Defender® 6000 Indicators Service Manual

i-DT61PW

i-DT61XWE

TABLE OF CONTENTS

1. INTRODUCTION

This service manual contains the information needed to perform routine maintenance and service on the Defender 6000 Series Scales. There will be two parts for the service manual where first part will describe the service on the Indicator as this manual and second part would describe the service for the bases, please refer to Defender Series Base Service Manual. Please read this manual completely before repair and maintenance.

1.1 DEFINATION OF SIGNAL WARNING AND SYMBOLS

Safety notes are marked with signal words and warning symbols. These show safety issues and warnings. Ignoring the safety notes may lead to personal injury, damage to the instrument, malfunctions and false results.

1.1.1 Safety Precautions

Definition of Signal Warnings and Symbols

Safety notes are marked with signal words and warning symbols. These show safety issues and warnings. Ignoring the safety notes may lead to personal injury, damage to the instrument, malfunctions and false results.

WARNING	For a hazardous situation with medium risk, possibly resulting in severe injuries or death if not avoided.
CAUTION	For a hazardous situation with low risk, resulting in damage to the device or the property or in loss of data, or minor or medium injuries if not avoided.
ATTENTION	For important information about the product. May lead to equipment damage if not avoided.
NOTE	For useful information about the product.

Warning Symbols

 General hazard  Explosion hazard  Electrical shock hazard

Safety Precautions

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

- Before connecting power, verify that the AC adapter's input voltage range and plug type are compatible with the local AC mains power supply.
- Do not position the equipment such that it is difficult to reach the power connection.
- Only connect the power cord to a compatible grounded electrical outlet.
- Make sure that the power cord does not pose a potential obstacle or tripping hazard.
- Operate the equipment only under ambient conditions specified in these instructions.
- The equipment is for indoor use only.
- Do not operate the equipment in hazardous or unstable environments.
- Do not place the equipment upside down on the platform.
- Use only approved accessories and peripherals.
- Disconnect the equipment from the power supply when cleaning.
- Service should only be performed by authorized personnel.

WARNING: Never work in an environment subject to explosion hazards! The housing of the instrument is not gas tight. (Explosion hazard due to spark formation, corrosion caused by the ingress of gases).

WARNING: Electrical shock hazards exist within the housing. The housing should only be opened by authorized and qualified personnel. Remove all power connections to the unit before opening.

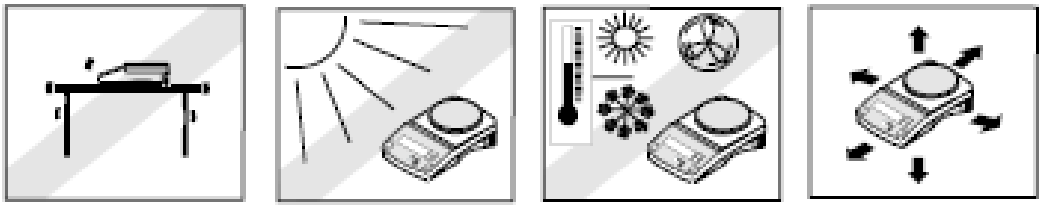
1.1.2 Intended Use

This instrument is intended for use in light industry. It must only be used for measuring the parameters described in these operating instructions. Any other type of use and operation beyond the limits of technical specifications, without written consent from OHAUS, is considered as not intended. This instrument complies with current industry standards and the recognized safety regulations; however, it can constitute a hazard in use. If the instrument is not used according to these operating instructions, the intended protection provided by the instrument may be impaired.

1.2 SERVICE FACILITIES

To service an indicator, the service area should meet the following requirements:

- Must be protected from electrostatic discharge.
- Should be temperature controlled and meet the indicator specifications for temperature environmental requirements. See specifications for temperature range.
- Must be free of vibrations such as fork lift trucks close by, large motors, etc.
- Must be free of air currents or drafts from air conditioning/heating ducts, open windows, people walking by, fans, etc.
- Area must be clean and air must not contain excessive dust particles.
- Work surface must be stable and level.
- Work surface must not be exposed to direct sunlight or radiating heat sources.



1.3 TOOLS AND TEST EQUIPMENT REQUIRED

In order to properly service the Indicator, certain special tools and test items are required in addition to standard electronic tool kits. These items are listed as follows:

1.3.1 Special Tools and Test Equipment List

1. Ohaus Scale Base.
2. Load Cell Simulator optional.
3. Computer with RS232/USB Interface for testing the RS232/USB communications.
4. RS232 Interface cable for i-DT61XWE
5. IR Communication Kit USB 30572910 for i-DT61PW
6. Data Printer for use with RS232/USB communications.

1.3.2 Standard Tools and Test Equipment List

1. Standard Electronics Tool Kit
2. Digital Voltmeter (DVM), with clip on probes. Input impedance of at least 10 megohms in the 1 Volt dc position.
3. Soldering Iron, solder and flux remover.
4. ESD work station or mat.

1.4 OVERVIEW OF PARTS AND CONTROLS

1.4.1 i-DT61PW

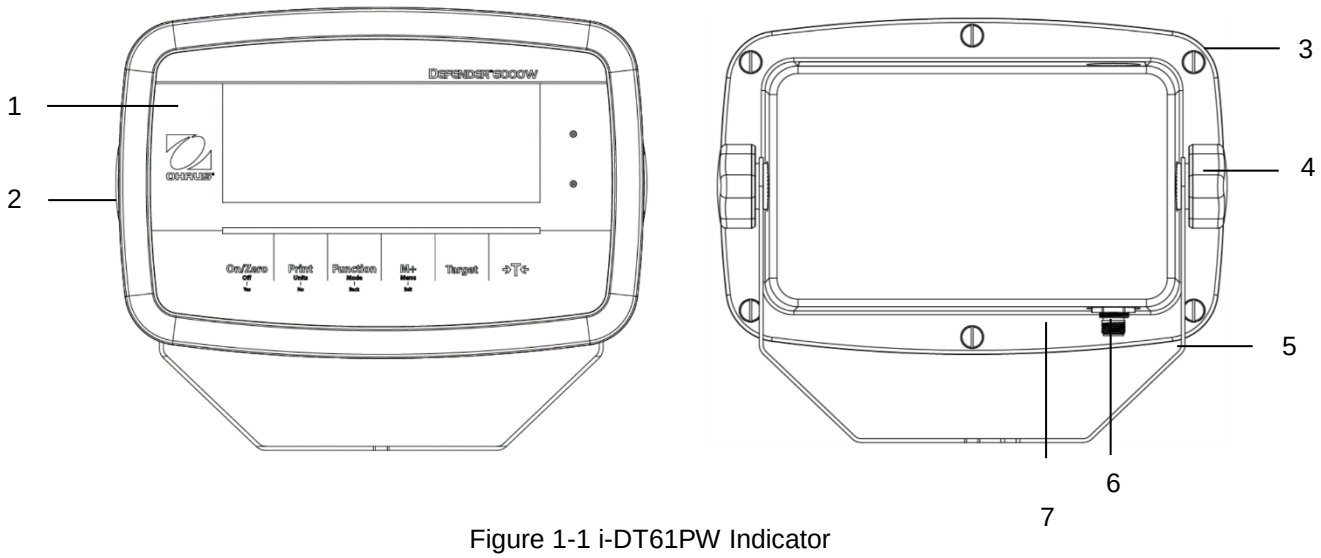


Figure 1-1 i-DT61PW Indicator

Item	Description
1	Control Panel
2	Front Housing
3	Screws (6)
4	Adjusting Knobs (2)
5	Mounting Bracket
6	Load Cell Connector
7	Rear Housing

1.4.2 i-DT61XWE

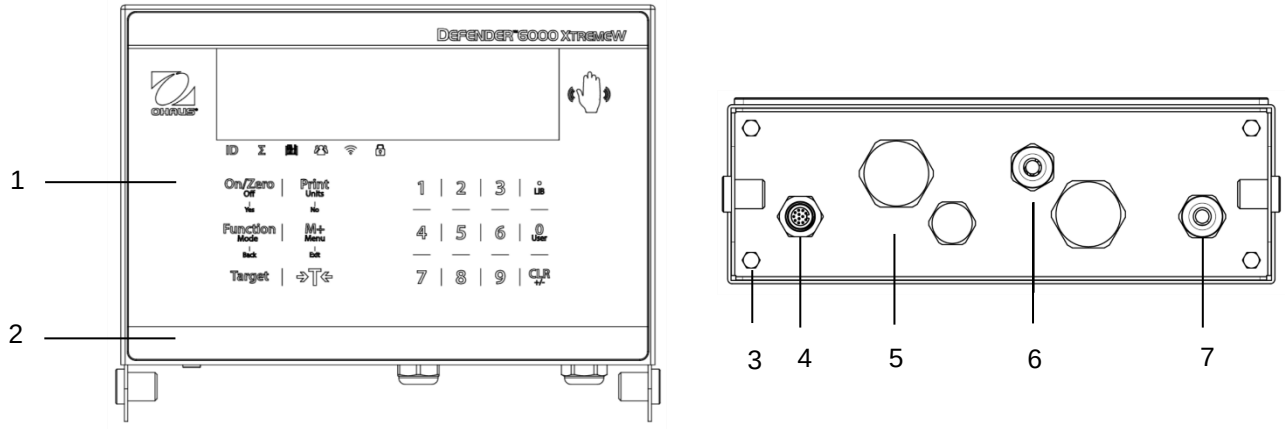
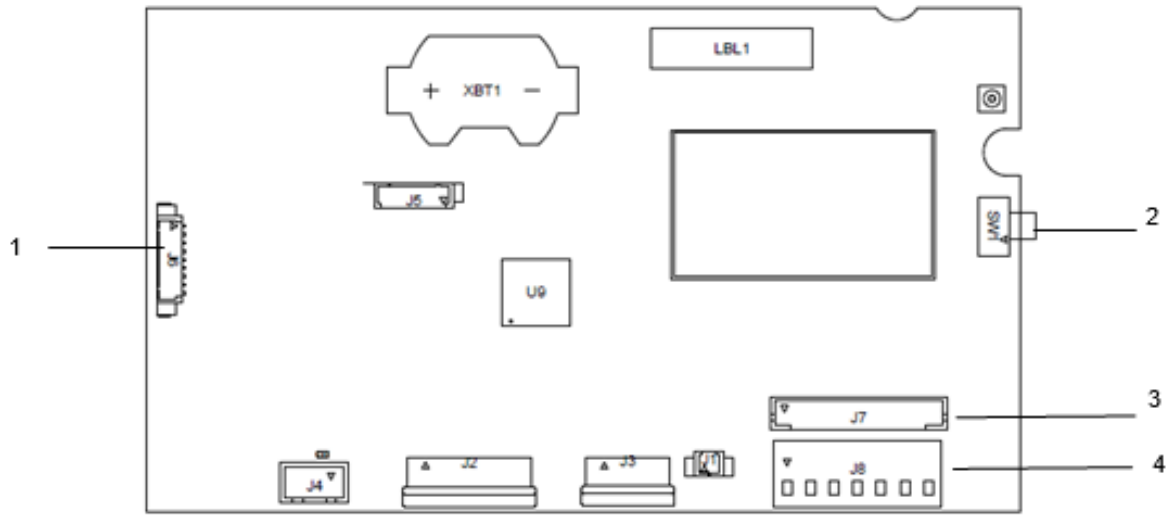


