OHAUS DEFENDER™ 5000
DIGITAL SCALE
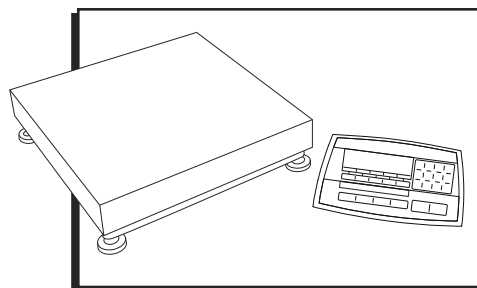
OVERVIEW OF CONTROLS

CONTROL PANEL
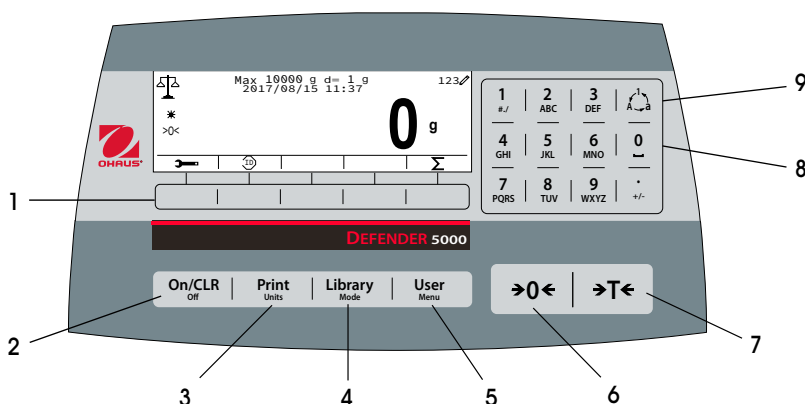
CONTROL PANEL PARTS

#	DESCRIPTION
1	Softkey Function Buttons
2	On/Clear Off Button
3	Print Units Button
4	Library Mode Button
5	User Menu Button
6	Function Mode Button
7	Tare Menu Button
8	Numeric Keypad
9	Input Modes Button

CONTROL FUNCTIONS

| #	BUTTON	ACTION
1		The five softkeys correspond to several icons at the bottom of the display area. These icons display for each softkey function specifically available for configuration and operation of the mode.
2	On/CLR Off	Short press: if the terminal is off, power on the terminal; if the terminal is on, clear the data input. Long press: Power off the terminal.
3	Print Units	Short press: Send the current display value to the RS-232 port or option when properly enabled. Long Press: Change the current weighing unit. Press and hold the key to scroll through the list of enabled units. Release the key to switch to the unit selected.
4	Library Mode	Short press: Press the key to enter the library. Long press: Press and hold the key to change weighing modes. Press and hold the key to scroll through all weighing modes. Release the key to switch to the mode selected.
5	User Menu	Short press: Press the key to enter user profile. Long Press: Press the key to enter user menu.
6	→0←	Short press: When the load on the pan is within the zero range, press the key to set the display to zero.
7	→T←	Short press: When a container is on the pan, press this key to store the weight of the container as the tare value. Short press: Enter the known weight of a container using the numeric keypad, then press this key to establish preset tare value. Short press: When a tare has been entered, empty the pan and press this key to clear the tare value. Long press: If a preset tare has been entered, press this key to view the preset tare value.

#	BUTTON	ACTION	
8	(numeric keypad: 1 */, 2 ABC, 3 DEF, A↻a / 4 GHI, 5 JKL, 6 MNO, 0 / 7 PQRS, 8 TUV, 9 WXYZ, . +/-)	**2** ABC **9** WXYZ	To enter "2-9", press the numeric button in the middle of numeric input. To enter "A", press **2** ABC two times in the mode of uppercase input. To enter "Z", press **9** WXYZ five times in the mode of lowercase input.
		0 ␣	To enter "0", press the button in the mode of numeric input. To enter a space, press the button in the mode of uppercase or lowercase input.
		1 #./	To enter "1", press the button in the mode of numeric input. To enter "#" or "/", press the button in the mode of uppercase input. To enter "@", "_" or "&", press the button in the mode of lowercase input.
		. +/-	To enter ".", press the button in the mode of numeric input. To "+" or "−", press the button in the mode of uppercase or lowercase input.
9		A↻a	Switch between three input modes: numeric, lowercase and uppercase input.

SETUP

1. Remove shipping spacers, and place the weighing pan securely over the rubber load pads on the top frame of the base. (See Figure 1)

2. Connect the AC power cord (included) to the power receptacle, then connect the AC plug to an electrical outlet.

Figure 1
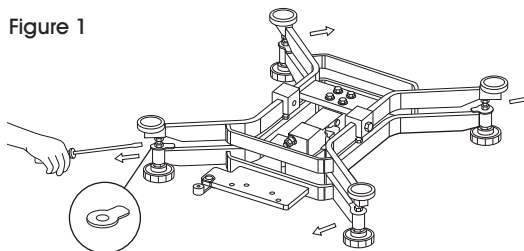
MENU STRUCTURE

CALIBRATION

Zero
Span
Linearity
GEO

GMP

Date Format
Date
Time Format
Time
Project ID
Scale ID
Reset

SETUP

Capacity Unit		
Range		
Capacity & Graduation	>|1|< Capacity	
	>|1|< Graduation	
	>|2|< Capacity	
	>|2|< Graduation	
Language		
Power On Zero		
Power On Unit		
Key Beep		
Transaction Counter		
Next Transaction		
Reset		

READ OUT

Stability
Zero Range
Filter Level
Auto Zero Track
Auto Dim
Brightness
Screensaver
Auto Off
Adjust Contrast
Reset

APPLICATION MODE

Weighing
Counting
Check
Percent
Dynamic
Reset

UNIT

Gram (g)
Kilogram (kg)
Pound (lb)
Ounce (oz)
Pound:Ounce (lb:oz)
Tonne (t)
Ton (ton)
Custom Unit
Unit Name
Factor
Exponent
LSD
Reset

COMMUNICATION

RS-232/2nd RS-232/ USB Device*	Configuration	Baud Rate
		Parity
		Stop Bit
		Handshake
		Alt Print Command
		Alt Tare Command
		Alt Zero Command
		Reset
	Print Setup	Assignment
		Print Options
		Select Template
		Edit Template
		Edit String
		Reset
RS-485*	Configuration	Address
		Baud Rate
		Parity
		Stop Bit
		Handshake
		Alt Print Command
		Alt Tare Command
		Alt Zero Command
		Reset
	Print Setup	Assignment
		Print Options
		Select Template
		Edit Template
		Edit String
		Reset
Ethernet*	Configuration	Host Name
		MAC Address
		Port
		Version
		DHCP
		IP Address
		Subnet Mask
		Gateway
		Primary DNS
		Secondary DNS
		Alt Print Command
		Alt Tare Command
		Alt Zero Command
		Reset

*Submenu for options will only be active when the specified board is installed.

COMMUNICATION

Ethernet*	Print Setup	Assignment
		Print Options
		Select Template
		Edit Template
		Edit String
		Reset
WiFi & Bluetooth*	WiFi	MAC Address
		Network
		Port
		DHCP
		IP Address
		Gateway
		DNS
		Subnet Mask
		Alternate Command
		Reset
	Bluetooth	Device Name
	Print Setup	Assignment
		Print Options
		Select Template
		Edit Template
		Edit String
		Reset
Analog*	Source	**None,** Displayed Weight, ABS-Displayed Weight, Gross Weight
	Output Type	**4-20mA,** 0-10V
	Zero Value	0 (any valid value below the high limit)
	Full Scale Value	Desired source value, scale capacity
	Cal Output Zero	
	Cal Output Full	

*Submenu for options will only be active when the specified board is installed.

SD CARD

Library		
Memory	Mode	
	Review	
	Link To	
User	User Profiles	
	Supervisor Authority	
	Password Rule	

MAINTENANCE

Export Menu
Import Menu
Diagnosis
Format SD
Service Menu

LOCK KEY

| |
|---|
| Lock All Keys |
| Lock Off Key |
| Lock Zero Key |
| Lock Print Key |
| Lock Unit Key |
| Lock Soft Key |
| Lock Mode Key |
| Lock Tare Key |
| Lock Menu Key |
| Reset |

MENU NAVIGATION

To enter the Main Menu, press the [User Menu] button from any application home screen. (See Figure 1)

Figure 1

CHANGING SETTINGS

To change a menu setting, follow these steps:

1. **Enter the Menu** – From any application screen, press the [User Menu] button. The Main Menu List appears.

2. **Select the Submenu** – Scroll to desired submenu in the Main Menu List using the softkey corresponding to the ▼ icon. Press the softkey corresponding to the ✓ icon to display the Submenu items.

3. **Select the Submenu Item** – Scroll to the desired submenu Item using the softkey corresponding to the ▼ icon. Press the softkey corresponding to the ✓ icon to view the submenu item's settings.

4. **Select the Setting** – Scroll to desired Setting using the softkey corresponding to the ▼ icon. Press the softkey corresponding to the ✓ icon to select the setting. Press the softkey corresponding to the [User Menu] icon to return to the previous screen. Press the softkey corresponding to the [User Menu] icon to exit menu and return to the last active application mode.

CALIBRATION

Three calibration methods are available: Zero Calibration, Span Calibration and Linearity Calibration.

1. Make sure that appropriate calibration masses are available before calibration. See Uline.com for calibration weights.

2. Make sure that the scale base is level and stable during the entire calibration process.

3. Calibration is unavailable with LFT set to ON.

4. Allow the scale to warm up for approximately five minutes after stabilizing to room temperature.

5. To abort calibration, press the softkey corresponding to the "X" icon anytime during the calibration process.

6. When any selection within the GMP menu is enabled, calibration results are automatically printed.

ZERO CALIBRATION

Zero calibration uses one calibration point. The zero calibration point is established with no weight on scale. Use this calibration method to adjust for a different dead load without affecting span or linearity calibration.

1. Long press the [User Menu] button to enter main menu. Press the softkey corresponding to the ✓ icon to enter the Calibration submenu. (See Figure 2)
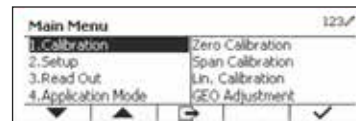
Figure 2

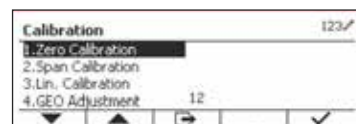2. When Zero Calibration is highlighted, press the softkey corresponding to the ✓ icon to initiate. (See Figure 3)

Figure 3

3. Clear the pan and then press the softkey corresponding to the ✓ icon. (See Figure 4)
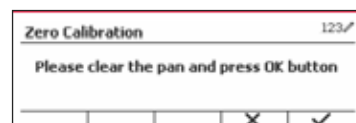
Figure 4

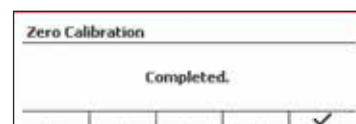4. The message "Completed" will display on screen. (See Figure 5)

Figure 5

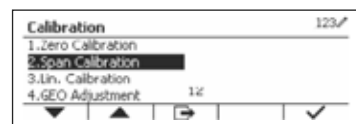5. Exit Zero Calibration by pressing the softkey corresponding to the ✓ icon. (See Figure 6)

Figure 6

6. To return to Main Menu, press the softkey corresponding to the ✓ icon.

SPAN CALIBRATION

Span Calibration uses one point. This point is established when a calibration mass is placed on the scale.

