TOTAL WEIGHING SOLUTION™

R420/423

Industrial Weight Controller
Operator Manual

(800) 223-4227
www.cas-usa.com

U11021301

Table of Contents

1.Introduction

This instrument is a precision digital indicator using the latest Sigma-Delta A/D technology to ensure fast and accurate weight readings.

Zero and Tare functionality as well as Alibi mode, pluggable modules and battery backed clock/calendar, special function keys (for counting, unit switching, peak-hold, etc).

2. Safety

2.1. Operating Environment

- Operating Temperature: –10 to 50°C
- Humidity: <90% non-condensing
- Operating Voltage: Shown on Rear Label

2.2. Electrical Safety

- For your protection all mains electrical hardware must be rated to the environmental conditions of use.
- Pluggable equipment must be installed near an easily accessible power socket outlet.
- To avoid the possibility of electric shock or damage to the instrument, always switch off or isolate the instrument from the power supply before maintenance is carried out.

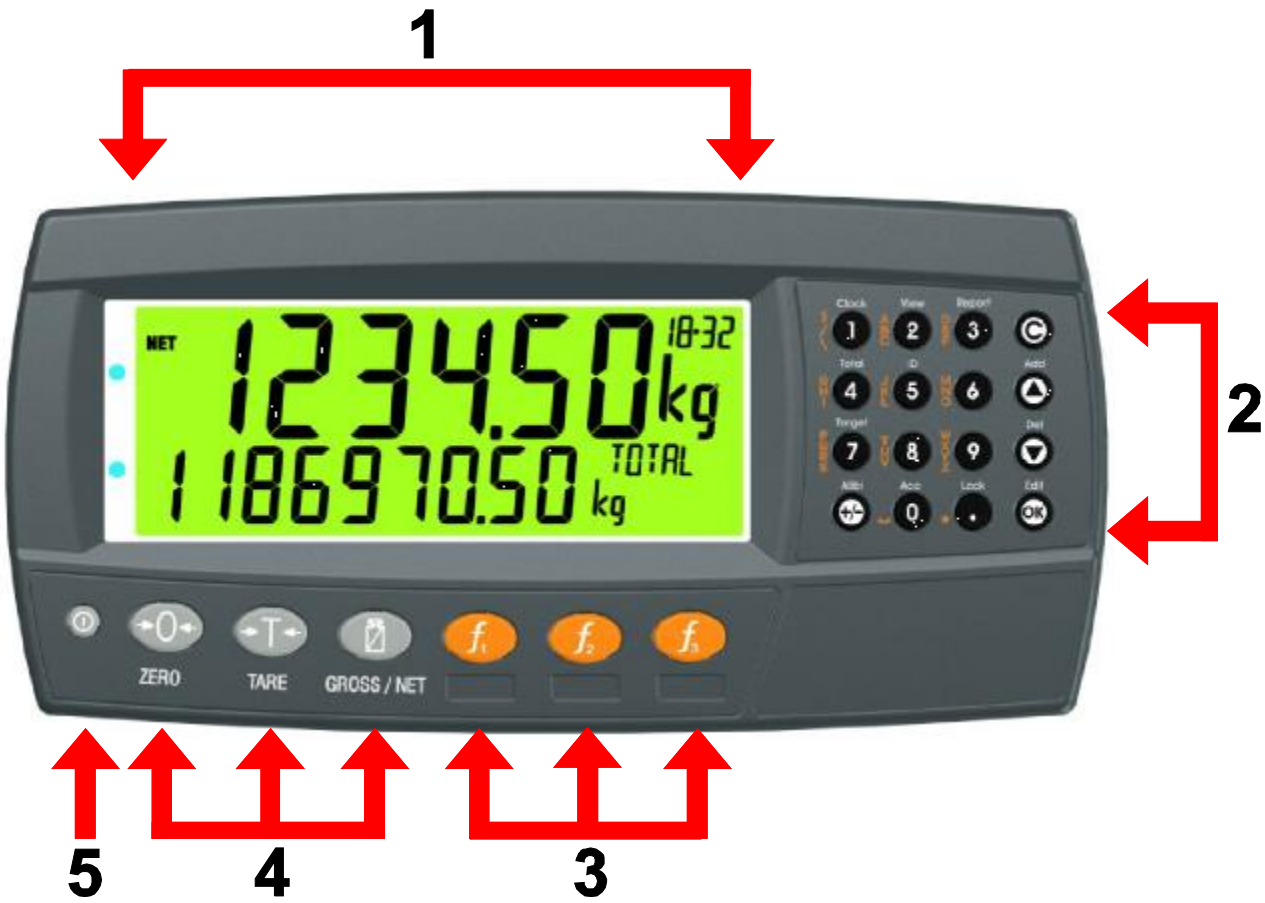
2.3. Cleaning

- To maintain the instrument, never use harsh abrasive cleaners or solvents. Wipe the instrument with a soft cloth **slightly** dampened with warm soapy water.

3. Basic Operation

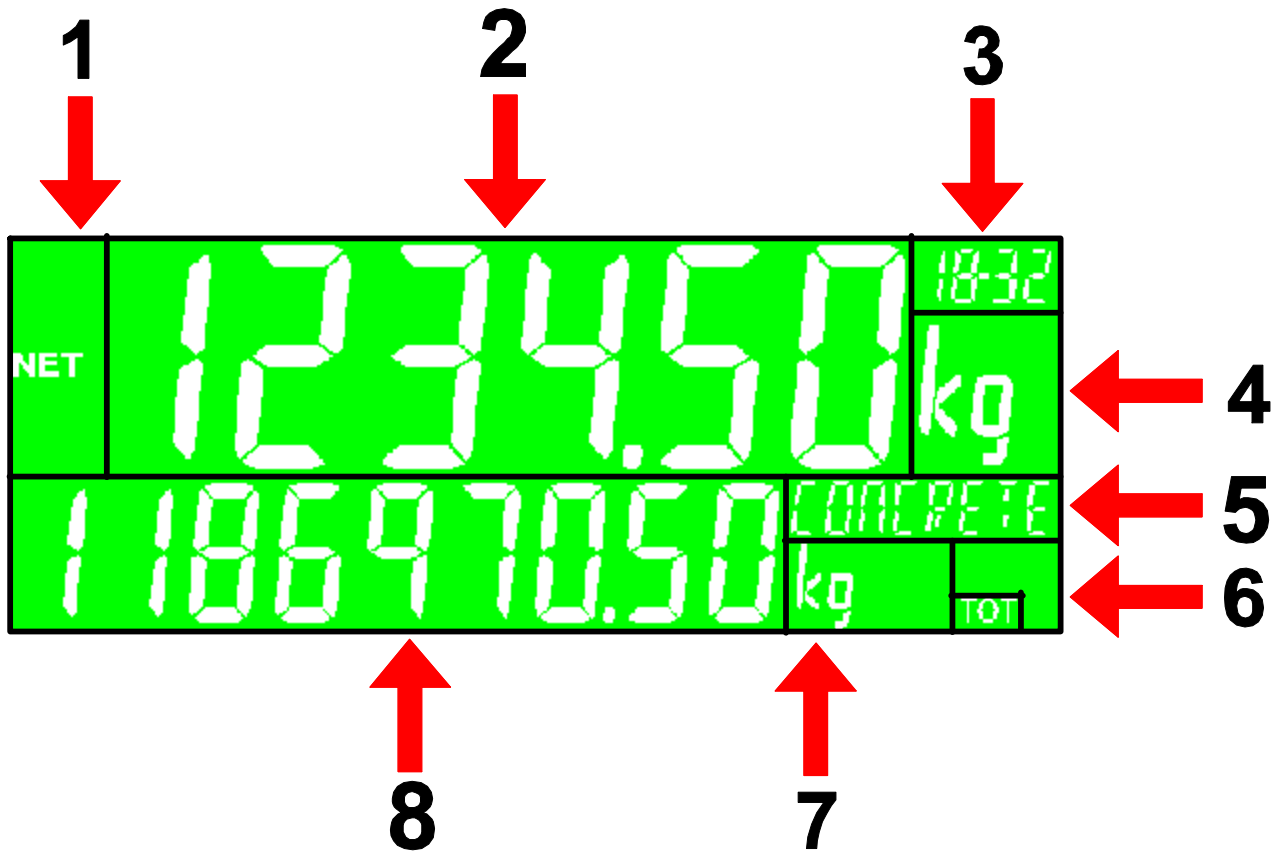
3.1. User Interface Display and Controls

Overview



Code	Description
1	Display
2	Numeric Keypad
3	Function Keys (user defined)
4	Function Keys (Fixed)
5	Power Key

Display

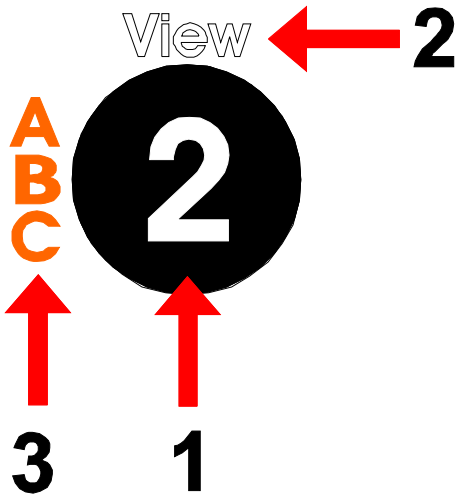


Code	Description
1	Primary Annunciators
2	**Primary Display**
3	**Auxiliary Display**
4	Primary Units
5	**Secondary ID**
6	Miscellaneous Annunciators
7	Secondary Units
8	**Secondary Display**

Primary Annunciators

Symbol	Name	Description
HOLD	**HOLD**	Visible when the displayed reading is held.
NET	**NET**	Visible when the displayed reading represents Net weight.
→0←	**ZERO**	Visible when the gross reading is within ± ¼ of a division of true zero.
≈	**MOTION**	Visible when the displayed reading is not stable.
⌴	**ZERO BAND**	Visible when the displayed weight is within the zero 'dead' band setting.
◄ ! ►	**RANGE**	Indicates current range (for dual range/interval).

Keypad

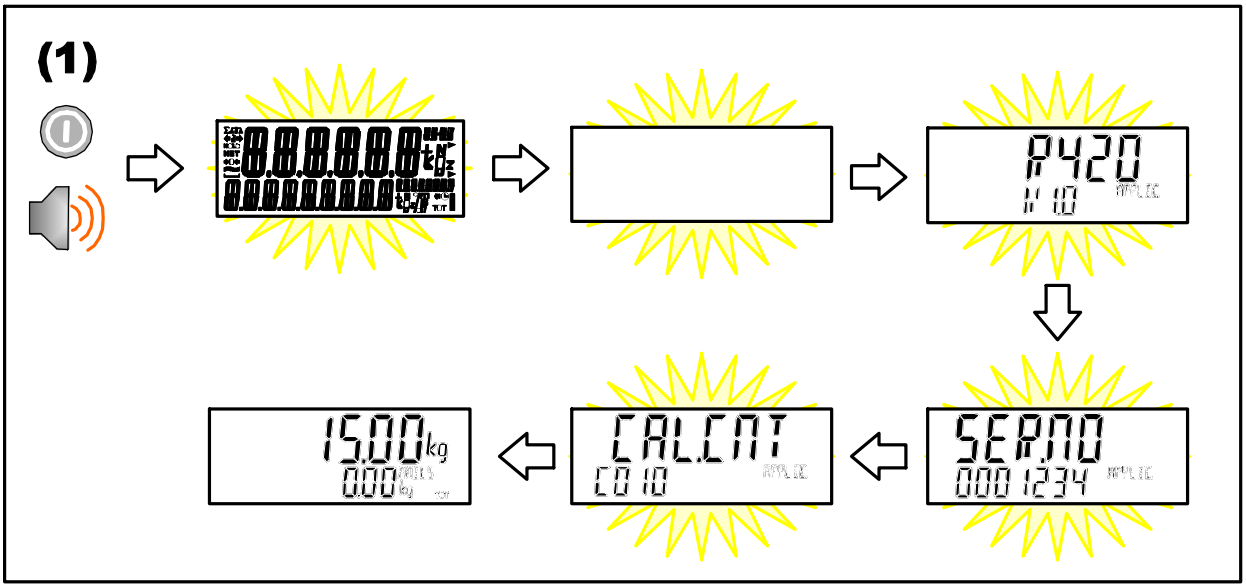


Code	Description	
1	Numeric Button	0-9
2	White Characters	Additional Functions (Hold 2 seconds)
3	Orange Characters	(Alpha and Symbols)
C	Cancel	Undo last command; step backwards (including in menus).
▲	Up	Move cursor backwards; previous option
▼	Down	Move cursor forwards; next option
OK	OK	Accept this choice
•	Decimal Point	Place decimal point
+/-	+/-	Change to negative or positive number; access or exit Alibi

