (long key press)	Value entering function (entry mode)
zero setting	ID CODE	code entry	
	>0<		
	↵		enter
automatic tare	PT	pre-set tare	
	>T<		
	∨		decrease the value of the digit flashing
print weight and add to the total	TOTAL	check subtotal and print total	
	⊕		
	∧		increase the value of the digit flashing
sampling a piece weight	PCS	enter a piece weight	
	<		shift to the next digit on the left
On switch and change to lb and kg	KG/LB ↻	Off switch	
	❘		
	CLR		clear entry

Important

Operation of a key is not accepted unless the weighing system is stable (and the "load stable" pointer lights up). This means that the indicator only executes commands with a stable load.

For a detailed description of the functions CODE ENTRY, PIECE COUNT and RELAY check our operational manual Indicator 4100 at www.ravas.com

6.7   Error messages

ERROR MESSAGES

| Display	Meaning	Out of error mode
Err01	Load cell signal is unstable	Automatic
Err02	Overload on full scale	Automatic after removing weight
Err03	Gross negative. This action is not allowed	Automatic
Err04	Out of zero range	Press any key
Err05	Sampling accuracy too low	Press any key
Err06	Input signal too high	Automatic after correcting input
Err08	Calibration out of range (negative)	Automatic
Err09	Calibration out of range (signal too low)	Automatic
Err10	Calibration count 2nd(3rd) point lower than count 1st(2nd) point	Automatic
Err14	Setpoint value 2 < setpoint value 1. This is not allowed	Automatic
Err98	Calibration point must be higher than previous one	Automatic
Err99	Action only allowed in start-up units	Automatic
ErrF1	Problem with fork 1 (no communication)	Restart indicator. Restart forks & indicator
ErrF2	Problem with fork 2 (no communication)	Restart indicator. Restart forks & indicator
----	Loadcell signal negative	Lift up the forks from the ground
L - _	Forks are out of level (only legal-for-trade version)	Put the forks into horizontal position
ErrCS	Problem with correction sensor	Contact the RAVAS Service department

DISPLAY MESSAGES

Display	Meaning	
BltF1	Successful Bluetooth link with fork 1	*No error*
BltF2	Successful Bluetooth link with fork 2	*No error*

6.8 Net / Tare / Gross weight

EXPLANATION: Net(1) + Tare(2) = Gross(3)
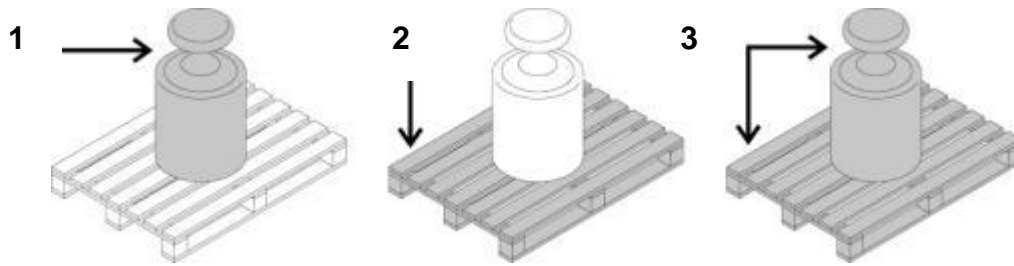
6.8.1 Net weighing: automatic tare

**The indicator is set to zero.
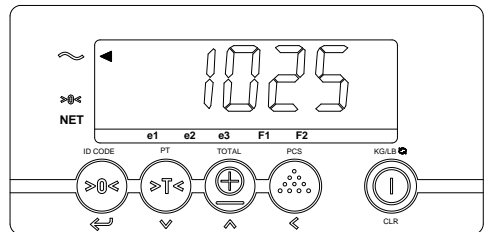The "NET" pointer shows that
the tare weight is activated**

5
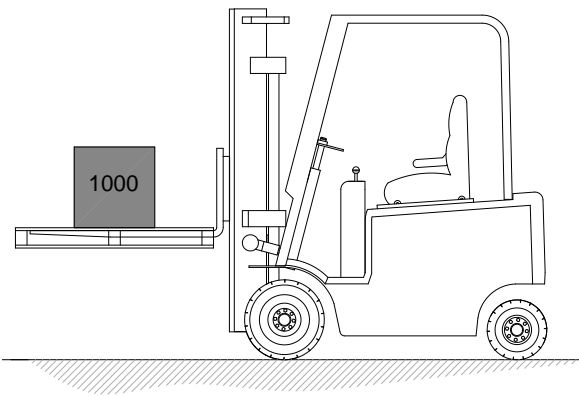
6
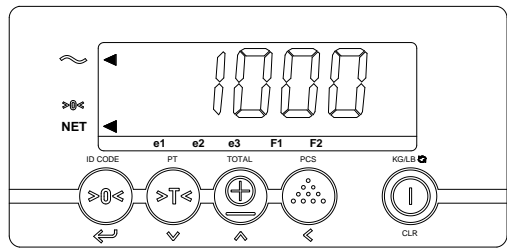
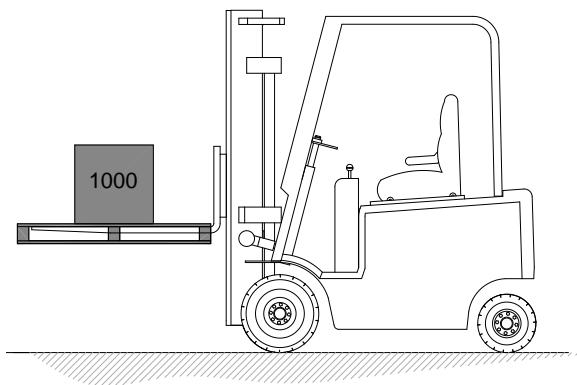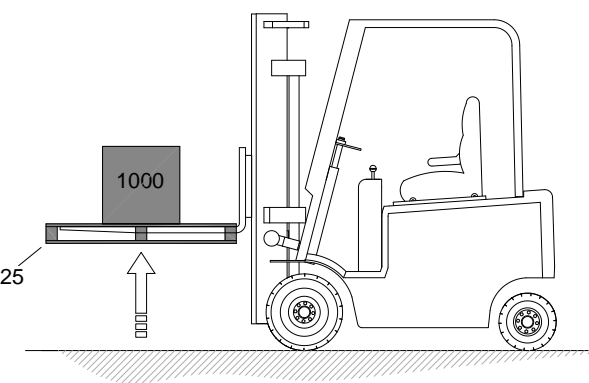**The display shows the net value of the weighed load.**

7
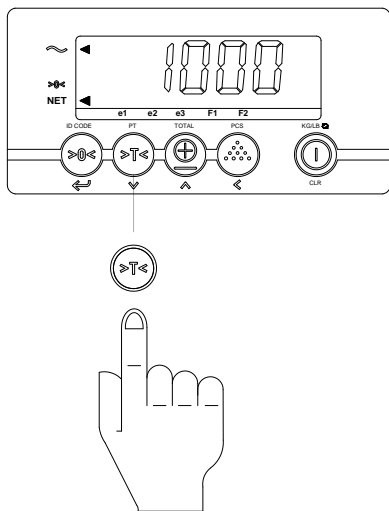
8

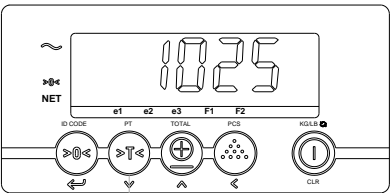**The gross weight is displayed again.**

9

6.8.2 Net weighing: manual tare (PT)

1

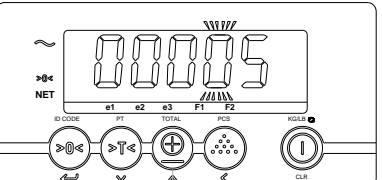1000

25

2
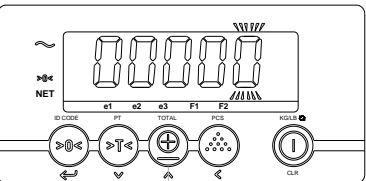
3 sec.