☞ **NOTE: Span Calibration should be performed after Zero Calibration.**

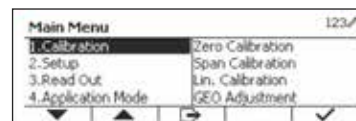1. Long press the [User Menu] button to enter Main Menu. (See Figure 7)

Figure 7

2. Press the softkey corresponding to the ✓ icon to enter the Calibration submenu. (See Figure 8)
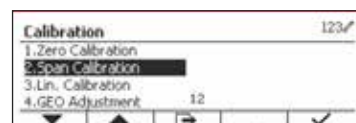
Figure 8

3. Scroll to Span Calibration using the softkey corresponding to the ▼ icon.

4. Press the softkey corresponding to the ✓ icon to initiate Span Calibration. (See Figure 9)

Span Calibration   123✓
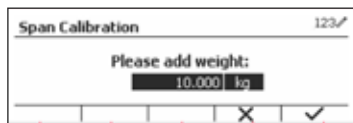
Please add weight:
10.000 | kg

✗ | ✓

Figure 9

5. Place a calibration mass of the specified weight on pan and press the softkey corresponding to the ✓ icon. To change to a different calibration point, input desired value and place the corresponding weight on pan for calibration. A suggestive message shows on the screen. (See Figure 10)
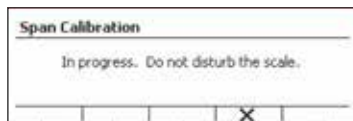
Span Calibration

In progress. Do not disturb the scale.

✗

Figure 10

6. The message "Completed" will display on screen. (See Figure 11)

Span Calibration

Completed.

✓
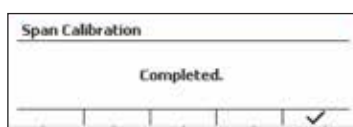
Figure 11

7. Exit Span Calibration by pressing the softkey corresponding to the ✓ icon. (See Figure 12)

Calibration   123✓
1.Zero Calibration
2.Span Calibration
3.Lin. Calibration
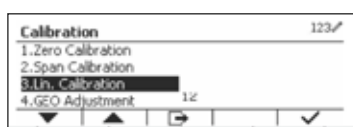4.GEO Adjustment   12

▼ | ▲ | ↱ | ✓

Figure 12

8. To return to the Main Menu, press the softkey corresponding to the [User Menu] icon.

LINEARITY CALIBRATION

Linearity calibration uses three calibration points. The full calibration point is established with a weight on the scale. The mid calibration point is established with a weight equal to half of the full calibration weight on the scale. The zero calibration point is established with no weight on the scale. The full calibration and mid calibration points can be altered by the user during the calibration procedure.

1. Long press the [User Menu] button to enter Main Menu. (See Figure 13)

Main Menu   123✓
1.Calibration   Zero Calibration
2.Setup   Span Calibration
3.Read Out   Lin. Calibration
4.Application Mode   GEO Adjustment

▼ | ▲ | ↱ | ✓

Figure 13

2. Press the softkey corresponding to the ✓ icon to enter the Calibration submenu. Scroll to Linearity Calibration using the softkey corresponding to the ▼ icon. (See Figure 14)
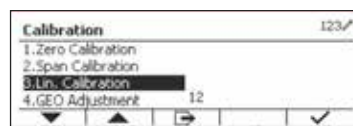
Calibration   123✓
1.Zero Calibration
2.Span Calibration
3.Lin. Calibration
4.GEO Adjustment   12

▼ | ▲ | ↱ | ✓

Figure 14

3. Press the softkey corresponding to the ✓ icon to initiate Linearity Calibration. (See Figure 15)

3 Point Lin. Cal.

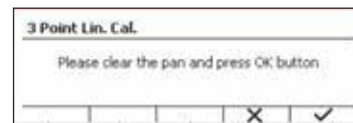Please clear the pan and press OK button

✗ | ✓

Figure 15

4. Clear the pan and press the softkey corresponding to the ✓ icon.

5. Put the calibration mass of the specified weight on the pan, and then press the softkey corresponding to the ✓ icon for confirmation.

3 Point Lin. Cal.
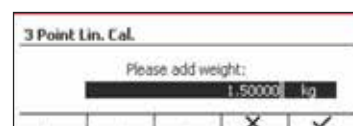
Please add weight:
1.50000 | kg

✗ | ✓

Figure 16

To change to a different calibration point, input the desired value, and then place the corresponding weight on pan for calibration. (See Figure 16)

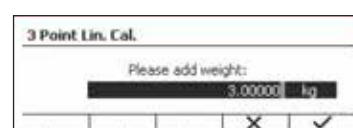6. Put calibration mass on pan, and then press the softkey corresponding to the ✓ icon for confirmation. To change to a different calibration point, input desired value, then place the corresponding weight on pan for calibration. (See Figure 17)

3 Point Lin. Cal.

Please add weight:
3.00000 | kg

✗ | ✓

Figure 17

7. The message "Completed" will display on screen. (See Figure 18)

Lin. Calibration

Completed.

✓
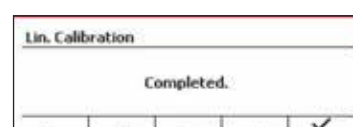
Figure 18

8. Exit Linearity Calibration by pressing the softkey corresponding to the ✓ icon. (See Figure 19)

Calibration   123✓
1.Zero Calibration
2.Span Calibration
3.Lin. Calibration
4.GEO Adjustment   12

▼ | ▲ | ↱ | ✓
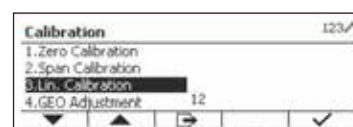
Figure 19

9. To return to the Main Menu, press the softkey corresponding to the [User Menu] icon.

GEO ADJUSTMENT

Set the GEO factor that corresponds to your location. GEO codes are numbered 0-31.

1. Long press the [User Menu] button to enter Main Menu. Select the menu item Calibration by pressing the softkey corresponding to the ✓ icon. (See Figure 20)

Main Menu   123✓
1.Calibration   Zero Calibration
2.Setup   Span Calibration
3.Read Out   Lin. Calibration
4.Application Mode   GEO Adjustment

▼ | ▲ | ↱ | ✓
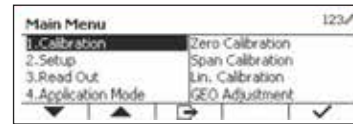
Figure 20

2. Scroll to GEO Adjustment using the softkey corresponding to the ▼ icon. (See Figure 21)
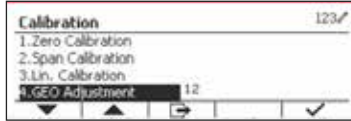
Figure 21

3. Press the softkey corresponding to the ✓ icon to edit GEO value. Press the On/CLR Off button and enter desired value using keypad. After editing, press the softkey corresponding to the User Menu icon to exit menu. (See Figure 22)
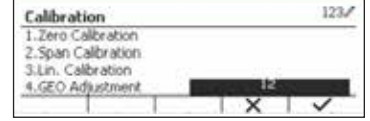
Figure 22

☞ NOTE: See table for GEO values.

TABLE OF GEO VALUES

		ELEVATION IN METERS										
		0	325	650	975	1,300	1,625	1,950	2,275	2,600	2,925	3,250
		325	650	975	1,300	1,625	1,950	2,275	2,600	2,925	3,250	3,575
		ELEVATION IN FEET										
		0	1,060	2,130	3,200	4,260	5,330	6,400	7,460	8,530	9,600	10,660
		1,060	2,130	3,200	4,260	5,330	6,400	7,460	8,530	9,600	10,660	11,730
LATTITUDE		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
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°06'	20	19	19	18	18	17	17	16	16	15	15

TABLE OF GEO VALUES CONTINUED

LATTITUDE		GEO VALUE										
50°06'	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
59°32'	60°49'	24	24	23	23	22	22	21	21	20	20	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°52'	29	29	28	28	27	27	26	26	25	25	24
77°52'	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

SETUP MENU

When the Indicator connects to a scale base for the first time, enter this menu to set the Capacity Unit, Range, Capacity and Graduation.

☞ **NOTE: Default settings are in bold.**

SETUP	OPTIONS
Capacity Unit	g, **kg**, t (Metric Tonne), lb, ton, (Short Ton)
Range	**Single Interval**, Dual Interval
>|1|< Capacity	1-999999
>|1|< Graduation	0.0001~100
>|2|< Capacity	1-999999
>|2|< Graduation	0.0001~100
Language	**English**, French, German, Italian, Spanish, Chinese, Japanese, Korean, Russian, Polish
Power On Zero	Off, **On**
Power On Unit	**Auto**, kg, lb, g, oz, lb:oz, t (Metric Tonne), ton (Short Ton), c
Key Beep	Off, **On**
Transaction Counter	Off, **On**
Next Transaction	*1-9999999*
Reset	

CAPACITY UNIT

Select the unit used for calibration.

> **Kg**
> t (Metric Tonne)
> lb
> ton (Short Ton)
> g

RANGE

Set number of weighing intervals in the weighing interval.

The TD52 terminals can be configured to use single or dual interval. Each interval can be assigned its own graduation. If dual interval is selected, graduation will change when the weight reaches the second interval.

When **Single** interval is selected, the additional parameters available are:

> >|1|< Capacity
>
> >|1|< Graduation

When **Dual** interval is selected, the terminal functions with two intervals, each with its own capacity and graduation. In addition to these parameters, the following two parameters are available:

>|2|< Capacity

>|2|< Graduation

CAPACITY

Set the scale capacity from 1 to 999999.

>|1|< Capacity

Specify the weight capacity for interval 1. If **Single** interval is enabled, this will be the scale capacity. If **Dual** interval is enabled, this will be the first range.

>|2|< Capacity

Specify the weight capacity for interval 2. If **Dual** interval is enabled, this will be the scale capacity, and it must be bigger than >|1|< Capacity. If **Single** interval is enabled, this parameter will not be shown.

GRADUATION

Set the scale readability from 0.0001 to 100.

>|1|< Graduation

Specify the graduation for weighing interval 1. If **Single** interval is enabled, this will be the graduation for the entire weighing range of the scale. If **Dual** interval is enabled, this will be the graduation used in the lower interval.

>|2|< Graduation

Specify the graduation for interval 2. If **Dual** interval is enabled, this will be the graduation for the second weighing range of the scale. If **Single** interval is enabled, this parameter will not be shown.

☞ **NOTE: Graduation settings are limited to values from Capacity divided by 600 to Capacity divided by 75,000. Therefore, not all settings are available for each capacity.**

LANGUAGE

Set the language displayed for menus and displayed messages.

English	Italiano	한국
Deutsch	Polski	中文
Français	Spanish	日本语

POWER ON ZERO

Zero the balance at Power On.

Off = disabled

On = enabled

POWER ON UNIT

Set the unit that will be displayed at Power On.

Automatic

g

kg

lb

oz

lb:oz

t (Metric Tonne)

ton (Short Ton)

KEY BEEP

Set how the beeper sounds when a key is pressed.

Off = no sound

On = sound

TRANSACTION COUNTER

The transaction counter is a seven-digit counter that tracks the total transactions. When the value reaches 9,999,999, the next transaction causes a roll-over to 0000001.

Off = The transaction counter will not increase.

On = The transaction counter will increase with the additional menu item Next Transaction available.

☞ **NOTE: If the transaction counter is set to On, the count number increases when the** Print Units **key is pressed.**

Next Transaction

The value of the next transaction displays in the Next Transaction field.

Reset

Reset the Setup menu to the factory defaults (except Range, Capacity and Graduation).

No = not reset.

Yes = reset.

☞ **NOTE: If the Security Switch is set to ON, the Capacity Unit, Range, Capacity, Graduation and Power On Zero settings are not reset.**

READOUT MENU

Enter this menu to customize display functionality.