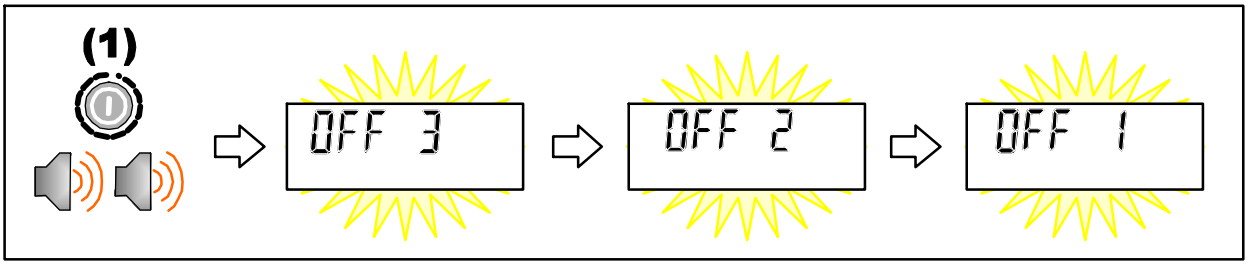
3.2. Basic Operation

Power Key

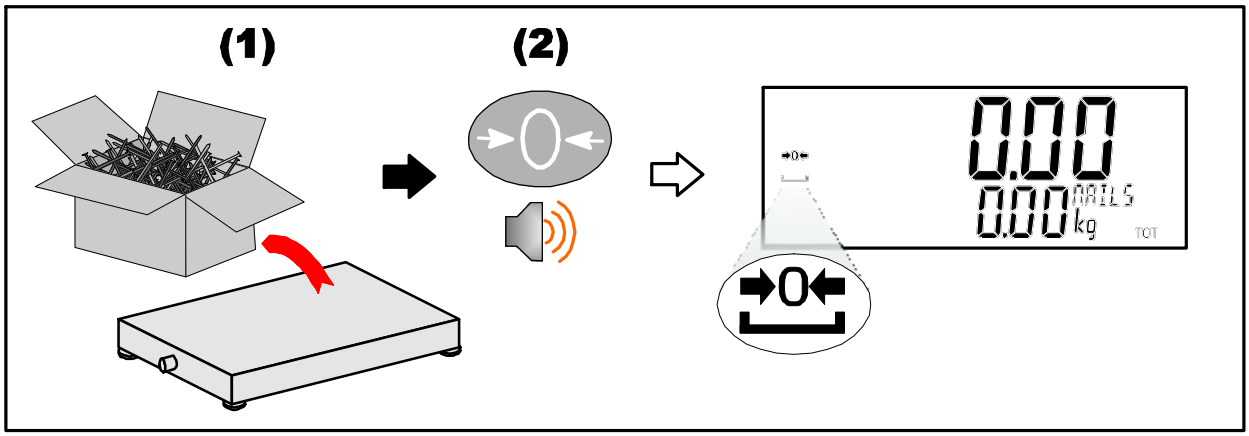
ON Instrument



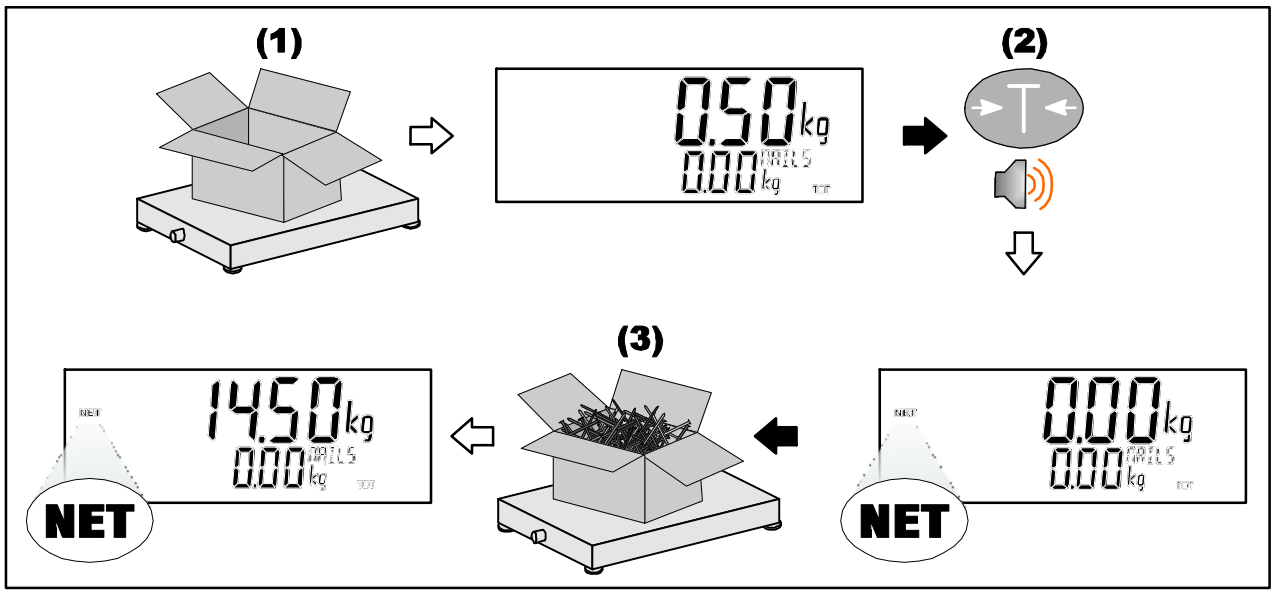
OFF Instrument



Zero Key

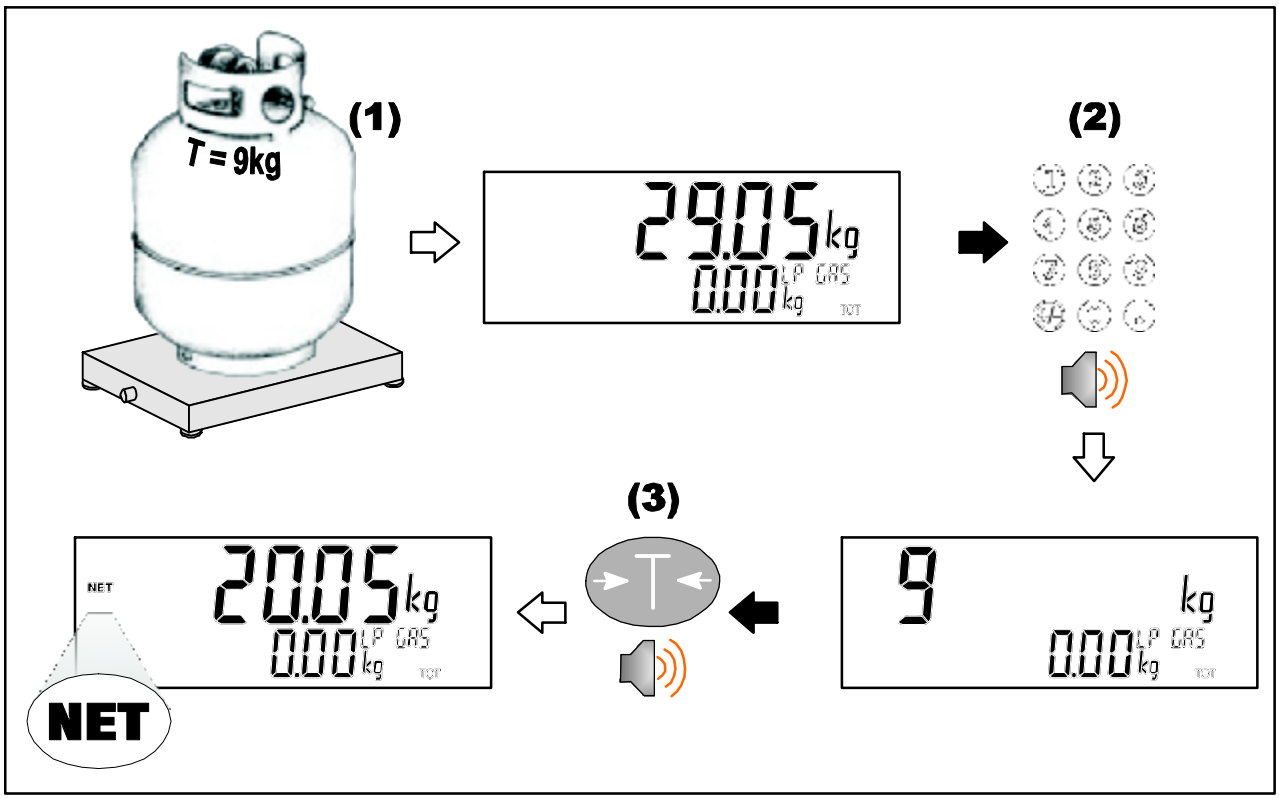


Tare Key

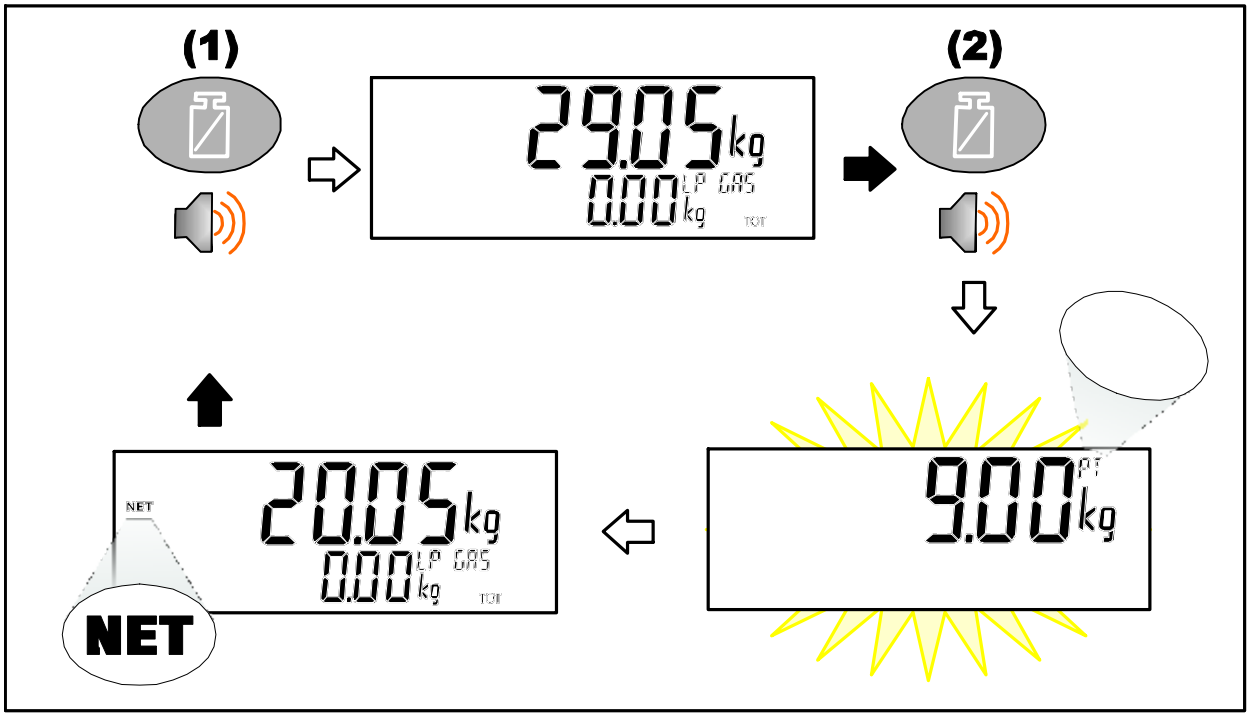


Preset Tare

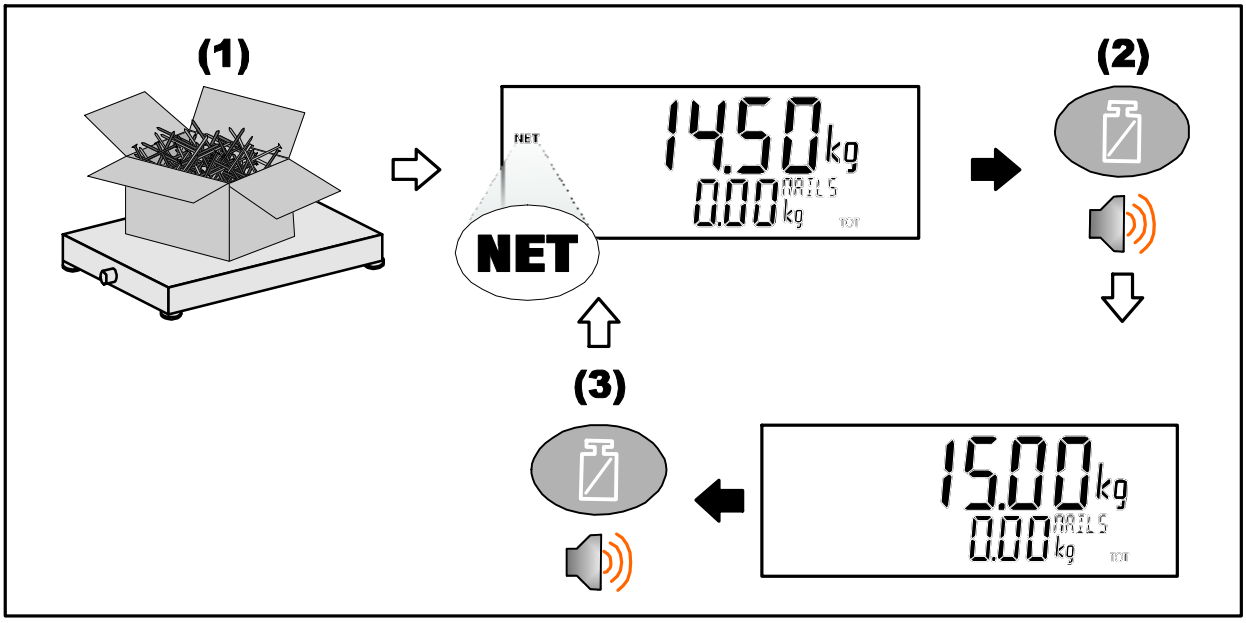
Setting Preset Tare



Displaying Preset Tare



Gross/Net Key



3.3. Stability Considerations

Some functions (E.g. Tare and Zero) require a stable weight. These functions will wait for up to 10 seconds for stable weight.

