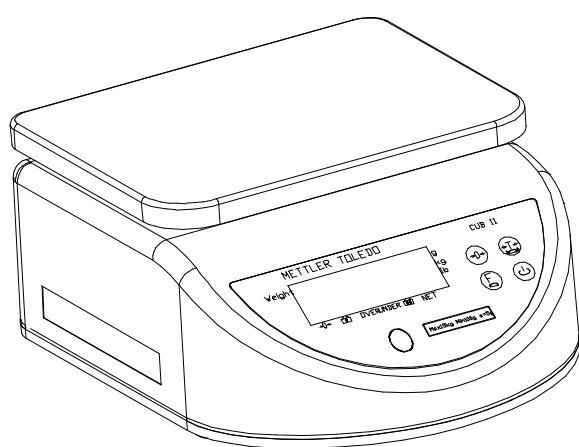


Cub II

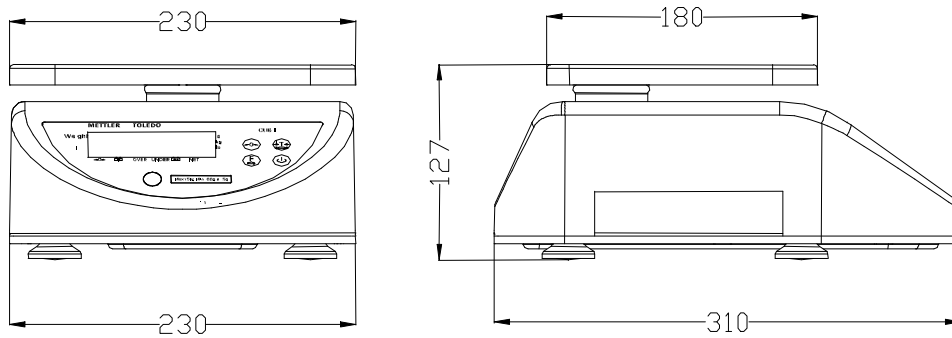
GB

Operation manual



METTLER TOLEDO

x METTLER TOLEDO
Printed in China 01/2004

GB**Dimensions****Precautions**

READ this manual BEFORE operating or servicing this equipment. FOLLOW these instructions carefully.
SAVE this manual for future reference.

Daily Maintenance

DO NOT allow untrained personnel to operate, clean, inspect, maintain, service, or tamper with this equipment.

DO NOT attempt to remove the cover or perform service or maintenance on the internal parts of the scale.

ALWAYS DISCONNECT this equipment from the power source before cleaning or performing maintenance.

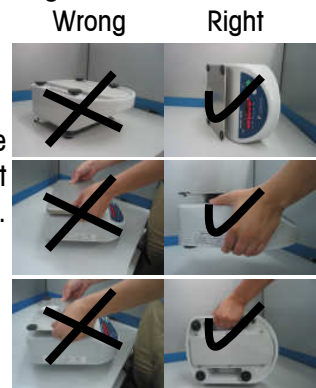
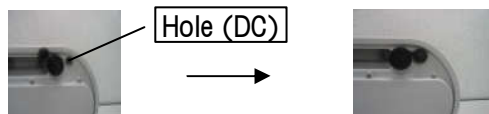
KEEP the scale clean.

DO NOT put the scale in the water, but you may use watery cloth to clean the scale.

DO NOT put the scale upside down or remove the scale by holding the spider as left.

DO NOT turn the 2 feet on the back tightly to let the air flowing between inside and outside of the scale smoothly. But please turn these 2 feet tightly until seal the gap between the foot and base to void water to get into the scale if you want to wash down the scale with water.

PLUG the rubber plug in the hole with power connector (DC) tightly to protect the power connector as left.



How to move scale?

Battery Notice

- ⚠ The battery (6V/5Ah rechargeable lead-acid battery) service life will be affected by the charge and discharge conditions. When used properly, it can withstand 300 cycles;
- ⚠ The new battery can provided 50 hours work after fully charged. The charge time normally is 15 hours if the battery is discharged fully. The charge time will be shorter if the battery is not discharge fully. It is commended to charge the battery every day.
- ⚠ Don Not short the positive pole (+) and negative pole (-) when replace the battery.
- ⚠ Charge the battery at least every 3 months to keep battery in good condition.
- ⚠ The work hours of the battery is shorter than normally if the battery is not used for a long time (e.g. more than 2 months). At this time, please cycle battery at least 3 times by charging it and using it until fully discharged to make the battery recover to normal condition.
- ⚠ Put back the rubber plug after charge is finished to protect the power connector.
- ⚠ The battery is not warranted due to its service time is greatly influenced by individual.
- ⚠ The work hour will become shorter many months later. It is not a problem of the battery, it is the feature of the rechargeable battery.

