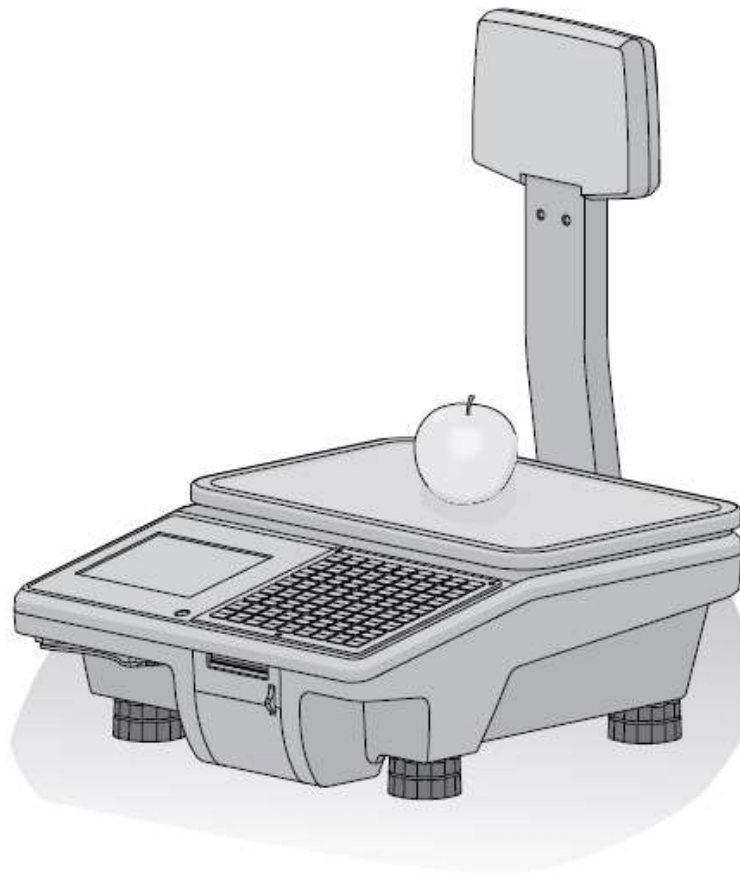


# **SERVICE MANUAL**

## **bMobile bDrive**



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## **1 INTRODUCTION**

### **1.1 OVERVIEW**

Congratulations on your new scale.

This robust scale with its battery operation, connectable cash drawer and integrated ticket printer facilitates comfortable, mobile selling while maintaining the highest accuracy.

Your new scale not only stands out due to its mobility, but also due to its network-capability and fast data transfer to and from a computer. This lets you, for example, operate integrated scales which are connected to quickly and easily create sales reports.

### **1.2 SERVICE FACILITIES**

To service a scale, the service area should meet the following requirements:

- Should be temperature controlled and meet scale specifications for ambient temperature requirements.
- Must be free of vibrations, such as fork lift trucks close by, large motors, air currents or drafts from air conditioning/heating ducts, open windows, people walking by, fans, etc.
- Area must be clean and free of excessive dust.
- Work surface must be stable and level.
- Scale must not be exposed to direct sunlight or radiating heat sources.
- Use an approved electro-static device.

### **1.3 TOOLS & TEXT EQUIPMENT REQUIRED**

- Common hand tools are sufficient to disassemble Skipper scales. (A list of tools can be found under section "service preparation")
- RS232 or Ethernet connectors
- PC Tools provided by manufacturer

### **1.4 SYSTEM SPECIFICATIONS**

- The specifications of Skipper series are listed in the below table
- Before servicing a scale, first determine which parameters are not met
- After servicing the scale, the below specifications must be met

Specifications	bMobile
----------------	---------



Model Operations	Compact, Ethernet, One dot matrix display
	6/15 kg/2/5g, dual interval
	15 kg/5g, single interval
	15/30 kg/5/10g, dual interval
Display	LCD with White backlight.
	Segment & one dot matrix text line
	adjust level: NA
	kg: 6 digits unit price/ kg: 6 digits total: 7 digits tare: 5 digits
Key	63 membrane keys
Preset Key	35 keys, every key can store 2 PLU
PLU Quantity	3500
Stainless Steel Pan	246mm x 359mm (Trapezoid)
Printer	Thermal printer
	80mm/sec (max.)
	Width: 58mm Active width: 48mm Roll diameter 63mm
	Printer gear stability:50km
Power	Battery: Lead Acid rechargeable 12V/5.5Ah
	220 V AC, 50Hz
Communication	1 RS232
	2 RJ 45 Ethernet
	3 USB host, 1 USB device
	1 Cash box support RJ 11
Working environment	Temperature:-10°C ~40°C
	Humidity:85%RH, Non-condensation
Memory	8M internal memory
Storage environment	Temperature:-10°C ~50°C
	Humidity: 85%RH, Non-condensation
Weighing function	Zero/Tare, 100g, Date/Time, Floating vendor, Multi Payment
Packaging	Net weight: 6.5 kg
	Gross weight: 7.7 kg
	Shipping Box (L x W x H): 539X529X258
Platter dimensions	359* 246mm
Scale dimensions	Compact: 380*380*154mm Tower: 455*380*463mm

Paper format	A: Max. 57 mm
	B: Max. 63 mm
	C: Unlimited
Battery Life	with continuous printing 16 hours

Specifications	bDrive
Model Operations	Compact, Ethernet, 5.7" display
	6/15 kg/2/5g, dual interval
	15 kg/5g, single interval
	15/30 kg/5/10g, dual interval
Display	Customer side: LCD with white backlight. One line dot matrix display
	Operator side: 5.7" TFT display
	Adjustment levels: 0~100
	Display resolution: 800*600
	kg: 6 digits unit price/ kg: 6 digits total: 7 digits tare: 5 digits
Key	72 Light Touch keys
Preset Key	52 keys, every key can store 2 PLU
PLU Quantity	5000
Stainless Steel Pan	240mm x 359mm
Printer	Thermal
	100mm/sec (max.)
	Width: 58mm Active width: 48mm Roll diameter 63mm
	Printer gear stability: 50km
Power	NIMH: 12V/7Ah
	220 V AC, 50Hz
Communication	1 RS232
	2 RJ 45 Ethernet
	3 USB host, 1 USB device, 1 front USB host
	1 Cash box support RJ 11
Working environment	Temperature: -10°C ~40°C
	Humidity: 85%RH, Non-condensation
Memory	8M internal memory
Storage environment	Temperature: -10°C ~50°C

	Humidity: 85%RH, Non-condensation
Weighing function	Zero/Tare, 100g, large scales, Floating vendor ,Multi Payment
Packaging	Gross weight: 8.71 kg
	Net weight: 7.21 kg
	Shipping Box (L x W x H): 539mmX529mmX258mm
Platter dimensions	359* 240mm
Scale dimensions	Compact: 410*360*172mm Tower: 486*360*486mm
Paper format	A: Max. 57 mm
	B: Max. 63 mm
	C: Unlimited
Battery Life	With continuous printing 14.5 hours / NIMH battery

#### 1.4.1 MODEL CONFIGURATION

Type	Max	Min	e
bMobile-C2M-EE15D-OEO	6/15kg	40g	2/5g
bMobile-C2M-EE15S-OEO	15kg	100g	5g
bMobile-C2M-EE30D-OEO	15/30kg	100g	5/10g
bDrive-C2L-CE15D-OEO	6/15kg	40g	2/5g
bDrive-C2L-CE15S-OEO	15kg	100g	5g
bDrive-C2L-CE15D-OWO	6/15kg	40g	2/5g
bDrive-C2L-CE15S-OWO	15kg	100g	5g
bDrive-C2L-CE30D-OWO	15/30kg	100g	5/10g

#### **1.4.2 APPROVAL DOCUMENTATION**

- OIML
- CE

## 2 INSTALLATION

Before installing your scale, identify the best location for your new equipment. A suitable installation environment enhances operation and ensures a long life of the scale. Keep in mind the following factors, which might have a negative influence on the scale's performance:

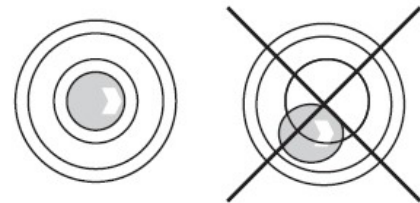
- Vibration diminishes the scale's ability to measure accurately. Excessive vibration from equipment such as conveyors can cause inaccurate and non-repeatable readings.
- Be sure the scale is leveled properly.
- Air currents can also diminish a scale's performance.
- Avoid placing the scale in front of or directly under air vents.
- Other than items being weighed, avoid any objects rubbing or pressing against any part of the scale.

### 2.1 SETTING UP SCALE

#### 2.1.1 LEVELLING THE SCALE

Only a perfectly levelled scale delivers accurate weighing results. The scale is equipped with a level indicator to make it easier to level the scale.

- To level the scale, turn the scale's adjustable feet until the air bubble in the level indicator is positioned in the inner circle.

