Minebea intec
The true measure

Operating Instructions

Compact Scale Puro® - Basic

98628-000-61 Edition 1.0.0 02/28/2020

Checked on the basis of Puro® scale with software version 2.89

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Foreword

Must be followed!

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Note

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1 Introduction

1.1 Read the manual

- Please read this manual carefully and completely before using the product.
- This manual is part of the product. Keep it in a safe and easily accessible location.

1.2 This is what operating instructions look like

1. - n. are placed before steps that must be done in sequence.

▶ is placed before a step.

▷ describes the result of a step.

1.3 This is what lists look like

- indicates an item in a list.

1.4 This is what menu items and softkeys look like

[ ] frame menu items and softkeys.

Example:

[Start]- [Applications]- [Excel]

1.5 This is what the safety instructions look like

Signal words indicate the severity of the danger involved when measures for preventing hazards are not followed.

⚠ DANGER

Warning of personal injury

DANGER indicates death or severe, irreversible personal injury which will occur if the corresponding safety measures are not observed.

▶ Take the corresponding safety precautions.

⚠ WARNING

Warning of hazardous area and/or personal injury

WARNING indicates that death or severe, irreversible injury may occur if appropriate safety measures are not observed.

▶ Take the corresponding safety precautions.

⚠ CAUTION

Warning of personal injury.

CAUTION indicates that minor, reversible injury may occur if appropriate safety measures are not observed.

▶ Take the corresponding safety precautions.

NOTICE

Warning of damage to property and/or the environment.

NOTICE indicates that damage to property and/or the environment may occur if appropriate safety measures are not observed.

▶ Take the corresponding safety precautions.

Note:

User tips, useful information, and notes.

2 Safety instructions

2.1 General safety information

Follow these safety precautions:

- The equipment may only be used as intended for weighing tasks.
- The device may only be opened by authorised personnel.
- Observe the operating limits of the device.
- Ensure that the supply voltage at the installation site matches the AC input voltage indicated on the data label.
- Avoid shock stress (falling down, hard shocks, falling loads, any impact from the side).
- Do not use the equipment in hazardous areas and unstable environments.
- Do not expose the equipment to aggressive chemical vapors or to unnecessarily extreme temperatures, moisture, or vibration.
- Unplug the device before you connect or disconnect any electronic peripheral devices to or from the interface port.
- Unplug the power cord from the mains supply before cleaning.
- Make sure that no liquid enters the equipment.
- Do not use loads that exceed the capacity of the scale.

2.2 Incoming goods inspection

The shipment must be checked for completeness. A visual inspection must be performed to determine if the shipment has been damaged. If there are grounds for a complaint, this must be brought to the attention of the delivery company immediately. A Minebea Intec sales or service point must be informed. Visit our website http://www.puroscales.com or contact your dealer.

2.3 Before operational startup

NOTICE

Perform visual inspection.

Before operational startup as well as after storage or transport, inspect the product visually for signs of mechanical damage.

▶ The product may not be put into operation if it has visible damage and/or is defective.

3 Device installation

3.1 Package Contents

- Scale
- Sub-platform
- Safety Instructions and QR code with access to the detailed documentation
- Pan
- USB power supply and cord

3.2 Requirements on location

- Set up the device on a stable, even surface.
- Position the device so that the power plug is freely accessible and the power cord is not an obstacle or trip hazard.
- Avoid placing the device in close proximity to a heater or otherwise exposing the scale to heat or direct sunlight.
- Do not expose the device to excessive temperature flutuations.
- Protect the device from drafts that come from open windows or doors.
- Avoid exposing the device to extreme vibrations during weighing.
- Protect the device from aggressive chemical vapors.
- Do not expose the device to extreme moisture over long periods.

NOTICE

Acclimatizing the device

Condensation can form on the surfaces of a cold device when it is brought into a substantially warmer area.

▶ Unplug the device from the power supply and allow it to acclimatize for about 2 hours at room temperature.

3.3 Leveling the equipment

Purpose:

- to compensate for unevenness at the place of installation
- to ensure that the device is placed in a perfectly horizontal position for consistently reproducible weighing results

Always re-level the device any time after it has been moved to a different location.

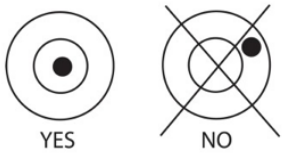
▶ Level the scale using the four leveling feet.

▶ Ensure that all leveling feet make contact with the floor.

▶ Turn the feet until the air bubble is centered in the level indicator.

▷ Each of the leveling feet must support an equal load.

- Adjusting the leveling feet: To raise the scale, extend the leveling feet (turn clockwise). To lower the weighing platform, retract the leveling feet (turn counterclockwise).



3.4 Power supply

AC power is used to power the scale when battery power is not needed.

Plug the USB-C plug into the USB-C jack on the bottom of the unit, then plug the AC power supply into a wall outlet.

Note:

Do not use the USB-C power supply cable for the PC communication. Instead use a standard USB-C cable.

3.4.1 Battery Power

The scale can be used on AC power immediately. Allow the battery to charge for 12 hours before using the scale on battery power. The Scale will automatically switch to battery operation if there is a power failure or the power cord is removed. With AC power, the scale is constantly charging, so the battery charge indicator (see Chapter 4.1.1.2) will remain lit. The scale can be operated during charging, and the battery is protected against overcharging.

When the device is switched on, the battery status LED lights red while the battery is charging and green when the battery is fully charged.

For maximum operating time, the battery should be charged at room temperature.

During battery operation, the battery symbol indicates the battery charge level remaining. The indicator will automatically turn off when the batteries are empty.

Symbol	Charge level
	0 to 10 % Remaining
	11 to 40 % Remaining
	41 to 70 % Remaining
	71 to 100 % Remaining

Note:

When battery symbol blinks fast, approximately 30 minutes working time is left.

When [lo.bat] is displayed, the scale will shut off.

Charging the scale must be performed in a dry environment.

⚠ WARNING

Risk of explosion can occur

If the rechargeable battery is replaced with the wrong type or if it is not properly connected.

- ▶ Battery is to be replaced only by an authorized Puro® service dealer.
- ▶ Dispose of battery according to local laws and regulations.

3.5 Connect printer

A printer can be connected to the printer port on the underside of the device.

4 Device description

4.1 Operating

4.1.1 Display and operating elements

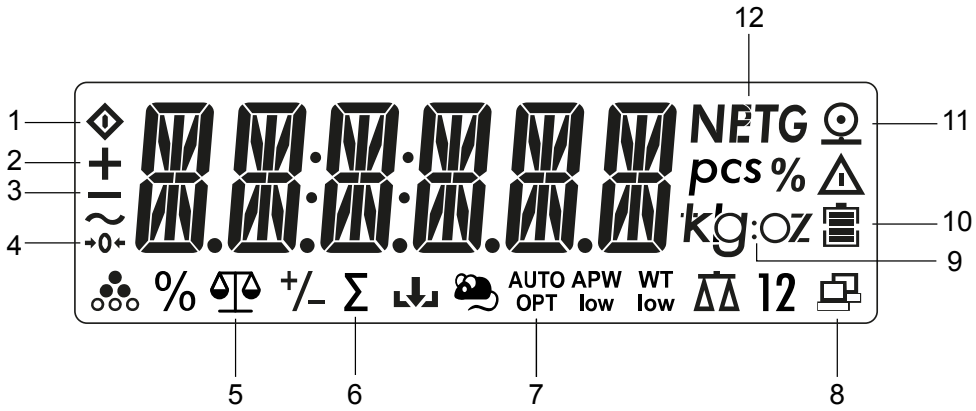
4.1.1.1 Overview

Front Control Panel with LCD Display.

No.	Description
1	Display elements, see Chapter 4.1.1.2.
2	Operating elements, see Chapter 4.1.1.3.

4.1.1.2 Display elements

LCD Display



Item	Description	Item	Description
1	Busy	7	Auto Taring Symbol
2	Plus symbol	8	Data transfer
3	Minus symbol	9	Weight unit
4	Zero-setting	10	Battery charge
5	Weighing	11	Printer Icon
6	Totalization	12	NET, Preset Tare, Gross

LED indicators

When the device is switched on, the battery status LED (1) lights red while the battery is charging and green when the battery is fully charged.

4.1.1.3 Operating elements

Button	Off →0←	→T←	M+ Menu	F Mode	Unit
Primary Function	**On / Zero**	**Tare**	**M+**	**Function**	**Print**
(short press) < 1 second	Power on the scale (when scale is off). Set zero (when scale is on).	Set a tare value.	Accumulates the weight or display the accumulated information.	Triggers a function.	Sends the current value to the selected COM ports if AUTO-PRINT is set to off.
Secondary Function	**Off**		**Menu**	**Mode**	**Unit**
(long press) hold > 2 second	Power off the scale.	Initiates clearing function of totalizing.	Enter the user menu.		Changes the weighing unit.
Menu Function	**Yes**		**Exit**	**Back**	**No**
(short press) < 1 second	Accepts the current setting on the display.		Exits the user menu. Aborts the calibration in progress. Advances to the previous digit in input process.	Moves back to previous menu items. Decrement the digit.	Rejects the current setting on the display and advances to the next available setting. Advances to the next menu or item. Increment the digit.

4.1.1.4 Rear Display

The models LargeTall (LT) and SmallTall (ST) have an additional rear display, which shows the same display elements as the front display. (See Chapter 4.1.1.2).

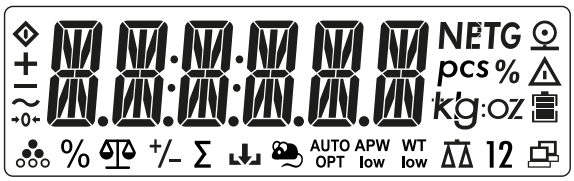
5 Operation

5.1 Basic Weighing Function

5.1.1 Turn on the device

▶ Press the Off →0← button.

▷ All elements of the display are shown for 2 seconds.



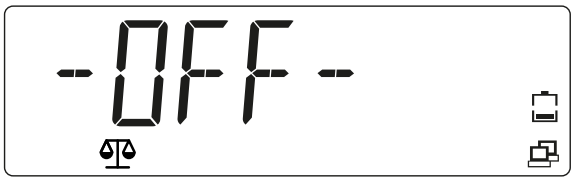
The software version number is displayed for 2 seconds.

If the scale is turned ON for the very first time then applications "Weighing" plus "Totalizing" (manually) are active.

5.1.2 Turn off the device

▶ Press and hold the Off →0← button until [OFF] is displayed.

▷ The display shows [- OFF -] for about 1 second.



The device switches off, display is dark.

5.1.3 Adjust GEO setting

Adjust the GEO setting according to your location to ensure accurate weighing results. See Chapter 7.3.

5.1.4 Select an application

▷ Applications "Totalization", "Auto Tare" and "Automatic Print" can be activated via Menu.

[OP.FUNC]		
	[A.TARE]	Auto Tare
	[TOT.SET]	Totalization
[PRINT]		
	[A.PRINT]	Automatic Print

5.2 Application Programs

5.2.1 Weighing Mode

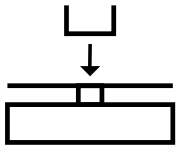
Display the weight of the sample in lb, oz, lb:oz, kg or g.

1. Weighing is always active and displayed with application icon at bottom of the screen.

Release the button. The application is activated.

▷ [0.000] is displayed.

2. Place container on the scale (in this example, 0.598 kg).



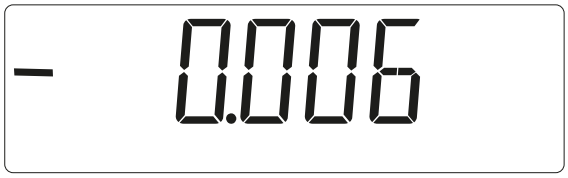
5.2.1.1 Stability

If a weighing value is stable, the unit symbol is displayed.

Stable weighing value:

Unstable weighing value:

Stable gross weighing value below zero (no unit visible):



If the gross weight is 20d below zero, [L] is displayed.