Introduction

The Cub II scale is a compact scale with many features.

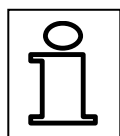
All our equipment is assembled, tested and packed with great care, should you find any item incorrect please contact the supplier immediately.

The Cub II scale is a high precision weighing instrument, which has to be approved and stamped by Weights and Measures. This scale is stamped in our production plant or by your local Weights & Measures office. Please check the official stamping stickers are on the scale before use.

Please read this instruction manual carefully.

Properly used and maintained, this scale will provide years of accurate weighing. Please handle it as you would any piece of fine electronic equipment.

Metrological instructions *



Important note
on legal-for-trade scales in EEC
countries

M

Factory verified scales carry this identification on the label applied on the package.

M

Scales identified by the green "M" label applied on the identification plate, can be operated immediately.

M

Scales calibrated in two stages carry the corresponding identification on the label applied on the package

These scales have already been verified in the first step (declaration of conformity according to EN 45501-8.2) and should receive the second step at their working place.

This second step must be performed by the certified METTLER TOLEDO after-sales service.

Please contact your local METTLER TOLEDO agency.

Retail scales, used for legal trade, must be submitted for calibration and verification.

Do respect the current metrological directives in your country.

* This is only for some European Countries.

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Installation

Precautions

This chapter gives detailed instructions and important information to install the Cub II scale successfully.

Environment

Before you install the scale, identify the best location for the equipment. The proper environment enhances its operation and longevity. Keep in mind the following factors, which might have a negative influence on the scale's operation:

+Vibration

Vibration diminishes the scale's ability to measure accurately. Electrical machinery such as conveyors and drill presses can cause inaccurate and non-repeatable readings. The scale may also read inaccurately if it is not leveled properly.

+Air current

Moving air can cause the scale to read an additional force (add. weight) and have the same effect as vibration.

+Friction

A scale cannot measure accurately if an object is rubbing or pressing against the plate.

Unpacking and inspection

Please inspect the package as it is delivered by the carrier. If the shipping container is damaged, check for internal damage and file a freight claim with the carrier if necessary. If the container is undamaged, open the box, remove the scale and place it on a solid, flat surface. Please keep the packing material and shipping insert in case you need to return the scale to METTLER TOLEDO. The Cub II is a precision instrument and may be permanently damaged if not shipped in factory approved packaging.

Package contents for all Cub II units include:

+ Cub II scale + platter+ AC-DC power adapter + operation manual

Setup

Open the box and pull up the scale. Remove the packing material from each side of the scale.

Set the unit on a sturdy; Remove 3 shipping protection screws on the spider, then remove the 3 plastic column inserts under the spider.

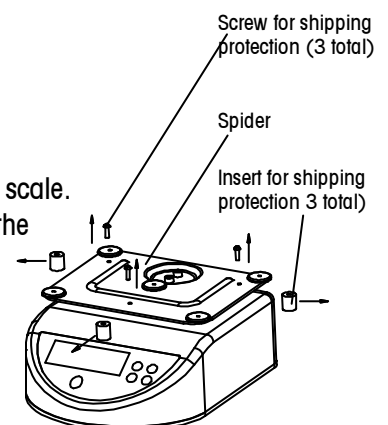
Level the scale by turning the adjustable feet. It is leveled correctly when the bubble indicator is in the centre of the circle.

Bubble indicator:

Good



Wrong




All four feet must touch the surface to make sure that Cub II does not rock. Then Put the platter on top of Cub II.

If no battery is in the scale, unpack the power adapter and plug it into the bottom of the scale. Plug the line cord into a properly grounded AC power outlet.


Notice: Don't turn the 2 feet on the back tightly to let the air flowing between inside and outside of the scale smoothly. But please turn these 2 feet tightly until seal the gap between the foot and base to void water to get into the scale if you want to wash down the scale with water.