3.4. Security

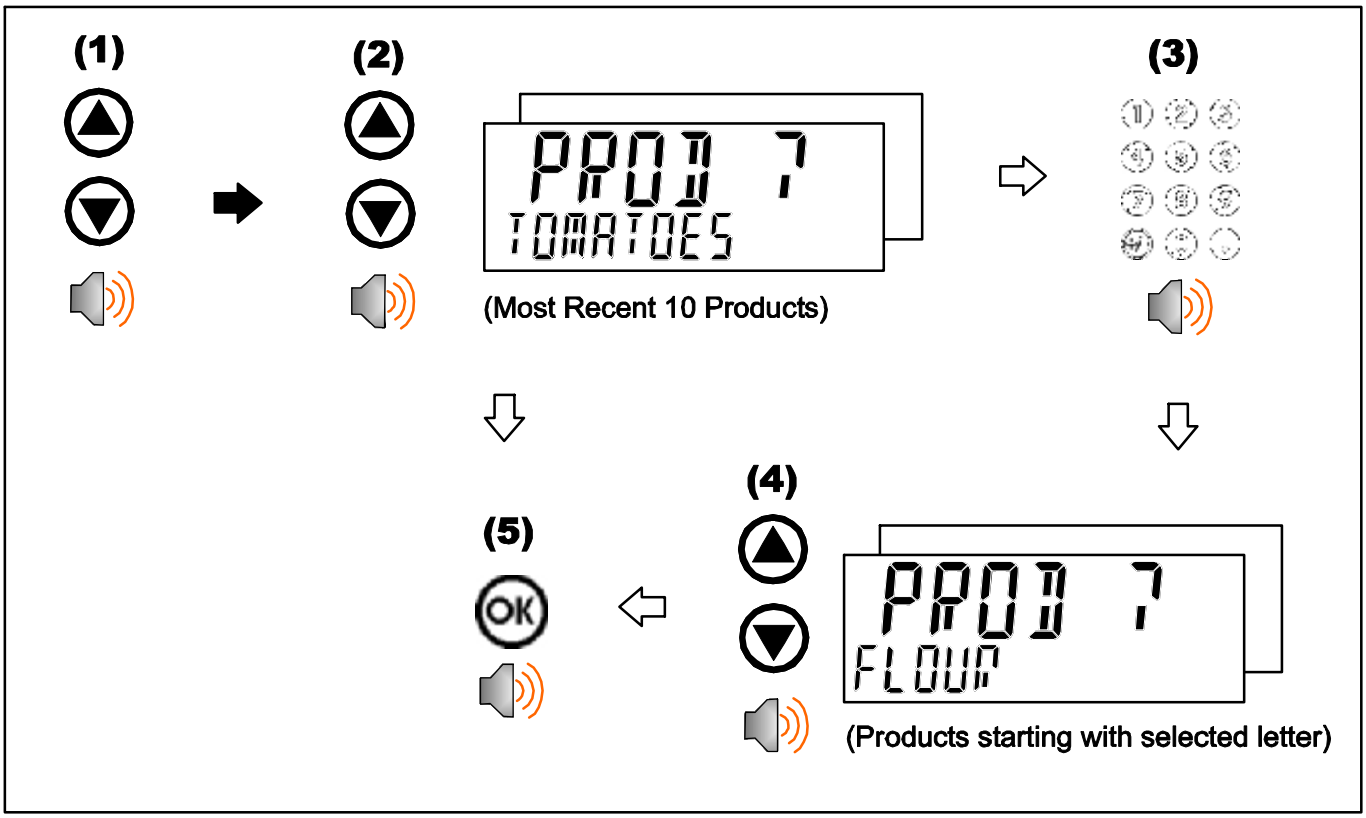
Most functions can be locked in setup. The locking options are:

- Disabled
- Operator Passcode required
- Safe Setup Passcode required
- Enabled

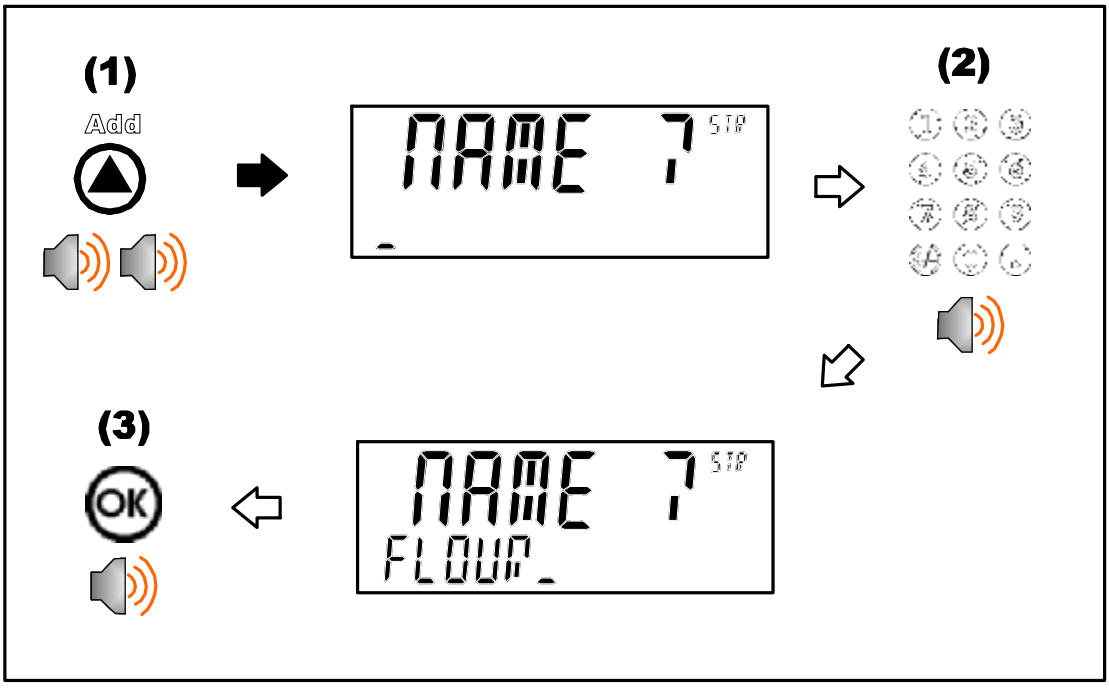
Operator Passcodes only need to be entered once. The system can be locked using the Lock key.