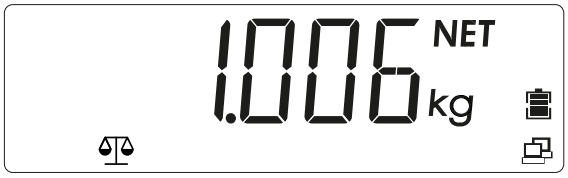
If the gross weight is >7d above Maxload, [H] is displayed.

5.2.1.2 Taring

▶ For taring the container on the scale, press the →T← button if the pan is loaded.

▷ [NET] is shown on the display.

Tared value:



5.2.1.3 Weight Unit switch

You can toggle the display of a weight value between different weight units.

▶ To select the weight unit, press the Unit button until the desired weight unit is displayed, when these units are activated in menu before. [kg / g / lb /oz / lb:oz]. Release the button to select.

Possible units are:

gram	[g]
kilogram	[kg]
pound	[lb]
ounce	[oz]
pound-ounces	[lb:oz]

5.2.1.4 Negative weighing value

Negative stable netto weight value is displayed like this:

5.3 Totalizing and Statistics Mode

The Totalizing feature enables manual or automatic totalizing of displayed values.

Statistical data (total accumulated weight, min/max weights and total number of weighing objects) is stored in memory for review and printing. Totalizing works in combination with each application mode. Totalization manual is set to ON by default.

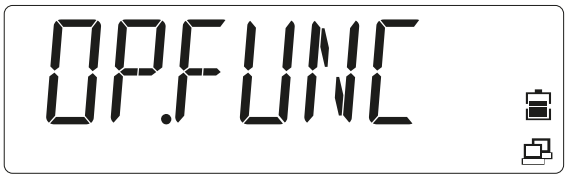
5.3.1 Procedure on Setting up the Totalization Application

1. To enter into menu mode, press and hold the [M+ Menu] button until [M.E.N.U] is displayed.

Release the button.

▷ The 1st menu item [APPLIC] shown on display.

2. Press the [Unit] button to move to the next menu item or [F Mode] button to move to the previous menu item.
3. Change menu item until [OP.FUNC] (operating function) is shown on display.

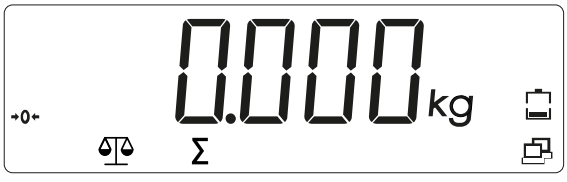


4. Press [Off →0←] (Yes) button to enter into sub-menu item.
5. Change menu item until [TOT.SET] (totalizing setting) is shown on display.

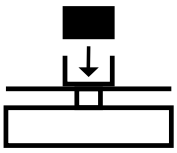
6. Press the [Off →0←] (Yes) button to enter the displayed sub-menu, then select one option [OFF / AUTO / MAN] using the [Unit] button and store the selection with the [Off →0←] (Yes) button.
7. Leave the setup menu with the [M+ Menu] button.

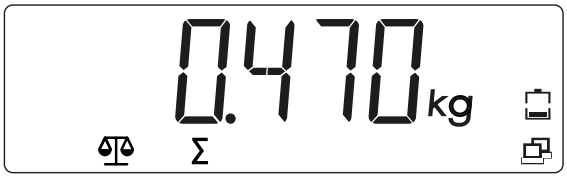
5.3.2 (Totalization) Displayed Values

The Totalization Mode is active when Σ icon is displayed.



1. Put the first item on the scale.





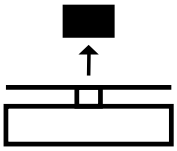
2. Press the M+ Menu button to add the weight to accumulation data (under manual mode).

   OR

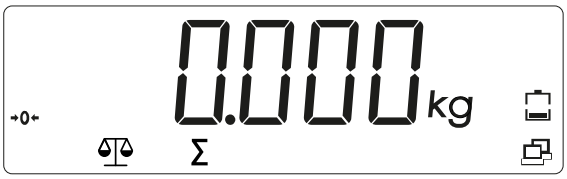
   The weight value will add automatically to accumulation data once reading is stable (under automatic mode).

   The Σ icon will keep flashing until the weight is removed.

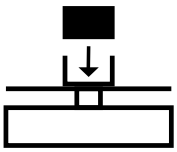
3. Empty the weighing pan.



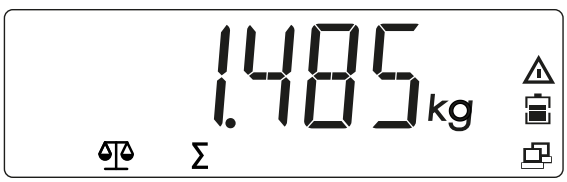
   The item must be removed from the pan before the next item can be accumulated.



4. Put another sample on scale and follow same operation (Automatic or Manual mode).



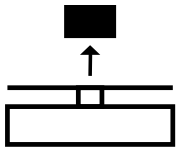
   ▷ The Σ icon will keep flashing until the weight is removed.

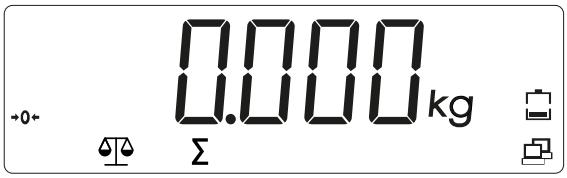


5.3.3 Viewing and Clearing Statistical Data

The pan must be empty to view the stored statistics.

1. Empty the weighing pan.

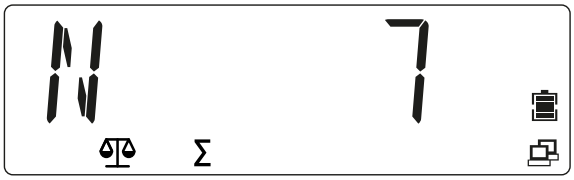




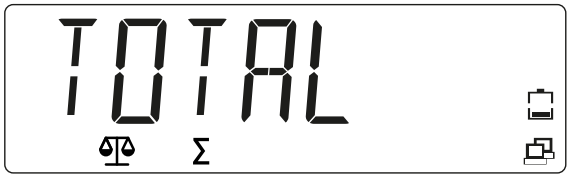
2. Press the M+ Menu key to display the stored totalizing data.

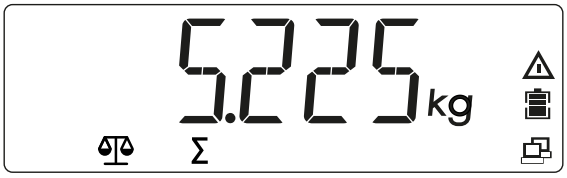
   The scale will display the statistical information in following order:

   Number of weighing done (N = 7):

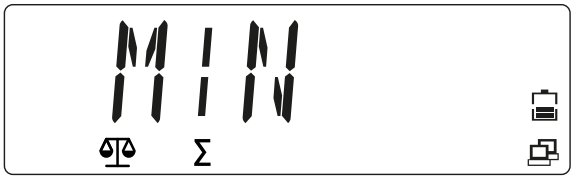


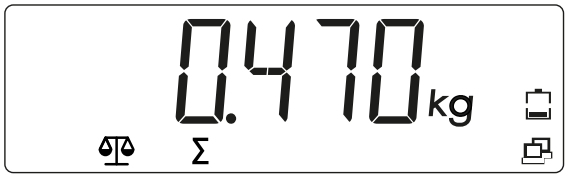
   Totalized value (TOTAL = 5.225 kg)



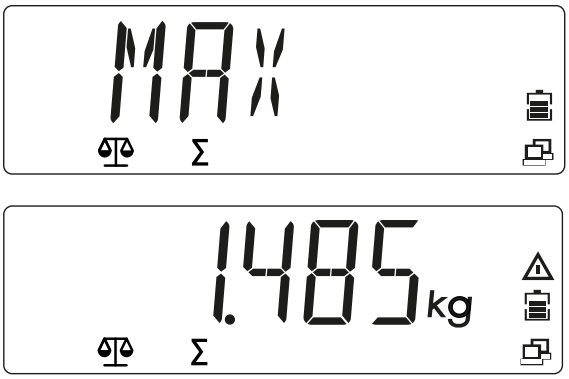


   Minimum value (Min = 0.470 kg):





   Maximum value (Max = 1.485 kg)



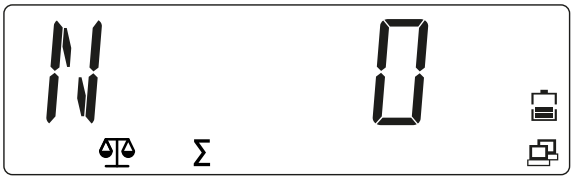
To clear the totalizing memory:

3. Press and hold the →T← button while the pan is unloaded and the totalizing data is displayed.
   ▷ The message [CLR.TOT] appears.

4. Press the Off →0← (Yes) button to confirm or press the Unit (No) button to cancel.

   To verify the totalizing memory has been cleared:

5. Press the M+ Menu button to display the statistical information.



Note:

- The item must be removed from the pan before the next item can be accumulated.
- Only stable weights are stored to totalizing memory.
- Changing the application mode will clear the totalizing memory.
- Gross loads and net loads cannot be added to the same total.
  - If the first load is a gross weight, following loads must also be gross weights.
  - If the first load is a net weight, following loads must also be net weights.

6 Menu Settings

The User Menu (Menu Mode) allows the customizing of scale settings.

Note:

Additional Sub-Menus may be available if Interface Options are installed.

See Interface User Manual for the additional setting information.

6.1 Menu Mode

Enter into Menu Mode:

1. Press and hold [M+ Menu] button until [M.E.N.U] is displayed.

Release the button.

▷ The 1st menu item [APPLIC] shown on display.

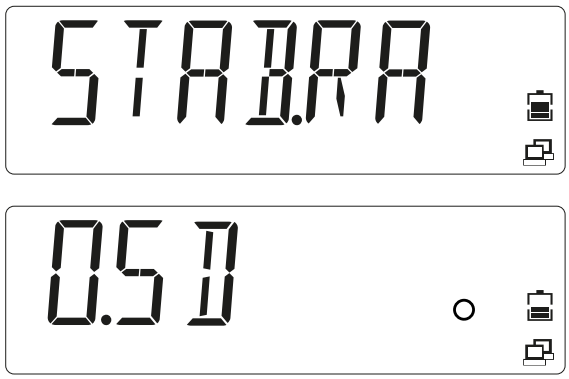
2. To enter into menu item (in this example [APPLIC] - [WEIGH] , press [Off →0←] (Yes) button.

3. Or press the [Unit] button to move to the next menu item or [F Mode] button move to previous menu item.

▷ The 2nd menu item [METRO] shown on display.

When viewing the setting (in this example [APPLIC] - [WEIGH] - [STAB.RA] value 0.5d).

4. When viewing the setting (in this example [APPLIC] - [WEIGH] - [STAB.RA] value 0.5d), press Off→0← (Yes) button to Accept setting or the Unit (No) button to change setting. The current selection is signed by [∘].



5. When [END] is displayed, press Off→0← (Yes) button to return to sub-menu selections.

6. Press the Unit (No) button to return to the first item in the current menu.
7. Press the M+ Menu button to exit the menu.

6.2 Menu Navigation

Overview of Menu Mode options.

APPLIC	Application (see chapter 6.2.1)
METRO	Metrology (see chapter 6.2.2)
UNIT	Weighing units (see chapter 6.2.3)
OP.FUNC	Operation functions (see chapter 6.2.4)
PRINT	Printer outputs (see chapter 6.2.5)
PRN.COM	Printer port communication (see chapter 6.2.6)
PC.OUT	PC output (see chapter 6.2.7)
PC.COM	PC port communication (see chapter 6.2.8)
CAL.ADJ	Calibration / Adjustment (see chapter 6.2.9)
ADC.CON	ADC configuration (see chapter)
INFO	Information (shows serial number and type designation)
SECURE	Block menu items (see chapter 6.2.11)
E.N.D.	Leave menu

Note:

Some modes / units may not be available in all models.