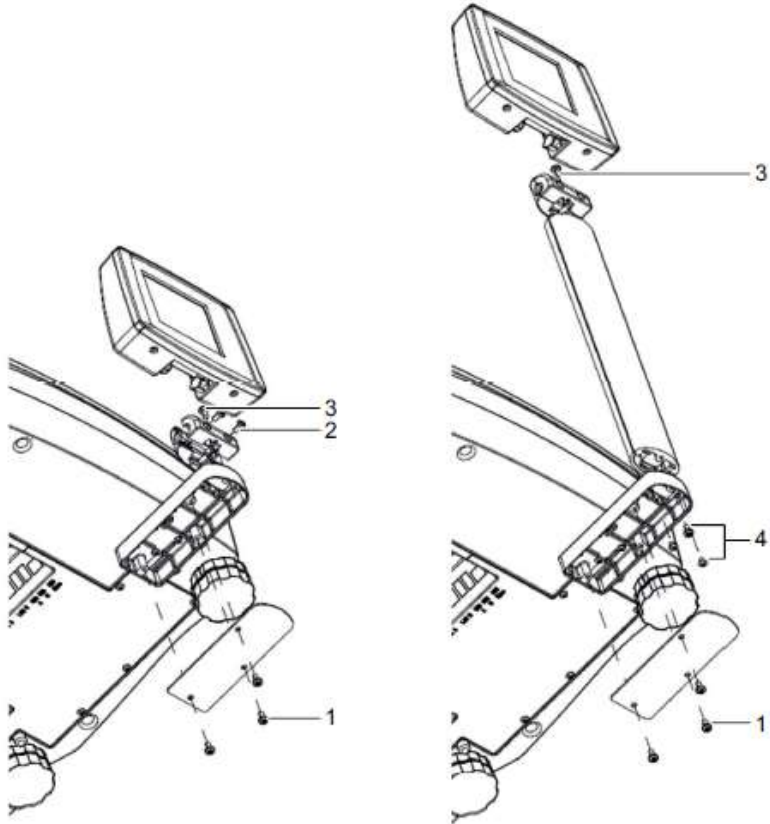


### 2.1.2 MOUNTING THE TOWER (OPTIONAL)

The tower is available as an option to mount the customer display at eye level.

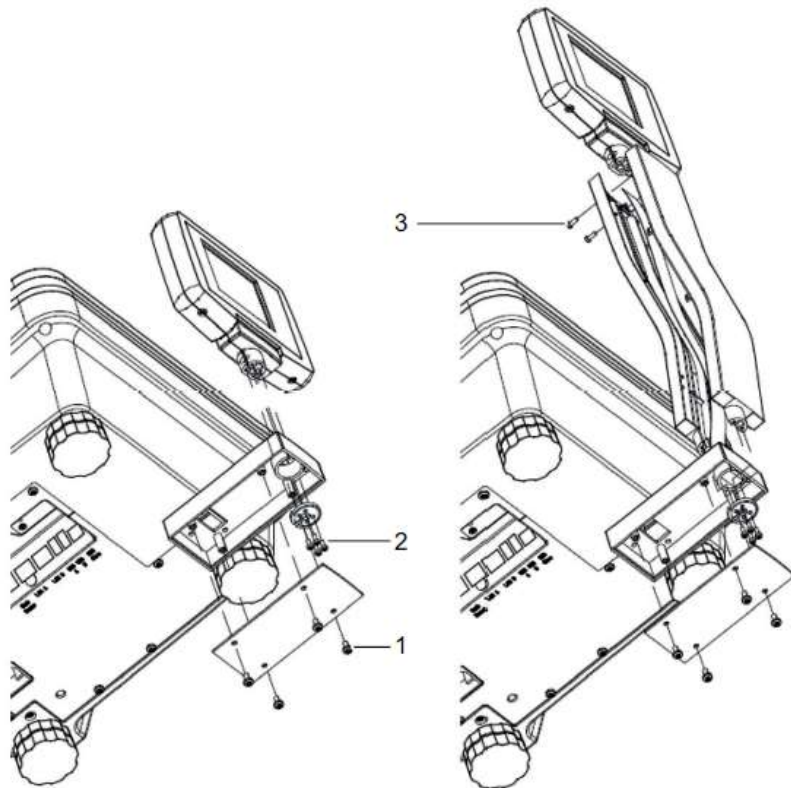
#### **bMobile:**

1. Remove the 3 screws (1) on the bottom of the scale to remove the cover plate.
2. Disconnect the cables and pull the cable out of the scale.
3. Remove the 2 screws (2) under the display and take off the display.
4. Remove screw (3) and take off the adapter.
5. Remove 3 screws (4) from the tower bottom.
6. Pass the cable through the tower.
7. Mount the tower on the tower base with the 3 screws (4).
8. Mount the cover plate with the 3 screws (1).
9. Pass the cable through the adapter and mount the adapter on the tower with screw (3).
10. Connect the cable to the display and put the display on the adapter.



bDrive:

1. Remove the 4 screws (1) on the bottom of the scale to remove the cover plate.
2. Disconnect the cables and pull the cable out of the scale.
3. Remove the 4 screws (2) from the black pad and take off the black pad.
4. Take off the display.
5. Pull the display cable out and connect it to the display.
6. Set the display on top of the tower and fix the two parts of the tower with 2 screws (3).
7. Mount the tower on the tower base.
8. Mount the black pad with 4 screws (2).
9. Mount the cover plate with the 3 screws (1).



## 2.2 SAFETY PRECAUTIONS

In order to prevent accidents at work, the installer is required to take actions, directions and measures that comply with the general regulations for the prevention of industrial accidents, all other valid regulations for the prevention of accidents and with all other generally recognized regulations relating to safety and occupational health.

## 2.3 AMBIENT CONDITIONS

The right location is critical to weighing accuracy. Ideal locations comply with the following conditions:

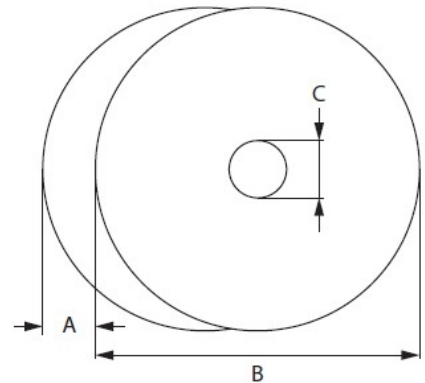
- No shocks and vibrations
- No excessive temperature fluctuations
- No direct sunlight
- No strong drafts
- Select a vibration-free location for your scale

## 2.4 INSERTING PAPER

### 2.4.1 PAPER FORMAT

Ticket rolls must comply with the following measures:

- A. max. 57 mm
- B. max. 63 mm
- C. unlimited



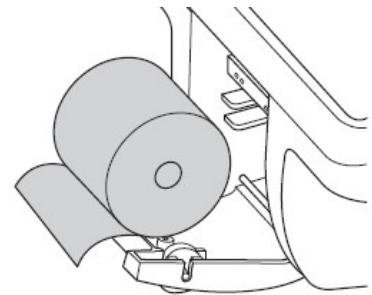
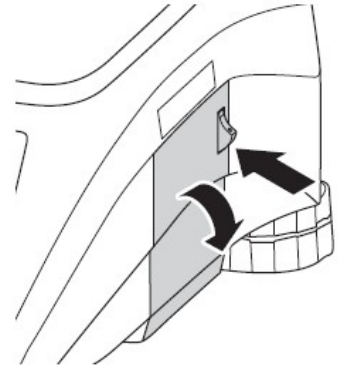


## 2.4.2 INSERTING THE TICKET ROLL

### **bMobile:**

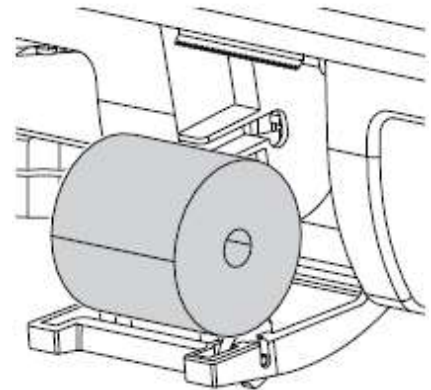
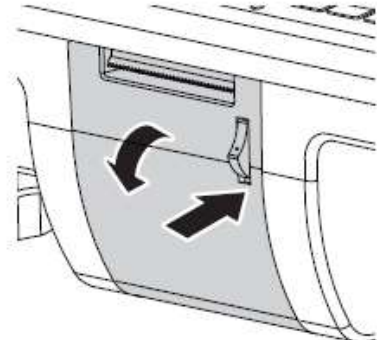
To open the printer door press the button on the printer door.

- A. Put the ticket roll into the paper compartment.
- B. Pull the paper to the outside.
- C. Close the printer door and tear off the excess paper.



### **bDrive:**

1. Put the ticket roll into the paper compartment.
2. Pull the paper to the outside.
3. Close the printer door and tear off the excess paper.



## 2.5 INSERTING THE BATTERY



The battery can be damaged if it is incorrectly installed.

- Pay attention to the correct battery polarity. The positive pole (+) and negative pole (-) cannot be short-circuited.
- **Only use original manufacturer batteries to ensure proper mounting of batteries and avoid damage to the electronics of the device.**
- OHAUS will not accept liabilities on defect electronics and refuse warranty claims if the batteries not supplied by OH are used.

### **bMobile:**

1. Remove the weighing pan.
2. Remove the battery compartment cover.
3. Connect the battery to the connector in the battery compartment.
4. Place the battery in the battery compartment.
5. Close the battery compartment.
6. Put the weighing pan back on its mounting poles.



- The battery life is affected by charging and discharging conditions.
- If correctly used, the battery life can reach approx. 500 charging cycles.
- A fully charged battery lasts up to 16 hours. The battery capacity depends on the intensity of use and decreases with age.
- The battery's operating time is reduced when the battery has not been used over a longer period of time (two months).
- It is recommended that the battery is charged at least every 3 months.
- If the battery was not used over a longer period of time, charge the battery at least three times and use it until it is completely discharged.
- The charging time decreases if the battery is not fully discharged.
- Battery specification: Lead acid battery, 12 V / 5.5 Ah.

### **bDrive:**

1. Remove the weighing pan.
2. Remove the battery compartment cover.
3. Connect the battery to the connector in the battery compartment.
4. Place the battery in the battery compartment.
5. Close the battery compartment.
6. Put the weighing pan back on.