Press the PT key for 3 sec.
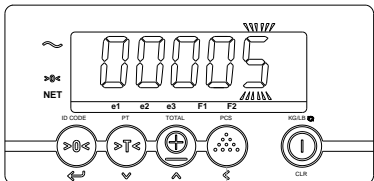
3

5x

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

4

1x
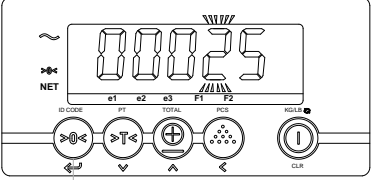
5

2x

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

6

Press ENTER to activate the tare weight

7
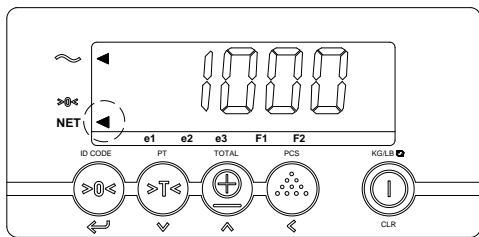
The "NET" pointer lights up

8
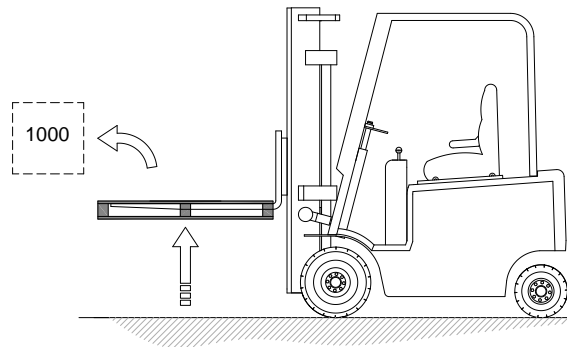
9
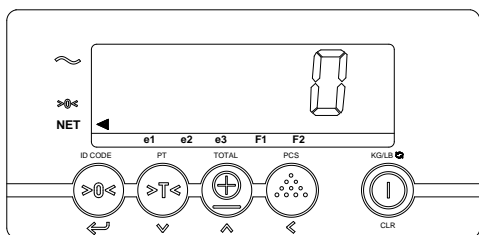
10
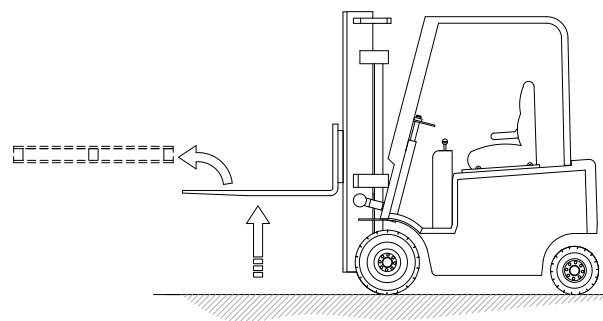
11
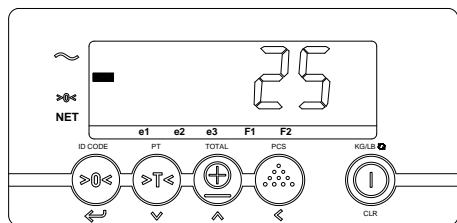
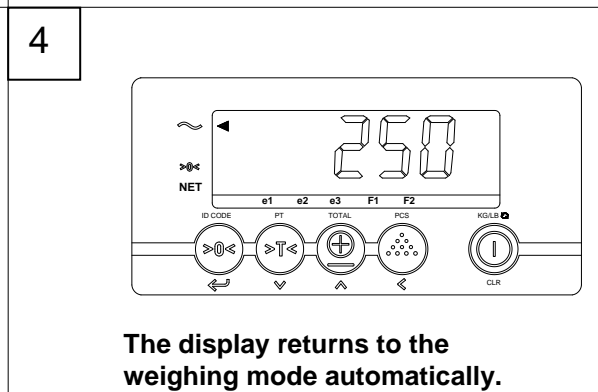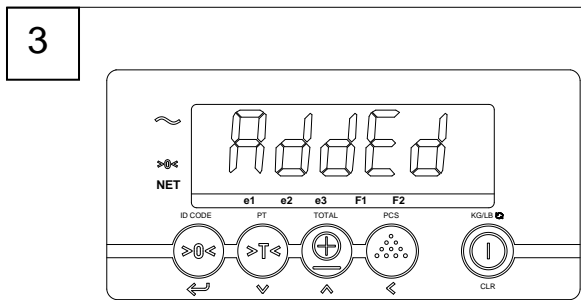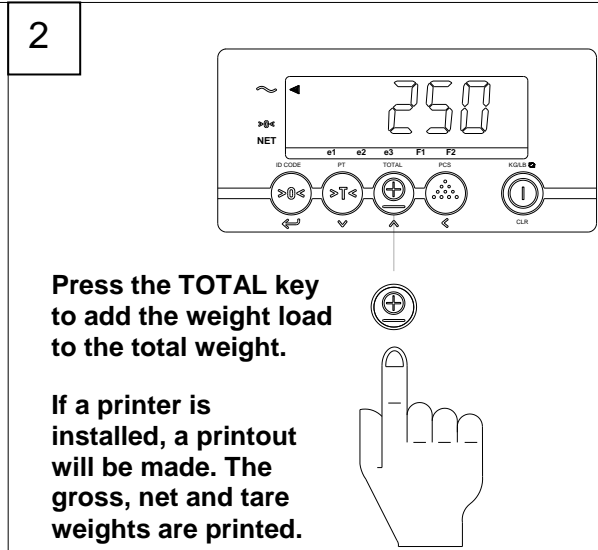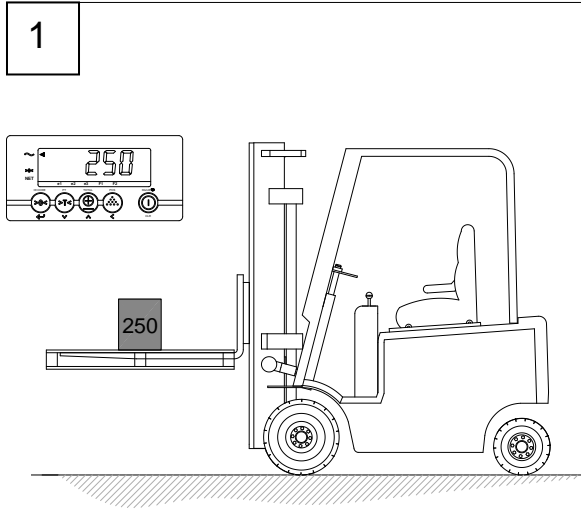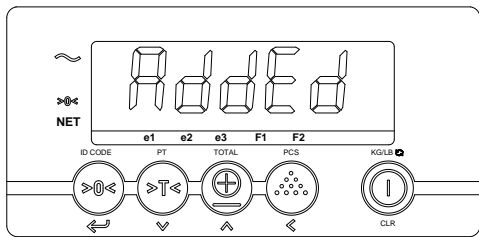**When the iForks are completely unloaded, the tare value is displayed negatively.**
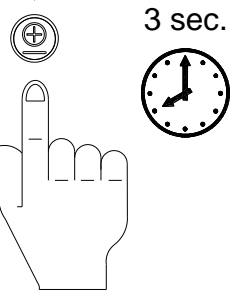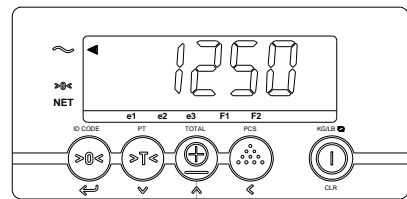
12
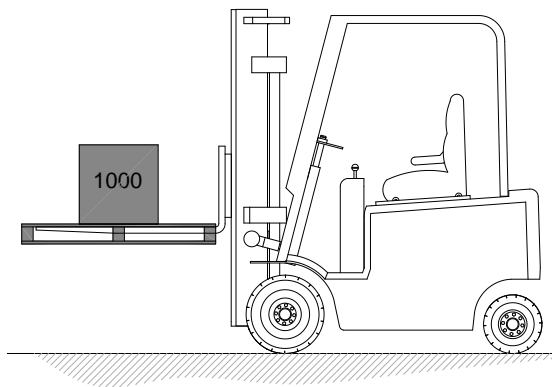
13
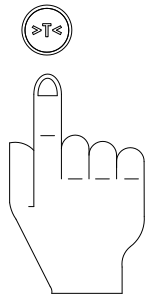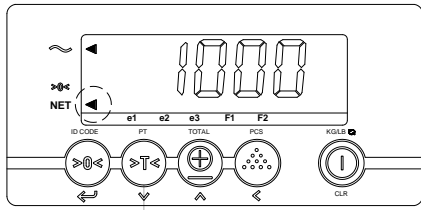
14
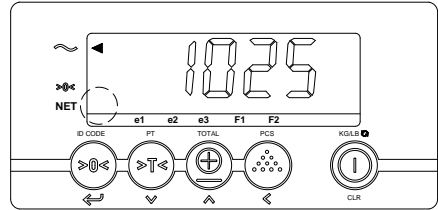
The gross weight is displayed again.

