

# REFSCALE

4688292

**EN** **Instruction Manual**  
Electronic Charging Scale

**DE** **Bedienungsanleitung**  
Elektronische Füllwaage

**FR** **Mode d'emploi**  
Balance électronique

**IT** **Istruzioni per l'uso**  
Bilancia elettronica

**ES** **Manual de instrucciones**  
Báscula eléctrica

*Acknowledged globally*





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## 1.0 INTRODUCTION

Congratulations on your purchase of this device. The REFCO REFSCALE is equipped with a high precision strain gauge and gives you the possibility to connect with the REFCO REFMesh App and/or with the REFCO REFmate. The latest manual can be downloaded from [www.refco.ch](http://www.refco.ch).

## 2.0 GENERAL INFORMATION

Before you start working with the REFSCALE, please read the operating instructions carefully. They contain important information for the successful operation, maintenance and disposal of the Scale.

### Conformity



This device complies with the relevant European directives. The Declaration of Conformity is available from the specified contact details or on the REFCO website.



This device complies with Part 15 of the FCC Rules. It should be operated under the following conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must be able to withstand interference, including interference that may result in errors during operation.

FCC ID: XPYNINAB1



This device complies with Industry Canada's licence-exempt RSS standards.

It should be operated under the following conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must be able to withstand interference, including interference that may result in errors during operation.

IC ID: 8595A-NINAB1



RCM: Regulatory Compliance Mark

This device complies with the requirements of the RCM regulations.



RoHS: Restriction of Hazardous Substances

This device meets the requirements of the RoHS EU directive.

RoHS 2011/65/EU including 2015/863/EU

The device does not contain any prohibited substances above the maximum permissible values.



In accordance with Article 33 of REACH Regulation 1907/2006, we confirm that this device and its packaging complies with Article 57 of REACH Regulation 1907/2006.

This device and its packaging do not contain any of the SVHC specified in the current candidate list (Article 59) at concentrations above 0.1 %.

## Important Safety Instructions

Please read and follow all safety instructions carefully.

Explanation of symbols:



### Warning!

...indicates a potentially hazardous situation, which, if not avoided, may result in serious injury.



### Danger!

...indicates an electrical hazard. Failure to observe the safety instructions may result in serious or fatal injury.

Safety instructions:



The scale may not be used for purposes outside the air-conditioning and refrigeration sector.



The scale must not be used for weight higher than 110kg



The scale must not be exposed to rain or used in damp or wet environments.



Always wear protective goggles and gloves when working with the scale.





REFCO products have been specially designed and manufactured for use by trained refrigeration technicians. Due to the high pressures and chemical and physical gases used in refrigeration systems, REFCO disclaims all responsibility and liability for accidents, injuries or death.



REFCO expressly points out that the products should only be used by professionally trained specialists.



The scale must not be used in EX zones.