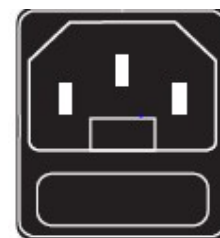


### **IMPORTANT INFORMATION**

- The battery life is affected by charging and discharging conditions.
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- It is recommended that the battery is charged at least every 3 months.
- If the battery was not used over a longer period of time, charge the battery at least three times and use it until it is completely discharged.
- The charging time decreases if the battery is not fully discharged.
- Battery specification: Lead acid battery, 12 V / 5.5 Ah.

## **2.6 CONNECTING TO MAIN POWER**

1. Connect the supplied power cable to the power connection socket on the bottom of the scale.
2. Plug the power plug into a correctly grounded power outlet.



## **2.7 TURNING ON/OFF**

Turn the scale on by pressing the switch on the right bottom of the scale.

Turn the scale off using the switch at the right bottom of the scale.

## 2.8 CLEANING



### CAUTION

#### Damage to the device

- Turn off and unplug the device before cleaning.
- Do not open the device.
- Make sure that no fluids get inside the device.
- Do not use scouring powders or plastic dissolving cleaning agents for cleaning.

#### Cleaning

- Remove the Platter and clean it with a commercially available household detergent.
- If heavily soiled, clean the surface of the device with a damp cloth that has been dipped in water containing a mild washing-up liquid and has been wrung out well.

## 2.9 DISPOSAL

In accordance with the requirements of European Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE), this device may not be disposed of with domestic refuse. This also applies for countries outside the EU in accordance with their respective national regulations.



- Please dispose of this product in accordance with local regulations for the separate collection of waste electrical and electronic equipment.

Should you have any questions, please contact the corresponding authorities or the dealer from whom this device was purchased. If this device is passed on (for example for further private or commercial/industrial use), this regulation is also to be passed on.

Many thanks for your contribution to the protection of the environment.

#### Battery disposal

Batteries contain heavy metals and therefore cannot be disposed of in the normal refuse.

- Observe local regulations on the disposal of materials that are hazardous to the environment.







### 3 SERVICE SETUP

#### 3.1 ENTERING SERVICE SETUP

1. Press [Menu] key. Input the default password 2666666 and press [OK] to enter the menu.
2. Press the arrow up or down key to select **Menu 9 "Service"** and press [OK] key.
3. Input the default password 246813 and press [OK] to enter the menu or input directly the default password 246813 and press (OK) to have a direct access to **Menu 9 "Service"**.

#### 3.2 SETUP NAVIGATION

The following keys can be used during setup:

Key	Name	Function
	Menu	Enter Menu
	Return	Press and hold or double click to return to weighing mode
	Back	Go back to previous screen or clear booking and PLU calling
	Zero	Zeroing/
	Navigation Left	Go to left item
	Up	Go to previous item
	OK	Confirm selection
	Down	Go to next item

#### 3.3 ENDING SETUP

1. Press **Back** to go one step back in setup and finally end setup.
2. Press **Menu** to exit setup directly

### 3.4 GROUP SETTING

#### 3.4.1 GROUP 1 DATA SETTINGS

No.	Display	Description	Possible Values
<b>1 Data</b>			
<b>14 Payment</b>			
<b>141</b>	<b>Payment method</b>	<b>Define payment method</b>	<b>Create New? Existing methods</b>
	Payment method enable	If the payment method is disabled, it will not be possible to use it	Yes/No
	Need Change	Allow change for this payment method	Yes/No
	Allow Group in Printout	Allow printing of different payment method in the same group on a ticket	Yes/No
	Allow Refund	Allow refund for this payment method	Yes/No
	Allow canceling	Allow modification and/or canceling	1 No 2 Allow modify 3 Allow delete 4 Allow modify and delete
	No. of Payment Times Limit	Number of times the payment method can be used on the same ticket, i.e. you can limit the use of voucher to three times. If zero, no limit is set	0 ... 99
	Default Amount	Default amount for this payment method	1 Open amount 2 Zero
	Maximum amount	Select maximum allowed value for this payment method	0.01 ... 999'999,99
	Minimum amount	Select minimum allowed value for this payment method	0.01 ... 999'999,99
	Driver	Select payment terminal connection type	1 None 2 RED payment 3 Union payment 4 Social payment
<b>142</b>	<b>Currency library</b>	<b>Define currency</b>	<b>Create New? Existing methods</b>
	Currency ID	Enter currency ID	1 ... 99
	Currency Name	Enter name of the currency	Max ... 50 characters
	Currency Code	Enter ISO code of the currency	EUR, USD, CHF, GBP, NOK, SEK...
	Exchange Rate	Define exchange rate of the currency	
	Currency symbol	Select symbol of the currency	€, \$, ¥, £, ...
	Currency position	Select position of the currency	1 Prefix 2 Postfix

#### 3.4.2 GROUP 5 ADVANCED SETTINGS

No.	Display	Description	Possible Values
-----	---------	-------------	-----------------

<b>5 Advanced</b>			
<b>51 Scanner</b>			
<b>511</b>	<b>Port configuration</b>	<b>Define Port configuration</b>	
	Scanner Status	Enable/Disable scanner	Enable/Disable
	Port Type	Define port type If COM A or COM B is selected, the configuration of 511 will depend on the scanner. We recommend to use the USB port type.	1 COM A 2 COM B 3 USB
<b>512</b>	<b>For Recall and Book</b>	<b>Define Recall and Book</b>	
	Item Recall definition	Define item recall If "None" is selected, the scale will look at the information available in the "Barcode ID" menu, see below.	1 By PLU 2 By Article 3 Direct Price 4 None 5 Same as Numeric Key Action
	Barcode IDs	ID	0 ... 99
		Bacode ID	1 None 2 Barcode 1 (1)
		BookMode	1 Auto 2 Manual 3 Default
		VendorKey	1 Current Vendor 2 V1 3 V2 ... 8 V7
	Default Book Mode	Define default book mode "Auto" will use the current vendor to book the scanned item. "Manual will require a confirmation from the vendor to book the item	1 Auto 2 Manual

### 3.4.3 GROUP 9 SERVICE SETTING

No.	Display	Description	Possible Values
<b>9 Service</b>			
<b>91</b>	<b>Country Setting</b>	<b>Set up country information</b>	
	Country	Select country	
	Price Format - Currency Symbol - Currency Position - Format Locked - Total Price Digits - Total Price Rounding  - Total Price Resolution - Total Sales Digits - Total Sales Rounding  - Total Sales Resolution - Decimal Separator - Grouping Place - Grouping Separator	Set up price format	\$/ £ /Fr/... Prefix/Postfix All/Digits/No 0 ... 6 Down/Middle Down/ Middle Up/ Up Down/Middle Down/ Middle Up/ Up 1 ... 1000000 0 ... 6 Down/Middle Down/ Middle Up/Up 1 ... 1000000 ./, 0 ... 3 0 ... 1
	Show Negative Weight	Allow show negative weight	Yes/No
	Minimum Capacity	Select minimum booking weight	1 1e 2 5e 3 10e 4 20e
	Allow Chain Tare	Allow chain tare	Yes/No
	Display Unit of Measure	Allow display unit of measure	1 Auto 2 kg 3 g 4 100g 5 Piece 6 500g
	<b>Calibration</b>	<b>Start calibration process</b>	
	Fiscal Export Mandatory	Make fiscal export mandatory	Yes/No
	<b>Filter</b>	<b>Select filter speed</b>	1 Slow 2 Medium 3 Fast
<b>94</b>	<b>Printer</b>	<b>Set up printer</b>	
	Out of Paper Sensor	Allow out of paper sensor	Enable/Disable
	Print Speed	Select print speed. A high printing speed implies a more intense use of the printing head, therefore reducing its lifespan.	60 mm/s 70 mm/s 75 mm/s 80 mm/s 85 mm/s 90 mm/s 100 mm/s



	Print Contrast	Select print contrast. A more intense contrast implies a more intense use of the printing head, therefore reducing its lifespan.	1 -4 2 -3 3 -2 4 -1 5 0 6 1 7 2 8 3
	Printing Test	Start printing test process	
	Position Sensor Value	Set up position sensor value	
	Temperature Sensor	Allow temperature sensor	Enable/Disable
<b>97</b>	<b>Testing</b>	<b>Start testing</b>	
	Keyboard Test	Start keyboard testing	
	Display Test	Start display testing	
	Printer Test	Start printer testing	
	Font Test	Start font testing	
	Extend Weight	Start weight extension	
<b>98</b>	<b>Printout Scale Info</b>	<b>Set up printout scale information (press the * button). Printout the scale's different configurations in order to check if everything is configured properly.</b>	
981	Printout Configuration	Set up printout configuration	
	Operation Center	Include "Operation Center" in the printout configuration	Yes/No
	General Settings	Include "General Settings" in the printout configuration	Yes/No
	Printing	Include "Printing" in the printout configuration	Yes/No
	Connectivity	Include "Connectivity" in the printout configuration	Yes/No
	Control Panel	Include "Control Panel" in the printout configuration	Yes/No
	System	Include "System" in the printout configuration	Yes/No
982	Printout Function Key Map List	Print function key map list	
983	Printout Item Data	Print item data	
	USB device Port	Allow USB device port	For service technicians only

	Debug Port	Select debug port	For service technicians only
--	------------	-------------------	------------------------------

### 3.5 CALIBRATION



#### IMPORTANT INFORMATION:

Assuming the user is to use the (non-automatic) scales/balance in the legally regulated field, the OWNER OF THE EQUIPMENT IS RESPONSIBLE FOR NOTIFYING OFFICIALLY AUTHORIZED CALIBRATION AUTHORITIES so that the latter can take the appropriate measures (calibration/recalibration).

#### Capacity and Increments

Resolution	Capacity (kg)	Increment (g)
3000	6~15	2~5
3000	15	5
3000	15~30	5~10

#### Calibration switch position

The calibration switch is located on the base of the scales. Please use a thin rod to press the calibration switch when the display shows "Push calibration key".