6.9   Adding & reset

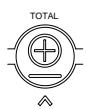**Press the TOTAL key to add the weight load to the total weight.**

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

The display returns to the weighing mode automatically.

Press the TOTAL key to add the weight load to the total weight.

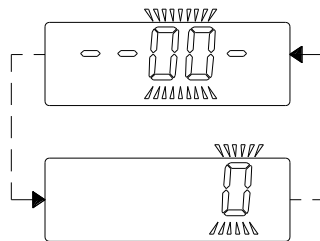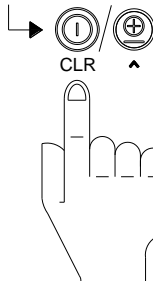**If a printer is installed, a printout will be made. The gross, net and tare weights are printed.**
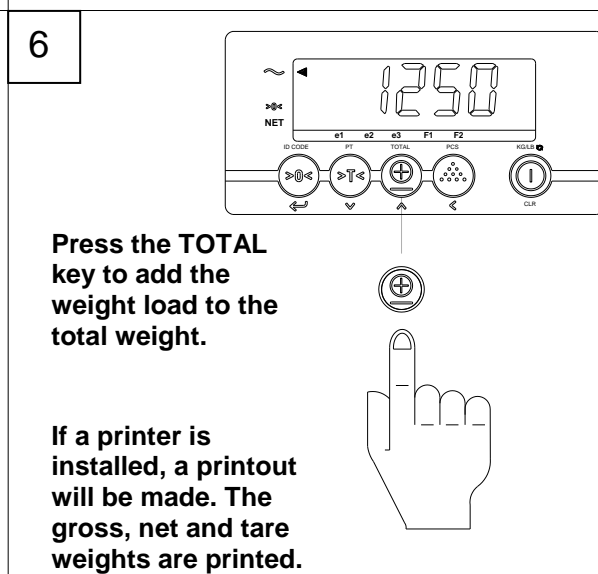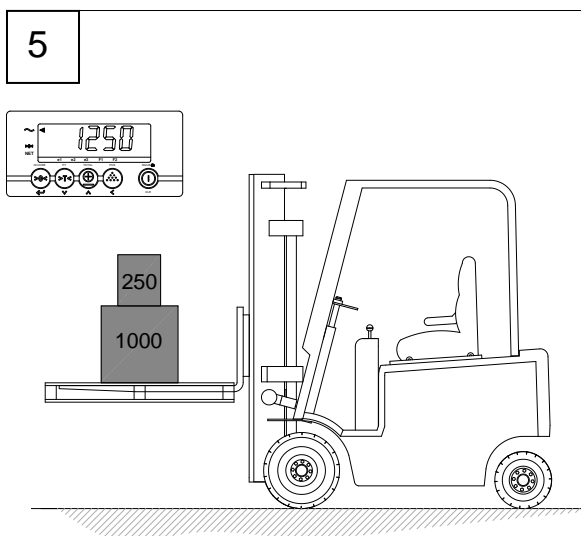
7

8
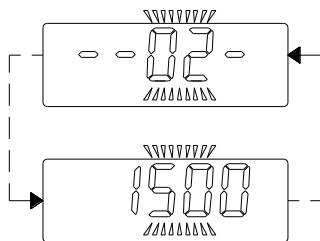
The subtotal
can be checked
by pressing the
TOTAL key for
3 sec.

3 sec.

9

3 sec.

CLR
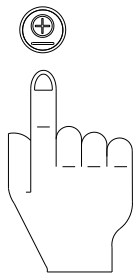
= **RESET TOTAL & PRINT**
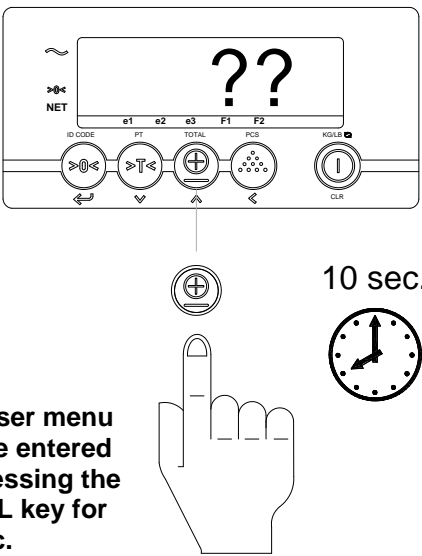
= **RESET TOTAL**

6.10   KG- LB switch

1		2	
	KG/LB ⟳ 🔘		**5 sec.**
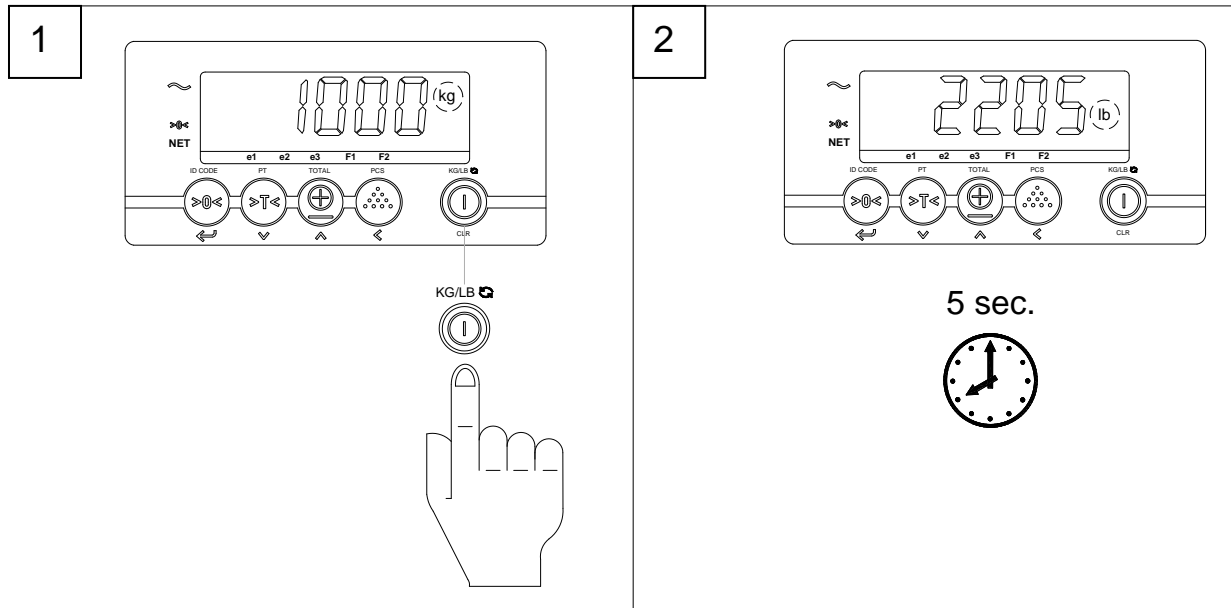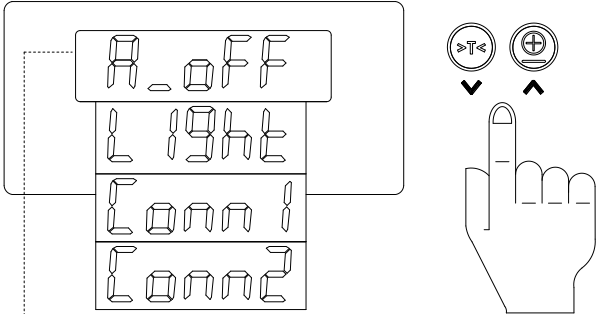
6.11   User settings

1

??

10 sec.