Figure 1-2 i-DT61XWE Indicator

Item	Description
1	Control Panel
2	Front Housing
3	Screws (4)
4	Load Cell Connector
5	Bottom Housing
6	Strain Relief for Option
7	Power cord

1.4.3 MAIN BOARD



.Figure 1-3 i-DT61PW Mainboard

Item	Description
1	IR Communication connector (J6)
2	Security Switch (SW1)
3	Load Cell connector (J7)
4	Load Cell Terminal Block (J8)

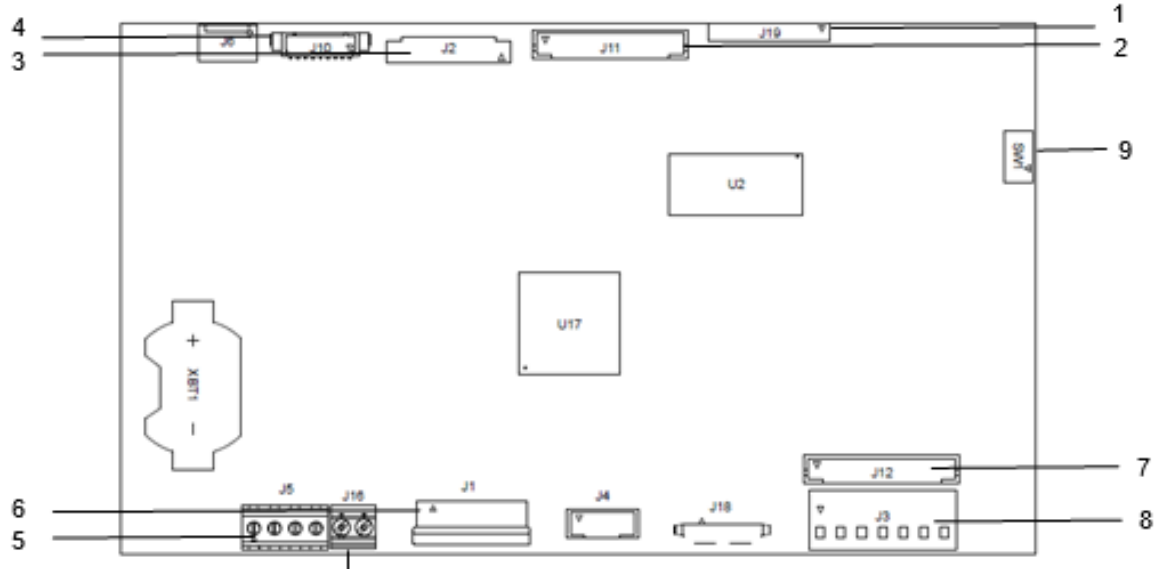
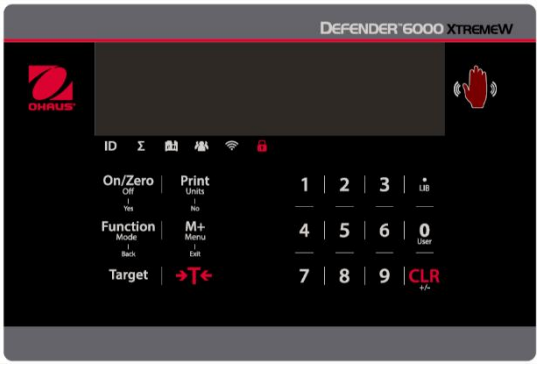


Figure 1-4 i-DT61XWE Mainboard

Item	Description	Item	Description
1	Alibi Memory Board connector (J19)	6	Keyboard connector (J1)
2	Discrete I/O/Analog/RS232-RS485-USB Device connector (J11)	7	Load Cell connector (J12)
3	Display Board connector (J2)	8	Load Cell Terminal Block (J3)
4	Ethernet connector (J10)	9	Security Switch connector (SW1)
5	RS232 connector (J5)	10	Discrete Input0 (J16)

1.5 CONTROL FUNCTIONS

i-DT61PW Control Panel



i-DT61XWE Control Panel

Button	On/Zero Off / Yes	Print Units / No	Function Mode / Back	M+ Menu / Exit	Target	→T←
Primary Function (Short Press)	**On/Zero** If the terminal is Off, press to power on; If the terminal is On, press to set the zero point.	**Print** Sends the current value to the selected COM ports if AUTOPRINT is disabled.	**Function** Initiates an application mode.	**M+** Accumulates the weight or displays the accumulated information with no load on the pan.	**Target** Sets under/over limit value for Check.	**Tare** Enters/clears a tare value; When the accumulation data is displayed, press to clear them.
Secondary Function (Long Press)	**Off** If the terminal is On, press to power off.	**Units** Changes the weighing unit.	**Mode** Allows changing the application mode.	**Menu** Enters the user menu.	**Target** Shows under/over limit value for Check.	**Tare** Displays the tare weight.
Menu Function (Short Press)	**Yes** Accepts the current setting on the display.	**No** Advances to the next menu or menu item. Rejects the current setting on the display and advances to the next available one.	**Back** Moves back to the previous menu item.	**Exit** Exits the user menu. Aborts the calibration in progress.		

Notes:

- Short Press: press less than 1 second.
- Long Press: press and hold for more than 2 seconds.

Numeric keyboard (i-DT61XWE)

	1 2 3 / 4 5 6 / 7 8 9	• LIB	0 User	CLR +/-
Primary Function (Short Press)	**1-9** Enters numeric values.	**.** Enters decimal point (.).	**0** Enters numeric values 0.	**CLR** Clears the entered value. Clears an existing APW. When the accumulation data is displayed, press to clear them.
Secondary Function (Long Press)		**LIB** Searches library items with numeric keys.	**User** Searches users with numeric keys.	**+/-** Switches between positive and negative values.

Note: for i-DT61XWE model, press the →T← and **CLR** button together for three seconds can lock all buttons. Perform the same procedure again to unlock all buttons. When all buttons are locked, the icon will be lighted.

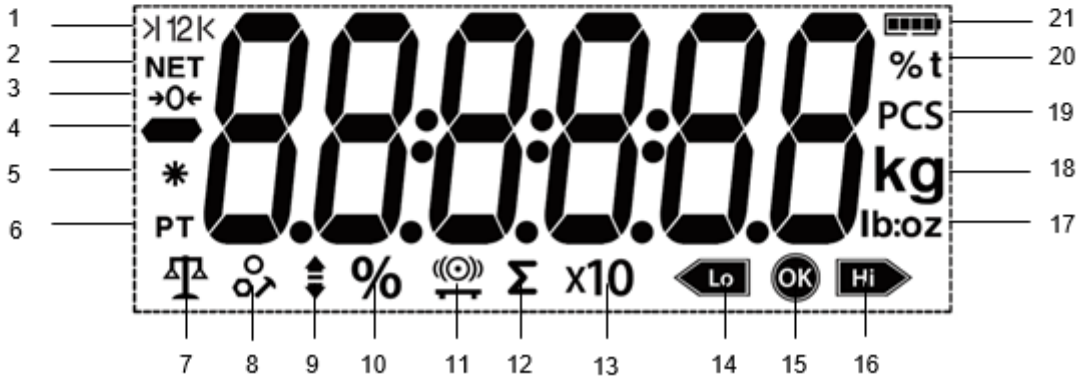


Figure 1-5 i-DT61PW Display

Item	Description	Item	Description
1	Range symbol（not used）	12	Accumulation symbol
2	NET symbol	13	Resolution extension symbol（not used）
3	Center of Zero symbol	14	Check weighing lower symbol
4	Negative symbol	15	Acceptable symbol
5	Stable weight symbol	16	Check weighing higher symbol
6	Preset Tare, Tare symbols	17	Pound, Ounce, Pound: Ounce symbols
7	Weighing mode symbol	18	Kilogram, gram symbols
8	Counting mode symbol	19	Pieces symbol
9	Check weighing mode symbol	20	Percent symbol, tonne symbol (not used)
10	Percentage weighing mode symbol	21	Battery symbol
11	Dynamic weighing mode symbol		

Figure 1-6 i-DT61XWE Display

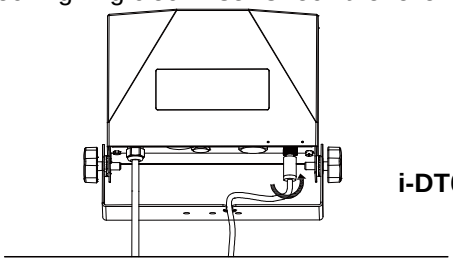
Item	Description	Item	Description
1	NET symbol	11	Wi-Fi symbol
2	Center of Zero symbol	12	Lock symbol
3	Negative symbol	13	Dynamic (tilde) symbol
4	Stable weight symbol	14	Battery symbol (not use)
5	Preset Tare, Tare symbols	15	Pound, Ounce, Pound:Ounce symbols
6	Pointer symbols	16	Percent symbol
7	ID symbol	17	Kilogram, gram symbols
8	Accumulation symbol	18	Pieces symbol, tonne symbol (not used)
9	Library symbol	19	Scale symbol (not used)
10	User symbol		

1.6 EXTERNAL CONNECTIONS

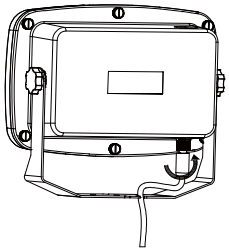
This section of the manual explains the external connection of the product.

1.6.1 Scale Base with EasyConnect™ Connector

To connect the OHAUS scale base with EasyConnect™ connector to the terminal, plug the base's connector onto the external load cell connector located at the bottom of the terminal. Then rotate the base connector's locking ring clockwise. Check the following illustration for details.



i-DT61XWE



i-DT61PW

1.6.2 Power input to i-DT61PW

Use 6 cells of D size dry batteries. During battery operation, the battery symbol indicates the battery status.

 Battery 5%~25% remaining

 Battery 25%~50% remaining

 Battery 50%~75% remaining

 Battery 75%~100% remaining

1.6.3 AC Power to i-DT61XWE

Connect the AC plug to an electrical outlet.

1.7 Internal Connections

Some connections require the housing to be opened.

