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FLINTAB
WEIGHING SOLUTIONS

USER MANUAL

WEIGHTINDICATOR 47-11

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Edition 1.0 – 2019-02-11

CONTENT

1. INTRODUCTION

Thank you for choosing a weight indicator from Flintab.

Flintab scales and indicators combine weighing functions and customizations to offer a flexible, user-friendly interface and reliable hardware.

This manual covers the daily use of the 47-11 weight indicator. For more detailed instructions, interface and installation information, consult our 47-11 technical manual (Dokument: 4-55424 Weightindicator 47-11 Instruction)

FLINTAB

Develops and markets scales and weighing systems for industrial use. With a wide array of products, from small bench scales to large truck scales, load cells, weight indicators and computer systems adapted for rugged industrial use. We strive to offer a safe and trouble free ownership of highly advanced weighing systems. High accessibility is our keyword.

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1.1 Features

Weight indicator 47-11 is a modern, purpose built, Flintab weighing instrument, making it suitable for both industrial and consumer weighing applications. The fully digital design enables ease of use and provides exceptional flexibility.

Main features:

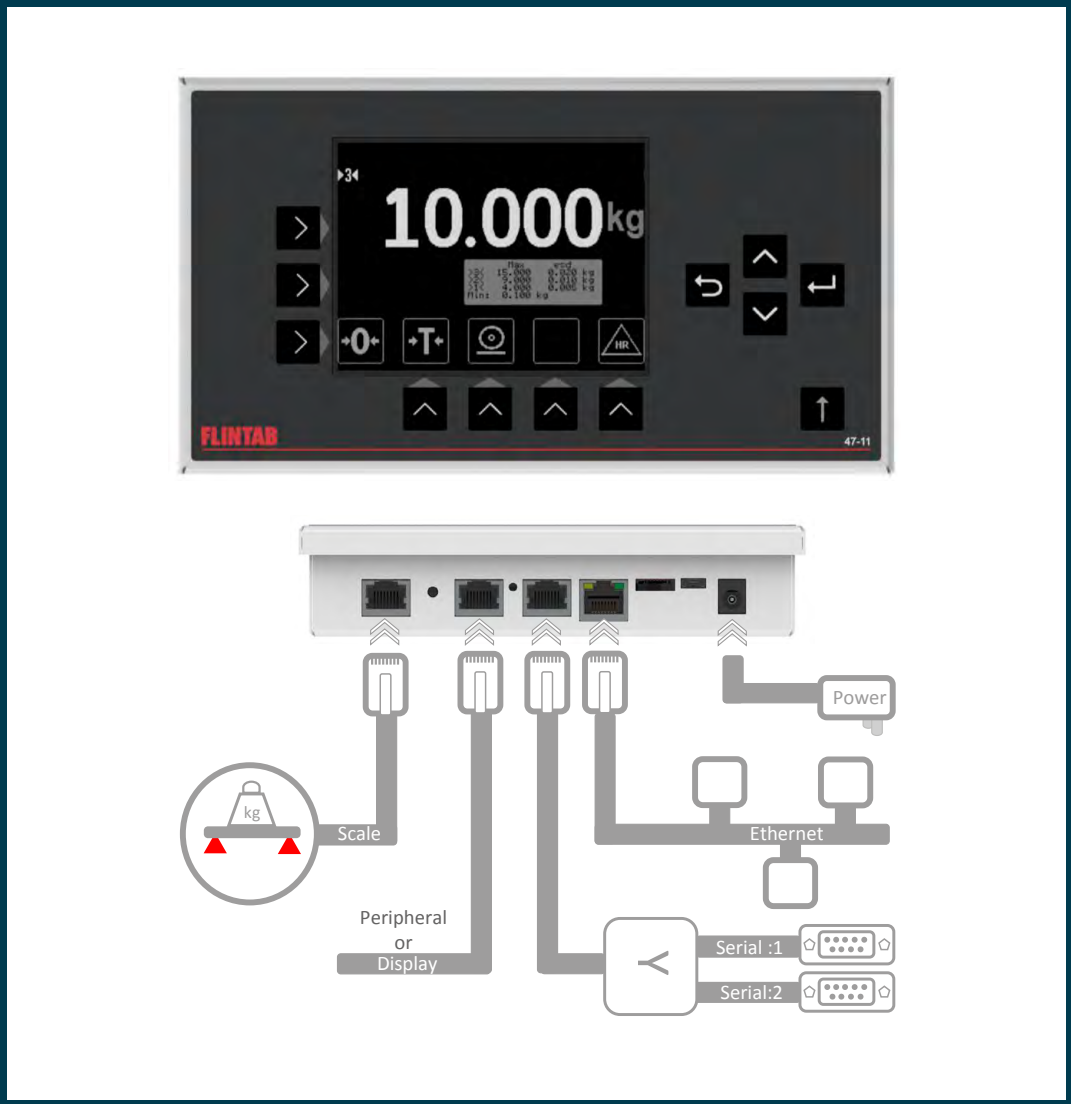
- **Compact and rugged construction for industrial or consumer applications**
- **10/100 Mbit Ethernet interface (TCP/IP)**
- **Dual serial interfaces, 2x RS232 or 1xRs485 (2w) and 1x RS232 or 1x RS485(4w)**
- **External weigh display with push-buttons for user**
- **operation/configuration**
- **Optional internal high-contrast graphics LCD-display with large easy-to-read digits and indications**
- **Dual universal scale/load cell interface suitable for most ratio metric transducers**
- **Optional multiplexed quad load cell interface with automatic corner adjustment**