☞ **NOTE: Default settings are in bold.**

READOUT	OPTIONS
Stability	0.5d, **1d**, 2d, 5d
Zero Range	+/-2%, +/-**100%**
Filter Level	Low, **Medium**, High
Auto Zero Track	Off, **0.5d**, 1d, 3d
Backlight	Off, **1min**, 2min, 5min, 10min, Always On
Screensaver	Off, **5min**, 10min, 30min
Auto Off	**Off**, 5min, 10min, 30min
Adjust Contrast	1, 2, **3**, 4, 5
Reset	

STABILITY

Set the amount the reading can vary before the stability symbol turns off.

0.5d	= 0.5 scale division
1d	= 1 scale division
2d	= 2 scale divisions
5d	= 5 scale divisions

ZERO RANGE

Set the percentage of scale capacity to be zeroed.

2%

100%

☞ **NOTE: The setting is forced and locked to 2% when security switch is set to the locked position.**

FILTER LEVEL

Set the amount of signal filtering.

Low	= faster stabilization time with less stability
Medium	= normal stabilization time with normal stability
High	= slower stabilization time with more stability

AUTO ZERO TRACKING

Set the automatic zero tracking functionality.

OFF	= Disabled.
0.5 division	= Display will maintain zero until a change of 0.5 divisions per second is exceeded.
1d	= Display will maintain zero until a change of one division per second is exceeded.
3d	= Display will maintain zero until a change of three divisions per second is exceeded.

AUTO DIM

Set the display backlight functionality.

Settings:

1 min	= Backlight turns off after one minute of inactivity.
2 min	= Backlight turns off after two minutes of inactivity.
5 min	= Backlight turns off after five minutes of inactivity.
10 min	= Backlight turns off after 10 minutes of inactivity.
Always on	
Off	

SCREENSAVER

Set whether the screensaver is enabled after the selected time period.

Off	= Disabled.
5 min	= Screensaver is enabled after five minutes.
10 min	= Screensaver is enabled after 10 minutes.
30 min	= Screensaver is enabled after 30 minutes.

AUTO OFF

Set whether the display enters sleep mode after the selected time period.

Off	= Disabled.
5 min	= Display enters sleep mode after five minutes.
10 min	= Display enters sleep mode after 10 minutes.
30 min	= Display enters sleep mode after 30 minutes.

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ADJUST CONTRAST

Set the contrast degree of the display.

1

2

3

4

5

RESET

Reset all settings to factory default settings.

Yes = Reset.

No = Do not reset.

☞ **NOTE: If the security switch is set to ON, Stability, Zero Range, Filter Level and Auto Zero Track settings are not reset.**

DISCRETE I/O

1. Long press the `User Menu` button to enter Main Menu. (See Figure 23)

Figure 23

2. Select Application Mode by pressing the softkey corresponding to the ▼ icon. (See Figure 23)

3. Press the softkey corresponding to the ✔ icon to enter the submenu Application Mode. (See Figure 24)
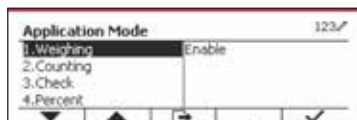
Figure 24

ENABLE

The current selected application mode cannot be set to off.

Discrete I/O setup menus allow the configuration of two inputs and four outputs depending on different application modes.

RESET

If Reset is selected and confirmed, all submenu values will return to default settings.

For more details, see the table below.

APPLICATION MODE AND DISCRETE I/O	OPTIONS (bold is the default setting)	
Weighing	Enable	**On**, Off
	Discrete Input 1	**Off**, Zero, Tare, Clear Tare, Print, Unit, Accumulate
	Discrete Input 2	**Off**, Zero, Tare, Clear Tare, Print, Unit, Accumulate
	Discrete Output 1	**Off**, Overload, Underload, Zero
	Discrete Output 2	**Off**, Overload, Underload, Zero
	Discrete Output 3	**Off**, Overload, Underload, Zero
	Discrete Output 4	**Off**, Overload, Underload, Zero
Counting	Enable	**On**, Off
	Discrete Input 1	**Off**, Zero, Tare, Clear Tare, Print, Unit, Accumulate
	Discrete Input 2	**Off**, Zero, Tare, Clear Tare, Print, Unit, Accumulate
	Discrete Output 1	**Off**, Overload, Underload, Zero
	Discrete Output 2	**Off**, Overload, Underload, Zero
	Discrete Output 3	**Off**, Overload, Underload, Zero
	Discrete Output 4	**Off**, Overload, Underload, Zero
Check	Enable	**On**, Off
	Discrete Input 1	**Off**, Zero, Tare, Clear Tare, Print, Unit, Accumulate
	Discrete Input 2	**Off**, Zero, Tare, Clear Tare, Print, Unit, Accumulate
	Discrete Output 1	**Off**, Under, Over, Accept, Under/Over, Overload, Underload, Zero
	Discrete Output 2	**Off**, Under, Over, Accept, Under/Over, Overload, Underload, Zero
	Discrete Output 3	**Off**, Under, Over, Accept, Under/Over, Overload, Underload, Zero
	Discrete Output 4	**Off**, Under, Over, Accept, Under/Over, Overload, Underload, Zero
Percent	Enable	**On**, Off
Dynamic	Enable	**On**, Off
	Discrete Input 1	**Off**, Zero, Tare, Clear Tare, Print, Start, Restart
	Discrete Input 2	**Off**, Zero, Tare, Clear Tare, Print, Start, Restart
	Discrete Output 1	**Off**, Overload, Underload, Zero
	Discrete Output 2	**Off**, Overload, Underload, Zero
	Discrete Output 3	**Off**, Overload, Underload, Zero
	Discrete Output 4	**Off**, Overload, Underload, Zero
Reset		

WEIGHING UNIT

Enter this menu to activate the desired units. Default settings are **bold**.

☞ **NOTE: Due to national laws, the indicator may not include some of the units of measure listed. If the security switch is set to ON, the units are locked at their current setting.**

Choose desired unit, and set the status as listed below:

- GRAM (G)
- KILOGRAM (KG)
- POUND (LB)
- OUNCE (OZ)
- POUND: OUNCE (LB: OZ)
- TONNE (METRIC TONNE)
- TON (SHORT TON)

Status:

> **Off** = Disabled
> On = Enabled

CUSTOM UNIT (C)

Use the custom unit to display weight in an alternative unit of measure. The custom unit is defined using a conversion factor, where the conversion factor is the number of custom units per gram expressed in scientific notation (Factor x 10^Exponent).

Factor

Set the conversion factor using the numeric keypad.

> Settings of 0.1000000 to 1.9999999 are available. The default setting is 1.0.

Exponent

Set the factor multiplier.

> -3 = divide the Factor by 1,000 (1×10^{-3})
>
> -2 = divide the Factor by 100 (1×10^{-2})
>
> -1 = divide the Factor by 10 (1×10^{-1})
>
> **0 = multiply the Factor by 1 (1×10^{0})**
>
> 1 = multiply the Factor by 10 (1×10^{1})
>
> 2 = multiply the Factor by 100 (1×10^{2})

Least Significant Digit

Set the graduation.

> Settings of 0.5, 1, 2, 5, 10 and 100 are available.

The custom unit's name can be customized up to three characters.

☞ **NOTE: Custom Unit is locked at off position when the Security Switch is set to the locked position. Custom Unit is not available when Range is set to Dual interval.**

Set the status.

> **Off** = Disabled
> On = Enabled

GLP/GMP MENU

Enter this menu to set the Good Laboratory Practice (GLP) or Good Manufacturing Practice (GMP) data.

Date Format

Set the date format.

> MM/DD/YYYY = Month/Day/Year
>
> DD/MM/YYYY = Day/Month/Year
>
> YYYY/MM/DD = Year/Month/Day

DATE

Set the date.

> 00 to 9999 = year position
>
> 01 to 12 = month position
>
> 01 to 31 = day position

TIME FORMAT

Set the time format.

> 24 hr = 24-hour format.
>
> 12 hr = 12-hour format.

TIME

Set the time.

> 24-hour format
>
> 00 to 23 = hour position
>
> 00 to 59 = minute position

PROJECT ID

Set the Project identification.

Refer to Menu Navigation to enter settings.

SCALE ID

Set the Project identification.

Refer to Menu Navigation to enter settings.

RESET

If Reset is selected and confirmed, all the submenu values will be set to default.

LOCK KEY CONFIGURATION

This menu is used to lock access to certain keys. When you select ON for one selection, the associated key pressed will be ignored.

☞ **NOTE: If you select Lock All Keys, you will lose function of all keys.**

☞ **NOTE: If you select Lock Off Key, you will lose function of the off key.**

ITEM	AVAILABLE SETTINGS (bold is the default setting)
Lock All Keys	**Off**, On
Lock Off Key	**Off**, On
Lock Zero Key	**Off**, On
Lock Print Key	**Off**, On
Lock Unit Key	**Off**, On
Lock Soft Key	**Off**, On
Lock Mode Key	**Off**, On
Lock Tare Key	**Off**, On
Lock Menu Key	**Off**, On
Reset	**No**/Yes

APPLICATIONS

The scale can be configured to operate in up to five Application modes (scale can be set to have one or more applications modes active). Press the button **Mode** to select an activated application. The current application will be shown in the upper left corner of the home screen.

The Indicator incorporates the following applications:

⚖	Weighing	%	Percent		
⬡	Counting	((◉))	Dynamic		
⇳	Check Weighing/ Counting				

⚖ WEIGHING

Use this application to determine the weight of items in the selected unit of measure.

1. Press the **Library Mode** button until the icon corresponding to **Weighing** is displayed (this is the default application). Press **Tare** or **Zero** if necessary to begin. (See Figure 25)

Figure 25

2. Place objects on the pan to display weight. When the reading is stable, the * appears. The resulting value is displayed in the active unit of measure.

APPLICATION SETUP

The Application can be customized for various user preferences.

1. Press the button corresponding to the ⚊ icon to enter Configuration. The Configuration screen is now displayed. (See Figure 26)
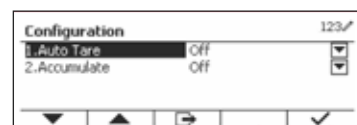
Figure 26

2. Select the list item and press the softkey corresponding to the ✓ icon to change the setting as desired.

3. To return to the Application home screen, press the softkey corresponding to the **User Menu** icon.

The Weighing Configurations are defined below.

☞ **NOTE: Default settings are in bold.**

ITEM	AVAILABLE SETTINGS	COMMENTS
Auto Tare	On, **Off**	To enable Automatic Tare
Accumulate	**Off**, Automatic, Manual	To enable Accumulation/ Totalization

AUTO TARE

Set the automatic tare.

Off: Auto tare is
turned off.
(See Figure 27)
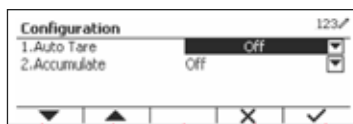
Figure 27

On: The first stable weight (>=5d) will be tared as
a container automatically.

☞ **NOTE: If the security switch is set to ON, Auto
Tare is locked at the current setting.**

ACCUMULATION

To start Accumulate
weighing data, place
the object on the pan
and press the softkey
corresponding to the
Σ icon. The accumulation

Figure 28

icon will start blinking. The load to be accumulated has
to be >= 10d. The next accumulation can only start
once pan has been cleared. (See Figure 28)
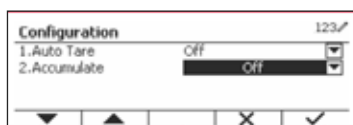
When LFT is on (no such
limitation when LFT is off
or LFT is on and the
approved mode is OIML),
(See Figure 29)
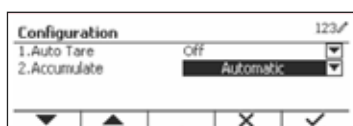
Figure 29

a. Gross weight
and Net weight
cannot be
accumulated
at the same
time – only Gross
Weight or Net Weight can be accumulated.
(See Figure 30)
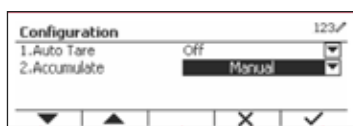
Figure 30

b. After a weighing, the gross weight on the pan
has to reach zero before a new sample can be
accumulated.