**bMobile**



**bDrive**



#### Calibration steps

- 3 Press [Menu] key. Input the default password 246813 and press [OK] to enter the menu.
- 4 Press the arrow up or down key to select **Menu 9 "Service"** and press [OK] key.
- 5 Press the arrow up or down key to select **Menu "Calibration"** and press [OK] key.
- 6 Press the calibration button.
- 7 Select **Menu "Calibration"** again and press [OK] key.
- 8 Select "Filter" and press [OK] key. Press arrow down key to select a filter e.g. Filter > Medium and press [OK] key.

- 9 Select "Geo Code" and press [OK] key. Press arrow down key to select a geo code e.g. Geo Code > 12 and press [OK] key.
- 10 Select "Calibrate" and press [OK] key.
- 11 Select "Unit" and press [OK] key. Press arrow down key to select a unit e.g. Unit > kg and press [OK] key.
  10. Select "Range" and press [OK] key. Press arrow down key to select a range e.g. Range > Dual and press [OK] key.
  11. Select "Capacity" and press [OK] key. Press arrow down key to select a capacity e.g. Capacity > 15kg and press [OK] key.
  12. Select "Resolution" and press [OK] key. Press arrow down key to select a resolution e.g. Resolution > 0.005 and press [OK] key.
  13. Select "Zero" and press [OK] key.
  14. Select "Load" and press [OK] key. Press arrow down key to select a load e.g. load >10kg and press [OK] key.
  15. Put the weight on the platter.
  16. Finish, press [OK] to restart.

## **4 SERVICE SETUP**

### **4.1 PREVENTIVE MAINTENANCE**

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

- When a scale 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 any weights on the scale when the scale is not in use.
- Allow time for the scale 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 electronics to stabilize.

#### **Preventive Maintenance Checklist**

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

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



#### **CAUTION**

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

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

## **4.2 TROUBLESHOOTING**

This section of the manual contains troubleshooting information. It includes information to isolate specific problems step by step. Before doing any such work, make certain that your working area is clean, that you handle all scale components with care, and that you use a suitable electro-static device.

### **Diagnostic Guide:**

#### **1. Scale inoperative / blank displays**

1. Check AC power at outlet. If voltages are zero, check and replace fuse.
19. Check voltage on power supply. If voltage at outlet is zero, replace power supply.
20. Check voltage on DC/DC to see if there is 5V DC or 8V DC at the outlet. If the voltage is zero, replace DC/DC.
21. Check whether the harnesses are properly connected.
22. Try to press the keyboard. If you can hear a beep while pressing the keyboard, replace the display. Otherwise please replace the mainboard.

#### **2. Keyboard inoperative**

1. Check keyboard connection on main board, ensuring it is securely plugged in.
2. If all connections are secure and keyboard is inoperative, replace keyboard.

#### **3. Can't communicate via Ethernet**

1. Check the IP settings in Menu 251.
3. Check whether the LED light lights up. If it is not lit or does not flash:
  - Replace the Ethernet harness.
  - Replace the interface board.
  - Replace the main board.
  - Check whether the network license is active when trying to work on a floating vendor.

#### **4. White paper print out**

1. Check the harness, ensuring it is secure.
4. Replace the printer.
5. If it is still inoperative, replace mainboard.

## **5. Weighing not stable**

1. Check the harness of the load cell.
6. Check whether there is something touching the load cell.
7. Replace the AD board or load cell.

### **4.3 WARNING & ERROR Messages**

The system actively helps locating and correcting malfunctions by prompting error messages. A detailed summary of warning messages and error descriptions of the system can be found in chapter 6 of this service manual.

- Error information delivered by the system can be canceled by pressing the [C] key.

### **4.4 DIAGNOSIS**

1. Isolate and identify the symptom
8. Refer to the diagnostic guide and locate the symptom. (Please also refer to the Troubleshooting chapter)
9. Follow the suggested remedies in the order they appear.
10. Perform the indicated checks, or refer to the appropriate section of the manual.
11. Repair or replace the defective section of the scale.

### **NOTE**

- If more than one symptom is observed, approach one area at a time, and remember that the symptoms may be interrelated.
- If a problem arises that is not covered in this manual, contact us for further information.
- Group nine of the setup menu enables you to run functionality tests on dedicated devices. The functionality tests will help verify your diagnosis.

## 5 PARTS EXCHANGE

Before servicing the scale, always unplug the power cord from the scale.  
Only qualified service staff may open the scale for service purposes.  
Be aware of any static charges and wear a static-proof wrist belt when touching the PCB.

### 5.1 SERVICE PREPARATION

Use the below procedures to replace the main board, displays, load cell, A/D printed circuit board, main fuse, DC/DC printed circuit board and Wi-Fi module.



#### **IMPORTANT INFORMATION:**

Assuming the user is to use the (non-automatic) scales/balance in the legally regulated field, the OWNER OF THE EQUIPMENT IS RESPONSIBLE FOR NOTIFYING OFFICIALLY AUTHORIZED CALIBRATION AUTHORITIES so that the latter can take the appropriate measures (calibration/recalibration).

After replacing the main board or parts used in the actual measurement process, the following steps must be performed:

- Check & Set the local GEO code setting (GEO code for the region in which the product is to be used)
- Check calibration reproducibility, linearity, eccentricity)
- Check and/ or apply local currency/country setting
- Run final functionality test

#### **Preparations before opening the housing (if possible):**

- Back-up data & operational settings via PC program.

**Attention:** Use the backup function of the PC program only if you intend to install the same software version after the service work.

- Verify the software version installed
- Check the geo code
- Check the language setting

#### **Repair Tools:**

Repair of Skipper Series products requires a common set of hand tools including:

- Diagonal pliers, Torx: T25, T20, T15, T10, 3" extended rod, T25, wrench.



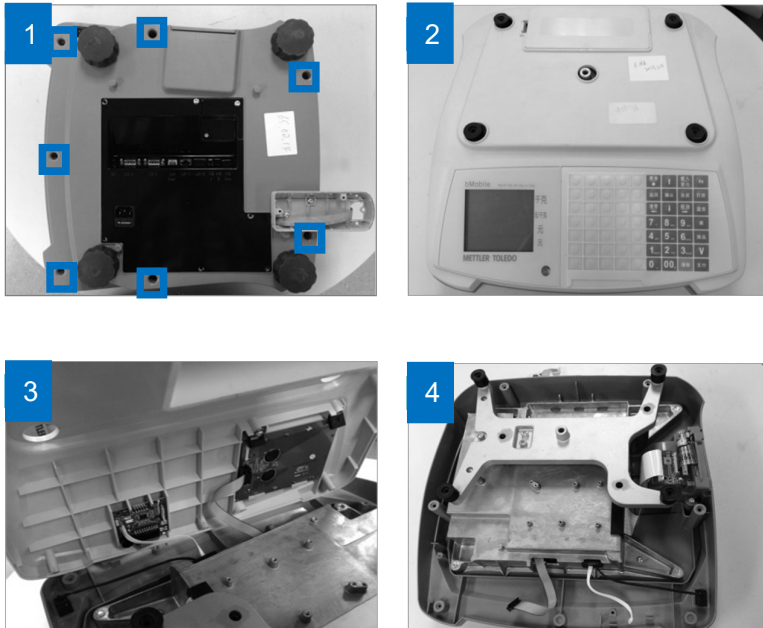


## 5.2 OPEN BOTTOM COVER



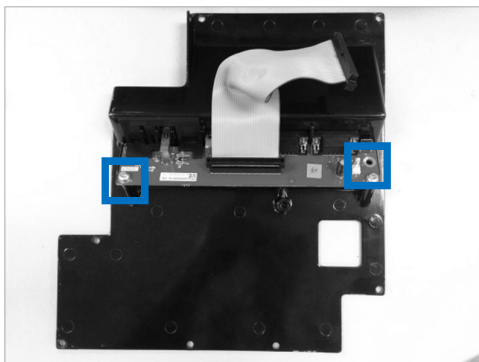
1. Turn the system upside down the scale carefully. (Do not press heavily)
  12. Unscrew the 8 red circled screws fixing bottom cover.
  13. Open the bottom cover a little since there is cable connected between mainboard and interface board.
  14. Disconnect the cable from the mainboard.
  15. Remove the bottom cover.
- Install in the same way with reverse procedures.

### 5.3 OPEN UPPER COVER



1. Turn the system upside down the scale carefully.
16. Unscrew the 7 red circled screws fixing upper cover.
17. Upward the scale.
18. Open upper cover a little since 2 harness connected.
19. Disconnect the 2 harness from upper cover.
20. Remove the upper cover.
7. Install in the same way with reverse procedures.

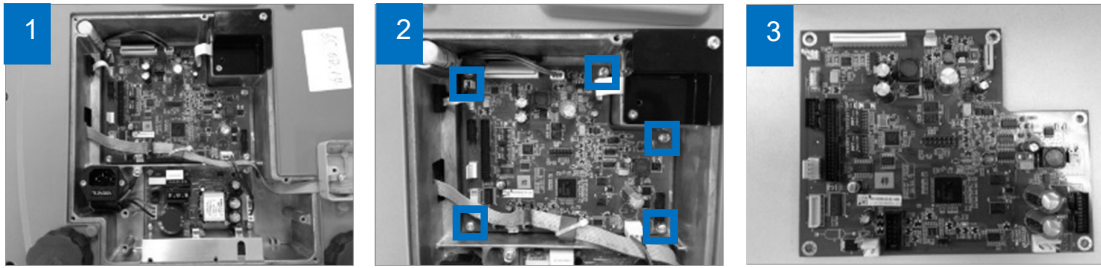
### 5.4 CHANGE INTERFACE BOARD



1. Open the bottom cover.
21. Reverse it with interface board upwards.

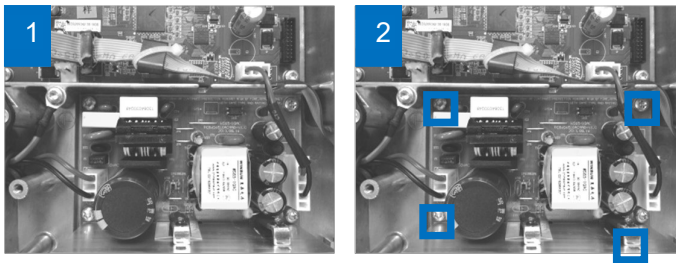
22. Unscrew the 2 red circled screws fixing the interface board.
23. Replace the interface board and install in the same way with reverse procedures.