4. Additional Functions

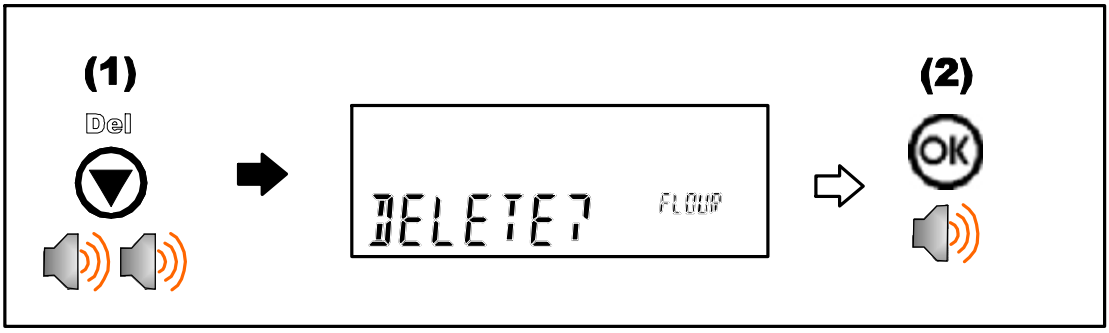
4.1. Product Selection



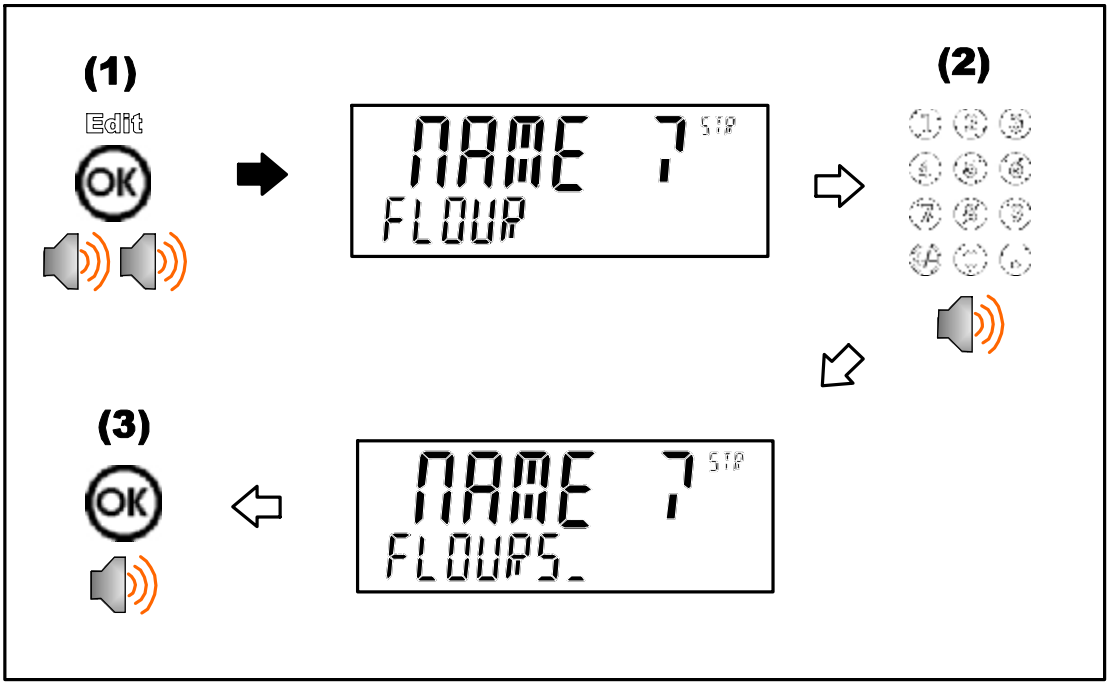
4.2. Add Product



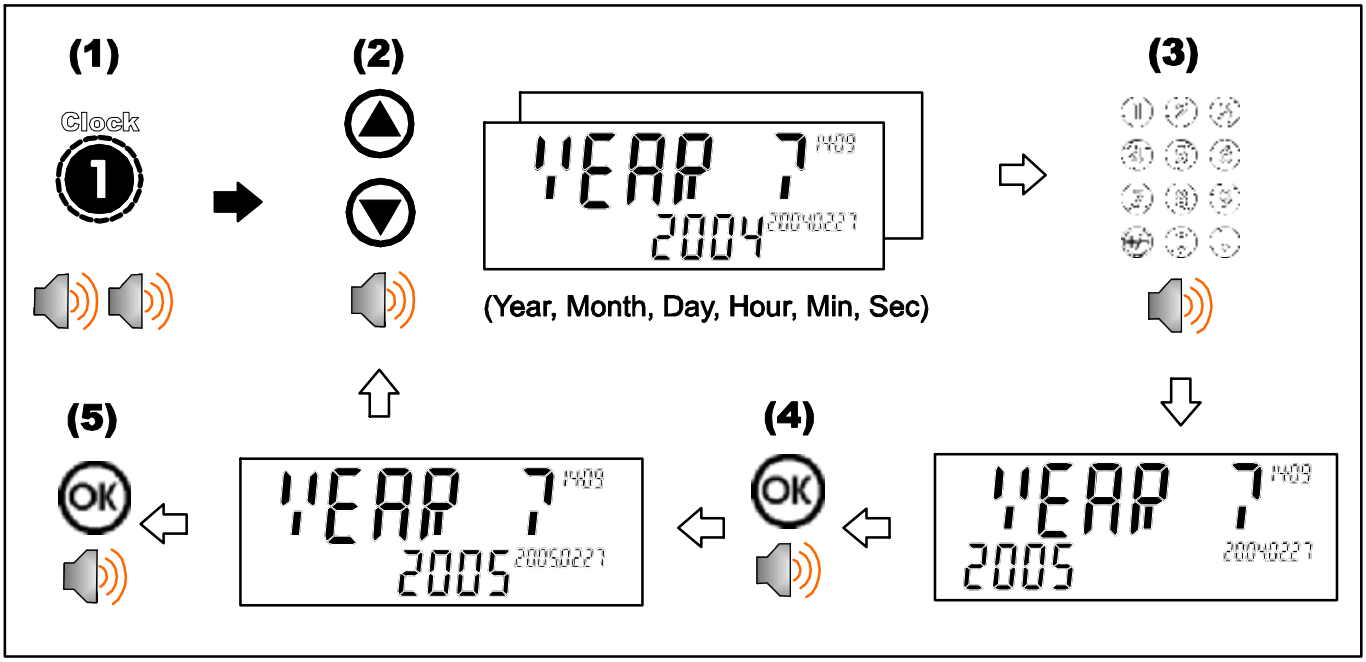
4.3. Delete Product



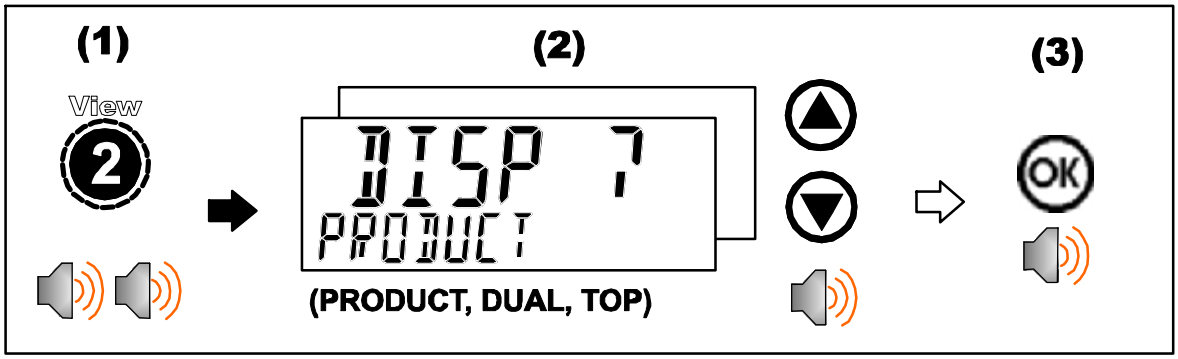
4.4. Rename Product



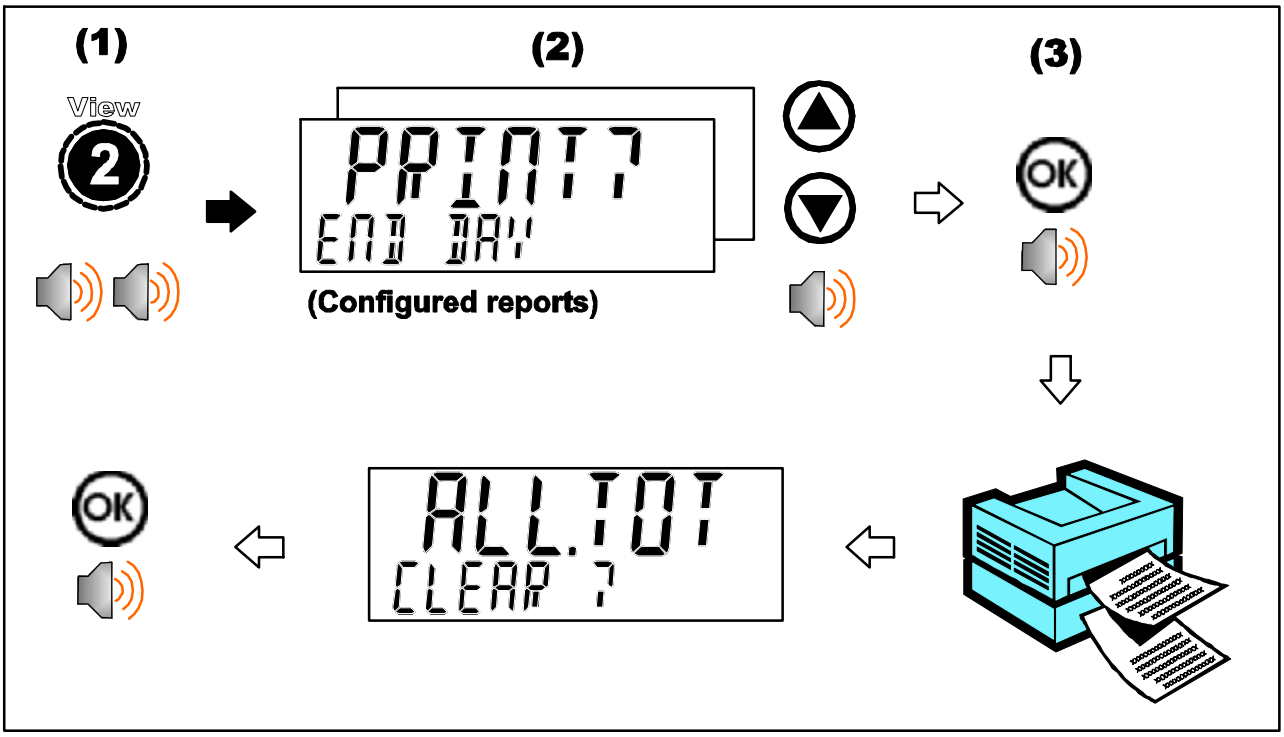
4.5. Clock



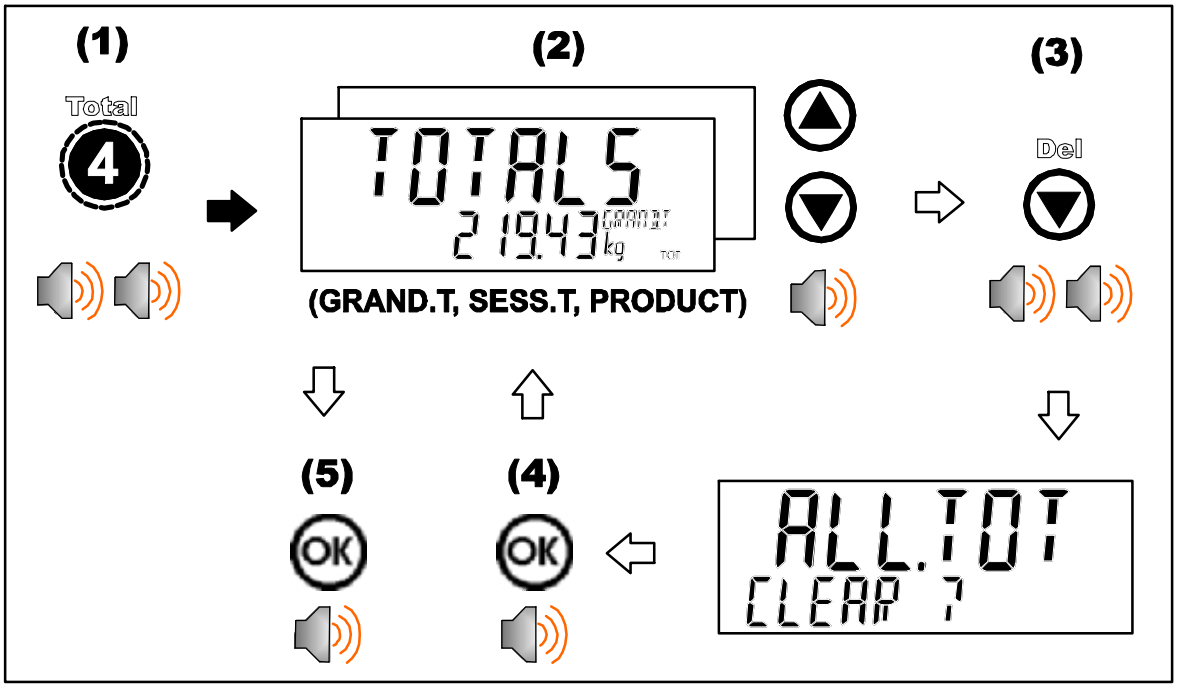
4.6. View



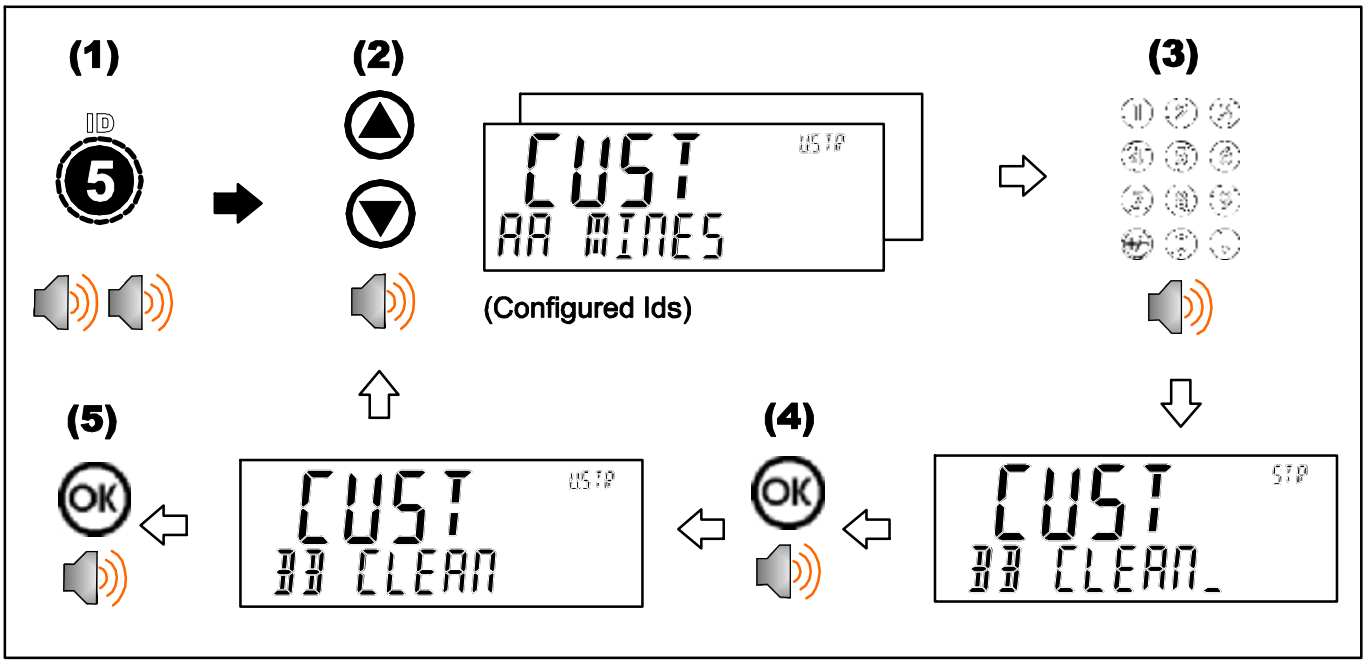
4.7. Report



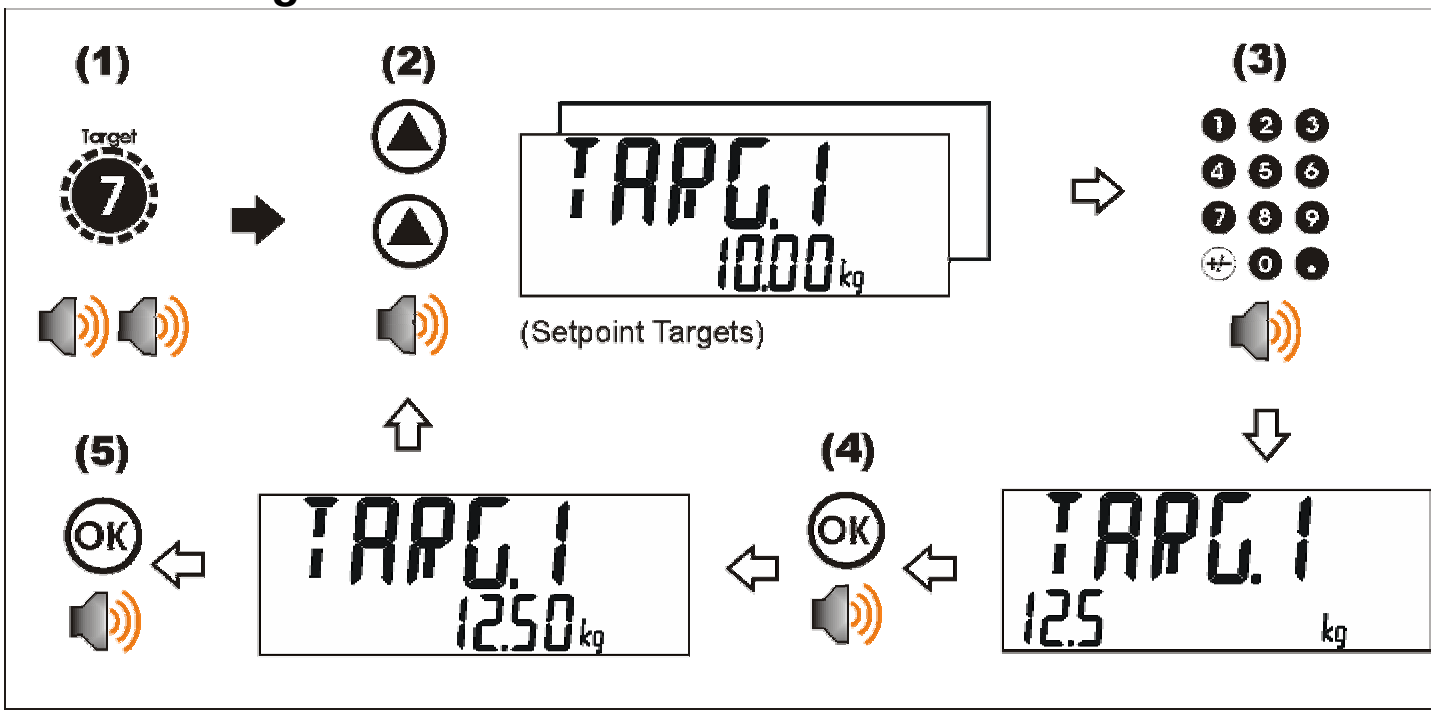
4.8. Totals



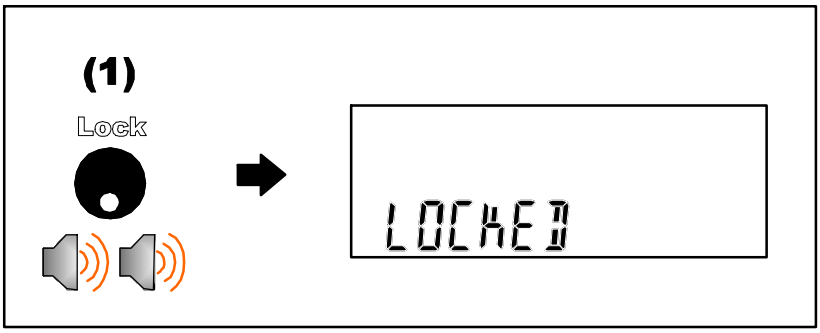
4.9. IDs



4.10. Targets

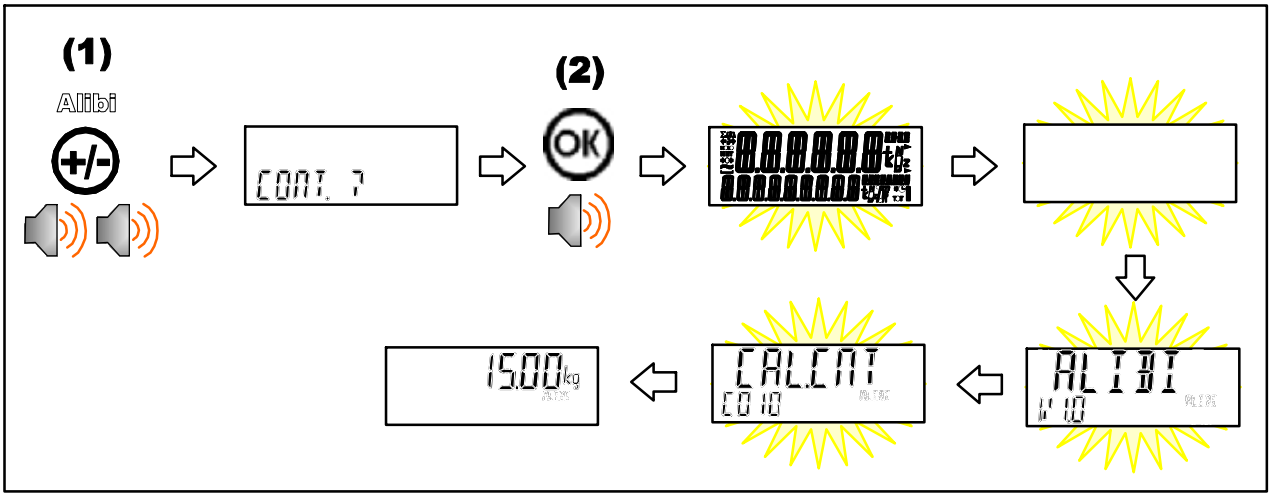


4.11. Lock

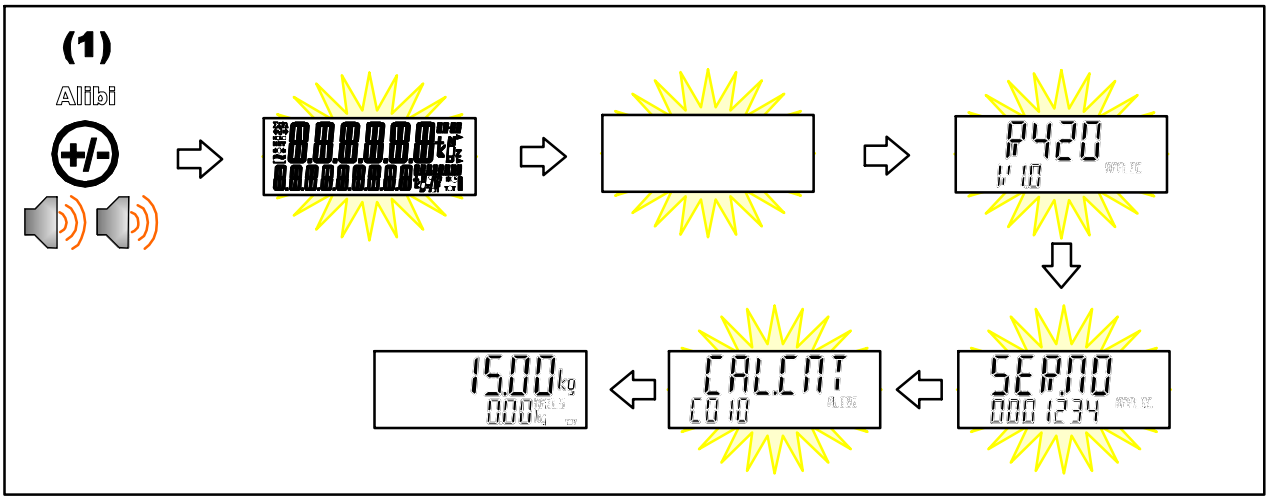