### **Intended Use**

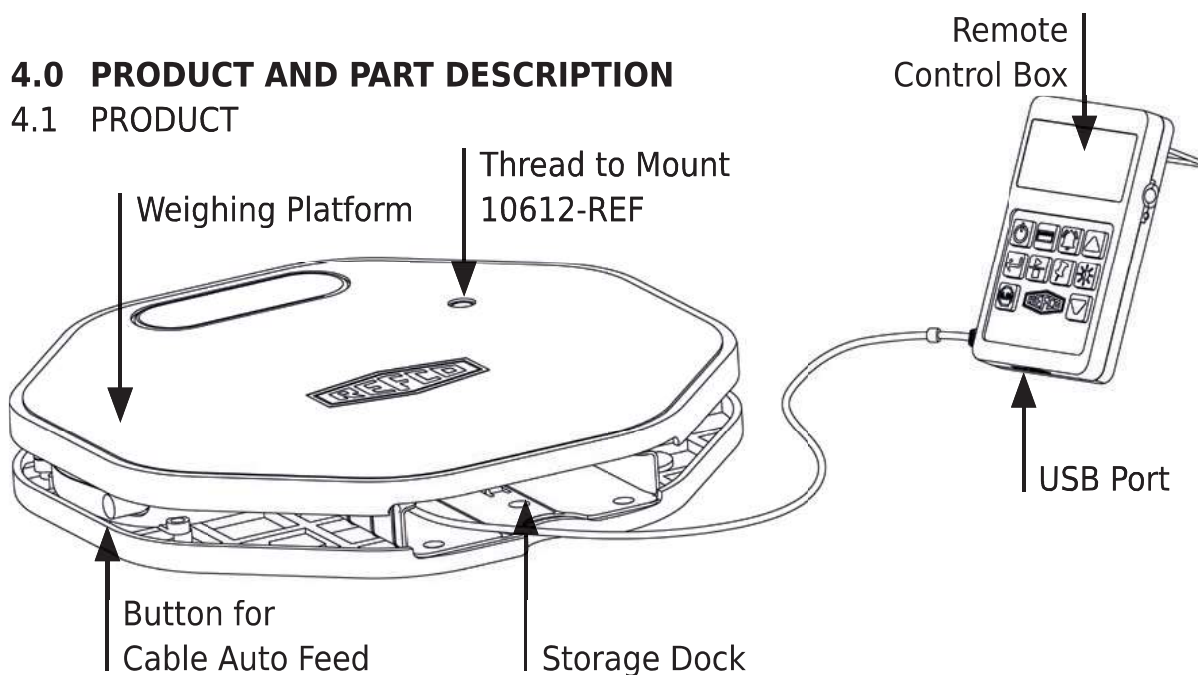
The scale has been developed for measuring the weight conditions in mobile and stationary refrigeration systems and in heat pumps. Only trained refrigeration technicians are permitted to use this REFCO product.

### 3.0 SPECIFICATION

Property	Value		
Sensor technology	Strain gauges		
Capacity	110 kg / 242.5 lb		
Accuracy	0.05 % of reading or 10 g		
Automatic resolution	2 g	0 to 20 kg	0 to 44 lb
	5 g	20 to 50 kg	44 to 110 lb
	10 g	50 to 110 kg	110 to 243 lb
Units	kg / lb / oz / lb and oz		
Power supply	4 x 1.5 V AAA/Mignon/LR3		
Alternative power supply	Micro USB Type B		
Operating temperature:	-10 °C to 50 °C / +14 °F to +122 °F		
Storage temperature	-20 °C to + 60 °C / -4 °F to 140 °F		
Dimensions	30.5 cm x 30.5 cm x 4.5 cm (12.0" x 12.0" x 1.8")		
Weight	2.9 kg (6.4 lb)		

### 4.0 PRODUCT AND PART DESCRIPTION

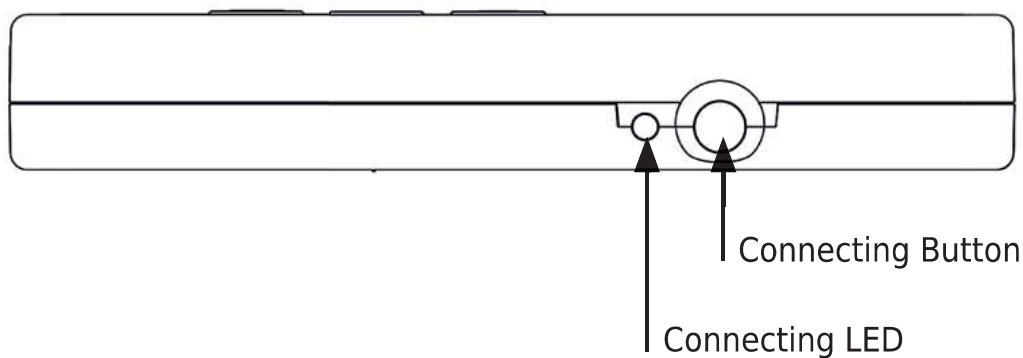
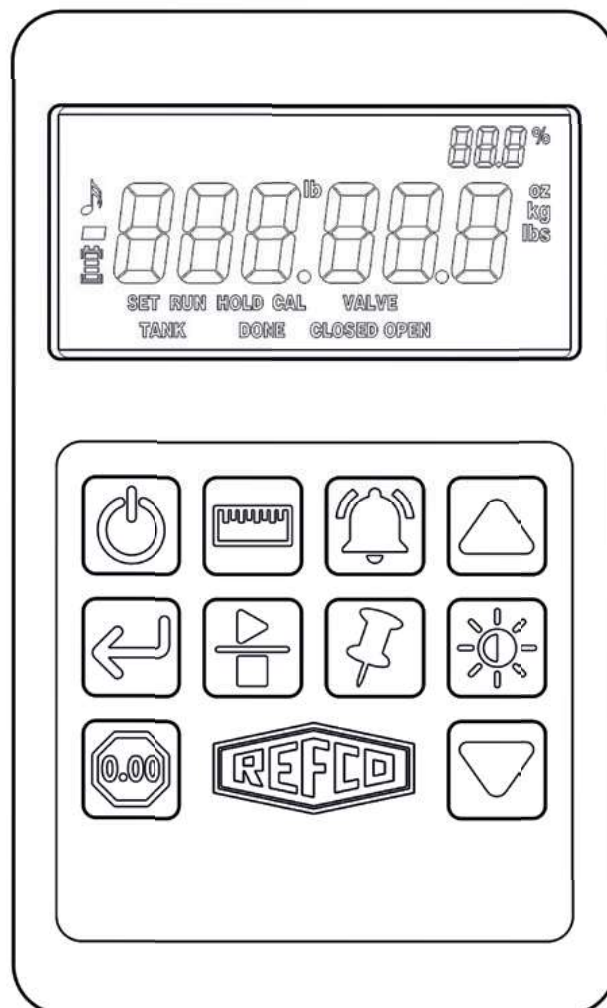
#### 4.1 PRODUCT