6.2.1 Menu Selection [APPLIC]

Enter this menu to select application to be used.

Only activated units will be accessible with the F Mode (Mode) Button.

Default settings are identified by an "*"

APPLIC	
├ **WEIGH**	Weighing mode
│ ├ **ON**	enabled*
├ **RESET**	Factory setting
│ ├ **NO**	not restored*
│ ├ **YES**	enabled
├ **END**	Leave menu level

6.2.2 Menu Selection [METRO]

Enter this menu to customize display functionality and scale functionality.

Default settings are identified by an "*"

METRO	
├ **STAB.RA**	Stability range
│ ├ **0.5d**	1/2 digit
│ ├ **1d**	1 digit*
│ ├ **2d**	2 digit
│ ├ **4d**	4 digit
├ **FILTER**	Adaption Filter
│ ├ **LOW**	Less precion, short stabilization time
│ ├ **MED**	Normal precion, medium stabilization time*
│ ├ **HI**	High Precion, Long stabilization time
├ **A.ZERO.T**	Auto Zero-Tracking
│ ├ **OFF**	Turn off
│ ├ **0.5d**	Drift of 1/2 digit*
│ ├ **1d**	Drift of 1 digit
│ ├ **3d**	Drift of 3 digit
├ **AUT.OFF**	Auto Off Timer
│ ├ **OFF**	Turn off*
│ ├ **1 MIN**	power off after 1 minute of no activities
│ ├ **5 MIN**	power off after 5 minute of no activities
│ ├ **10 MIN**	power off after 10 minute of no activities
├ **DYN.TIM**	has no effect in this device
│ ├ **5 SEC**	has no effect in this device
│ ├ **10 SEC**	has no effect in this device
│ ├ **15 SEC**	has no effect in this device
│ ├ **20 SEC**	has no effect in this device
│ ├ **25 SEC**	has no effect in this device
│ ├ **30 SEC**	has no effect in this device
├ **RESET**	Factory setting
│ ├ **NO**	not restored*
│ ├ **YES**	enabled
├ **END**	Leave menu level

6.2.3 Menu Selection [UNIT]

Enter this menu to customize weighing unit to be used.

Default settings are identified by an "*"

UNIT	
├ **kg**	Kilogram
│ ├ **OFF**	disabled
│ ├ **ON**	enabled*

g	Gram
OFF	disabled
ON	enabled*
lb	Pound
OFF	disabled
ON	enabled*
oz	Ounce
OFF	disabled
ON	enabled*
lb:oz	Pound / Ounces
OFF	disabled*
ON	enabled
RESET	Factory setting
NO	not restored*
YES	enabled
END	Leave menu level

6.2.4 Menu Selection [OP.FUNC]

Enter this menu to setup scale parameters.

Default settings are identified by an "*"

OP.FUNC

ZERO.R	Zero Range
2%	zero up to 2% capacity
10%	zero up to 10% capacity*
A.TARE	Automatic Tare
OFF	disabled*
ON	1st stable weight is tared
ON-ACC	has no effect in this device
BEEP.SI	Beeper Signal (in Checkweighing Mode)
OFF	disabled*
ACCEPT	has no effect in this device
UNDER	has no effect in this device
OVER	has no effect in this device
UNDOVR	has no effect in this device
BEEP.KE	Button Sound
OFF	disabled
ON	enabled*
TOT.SET	Totalization Setting
OFF	disabled
AUTO	Automatic Totalization
MAN	Manual Totalization*
LIGHT.T	Back lighting time (D.LIGHT = AUTO)
3 SEC	Backlight off after 3 minutes of no activity
5 SEC	Backlight off after 5 minutes of no activity*
8 SEC	Backlight off after 8 minutes of no activity
D.LIGHT	Display Backlight
OFF	disabled
ON	enabled
AUTO	turns on when a button is pressed or the displayed weight changes*
COM.EQU	Communication Module

├─ **OFF**	disabled*
├─ **BLUE.TH**	Bluetooth Enabled (when Bluetooth module installed)
├─ **WIFI**	Wi-Fi Enabled (when WIFI module installed)
├─ **ETHER.N**	Ethernet Enabled (when Ethernet module is installed)
├─ **RESET**	Factory setting
├─ **NO**	not restored*
├─ **YES**	enabled
├─ **END**	Leave menu level

6.2.5 Menu Selection [PRINT]

Enter this menu to print scale parameters.

Default settings are identified by an "*"

PRINT

├─ **STABLE**	Printing criteria
├─ **OFF**	values are printed immediately
├─ **ON**	values are only printed when stable*
├─ **A.PRINT**	Automatic Print
├─ **OFF**	disabled*
├─ **ON.STAB**	Print on stability
├─ **INTER**	Printing at the defined interval
├─ **1...3600**	1 ... 3600 second
├─ **CONT**	Print continously
├─ **ACCEPT**	Print on stable and within checklimit
├─ **CONTNT**	Content
├─ **RESULT**	Display Value
├─ **OFF**	disabled
├─ **ON**	enabled*
├─ **GROSS**	Gross Value
├─ **OFF**	disabled*
├─ **ON**	enabled
├─ **NET**	Net Value
├─ **OFF**	disabled*
├─ **ON**	enabled
├─ **TARE**	Tare
├─ **OFF**	disabled*
├─ **ON**	enabled
├─ **HEADER**	Header info
├─ **OFF**	disabled*
├─ **ON**	enabled
├─ **FOOTER**	Footer info
├─ **OFF**	disabled*
├─ **ON**	enabled
├─ **MODE**	Mode info
├─ **OFF**	disabled*
├─ **ON**	enabled
├─ **INFO**	has no effect in this device
├─ **OFF**	disabled*
├─ **ON**	enabled
├─ **TOTAL**	Total Value

OFF	disabled*
RESULT	Accumulated result is printed
ALL	Accumulated data is printed
LI.SET	List Set
FORMAT	Format send to printer and to PC
MULTI	Multi-line (single column) printout*
SINGLE	Single line printout
FEED	Paper Feed Setting
LINE	Move a paper up one line after printing
4LF	Move a paper up four lines after printing*
FORM	Form feed after printing
RESET	Factory setting
NO	not restored*
YES	enabled
END	Leave menu level

6.2.6 Menu Selection [PRN.COM]

Enter this menu to setup Print Communication parameters.

Default settings are identified by an "*"

PRN.COM

BAUD	Baud Rate
2400	2400
4800	4800
9600	9600*
19200	19200
38400	38400
57600	57600
115200	115200
PARITY	Parity
7 EVEN	7 data bits, even parity
7 Odd	7 data bits, odd parity
7 NONE	7 data bits, no parity
8 NONE	8 date bits, no parity*
STOP	Stop Bit
1	1*
2	2
RESET	Factory setting
NO	not restored*
YES	enabled
END	Leave menu level

6.2.7 Menu Selection [PC.OUT]

Enter this menu to define PC Output parameters.

Default settings are identified by an "*"

PC.OUT

MODE	PC Output Mode
OFF	disabled*
MAN.OUT	Manual output
MAN.STA	Manual output
INT.OUT	Interval output
AUT.OUT	Automatic output

├─ **AUT.STA**	Automatic output when data is stable
├─ **INTERV**	Set the output interval (when INT.OUT is selected)
├─ **1 CYC**	Each display cycle
├─ **2 CYC**	After 2 display cycle
├─ **5 CYC**	After 5 display cycle*
├─ **10 CYC**	After 10 display cycle
├─ **20 CYC**	After 20 display cycle
├─ **50 CYC**	After 50 display cycle
├─ **100 CYC**	After 100 display cycle
├─ **RESET**	Factory setting
├─ **NO**	not restored*
├─ **YES**	enabled
├─ **END**	Leave menu level

6.2.8 Menu Selection [PC.COM]

Enter this menu to define PC Communication parameters.

Default settings are identified by an "*"

PC.COM

├─ **BAUD**	Baud Rate
├─ **4800**	4800
├─ **9600**	9600*
├─ **19200**	19200
├─ **38400**	38400
├─ **57600**	57600
├─ **115200**	115200
├─ **PARITY**	Parity
├─ **7 EVEN**	7 data bits, even parity
├─ **7 Odd**	7 data bits, odd parity
├─ **7 NONE**	7 data bits, no parity
├─ **8 NONE**	8 date bits, no parity*
├─ **7 MARK**	7 data bits, no parity
├─ **7 SPACE**	7 data bits, no parity
├─ **STOP**	Stop Bit
├─ **1**	1*
├─ **2**	2
├─ **HAND.SH**	Handshake
├─ **NONE**	No Handshaking*
├─ **XON-.XOF**	has no function
├─ **RESET**	Factory setting
├─ **NO**	not restored*
├─ **YES**	enabled
├─ **END**	Leave menu level

6.2.9 Menu Selection [CAL.ADJ]

Enter this menu to perform calibration and adjustment of your scale (see chapter 7).

CAL.ADJ

├─ **CAL**	Initiates a span calibration procedure (zero and span)
├─ **LIN**	Initiates a linearity calibration procedure (zero, mid-point and span)

GEO	Geographical Adjustment Factor (GEO) is used to adjust the calibration based on the current location. (Settings from 0 ... 31, default 12)
END	Leave menu level

6.2.10 Menu Selection [INFO]

INFO	
TYPE	show model name
SER.NUM	show serial number

6.2.11 Menu Selection [SECURE]

Enter this menu to define Security setting (Lock) on menu option to prevent tampering.

Default settings are identified by an "*"

SECURE	
S.APPLI	Application Menu
OFF	Unlock*
ON	Locked
S.UNIT	Unit Menu
OFF	Unlock*
ON	Locked
S.OP.FUN	Operation Function Menu
OFF	Unlock*
ON	Locked
S.METRO	Metrology Menu
OFF	Unlock*
ON	Locked
S.PRINT	Print Menu
OFF	Unlock*
ON	Locked
S.PR.COM	Communication Menu
OFF	Unlock*
ON	Locked
S.PC.OUT	PC Output Menu
OFF	Unlock*
ON	Locked
S.PC.COM	PC Communication Menu
OFF	Unlock*
ON	Locked
S.CAL.AD	Calibration / Adjustment Menu
OFF	Unlock*
ON	Locked
RESET	Restore factory setting of current menu
OFF	Unlock*
ON	Locked
END	Leave menu level

7 Calibration and Adjustment

Enter this menu to perform calibration and adjustment of your scale.

Initial Calibration

When the scale is operated for the first time, a Span Calibration is recommend to ensure accurate weighing results. Before performing the calibration, be sure to have the appropriate calibration weights.

Adjust the GEO setting according to your location (see table 7.4).

CAL.ADJ

CAL	Initiates a span calibration procedure (zero and span)
LIN	Initiates a linearity calibration procedure (zero, mid-point and span)
GEO	Geographical Adjustment Factor (GEO) is used to adjust the calibration based on the current location. (Settings from 0 ... 31, default 12)
END	Leave menu level

7.1 [CAL] Calibration Procedure

Enter into Menu Mode:

1. Press and hold M+ Menu until [M.E.N.U] displayed.

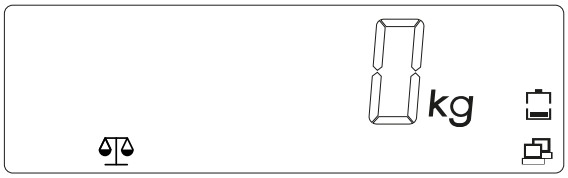
Release the button.

▷ The 1st menu item [APPLIC] is displayed.

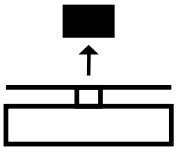
2. Press the ⊙ Unit button move to next menu item or F Mode button move to previous menu item.
3. Change menu item until [CAL.ADJ] is displayed.