☞ **NOTE: The accumulation icon Σ is only
shown if Accumulate is set to Manual and
Automatic. See Application Setup in previous
section.**

Viewing the Accumulation Results

1. To view accumulation
    results, press the
    softkey corresponding
    to the Σ icon. The
    Accumulate Result
    screen is displayed. (See Figure 31)
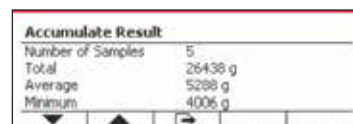
Figure 31

2. To clear accumulation
    results, press the On/CLR Off
    button. (See Figure 32)
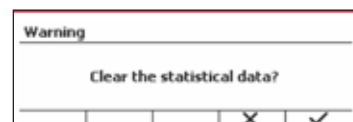
Figure 32

3. When the message
    "Clear the statistical
    data?" appears,
    press the softkey
    corresponding to the
    ✓ icon. (See Figure 33)
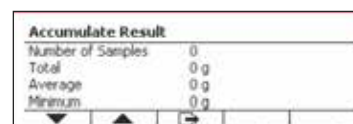
Figure 33

4. To return to home screen, press the softkey
    corresponding to the User icon.

5. Press the Print button to print Accumulation result.

ID INPUT

1. Press softkey
    corresponding to
    the ID icon to enter
    configuration screen.
    (See Figure 34)

Figure 34

2. User can press
    alphanumeric keys to
    input the ID number.
    Then press the softkey
    corresponding to the
    ID icon to confirm the input. (See Figure 35)

Figure 35

INPUT/OUTPUT (I/O) SETUP

The I/O setup can be customized for various
user preferences. The I/O setup is defined below.

☞ **NOTE: Default settings are in bold.**

ITEM	AVAILABLE SETTINGS
Enable	**On**, Off
Discrete Input 1	**Off**, Zero, Tare, Clear Tare, Print, Unit, Accumulate
Discrete Input 2	**Off**, Zero, Tare, Clear Tare, Print, Unit, Accumulate
Discrete Output 1	**Off**, Overload, Underload
Discrete Output 2	**Off**, Overload, Underload
Discrete Output 3	**Off**, Overload, Underload
Discrete Output 4	**Off**, Overload, Underload

☞ **NOTE: The I/Os will only work when the I/O Option Board has been installed.**

The option I/O board provides two isolated inputs and four dry-contact normally open relay outputs which can be used for simple process weighing.

1. Press the [User Menu] button to enter the Main Menu. (See Figure 36)

Figure 36

2. With the button corresponding to the ▼ icon, go down the list and highlight Application Mode. Enter this submenu by pressing the button corresponding to the ✓ icon. (See Figure 36)

3. In the Application Mode menu, enter the Weighing submenu. (See Figure 37)
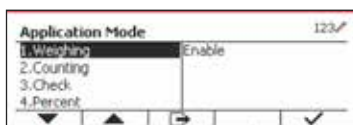
Figure 37

4. The Weighing submenu is now displayed. Select the list item and press the button corresponding to the ✓ icon to change

Figure 38

the setting as desired. After completion of I/O setup, press the softkey corresponding to the [User Menu] icon to return to the main application screen. (See Figure 38)
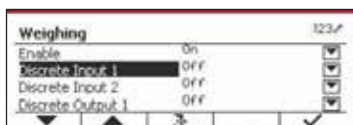
⌂ COUNTING

Use this application to count samples of uniform weight.

1. Press the [Library Mode] button until the icon corresponding to Counting is displayed on the screen. The default (or last) Average Piece Weight (APW) is displayed. (See Figure 39)
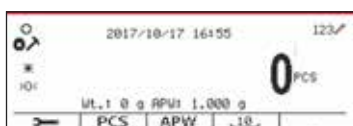
Figure 39

2. Set the APW value (see below) and then place objects on the pan to display the number of pieces.

SET THE AVERAGE PIECE WEIGHT (APW)

☞ **NOTE: It is recommended that the APW is larger than 1d. If APW is between 0.05d and 1d, a warning message will be displayed and the information line will show "APW is too small!". If APW is less than 0.05d, an error message will appear, and the APW value cannot be stored.**

There are two methods to set the APW:

ENTERING A KNOWN APW

Method 1

1. Key in the Piece Weight using the alphanumeric keypad. (See Figure 40)

Figure 40

2. Press the softkey corresponding to the [APW] icon. (See Figure 41)
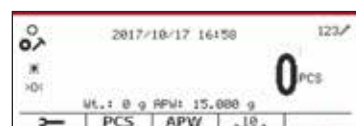
Figure 41

Method 2

1. Alternatively, first press the softkey corresponding to the [APW] icon to enter the submenu for setting the APW. (See Figure 42)

Figure 42

2. Press the softkey corresponding to the ✓ icon to edit the APW value using the alphanumerical keypad. (See Figure 43)
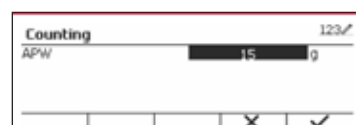
Figure 43

3. After editing, press the softkey corresponding to the ✓ icon for confirmation, and then press the softkey corresponding to the [User Menu] icon to exit the submenu. (See Figure 44)

Figure 44

CALCULATING AN APW

Method 1

1. Place the sample on the pan and then key in the number of pieces using the alphanumeric keypad. (See Figure 45)

Figure 45

2. Press the softkey corresponding to the [PCS] icon for confirmation. The terminal will calculate the new APW using the number of pieces. (See Figure 46)
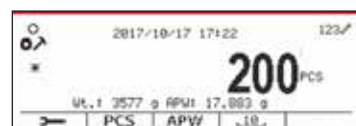
Figure 46

Method 2

1. Press the softkey corresponding to the [PCS] icon to enter the submenu for setting the number of pieces. (See Figure 47)

Figure 47

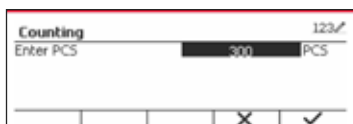2. Press the softkey corresponding to the ✓ icon to edit the PCS value using the alphanumeric keypad. (See Figure 48)

Figure 48

3. After editing, press the softkey corresponding to the ✓ icon for confirmation, and then press the softkey corresponding to the [User Menu] icon to exit the submenu. (See Figure 49)

Figure 49

APPLICATION SETUP

The Application can be customized for various user preferences.

1. Press the softkey corresponding to the ➔ icon to enter Configuration. The Configuration screen is now displayed. (See Figure 50)
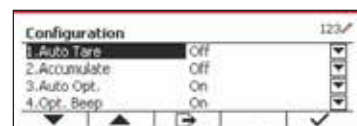
Figure 50

2. Select the list item and press the softkey corresponding to the icon to change the setting as desired. (See Figure 51)
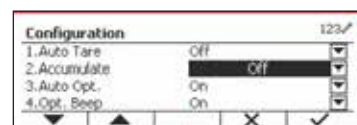
Figure 51

3. To return to the Application home screen, press the button corresponding to the [User Menu] icon.

The Counting Configurations are defined below.

☞ **NOTE: Defaults settings are in bold.**

CONFIGURE ITEM	OPTION	DESCRIPTION
Auto Tare	**Off**/On	**Off**: Auto tare is turned off. On: The first stable weight (>=5d) will be tared as a container automatically.
Accumulate	**Off**/Automatic/Manual	**Off**: The icon "Σ" does not display. Manual: The softkey "Σ" displays. User can press the key to accumulate the stable weight. Automatic: The icon "Σ" displays. The weight will be accumulated automatically. ☞ **NOTE: The load to be accumulated has to be >= 5d. The next accumulation can only start once the pan is cleared.** When LFT is ON (no such limit when LFT is OFF or the approve mod is OIML), a. Gross weight and net weight cannot be accumulated; b. Gross 0 has to be reached before a new sample accumulation. When LFT is OFF, a. Gross weight and net weight can be accumulated; b. A new sample can be accumulated after reaching gross 0 or net 0.
Auto Opt.	Off/**On**	Off: Auto Opt. is off. **On**: The APW will be optimized automatically during count weighing.
Opt. Beep	Off/**On**	Off: Opt. Beep is off. **On**: When the APW has to be optimized, the beeper will beep once.
APW Auto Save	Off/**On**	Off: APW Auto Save is off. **On**: If the APW is derived from sampling, and a counting library is selected, the new APW will be saved to library after optimized. ☞ **NOTE: It will be hidden when "Auto Opt." is off.**
Internal Resolution	Off/**On**	Off: Internal Resolution is off. **On**: During sampling or weighing, the internal resolution will be used.
Reference Size	**10**	The One Button Sampling PCS is from 0 to 999 the default is 10. 0: The One Button Sampling key will be hidden.

ACCUMULATION

See Weighing section on page 13 for details about the Accumulation feature.

INPUT/OUTPUT (I/O) SETUP

The I/O's setup can be customized for various user preferences defined below.

ITEM	AVAILABLE SETTINGS
Enable	**On**, Off
Discrete Input 1	**Off**, Zero, Tare, Clear Tare, Print, Unit Accumulate
Discrete Input 2	**Off**, Zero, Tare, Clear Tare, Print, Unit Accumulate
Discrete Output 1	**Off**, Overload, Underload
Discrete Output 2	**Off**, Overload, Underload
Discrete Output 3	**Off**, Overload, Underload
Discrete Output 4	**Off**, Overload, Underload

☞ **NOTE: Default settings are in bold.**

☞ **NOTE: The I/Os will only work when the I/O Option Board has been installed. The option I/O board provides two isolated inputs and four dry-contact normally open relay outputs which can be used for simple process weighing.**

1. Press the ⌑User Menu⌑ button to enter the Main Menu.

2. With the button corresponding to the ▼ icon, go down the list and highlight Application Mode. Enter this submenu by pressing the button corresponding to the ✓ icon. (See Figure 52)
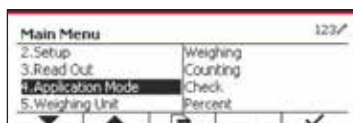
Figure 52

3. In the Application Mode menu, enter the Counting submenu. (See Figure 53)
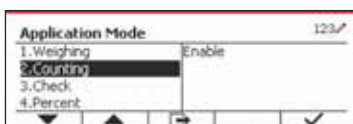
Figure 53

4. Select the list item and press the button corresponding to the ✓ icon to change the setting as desired. After completion of I/O's setup, press the softkey corresponding to the ⌑User Menu⌑ icon to return to the main application screen. (See Figure 54)
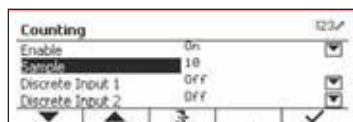
Figure 54

⬍ CHECK

Check is used to compare the weight or pieces of a sample against target limits.

Press the ⌑Library Mode⌑ button until the icon corresponding to Check is displayed on the screen.

Two different modes can be selected in the check mode: Weighing and Counting.

To set up check limits, see Check Weighing below. Place object on pan to check if weight is within limits.

CHECK WEIGHING (DEFAULT)

Make sure that the check mode is set to Check Weighing in the configuration menu.

Place objects on pan. The Under/Accept/Over status is shown in the progress bar area, while the actual weight of the item is shown on the main display line. (See Figure 55)
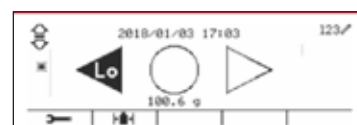
Figure 53

Defining Over/Under Limits

1. Press the **Edit Limit** button to define limit for weighing.

2. Select Over or Under Limit and press the button corresponding to the ✓ icon to edit value. (See Figure 56)
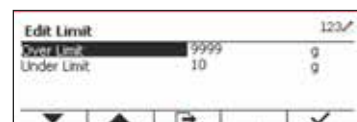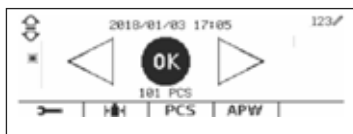
Figure 54

The Check Configurations are defined below.