Options:

- **Optional alibi memory (non-volatile, data storage device DSD)**
- **4-channel wave interface with digital corner adjustment**
- **External backlit segment-based LCD**
- **External (8/8, 2/0, 0/2) I / O card for setpoints or control**

2. INSTALLATION

If the weight indicator is supplied as part of a complete scale, then it is usually calibrated and setup in accordance with the order specification. Installation in this case only require the connection of peripheral equipment as per schematics below:



3. INTERNAL GRAPHIC LCD WITH PANEL TOUCH BUTTONS

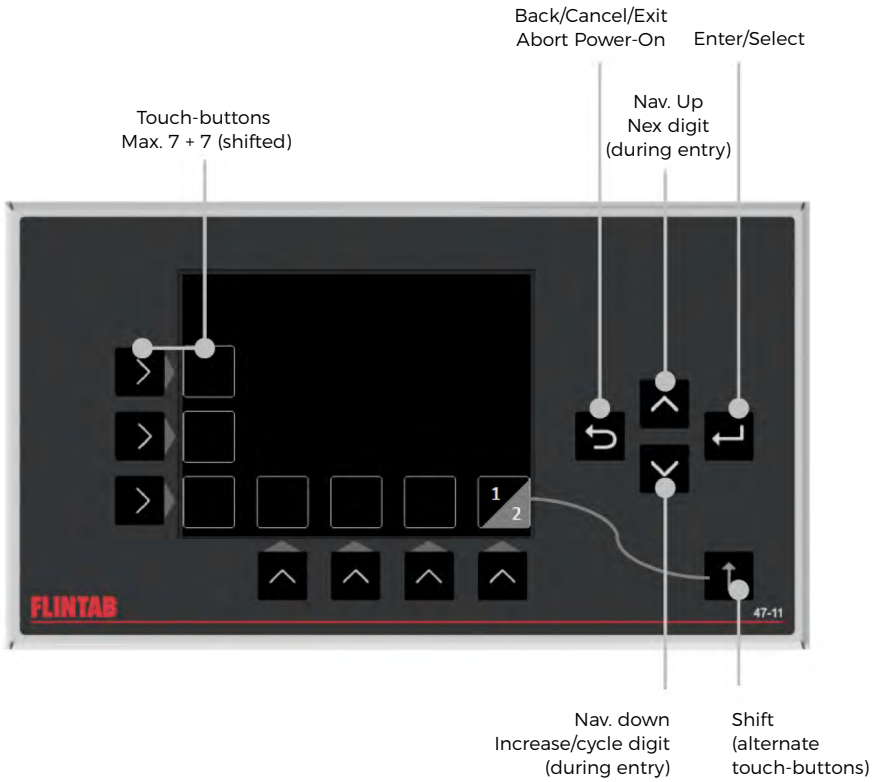
The 47-11 indicator can be fitted with an optional internal graphics LCD with integrated touch-button panel.