4. Press ⏻→0← Off (Yes) button to enter into sub-menu item.
   ▷ Sub-menu item [CAL] (Calibration) is displayed.

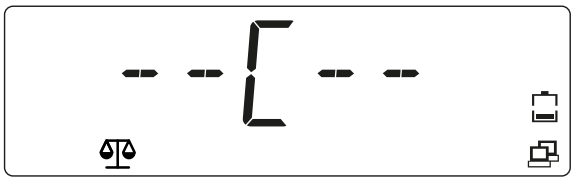
5. Press (Yes) button enter into sub-menu item.
   ▷ [0 kg] is displayed. [0] is blinking.



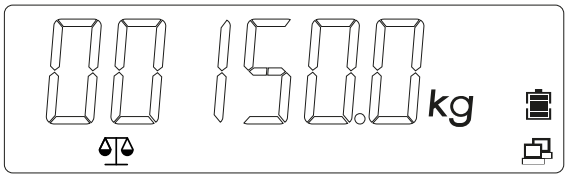
6. Empty the weighing pan.



7. Press (Yes) button to start zero point calibration.
   ▷ [--C--] is displayed while zero reading is stored.



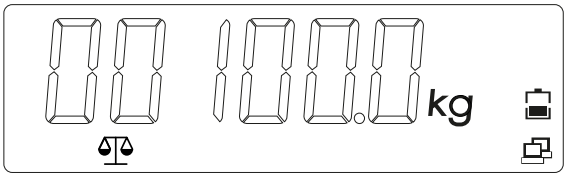
   The display shows the calibration weight value (selected in the ADC configuration) with all digit blinking [001500.0] (in this example, 150 kg)



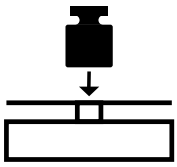
8. For changing the calibration weight value, press the (No) button to edit the value.
   ▷ The first digit is blinking [_015.000 kg].

9. Press (Yes) button to accept and highlight the next digit.
   ▷ The 2nd digit is blinking [0_15.000 kg].

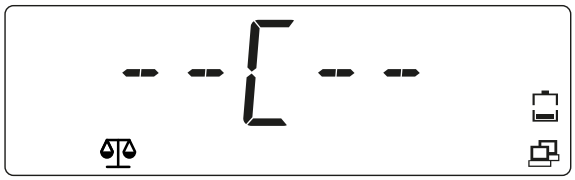
10. Press the [Unit] button to increase or the [F Mode] button to decrease the digit value.
11. Repeat until all the digits are correct.
    ▷ The Display shows the calibration value with all digit blinking [00100.0] (in this example, 100 kg)



12. When calibration weight value is correct, put specified weight on pan.

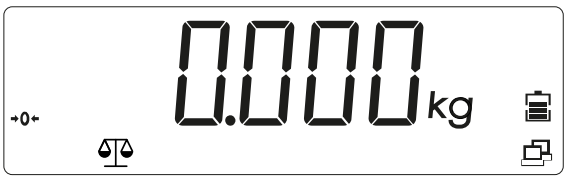


13. Press [Off →0←] (Yes) button to start span calibration.
    ▷ [--C--] will be displayed while calibration weight is stored.



In case of any mistake during the calibration process [CALE] (Calibration Error) is displayed.

14. Remove the weight after finish.
    ▷ The scale is ready for weighing.



7.2 [LIN] Linearity Calibration Procedure

Enter into Menu Mode:

1. Press and hold [M+ Menu] until [M.E.N.U] displayed.

Release the button.

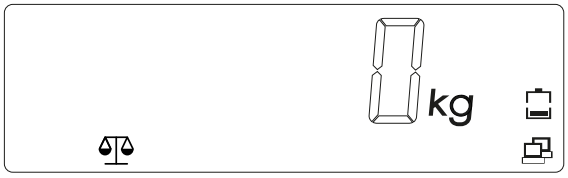
▷ The 1st menu item [APPLIC] shows on display.

2. Press the [Unit] button move to next menu item or [F Mode] button move to previous menu item.
3. Change menu item until [CAL.ADJ] shows on display.

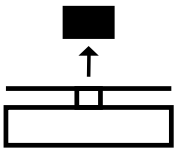
4. Press [Off →0←] (Yes) button enter into sub-menu item.
5. Change menu item until [LIN] shows on display.

6. Press [Off →0←] (Yes) button to start zero point calibration.

▷ [0 kg] shows on display. [0] is blinking.

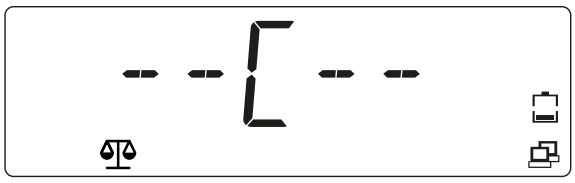


7. Empty the weighing pan.

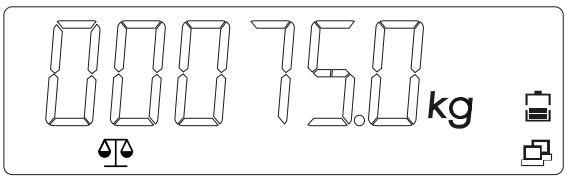


8. Press the [Off →0←] (Yes) button to confirm.

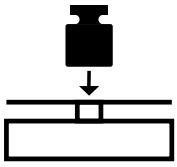
▷ [--C--] will be displayed while zero reading is stored.



The display shows the 1st linearization weight value (50% of scale capacity)with all digit blinking [00075.0] (in this example, 75 kg). This value cannot be modified.

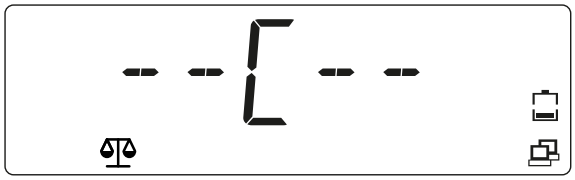


9. Put the 1st linearization weight on the pan.

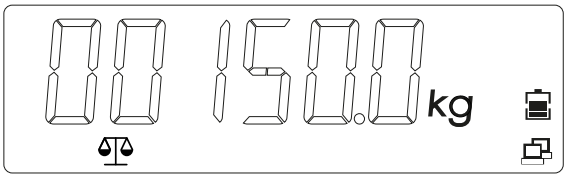


10. Press (Yes) button to start linearity adjustment at 50% of scale capacity

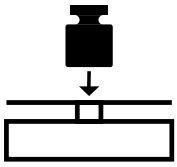
▷ [--C--] will be displayed while reading is stored.



The display shows the the 2nd linearization weight value at 100% of scale capacity with all digit blinking [00150.0] (in this example, 150 kg).

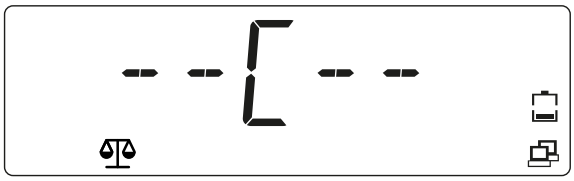


11. Put 2nd linearization weight on the pan.



12. Press (Yes) button to start linearity adjustment at 100% of scale capacity.

▷ [--C--] is displayed while reading is stored.



The display shows the linearization weight value at 100% of scale capacity [00150.0] (in this example, 150 kg).

In case of any mistake during the linearization process [CALE] (Calibration Error) will be displayed.

13. Remove the weight after finish.

▷ The scale is ready for weighing.

7.3 [GEO] Geographical Factor Adjustment Procedure

The Geographical Adjustment Factor [GEO] is used to adjust the calibration based on the current location. (Settings from 0 ... 31 are available). Refer to table 7.4 to determine the GEO factor that corresponds to your location.

Enter into Menu Mode:

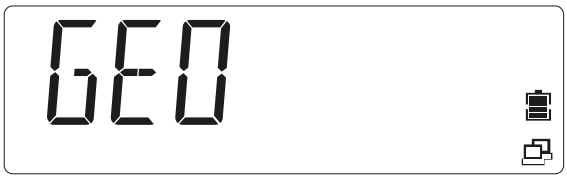
1. Press and hold M+ Menu until [M.E.N.U] displayed.

Release the button.

▷ The 1st menu item [APPLIC] shown on display.

2. Press the [Unit] button move to next menu item or [F Mode] button move to previous menu item.
3. Change menu item until [CAL.ADJ] show on display.

4. Press [Off →0←] (Yes) button enter into sub-menu item.
5. Press the [Unit] button move to next menu item or [F Mode] button move to previous menu item.
6. Change menu item until [GEO] is displayed.



7. Press [Off →0←] (Yes) button to start GEO Factor selection.
   ▷ The default GEO factor [12] is indicated and blinking.

8. If changing the value is needed, selection from 0 ... 31, press the [Unit] button to increase or the [F Mode] button to decrease the GEO factor value.
9. Press [Off →0←] (Yes) button to confirm GEO Factor value.
   ▷ The GEO factor has been stored, when [END] is displayed.

10. Press [Off →0←] (Yes) button to return to sub-menu selections.
11. Press [Unit] (No) button to return to the first item in the current menu.
12. Press the [M+ Menu] button to exit the setup menu and return to the weighing mode.

7.4 GEO Code Table

		Elevation in meters										
		0	325	650	975	1300	1625	1950	2275	2600	2925	3250
		325	650	975	1300	1625	1950	2275	2600	2925	3250	3575
		Elevation in feet										
		0	1016	2130	3200	4260	5330	6400	7460	8530	9600	10660
		1060	2130	3200	4260	5330	6400	7460	8530	9600	10660	11730
Latitude		GEO value										
0°00'	5°46'	5	4	4	3	3	2	2	1	1	0	0
5°46'	9°52'	5	5	4	4	3	3	2	2	1	1	0
9°52'	12°44'	6	5	5	4	4	3	3	2	2	1	1
12°44'	15°06'	6	6	5	5	4	4	3	3	2	2	1
15°06'	17°10'	7	6	6	5	5	4	4	3	3	2	2
17°10'	19°02'	7	7	6	6	5	5	4	4	3	3	2
19°02'	20°45'	8	7	7	6	6	5	5	4	4	3	3
20°45'	22°22'	8	8	7	7	6	6	5	5	4	4	3
22°22'	23°54'	9	8	8	7	7	6	6	5	5	4	4
23°54'	25°21'	9	9	8	8	7	7	6	6	5	5	4
25°21'	26°45'	10	9	9	8	8	7	7	6	6	5	5
26°45'	28°06'	10	10	9	9	8	8	7	7	6	6	5
28°06'	29°25'	11	10	10	9	9	8	8	7	7	6	6
29°25'	30°41'	11	11	10	10	9	9	8	8	7	7	6
30°41'	31°56'	12	11	11	10	10	9	9	8	8	7	7
31°56'	33°09'	12	12	11	11	10	10	9	9	8	8	7
33°09'	34°21'	13	12	12	11	11	10	10	9	9	8	8
34°21'	35°31'	13	13	12	12	11	11	10	10	9	9	8
35°31'	36°41'	14	13	13	12	12	11	11	10	10	9	9
36°41'	37°50'	14	14	13	13	12	12	11	11	10	10	9
37°50'	38°58'	15	14	14	13	13	12	12	11	11	10	10
38°58'	40°05'	15	15	14	14	13	13	12	12	11	11	10
40°05'	41°12'	16	15	15	14	14	13	13	12	12	11	11
41°12'	42°19'	16	16	15	15	14	14	13	13	12	12	11
42°19'	43°26'	17	16	16	15	15	14	14	13	13	12	12
43°26'	44°32'	17	17	16	16	15	15	14	14	13	13	12
44°32'	45°38'	18	17	17	16	16	15	15	14	14	13	13