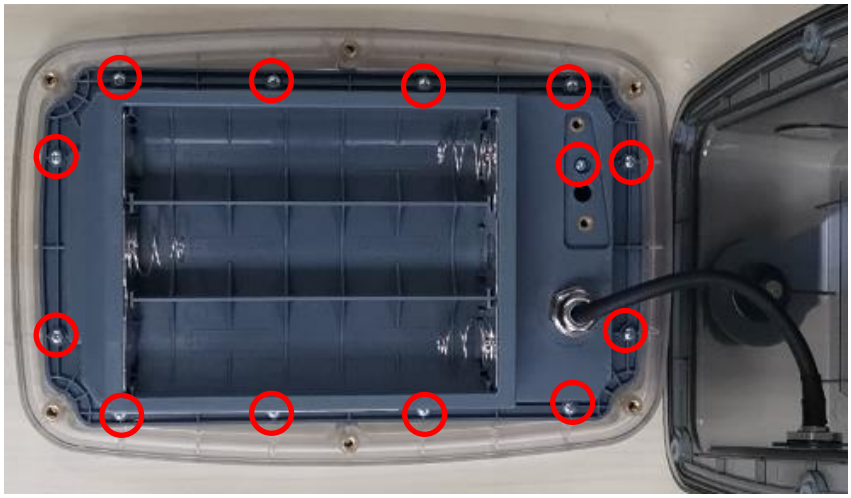
CAUTION: ELECTRICAL SHOCK HAZARD. REMOVE ALL POWER CONNECTIONS TO THE INDICATOR BEFORE SERVICING OR MAKING INTERNAL CONNECTIONS. THE HOUSING SHOULD ONLY BE OPENED BY AUTHORIZED AND QUALIFIED PERSONNEL, SUCH AS AN ELECTRICAL TECHNICIAN.

1.7.1 Opening the Housing i-DT61PW

1. Remove the 6 screws from the rear housing.

2. Take out 6 batteries and remove the LFT cover by removing 2 screws.

3. Remove 13 screws from the battery housing.



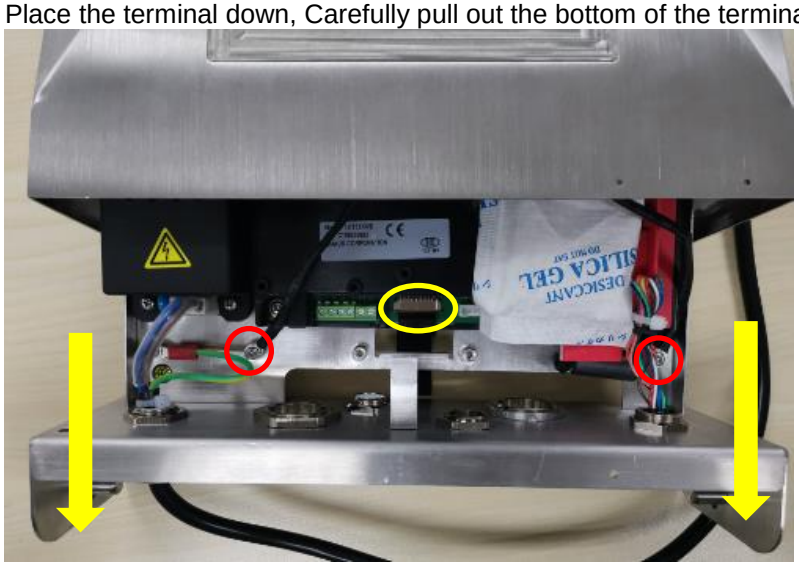
4. Carefully take out the battery housing by removing grounding screw and unplugging battery cable and loadcell cable.

1.7.2 Opening the Housing i-DT61XWE

1. Remove 4 screws marked in the following graphic.

Note: The screws should be tightened to 2.5 N•m (20-25 in-lb) torque to ensure a watertight seal for assembly.

2. Place the terminal down, Carefully pull out the bottom of the terminal.



3. Unplug the display cable, then remove 2 screws of grounding cables (see the picture above). Carefully pull out the bottom of the terminal completely. Remove the screw on ht ered pand and move the red pad in the direction as picture shown.

Installing Load Cell Cable and Connectors

In order to meet certain electrical noise emission limits and to protect i-DT61PW and i-DT61XWE from external influences, it is necessary to install a ferrite core on the load cell cable connected to the terminal. The ferrite core is included with the terminal.

To install the ferrite, simply route the cable through the center of the core and then take one wrap around the outside of the core and route the cable through the center again. Either the complete cable or the individual wires can be wrapped through the ferrite. This should be done as close to the enclosure as possible. See Figure 1-7.

Figure 1-7

Main Board Wiring Connections

Once the i-DT61PW and i-DT61XWE enclosure is opened, connections can be made to the terminal blocks on the main board as shown in Figure 1-8.

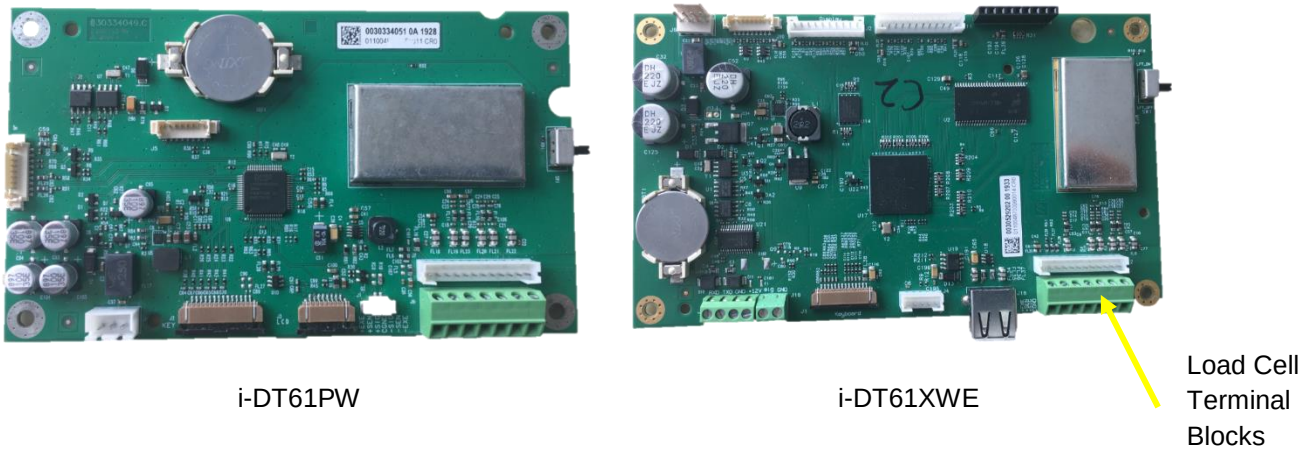


Figure 1-8

Jumper Connections

The i-DT61PW and i-DT61XWE indicators are designed to support both 2mV/V and 3mV/V load cells from the same circuitry. A load cell output rating selection jumper is not required.

Figure 1-9 shows the terminal definitions for the analog load cell terminal blocks. Note that when using four -wire load cells, jumpers must be placed between the +Excitation and +Sense terminals and between the -Excitation and -Sense terminals.

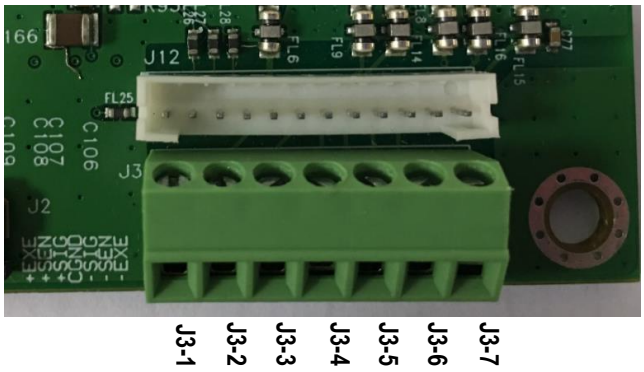


Figure 1-9 Jumper Connections

After wiring is completed, replace the indicator housing screws. Make sure the water-proof cable gland is properly tightened.

Pin	Connection
J3-1	+EXC
J3-2	+SEN
J3-3	+SIN
J3-4	GND
J3-5	-SIN
J3-6	-SEN
J3-7	-EXC

1.7.3 Communication Interface Cable to i-DT61PW

Attach the IR Communication cable (P/N: 30572910) to the indicator front panel, make sure the two holes in the interface cable module match the two bolts which located in the front panel.

Figure 1-10

1.7.4 RS232 Interface Cable to i-DT61XWE

Pass the optional RS232 cable 30427860 through the strain relief and attach it to the RS232 connector on the mainboard. Tighten the strain relief to maintain a watertight seal. Please refer to Figure 1-13 for the postion of the serial port connector RXD TXD and GND.

Note:

- Please refer to Opeing the Housing section for how to open the case of the terminal.
- For details about Discrete Input0 function, please refer to the **Discrete I/O (for i-DT61XWE)** section for details.

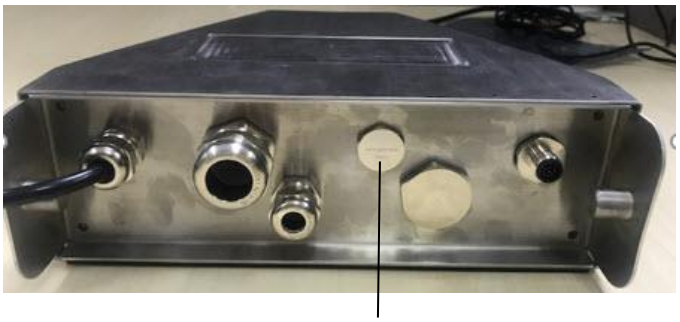
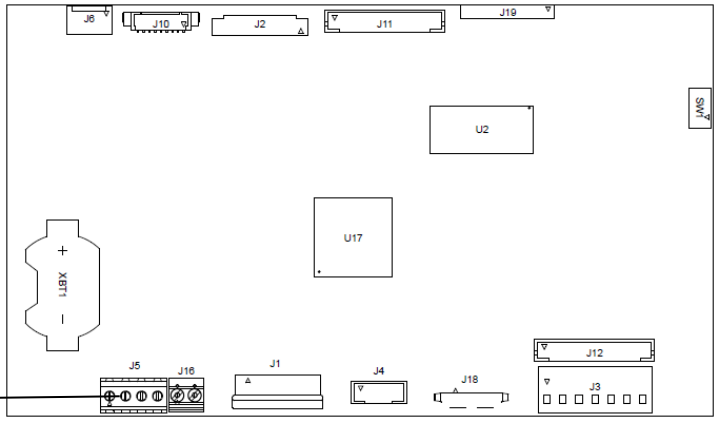