**The user menu
can be entered
by pressing the
TOTAL key for
10 sec.**

2

A_oFF

LIGHt

Conn1
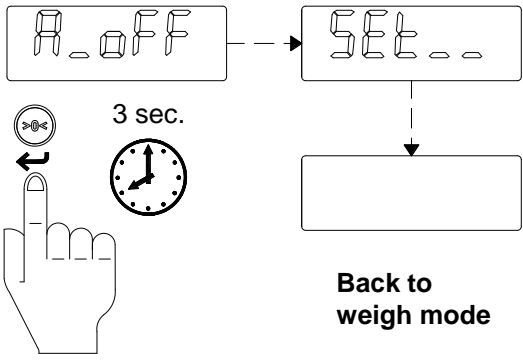
Conn2

**These user settings can be changed if
desired. See next pages.**

3

- -► **EXIT & SAVE**

A_oFF ---► SEt__

3 sec.
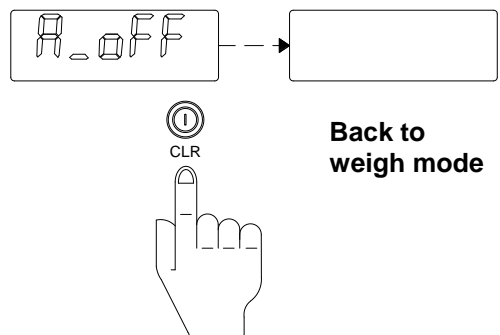
**Back to
weigh mode**

- -► **EXIT without SAVING**

A_oFF ---►

CLR

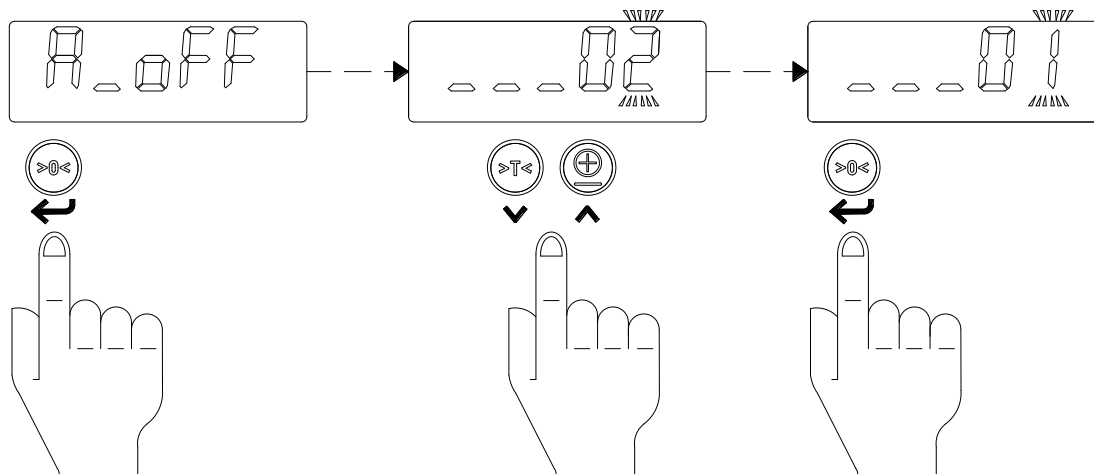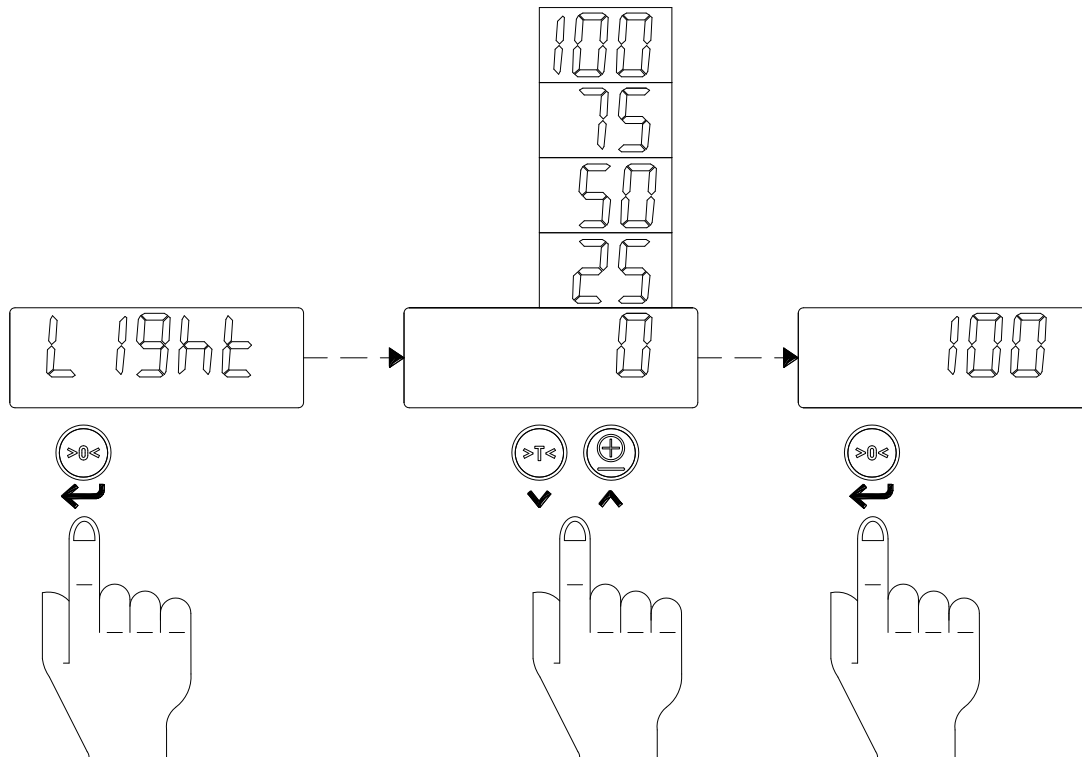**Back to
weigh mode**

Set the auto shut-off time indicator (delay time in minutes)
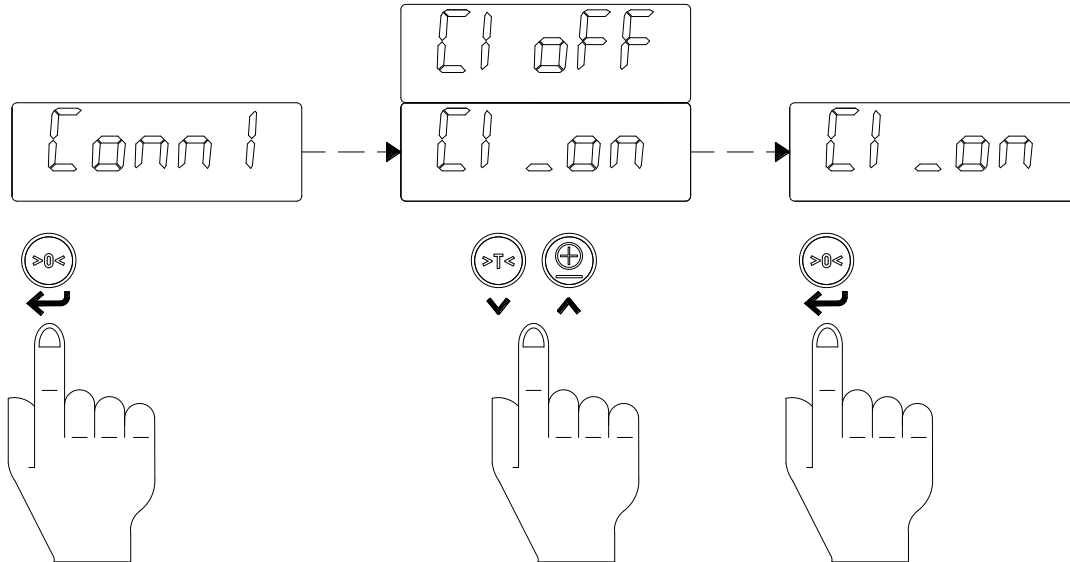