		Elevation in meters										
		0	325	650	975	1300	1625	1950	2275	2600	2925	3250
		325	650	975	1300	1625	1950	2275	2600	2925	3250	3575
		Elevation in feet										
		0	1016	2130	3200	4260	5330	6400	7460	8530	9600	10660
		1060	2130	3200	4260	5330	6400	7460	8530	9600	10660	11730
Latitude		GEO value										
45°38'	46°45'	18	18	17	17	16	16	15	15	14	14	13
46°45'	47°51'	19	18	18	17	17	16	16	15	15	14	14
47°51'	48°58'	19	19	18	18	17	17	16	16	15	15	14
48°58'	50°16'	20	19	19	18	18	17	17	16	16	15	15
50°16'	51°13'	20	20	19	19	18	18	17	17	16	16	15
51°13'	52°22'	21	20	20	19	19	18	18	17	17	16	16
52°22'	53°31'	21	21	20	20	19	19	18	18	17	17	16
53°31'	54°41'	22	21	21	20	20	19	19	18	18	17	17
54°41'	55°52'	22	22	21	21	20	20	19	19	18	18	17
55°52'	57°04'	23	22	22	21	21	20	20	19	19	18	18
57°04'	58°17'	23	23	22	22	21	21	20	20	19	19	18
58°17'	59°32'	24	23	23	22	22	21	21	20	20	19	19
58°17'	59°32'	24	23	23	22	22	21	21	20	20	19	19
60°49'	62°90'	25	24	24	23	23	22	22	21	21	20	20
62°90'	63°30'	25	25	24	24	23	23	22	22	21	21	20
63°30'	64°55'	26	25	25	24	24	23	23	22	22	21	21
64°55'	66°24'	26	26	25	25	24	24	23	23	22	22	21
66°24'	67°57'	27	26	26	25	25	24	24	23	23	22	22
67°57'	69°35'	27	27	26	26	25	25	24	24	23	23	22
69°35'	71°21'	28	27	27	26	26	25	25	24	24	23	23
71°21'	73°16'	28	28	27	27	26	26	25	25	24	24	23
73°16'	75°24'	29	28	28	27	27	26	26	25	25	24	24
75°24'	77°55'	29	29	28	28	27	27	26	26	25	25	24
77°55'	80°56'	30	29	29	28	28	27	27	26	26	25	25
80°56'	85°45'	30	30	29	29	28	28	27	27	26	26	25
85°45'	90°00'	31	30	30	29	29	28	28	27	27	26	26

8 SBI Interface

You can enter certain commands to control weighing platform functions through the SBI interface. Each command starts with an escape sequence. The command is always closed with an end of command (EOC). The end of command can be any combination of CR and LF. Every data after EOC and before ESC will be ignored by the scale.

Read displayed value:

ESC	P	EOC

Answer (16 Byte):

V	W	W	W	W	W	W	W	W	W	E	E	E	CR	LF

V	Sign	possible characters: "+", "–", " "
W	Weight Value	possible characters: "0"..."9", ". ", " "
E	Unit	possible characters: "a"..."z", "A"..."Z", " "
CR	Carriage Return	ASCII 0x0D
LF	Line Feed	ASCII 0x0A

Zero the weighing platform:

ESC	Z	EOC

Answer: see special Response Commands

Tare the weighing platform:

ESC	T	EOC

Answer: see special Response Commands

Special Response commands:

There are some special response commands. These Commands are used as Standard responses. For example, error or confirmation. Special Response Commands always have the same size of 5 Bytes!

OK

1	2	3	4	5
O	K	!	CR	LF

The Scale confirmed the command execution without any errors.

ERROR

1	2	3	4	5
E	R	R	CR	LF

The Scale has reported an Error during command execution.

LOCKED

1	2	3	4	5
L	O	C	CR	LF

The command can not be executed because the parameter is currently locked.

9 Maintenance/repairs/cleaning

9.1 Repairs

Immediately disconnect a defective device from the power supply.

Defective or damaged cables or screw connections must be replaced as a complete unit.

The seals placed on the device indicate that the device may only be opened and serviced by authorized specialists to ensure trouble-free and safe operation of the device, and to ensure that the warranty remains valid.

⚠ WARNING

Improper repairs can pose considerable risks to the user.

- ▶ Repairs should only be performed by Minebea Intec authorized dealers using original spare parts.

9.2 Cleaning

9.2.1 Cleaning instructions

The device should be cleaned at regular intervals.

Disconnect the device from the supply voltage before cleaning.

Remove all traces of corrosive substances on a regular basis.

If the scale is located in a dry environment, then wipe the weighing platform using a damp cloth.

Do not allow liquid to enter devices with an IP43 degree of protection.

The device may not be cleaned using a high-pressure or steam cleaner. Consider the IP rating.

Condensation may form in the device if it is cleaned with water that is too hot or too cold, due to temperature differences. Condensation may cause the device to malfunction.

9.2.2 Cleaning agents

NOTICE

Some cleaning agents may not be compatible with the device material.

- ▶ Do not use cleaning agents for stainless steel parts that contain chlorine, alkalines, acetic acid, hydrochloric acid, sulfuric acid, or citric acid.
- ▶ The use of cleaning sponges made of steel wool is prohibited (e.g. S.O.S pads).
- ▶ Use a damp cloth or sponge to clean stainless steel parts on the scale (if present). You can use any commercially available household cleaning agent that is suitable for use on stainless steel.

10 Disposal

If the packaging is no longer required, please take it to your local waste disposal facility and/or a reputable disposal company or collection point. The packaging largely consists of environmentally friendly materials which can be used as secondary raw materials.

It is not permitted—even for small businesses—to dispose of this product with the regular household waste or at collection points run by local public waste disposal companies.

EU legislation requires its Member States to collect electrical and electronic equipment and dispose of it separately from other unsorted municipal waste so that it can then be recycled.

Before disposing of or scrapping the product, any batteries should be removed and taken to a suitable collection point.

Please see our T&Cs for further information.

We reserve the right not to accept products that are contaminated with hazardous substances (ABC contamination) for repair.

11 Troubleshooting

The Table lists common problems and possible causes and remedies.
If the problem persists, contact Minebea Intec or your authorized dealer.

Symptom	Possible Cause	Remedy
Cannot turn on	No power to scale	Verify connections and voltage
Poor accuracy	Improper adjustment Unstable environment	Perform adjustment Move scale to suitable location
Cannot access mode	Mode not enabled	Enter menu and enable mode
Cannot access unit	Unit not enabled	Enter menu and enable unit
Battery icon flashing	Low Battery error	Connect the scale to AC power and charge the battery
[Err 8.1]	Power On Error	Weight reading exceeds Power On Zero limit
[Err 8.2]	Power On Error	Weight reading below Power On Zero limit
[Err 8.3]	Over Range Error	Weight reading exceeds Overload limit
[Err 8.4]	Under Range Error	Weight reading below Underload limit
[Err 8.5]	Tare out of range	Adjust tare value to be within range
[Err 8.6]	Display overflow	Weight exceeds 6 digits
[Err 9.5]	Calibration data error	Calibration data not present
◈	Busy	Displayed during tare setting, zero setting, printing
[--NO--]	Action not allowed	Function not executed
[CAL E]	Calibration error Unstable environment Incorrect calibration weight	Calibration value outside allowed limits Move the scale to suitable location Use correct calibration weight
[REF.ERR]	Unacceptable reference weight	Reference weight too small. Weight on the pan is too small to define a valid reference weight. Increase reference weight
Battery fails to charge fully	Battery is defective	Have battery replaced by Minebea Intec authorized service dealer.

11.1 Service Information

If the troubleshooting chapter does not resolve or describe your problem, contact your authorized service agent. Please visit our website http://www.puroscales.com to locate the Electronic Precision Scales/Balances office nearest you.

12 Technical data

12.1 Ambient Conditions

- Indoor use only
- Operating temperature: -10°C to +40°C
- Storage temperature: -10°C to +50°C
- Relative humidity: 20 % to 85 % relative humidity, non-condensing
- Altitude: up to 3575 m

12.2 Specifications

Model number	EF - ..	P1	P3	P6	P15	P30
Max. Capacity (g)		1,500	3,000	6,000	15,000	30,000
Readability d (g)	- 30 d	0.05	0.1	0.2	0.5	1
Max. resolution		30,000	30,000	30,000	30,000	30,000
Readability d (g)	- 6 d	0.2	0.5	1	2	5
Max. resolution		7,500	6,000	6,000	7,500	6,000
Application Package		Weighing, Automatic tare, Percent Weighing, Parts Counting, Check-weighing, Accumulation, Dynamic Weighing, Display Hold, Automatic Print, Totalizing				
Weighing units		kg, g, lb, oz, lb:oz				
Construction/material		ABS plastic housing, stainless steel 304 weighing platform				
Ingress protection rating		IP43				
Display		Front and back LCD display with white backlight, 1.1 in / 28 mm height digits				
Checkweighing indicators		3 LED (yellow, green, red) with configurable operation and alert beeper				
Keypad		5 mechanical keys				
Zero range		2 % or 10 % of full scale capacity				
Tare range		Full capacity by subtraction				
Stabilization time		1 second				
Auto-zero tracking		Off, 0.5, 1 or 3 divisions				
Safe overload capacity		150 % of rated scale capacity				
Levelling components		Externally visible level indicator and adjustable, non-slip levelling feet				
Power		U_{DC} = 5 V, 2A, AC adapter or portable rechargeable lithium battery				

Model number	EF - ..	P1	P3	P6	P15	P30
Battery operation		Up to 210 hours operation time (with standard battery) between recharges with 12 hour recharge time				
Calibration		External, with freely selectable calibration weights				
Interface	-LT -LF	Built-in USB-C, Printer-Port, RS232				
Interface	-ST -SF	Built-in USB-C, Printer-Port				
Operating temperature (°C)		-10 ... +40				
Storage temperature (°C)		-10 ... +50				
Product dimension mm (w x d x h)	- LT	310 x 302 x 115 mm				
Platform size (w × l)		280 x 180				
Shipment dimension mm (w x d x h)		365 x 365 x 210				
Net weight (kg)		2.9				
Shipping weight (kg)		4.7				
Product dimension mm (w x d x h)	- LF	310 x 302 x 85				
Platform size mm (w × l)		280 x 180				
Shipment dimension mm (w x d x h)		365 x 365 x 210				
Net weight (kg)		2.7				
Shipping weight (kg)		4.5				
Product dimension mm (w x d x h)	- ST	246 x 302 x 129				
Platform size mm (w × l)		218 x 180				
Shipment dimension mm (w x d x h)		365 x 365 x 210				
Net weight (kg)		2.8				
Shipping weight (kg)		3.2				
Product dimension mm (w x d x h)	- SF	246 x 302 x 90				
Platform size mm (w × l)		218 x 180				
Shipment dimension mm (w x d x h)		365 x 365 x 210				

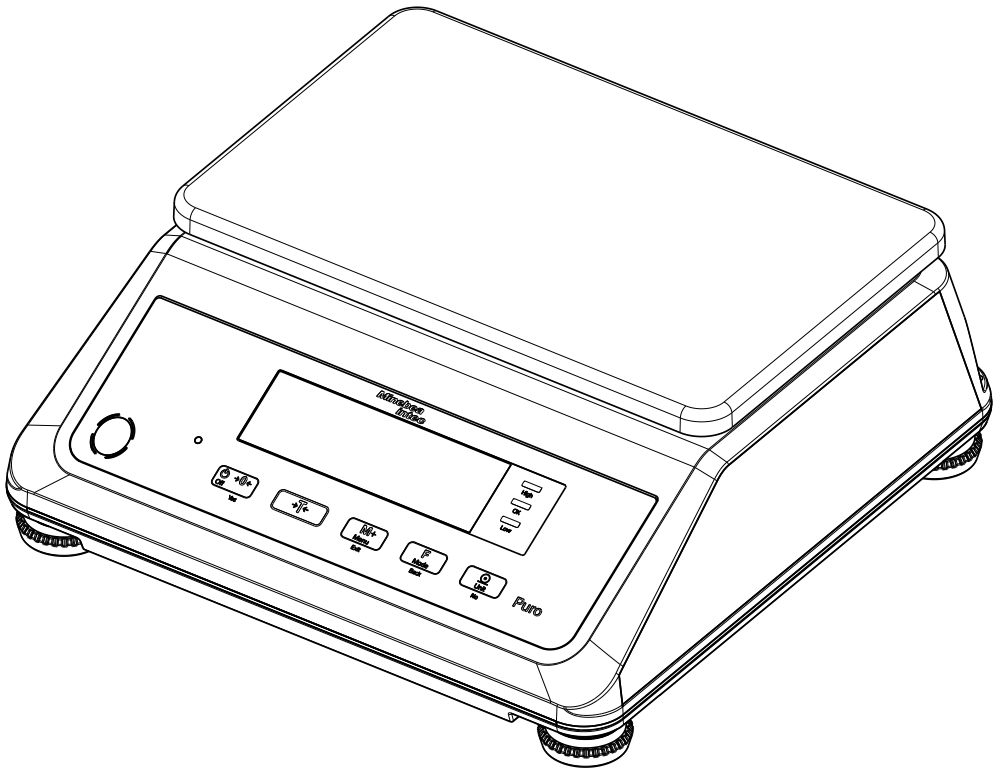
Model number	EF - ..	P1	P3	P6	P15	P30
Net weight (kg)		2.6				
Shipping weight (kg)		3				
Accessories		Data printer, USB-C cable (not usable for PC communication), Printer port cable, weighing hook, lithium battery pack				