☞ **NOTE: Default settings are in bold.**

CONFIGURE ITEM	OPTION	DESCRIPTION
Check Mode	**Check Weighing**/Check Counting	**Check weighing mode** Check counting mode
Auto Tare	**Off**/On/Accept	**Off: Auto tare is turned off.** On: The first stable weight (>=5d) will be tared as a container automatically. Accept: If object weight is in the range of the Over and Under Limit you set, auto tare will be performed.
Accumulate	**Off**/Manual/Automatic	**Off: The icon "Σ" does not display.** Manual: The softkey "Σ" displays. User can press the key to accumulate the stable weight. Automatic: The icon "Σ" displays. The weight will be accumulated automatically. ☞ **NOTE: The load to be accumulated has to be >= 10d. The next accumulation can only start once the pan is cleared.** When LFT is ON (no such limit when LFT is OFF or the approve mod is OIML), a. Gross weight and net weight cannot be accumulated; b. Gross 0 has to be reached before a new sample accumulation. When LFT is OFF, a. Gross weight and net weight can be accumulated; b. A new sample can be accumulated after reaching gross 0 or net 0.
Audible Signal	**Off**/Under and Over/Accept/Under/Over	**Off: No beep.** Under and Over/Accept/Under/Over: Beep when reaching the selected check point.

CHECK COUNTING

1. Press the ▥ button and select Check Mode to Check Counting. (See Figure 57)

Figure 57

2. Place objects on pan. The Under/Accept/Over status is shown in the progress bar area, while the actual number of pieces is shown on the main display line.

Set the Average Piece Weight (APW)

☞ **NOTE: It is recommended that the APW is larger than 1d. If APW is between 0.05d and 1d, a warning message will be displayed and the information line will show "APW is low!". If APW is less than 0.05d, an error message will appear and the APW value cannot be stored.**

There are three methods to set the APW. See Application Setup at right.

Defining Over/Under Limits

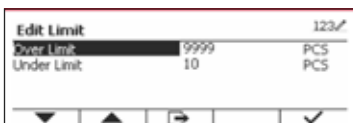Press the Edit Limit button to define counting limit. (See Figure 58)

Figure 58

☞ **wNOTE: See Check Weighing on page 17 for information on how to set the Over/Under limits.**

APPLICATION SETUP

The application can be customized for user preferences

1. Press the softkey corresponding to the ➤ icon to enter the Configuration Setup. Configuration menu is now displayed. (See Figure 59)
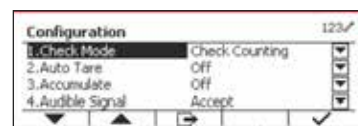
Figure 59

2. Select the list item and press the softkey corresponding to the ✓ icon, to change setting. (See Figure 60)

Figure 60

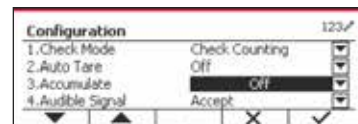3. To return to Application home screen, press the button corresponding to the ▣ icon.

The Check Configurations are defined below.

☞ **NOTE: Default settings are in bold.**

CONFIGURE ITEM	OPTION	DESCRIPTION
Check Mode	**Weighing**/Counting	**Weighing**: Check weighing mode Counting: Check counting mode
Auto Tare	**Off**/On/Accept	**Off**: Auto tare is turned off. On: The first stable weight (>=5d) will be tared as a container automatically. Accept: If object weight is in the range of the Over and Under Limit you set, auto tare will be performed.
Accumulate	**Off**, Manual, Automatic	**Off**: The icon "Σ" does not display. Manual: The softkey "Σ" displays. User can press the key to accumulate the stable weight. Automatic: The icon "Σ" displays. The weight will be accumulated automatically. ☞ **NOTE: The load to be accumulated has to be >= 10d. The next accumulation can only start once the pan is cleared.** When LFT is ON (no such limit when LFT is OFF or the approve mod is OIML), a. Gross weight and net weight cannot be accumulated; b. Gross 0 has to be reached before a new sample accumulation. When LFT is OFF, a. Gross weight and net weight can be accumulated; b. A new sample can be accumulated after reaching gross 0 or net 0.
Audible Signal	Off/Under and Over/**Accept**/Under/Over	Off: No beep. Under and Over/**Accept**/Under/Over: Beep when reaching the selected check point.
Auto Opt.	Off/**On**	Off: Auto Opt. is off. **On**: The APW will be optimized automatically during count weighing.
Opt. Beep	Off/**On**	Off: Opt. Beep is off. **On**: When the APW is optimized, the beeper will beep once.
APW Auto Save	Off/**On**	Off: APW Auto Save is off. **On**: If the APW is obtained from sampling, and a counting library is selected, the new APW will save to library after optimized.

INPUT/OUTPUT (I/O) SETUP

The I/O setup can be customized for various user preferences. The I/O setup is defined below.

☞ **NOTE: The I/O's will only work when the I/O option board has been installed. The I/O option board provides two isolated inputs and fur dry-contact normally open relay outputs which can be used for simple process weighing.**

ITEM	AVAILABLE SETTINGS
Enable	**On**, Off
Discrete Input 1	**Off**, Zero, Tare, Clear Tare, Print, Unit, Accumulate
Discrete Input 2	**Off**, Zero, Tare, Clear Tare, Print, Unit, Accumulate
Discrete Output 1	**Off**, Under, Over, Accept, Under/Over
Discrete Output 2	**Off**, Under, Over, Accept, Under/Over
Discrete Output 3	**Off**, Under, Over, Accept, Under/Over
Discrete Output 4	**Off**, Under, Over, Accept, Under/Over

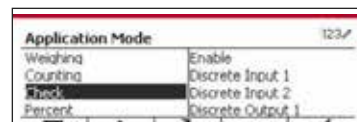1. Press the [User Menu] button to enter the Main Menu.

Figure 61

2. With the button corresponding to the ▼ icon, go down the list and highlight Application Mode. Enter this submenu by pressing the button corresponding to the ✓ icon. (See Figure 61)

3. In the Application mode menu, enter Check submenu. The Check submenu is now displayed. (See Figure 62)
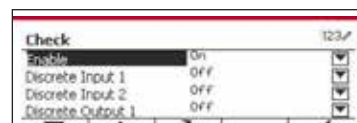

Figure 62

4. Select the list item and press the softkey corresponding to the ✓ icon to change setting. (See Figure 63)
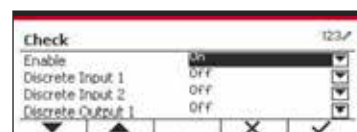

Figure 63

5. After completion of I/O's setup, press the softkey corresponding to the [User Menu] icon to return to the main application screen.

% PERCENT WEIGHING

Use Percent Weighing to measure the weight of a sample displayed as a percentage of a pre-established reference weight.

1. Press the [Library Mode] button until the icon corresponding to percent is displayed in the upper left portion of home screen. (See Figure 64)
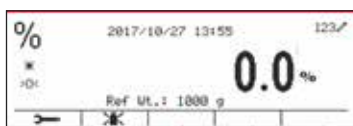
Figure 64

2. Establish a reference weight (see below) and then place objects on pan to display percentage.

The default (or last) reference weight is displayed.

ESTABLISHING A REFERENCE WEIGHT

There are 3 methods to establish a reference weight:

Method 1

1. Key in the reference weight value. (See Figure 65)

Figure 65

2. Press the softkey corresponding to the ✗ icon for confirmation. (See Figure 66)

Figure 66

Method 2

1. Press the softkey corresponding to the ✗ icon to enter the submenu for setting reference weight. (See Figure 67)
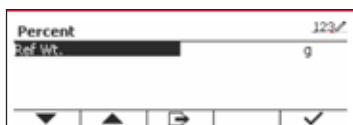
Figure 67

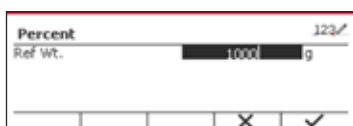2. Enter value using keypad. (See Figure 68)

Figure 68

3. Press the softkey corresponding to the ✓ icon to save the value. Press the softkey corresponding to the ✗ icon to exit submenu. (See Figure 69)

Figure 69

Method 3

Place the reference weight on the pan and press the button corresponding to the ✗ icon.

APPLICATION SETUP

The application can be customized for user preferences.

1. Press the softkey corresponding to the ⬤— icon to enter Configuration. (See Figure 70)

Figure 70

2. Select the list item and press the softkey corresponding to the ✓ icon to change settings as desired. (See Figure 71)

Figure 71

3. To return to the application home screen, press the softkey corresponding to the [User Menu] icon.

The Percent Configurations are defined below.

☞ **NOTE: Defaults settings are in bold.**

CONFIGURE ITEM	OPTION	DESCRIPTION
Auto Tare	**Off**/On	**Off**: Auto tare is turned off. On: The first stable weight (>=5d) will be tared as a container automatically.
Accumulate	**Off**/Manual/Automatic	**Off**: The icon "Σ" does not display. Manual: The softkey "Σ" displays. User can press the key to accumulate the stable weight. Automatic: The icon "Σ" displays. The weight will be accumulated automatically. ☞ **NOTE: The load to be accumulated has to be >= 10d. The next accumulation can only start once the pan is cleared.** When LFT is ON (no such limit when LFT is OFF or the approve mod is OIML), a. Gross weight and net weight cannot be accumulated; b. Gross 0 has to be reached before a new sample accumulation. When LFT is OFF, a. Gross weight and net weight can be accumulated at the same time; b. A new sample can be accumulated after reaching gross 0 or net 0.

INPUT/OUTPUT (I/O) SETUP

The I/O's setup can be customized for user preferences.

ITEM	AVAILABLE SETTINGS
Enable	**On**, Off

☞ **NOTE: I/O's will only work when the I/O Option board has been installed. The option I/O board provides two isolated inputs and four dry-contact normally open relay outputs which can be used for simple process weighing.**

1. Press the ⌈User Menu⌋ button to enter Main Menu. With the softkey corresponding to the ▼ icon, go down list and highlight Application Mode. (See Figure 72)

Figure 72

2. Enter this submenu by pressing the button corresponding to the ✓ icon. (See Figure 72)

3. In the Application Mode menu, enter the Percent submenu. (See Figure 73)

Figure 73

4. Select list item and press the softkey corresponding to the ✓ icon to change setting. (See Figure 74)
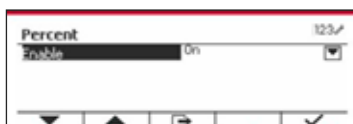
Figure 74

5. After completion of I/O's setup, press the softkey corresponding to the ⌈User Menu⌋ icon to return to the main application screen.

((◉)) DYNAMIC WEIGHING

Use this application to weigh an unstable load, such as a moving animal. Three different start/reset operation types can be selected: Manual (start and stop via key press), Semi-Automatic (auto-start with manual reset), and Automatic (start and stop automatically).

1. Press the ⌈Library Mode⌋ button until the icon corresponding to Dynamic is displayed in the upper left corner of the screen. (See Figure 75)

2. Press the softkey corresponding to the ▶ icon to start averaging. To abort the averaging, press the button corresponding to the ✕ icon. (See Figure 75)
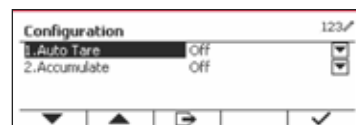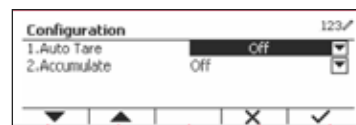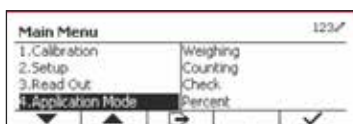

Figure 75

3. When the averaging has finished, press the button corresponding to the ↺ icon to reset.

APPLICATION SETUP

The Application can be customized for user preferences.