Depending on configuration, the display can use different basic layouts for displaying weight and related information. Relevant weighing functions will be shown on the display next to a touch-button.

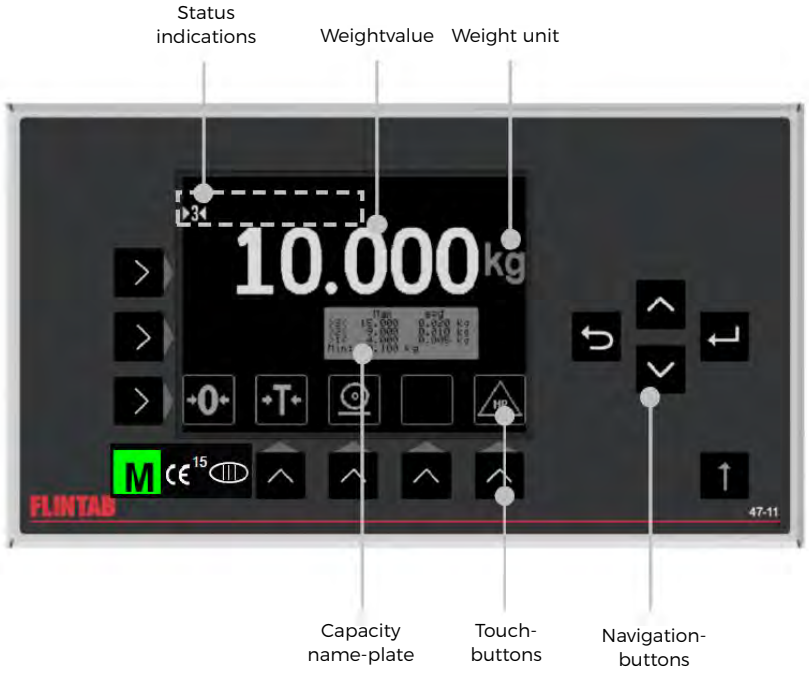
3.1. Touch- and navigation-buttons

The internal graphic LCD uses on screen touch-buttons for weighing and related functions and navigation buttons for menu- and input-control.

The touch-buttons will display weighing functions depending on current configuration and layout.



3.2. Standard layout



Status indications:

Ethernet status:

Connected -

Disconnected -

Net weight

Unstable

Calibration mode

Symbol indicates instrument running on b attery power

Power - on = **POW**
Error = **ERR,**
Sensor error = **SEN**/TMP
Interval/Range = 1,2 or 3

High-resolution

3.2.1. Integrated capacity nameplate Integrated capacity name-plate

The internal graphic LCD will as default display a capacity name-plate automatically generated from current configuration (only exception is when used for direct sales with price computing layout, where the capacity name-plate is instead a separate sticker). The name-plate will show the maximum and minimum weight and scale interval/ division. IN the case of multiple-interval or multiple-range operation, each interval/range will be detailed.

4. START-UP SEQUENCE

At power-on all displays will show the following sequence steps, where each step is approximately 2 seconds:

- All segments and digits on.
- All segments and digits off.
- Display indicator type 47-11
- Display program version in the format 'Px M.nn' where M is major and nn is minor revision, x- designates custom factory default settings.
- Display of OIML mode (if activated).
- Display of alibi status (when applicable and enabled).
- Display of maximum capacity plus one scale interval (d), in the case of multiple interval/range configuration, each interval and corresponding scale interval is displayed.

The indicator then prepares for normal operation:

- Checks if power on zero is enabled, if enabled weight display will flash and no weighing functions are available until power-on zero criteria's are meet or the operator chooses to abort by pressing the <Abort>/<Back> button

5. WEIGHING FUNCTIONS

The indicator has facilities for adjusting zero, use the tare and printing. However the available weighing functions depends on if the indicator is in non-automatic or automatic mode and installation requirements.