## 5.5 CHANGE MAINBOARD



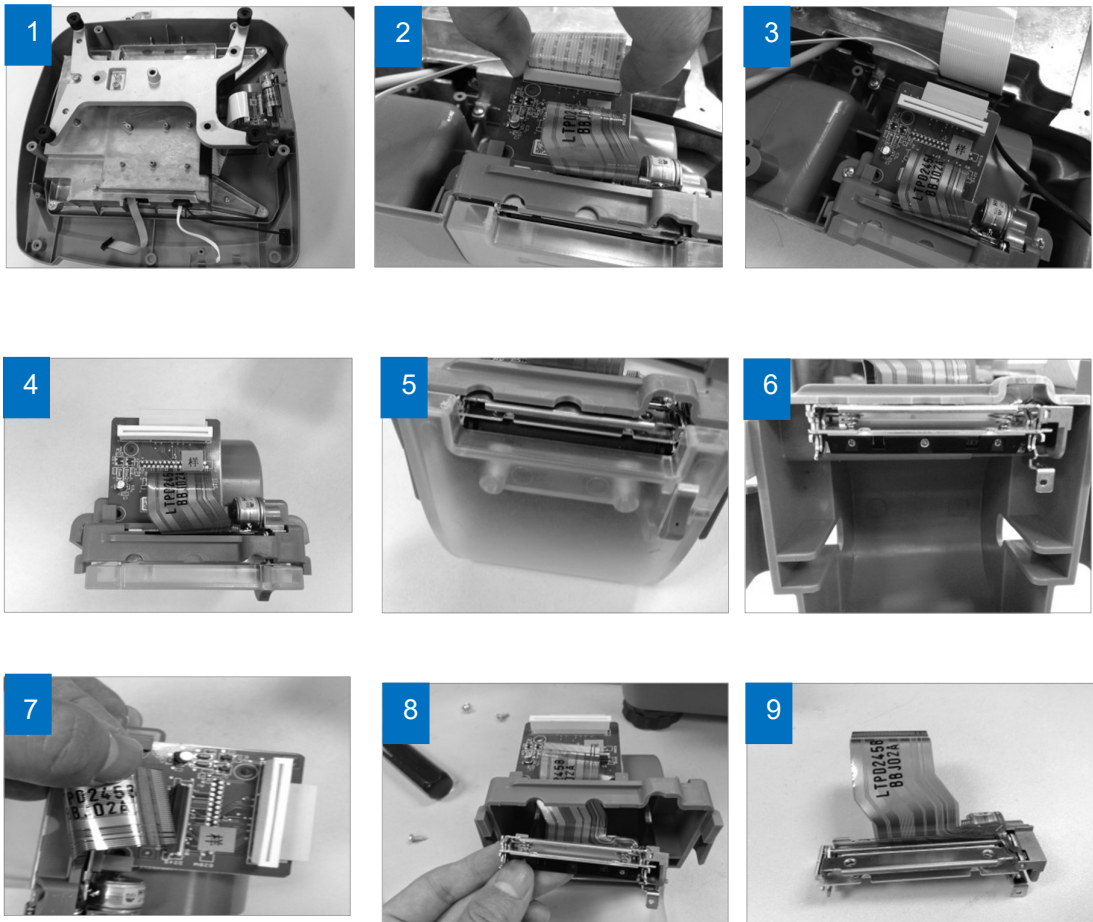
1. Open the bottom cover.
24. Disconnect all cables from the mainboard.
25. Unscrew the 5 red circled screws fixing the mainboard.
26. Replace the mainboard board and install in the same way with reverse procedures.

## 5.6 CHANGE AC/DC SWITCH POWER BOARD



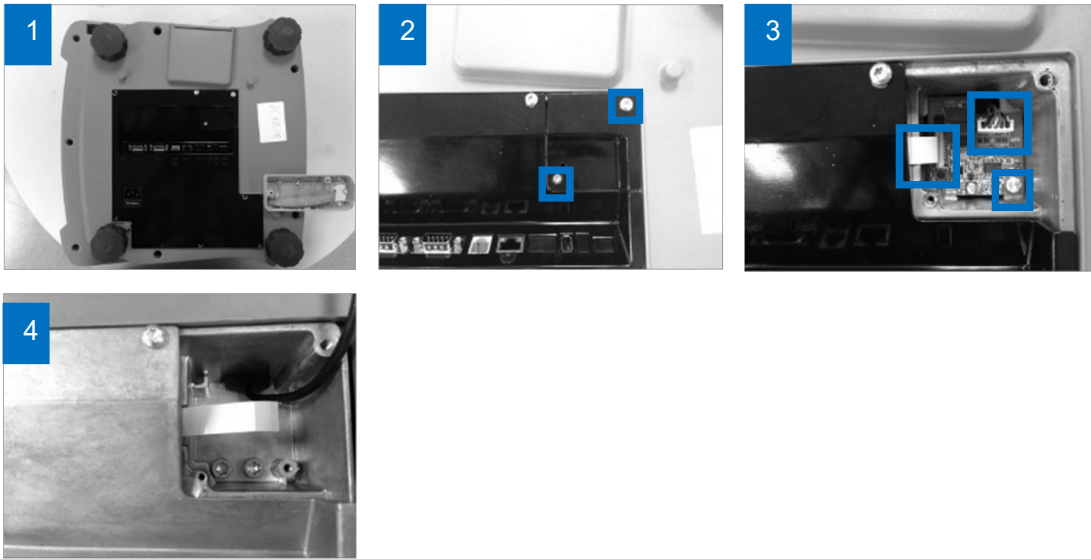
1. Open the bottom cover.
27. Disconnect the 2 red circled cable from the switch power board.
28. Unscrew the 4 red circled screws fixing the board.
29. Replace it with a new one and install in the same way with reverse procedures.

## 5.7 CHANGE PRINTER / PRINTER HEAD



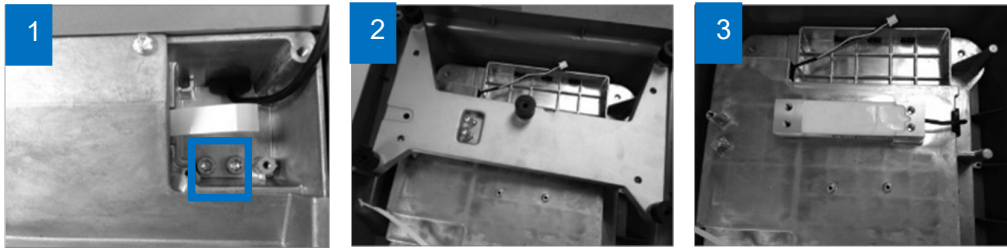
1. Open the upper housing (Skipper 5000/7000).
30. Disconnect the harness from the printer board.
31. Unscrew the 2 red circled screws fixing printer.
32. Take out printer.
33. Press printer door switch to open the door.
34. Find the center screw fixing print head and unscrew it.
35. Disconnect print head harness from the printer board.
36. Release print head and take it out.
37. Replace it with a new one and install in the same way with reverse procedures.

## 5.8 CHANGE A/D BOARD



1. Upside down the scale lightly (Do not press heavily).
38. Break the sealing and unscrew screws fixing A/D board cover.
39. Disconnect the 2 cables from the A/D board and unscrew the screw fixing the A/D board.
40. Replace it with a new one and install in the same way with reverse procedures.

## 5.9 CHANGE LOAD CELL



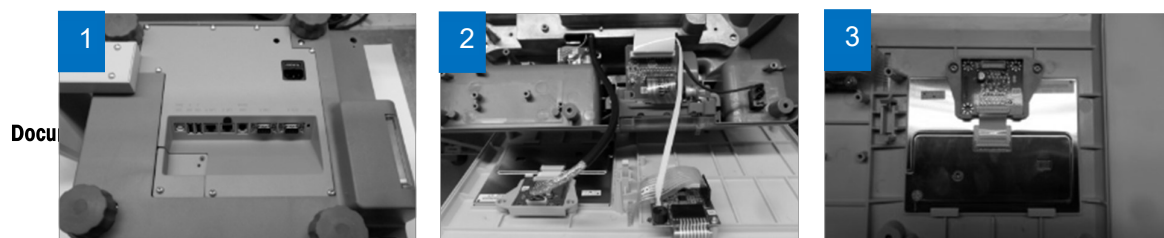
1. Break sealing. Open the A/D board cover and remove the A/D board (refer to steps in 5.9 Change A/D board).
41. Unscrew the 2 red circled Allen screws fixing Load Cell.
42. Open the upper cover.
43. Unscrew the 2 Allen screws fixing Load Cell through the spider.
44. Remove the spider and take out the Load Cell.
45. Replace it with a new one and install in the same way with reverse procedures.