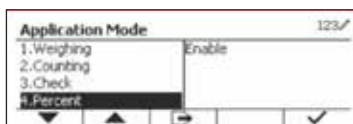1. Press the button corresponding to the ➡ icon to enter Configuration Menu. (See Figure 76)

Figure 76

2. Select the list item and press the softkey corresponding to the ✓ icon to change setting. (See FIgure 77)

Figure 77

3. To return to the Application home screen, press the softkey corresponding to the ⌈User⌋ icon.

The Dynamic Configurations are defined below.

☞ **NOTE: Defaults settings are in bold.**

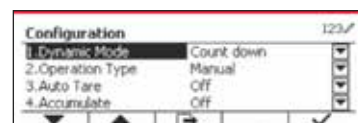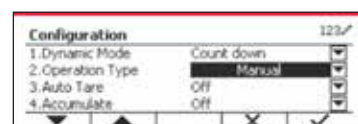| CONFIGURE ITEM	OPTION	DESCRIPTION
Dynamic Mode	**Countdown**/Continuous	**Countdown:** There is a countdown time. Continuous: There is no countdown time.
Operation Type	**Manual**/ Semi-Automatic/ Automatic	**Manual:** Place load on the pan. Press softkey ▶ to start dynamic weighing and countdown. When countdown is over, average weight is displayed. Before doing next weighing, press softkey "Reset". **Semi-Automatic:** Before weighing, the reading should be zero (Gross or Net). Place load (>=Start Weight) on the pan. The dynamic weighing and countdown start automatically. When countdown is over, average weight is displayed. Before doing next weighing, press softkey "Reset". **Automatic:** Before weighing, the reading should be zero (Gross or Net). Place load (>=Start Weight) on the pan, the dynamic weighing and countdown start automatically. When the countdown is over, average weight is displayed. After the load has been removed, the average weight still displays until the duration time is over. If the softkey "Reset" is pressed, average weight will be cleared immediately. ☞ **NOTE: During the weighing countdown, if a weight error (underload/overload) has occurred, the weighing process will stop immediately. If Auto Tare is on, a container (weight >=5d) must be placed on the pan first. After the terminal has done taring automatically, place load on the pan to start dynamic weighing.**
Start Weight	**3,000 (with current unit)**	If the operation type is Semi-Automatic/**Automatic**, this menu will be shown. If the load is bigger than the weight, then the dynamic weighing will start.
Auto Tare	**Off**/On	**Off:** Auto tare is turned off. On: The first stable weight (>=5d) will be tared as the container weight.
Accumulate	**Off**/Manual/Automatic	**Off:** The softkey "Σ" doesn't display. Manual: The softkey "Σ" displays. Press the key to accumulate the stable weight. Automatic: The softkey "Σ" displays. Weight will be accumulated automatically.
		☞ **NOTE:** 1. **The load to be accumulated has to be >= 10d. Another accumulation can't be done until the pan is cleared (< 5d).** 2. **Gross weight and net weight can't be accumulated together when the LFT is ON (no such limit when the LFT is OFF or the approved model is OIML). When first accumulated value is gross weight (net weight), scale will enter into gross weight (net weight) accumulate mode. Otherwise, "Gross and net weight can't be accumulated" will be displayed.** 3. **If LFT is ON, gross weight 0 has to be reached before a new sample can be accumulated. If LFT is OFF, a new sample can be accumulated after reaching gross or net weight of 0.**
Duration Time	1 ~ 10 s	It is the time for the display to remain the dynamic weighing result after load is removed.

AVERAGE TIME SETUP

There are two methods to set the averaging time. The default average time is 10 seconds.

☞ **NOTE: When time is set to 0, the first stable weight over 5d is displayed. Averaging time can be set to between 0 and 20 seconds.**

Method 1

1. Press the button corresponding to the ⧖ icon to enter Dynamic submenu to change averaging time. (See Figure 78)
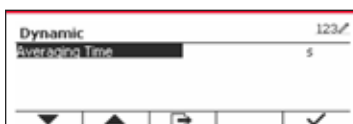
Figure 78

2. Press the softkey corresponding to the ✓ icon. Then enter desired value using keypad. (See Figure 79)
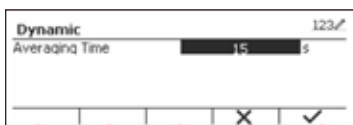
Figure 79

3. After setting the desired averaging value, press the softkey corresponding to the ✓ icon for confirmation. (See Figure 80)
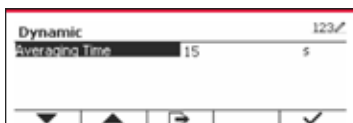
Figure 80

4. Press the softkey corresponding to the User icon to exit submenu. (See Figure 81)

Figure 81

Method 2

1. Use the alphanumeric keypad to key in the desired averaging time. (See Figure 82)

Figure 82

2. Once the value keyed in is displayed in upper left portion of the screen, press the softkey corresponding to the ⧖ icon. (See Figure 83)
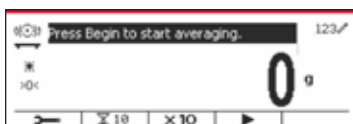
Figure 83

INPUT/OUTPUT (I/O) SETUP

The I/O's setup can be customized for user preferences. The I/O's setup is defined below.

☞ **NOTE: Defaults settings are in bold.**

ITEM	AVAILABLE SETTINGS
Enable	**On**, Off
Discrete Input 1	**Off**, Zero, Tare, Clear Tare, Print, Start, Reset
Discrete Input 2	**Off**, Zero, Tare, Clear Tare, Print, Start, Reset
Discrete Output 1	**Off**, Overload, Underload
Discrete Output 2	**Off**, Overload, Underload
Discrete Output 3	**Off**, Overload, Underload
Discrete Output 4	**Off**, Overload, Underload

☞ **NOTE: The I/O's setup will only work when the I/O Option board has been installed. The option I/O board provides two isolated inputs and four dry-contact normally open relay outputs which can be used for simple process weighing.**

1. Press the User Menu button to enter the Main Menu. (See Figure 84)

Figure 84

2. With the button corresponding to the ▼ icon, go down the list and highlight Application Mode.

3. To enter this submenu, press the softkey corresponding to the ✓ icon.

4. In the Application Mode menu, enter the Dynamic submenu. (See Figure 85)
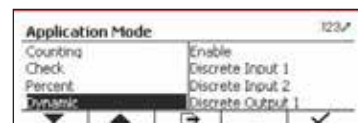
Figure 85

5. Select the list item and press the softkey corresponding to the ✓ icon to change the setting as desired. (See Figure 86)
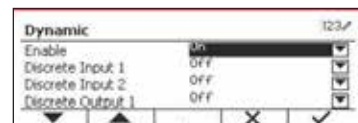
Figure 86

6. After completion of I/O Setup, press the softkey corresponding to the User icon to return to the main application screen.

Enter this menu to define external communication methods and to set printing parameters.
Data may be output to either a printer or PC.

RS-232/2ND RS-232 Configuration

👉 **NOTE: Factory default settings are shown in bold.**

COMMUNICATION			OPTION	
RS-232/2nd RS-232	Configuration	Baud Rate	300, 600, 1,200, 2,400, 4,800, **9,600**, 19,200, 38,400, 57,600	
		Parity	7 Even, 7 Odd, 7 None, **8 None**	
		Stop Bit	**1 bit**, 2 bit	
		Handshake	**None**, Xon/Xoff, Hardware	
		Alt Print Command	'a' ~ 'z', 'A' ~ 'Z', **P**	
		Alt Tare Command	'a' ~ 'z', 'A' ~ 'Z', **T**	
		Alt Zero Command	'a' ~ 'z', 'A' ~ 'Z', **Z**	
		Reset	**No/Yes**	
	Print Setup	Assignment	**Demand**	
			Stable Only	**Off**, On (LFT Force On)
			Auto On Stable	
			Mode	**Load**, Load and Zero
			Auto On Accept	
			Interval	
			Time	**1** ~ 50,000
			MT-Continuous	
			OH-Continuous	
			SICS	
			Reference Balance	
		Select Template	**Simple**, Custom 1, Custom 2, Custom 3, Custom 4, Custom 5	
		Edit Template	Field 1~ Field 50	
		Edit String	String 1~ String 10	
		Reset		

BAUD RATE

Set the baud rate (bits per second).

> 300
>
> 600
>
> 1,200
>
> 2,400
>
> 4,800
>
> **9,600**
>
> 19,200

PARITY

Set the data bits and 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 data bits, no parity**

STOP BITS

Set the stop bits.

> **1 BIT**
>
> 2 BIT

HANDSHAKE

Set the flow control method.

NONE = **no handshaking**

XON/XOFF = XON/XOFF handshaking

HARDWARE = hardware handshaking
(COM1 menu only)

ALTERNATE PRINT COMMAND

Set the alternate command character for Print.

Settings of A(a) to Z(z) are available.
The default setting is **P**.

ALTERNATE TARE COMMAND

Set the alternate command character for Tare.

Settings of A(a) to Z(z) are available.
The default setting is **T**.

ALTERNATE ZERO COMMAND

Set the alternate command character for Zero.

Settings of A(a) to Z(z) are available.
The default setting is **Z**.

RESET

Reset the settings to factory default.

PRINT SETUP OF RS-232

DEMAND

If Demand is selected, the submenu Stable Only will display.

Set the printing criteria.

OFF = Values are printed immediately, regardless of stability.

ON = Values are printed only when the stability criteria are met.

AUTO ON STABLE

If Auto On Stable is selected, the submenu Mode will display.

Set the printing mode.

Load = Prints when the displayed load is stable.

Load and Zero = Prints when the displayed load and zero reading is stable.

AUTO ON ACCEPT

If Auto On Accept is selected and weighing mode is Check, values will be printed when weight is accepted.

ACCEPT = Printing occurs each time the display is within the Checkweigh accept range and stability criteria are met.

INTERVAL

If Interval is selected, the submenu Time will display.

INTERVAL = Printing occurs at defined time interval.

The time interval can be set through the numeric keypad. Settings of 1 to 3,600 seconds are available. Default is 1. Printing occurs at the defined time interval.

MT-CONTINUOUS

If MT-Continuous is selected, the print output will be in the MT-Continuous format.

CONTINUOUS = Printing occurs continuously.

☞ **NOTE: Refer to Appendix A for MT-Continuous format.**

Checksum

Off = **disabled**

On = enabled

OH-CONTINUOUS

If **OH-Continuous** is selected, the print output will be in the OH-Continuous format.

☞ **NOTE: Refer to Appendix A for OH-Continuous format.**

CONTINUOUS = Printing occurs continuously.

SICS

OFF = disable MT-SICS command

ON = enable MT-SICS command

☞ **NOTE: Refer to Appendix B for SICS commands.**

REFERENCE BALANCE

OFF = Do not connect to reference balance.

ON = Connect to reference balance.

☞ **NOTE: Use a reference balance to perform sampling with a high resolution balance in Counting Mode. Make sure the balance is already on before connecting to the TD52 indicator.**

SELECT TEMPLATE

This submenu is used to define the format of the data output to a printer or computer.

Simple = only prints result and unit.

Custom 1 = customized printout format. If not customized, simple template will be used.

Custom 2 = customized printout format. If not customized, simple template will be used.

Custom 3 = customized printout format. If not customized, simple template will be used.

Custom 4 = customized printout format. If not customized, simple template will be used.

Custom 5 = customized printout format. If not customized, simple template will be used.