## 4.2 BUTTONS AND NAVIGATION

-  On / Off
-  Confirm
-  Zeroing / Tare
-  Units
-  Start / Stop
-  Alarm
-  Hold
-  Up
-  Brightness
-  Down



## 5.0 TRANSPORT AND STORAGE

### 5.1 TRANSPORT

The REFSCALE comes with a practical carrying bag. Make sure the remote control box is plugged into the scale and the scale is arranged in the carrying bag to transport the scale. The storage conditions must be maintained during transportation.

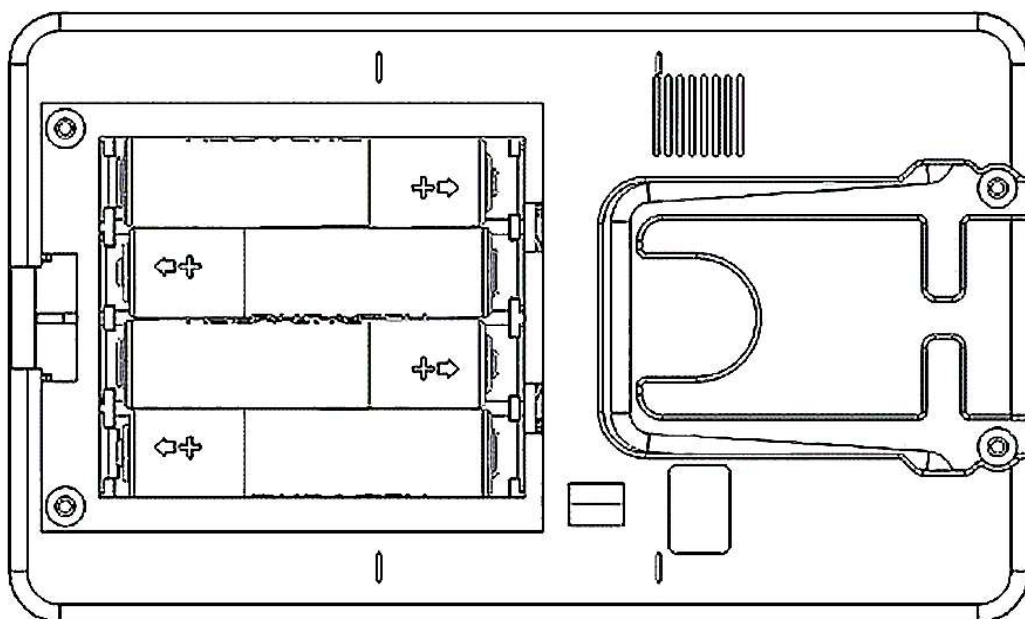
### 5.2 STORAGE

The storage temperatures (Section 3) must be maintained and the packaging must be closed.