Power up sequence and Turn off the Scale

Press the power key  to turn on the Cub II. It goes through a series of self-tests when it is turned on. The scale performs diagnoses on its ROM and RAM, and proceeds to normal operating mode. The sequence is as follows:

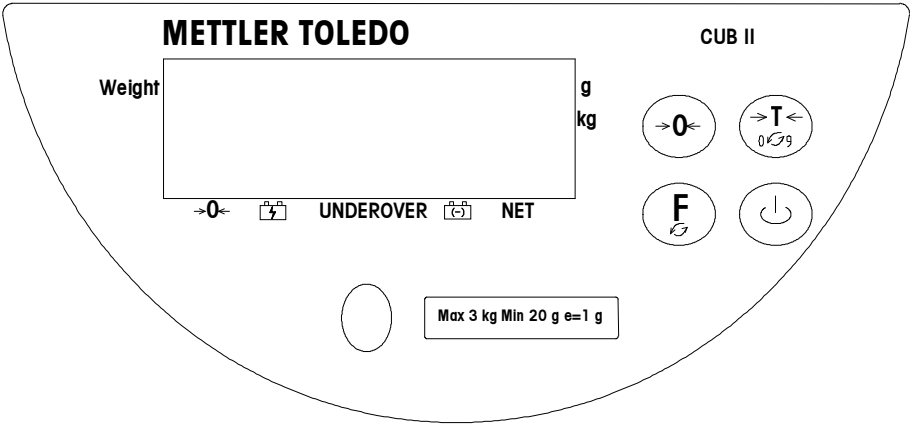
- Light all segments of the display characters. This verifies operation of all segments.
- Display the software part number, revision number, GEO value and battery type one by one.
- Capture zero and be ready for normal operation.

Note: Before switching on the Cub II scale, always make sure there is nothing on the platter.

Press the power key  until "OFF" is shown to turn off the scale.

Display and keyboard

Operator display



Keys

| Key | Name | Function |
|-----|--------------|--|
| | Zero Key | To return the scale to gross zero if drifting occurs |
| | Tare Key | To tare the scale |
| | Function Key | To enter over/under setting mode |
| | Power key | To turn on or turn off the scale |

Cursors

| Cursor | Description |
|---------|---|
| >0< | To be lit when weight is gross 0 |
| LED | To be lit when power is AC or battery is fully charged |
| version | To be lit when power is battery, it blinks to indicate the voltage of battery is lower than the required |
| | To be lit when power is AC or battery is fully charged blinking means the voltage is being charged |
| | To be lit when left capacity is 2/3 of the full capacity blinking means the voltage is being charged |
| LCD | To be lit when left capacity is 1/3 of the full capacity blinking means the voltage is being charged |
| version | In charging mode: blinking means the voltage is being charged In discharging mode: To be lit when voltage is almost used up. Begin blinking when the power of the battery is less than the requirement. The scale will be turned off automatically when voltage is less than the critical voltage point. |
| Net | To be lit when tare is existed |
| under | To be lit when weight is less than the under value |
| over | To be lit when weight is more than the over value |

Notice: Some model has back display. Please check with dealer if the model you purchase has back display.

Operations

Straight weighing

Place the item to be weighed on the platter.

Remove the item from the platter, display will return to 0.

Re-zero function

There are two ways to re-zero the scale:

1. Power-up Zero
2. Push button Zero

+ Power-up Zero

The scale will automatically capture zero when it is turned on. The power-up zero capture range is $\pm 10\%$ of the scale capacity. When the scale is turned on with a weight on the platter of more than $\pm 10\%$ of the capacity, the scale will not capture zero (the weight display will show "-----") and the scale will not be ready for use. After removing the weight the scale will capture "zero".


+ Pushbutton Zero

The ZERO key re-zeros the scale over a range of $\pm 2\%$ of the scale capacity. To use this function, the scale must be in the gross weighing mode (NET cursor must be off) and in a no motion condition. When the weight on the platter is more than $\pm 2\%$ of the scale capacity the depression of the zero key will not be accepted.

Tare Function

The Tare key subtracts the weight of the wrapping material.

Place the empty container or wrapping material on the platter, e.g. 50g.

Press  key, it show net weight 0g, meanwhile net weight cursor light.

Place the item to be weighed in the container or on the wrapping material and then onto the platter.

Remove the weighed item, as well as the container or wrapping material from the platter, the displays will show all the negative net weight of the container, e.g. -50g.


Press  key to return the scale back to gross weighing mode.

Power Save and automatically turning off scale

Power saving feature is used to save battery power. These functions can be enabled or disabled through setting. When using the battery and the scale is idle for 2 minutes, the weight display will only display one decimal on the right and the battery in use cursor is lit. This indicates that the scale is in the power saving cycle. When weight is placed on the platter or a key is pressed, the scale will wake up automatically.

If there is still no key operation and weight change 15 minutes after power saving status occurred, the scale will be turned off automatically.