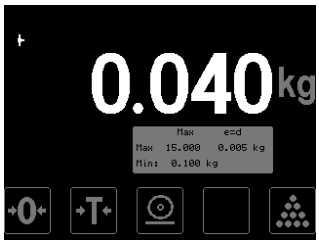
Note: As the weight indicator can be adapted to a larger number of different weighing applications, some functions may be disabled for a particular scale. In such cases the function will remain inoperable but displays '-OFF-'when requested to be activated.

5.1. Zero setting

A scale may as a result of external conditions indicate a value other than exact ”0.000”, even when the scale has no load. The zero can, however, be acquired to ensure that any new weighing always starts at zero. The zero setting is only allowed to be carried out when the scale is stable and within a limited range. If the scale cannot be zeroed even when stable, it means that the range has been exceeded. It is important to verify that the scale is empty before operating the zero setting function.

See below examples:

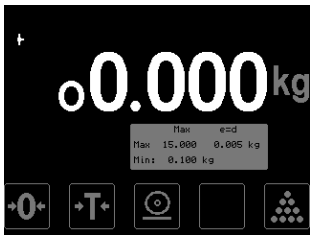
- Scale with no load does not show exact zero (e.g. residue material from last weighing).



- Press the <Zero> key and the zero is acquired and ” ZERO ” appears on the display.

- The display reverts to show weight.

  Note: When the weight value is within ± 0.25 scale intervals of true zero, the sign ’o’ appears on the display before the zero weight value, this is also called ‘absolute zero’.

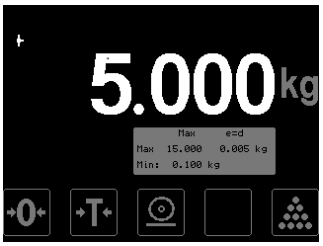


5.2. Semi-automatic tare

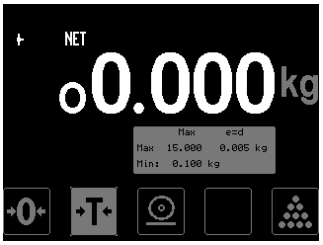
The weight of a container can be tared to enable the net weight of material put in the container to be displayed. Tare will only operate with stable scale and weight above zero. A typical tare operation is shown below:

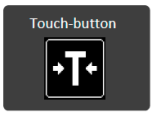
A typical tare handling is shown below:

- An empty container is placed on the scale and the weight of it is displayed.



- Press <Tare> key and the display switches to show net weight.
  This mode is highlighted by the appearance of the "NET" indication.





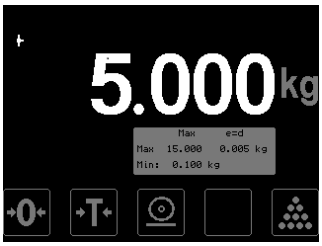
- Press the <Tare> key again to return to gross weight display.

5.3. Manual tare entry (PT)

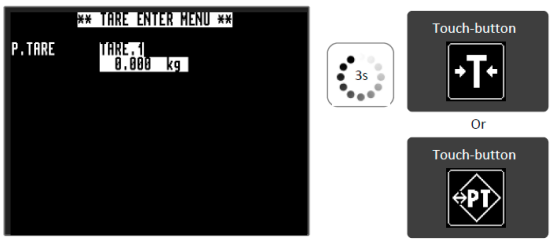
It is also possible to manually key in an arbitrary tare value with touch/push-buttons.

Se example below:

- An (empty) container is placed on the scale, and the weight of it is displayed.



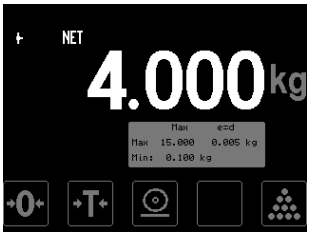
- By pressing, and holding, the <Tare> button for >3seconds or pressing the dedicated manual tare button <PTare> the display will shift to manual tare entry.



- The latest entered tare value will be shown on the display, if this value is to be used, then press the <Enter> key. Else enter a new value, see section 3.1 Touch- and navigation-buttons for instructions for input. When the value is saved it will be automatically used as current tare value.