Figure 1-11 Strain Relief for Option



RS232 connector

Figure 1-12 RS232 connector on the mainboard

Figure 1-13

Figure 1-14 RS232 cable connected

1.8 Mounting Bracket

Attach the bracket to a wall or table using fasteners (not supplied) that are appropriate for the type of mounting surface. The bracket will accommodate up to 6 mm (1/4”) diameter screws. Locate the mounting holes as shown in Figure 1-15 and 1-16

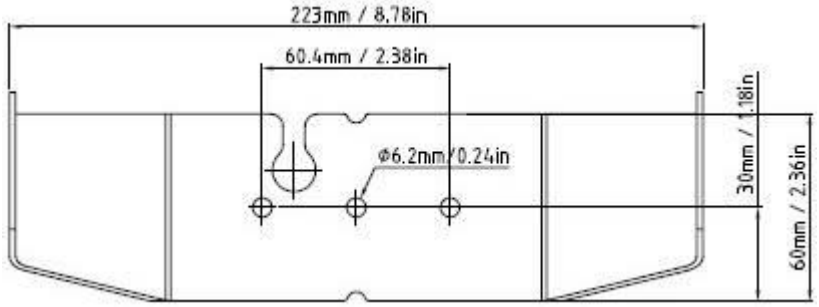


Figure 1-15 Mounting Bracket Dimensions

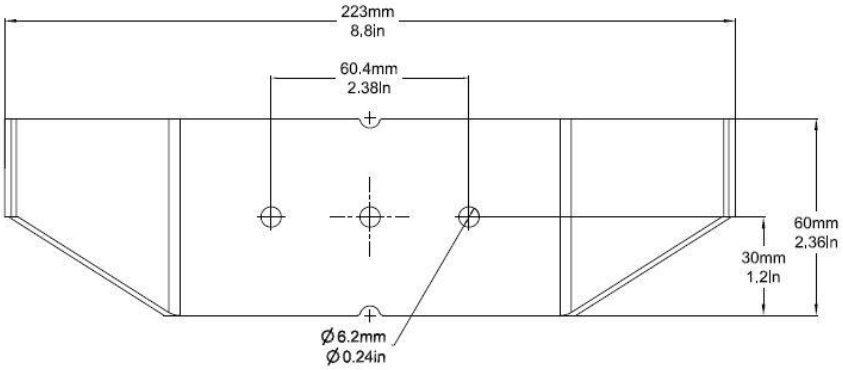


Figure 1-16 Mounting Bracket Dimensions

2 MENU SETTINGS

The User Menu allows the customizing of scale settings.
Note: Additional Sub-Menus may be available if Interface Options are installed. See Interface User Manual for the additional setting information.

2.1 Menu Navigation

For i-DT61PW model

CAL	SETUP	READ	MODE	UNIT	GMP	RS232	PRINT	LOCK	END
ZERO SPAN LINE GEO CTEST End	RESET CUNIT CAP GrAd P.ZERO P.UNIT ATARE ACCUM T.CNT T.NEXT End	RESET STABLE ZERO FILTER AZT b.LIGHT S.SAVER A.OFF P.SAVER End	RESET USE IGH COUNT A.OPT PERCNT dYNAMM d.TYPE d.t IMTE A.t IMTE End	RESET kg g lb oz lb;oz End	RESET d.FMT dATE t.FMT t IMTE P. id S. id End	RESET bAUd PAr ITY StOP H.SHAKE ALt.P ALt.t ALt.2 End	RESET ASS IGN StAbLE MOdE t IMTE C.SUMM tEMP End	RESET L.ALL L.OFF L.ZERO L.Pr INt L.UNIT L.MOdE L.MENU L.tArE L.tArGE End	End

For i-DT61XWE model

CAL	SETUP	READ	MODE	UNIT	GMP	RS232	PRINT	I.O.	LOCK	L. lb	USER	USb	END
ZERO SPAN LINE GEO CTEST End	RESET CUNIT rANGE CAP1 GrAd1 CAP2 GrAd2 P.ZERO P.UNIT ATARE ACCUM P.bEEP P.CL ICP bP.S IG L.S IGN Ir.FUNC Ir.AdJ T.CNT T.NEXT PUSd.EN PUSd End	RESET StAbLE ZERO FILTER AZT L IGHT S.SAVER A.OFF L.KEY End	RESET USE IGH PERCNT dYNAMM d.TYPE S.USt d.t IMTE A.t IMTE FILL End	RESET kg g lb oz lb;oz End	RESET d.FMT dATE t.FMT t IMTE P. id S. id End	RESET bAUd PAr ITY StOP H.SHAKE ALt.P ALt.t ALt.2 End	RESET ASS IGN StAbLE MOdE t IMTE C.SUMM tEMP End	RESET tYPE INPUt 1 INPUt 2 OUt 1 OUt2 OUt3 OUt4 End	RESET L.ALL L.OFF L.ZERO L.Pr INt L.UNIT L.FUNC L.MOdE L.MENU L.tArE L.tArGt End	NEUU Ed it End	NEUU Ed it End	RESET tYPE E.MENU I.MENU E.L lb I.L lb E.USEr I.USEr LENGtH S.d IG it	End

Notes:

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

When LEGAL FOR TRADE is turned **ON** (the lock switch is in the locked position), the menu settings will be affected as below:

- Calibration (**CAL**) menu is not accessible.
- Zero Range setting is locked at 2%.
- Stable Range setting is locked at 1d.
- Auto-Zero Tracking setting is locked at 0.5d.
- Filter and Units are locked at their current settings.
- Stable Only is locked to be **On**.
- Auto Print/Continuous is disabled.
- Lb;oz unit is locked Off.

2.2 Button Navigation

The **Yes** button: allows entry into the displayed menu.

Accepts the displayed setting and advances to the next item.

The **No** button: rejects entry into the displayed menu.

Rejects the displayed menu and move on to the next selection.

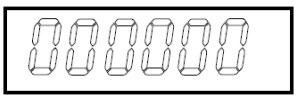
The **Back** button: moves backwards through the upper and middle level menus.

Backs out of a list of selectable items to the previous middle level menu.

The **Exit** button: exits from menu directly to the active weighing mode.

For menu items with numeric settings such as Capacity, the current setting is displayed with all digits flashing. To revise:

1. Press the **No** button to begin editing.



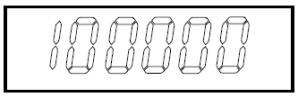
2. The first digit is displayed flashing.

3. Press the **No** button to increase the digit or press the **Yes** button to accept the digit and move to the next one.

4. Repeat this process for all digits.

5. Press the **Yes** button when the last digit has been set.

6. The new setting is displayed with all digits flashing. Press the **Yes** button to accept the setting or press the **No** button to resume editing.



7. To end the current menu selection, press the **Yes** button to advance to the next menu, or press the **No** button to return to the top of the current menu.

Note: For i-DT61XWE model, the numeric value can be input by the numeric keypad directly.

2.3 Calibration Menu

Enter this menu to perform calibrations.

2.3.1 Initial Calibration

When the scale is operated for the first time, a zero and span calibration are recommended to ensure accurate weighing results.

Before performing the calibration, be sure to have the appropriate calibration weights as listed in table 2-1. Ensure that the LFT switch/calibration lock is set to the unlocked position.

Or adjust the GEO setting according to your location.

TABLE 2-1

Required Span Calibration Mass (sold separately)			
Max	**Mass***	**Max**	**Mass***
3000g	3kg / 5lb	30000g	30kg / 50lb
6000g	6kg / 10lb	60000g	60kg / 100lb
15000g	15kg/25lb	150000g	150kg / 250lb

Note:

- When active unit is g or kg, the calibrating unit will be in kg.
- When active unit is lb, oz or lb:oz, the calibrating unit will be in lb.
- For linearity calibration, the calibration Mass is fixed. The Mid-point is always half of the full capacity.

2.3.2 Zero Calibration [ZERO]

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

Calibration procedures:

1. Long press the **Menu** button until you see CAL. Press the **Yes** button.
2. The display shows ZERO. Press the **Yes** button.
3. The display flashes 0 kg and the calibration unit. With no weight on the pan, press the **Yes** button to establish the zero point.
4. The display shows --C--, and then -DONE- when the Zero calibration is finished.
   Note:

   If zero calibration is failed or if after 40 seconds the calibration is still not successful, CAL E is displayed for 3 seconds and the previous calibration data is restored. The scale exits to the active weighing mode and displays the actual weight value in the current weighing unit.

5. Then the display shows SPAN. Press the **Exit** button to exit.

2.3.3 Span Calibration [SPAN]

Span calibration uses one point. The span calibration point is established with a calibration mass placed on the scale.

Note: Span calibration should be performed after zero calibration.

Calibration procedures:

1. Long press the **Menu** button until you see C.A.L. Press the **Yes** button.
2. Short press the **No** button to navigate until you see SPAN. Press the **Yes** button.
3. The display flashes with the calibration point and calibration unit based on the capacity and unit set in the capacity menu. (e.g. 030.000 kg). If you do not need to change the calibration point, skip to step 5.
4. To change the calibration point:
   - i-DT61PW: short press the **No** button several times until the desired digit appears. Short press the **Yes** button to accept the digit and move to the next one. Repeat the process until all the digits are correct. Press the **Yes** button to accept the calibration point. The display flashes with the calibration point you set.
   - i-DT61XWE: input the calibration point through the numeric keys. (Do not press the **Yes** button until you finish step 5.)
5. Place a calibration mass of the specified weight on the pan and press the **Yes** button.
6. The display shows --C--, and then -dONE- when the calibration is finished.
7. Then the display shows L in. Press the **Exit** button to exit.

Note:

- If calibration is failed, CAL E is displayed for 3 seconds and the previous calibration data is restored. The scale exits to the active weighing mode and displays the actual weight value in the current weighing unit.
- If after waiting for 40s the calibration is still not successful, CAL E is displayed for 3 seconds and the previous calibration data is restored. The scale exits to the active weighing mode and displays the actual weight value in the current weighing unit.

2.3.4 Linearity Calibration [L in]

Linearity calibration uses 3 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.

Calibration procedures:

1. Long press the **Menu** button until you see C.A.L. Press the **Yes** button.
2. Short press the **No** button several times to navigate until you see L in. Press the **Yes** button.
3. The display flashes with 0 kg and the calibration unit. With no weight on the pan, press the **Yes** button to establish the zero point.
4. The display shows --C--, and then moves to flash with the first calibration point and calibration unit based on the capacity and unit you set in the capacity menu. (For example, 0 15.000 kg). If you do not need to change the calibration point, skip to step 6.
5. To change the calibration point:
   - i-DT61PW: short press the **No** button several times until the desired digit appears. Short press the **Yes** button to accept the digit and move to the next one. Repeat the process until all the digits are correct. Press the **Yes** button to accept the calibration point. The display flashes with the calibration point you set.
   - i-DT61XWE: input the calibration point through the numeric keys. (Do not press the **Yes** button here until you finish step 6).
6. Place a calibration mass of the specified weight on the pan and press the **Yes** button.