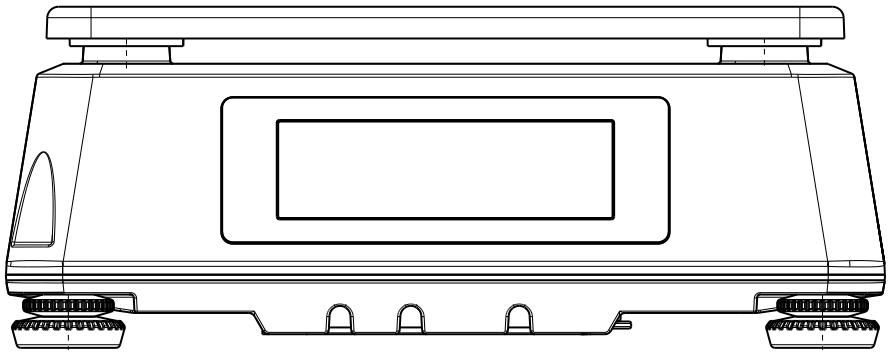
12.3 Accessories

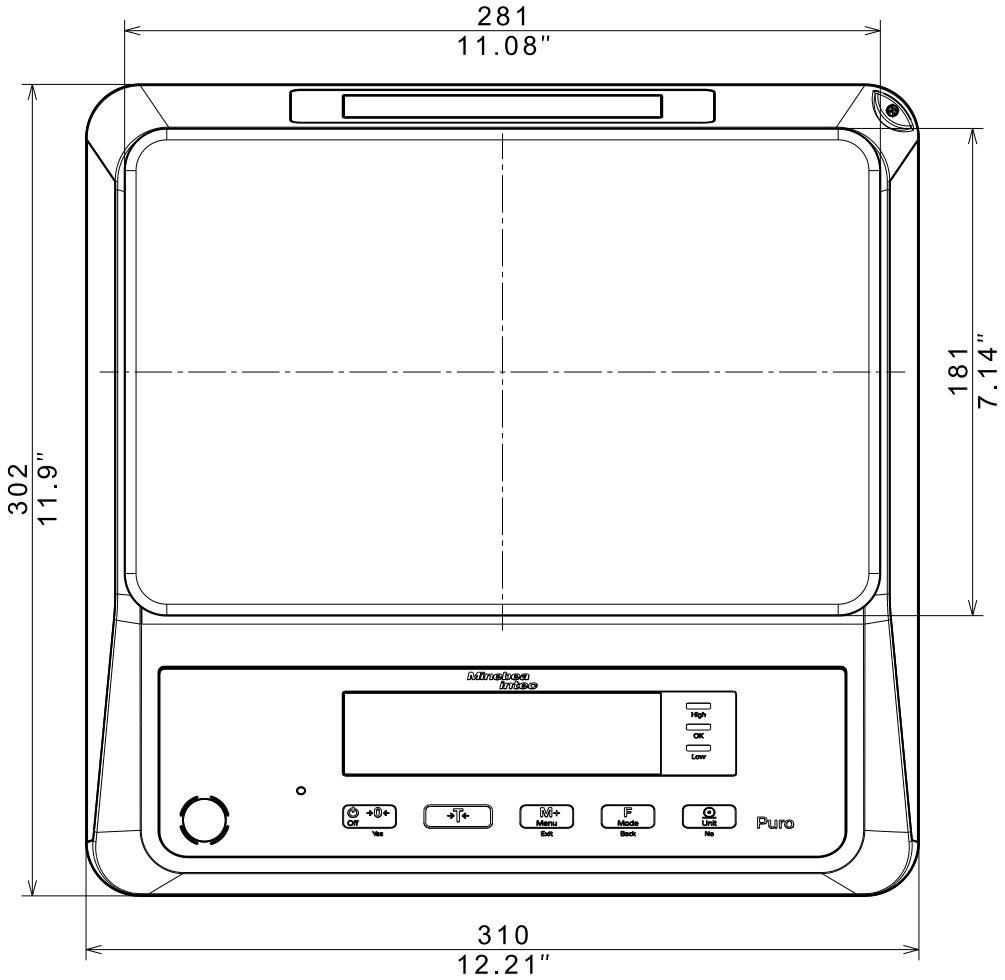
Option	Order-No.
Data Printer	YP-DP1
Paper for Data Printer	YP-P1
USB-C cable (not usable for PC communication)	YP-CAC1
Printer cable	YP-CAS1
USB Charger	YP-PS1
Weighing hook	YP-H1

12.4 Dimensions

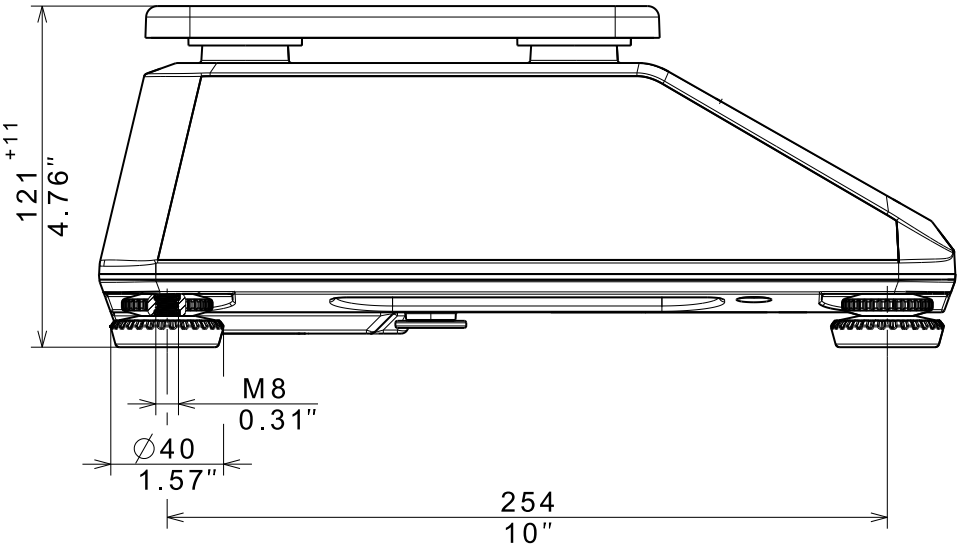
LargeTall (LT)