- As soon as the tare value is saved or selected it will be put into operation and the scale switched over to net weight.

- To remove the effect of the tare and return to gross weight display, briefly press the <Tare> key again.

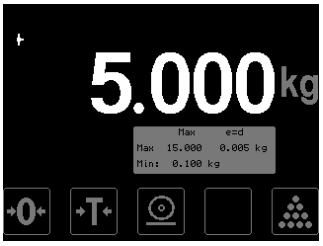


5.4. Printing (single)

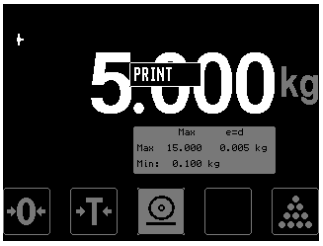
'Simple' printouts use no totalizing, e.g. each printout will print current weight reading with related data and thereafter return to normal weighing. The next printout will contain no data from the previous weighing.
Printouts are only possible at stable equilibrium and positive gross weight. Repeated print-outs require that the weight must be changed between each print-out command.

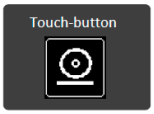
See example below:

- Display shows current weight and is stable.



- By pressing, and holding, the <Print> button the current weight reading and associated data is transmitted on communication ports using the 'print' protocol and "PRINT" appears on the display. Transmission is according to settings for the PRINT-protocol.





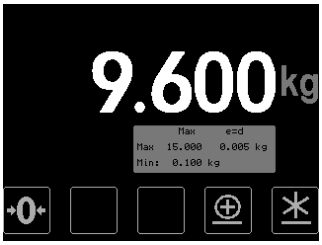
- After printing the display reverts to show normal weight.

5.5. Printing (totalizing)

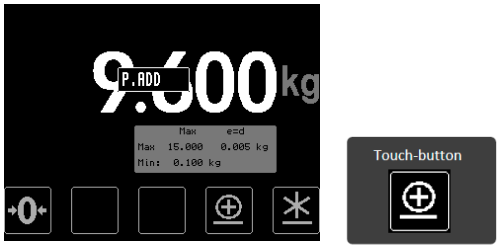
Summing printouts uses totalizing, e.g. each <ADD> printout will print current weight and also add to an accumulating sum. When finished totalizing, the operator can use the <SUM> printout to print the accumulated sum (which is then also automatically cleared).
Printouts are only possible at stable equilibrium and positive gross weight. Repeated print-outs require that the weight must be changed between each print-out command.

See example below:

- Display shows current weight and is stable.



- By pressing the <ADD> touch-button, current weight will be added to the accumulating sum.



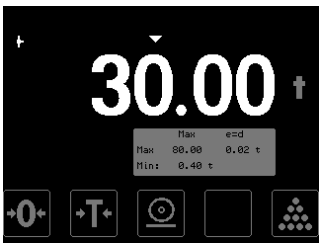
- By pressing the <SUM> touch-button, current accumulated sum will be printed then, after printout, the sum will be automatically cleared.

5.6. Parts counting

The weight indicator can be used to count discreet weights (components, pieces, parts), displaying number of items rather than weight. The counting feature can be used both when adding parts (positive number) or subtracting parts (negative number). Both types of counting use the following steps:

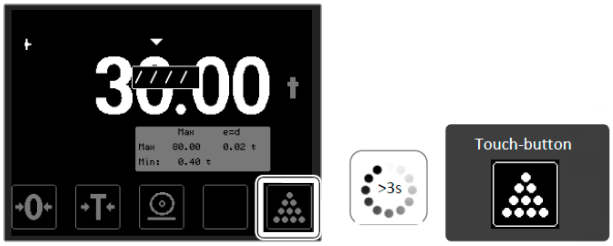
- Place and tare the empty container on the scale (if applicable).
- Place a number of the item to be weighed in the container.
- Enable calculation of reference weight for piece weighing.
- Piece weighing is used to count the number of items.