7. The display shows --C--, and then moves to flash with the second calibration point and calibration unit based on the capacity and unit you set in the capacity menu. (For example, 030.000 kg).
   Note:
   If after waiting for 40s the calibration is still not successful, CAL E is displayed for 3 seconds and the previous calibration data is restored. The scale exits to the active weighing mode and displays the actual weight value in the currently selected weighing unit.
8. Repeat step 5 and 6.
9. The display shows --C--, and then -dONE- when the Linearity calibration is finished.
10. Then the display shows GEO. Press the **Exit** button to exit.

2.3.5 GEO Adjustment [GEO]

Geographical Adjustment Factor (GEO) is used to adjust the calibration based on the current location. Settings from 0 to 31 are available with 12 being the default.

Please refer to the **Table of Geo Values** section in the **Technical Data** chapter to determine the GEO factor that corresponds to your location.

To set the GEO factor:
1. Long press the **Menu** button until you see C.AL. Press the **Yes** button.
2. Short press the **No** button several times to navigate until you see GEO. Press the **Yes** button.
3. The display flashes with the Geo point (For example, 12).
4. Short press the **No** button several times until the desired GEO number appears. Press the **Yes** button to finish setting.
5. Then the display shows C.tEST. Press the **Exit** button to exit.

2.3.6 Calibration Test [C.tEST]

Calibration test procedures:

1. Long press the **Menu** button until you see C.AL. Press the **Yes** button.
2. Short press the **No** button several times to navigate until you see C.tEST. Press the **Yes** button.
3. The display flashes with 0 and the calibration unit based on the capacity and unit you set in the capacity menu. With no weight on the pan, press the **Yes** button to establish the zero point.
4. The display shows --t-- while the zero point is recorded.
5. The display flashes with the calibration weight and the unit of the last time. (For example, 0 15.000 kg).
6. To change the test calibration weight:
   - i-DT61PW: short press the **No** button several times until the desired digit appears. Short press the **Yes** button to accept the digit and move to the next one. Repeat the process until all the digits are correct. Press the **Yes** button to accept the calibration point.
   - i-DT61XWE: press the numeric keys to edit the weight. (Do not press the **Yes** button here until you finish step 7).
7. Place the specified test weight on the pan and press the **Yes** button.
8. The display flashes with the difference between the calibration data and the test weight. (For example, 0.0 10 kg). If the terminal is connected to a printer or other devices, the result of the Calibration Test will be printed.
9. After 5 seconds, the test ends and the scale returns to the active weighing mode with the display of the current weight.

2.3.7 End Cal [End]

When End is displayed, press the **Yes** button to exit this menu and advance to the next Sub-menu or press the **No** button to advance to the first menu item in the this Sub-menu.

2.4 Service Menu

Enter this menu to check the loadcell, software update and format Alibi Memory etc., by following step:

– Turn the scale off

– Press and Hold the buttons 

and 

. As the balance powers up, **Service** appears followed by **Ramp; <u>for the model i-DT61XWE need to press the button</u>** 

<u>to the Ramp menu.</u>

2.4.1 RAMP [rAMP]

The ramp display shows the percentage of use of the A to D circuit, that is, of the temperature-compensated duty cycle. The actual value is not as important as how it changes. It should increase as the weight on the balance is increased. The ramp display should remain constant without fluctuations.

To view the Ramp value. A number will appear and should be constant. Place masses on the scale from minimum to maximum capacity. The reading will increase but should not fluctuate. Fluctuations in the display may indicate a mechanical interference, a cable connection problem, a damaged Main PCB or a damaged load-cell.

2.4.2 Expand [EXPAnd]

Expand reading is the internal calculation result, which should be up and down following with the Ramp changes.

2.4.3 Reset [rESEt] (for i-D61PW ONLY)

Reset the indicator the initial setup.

2.4.4 Firmware Update [UPdAtE] (for i-D61XWE ONLY)

Please refer to "APPENDIX C. Software Update via USB drive" for the software update.

2.4.5 Format Alibi Memory [F.AL Ib i] (for i-D61XWE ONLY)

To Format the Alibi Memory for the i-DT61XWE model with the alibi Memory.

2.4.6 Factory reset [F.rESEt] (for i-D61XWE ONLY)

Reset the indicator the initial setup.

3 MAINTENANCE

CAUTION: DISCONNECT THE UNIT FROM THE POWER SUPPLY BEFORE CLEANING.

WARNING: Electric Shock Hazard. Disconnect the equipment from the power supply before cleaning.

Make sure that no liquid enters the interior of the instrument.

Attention: Do not use solvents, harsh chemicals, ammonia or abrasive cleaning agents.

3.1 Preventive Maintenance

Ohaus bases should be carefully handled, stored in a clean, dry area, and cleaned periodically. Follow these precautionary steps:

- When a base has had chemicals or liquids spilled on it, all exterior surfaces should be cleaned as soon as possible with warm water on a damp cloth.
- Do not leave a mass on the base when it is not in use.
- Allow time for the base to stabilize after moving it from an area which is at a different temperature than the area where it is to be operated. Allow one hour for each 5°F (2.7°C) temperature change before using the scale. After temperature stabilization, allow an additional 20 minutes after turning the scale on, for the scale/ indicator electronics to stabilize.

3.2 Preventive Maintenance Checklist

The scale should be inspected and checked regularly, as follows:

1. Clean the outside of the scale/ indicator using a damp cloth with warm water.

Cleaning for i-DT61PW Model

- The housing may be cleaned with a cloth dampened with a mild detergent if necessary.
- Do not use solvents, chemicals, alcohol, ammonia or abrasives to clean the housing or control panel.

Cleaning for i-DT61XWE Model

- Use approved cleaning solutions for the stainless-steel Indicator housing and rinse with water. Dry thoroughly.
- Do not use solvents, chemicals, alcohol, ammonia or abrasives to clean the control panel.

CAUTION: DO NOT USE CHEMICAL CLEANERS OR SOLVENTS OF ANY TYPE. SOME CLEANERS ARE ABRASIVE AND MAY AFFECT THE BASE'S FINISH.

2. Check to ensure that the power cord is not broken and has no damaged insulation.
3. If using batteries and the scale malfunctions, first replace the batteries to see if this resolves the problem.
4. Make a visual inspection for faulty connectors, wiring, and loose hardware.

3.3 Troubleshooting

TABLE 3-1 TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE (s)	REMEDY
EEP Error	EEPROM Checksum Error	Corrupted EEPROM data
Unit will not turn on.	1. Power cord not plugged in or properly connected. 2. Power outlet not supplying electricity. 3. Battery discharged (i-DT61PW). 4. Other failure.	1. Check power cord connections. Make sure power cord is plugged in properly into the power outlet. 2. Check power source. 3. Replace batteries (i-DT61PW). 4. Service required.
Cannot zero the Scale, or will not zero when turned on.	1. Load on Scale exceeds allowable limits. 2. Load on Scale is not stable. 3. Load Cell damage.	1. Remove load on Scale. 2. Wait for load to become stable. 3. Service required.
Unable to calibrate.	1. Lock Calibration Menu set to On. 2. LFT menu set to On. 3. Incorrect value for calibration mass.	1. Set Lock Calibration Menu to Off. 2. Refer to Section 3.12 Menu Lock. 3. Set LFT menu to Off. 4. Use correct calibration mass.
Cannot display weight in desired weighing unit.	Unit not set to On.	Enable unit in the Units Menu. Refer to **Unit Menu** section for help.
Cannot change menu settings.	Menu has been locked.	1. Set selected menu to Off in the Lock Menu. 2. 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.	1. Remove load from scale. 2. Recalibrate scale.
Error 8.2	Weight reading below Power On Zero limit.	1. Add load to scale. 2. Recalibrate scale.
Error 8.3	Weight reading exceeds Overload limit.	Reduce load on scale.
Error 8.4	Weight reading below Underload limit.	1. Add load to scale. 2. Recalibrate scale.
Error 8.6	Weight exceeds six digits. Display overflow.	Reduce load on scale.
Error 8.8	Factory calibration data in memory module at the end of the load cell cable is not valid under LFT OFF status.	Calibrate scale.
Error 8.9	Fail to read serial number from memory module or serial number does not match the indicator's under LFT ON status.	Break the seal or replace the original base/indicator.
Error 9.5	Calibration data not present.	Calibrate scale.
Battery symbol flashing	Batteries are discharged.	Replace batteries (i-DT61PW).

CAL E	Calibration value outside allowable limits	Use correct calibration weight.
NO.SWJ	Attempting to exit the menu with the LFT setting ON and the security switch OFF.	Refer to **LEGAL FOR TRADE** chapter for details about how to set the security switch to the ON position.
REF WGt Err	Reference Weight too small. The weight on the platform is too small to define a valid reference weight.	Use a heavier weight for sample.

3.4 Verification of the safe state of the equipment after service

After servcie/ repair, the scale/ indicatior should be inspected and checked before connecting the power, as follows:

1. Visual check to ensure that all the parts not broken and installed correctly.
2. For the equipment with Electrical supply 100 - 240V ~ , need to check the resistance the conductive part to the pin of power socket/ pins. Grounding pin should be lower than 0.3Ω, Both L and N pin should be higher than 20M Ω or infinity.

3.5 Service Information

If the troubleshooting section does not resolve your problem, contact an authorized Ohaus Service Agent. For Service assistance in the United States, call toll-free 1-800-526-0659 between 8:00 AM and 5:00 PM Eastern Standard Time. An Ohaus Product Service Specialist will be available to assist you. Outside the USA, please visit our website www.ohaus.com to locate the Ohaus office nearest you.