## 6.0 COMMISSIONING AND FUNCTIONS

### 6.1 COMMISSIONING


Insert four batteries into the battery compartment on the backside of the remote control. Observe the correct polarity of the batteries. If you will not be using the REFSCALE for a long period of time, remove the batteries from the battery compartment.



## 6.2 FUNCTIONS

### Power On/Off

There are two possibilities to switch the device on and off.

With  on the keypad on the remote control box or with the connecting button on the side of the remote.

The second option makes the operation with the App easier, as the remote control box does not need to be removed from the Storage Dock.

### Set Tare

Press  on the REFSCALE to set the value to zero 0.000 [Unit].

### Units

The units can be changed by pressing  (kg / lb / oz / lb&oz).

### Resolution

The resolution changes automatically depending on numerical value.



It has three different resolutions 2g, 5g and 10g.

2 g / 0.05 lb	0 bis 20 kg	0 bis 44.1 lb
5 g / 0.1 lb	20 bis 50 kg	44.1 bis 110 lb
10 g / 0.2 lb	50 bis 110 kg	110 bis 243 lb

### Hold

A special function on the REFSCALE allows you to freeze the value.

This function can be used, for example, when filling or emptying the system in case the gas cylinder is empty or full.



By pressing , the function is enabled and in the screen the lettering HOLD appears. To disable, press  again.

## Backlight

The backlight can be turned on and off by pressing .

## Mute

As delivered from the factory, the REFSCALE beeps when turning on and when keys are pressed. This sound can be muted as follows.

While holding , briefly press . The musical symbol on the left of the screen will disappear to indicate that the sound has been muted. Repeat to turn the sound back on.




*The mute function only affects the key-press beeps.  
It has no effect on the alarm.*


## Alarm

With the REFSCALE a programmable alarm value can be set. The alarm will sound when the required value (either positive for increasing weight, or negative for decreasing weight) is reached.

After 90% of the programmed value, an approaching alarm brings to your attention, with a single tone, that the required amount is nearly reached.


Press  to enter the alarm menu.

Press or hold  or  to adjust the alarm value.

To activate the alarm, confirm the value with . The display automatically changes to zero and the alarm will be activated.









*The alarm value can only be entered as positive,  
but it counts in both positive and negative directions.*

To deactivate a programmed alarm, press and hold  for 3 seconds.

## Tank Capacity

It is often convenient to know the relative amount of gas remaining in a gas cylinder (tank). The REFSCALE Tank Capacity Mode allows a continuous display of the percentage of gas remaining in a tank. In order to compute the percentage accurately, the REFSCALE must be trained with the weights of an empty and full tank. To train the REFSCALE Tank Capacity Mode, perform the following steps:

1. While holding  press . The SET TANK indicator will turn on, and OFF will show on the display. This indicates that the Tank Capacity Mode is currently off.
2. Turn the Tank Capacity Mode on by pressing . The display will show ON, and the Alternate Numeric Display and Percent Indicator will turn on.
3. Press  to proceed to the first step of training. 0% will flash in the Alternate Numeric Display indicating that the weight of an empty container must be registered.
4. Apply an empty container (or a load representing the weight of an empty container) on the platform. Wait 5 seconds for the load to stabilize, then press . 100 % will flash in the Alternate Numeric Display indicating that the weight of a full container must be registered.
5. Apply a full container (or a load representing the weight of a full container) on the platform. Wait 5 seconds for the load to stabilize, then press . This completes the training process, and the SET TANK indicator will turn off.
6. From this point forward, the Alternate Numeric Display will show the percent of material remaining in the container from 0 % to 100 %.



*The 100 % weight must be larger than the 0 % weight by at least 200g. If not, “Err” will show on the Alternate Numeric Display.*

*To clear the error, retrain as above using a 100 % weight that is at least 200g larger than the 0 % weight. During training, the ZERO key may be used to assist in setting the 0 % and 100 % values. This will have no effect on the training, as the Tank Capacity Mode relies on absolute, not relative, weights.*

To turn the function off, repeat steps 1 and 2, adjust with ▼ such that the screen displays Off instead of On.

### **Battery Management**

To increase the battery life, the REFSCALE has two functions:

#### **Auto Shutoff:**

After 30 minutes without pressing any buttons and the value not changing, the device will turn off.

#### **Alternative Power Source:**

Instead of using batteries, it's possible to power the REFSCALE via USB from, for example, a power bank.