To calculate a new reference weight, see example below::

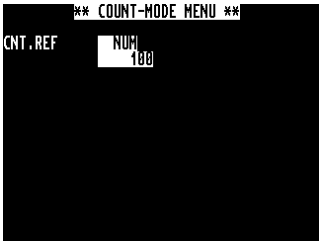


- Place several items/parts on the scale, the greater the number the more accurate the calculation of the item-weight will be. Minimum recommended number of items are 10.

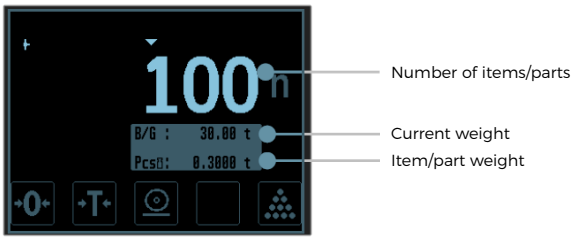
- Then press, and keep depressed, the <COUNT> touch-button for more than 3 seconds, the indicator will now acquire a high-resolution weight-sample for the item-weight calculation.



- After the weight sample has been acquired, input number of items on the scale and confirm by pressing <Enter>.

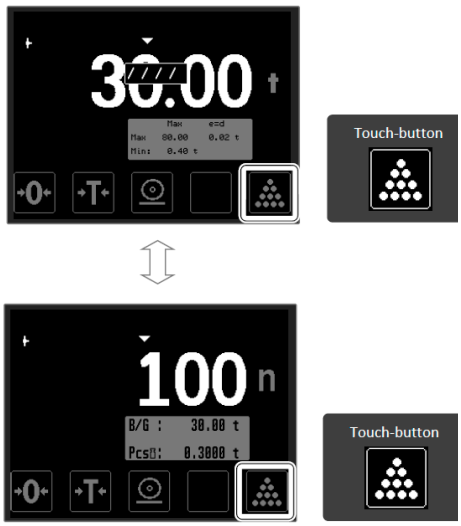


- After the weight sample has been acquired, input number of items on the scale and confirm by pressing <Enter>.



How to use a previously calculated item-weight:

- Once a item-weight has been calculated, weighing- and count-mode can be alternated by briefly pressing the <COUNT> button. The previously calculated item-weight is stored until the indicator is powered-off or until a new item-weight is calculated.



6. CONNECTIONS

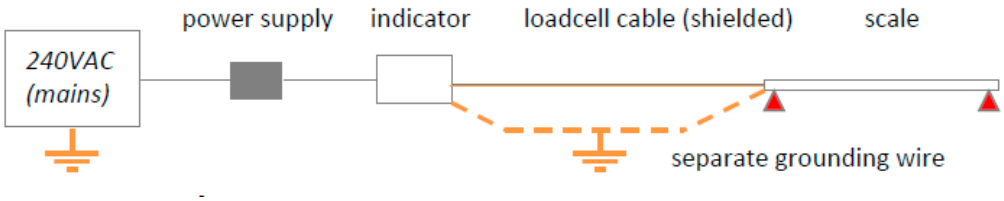
The indicator utilizes industrial standard RJ45 connectors for connecting to most peripheral equipment. However care must be taken as the pin outs are not exchangeable and might interfere with external equipment in case of incorrect/unsupported connections.

See section 2 Installation for location of the connectors.

For a more detailed description, pin-out and connection diagram for the interfaces consult the 4-55424 Weight indicator 47-11 Instruction manual

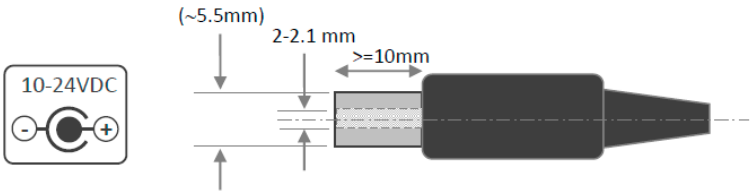
6.1. Load cell / scale connection

The load cell/scale connector is a standard shielded RJ45 plug, located furthest from the DC-plug.
To ensure proper operation and best signal integrity the scale and indicator should be grounded to a common point:



6.2 Power supply

Viktindikatorn behöver en strömförsörjning med specifikationen 10-24VDC ±20% 5W.
Strömadaptern är normalt inkluderad med viktindikatorn.
Strömanslutningen sker via en DC-plugg med 2.0mm center pinne. Centerpinne är positiv.