## 5.10 FUSE EXCHANGE



1. Open the accessories cover
46. Remove the old fuse
47. Replace it with the backup one
48. Install the fuse box following the same instructions in the reverse order

## 5.11 CHANGE THE DISPLAY



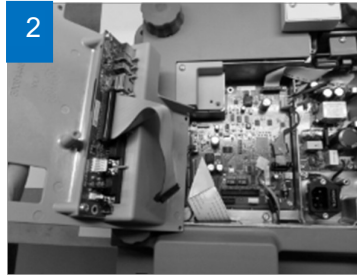
4

5

1. Unscrew the 7 bolts on the top cover and remove the cover
49. Disconnect all cables plugged into the board
50. Unscrew the 2 bolts on the cover
51. Disconnect all cables plugged into the board
52. Take off the plastic part
53. Remove the old display
54. Install the new display following the same instructions in the reverse order
55. Install the display housing



## 5.12 POWER SWITCH



1. Unscrew the 7 bolts on the bottom cover and remove the cover
56. Disconnect all cables plugged into the board
57. Remove the old switch harness
58. Install the new switch harness following the same instructions in the reverse order

### 5.13 CHANGE THE POWER SUPPLY



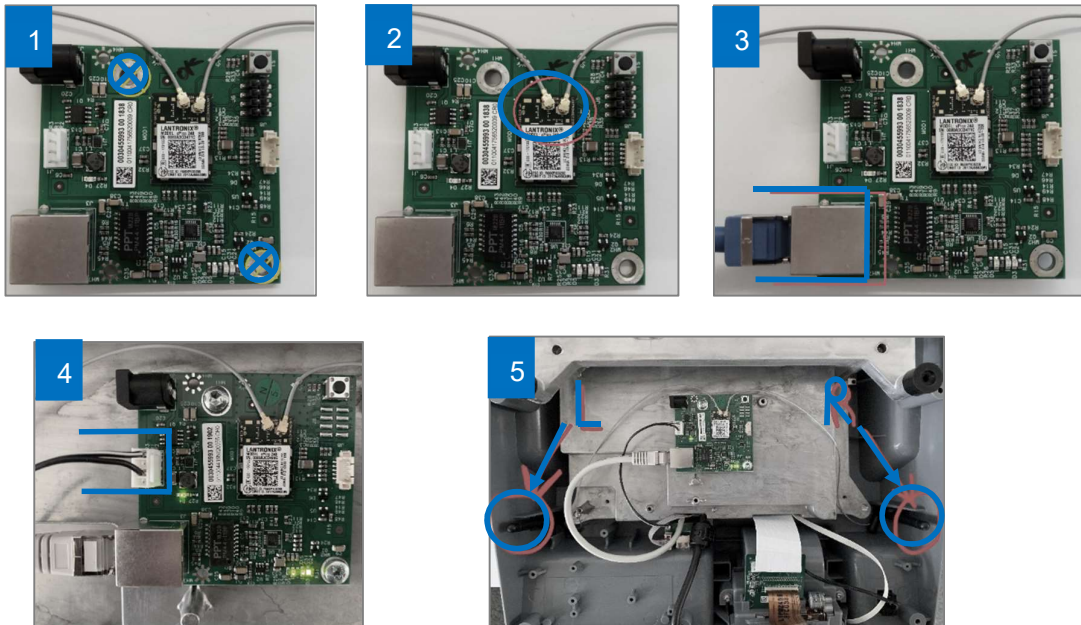
**CAUTION**



1. Lift off the platter and open the top cover
59. Unscrew the 4 PCB bolts
60. Disconnect all cables plugged into power switch PCB
61. Remove the old power switch
62. Install the new power switch following the same instructions in the reverse order
63. Install the top cover

## 5.14 CHANGE THE WIFI MODULE

### bDrive

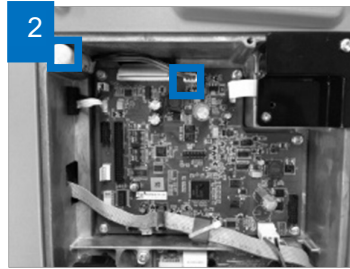


- 7 Screw the module to the housing - location is under the keyboard. 2 screws are required.
- 8 Make sure both antenna are connected - it is highly recommend to use a dedicated tool to plug the antenna - the risk is to break the socket. Please contact MT to get the tool information. Be careful - the antenna sockets are one time sockets - it must NEVER be removed otherwise the socket can be broken or the signal quality from the antenna damaged.

Make sure that both Antenna are placed at the right position depending on the scale model.

- 9 Connect the Ethernet cable.
- 10 Connect the Power cable.
- 11 Check the position of the Antenna in Skipper scales.
- 12 Start the scale.
- 13 To configure the module - see: User Manual.
- 14 The network address must be set on "Automatic" in Menu 251 in order that the module run correctly.

## 5.15 CHANGE THE BACKUP BATTERY



1. Open the bottom cover.

64. Disconnect backup battery cable from the mainboard (red circle plug).

65. Remove the backup battery.

66. Install new backup battery in the red circle place and plug in. (1.2V 2000 mAh NIMH battery)

## **6 ERROR MESSAGES**

### **6.1 ERROR MESSAGES DEFINITION & REQUIREMENTS**

The table below is a diagnostic guide designed to help users locate the problem area quickly & easily. The probable causes are listed with the most common causes first. If the first remedy does not fix the problem, proceed to the next remedy. Before attempting to repair the scale, read all chapters of the manual to be familiar with the scale components & their operation.

Warning information will occur when an operation is wrong. Usually this information is displayed on the bottom line for about 1 second. It can be cleared by pressing key [C].

- Critical Error:
    - Problem that has already occurred and needs attention.
    - Errors can be triggered by key stroke event
    - Error message disappears with next key stroke event but not before x ms
    - Error alert is displayed again when key is used again & problem was not solved in the meantime.
  - Warning:
    - The user is being alerted of a condition that might cause a problem in the future. Operation is still possible. Warning disappears with next key stroke event.
1. Acoustics: Whenever an error pops up x ms after key stroke that triggers error a long beep x ms is given as an acoustic error signal
67. System only displays one error at a time
68. Error is displayed in the status bar section of the screen automatically. Long descriptions can be opened we pressing the Info key
69. Occurrence of errors are recorded in the log file

## 6.2 ERROR MESSAGES SUMMARY: KEY EVENT DRIVEN ERRORS

No.	Classification	Short Message	Long message
1	Error	Operation denied	Defined preconditions for operation are not met. System configuration /user rights are not setup to perform the requested action or system is currently in a status where the operation is not allowed.
2	Error	Tare not allowed	Weight must be bigger than 0.000 kg and not exceed max allowed value.
3	Error	Weight not stable	Outside conditions like vibrations or wind can prevent the system from stabilizing and displaying a weight value..
4	Error	Discount denied	Promotion rules are violated, negative unit price or total price and lack of user rights are typical conditions where discounts are not allowed.
5	Error	Print transactions	To switch working modes or reopen a ticket all recorded sales transactions need to be printed out or must be suspended.
6	Error	Item not found	Item is not found in database, temporarily locked or out of stock
7	Error	Memory full	Memory needs to be cleared to allow to continue to work
8	Error	Tare not found	Tare number was not found & cannot be recalled
9	Error	Paper empty	Insert new paper in printer to continue to work.
10	Error	Ticket not found	Ticket number is not found in memory
11	Error	Vendor not active	Vendor is not logged in and cannot be used currently => login! Eventually, vendor was working on another device that is not reachable anymore (Network problems) => go back to that device to work!
12	Error	Negative weight	Weight displayed must not be smaller 0.000 kg when working with by weight PLUs.
13	Error	Weigh again	After transactions weight needs to be lifted from weighing plate.
14	Error	Weight too large	Weight exceeds weighing capacity of instrument.
15	Error	No data	A sales record can only be recorded if a PLU was recalled or an item price manually entered.
16	Error	Negative item price	Negative item prices are not supported
17	Error	Weight too small	Check if weighing plate is being lifted through external influences. Printing under 20e not supported
18	Error	Select vendor	To access sales slip view or payment screens the vendor needs to be identified by pressing the vendor key.
19	Error	Count limits	Count limited to 9999. Enter valid count value.
20	Error	Invalid input	One or multiple values on the display are not permitted or exceed size limits
21	Error	List entry not found	n.a.
22	Error	Enter Amount	Payment line already selected enter open amount over keypad
23	Error	Card not accepted	Card could not be red. Payment could not be processed or discounts could not be granted.
24	Error	Payment denied	User does not have adequate rights level to process refunds or customer credit line not sufficient to process payment.
25	Error	VAT not defined	Take-away food or in house VAT rates for some or all articles are not setup & still require definition.

No.	Classification	Short Message	Long message
26	Error	Loyalty bonus denied	Loyalty bonus has already been applied to sales transactions or is not supported under promotion.
27	Error	Unknown error	An error occurred in the system but no detailed description is available
28	Error	Void denied	Void operation could not be processed by credit card reader. Try again.
29	Error	All keys blocked	All defined vendor keys are currently used by other vendors.
30	Error	Password not correct	Entered password is not correct. Please try again
34	Error	Barcode denied	Barcode format is not supported or barcode cannot be read.
36	Error	Vendor not identified	System cannot perform action as vendor is not clearly identified. Press vendor key to clearly identify vendor.
37	Error	Remove weight	The current load on the plate does not allow the system to boot properly
38	Error	Suspend memory full	Before suspending another sales transaction please recall at least one suspended transaction.
39	Error	Promotion rule violated	Function cannot be executed since it conflicts with a promotion rule.
40	Error	Value out of range	The value entered is too big or too small.
41	Error	Customer Credit denied	The requested amount exceeds the current credit limit.
42	Error	Old Tare deleted	There have been too many tares recorded – oldest tare was deleted to make room for most recent tare.
43	Error	Loyalty process failed	Update loyalty card information with external RFID or IC reader failed.
45	Error	Over weight limit	Weight is larger than the limitation of traceability information.
46	Error	Close Cash Drawer	Cash drawer timing limit exceeded. Close cash box to continue to be able to continue to work.
47	Error	Payment not complete	Payment is not complete; customer still has to pay open amount.
48	Error	Preset tare not defined	Preset tare has not been defined yet.
49	Error	Ticket not found	Ticket number could not be found in log.
50	Error	Total or unit price not defined	Unit price and or total not displayed. Recall a PLU enter a Direct item price, place weighing item on the plate or define count to resolve this problem.
52	Warning	Ticket not closed	Un-closed or suspended ticket exists, please close it first.
53	Error	Take goods up and down again	Movement on the plate not under minimum booking weight since last registration, the goods needs to be lifted until weight less than minimum booking weight, and put down again.
54	Error	Weight below purchase lower limit.	Current goods has purchase lower limit, please increase weight.
55	Error	Weight above purchase upper limit.	Current goods has purchase upper limit, please reduce weight.
60	Error	Enter Refund Mode	Switch to refund mode for reopening refund ticket.