4 TECHNICAL DATA

4.1 Specifications

Materials

I-DT61XWE Housing: stainless-steel 316

I-DT61PW Housing: polycarbonate (PC)

Display window: polycarbonate (PC)

Keypad: polycarbonate (PC)

Equipment Ratings:

Indoor use only

Altitude:	2,000m
Operating temperature:	-10°C to 40°C
Humidity:	maximum relative humidity 80% for temperatures up to 31 °C decreasing linearly to 50% relative humidity at 40°C.
Electrical supply:	100 - 240V～, 0.5A, 50/60Hz (i-DT61XWE); 6 x D alkaline battery (i-DT61PW).
Voltage fluctuations:	Mains supply voltage fluctuations up to ±10% of the nominal voltage.
Overvoltage category (Installation category):	II
Pollution degree:	2

Model	**i-DT61PW**
Construction	Polycarbonate plastic housing, 304 stainless steel bracket
Protection	IP68/IP69k
Maximum displayed resolution	1:75,000
Maximum approved resolution	1:10,000 (EC, OIML & NTEP) Class III
Weighing Units	Kilogram, Gram, Pound, Ounce, Pound: Ounce, Tonne (Metric Tonne)
Modes	Basic weighing, Percent weighing, Piece Counting with Optimized APW, Check weighing/counting, Dynamic weighing
Display	6-digit, 7-segment LCD display with white backlight, 45 mm high digits
Check Indicator	3 color (red, green, yellow) bar LED
Keyboard	6 function mechanical keys
Auto-zero Tracking	Off, 0.5 d, 1 d or 3 d
Load cell excitation voltage	3.3VDC
Load cell drive	Up to 4 x 350 ohm load cells
Load cell input sensitivity	Up to 3 mV/V
Power	6 x D alkaline battery
Battery Life	1,500 hours continuous use with backlight off
Interface	Infrared USB communication port
Shipping Dimensions	300 x 265 x 135 mm 11.8 x 10.4 x 5.3 in
Product Dimensions (with bracket)	10.4 x 8.9 x 3.3 in / 265 x 225 x 85 mm
Approx. Net Weight	2.7 kg / 6.0 lb
Approx. Shipping Weight	3.8 kg / 8.4 lb
Operating Temperature Range	14°F to 104°F / -10°C to 40°C

Model	**i-DT61XWE**
Construction	316 Stainless steel housing, 316 stainless steel bracket
Protection	IP68/IP69k
Maximum displayed resolution	1:75,000
Maximum approved resolution	1:10,000 (EC, OIML & NTEP) Class III
Weighing Units	Kilogram, Gram, Pound, Ounce, Pound: Ounce
Modes	Basic weighing, Percent weighing, Check weighing/percent, Dynamic weighing, Filling weighing, Counting
Display	6-digit, 7-segment white LED, 20 mm high digits
Check Indicator	3 color (red, green, orange) 8x16 dot matrix LED
Keyboard	6 function keys + 12 alpha numeric capacitive keypad
Auto-zero Tracking	Off, 0.5 d, 1 d or 3 d
Load cell excitation voltage	5VDC
Load cell drive	Up to 4 x 350 ohm load cells
Load cell input sensitivity	Up to 3 mV/V
Stabilization time	Within 2 seconds
Power	100-240 VAC / 50/60 Hz Universal Power Supply, hardwired
Interface	Standard: RS232, USB Host Optional: Ethernet, Wi-Fi/Bluetooth, 2nd RS232/RS485/USB, Analog output, 2 In/4 Out Discrete I/O
Shipping Dimensions	300 x 265 x 135 mm 11.8 x 10.4 x 5.3 in
Product Dimensions (with bracket)	11.4 x 9.3 x 3.1 in / 290 x 235 x 80 mm
Approx. Net Weight	3.2 kg / 7.0 lb
Approx. Shipping Weight	3.5 kg / 7.7 lb
Operating Temperature Range	14°F to 104°F / -10°C to 40°C

4.2 Table of Geo Values

TABLE 4-1 GEO CODES

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

5 REPLACING MAJOR COMPONENTS (INDICATOR)

Ohaus Indicators are precision instruments and should be carefully handled, stored in a clean, dry, dust-free area, and cleaned periodically. Follow these precautionary steps:

- When an Indicator has had chemicals or liquids spilled on it, all exterior surfaces should be cleaned as soon as possible with warm water on a damp cloth.
- Allow at least 10 minutes for the Indicator to stabilize after moving it from an area which is at a different temperature than the area where it is to be operated.

5.1 Printed Circuit Board (PCB) Replacement

WARNING: Electric Shock Hazard. Disconnect the Indicator from power before servicing.

CAUTION: Observe precautions for handling electrostatic sensitive device.

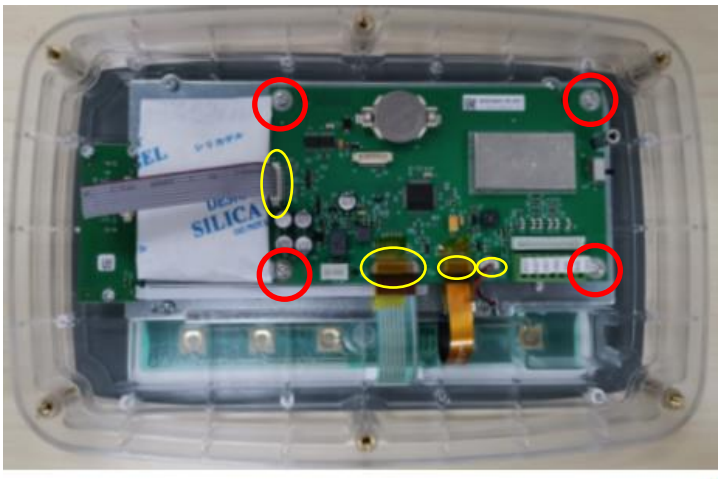
Repairs are not recommended on the PCB. Replacement is recommended rather than repairing.

Replace the PCB for any of the following reasons:

- Display is defective; characters missing or partial display.
- Indicator fails to calibrate properly.
- Display is erratic or unstable.
- Certain functions are not operational.
- Indicator does not operate at all.

5.1.1 i-DT61PW

1. Open the housing, refer to section 1.7.1, and ake out the batteries from the Indicator.
2. Remove the IR PCB connector, LCD connector, function label connector and power connector from the main PCBA.
3. Remove the 4 screws from the PCB and securely remove the main PCBA from the bottom housing.



CAUTION: When handling the PCB, grasp it by the edges only!
Do not touch the foil side. Static discharge may damage some components.

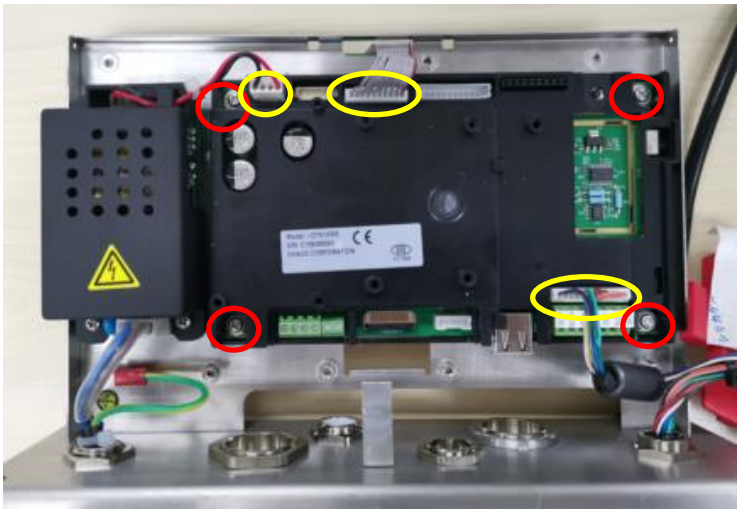
4. Carefully re-position the replacement PCB over the screw holes in the Top Cover. Re-insert and tighten the screws.

5. Reconnect the Cable Sets removed in Step 3.

6. After replacing with a new Main PCBA kindly refer to Appendix A and configure the main PCBA according to region.

5.1.2 i-DT61XWE

1. Unplug the Indicator from the AC power source.
2. Open the housing, refer to section 1.7.2
3. Remove the LED connector, loadcell connector and power connector from the main PCBA.
4. Remove the 4 screws from the PCB and securely remove the main PCBA from the bottom housing.



CAUTION: When handling the PCB, grasp it by the edges only!
Do not touch the foil side. Static discharge may damage some components.

5. Carefully re-position the replacement PCB over the screw holes. Re-insert and tighten the screws.

6. Reconnect the Cable Sets removed in Step 3.

7. After replacing with a new Main PCBA kindly refer to Appendix A and configure the main PCBA according to region.

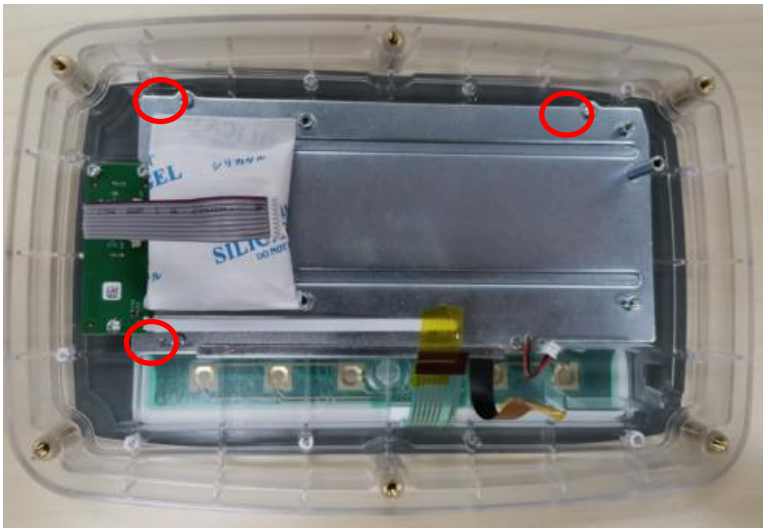
5.2 Display Replacement

WARNING: Electric Shock Hazard. Disconnect the Indicator from power before servicing.

CAUTION: Observe precautions for handling electrostatic sensitive device.

5.2.1 i-DT61PW

1. Follow the Steps 1~3 of the PCB Replacement 5.1.1.
2. Remove 3 screws on the PCBA Support.



3. Take out the LCD carefully.

4. Reverse for the New LCD display installation.

5.2.2 i-DT61XWE

1. Follow the Steps 1~2 of the PCB Replacement 5.1.2.

2. Unplug the cable connector and remove 4 screws from LED display, take out the LED display.

3. Reverse for the New LED display installation.

5.3 Loadcell Cable Replacement

Cables information:

Part Number	Description
30613002	Connector Loadcell i-DT61PW

Part Number	Description
30427858	Loadcell Connector, Short, TD52, i-DT61XWE

1. Open the Housing, refer to section 1.7.1 for i-DT61PW, section 1.7.2 for i-DT61XWE.
2. Disconnect the white cables connector from the main PCB and remove the quick-connect nuts that hold the cables in place.
3. Reverse for the new cable install.

5.4 Control Panel Replacement

1. Isolate the top housing follow the step 1~3 in Section 1.7.1 for i-DT61PW, section 1.7.2 for i-DT61XWE , and disconnect the Control Panel cable.
2. Carefully remove the old Control Panel from the top housing. It is held in place with a strong adhesive.
3. Clean the Top Cover and remove all traces of adhesive.
4. Remove the protective backing from the back of the new Control Panel. Carefully position it on the Top Housing, starting at the bottom of the cover. Use a rolling motion to smooth it into position.
5. Reconnect the Control Panel cable and reserve step 1 to complete the indicator assembly.
6. Power on for the function test.