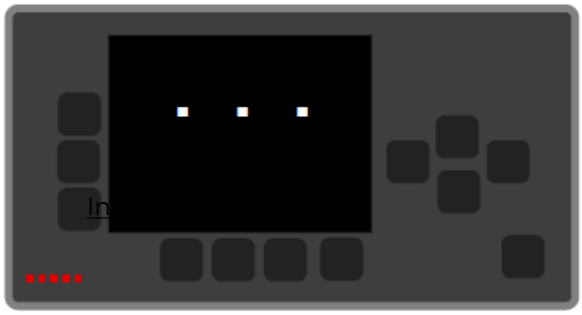
7. STATUS/ERROR INDICATIONS

In case of disturbance or malfunction the indicator will show various status/error indications. For weighing faults such as overload, signal out of range or sense errors etc. the indicator has special dedicated indications, for other operational errors the indicator has a general error code indication.

For a more complete description of the error codes consult the 4-55424 Weight indicator 47-11 Instruction manual.

7.1. Weighing faults indications

Weighing faults are errors that will impede the indicators ability to operate normally, i.e. critical faults. In general, any weighing fault, such as overload, signal out of range, sense missing etc. will be signalled as ‘overload’ (weight not valid) on communications protocols.
During weighing faults, no weighing functions are available.
A load over *Scale Maximum Capacity* + 9.5 scale intervals, or no scale connected is displayed as:



Three dots

Corrective actions:

- Remove load from scale platform
- Check wiring/connection to the scale

7.2. Status indications

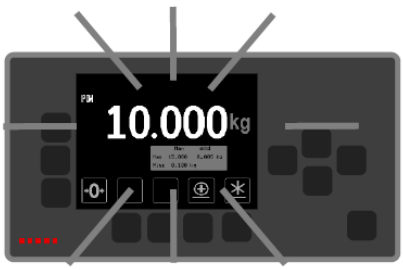
When showing an operational status, this does normally not impede the indicators ability to function normally, however some features such as weighing functions can be inhibited until the indicated state has passed.
Operational status indicates normal indicator states to the operator and does not normally require any action by the operator.

7.2.1. Status, wait for power on zero

Som standard är viktindikatorn inställd så att den automatisk justerar nollnivån vid varje uppstart. För att justera nollnivån måste viktvärdet vara inom ett godkänt område (inom ±10%) och stabil under ca. 5 sekunder. Detta visas vid start med att displayen blinkar.

See below:

Display



Flashing weight display (2hz), icon 'POW' lit

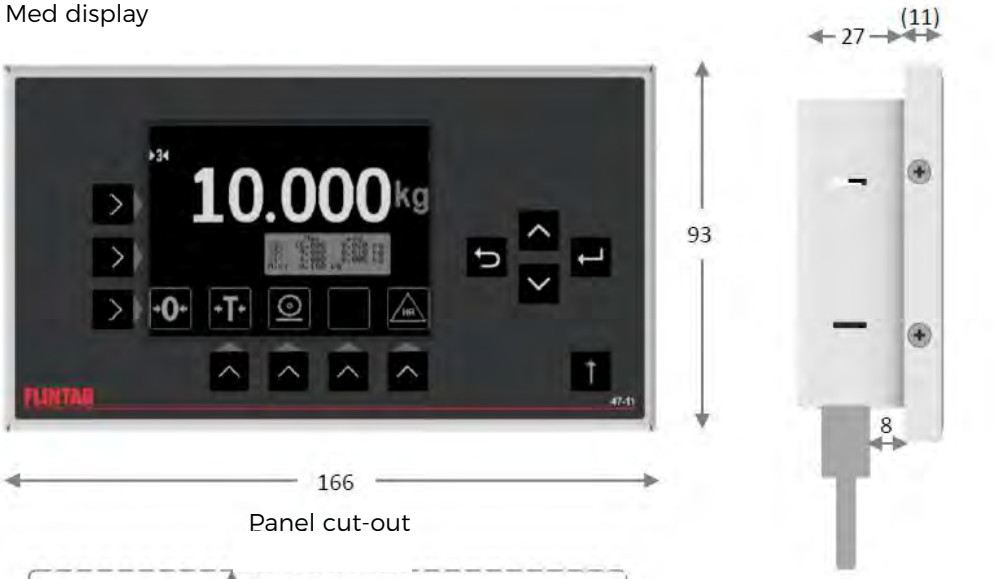
Optional action:

- The operator can abort the power-on zero setting by pressing <Back> (cancel), the indicator will then enter operational mode.

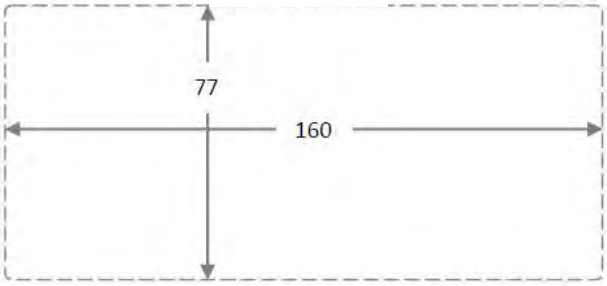
8. SPECIFICATIONS

8.1. Dimensioner

Med display



Panel cut-out



8.2. Operation conditions

General	
Display internal (optional)	High-contrast greyscale graphic LCD 320x240 pixels with LED backlight and touch-buttons
Display external (optional)	Segment 6 digits LCD with dedicated unit and status indications. Including 4 push-buttons
Interface (standard)	Dual RS232full duplex and one port also accessible as RS485 2W Ethernet 10/100Mbit TCP/IP
Load cell interface	
Load	35Ω-5000Ω (max.10 load cells of 350Ω ea.)
Excitation	2-5 VAC (at the bridge), short circuit proof
Excitation freq., waveform	57Hz, square wave, switched polarity
Sense	Measuring (cable 6 wire + shield)
Input range (output of load cell)	-0,2 - +2,2 mV/V
AD conversion rate	114Hz (7,2 Hz display update)
Specifications	
Accuracy class	OIML III (non-automatic), Y(a) (automatic)
Max number of scale intervals	10´000 legal for trade, single interval 3x4´000 legal for trade, multiple intervals >32´000 non legal for trade
Min verification scale interval, e	0.4µV
Number of intervals	1,2 or 3
Internal resolution	24 bits
Zero drift	max 5nV/C^0
Linearity	min 0,0002%
Temp drift	max. 1,5ppm/C^0
Other	
Power supply	10-24VDC ±20%
Consumption	< 5W
Operating temperature range (legal for trade)	-10C^0 - +40C^0
Relative humidity	Max. 85%, non-condensing
Electromagnetic class	E2

9. MANUFACTURERS DECLARATION OF CONFORMITY

The manufacturers declaration of conformity with the requirements in...

Low Voltage Directive (LVD)	**2014/35/EU** (EN 60950-1:2006)
Electromagnetic Compatibility (EMC)-directive	**2014/30/EU** (EN 61326-1:2013)
RoHS Directive	**2011/65/EU** (EN 50581:2012)
Non-Automatic weighing instruments Directive	**2014/31/EU** (EN 45501:2015) (OIML R76:2006)
Measurment instrument Directive **(Automatic catch-weighing instrument)**	**2014/32/EU** (MI 006 II) (OIML R51-1:2006)

Manufacturer	Flintab AB Kabelvägen 4 553 02 JÖNKÖPING Sweden Tel: +46 (0)36- 31 42 00
Type of equipment	Weight indicator
Brand name/trade mark	FLINTAB
Type designation	47-11-XXX
We, Flintab AB, declare under sole responsibility that the product to which this declaration relates is in conformity with the essential requirements in the above stated EC-directives	
Jönköping, Sweden	2018-01-02

Tony Kübeck, Chief technology officer

10. REVISIONS

Revision	Date	Notes	Signed
0.1	2018-11-22	First draft	TK
1.0	2018-02-11	First edition	TK

20210406

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