### **Overload Indication**

If the weight applied to the weighing platform exceeds the maximum capacity of the REFSCALE (110 kg / 243 lb), the display will show “OOR” which means Out of Range. This is an absolute measurement.



*To prevent damage to the REFSCALE, immediately remove the weight from the platform.*

### 6.3 CONNECTIONS

With the REFSCALE it is possible to establish a connection to the REFCO REF MESH App or to the REF MATE digital manifold. To connect to REF MESH, the blue connection LED on the remote control box must flashing, which indicates that the scale is searching for a connection. As soon as a connection is established, the LED lights up continuously.

#### **Connection to REF MESH**

With the REF MESH you can easily establish a connection with the REFSCALE via the usual „connect“ window on the REF MESH. Via REF MESH it is possible to set tare, use the hold function, set an alarm and save a value which can be shown in a report.

#### **Connection to REF MATE**








When the connection LED flashes you can easily search for a device with the REF MATE. If the REFSCALE is within the range, the device connects automatically. When the devices are connected, you can see the REFSCALE values on the REF MATE. On the REF MATE you have access to the additional screen by pressing the SWITCH button.

## 7.0 CALIBRATION

The REFSCALE is calibrated at the factory to provide high accuracy. While recalibration should seldom, if ever, be necessary, recalibration is performed easily without sending the product to the manufacturer for service. A known calibration weight (in kilograms) is required to recalibrate the scale, and can be any value between 10 kg and 100 kg. Best accuracy is obtained by using the largest weight available.

To recalibrate the REFSCALE, perform the following steps:



1. Place the REFSCALE weighing platform on a firm, level surface.
2. Turn the power to the REFSCALE off.
3. Remove all objects from the platform.

4. While holding , press and release . The REFSCALE will turn on, and after a few seconds, the display will show SET CAL and 25.000 kg.
5. Using  or  adjust the displayed value (in 1kg increments) so that it is equal to the weight of the reference calibration weight.
6. Press . A number representing the weight of the unloaded platform will appear on the display. Press  to lock in this value. The display will read zero.
7. Apply the calibration weight to the platform. A number representing the applied reference weight will appear on the display. Allow at least 5 seconds for this number to stabilize.
8. Press . The REFSCALE is now recalibrated to the reference weight.

### 7.1 RESTORING FACTORY CALIBRATION

If you make a mistake recalibrating the REFSCALE, you can always restore the factory calibration (and factory defaults) of the scale.

To restore the factory settings perform the following steps:

1. Turn the power to the REFSCALE off.
2. Remove any objects from the platform.
3. While holding , press and release . The REFSCALE will turn on and beep 10 times. The factory settings are now restored.



*If the key tone is switched off, no tone sounds, but the calibration reset has taken place.*

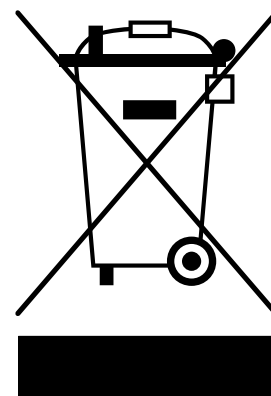


## 8.0 GUARANTEE

Your new, state-of-the-art REFSCALE has been developed in accordance with the latest findings in occupational physiology and ergonomics. REFCO Manufacturing Ltd has been certified according to DIN EN ISO 9001:2015. Regular quality control checks as well as an accurate manufacturing process guarantee reliable functionality and are the basis for the REFCO guarantee, in accordance with the General Terms and Conditions of Sale and Delivery applicable on the day of delivery. Excluded from the guarantee are damage caused by obvious maltreatment and wear and tear.

## 9.0 RETURN DISPOSAL

The REFSCALE has been developed for long-term use. Attention was paid to energy saving and environmental compatibility at the material procurement and production stages. REFCO embraces its responsibility towards the environment, and has therefore been certified in accordance with DIN EN ISO 14001:2015. When decommissioning the device, the user must follow local disposal regulations. The platform is made of aluminum.



## 10.0 ZUBEHÖR

Accessories	Designation	Part no.
Automatic Charging Module	REF-METER-OCTA-PLUS	<b>4681823</b>
Support Device for Refrigerant Cans	10612-REF	<b>4677027</b>