0 min = indicator always on

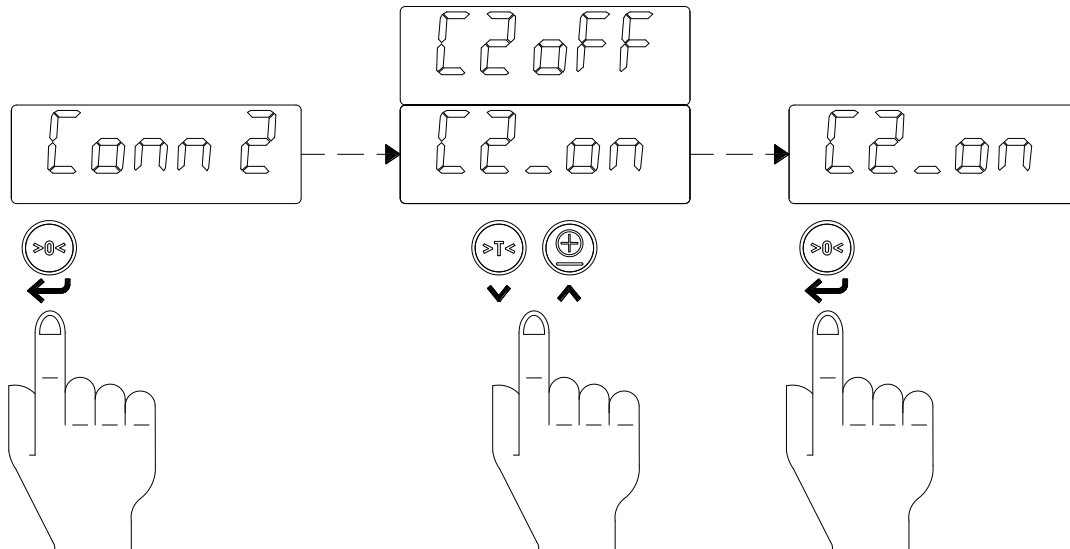**Set backlight (intensity in %)**

0 % = backlight off

(De-) activate Com Port 1

```
        ┌──────────┐
        │ C1 oFF   │
┌──────────┐ ┌──────────┐      ┌──────────┐
│ Conn 1   │→│ C1 _on   │  ---→│ C1 _on   │
└──────────┘ └──────────┘      └──────────┘
```
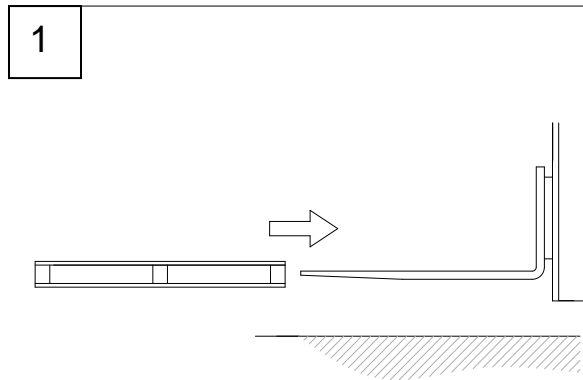
It is not possible to de-activate Com Port 1 for iForks

(De-) activate Com Port 2

```
        ┌──────────┐
        │ C2 oFF   │
┌──────────┐ ┌──────────┐      ┌──────────┐
│ Conn 2   │→│ C2 _on   │  ---→│ C2 _on   │
└──────────┘ └──────────┘      └──────────┘
```
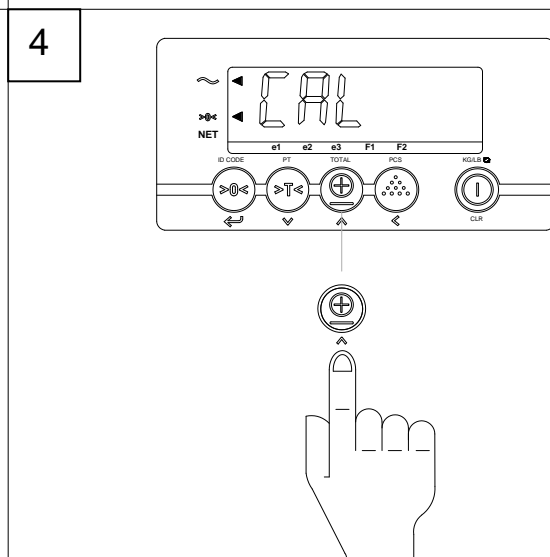
7. Calibration

7.1 Corner calibration

1 **Put an empty pallet on the iForks.**	**2** **Start up the indicator.** **Press the on/off key.**
3 10 sec.	**4**
5 	**6** 2 sec.

7

CornA

8

C   D
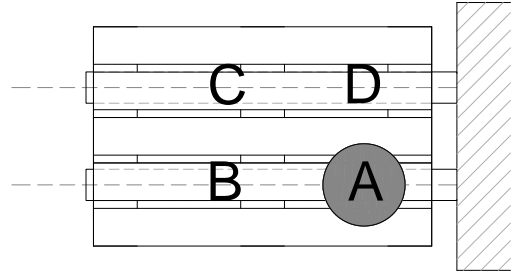
B   A
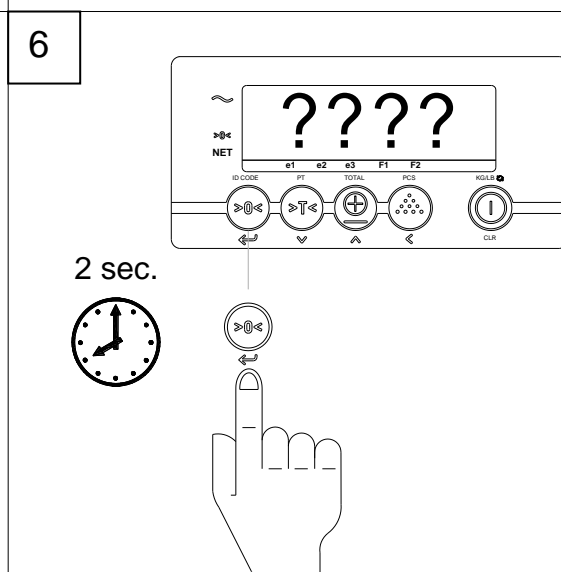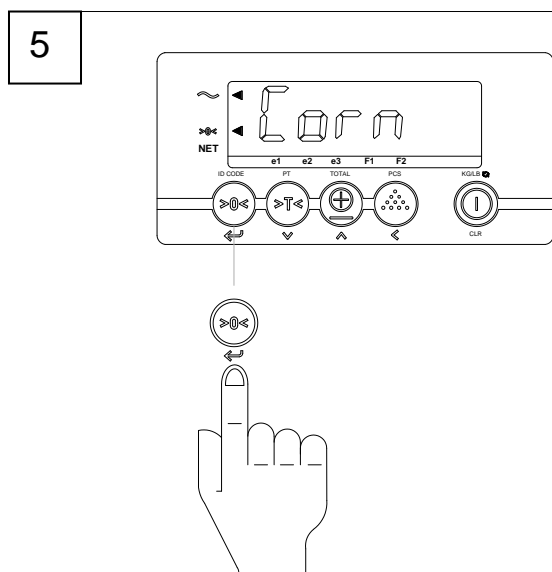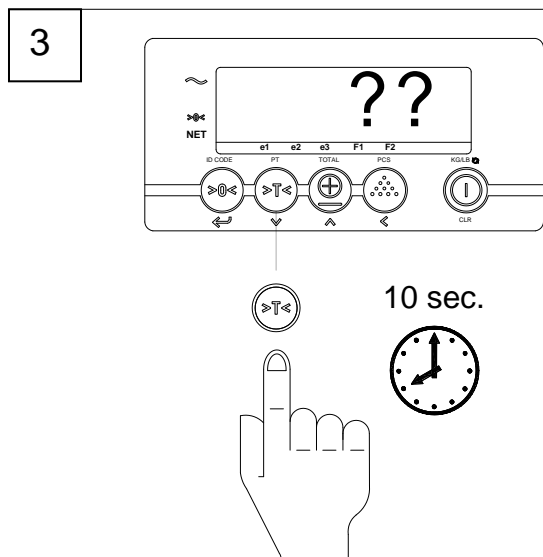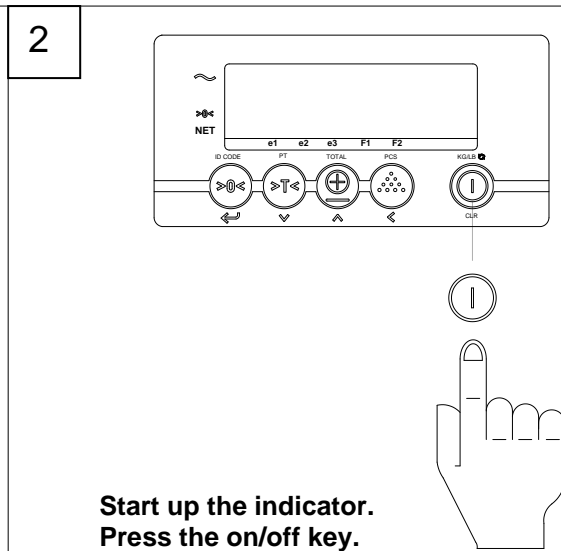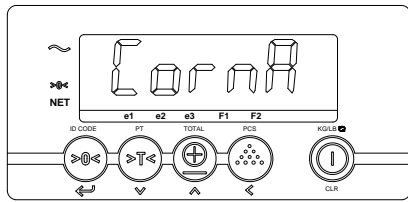
Put load M (100–500kg) on position A of the pallet.