4.12. Alibi

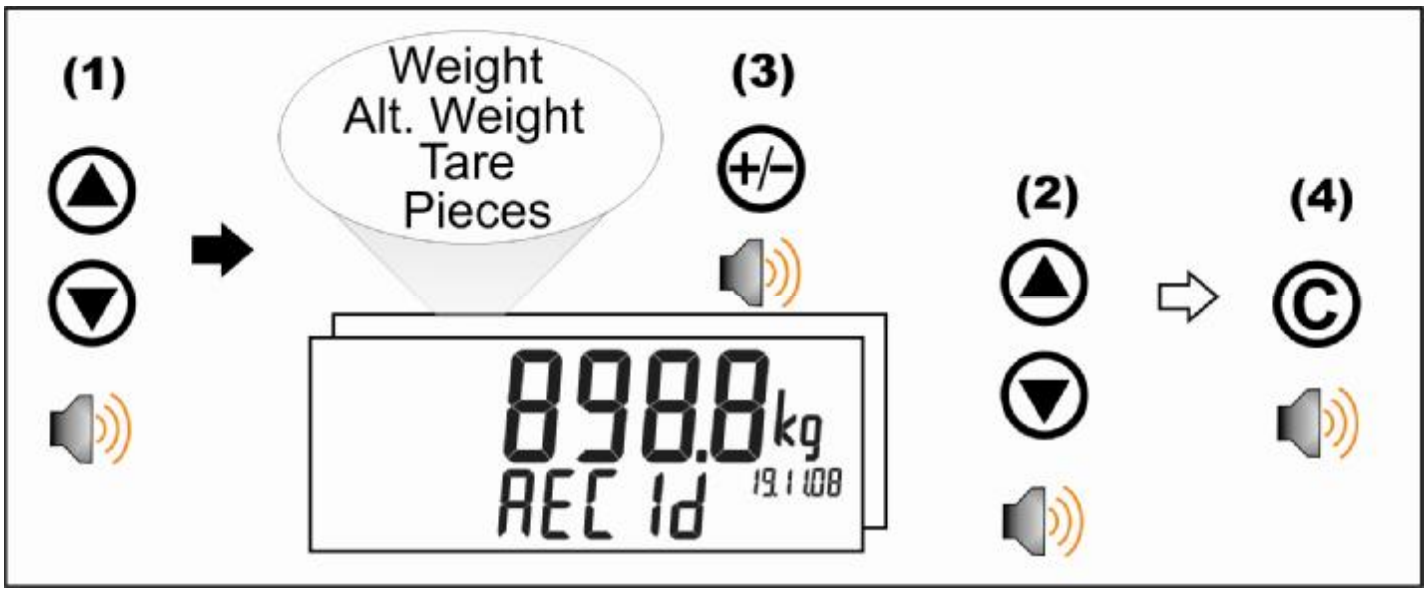
Switching to Alibi Mode



Returning from Alibi Mode

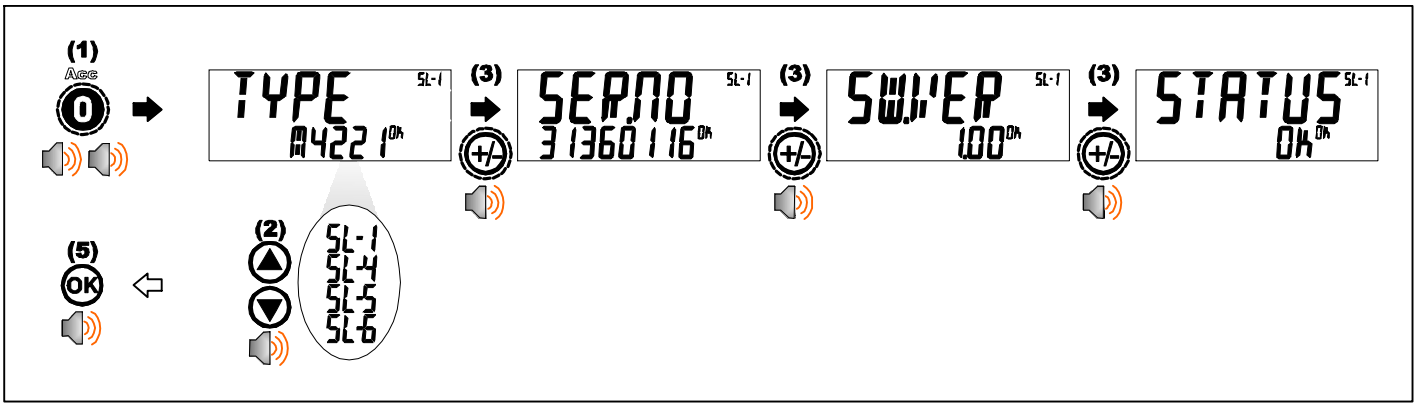


Viewing DSD records in Alibi mode

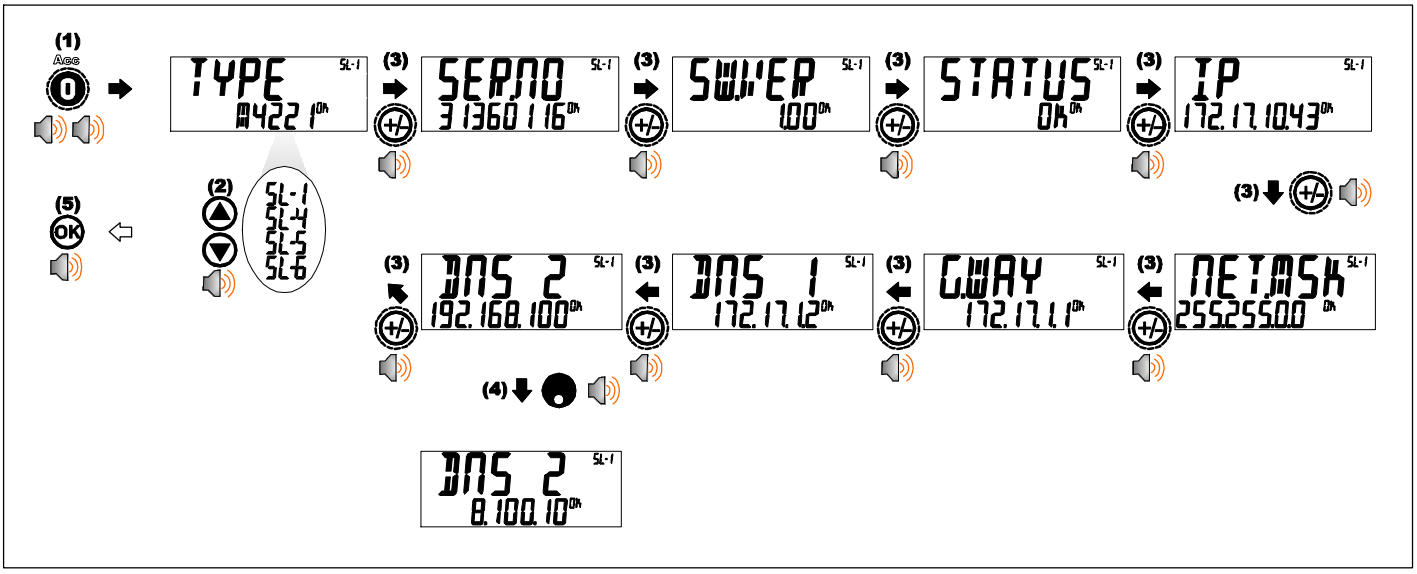


4.13. Acc

All Modules

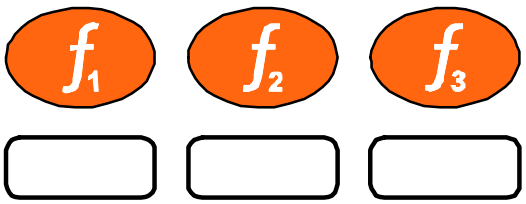


M4221 Ethernet Module



5.Function Keys

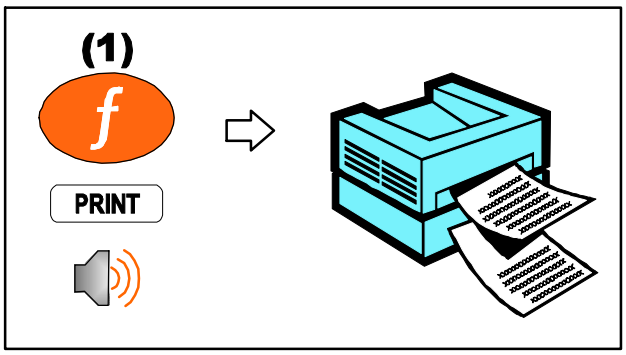
5.1. Introduction

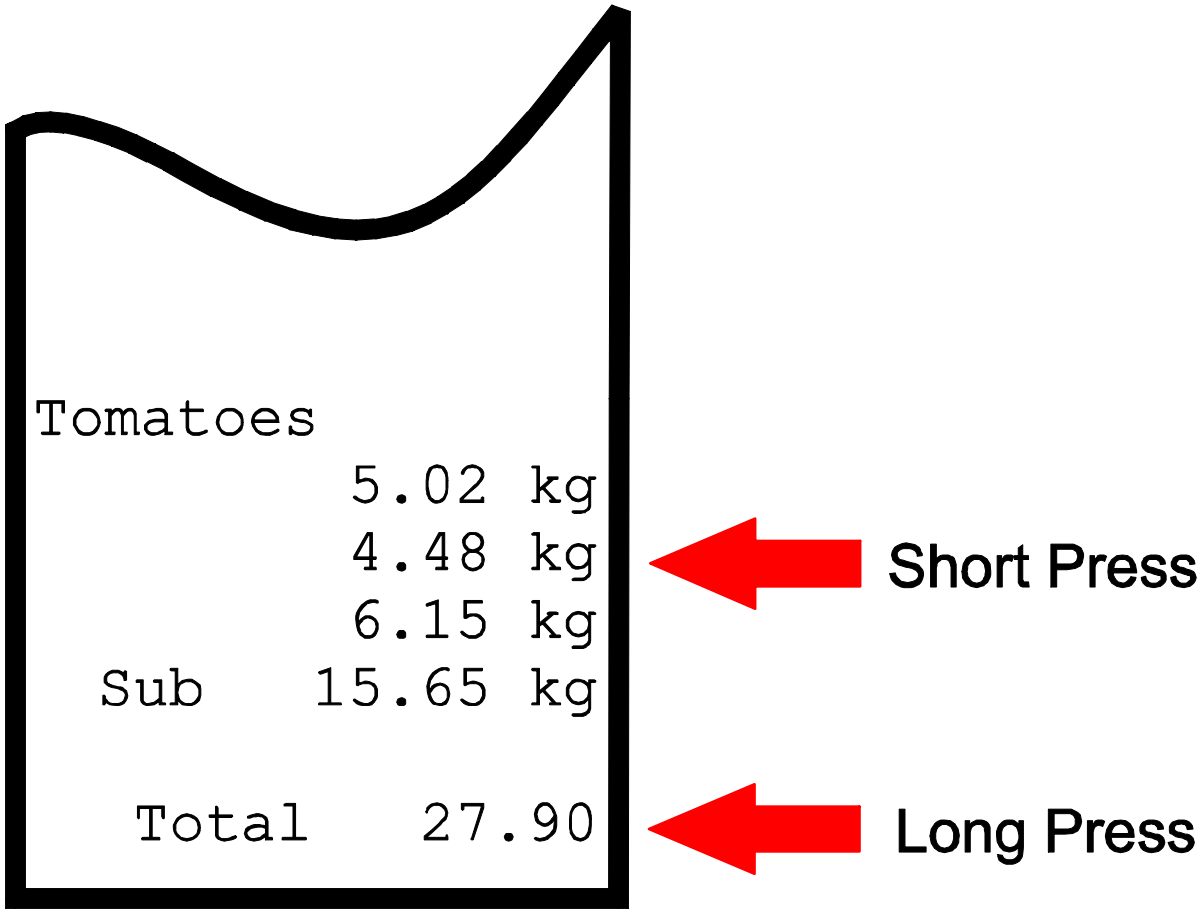


detailed below

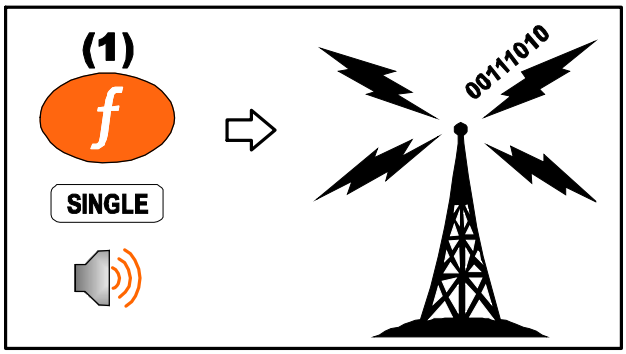
The instrument has 3 function keys. External keys can also be used. The function of the keys can be configured to any of the functions