No.	Classification	Short Message	Long message
61	Error	100g not supported	Unit price can't be converted to 100g format because it can't be divided by 10, e.g. 2.54. If the unit price is converted to 100g format '0.25' (by trimming the least significant digit) and for displaying, then the total price is still calculated by original unit price which is not equal to the value calculated by 100g unit price "0.25" and will mislead customer, this is not allowed by authority.
64	Error	Printer head too hot	Temperature of printer head is too hot
67	Error	Date is invalid	The input date is invalid
68	Error	Time is invalid	The input time is invalid
69	Error	Vendor not found	The vendor with the number is not found
70	Error	Vendor login other key	The vendor is login in other vendor key
72	Error	Print Type Not Matching	The print type of ticket to be processed doesn't match current print type of scale.
73	Error	Over transaction limit	Transaction quantity has exceeded upper-limitation
74	Error	Server failure	Data Remote server is unreachable

### 6.3 ERROR MESSAGES SUMMARY: GLOBAL SYSTEM STATUS ERRORS

No.	Classification	Short Message	Long message
31	Error	Power failure	AC power is not stable or battery is running low. System will shut down automatically.
32	Error	Network failure	Network connection cannot be established. Data transmission in the network is constantly or temporally blocked. Check cable connections or wireless connections.
33	Error	Scanner not found	Communication to scanner cannot be established
35	Error	Open transactions	System detected not printed transactions or suspended transactions for one or multiple vendors. Are you sure you want to shut down the system and not print open transactions?
51	Error	Memory achieving size limits	About 85% of the assigned memory is full. To avoid blocking of the system enter configuration mode and choose the preferred backup method.
76	Error	Battery Low	Battery is low, need to recharge battery otherwise scale will turn off automatically.



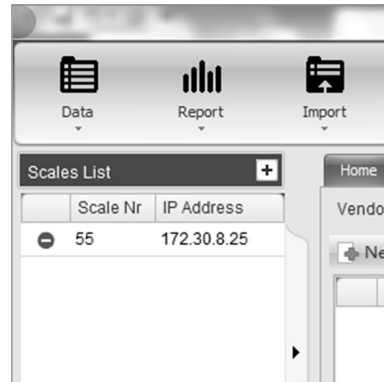
## 7 APPENDIX

### 7.1 HOW TO UPGRADE THE FIRMWARE OF THE SCALE

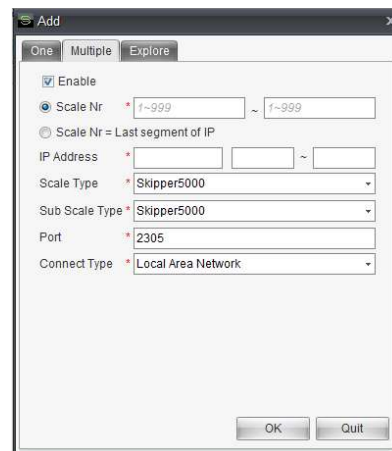
1. Install "Scale Manager.exe".
2. Make sure your PC and the scale's IP are in the same network segment. Select the device that you want to upgrade.

(Device list in the tool will be updated every time; if not make sure the firewall is disabled)

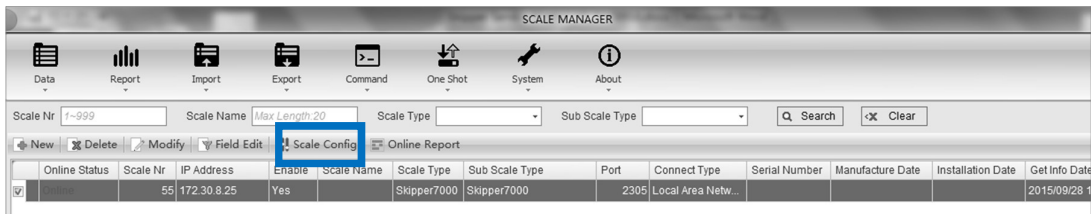
3. Click on the "+" button.



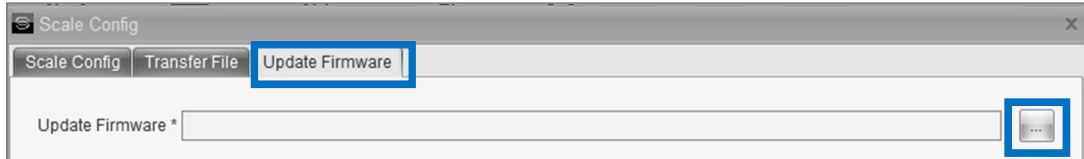
4. Fill in all required entry fields message (see example as below).

The screenshot shows the 'Add' dialog box in the Scale Manager application. It has three tabs: 'One', 'Multiple', and 'Explore'. The 'One' tab is selected. The dialog contains several fields and options: a checked 'Enable' checkbox, a radio button selected for 'Scale Nr' (with a range of 1~999) and another for 'Scale Nr = Last segment of IP', an 'IP Address' field, a 'Scale Type' dropdown menu set to 'Skipper5000', a 'Sub Scale Type' dropdown menu set to 'Skipper5000', a 'Port' field set to '2305', and a 'Connect Type' dropdown menu set to 'Local Area Network'. There are 'OK' and 'Quit' buttons at the bottom right.

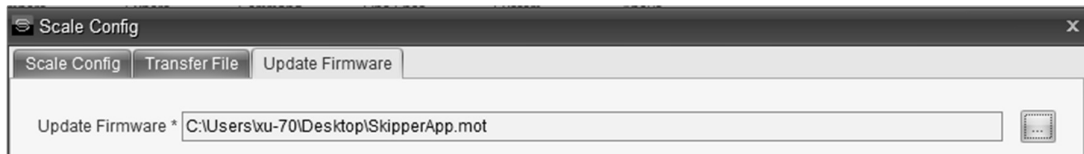
5. Click on "Scale Config" button.



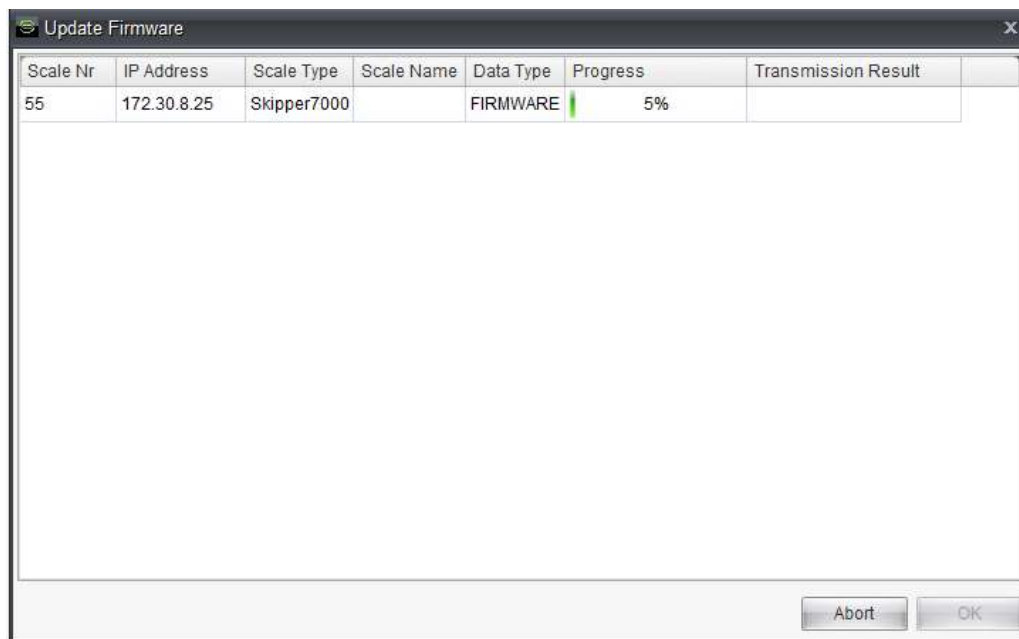
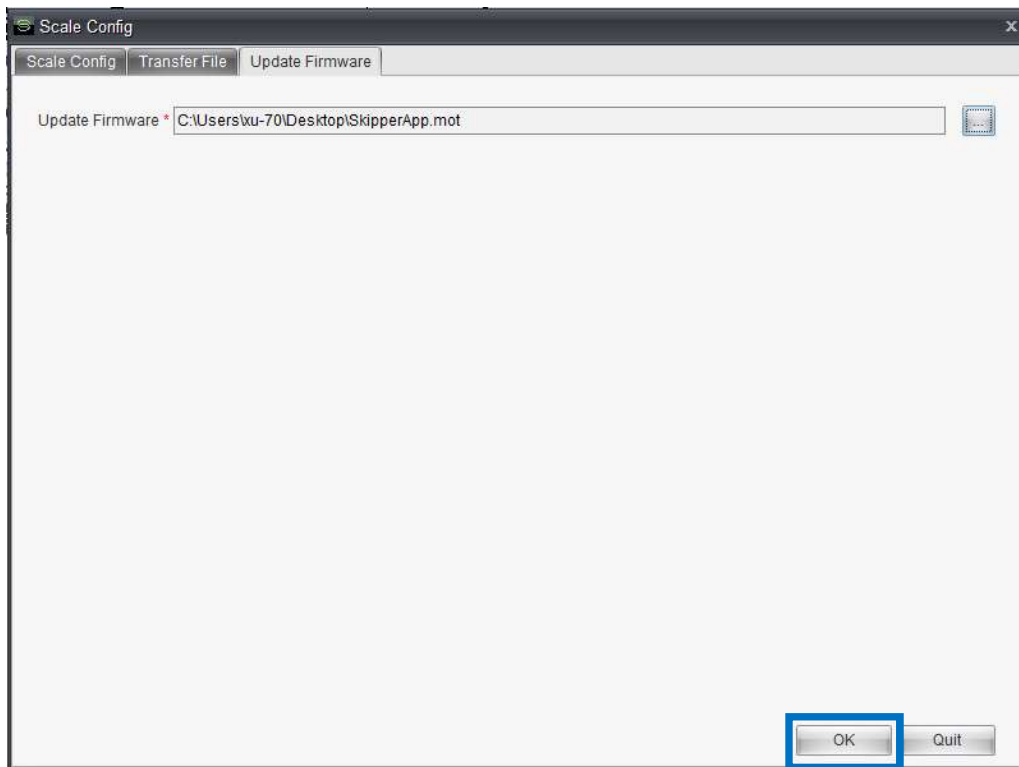
6. Click on "Update Firmware" button and then click on "..." button.