9

CornA

10

Cornb

11

C   D

B   A

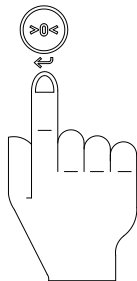**Put load M (100–500kg) on position B of the pallet.**

12

Cornb

13

14
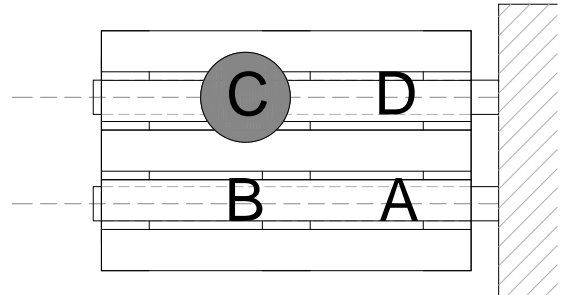
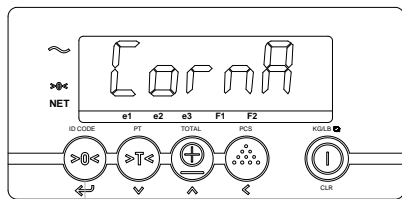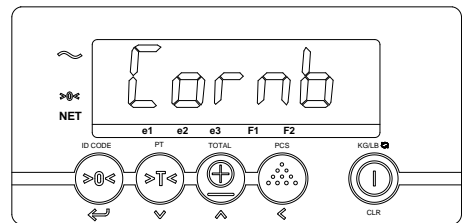**Put load M (100–500kg) on position C of the pallet.**

15
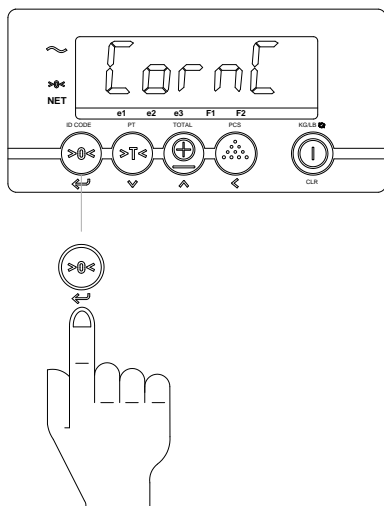
16
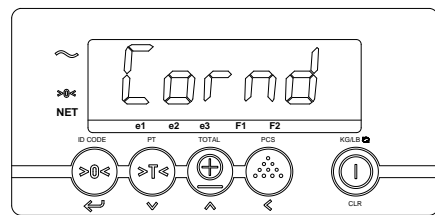
17
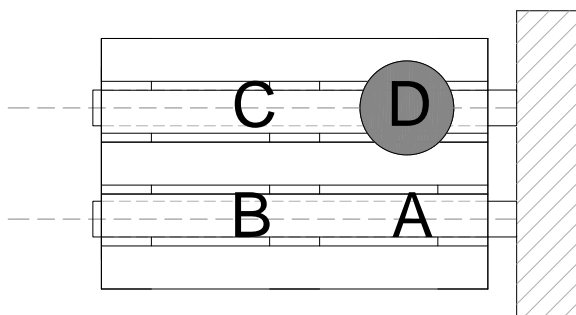
Put load M (100–500kg) on position D of the pallet.

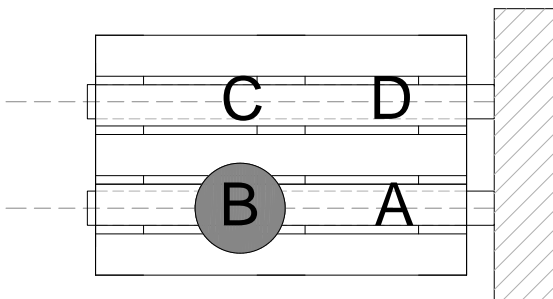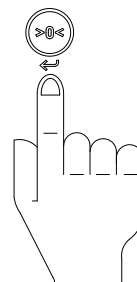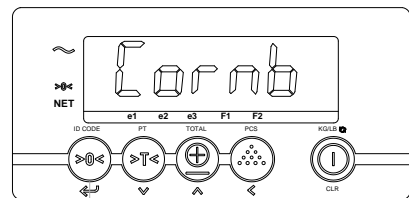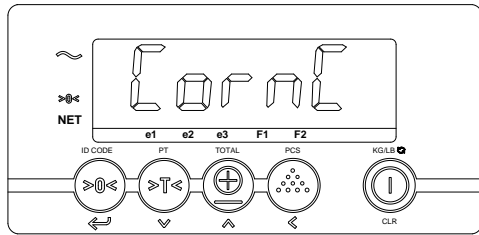**18**

7.2 Zero calibration

1

Start up the indicator.
Press the on/off key.

2

Empty forks !

3

??

10 sec.

4

AdJ _ _

AP

0.0
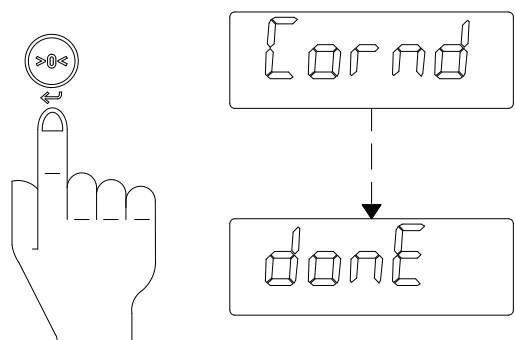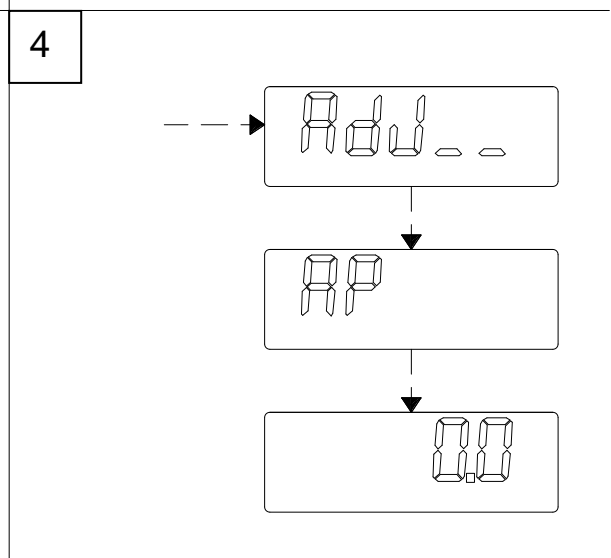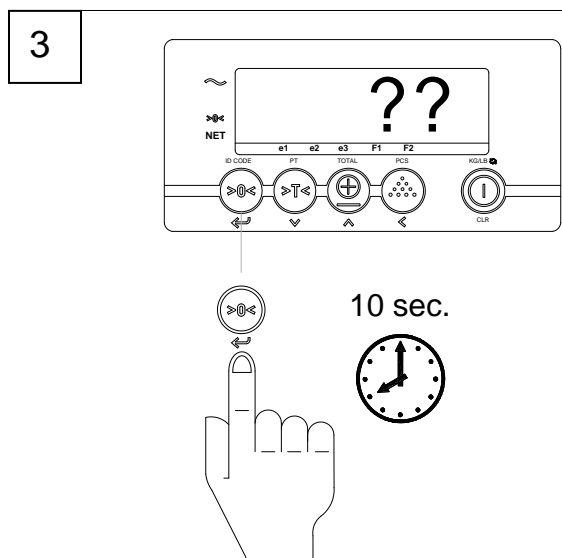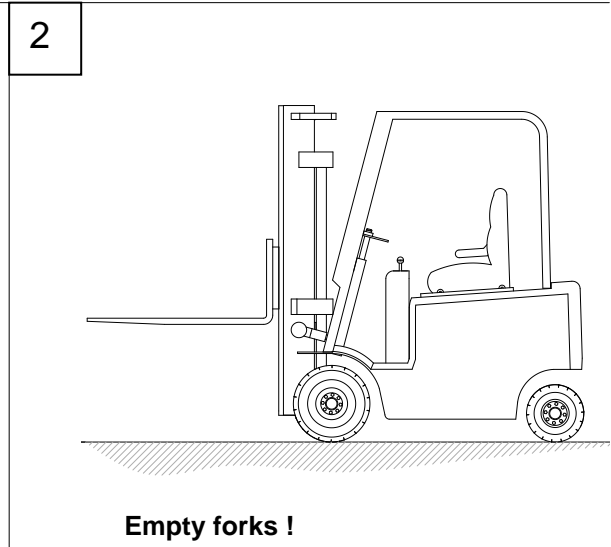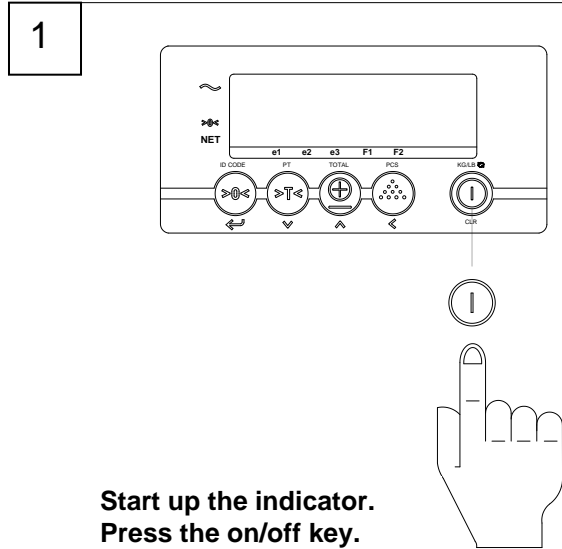
7.3   Weight calibration