5.2. Print

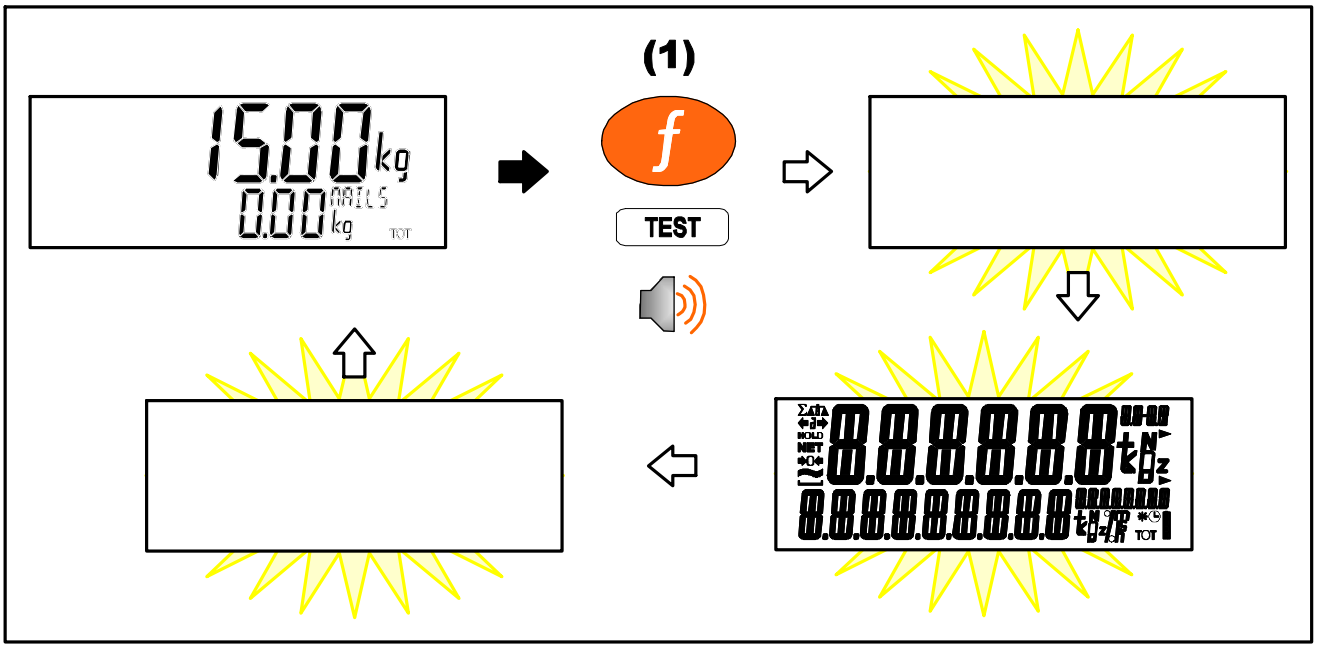




5.3. Single



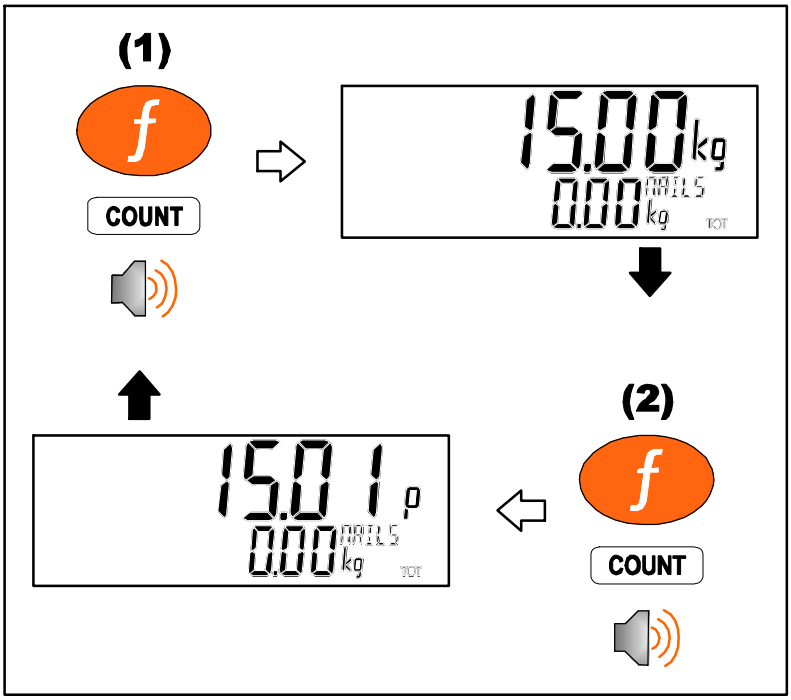
5.4. Test



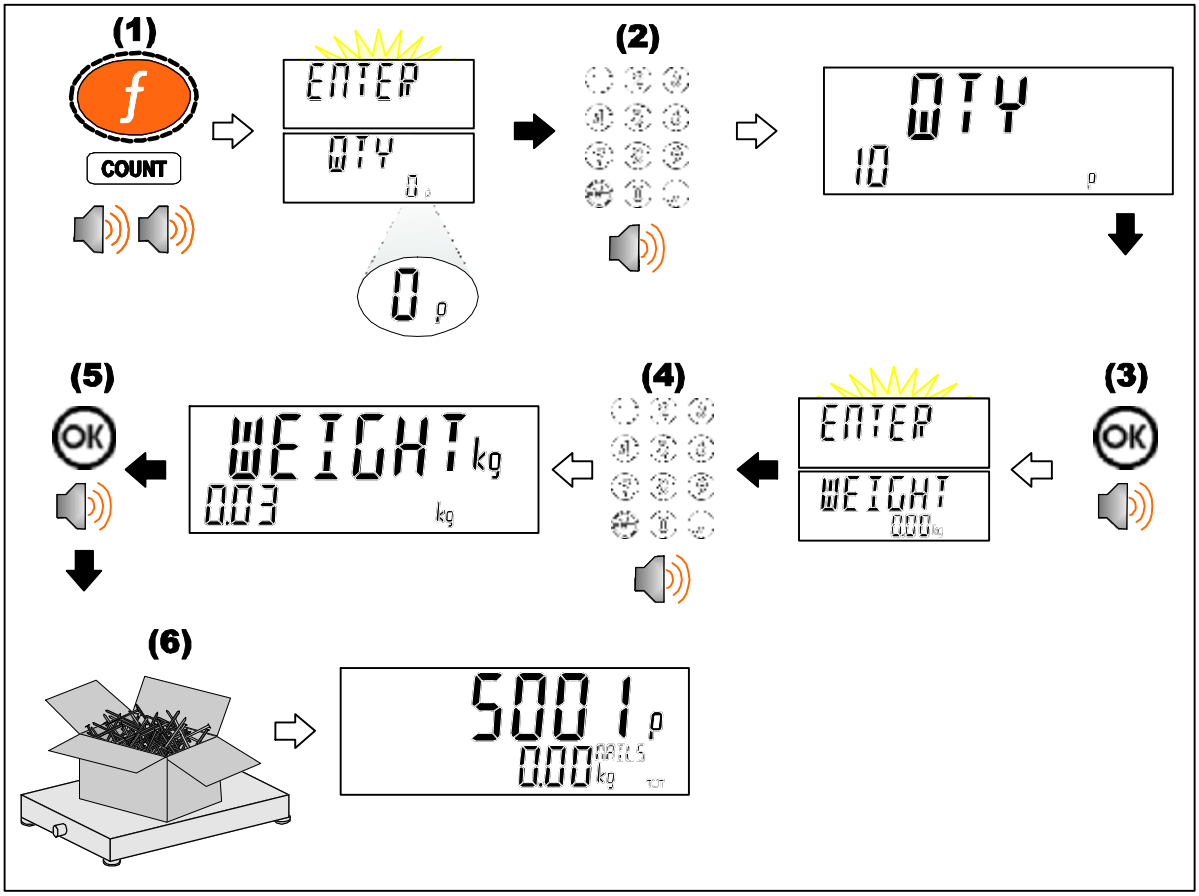
5.5. Count

Counts the number of items on the scale based on a sample.

Short Press: Switch between weight and pieces



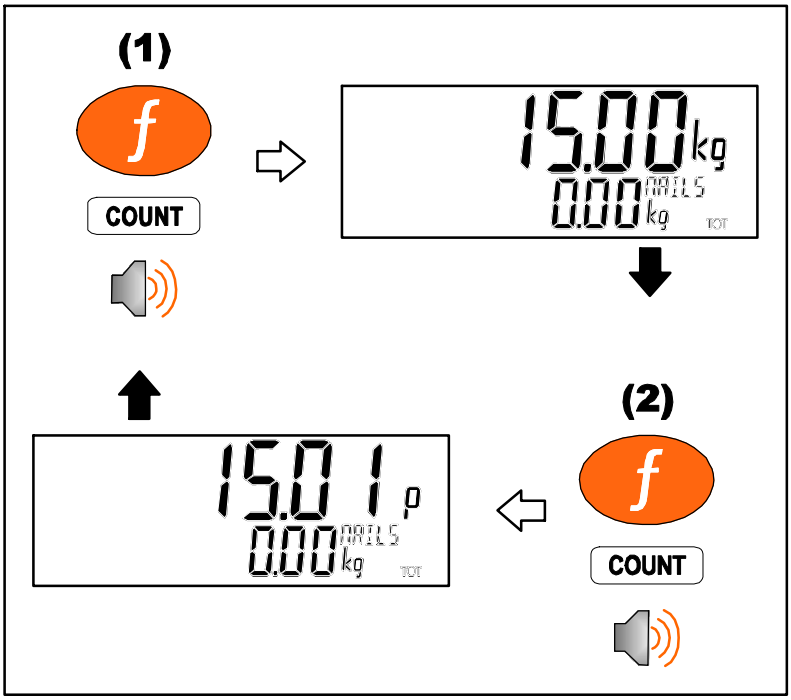
Long Press: Change sample size and weight



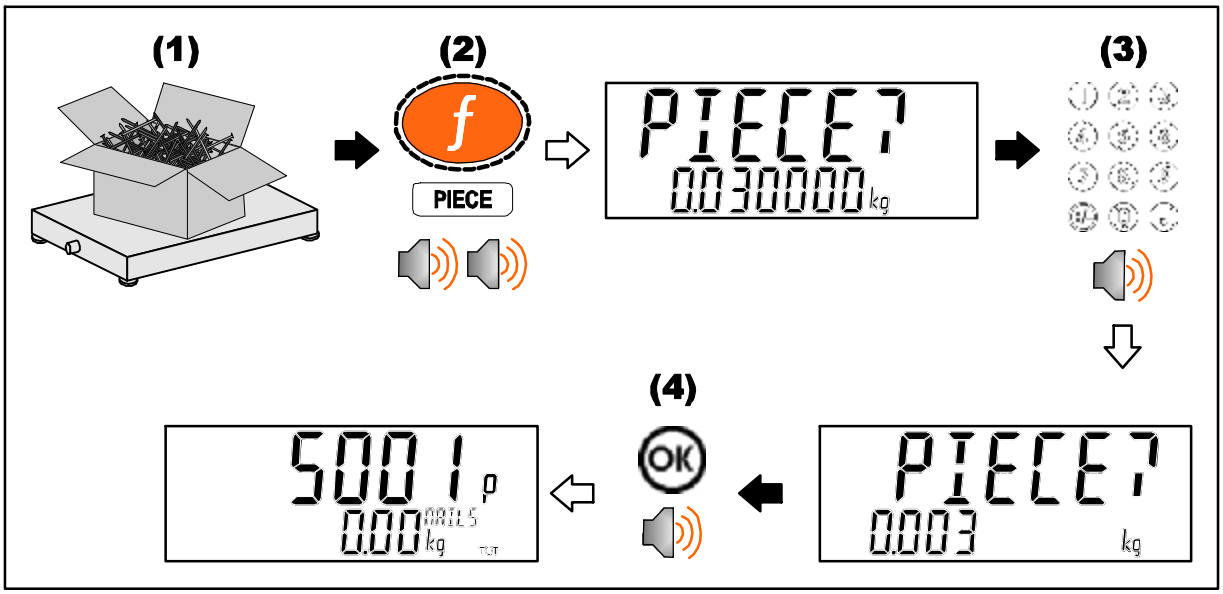
5.6. Piece

Counts the number of items on the scale based on piece weight.

Short Press: Switch between weight and pieces



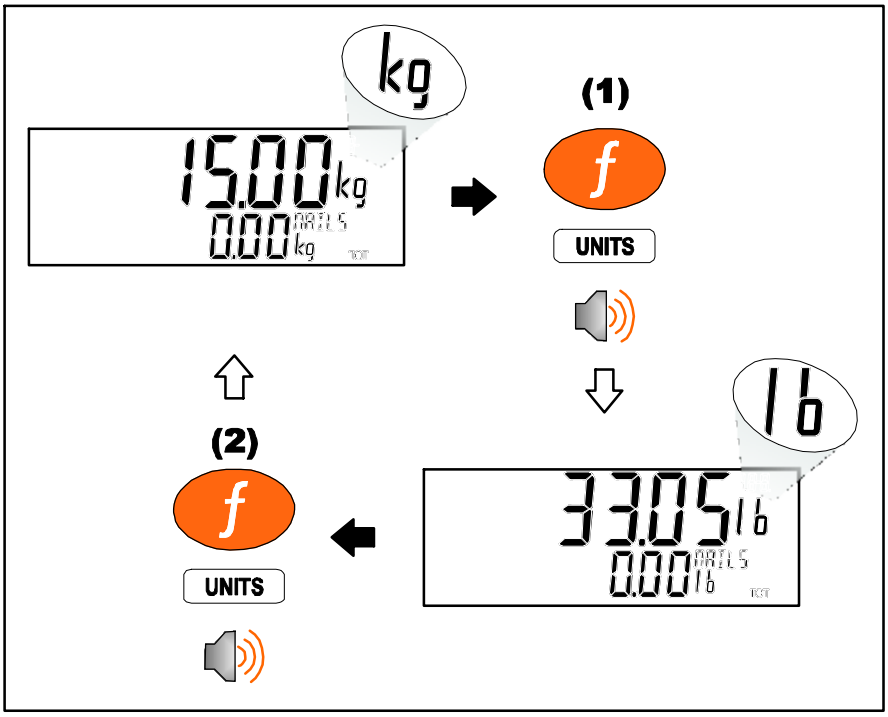
Long Press: Enter piece weight



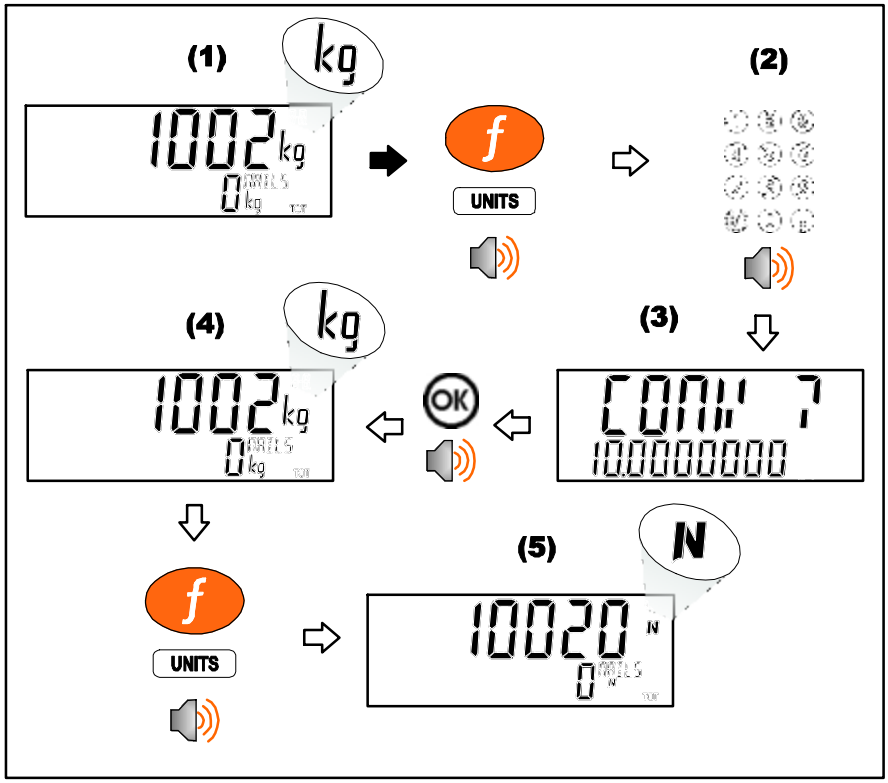
5.7. Units

Convert primary (calibrated) units to alternative units.