ITEM	LENGTH
3 spaces	3
10 spaces	10
15 spaces	15
Date	10
Displayed Weight	23
End of Template	0
Gross Weight	23
User ID	Up to 12
User Name	Up to 12
Net Weight	23
New Line (<CR><LF>)	2
Information	Not fixed
Project ID	Up to 40
Serial Number	10
Scale ID	Up to 40
Result	23 or 29 (under check)
Mode	Up to 14
PN	Up to 30
Input Status	2 (00)
Transaction ID	7

EDIT STRING

Up to 10 strings can be edited using keypad.

Select the string number in the first selection box. Any existing data for that string will be shown in the second entry box. Using the alphanumeric keys, enter or edit the characters to be used as the selected string.

EDIT TEMPLATE

This submenu is used to edit the current print template. Each template supports up to 50 data fields to define the format of the data output.

Select string number in the first selection box then any existing data for that string will be shown in the second entry box. Using the alphanumeric keys, enter or edit the characters to be used as the selected string.

To format a template, first select field number (from 1 to 50) in the first selection box, then select item for that field in the second selection box. (See Figure 87)
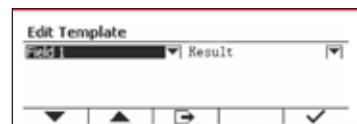
Figure 87

Using this method, a template of up to 50 fields can be created. To terminate a template, an End of Template field must be included. All fields after the End of Template field will be ignored.

ITEM	LENGTH
String 1	Not fixed, up to 40
String 2	Not fixed, up to 40
String 3	Not fixed, up to 40
String 4	Not fixed, up to 40
String 5	Not fixed, up to 40
String 6	Not fixed, up to 40
String 7	Not fixed, up to 40
String 8	Not fixed, up to 40
String 9	Not fixed, up to 40
String 10	Not fixed, up to 40
Weighing ID	Up to 12
Tare Weight	23
Time	5
Alibi #	6
Total	Not Fixed
Library ID	4
Library Name	Not Fixed, Up to 30
Display Digit	13
Output Status	4 (1,111)
Weighing ID	Not Fixed, Up to 40

String 1 = **OHAUS** (Default) (See Figure 88)

String 2 = **T52** (Default)
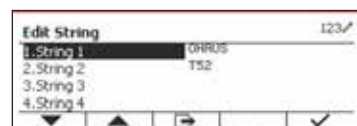
Figure 88

RESET

Reset the settings to factory default.

INTERFACE COMMANDS

The interface enables display and GMP data to be sent to a computer or printer. A computer can be used to control some functions of the indicator using the commands listed below.

MT STANDARD CONTINUOUS OUTPUT

A checksum character can be enabled or disabled with continuous output. The data consists of 17 or 18 bytes as shown in the standard continuous output.

Non-significant weight data and tare data digits are transmitted as spaces. The continuous output mode provides compatibility with OHAUS products that require real-time weight data (the standard continuous output).

The table below shows the format for the standard continuous output.

Standard Continuous Output Format

Character	1	STATUS[2]			INDICATED WEIGHT[3]						TARE WEIGHT[4]							
Character	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Data	STX[1]	SB-A	SB-B	SB-C	MSD	–	–	–	–	LSD	MSD	–	–	–	–	LSD	CR[5]	CHK[6]

Continuous Output Format Notes:

1. ASCII Start of Text character (02 hex), always transmitted.

2. Status bytes A, B and C. Refer to tables below for details of the structure.

3. Displayed weight. Either gross or net weight. Six digits, no decimal point or sign. Insignificant leading zeroes are replaced with spaces.

4. Tare weight. Six digits of tare weight data. No decimal point in field.

5. ASCII Carriage Return <CR> character (0D hex).

6. Checksum, transmitted only if enabled in setup. Checksum is used to detect errors in the transmission of data. Checksum is defined as the 2's complement of the seven low order bits of the binary sum of all characters preceding the checksum character, including the <STX> and <CR> characters.

Tables below detail the status bytes for standard continuous output.

Status Byte A Bit Definitions

BITS 2, 1 AND 0			
2	1	0	Decimal Point Location
0	0	0	XXXXX00
0	0	1	XXXXX0
0	1	0	XXXXXX
0	1	1	XXXXX.X
1	0	0	XXXX.XX
1	0	1	XXX.XXX
1	1	0	XX.XXXX
1	1	1	X.XXXXX

BITS 4 AND 3		
4	3	Build Code
0	1	X1
1	0	X2
1	1	X5
BIT 5		Always = 1
BIT 6		Always = 0

Status Byte B Bit Definitions

STATUS BITS	FUNCTION
Bit 0	Gross = 0, Net = 1
Bit 1	Sign, Positive = 0, Negative = 1
Bit 2	Out of Range = 1 (Over Capacity or Under Zero)
Bit 3	Motion = 1, Stable = 0
Bit 4	lb = 0, kg = 1, (see also Status Byte C, bits 0, 1, 2)
Bit 5	Always = 1
Bit 6	Zero Not Captured after power-up

Status Byte C Bit Definitions

BITS 2, 1 AND 0			Weight Description
2	1	0	
0	0	0	lb or kg, selected by Status Byte B, bit 4
0	0	1	grams (g)
0	1	0	metric tons (t)
0	1	1	ounces (oz)
1	0	0	not used
1	0	1	not used
1	1	1	tons (ton)
1	1	1	no units
BIT 3			Print Request = 1
BIT 4			Expand Data x 10 = 1, Normal = 0
BIT 5			Always = 1
BIT 6			Always = 0

The Indicator supports both MT-SICS and OHAUS commands. Commands listed in the following tables will be acknowledged by the indicator. To use the MT-SICS commands, send the command PSI. To return to the OHAUS commands, send the command POH. SICS commands can also be active in the menu setup.

OHAUS Commands

COMMAND	FUNCTION
IP	Immediate Print of displayed weight (stable or unstable).
P	Print displayed weight (stable or unstable).
CP	Continuous Print.
SP	Print on Stability.
xS	0S: Turn off "Stable Only" menu item and allow unstable print. 1S: Turn on "Stable Only" menu item and only print stable print.
xP	Interval Print x = Print Interval (1-50,000 sec), 0P turns auto print OFF.
Z	Same as pressing Zero Key.
T	Same as pressing Tare Key.
xT	Download Tare value in grams (positive values only). Sending 0T clears tare (if allowed).
PU	Print current unit: g, kg, lb, oz, lb:oz
xU	Set scale to unit x: 1=kg, 2=lb, 3=g, 4=oz, 5=lb:oz
xM	Set scale to mode X. 1=Weighing, 2=Counting, 3=Check, 4=Percent, 5=Dynamic. M will scroll to next enabled mode.
PSN	Print Serial Number.
CU xxx	Set Under Limit (only in Check mode) where 'xxx' is the value under current unit.
CO xxx	Set Over Limit (only in Check mode) where 'xxx' is the value under current unit.
x#	Set Counting APW (x) in grams. (only in Counting or Check Counting mode, must have APW stored).
P#	Print Counting or Check Counting mode APW.
x%	Set Percent mode reference weight (x) in grams (must have a weight stored).
P%	Print Percent mode reference weight.
PV	Version: print name, software revision and LFT ON (if LFT is set ON).
H x "text"	Enter String content, x = String number (1-10), "text" = string text up to 40 alphanumeric characters.
\EscR	Global reset to reset all menu settings to the original factory defaults.

MT-SICS Commands

	COMMAND	FUNCTION
LEVEL 0	@	Reset The scale.
	I0	Inquiry of all available SICS commands.
	I1	Inquiry of SICS level and SICS versions.
	I2	Inquiry of scale data.
	I3	Inquiry of scale software version.
	I4	Inquiry of serial number.
	S	Send stable weight value.
	SI	Send weight value immediately.
	SIR	Send weight value repeatedly.
	Z	Zero the scale.
	ZI	Zero immediately.
LEVEL 1	D	Write text into display.
	DW	Weight display.
	SR	Send and repeat stable weight value.
	T	Tare.
	TA	Tare value.
	TAC	Clear tare.
	TI	Tare immediately.
LEVEL 2	C2	Calibrate with the external calibration weight.
	C3	Calibrate with the internal calibration weight.
	I10	Inquire or set scale ID.
	I11	Inquire of scale type.
	P100	Print out on the printer.
	P101	Print out stable weight value.
	P102	Print out current weight value immediately.
	SIRU	Send weight value in the current unit immediately and repeat.
	SIU	Send weight value in the current unit immediately.
	SNR	Send stable weight value and repeat after every weight change.
	SNRU	Send stable weight value in the current unit and repeat after every weight change.
	SRU	Send weight value in the current unit and repeat.
	ST	After pressing the transfer key, send the stable weight value.
	SU	Send stable weight value in the current unit.
LEVEL 3	M01	Weighing mode.
	M02	Stability setting.
	M03	Autozero function.
	M19	Send calibration weight.
	M21	Inquire/set weight unit.
	PRN	Print out at every printer interface.
	RST	Restart.
	SFIR	Send weight value immediately and repeat quickly.
	SIH	Send weight value immediately in high resolution.
	SWU	Switch weight unit.
	SX	Send stable data record.
	SXI	Send data record immediately.
	SXIR	Send data record immediately and repeat.
	U	Switch weight unit.

RS-232 INTERFACE

RS-232 (DB9) Pin Connections:

Pin 2: Scale transmit line (TxD)

Pin 3: Scale receive line (RxD)

Pin 5: Ground signal (GND)

Pin 7: Clear to send (hardware handshake) (CTS)

Pin 8: Request to send (hardware handshake) (RTS)

Use the built-in RS-232 port to connect to either a computer or a printer.
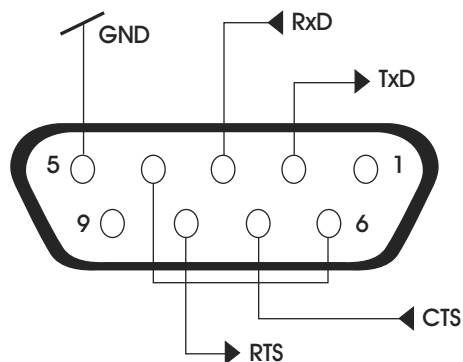
CONNECTING TO A COMPUTER

1. Connect to the computer with a standard (straight-through) serial cable.

2. Use HyperTerminal or a similar terminal software to test communication with the computer.

3. Set up HyperTerminal as follows:

   a. Choose New Connection, "connect using" COM1 (or available COM port).

   b. Select Baud=9,600; Parity=8 None; Stop=1; Handshaking=None. Click OK.

   c. Choose Properties/Settings, then ASCII Setup. Check boxes as illustrated:
      (Send line ends…; Echo typed characters…; Wrap lines…)

4. Verify communication by pressing the print button.

☞ **NOTE: If HyperTerminal is set up properly, the value on the display will be shown in the window.**

CONNECTING TO A SERIAL PRINTER

Connect the cable supplied with the printer to the scale's RS-232 port. Make sure that the balance and printer communication settings match.

Test communication with the printer by pressing the print button. If the balance and printer are set up properly, the value on the display will print.

PRINTOUTS

Printout string for g, kg, lb, oz units:

CHECK WEIGHING APPLICATION

FIELD	WEIGHT (RIGHT ALIGNED)	SPACE	UNIT (RIGHT ALIGNED)	SPACE	STABILITY (?)	SPACE	T/N/G/PT (RIGHT ALIGNED)	SPACE	APPLICATION STATUS (RIGHT ALIGNED)	TERM.
Length	11	1	5	1	1	1	2	1	6	2

NON-CHECK WEIGHING APPLICATION

FIELD	WEIGHT (RIGHT ALIGNED)	SPACE	UNIT (RIGHT ALIGNED)	SPACE	STABILITY (?)	SPACE	T/N/G/PT (RIGHT ALIGNED)	TERM.
Length	11	1	5	1	1	1	2	2

Each field is followed by a single delimiting space (ASCII: 32).