Backlight

Press key and hold  until to hear 2 continuous beeps to turn on the backlight. Using the same way or just turning off the scale turn off backlight.

When power is battery the backlight can be turned off temporarily as there is no weight change or no key touching for 15 seconds, while in this case, if weight changes or any key is pressed, backlight will be turned on automatically. This function is only available in LCD with backlight version.

Over/Under

Setting mode

Press **F** key to access to setting mode. The display will show default 0.000 (the digits on the both sides of decimal point vary with the capacity and its resolution E.g.: 0.000 (3kg scale)) or exiting value.

Notice: All value will be zero after resolution or weight unit is changes.

Cursor over will light when setting over values, and the under will light when setting under value.

Key Function

In over and under setting mode, the functions of the keys will be as follows:

| key | Description |
|------------------|---|
| >0< | End setting mode and return the scale to weighing mode. |
| >T< | Chose value in a circle from 0 to 9. |
| F | Chose digit in a circle from left to right. |
| ⏏ | Confirm the choice and step forward to next step in a circle of over and under value. |

Set over and under value

In setting mode, if the cursor over is lit, the over value can be set. Press key **F** some times to chose digit you want, the chosen digit will blink, then press key **>T<** to change to value of this digit to what you want, use the same way to set all digits and get the right over value, finally press **⏏** to confirm the over value and step forwards to under value setting. The way to set under value is same as over value. When setting is finish, press **>0<** key to return the scale to the weighing mode.

For example: 3kg scale, the over value is 505g, under value is 500g.:

| The procedures | display show | Lit cursor |
|--|--------------|------------|
| 1) Press F to access to setting mode | [0.000] | over |
| 2) Press F , then press >T< 5 times | [0.500] | over |
| 3) Press F twice, then press >T< 5 times | [0.500] | over |
| 4) Press ⏏ to set under value | [0.000] | under |
| 5) Press F , then press >T< 4 times | [0.000] | under |
| 6) Press ⏏ to set over value | [0.505] | over |
| 7) Press >0< to back to weighing mode | [0.000] | |

The digit in grey shadow mean this digit is blinking.

Operation

When over and under value exists, beep will be available as a sound indication, and the possible mode will be as follows:


| Weight | S3 is 0 | S3 is 1 | S3 is 2 | Lit cursor |
|---------------------------------|---------|---------|---------|----------------|
| > over value | No beep | No beep | beep | over |
| < under value | No beep | No beep | beep | Under |
| <= over value and >=under value | No beep | beep | No beep | Over and under |
| Over value=under value =0* | No beep | No beep | No beep | |

*When both over and under values are 0, over and under indication function is disabled.





Setup

Several parameters in the scale can be changed to enable you to set up the scale to your individual needs.

Access to setting mode

Press and hold  until "S1 OFF" is displayed when turn on the scale.

Function of the key

| Key | Name | Function |
|---|------------|---|
|  | Finish key | Finish setting |
|  | Toggle key | Chose parameter |
|  | Back key | Step backwards to last step |
|  | Accept key | Confirm choice and step forwards to next step |

Parameter list

| Softswitch | Description | Available parameter | Default |
|------------|----------------------------------|--|---------|
| S1 | Automatically turn off the scale | On: Enable this function off: disable this function | off |
| S2 | Sleeping function | On: Enable this function off: disable this function | on |
| S3 | Beep range | 0: no beep 1: Beep when weight is between over and under value. 2: beep when weigh is out of range of over and under | 0 |
| S4 | Filter strength | 0: light 1: normal 2: strong 3: very strong | 2 |
| S5 | Weight unit | g/kg/lb* | g |
| S6 | LED brightness | 0: normal 1: dimmer than "0" 2: dimmer than "1" 3: dimmer than "2" | 0 |
| S7 | Display type | Off: rapidly update On: weight hold | off |

* lb is not available on the scales to Europe.

Exit setting mode

Press finish key  to finish setting. "SAVE" is display to save all changes. Press  to toggle between "SAVE" (save changes) and "Abort" (abort all changes). Press  to return the scale to weighing mode.

Appendix

Replace battery



- 1) Put the scale on the side as left;
- 2) Open the holder of the battery by screw driver to unscrew the screws on the battery holder cover on back of the scale;
- 3) Remove the fixing plate by screw driver;
- 4) Disconnect the wire from the battery power poles and remove the battery;
- 5) Connect wire with power poles of new battery. Notice that **red** wire with positive pole **(+)**, **black** wire with negative pole **(-)**.
- 6) Put the fixing board back;
- 7) Put the cover back with more care about the sealing ring, be sure the ring is in the free mode and right place to assure a good sealing result.