Short Press: Switch between primary and alternative units



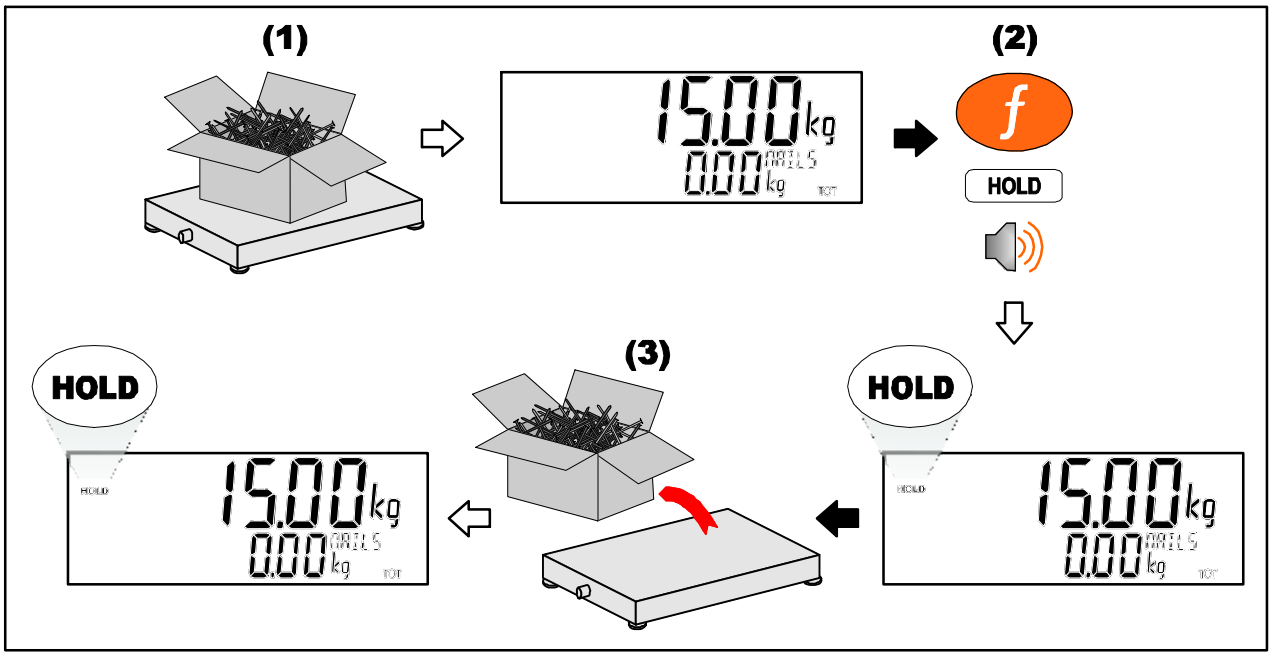
Long Press: Enter conversion factor for custom units



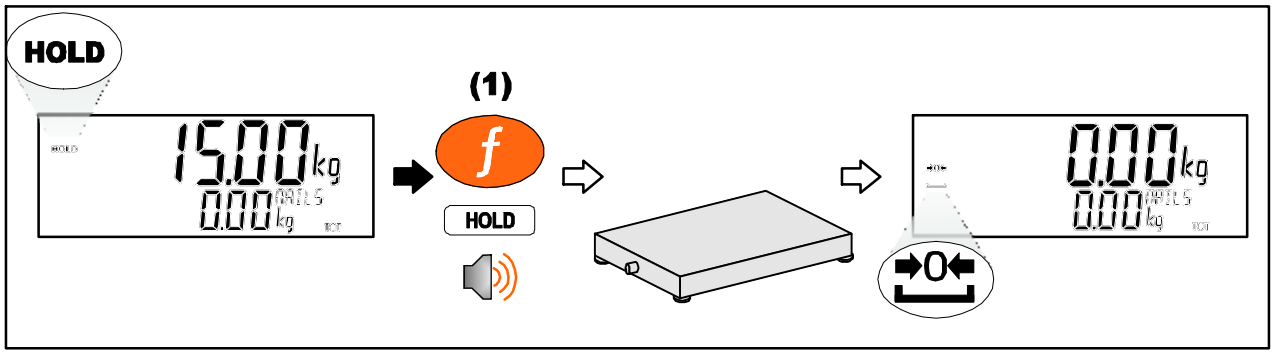
5.8. Hold

Manual hold

Hold



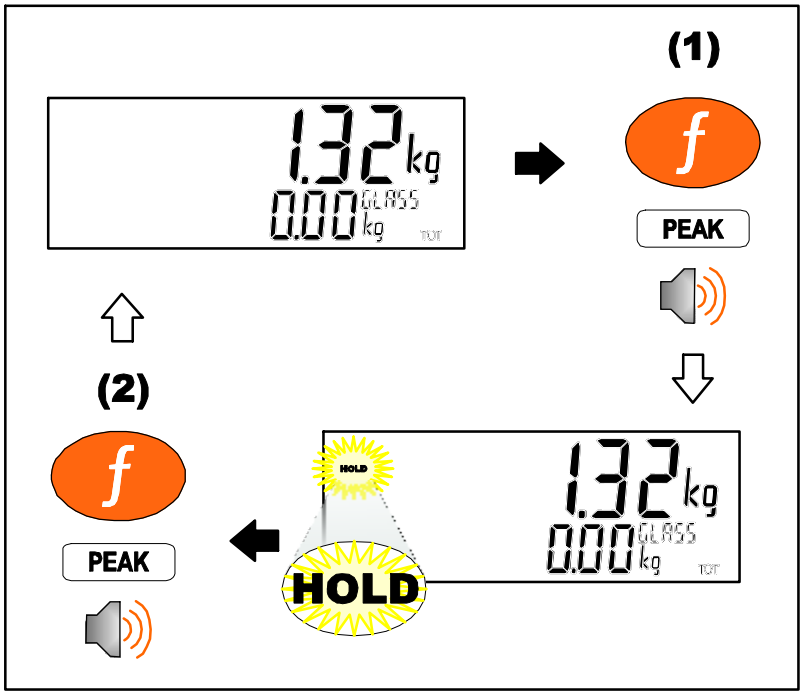
Release



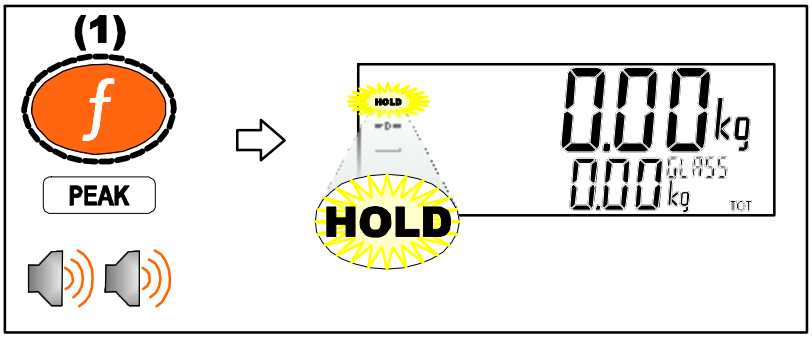
5.9. Peak Hold

Capture peak weight.

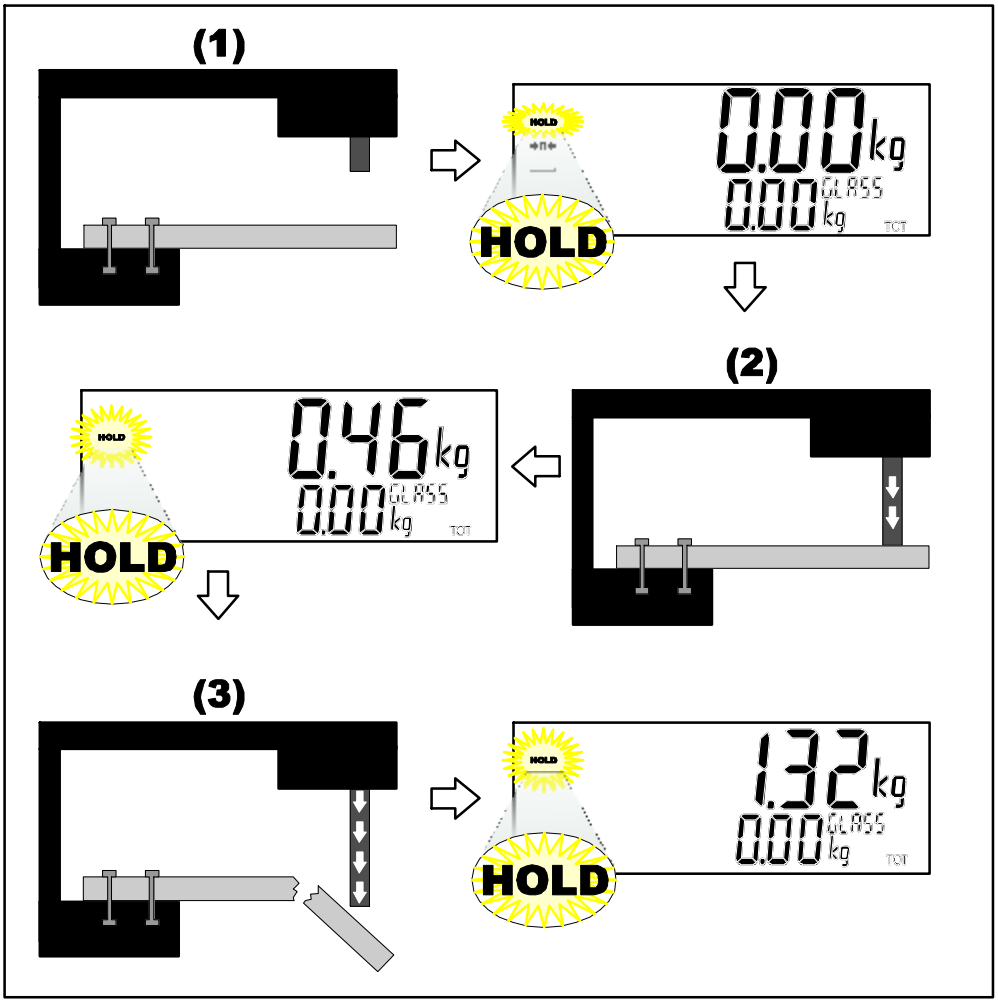
Short Press: Switch between weight and peak weight