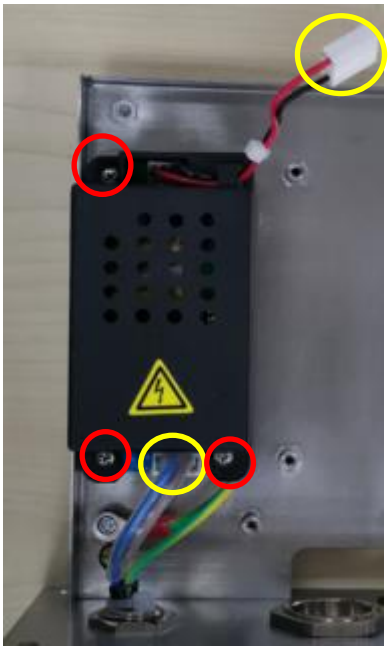
Note: for the models of i-DT61XWE, you can choose the Housing Kit which include both the top housing and the Control Panel.

5.5 Power Switch Replacement (for i-DT61XWE only)

WARNING: Electric Shock Hazard. Disconnect the Indicator from power before servicing.

CAUTION: Observe precautions for handling electrostatic sensitive device.

1. Unplug the Indicator from the AC power source.
2. Separate the Top Housing and Bottom Housing follow the step in section 1.7.2.
3. Remove the cable connector from the Power Switch to the Main PCBA.
4. Remove the cable connector from the Power Switch to the AC Inlet connector.
5. Remove 3 screws that secure the Power switch cover to the bottom housing, and remove the last screw secure the Power switch, and lift it off.



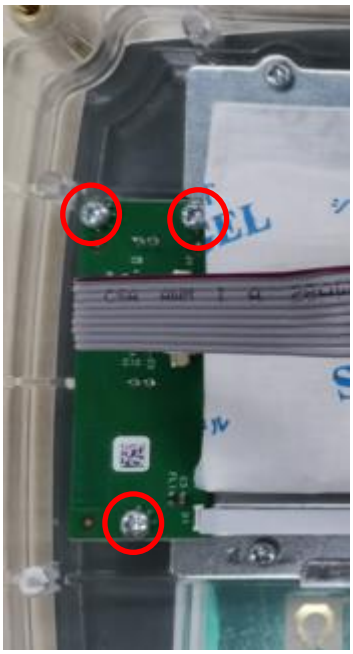
6. Position the replacement Power Switch with the screw holes aligned.
7. Reserve for the Power Switch installation.
8. Connect the Indicator to AC power and test it.

5.6 IR Receiver Replacement (for i-DT61PW only)

WARNING: Electric Shock Hazard. Disconnect the Indicator from power before servicing.

CAUTION: Observe precautions for handling electrostatic sensitive device.

1. Open the housing, refer to section 1.7.1, and ake out the batteries from the Indicator.
2. Remove the IR PCB connector from the main PCBA.
3. Remove 3 screws from the PCB and securely remove the IR Receiver from the top housing.



4. Position the replacement IR Receiver with the screw holes aligned.
5. Reserve for the Power Switch installation.
6. Connect the Indicator to AC power and test it.

6 PARTS IDENTIFICATION

This section of the manual contains exploded views for the Defender 6000 Bases. The exploded view drawings are designed to identify the parts which can be serviced in the field.

6.1 Defender 6000 Series Indicator: i-DT61PW

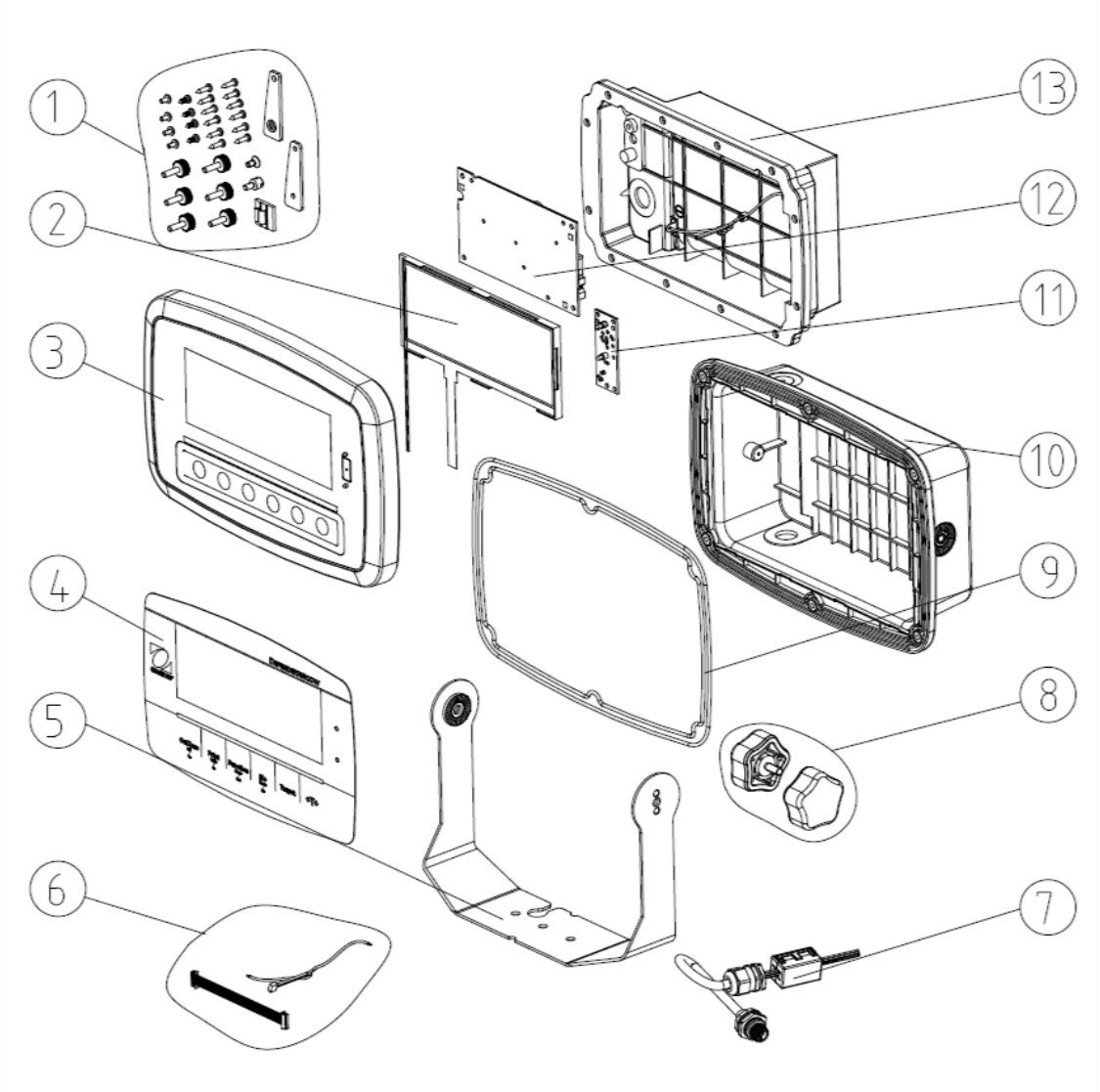


Figure 6-1. Defender 6000 series Indicator: i-DT61PW

Drawing Item	Description
1	Hardware Kit i-DT61PW
2	LCD Display i-DT61PW
3	Housing Front Kit i-DT61PW
4	Function label EN i-DT61PW
	Function label CN i-DT61PW
5	Bracket kit i-DT61PW
6	Hardware Kit Internal Cable i-DT61PW
7	Connector Loadcell i-DT61PW
8	Hardware Kit Knob (2) T51 T71
9	Seal kit Rubber i-DT61PW
10	Housing Rear i-DT61PW
11	PCB IR receive i-DT61PW
12	PCB Main i-DT61PW
13	Housing Battery Kit i-DT61PW
NS	Box Terminal TD52
NS	Box Complete i-DT61PW