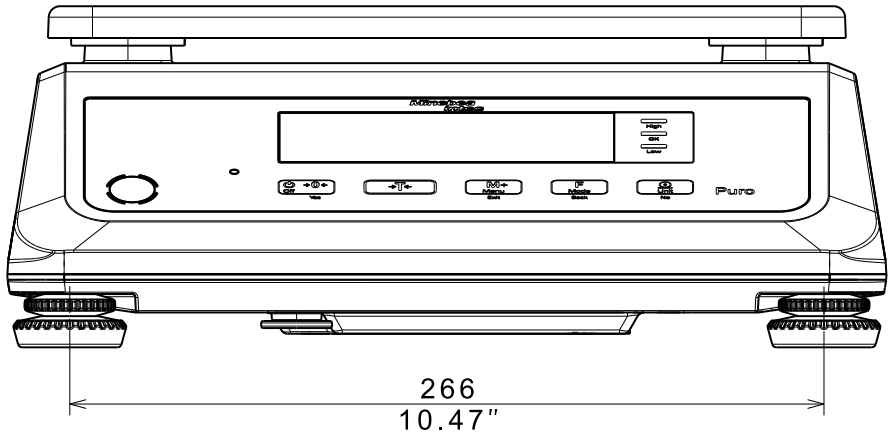




all dimensions in mm / inch

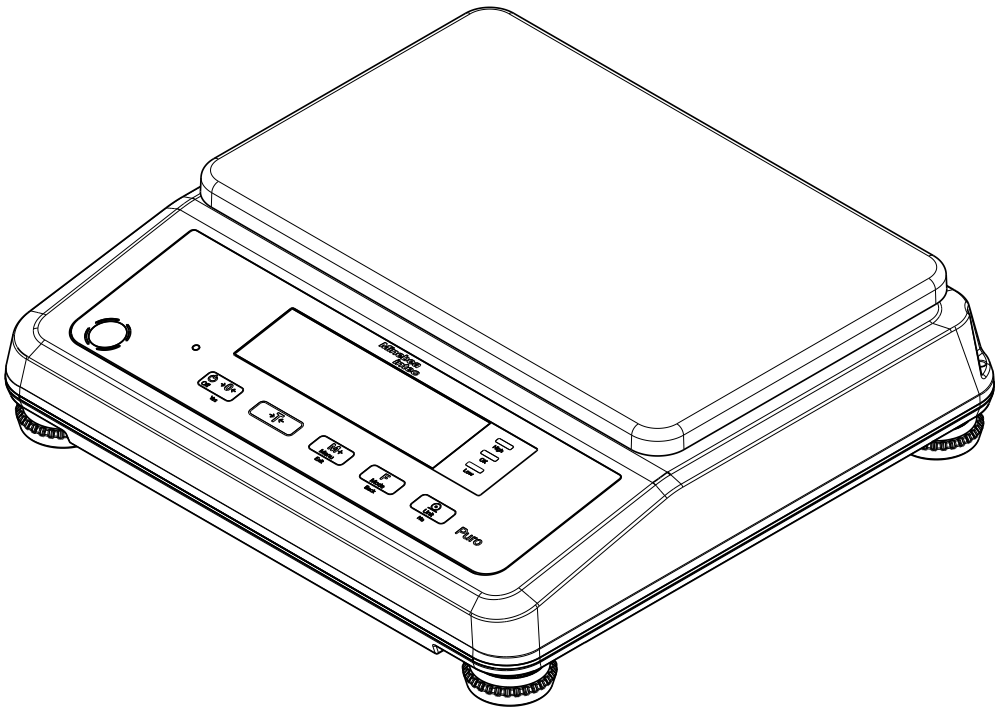


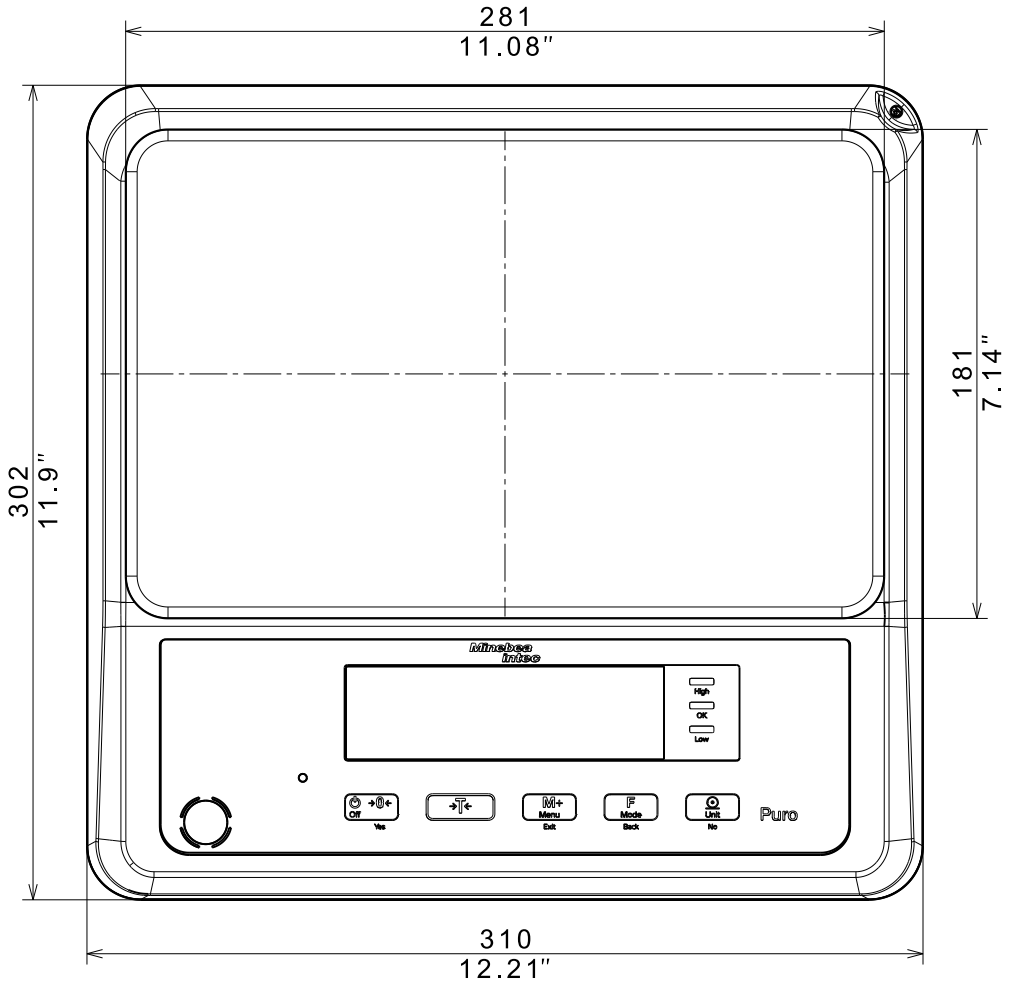
all dimensions in mm / inch



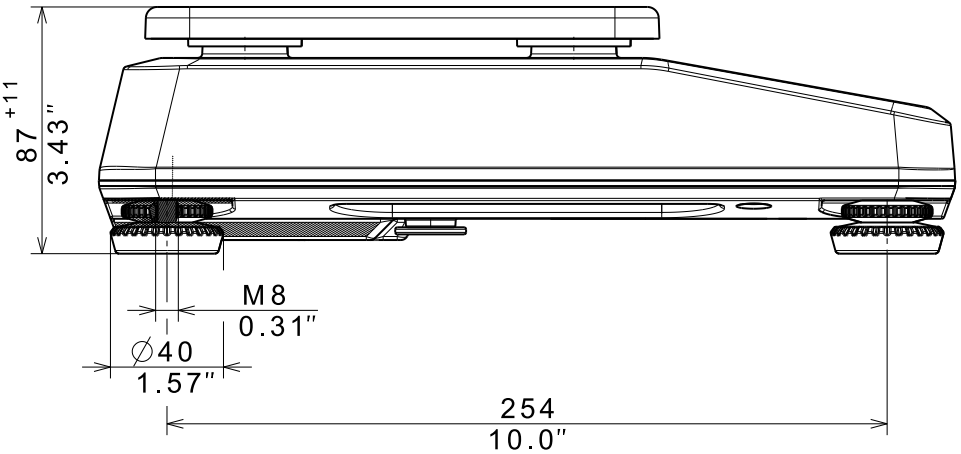
all dimensions in mm / inch

LargeFlat (LF)

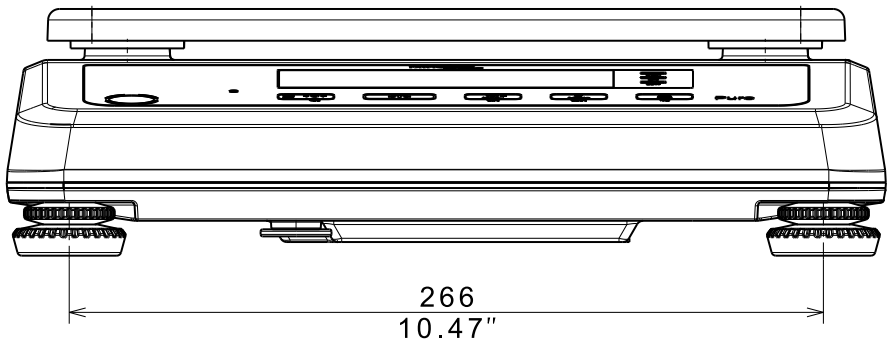




all dimensions in mm / inch

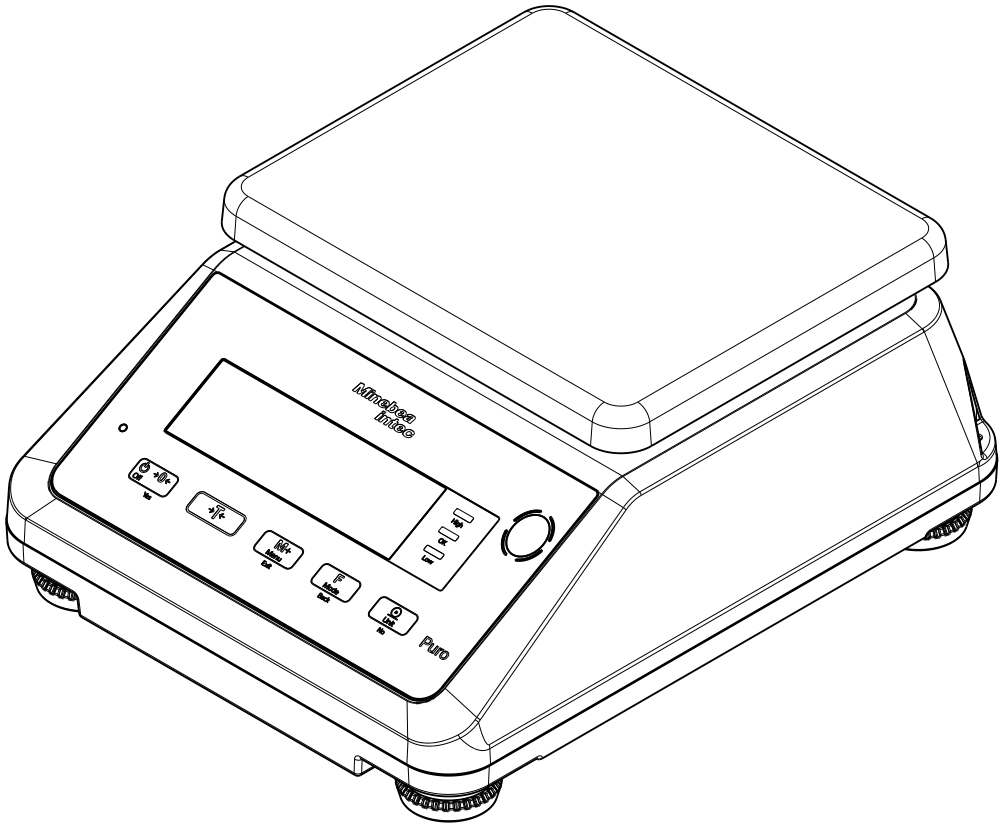


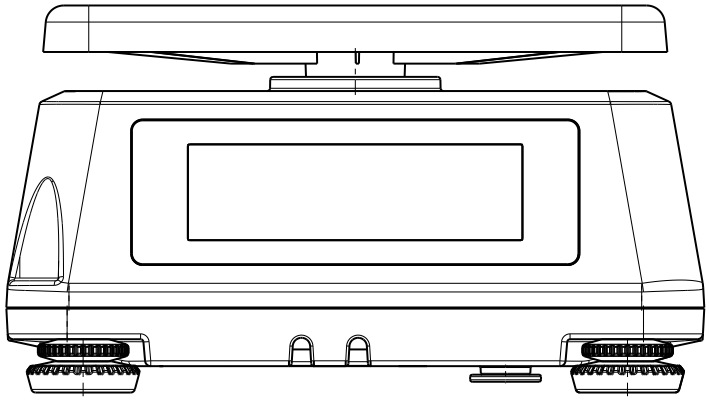
all dimensions in mm / inch

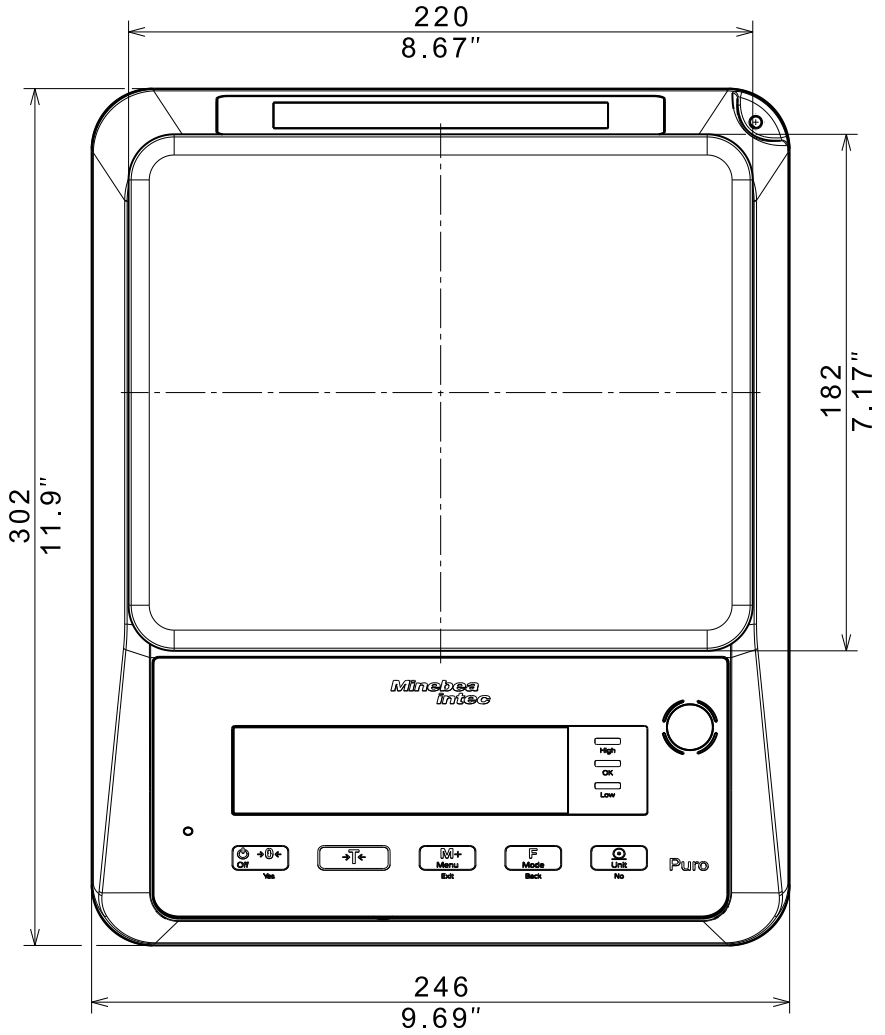


all dimensions in mm / inch

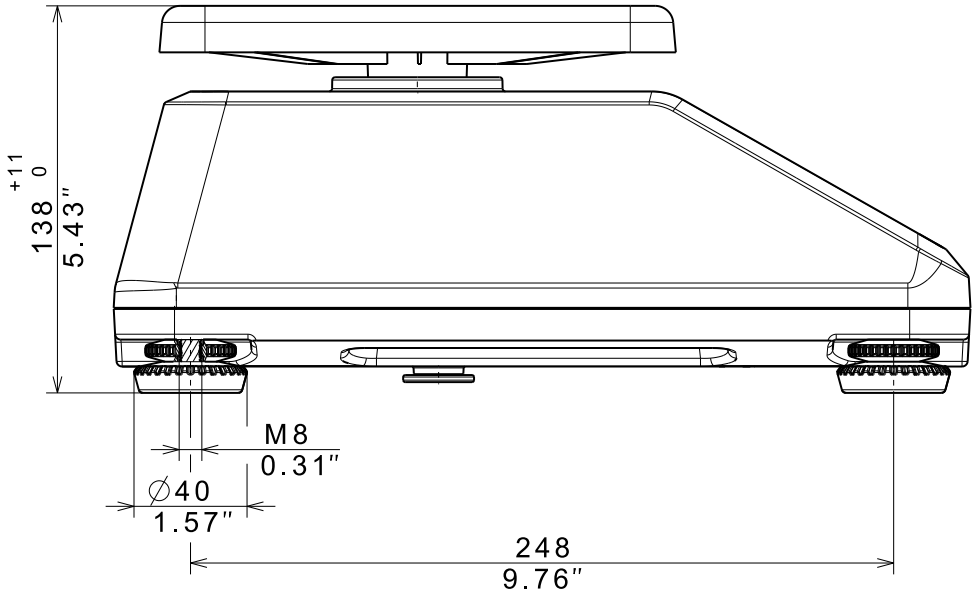
SmallTall (ST)