1

EXAMPLE:

M1 =   500
M2 = 1500
M3 = 2500
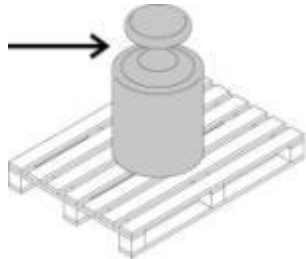
*M = total calibration
weight loaded onto the*
iForks *(incl. pallet if used)*

2
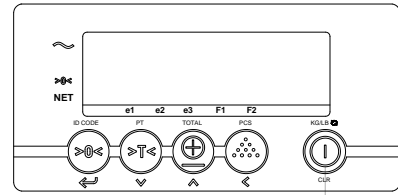
Start up the indicator.
Press the on/off key.

3

??

10 sec.

4

CAL

5

CAL

1x

6

7

Change if needed !   **3x**

8

5x

9

1x

10

11

M1

12

3 sec.

13

14

1x
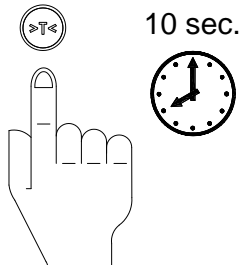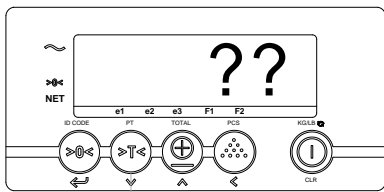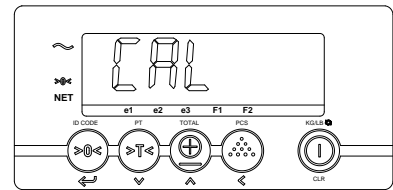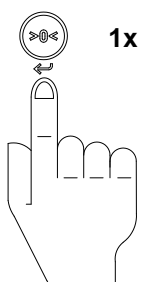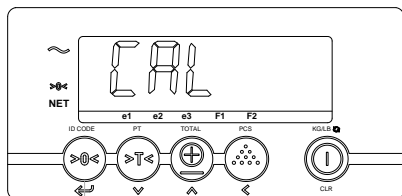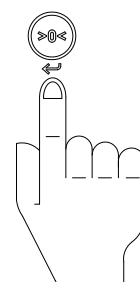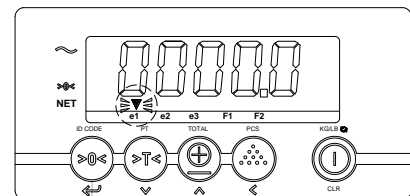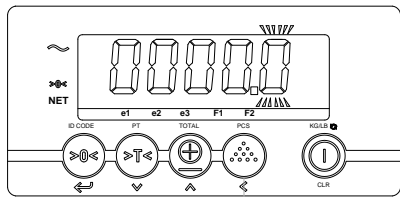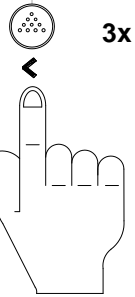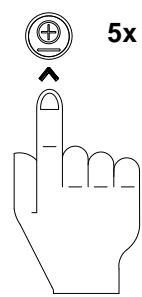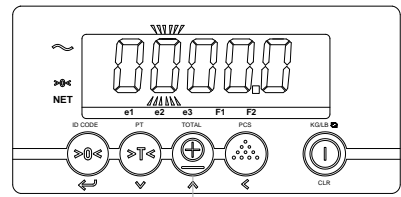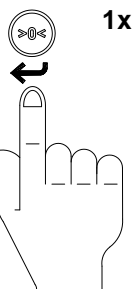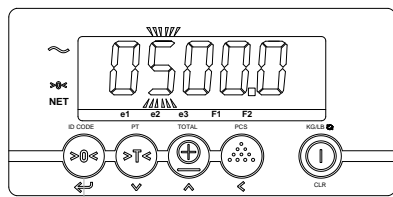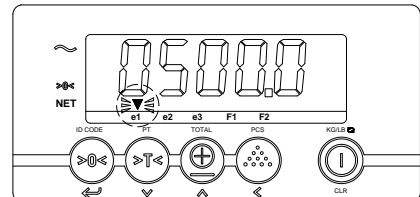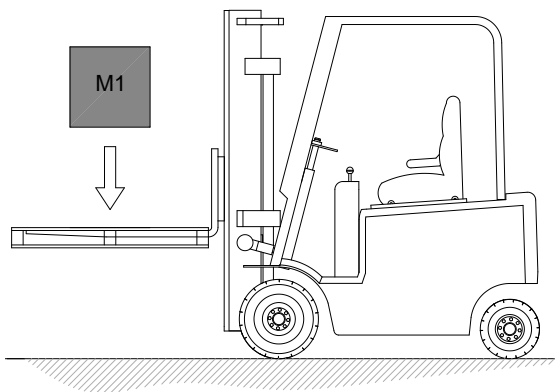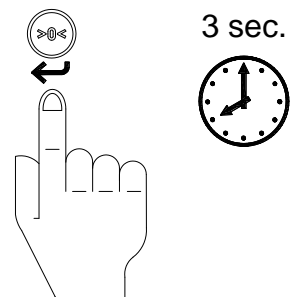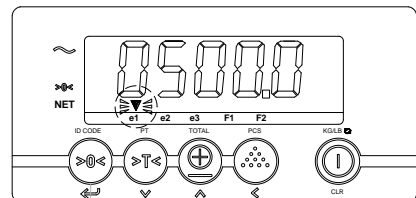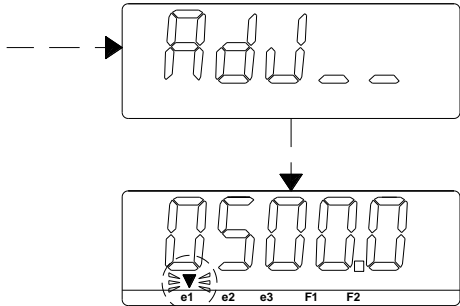
**Move the
pointer to e2**

15

**Change the value if
needed, by pressing
the >0< key shortly.**

16

M2

17

3 sec.
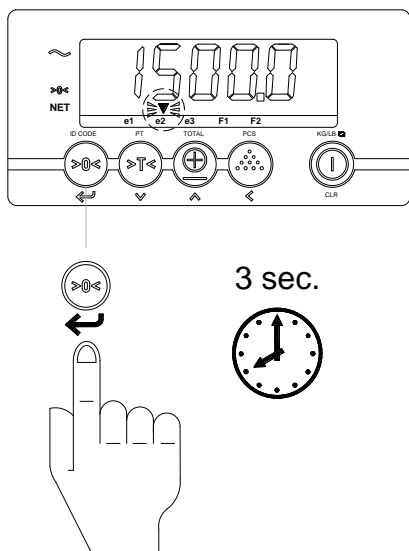
18

**Afterwards, repeat this
cycle for load M3 -> move
the pointer to e3**

19

2500.0

⊕ ^ **1x**

20

RP ??