DEFINITIONS:

Weight – Up to 11 characters, right justified – at immediate left of most significant character (if negative).

Unit – Up to five characters, right justified. If the unit in the Print Content menu was set to off, the unit will be removed in the weight string and replaced by spaces.

Stability – "?" character is printed if not stable. If weight is stable, a space is printed.

T/N/G/PT – "T" is printed for a tare weight, "N" printed if weight is net weight, "G" or nothing printed if weight is a gross weight, "PT" is printed if the tare weight is Preset Tare.

Application Status (for Check) – Fixed to six characters. Display status like "Under", "Accept" and "Over" for check weighing.

Terminating Character(s) – Terminating character(s) printed depending on FEED menu setting.

PRINTOUT STRING FOR THE LB:OZ UNIT

FIELD	WEIGHT1	SPACE	UNIT1	SPACE	WEIGHT2	SPACE	UNIT2	SPACE	STABILITY	SPACE	G/N	SPACE	MESSAGE	TERM. CHAR(S)
Length	4	1	2	1	7	1	2	1	1	1	1	1	5	2

- The printout string has a fixed length of 28 characters.
- Each Space field is a delimiting space used to separate the other fields.
- The Weight1 field is four right justified characters. If the value is negative, the "-" character is located at the immediate left of the most significant digit.
- The Unit1 field is two left justified characters.
- The Weight2 field is seven right justified characters.
- The Unit2 field is two left justified characters.
- The Stability field is one character. A space is printed if weight value is stable. A "?" is printed if weight value is not stable.
- The G/N field is one character. "G" is printed for a gross weight. "N" is printed for a net weight.
- The Message field is five left justified characters.

☞ **NOTE: The Termination Characters Carriage Return and Line Feed are appended to the printout.**

PRINTOUT EXAMPLES

| SETUP IN MENU	PRINTOUT
{String 1} {New Line} {String 2} {New Line} {String 3} {New Line} {New Line} {Time} {3 spaces} {3 spaces} {Date} {New Line} {ID} {New Line} {Result} {New Line} {New Line} {String 4} {New Line} {String 5} {New Line} {End of template}	OHAUS CORPORATION 7 Campus Drive Suite 310 10:01 04/22/2016 50 500.0 g Signature_____ Verified by_____

☞ **NOTE: Battery is sold separately. See uline.com for details.**

⚠ **CAUTION! Read all safety warnings before installing, making connections or servicing. Failure to comply with these warnings could result in personal injury and/or property damage. Retain all instructions for future reference.**

BATTERY INSTALLATION

1. Disconnect equipment from main power supply before installation.

2. Separate indicator from base by disconnecting load cell cable from male connector at back of indicator. Remove interface option cover. (See Figure 89)

Figure 89
Interface Option Cover
Load Cell Cable Male Connector
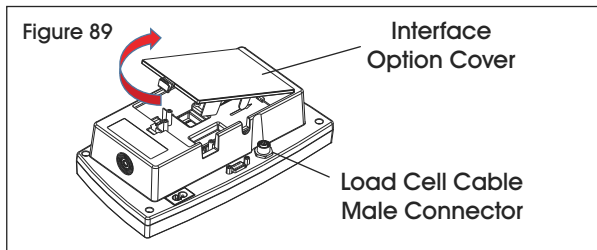
3. Connect seven-pin li-ion battery pack power cable to main board battery connector. (See Figure 90)

Figure 90
Cable
Battery Connector
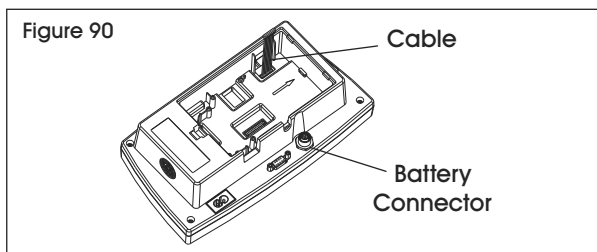
4. Place li-ion battery pack so slots (1) on bottom right edge of battery pack align with rib on bottom of indicator option area. Slide battery pack to right (in direction of arrow) until slots engage with rib. (See Figures 91-92)

Figure 91
Slot 1

Figure 92
Arrow
Rib
Boss Post 9
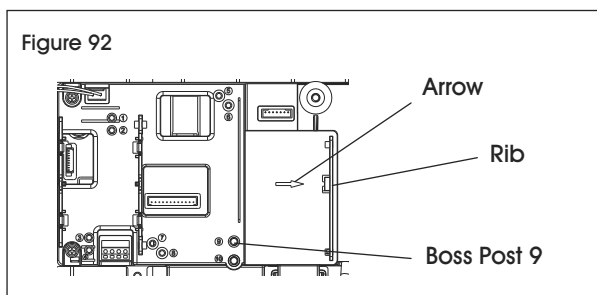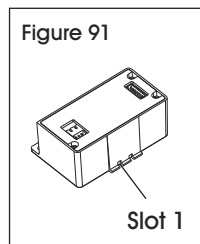
5. Twist li-ion battery pack cable a half turn and connect seven-pin connector from indicator to battery pack. Secure battery pack with one screw at the location marked "Boss Screw 9." (See Figure 93)

Figure 93
Li-on Battery Pack Seven-Pin Connector
Boss Screw 9
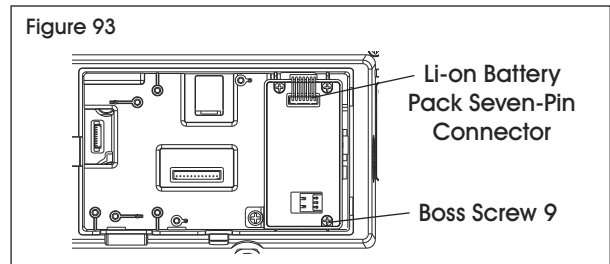
6. Put the interface option cover back on the terminal.

BATTERY OPERATION

During operation, battery icon indicates charge level remaining.

▭	Battery 5-25% remaining
◼▯	Battery 25-50% remaining
◼▮	Battery 50-75% remaining
◼◼	Battery 75-100% remaining

The battery icon is located above weighing unit on indicator display. (See Figure 94)

Figure 94   Battery Icon
2017/09/19 17:31
0.0 g
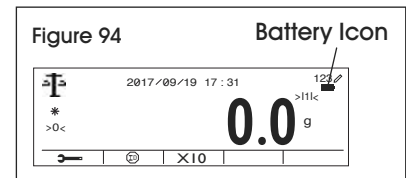
☞ **NOTE: When battery level is below 5% the indicator will shut down automatically. It takes about nine hours to fully charge battery.**

BATTERY SPECIFICATIONS

Battery Type	Lithium-Ion, 2,500mAh, 7.4V
Battery Operating Time	21 hours with backlight off
Battery Charging Time	9 hours
Operating Temperature Range	-4°F ~ 140° F
Charging Temperature Range	32°F ~ 113° F

☞ **NOTE: The number of hours the balance can run on battery depends on many factors. Backlight and Interface Options will all reduce the hours before a recharge is needed. For optimum battery life, turn these features off.**

☞ **WARNING! Stop charging battery if:**
- **Charging not completed within specified time.**
- **Battery becomes abnormally hot.**
- **There is odor, discoloration or deformation.**
- **Abnormal conditions are detected during use, charging or storage.**

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LEGAL FOR TRADE

When the indicator is used in trade or a legally controlled application, it must be set up, verified and sealed in accordance with local weights and measures regulations. It is the responsibility of the purchaser to ensure that all pertinent legal requirements are met.

SETTINGS

Before verification and sealing, perform the following steps in order:

1. Verify that the menu settings meet the local weights and measures regulations.

2. Perform a calibration as explained on page 4.

3. Turn off the indicator.

4. Disconnect power from the scale and remove security screw. (See Figures 89-90)

5. Set the position of the security switch SW1 to on.

6. Close the security switch.

7. Reconnect power and turn on the indicator.

VERIFICATION

A local weights and measures official or authorized service agent must perform the verification procedure.
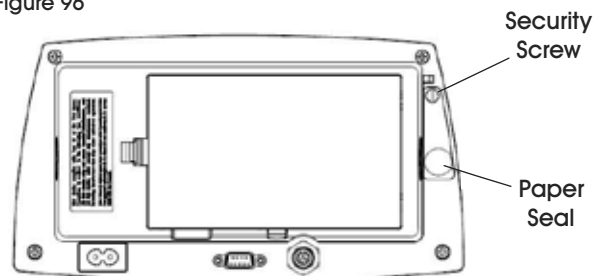
SEALING

The local weights and measures official or authorized service agent must apply a security seal to prevent tampering with the settings. Refer to the illustrations below for sealing methods. (See Figures 95-96)

Figure 95 — Wire Seal, Security Screw

Figure 96 — Security Screw, Paper Seal

MAINTENANCE

- Verify the input voltage range printed on the data label matches the local AC power to be used.

- Make sure the power cord does not pose a potential obstacle or tripping hazard.

- Disconnect scale from power supply when cleaning.

- Do not operate scale in hazardous or unstable environments.

- Do not immerse scale in water or other liquids.

CLEANING

⚠ **CAUTION! Disconnect the scale from the power supply before cleaning. Make sure that no liquid enters the interior of the terminal or base.**

Clean the scale at regular intervals.

Housing surfaces may be cleaned with a lint-free cloth slightly dampened with water or a mild cleaning agent.

☞ **NOTE: Do not use solvents, harsh chemicals, alcohol, ammonia or abrasive cleaning agents to clean the housing or control panel.**

TROUBLESHOOTING

OPERATING ISSUE	CAUSES	RECOMMENDATIONS
EEP Error	EEPROM checksum error	Corrupted EEPROM data.
Unit will not turn on.	Power cord not plugged in or connected.	Check power cord connections. Make sure power cord is plugged in into power outlet.
	Power outlet not supplying electricity.	Check power source.
	Battery discharged (T52P).	Replace batteries (T52P).
	Other failure.	Service required.
Cannot zero the scale, or scale will not zero when turned on.	Load on Scale exceeds allowable limits.	Remove load on Scale.
	Load on Scale is not stable.	Wait for load to become stable.
	Load Cell damage.	Service required.
Unable to calibrate.	Lock Calibration Menu set to on.	Set Lock Calibration menu to off.
	LFT menu set to on.	Set LFT menu to off.
	Incorrect value for calibration mass.	Use correct calibration mass.
Cannot display weight in desired weighing unit.	Unit not set to on.	Enable unit in the Weighing Unit menu.
		Refer to Weighing Unit on page 11.
Cannot change menu settings.	Menu has been locked.	Set selected menu to off in the Lock menu.
		Lockout Switch on the circuit board may need to be set to the off position.
Error 8.1	Weight reading exceeds Power On Zero limit.	Remove load from scale. Recalibrate scale.
Error 8.2	Weight reading below Power On Zero limit.	Add load to scale. Recalibrate scale.
Error 8.3	Weight reading exceeds Overload limit.	Reduce load on scale.
Error 8.4	Weight reading below Underload limit.	Add load to scale. Recalibrate scale.
Error 8.6	Weight exceeds six digits. Display overflow.	Reduce load on scale.
Error 9.5	Calibration data not present.	Calibrate scale.
Battery symbol flashing	Batteries are discharged.	Replace batteries (T52P).
CAL E	Calibration value outside allowable limits	Use correct calibration weight.
NO.SW	Attempting to exit the menu with the LFT setting ON and the security switch OFF.	Set the security switch to the ON position.
REF WT Err	Reference Weight too small. The weight on the platform is too small to define a valid reference weight.	Use a greater weight for sample.

If the troubleshooting section does not resolve your problem, contact ULINE Customer Service at 1-800-295-5510.