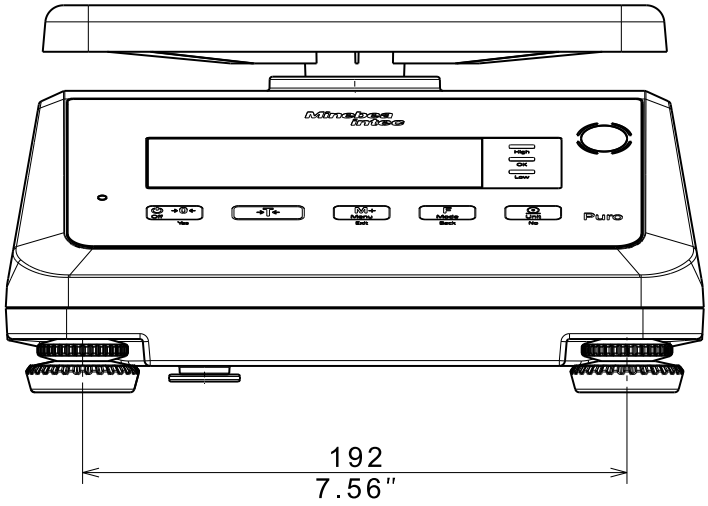




all dimensions in mm / inch

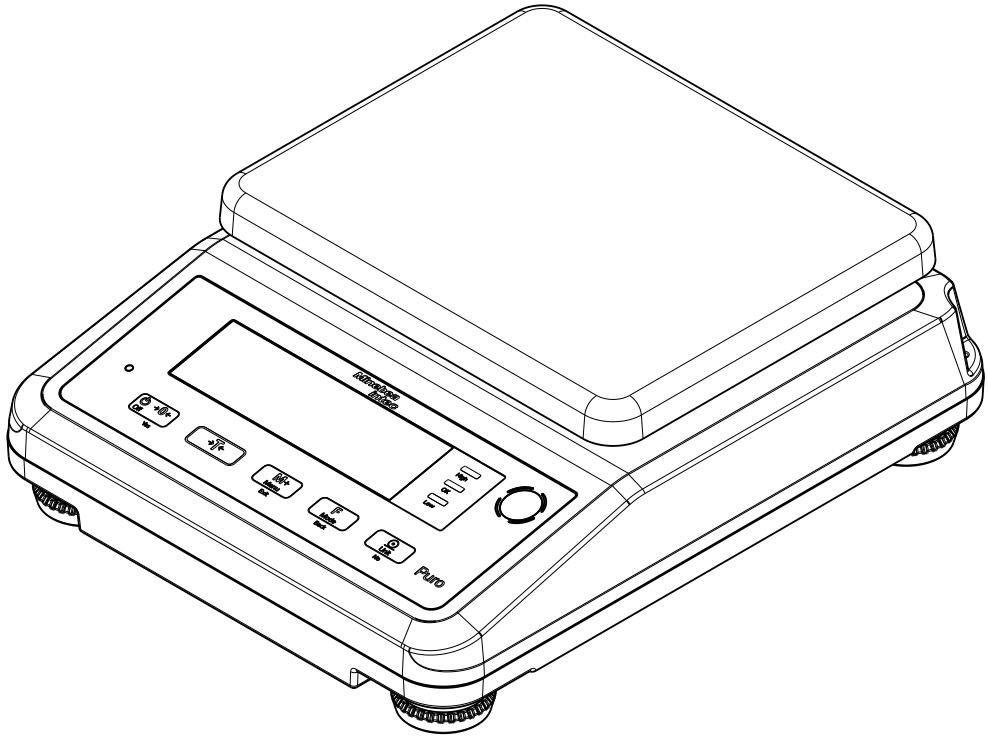


all dimensions in mm / inch

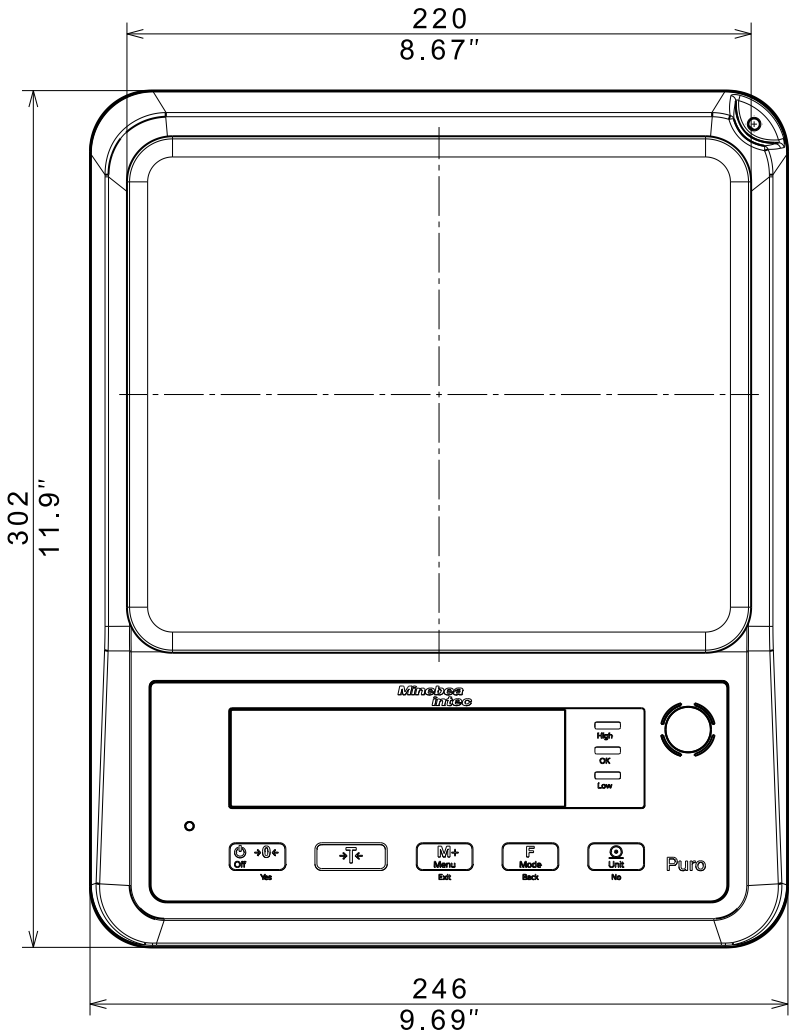


all dimensions in mm / inch

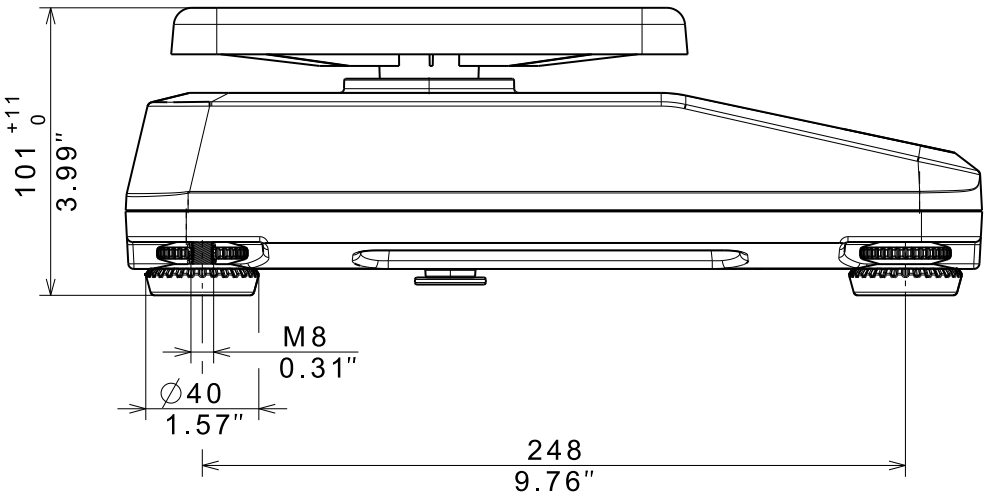
SmallFlatt (SF)



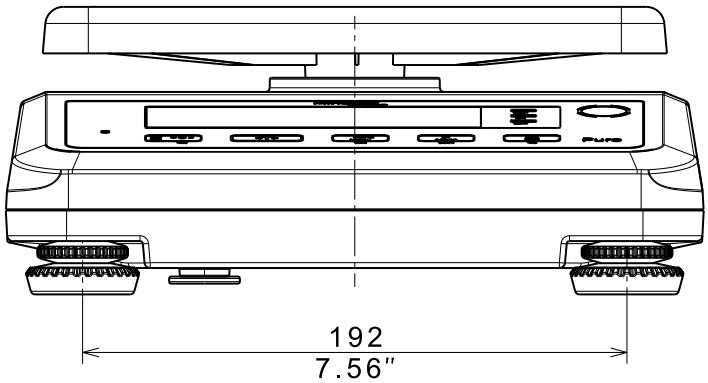
all dimensions in mm / inch



all dimensions in mm / inch



all dimensions in mm / inch



all dimensions in mm / inch

13 Appendix

13.1 Printouts

The following sample printouts are generated by the [Unit] button, "P" Command or alternate print command. The content of the printout is defined in the Print Content menu item.

Weigh Mode Printout

	Description	Comment
`11.11 kg N`	Result line	If Printx → Content → Result is ON
`1.23 kg T`	Tare value line	If Printx → Content → Tare is ON
`11.11 kg N`	Net value line	If Printx → Content → Net is ON
`12.34 kg G`	Gross value line	If Printx → Content → Gross is ON
`MODE: WEIGHT`	Mode line	If Printx → Content → Application Mode is ON
`<no line printed>`	Information line	If Printx → Content → Info is ON

Weigh Mode with Totalization Printout

	Description	Comment
`11.11 kg N`	Result line	If Printx → Content → Result is ON
`1.23 kg T`	Tare value line	If Printx → Content → Tare is ON
`11.11 kg N`	Net value line	If Printx → Content → Net is ON
`12.34 kg G`	Gross value line	If Printx → Content → Gross is ON
`MODE: WEIGHT`	Mode line	If Printx → Content → Application Mode is ON
`N: 4`	Accumulation line	If Printx → Content → Total is All
`TOTAL: 50.35 kg`	Accumulation line	If Printx → Content → Total is All or Result
`MIN: 11.11 kg`	Accumulation line	If Printx → Content → Total is All
`MAX: 14.85 kg`	Accumulation line	If Printx → Content → Total is All

13.2 FCC Note

Note:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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The true measure