6.2 Defender 6000 Series Indicator: i-DT61XWE

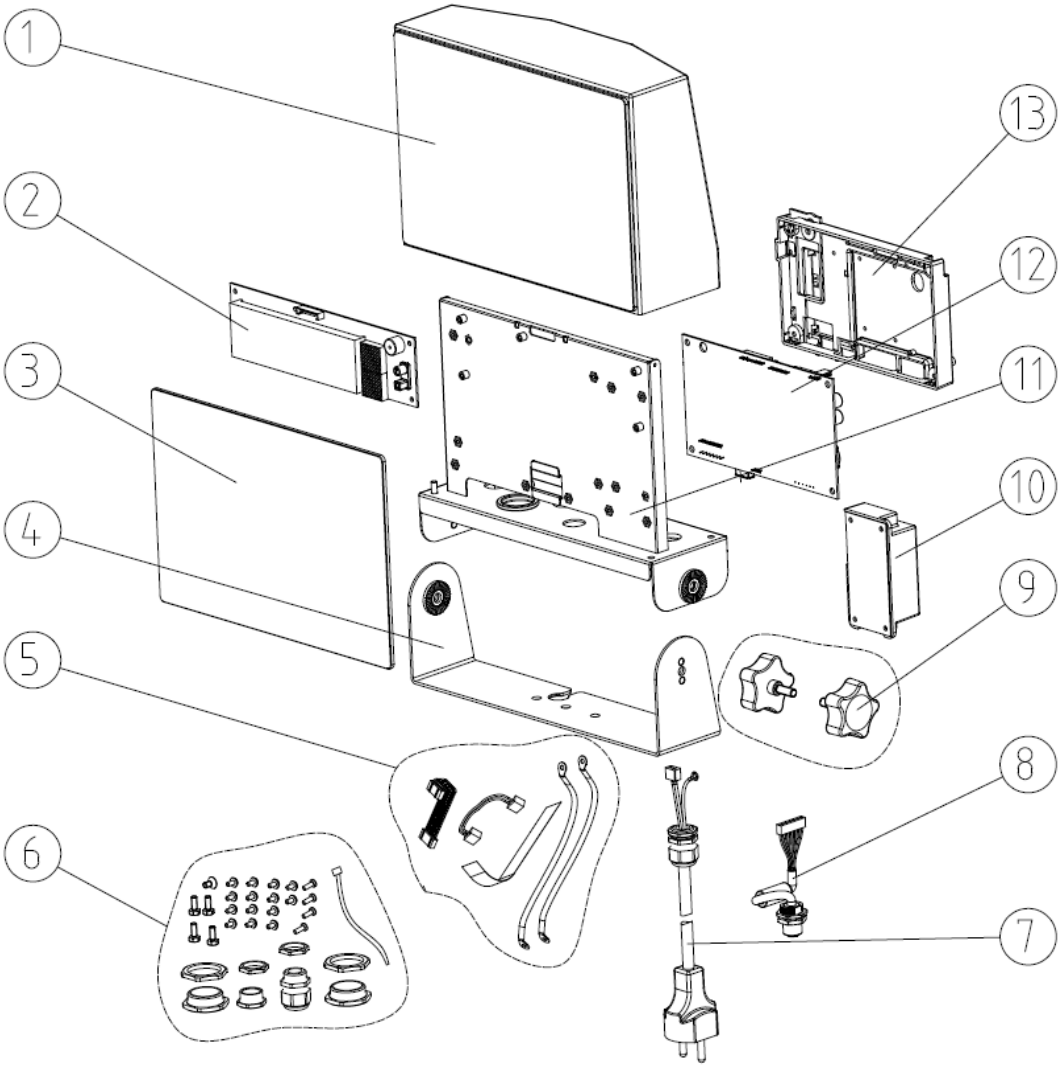


Figure 6-2. Defender 6000 series Indicator: i-DT61XWE

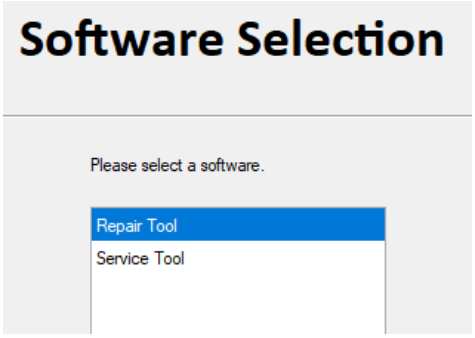
Drawing Item	Description
1	Housing Kit Top EN i-DT61XWE
	Housing Kit Top CN i-DT61XWE
2	Display LED i-DT61XWE
3	Capacitive Keypad EN i-DT61XWE
	Capacitive Keypad CN i-DT61XWE
4	Bracket kit i-DT61XWE
5	Hardware Kit Internal Cable Kit, i-DT61XWE
6	Hardware Kit i-DT61XWE
7	Cable U.K. TD61XW
	Cable JP TD61XW
	Cable EU TD61XW
	Cable USA TD61XW
	Cable AU TD61XW
	Cable CN TD61XW
8	Connector Loadcell Short TD52XW
9	Knob kit i-DT61XWE
10	Power Switch R31 RC31 V71
11	Housing Bottom i-DT61XWE
12	PCB Main i-DT61XWE
13	Cover Set Mainboard LFT i-DT61XWE
NS	Box Terminal TD52
NS	Box Complete i-DT61XWE

APPENDIX A. CONFIGURING THE MAIN PCBA

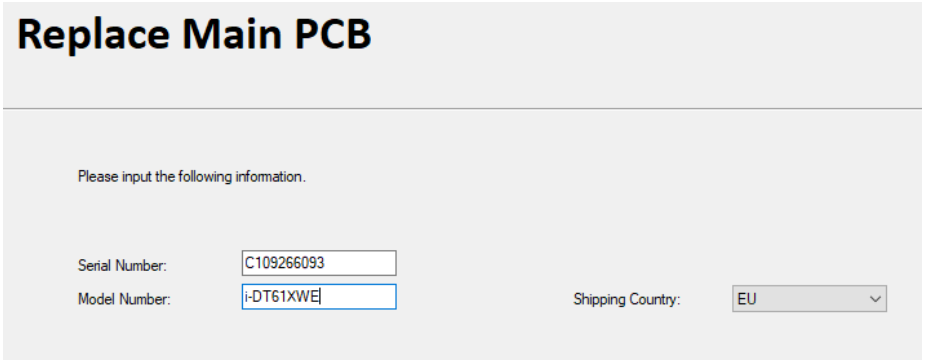
Note: To perform the configuration, connect the indicator with computer via RS232. Please refer to section 1.7.3 for i-DT61PW, section 1.7.4 for i-DT61XWE for the RS232 connection.

Once a new Main PCBA is installed, it will need to PCB configure according to their region.

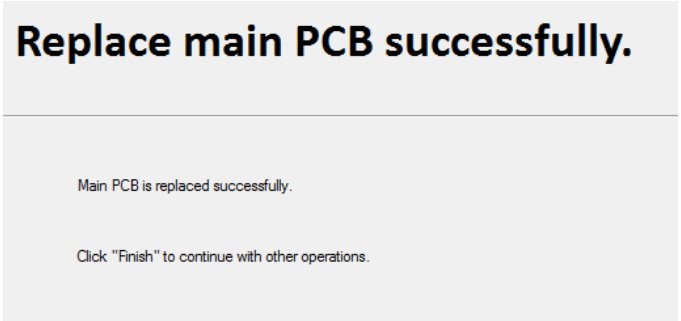
1. Down load and install OHAUS Service and Repair Tools (Version 2.4.3.0 and later).
2. Open the software and select 'Repair Tool' and click 'Next'



3. Select 'i-DT61' under Product Selection and click 'Next'.
4. Select 'Replace Main PCB', click 'Next'
5. Set the same protocol setting between indicator and computer and click 'Next'.
6. Input the 'Serial Number' and 'Model Number' , Select the 'Shipping Country' from the location list and click 'Next'.



7. You will see the below window screen when the configuration is completed successfully.



8. Turn OFF and ON the indicator and check if the configuration is correct.
9. If the process fail kindly check the below.

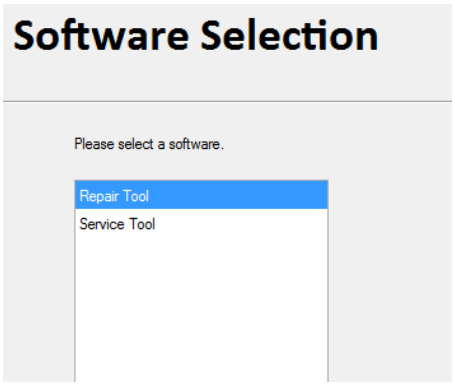
   * The communication cable pin configuration.

   * The Indicator Protocol setting.

APPENDIX B. SOFTWARE UPGRADE VIA SERVICE TOOL

Note: To perform the software upgrade, connect the indicator with computer via RS232. Please refer to section 1.7.3 for i-DT61PW, section 1.7.4 for i-DT61XWE for the RS232 connection.

1. Down load and install OHAUS Service and Repair Tools (Version 2.4.3.0 and later).
2. Open the software and select 'Repair Tool' and click 'Next'



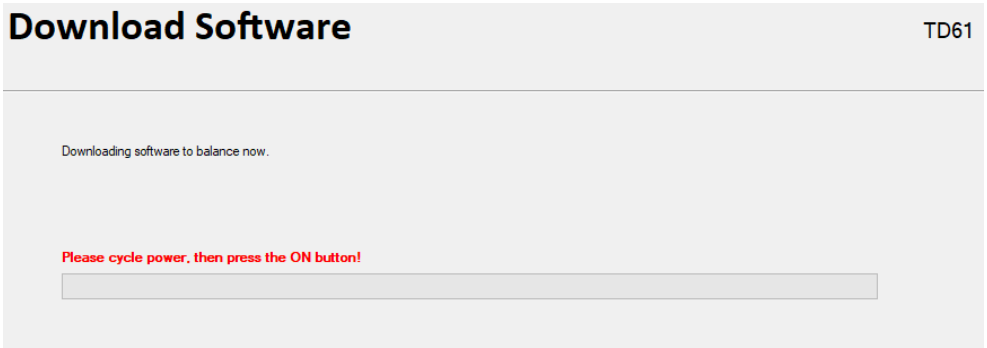
3. Select 'i-DT61' under Product Selection and click 'Next'.
4. Select 'Download Software', click 'Next'
5. Set the same protocol setting between indicator and computer and click 'Next'.
6. Select the Mot file and click 'Next'.

7. Follow by the instruction in the picture below, cycle the power and press the button 

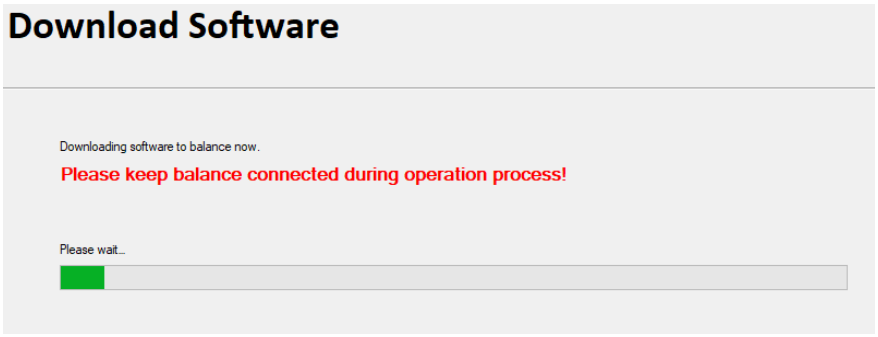
,

****for the model i-DT61XWE should press and hold the button** 

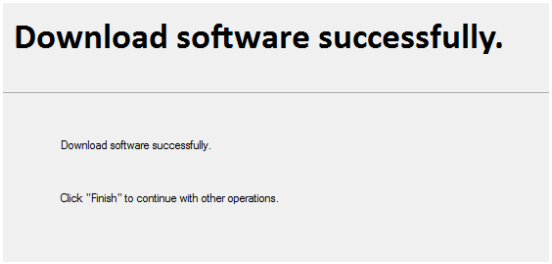
until software installation is completed for about 10 minutes.



8. You will see the below window screen when it's in the process of the software download.



9. You will see the below window screen when the software download is completed successfully.



NOTE **You can use the Metal part instead of the finger to press and hold the button 

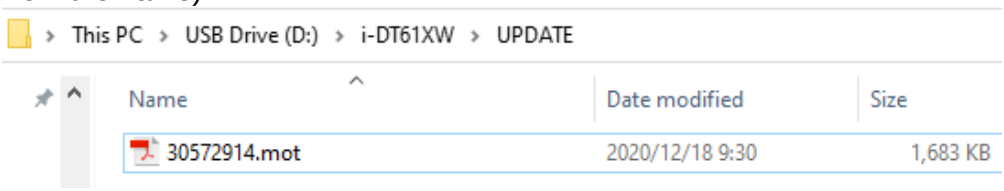
for the software upgrade for model i-DT61XWE.

APPENDIX C. SOFTWARE UPGRADE VIA USB DRIVE

Note: Need prepare the USB drive for this process, USB drive way is for i-D61XWE ONLY.

1, Create the new folder "i-DT61XW" under the root folder of the USB drive, and "UPDATE" under " i-DT61XW "

2, Copy the mot file in the folder "Update" with the name "30572914.mot" (remove the version info from the name)



3, Power off the unit, remove M25 cover and the plug the USB drive.

4, Enter the Service menu by pressing and Holding the buttons On/Zero and →T← .

5, Press the button On/Zero to the Ramp menu.

6, Press the button Print until you see "UPdAtE".

7, Press the button On/Zero for the software upgrade via deleting and programming process.

8, The indicator will be switched off automatically, when it's done with the software upgrading.

9, Press and hold the button 

for about **<u>15 seconds for initial switching on the indicator</u>** to check the software version, when program startup.

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