7. Browse your computer and select the firmware you want to update



8. Click on "OK" button and then the firmware update will be started.



## **7.2 HOW TO UPGRADE THE FIRMWARE THROUGH USB**

### **STEPS:**

1. Create a folder named as "Firmware" in USB.
2. Copy the mot file (scale firmware) from PC to Firmware folder of the USB stick:  
"Firmware/Skipper App.mot" (create the Firmware folder & place the mot file in it)
3. Insert the USB stick to the scale. If USB is detected, screen will show with three options.
4. Select "Upgrade Firmware from USB" press OK key to enter into firmware list screen, which list out all the firmware files which are placed in USB stick under Firmware folder.
5. Select the mot file which you want to upgrade & press OK key.  
Firmware upgrade will starts screen will show message as "Please do not switch off or power off the device, Upgrade in progress..."
6. Wait for few minutes, (approximately 5 minutes, scale will take backup, then start upgrading the firmware).

Scale will restart automatically after firmware update is success.

### **Note:**

- USB stick should be in FAT32 format.
- Need to place the mot file under Firmware folder in USB stick.
- Please make sure that USB stick is not write protected. Otherwise scale could not write the backup files in USB stick.

## 7.3. Wi-Fi

### 7.3.1 GETTING STARTED/ RESETTING OF THE WI-FI MODULE



#### IMPORTANT INFORMATION:

- **Wi-Fi FUNCTIONALITY IS ONLY SUPPORTED ON bDrive products**
- Wi-Fi requires an additional Wi-Fi board to be installed in the scale
- The below models offer built-in Wi-Fi:
  - bDrive-C2L-CE15D-OWO
  - bDrive-C2L-CE15S-OWO
  - bDrive-C2L-CE30D-OWO
- Retrofitting: bDrive models can be retrofitted with a Wi-Fi option. For installation of the Wi-Fi module see chapter 5.14

#### RESETTING THE WI-FI BOARD

- Wi-Fi requires a hardware option on the scale – a so called Wi-Fi board.  
The bDrive is ready to use Wi-Fi if the board is connected correctly. Menu 252 will be accessible in the scale setup menu if the board is correctly connected.
- **RESETTING THE WIFI BOARD:** Before starting the configuration of the Wi-Fi board, it is highly recommended to reset the Wi-Fi board to the default values to avoid any previous configuration.

#### On-Scale Operations:

- Enter Scale Menu
- Go to Menu 252 Wireless
- Press OK to select menu
- Select "Reset to default" and press OK

The scale will reset all settings and Wi-Fi board will be cleared to the Factory default settings – this can take 10 to 15 seconds.

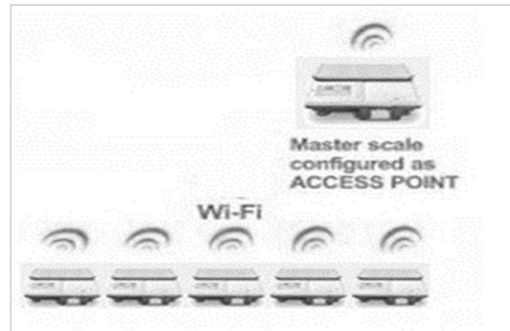
An error message Network Failure could appear during that time

### 7.3.2 CONFIGURE A SOFT ACCESS POINT SCALE

Chapter describes the configuration of a Soft Access Point Based Wi-Fi network.

#### ACCESS POINT MODE:

This is to be done when no access point is available, and a scale has to be defined as the access point.



**Limitations: Maximum of 5 devices can connect to the soft access point scale.**

#### On-Scale Configuration steps to get going:

1. Go to Menu 252 - enter "252" and select OK.
2. Make sure the "Wifi module status" is set to "On".
  1. If not, select the first line and press OK to change the status to "On".  
Pressing OK again will move back to "Off".
3. Make sure the "Wifi connection type" is set to "Access point".
  2. If not, select the second line, press OK to open the menu, select Access point (2) and press OK to validate.
4. Go to the 5th line "Configure Network" and press OK - the configuration of the network screen appear.
5. Define first a SSID name by pressing OK and entering a name which will be displayed as SSID name in the Wifi network list; validate with OK. A default one is available - it is highly recommended to change it.
6. Define a security level - press OK, select within the list (recommended is WPA2), validate with OK.
7. Enter the security password of the selected Wifi network.
8. Set the access point mode - press OK, select the desired mode, validate with OK. It is highly recommended to use "Auto (Mixed)" as the module will adapt itself to the Wifi condition environment. This should be done only by knowledgeable technician, and after a Wifi Spectrum Analysis to check the signal status in either 2.4GHz or 5GHz.
9. The access point scale is now able to receive client scales connections
10. Press the Back key to come back to the Wireless menu
  - or -
  - Press the Menu key twice to come back to main screen.
11. Press the Back key to come back to the main menu
  - or -
  - Press the Menu key twice to come back to main screen.

### 7.3.3 CONFIGURE A CLIENT SCALE

Chapter describes the configuration of



a Client Scale Wi-Fi network.

### **ACCESS POINT MODE:**

This is to be done when an access point exists,  
and the scale needs to join the Network SSID

### **On-Scale Configuration steps to get going:**

1. Go to Menu 252 - enter "252" and select OK.
2. Make sure the "Wifi module status" is set to "On".
3. If not, select the first line and press OK to change the status to "On".  
Pressing OK again will move back to "Off".
3. Make sure the "Wifi connection type" is set to "Client".
4. If not, select the second line, press OK to open the menu, select Client (1) and press OK to validate.
4. Select the 4th Line "Join Network" and press OK to display a list of available Wifi networks (list of SSID available including the channel used, sorted by SSID signal strength).
5. Select with the arrows the desired network and press OK.
5. A pop-up box shows up.
6. Enter the security password of the selected Wifi network.
7. Press OK or the Confirm soft key.
6. The network connection will be established.
7. On the top of the screen the message "Processing..." appears until the connection is established.
8. The client scale is now connected to the selected access point SSID.
9. Press the Back key to come back to the main menu  
– or –  
Press the Menu key twice to come back to main screen.

### 7.3.4 WI-FI GLOSSARY

Feature	Description	Default Value	Min/Max Values
SSID	Abbreviation stands for: Service set identified. Feature allows to give Wi-Fi networks a name, following the IEEE 802.11 Encryption type		
WEP	Encryption method: Wired Equivalent Privacy – is one of the first encryption levels. However security is very simple. Basic encryption, to use only when no security risks exists.	Authentication – Open Key length – Length 64 Key Format ASCII	
WPA	Wi-Fi Protected Access – Created to replace the leaks of the WEP encryption. Needs a longer encryption key. Use TKIP encryption protocol – Second encryption level.	Cipher suite - AES	Min 8 Characters Max 63 Characters
WPA2	Wi-Fi protected access – Currently the most advanced encryption level – Use CCMP encryption protocol. Third encryption level.	Cipher suite - AES	Min 8 Characters Max 63 Characters



### 7.3.5 Wi-Fi Errors

#### Diagnostic Guide: Why is the Wi-Fi network not connecting/ not stable?

1. **Setup Check:** Review if the Wi-Fi modules inside the scales are properly connected and setup.
  1. The Wi-Fi cards must be properly connected embedded and activated;
  2. Ensure the Wi-Fi module is correctly cabled. See also Chapter 5.15 replacing the Wi-Fi card
  3. SSID and Encryption type and must be correct to match the definition on the other scales in the network. Chapter 7.3
  4. Ensure that Wi-Fi module can connect with the access point selected. SW settings/ network mapping timings and device handling topics inside access points can prevent the scales Wi-Fi systems to join a network
2. **Performance Check:** Wi-Fi is a local network technology without wires, a radio signal which shares an "open space" with all other signals. It can be easily disrupted by different elements.
  1. **Network Size:** It is recommended to use the ad-hoc network for 3 to 5 scales.  
When a bigger scales network is required, it is recommended to use an access point.
  2. **Network Distance:** To guarantee max performance the distance between the scales should not exceed 5-8 meters (Ad Hoc mode); however as long as the distance between 2 scales is not exceeding this value – the network can be extended.
  3. **Network Environment:** Avoid walls, metallic parts (walls, doors...) between the scales, Bluetooth signals, other strong Wi-Fi signal (typically banks have stronger signals or signal disrupters), electric high voltage lines, microwaves, satellites phones, walkie-talkie, baby phones, DECT phones, aquariums, Christmas electric decoration, mirrors ...
  4. **Network Security:** Other Wi-Fi networks: Encryption can help to discredit a Wi-Fi network; in case the network is not stable, increase the Encryption level from WEP to WPA2.