Charge the Rechargeable lead-acid battery

The scale can charge the lead-acid battery (6V/5Ah) as follow:

- 1) remove the rubber plug which is to seal the hole where the power connector is.
- 2) connect the output end of the adapter to the power connector to initiate charging no matter the scale is turned on or not.
- 3) put the rubber plug back to seal the hole to avoid erosion of the power connector when the scale is in the wet environment.

Note: please charge battery in the dry environment.

There are two battery cursors, one is , and the other is  to indication the battery situation. Please refer to section "Cursor" for detail.

If the unit is plugged into the wall outlet when battery power is used, the power source will automatically switch to the wall transformer. And when the AC power is off, power source will automatically switch to battery.

Error Messages

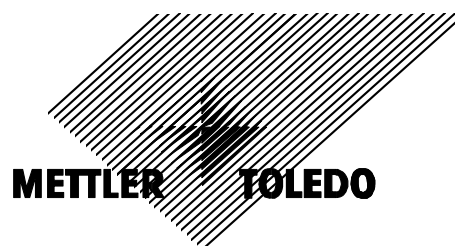
The scale will display an error message if a scale problem or incorrect keyboard entry is sensed. The error codes are:

| | | |
|-------------------------|---|--|
| E 11 | RAM error | METTLER TOLEDO Service |
| E 16 | ROM error | |
| E 18 | EEPROM error | |
| E 48 | Alarm setup error | |
| ERROR | software running error | |
| ----- | Unsteadily or can't find zero | |
| nnnnn in weight window | Weight is more than full capacity plus 9e | Remove items from platter |
| uuuuu in weight display | can not capture zero | Remove items from platter or calibrate the scale |

Specification

| Feature | Description | | | |
|-----------------------|---|-----|-----|------|
| Capacity | 1.5kg | 3kg | 6kg | 15kg |
| Division | 0.5g | 1g | 2g | 5g |
| Weight display | 6 digits | | | |
| Operating temperature | -10°C~+40°C | | | |
| Storage temperature | -25°C~+50°C | | | |
| Plug in adapter | I/P: local AC voltage, O/P: 9VDC/500mA | | | |
| Power consumption | LCD version: 20mA, LED version normally: 60mA | | | |
| Charging current | 500mA | | | |

Specifications are subject to change without notice.



DECLARATION OF CONFORMITY

We:

Wir:

Nous: **METTLER-TOLEDO (CHANGZHOU) SCALE & SYSTEM LTD.**

Noi: **111 Changxi Rd. Changzhou Jiangsu,**

Nosotros: **People's Republic of China 213001**

Wij:

Nos:

declare under our sole responsibility, that the product,
erklären in alleiniger Verantwortung, dass das Produkt,
déclarons sous notre seule responsabilité, que le produit
dichiariamo sotto nostra unica responsabilità, che il prodotto,
declaramos bajo nuestra sola responsabilidad, que el producto
verklaren er volledig verantwoordelijk voor te zijn, dat het produkt
declaramos de nossa única responsabilidade, que o produto

Model/Type: **Cub II (RWXX..)**

to which this declaration relates, is in conformity with the following standards and normative document(s):

auf das sich diese Erklärung bezieht, mit den folgenden EG-Richtlinien und Normen übereinstimmt:




auquel se rapporte cette déclaration, est conforme aux Directives du Conseil européen et aux normes suivantes:

a cui si riferisce questa dichiarazione, è conforme alle seguenti Direttiva del Consiglio e norme:

al cual se refiere esta declaración conforme a las siguientes directivas y normas:

waarop deze verklaring betrekking heeft, overeenkomt met de volgende EG-richtlijnen en normen:

à qual faz referência a presente Declaração, responde às directivas do Conselho Europeu, e às seguintes normas:

| EC marking | EC Directive: | Applicable Standards: |
|---|---|---|
|  | 73/23/EEC Low Voltage | EN61010-1 |
|  | 89/336/EEC EMC | EN61326-1:1997+A1:98 (CLASS B); EN61326-1:1997 +A1:98 (Minimal requirements) |
|  | 90/384/EEC Non-automatic Weighing Instruments | EN45501 1) |

1) T6356 EC Type approval certificate

Changzhou, May, 2003 METTLER TOLEDO (CHANGZHOU) SCALE & SYSTEM LTD.



David Zheng
President



Chu Jinlan
Quality Assurance Manager