Long Press: Clear peak values



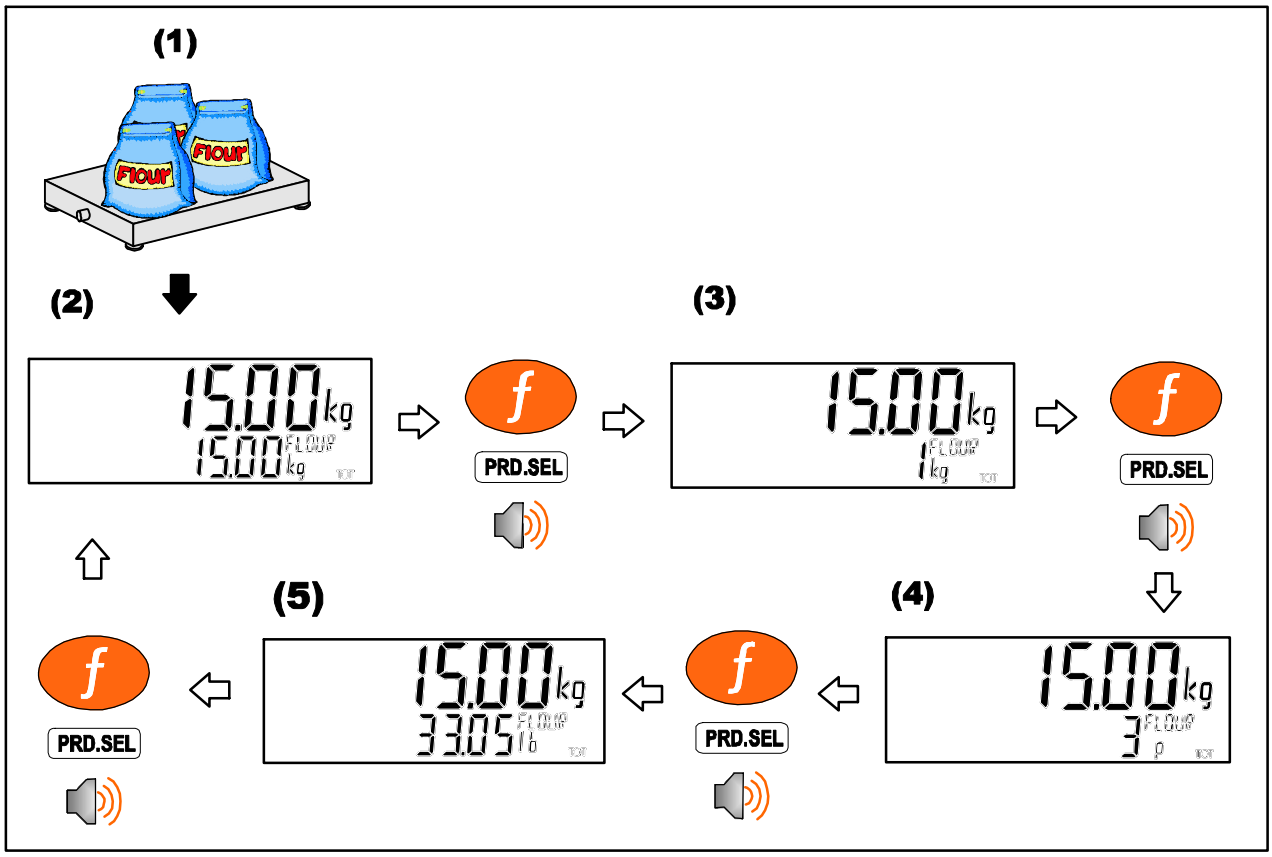
Peak hold process



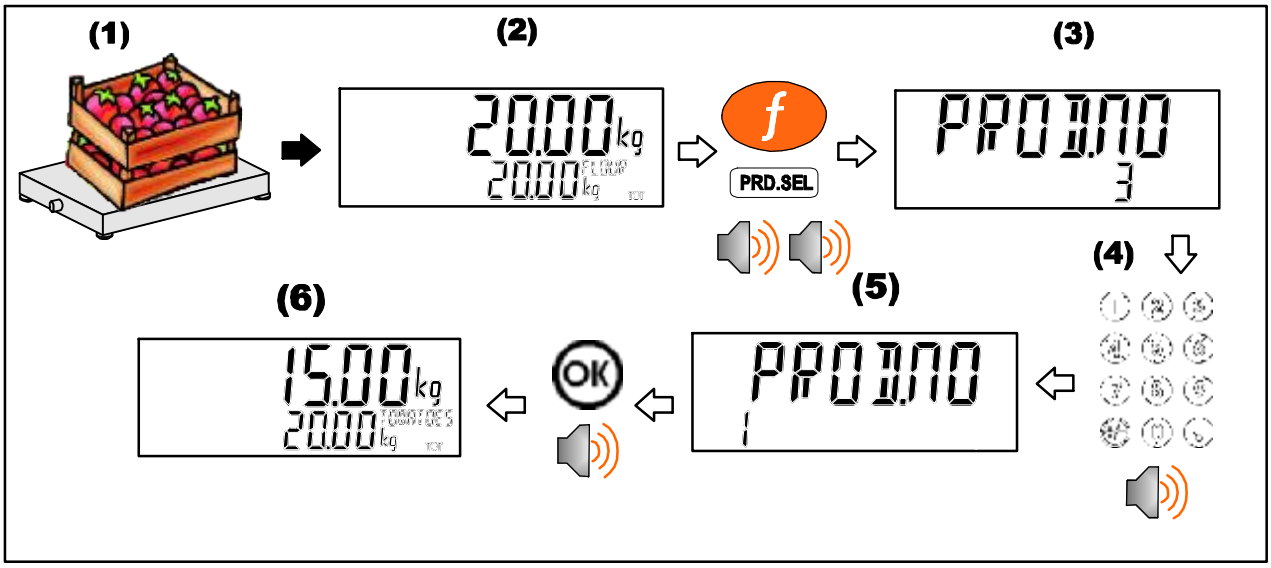
5.10. Prd.Sel

Product Select.

Short Press: Cycles the display of available totals for the current product



Long Press: Select product by number

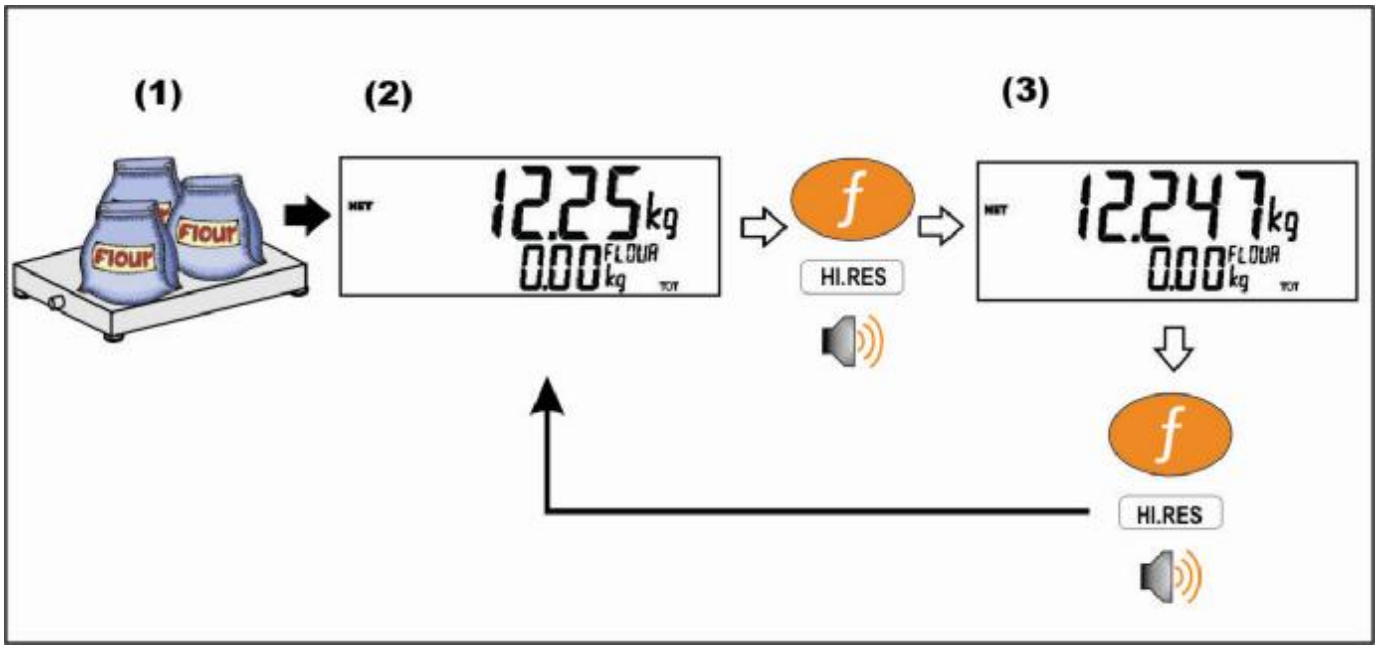


5.11. Hi.Res

High resolution mode toggle.

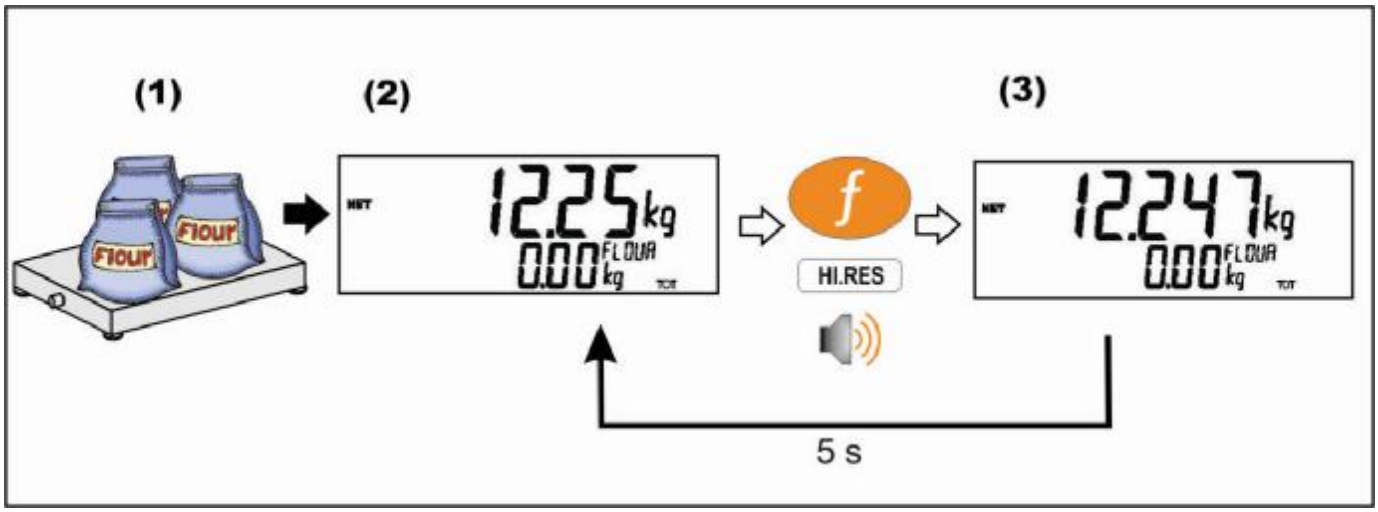
Short press – Industrial Mode

Display high resolution reading, until function key pressed again.



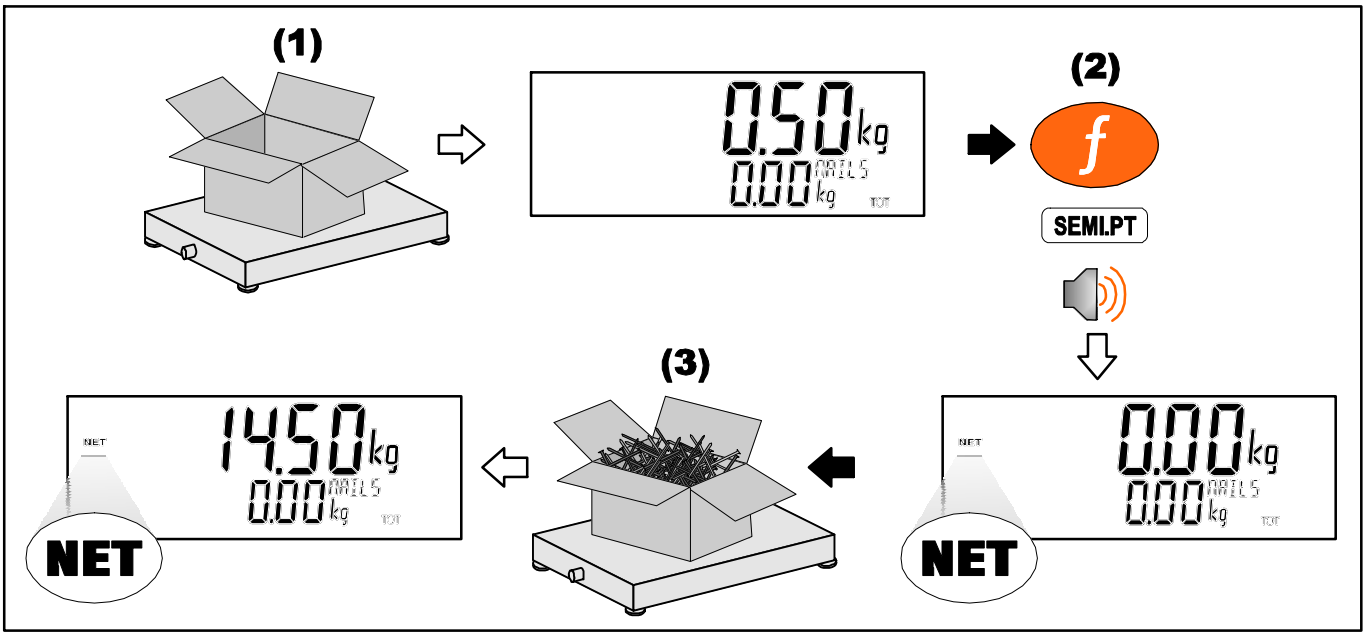
Short press – Trade Mode

Display high resolution reading for five (5) seconds, then return to original state.



5.12. Semi.PT

Perform semi-automatic preset tare. Preset tare value is stored on a per product basis.



6.Error Messages

Weighing Errors

These messages show status messages or errors that may occur during normal weighing operation.

Error	Description	Resolution
U.LOAD	The weight is below the minimum allowable weight reading.	Increase the weight or decrease the minimum allowable weight reading.
O.LOAD	The weight is above the maximum allowable weight reading. Warning - overloading may damage mechanical scale elements.	Check the condition of load cell connections. Check for damaged load cell.
ERROR RANGE	The weight reading is beyond the limit set for Zero operation. The operation of the **<ZERO>** key is limited in the setup during installation. The indicator cannot be Zeroed at this weight.	Increase the Zero Range (Z.RANGE) or use the **<TARE>** key instead.
ERROR MOTION	Scale motion has prevented a **<ZERO>** or **<TARE>** operation from occurring on command.	Try the operation again once the scale is stable.
ERROR ADC	An error with the ADC has prevented a <ZERO> or <TARE> operation from occurring.	Ensure loadcell cabling is correct.

Notes:

Diagnostic Errors

The instrument continually monitors the condition of the internal circuits. Any faults or out-of-tolerance conditions are shown on the display as an **E** type error message.

Error	Description	Resolution
E0001	The power supply voltage is too low.	Check supply
E0002	The power supply voltage is too high.	Check scale / cables
E0004	Positive sense voltage out or range.	Check scale connections and SCALE:BUILD:CABLE setting.
E0008	Negative sense voltage out or range.	Check scale connections and SCALE:BUILD:CABLE setting.
E0010	The temperature is outside of allowable limits.	Check location
E0020	Module Error	Replace Module
E0200	The calibration information has been lost.	Re-calibrate
E0400	The factory information has been lost.	Return for Service
E0800	Application settings have been set to defaults.	Check and re-enter application settings
E2000	ADC Out of Range Error. This may be caused from a broken load cell cable.	Check BUILD:CABLE setting. Check load cell cable, wiring, etc.
E4000	The runtime information has been lost.	Check Zero and tare settings.

The **E** type error messages are additive. For example, if the instrument is using batteries and the temperature drops, the battery voltage may be too low. The resulting error messages will be **E0011** (0001 + 0010). The numbers add in hexadecimal as follows:

1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - A - B - C - D - E - F
(For example, 2 + 4 = 6, or 4 + 8 = C)

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