>0< ↵

21

ZonE

22

09800

>0< ↵

Change gravitation value if needed (enter value of destination)

Or confirm with enter (back to weigh mode)

2. Parameter settings

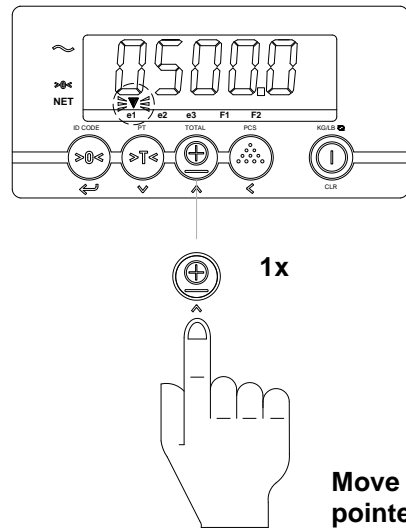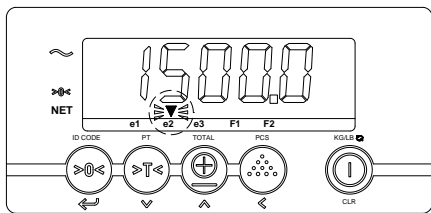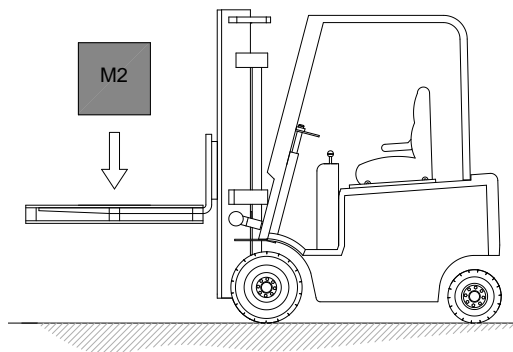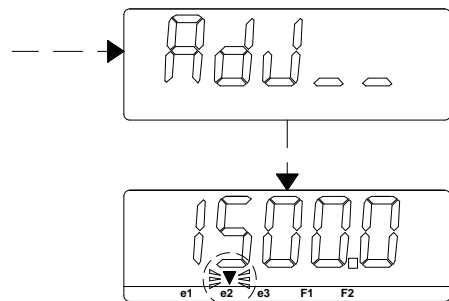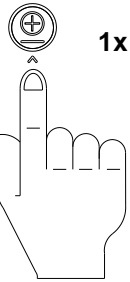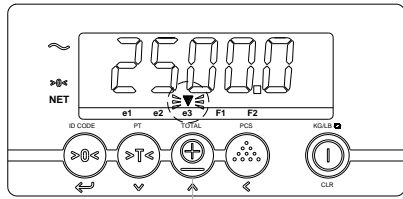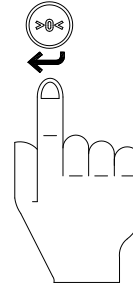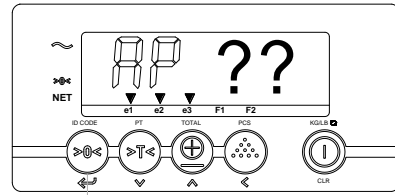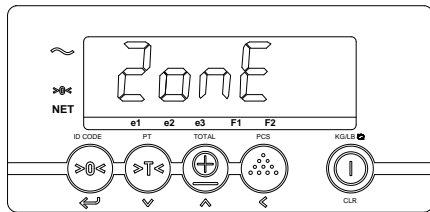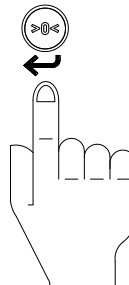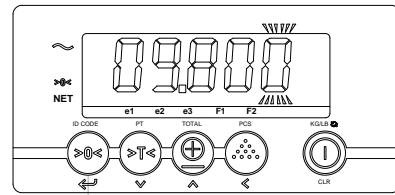| Par.	Function	Default settings EU	US	Settings
01	Calibration and start-up units (and print units)	kg	lb	kg;lb
02	Smallest graduation step for multirange	1	2	0.1/0.2/0.5/1/2/5/10/20/50
03	Biggest graduation step for multirange	2	5	0.1/0.2/0.5/1/2/5/10/20/50
04	Number of divisions for every range	1000	1000	0000 - 9999 divisions
05	Weighing capacity system (full scale)	2500	5000	0-99999
06	Motion tolerance for stable	2	2	off/0.5/1/2/4/8/16/32 grad./sec
07	Filter size	8	8	off; 1-12 (1 light filtering, 12 high filtering)
08	Auto zero range (zero track)	0.5	0.5	off/0.5/1/3 grad./sec
09	Zero range positive (+)	10	10	0-100 % of span
10	Zero range negative (-)	10	10	0-100 % of span
11	Test function (display service mode)	basic	basic	basic/count/res10
12	Power on – automatic zero	no	no	Yes/no
13	Approved / non-approved version	no	no	No/ntep/oiml
14	Sampling quantity	10	10	1/2/5/10/20/50/95
15	Units switch mode active	yes	yes	no/yes
16	Setpoint function	0	0	0 (not used); 1 (gross overload); 2 (net overload); 3 (fill manual tare); 4 (fill auto tare); 5 (gross overload not authorize to change gross setting); 6 (net overload not authorize to change net setting); 7(gross overload delayed); 8 (net overload delayed); 9 (gross overload delay not authorize to change gross setting); 10 (net overload delay not authorize to change net setting)
17	Number of wires per loadcell (sence active)	4	4	4/6
18	Gravity value working area	9.812	9.797	9.750-9.850
19	Print format date/time	EU	US	EU (dd/mm/yy);US (mm/dd/yy)
20	Baudrate com1	9600	9600	600/1200/2400/4800/9600/19200
21	Setting com1	8_n_1	8_n_1	8_n_1; 8_n_2; 7_n_1; 7_n_2
24	End character com1	cr	cr	cr;lf;crlf
25	Protocol com1	5	5	0(PC bi-directional NU); 1(PC Excel format on print command); 2 (remote display); 3 (printer protocol with power control); 4 (printer protocol without power control); 5 (Bluetooth master)
26	Number of linefeeds com1	4	4	0-9
27	Handshake com1	soft	soft	soft (Xon/Xoff)/hard (CTS)
28	Printout format for com1 and com2	stnd	stnd	stnd;total;confi
29	Header lines added	0	0	0 - 3
30	Baudrate com2	9600	9600	600/1200/2400/4800/9600/19200
31	Setting com2	8_n_1	8_n_1	8_n_1; 8_n_2; 7_n_1; 7_n_2
34	End character com2	cr	cr	cr/lf/crlf
35	Protocol com2	0	0	0(PC bi-directional NU); 1(PC Excel format on print command); 2 (remote display); 3 (printer protocol with power control); 4 (printer protocol without power control); 5 (Bluetooth master)
36	Number of linefeeds com2	4	4	0-9
37	Handshake com2	soft	soft	soft (Xon/Xoff)/hard (CTS)
40	Level sensor	no	no	no/ls nc/ls no/cs fa/cs ra
41	Delay trigger time level sensor	3	3	0 -1 0 sec
43	Compensation factor correction factor	1	1	0.1-10.0
44	Compensation factor X-direction	1	1	0.1-10.0
45	Compensation factor Y-direction	1	1	0.1-10.0
60	Battery used	6	6	6V /12V
61	Low Bat switch-off time	2	2	0 = never off; 1-99 min
62	Auto shut-off time indicator	2	2	0 = never off; 1-99 min
63	Auto shut-off time forks	3	3	0 = never off; 1 = 30min; 2 = 1h; 3 = 2h
64	Sleep time indicator if used	0	0	0 = not used; 1 to 99 min
65	Auto shut-off time backlight	20	20	off/20/40/80/160/320 sec
66	Backlight brightness	100	100	100%/ 75%/ 50%/ 25%/ 0% (off)
67	Low bat switch off time forks	10	10	0 = never off; 1-99 min
68	Buzzer function active	off	off	off/ on (direct); on (2 sec. delay)
80	Digital corner calibration active	0	0	0 (enabled); 1 (disabled)
81	Compensation factor digital corner A	1.000	1.000	Do not change value after digital corner calibration
82	Compensation factor digital corner B	1.000	1.000	Do not change value after digital corner calibration
83	Compensation factor digital corner C	1.000	1.000	Do not change value after digital corner calibration
84	Compensation factor digital corner D	1.000	1.000	Do not change value after digital corner calibration
85	Matching Bluetooth forks			Only enter this parameter to establish a complete new

				Bluetooth connection! Enter last 6 characters of MAC-address of fork1 and 2 or cancel by pressing CLR
90	Default settings without changing calibration			
91	Default settings with changing calibration			
96	Printout parameter setup	Pr-C1	Pr-C1	Pr-C1; Pr-C2
97	Key test function (buzzer and nr)			
98	Scale id number	0	0	0 - 9999
99	Software version			