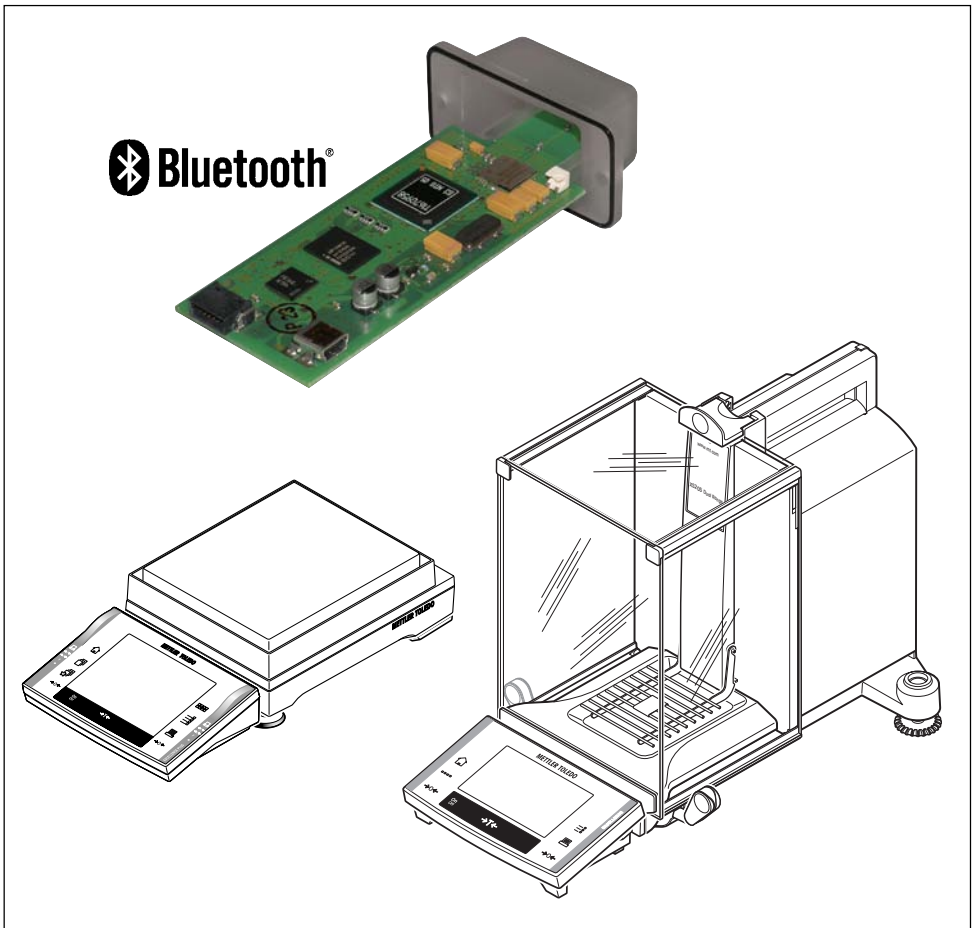


Installation and Operating Instructions

METTLER TOLEDO

Bluetooth option "11132530" for XP/XS balances



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1 Introduction

1.1 First of all

Thank you for choosing the METTLER TOLEDO Bluetooth option for your XP/XS balance. The Bluetooth option provides wireless communication between your XP/XS balance and up to 7 Bluetooth compatible peripheral devices.

Please read the installation and operating instructions carefully, in order to install and configure the Bluetooth option safely and correctly and to make sure that you can take advantage of all the available options.

Please also observe the following notes:

- To improve legibility, the installation and operating instructions use the abbreviation “BT” for compound words with “Bluetooth” (e.g. BT option, BT device, etc.).
- Before installing and configuring the BT option in your XP/XS balance, you should read and understand the installation and operating instructions.
- The notes and information in the operating instructions for your XP/XS balance and the instructions for the BT peripheral devices used must be observed (in particular the safety notes).
- The BT option works only if a terminal is connected to the XP/XS weighing platform.
- Your XP/XS balance should be supplied with software version V3.0 or a later version. The latest software version can be downloaded from the following Internet address:
www.mt.com/balance-support.
- The electronics of the BT option are very sensitive to electrostatic discharges. In order to protect the components, necessary measures must be taken when the BT option is installed so as to provide protection against electrostatic discharges.
- The BT option does not contain any parts that can be maintained, repaired or replaced by the user.
- No modifications must be made to the BT option.
- The BT option is installed into your XP/XS balance and is powered by the balance.
- If the BT option does not function correctly, please contact your local METTLER TOLEDO dealer.
- If you have any queries, which have either not been covered by these instructions or have not provided sufficient information, please contact your local METTLER TOLEDO dealer. They will gladly help you.

1.2 What is Bluetooth?

Radio transmission

Bluetooth is a standardized technology for the wireless **transmission of data using radio systems in the frequency range of 2.4 GHz** (2.402 ... 2.480 GHz). This frequency range can be used around the world without a license.

Since the 2.4 GHz frequency is also used by non-Bluetooth devices, special technologies are implemented in Bluetooth for error-free operation:

- Frequency hopping procedures with 1600 frequency changes per second
- Encryption of transmitted data
- Low transmission power with automatic power adaptation

Receiving range

The Bluetooth standard has three different performance classes with different ranges. **The BT option operates in performance class 2 with a range of 10 m.**

Type of connection

In addition to the traditional **"Point-to-point"** connection of two devices, Bluetooth also supports the **"Point-to-multipoint"** connection, where one device, the "Client" (BT option), can simultaneously establish up to 7 active connections to other devices, the "Servers" (peripheral devices).

Identification of devices

All BT devices have a unique identification code, namely the BT device address. The **BT device address is a twelve-digit hexadecimal figure**, which is represented as "01:23:45:67:89:AB". Since the device address is extremely unmanageable for normal use, **all BT devices also have a name.**

The device address and name of a BT device can (in addition to other device data, such as supported profiles, etc.) be requested by other BT devices.

Protocols and profiles

The Bluetooth standard defines a series of protocols and profiles, which determine communication between the BT devices.

The BT option only supports the "Serial Port Profile" for the emulation of a serial interface for universal data communication.

How do you set up a BT connection?

In spite of the numerous possible applications of Bluetooth, the basic procedure for setting up a BT connection is nearly always the same.

1. Search for the device to which a connection is to be established.
2. Request available services and select the services that are to be used.
3. Connect (pairing) the devices. In most cases, you will be asked to enter a Pin code.

Information that has been gathered during these three stages is stored in the devices and used for future connections between these two devices.

In most cases, a BT connection is set up from the device, which is then used to establish the connection, the "Client" (BT option).

Other devices that are also used to set up a BT connection, always play one of two possible roles where a connection is concerned: "Client" or "Server".

"Client" (BT option):

- actively sets up the connection
- determines which "Server" can send data
- can set up a maximum of 7 other connections during an active connection

"Server" (peripheral devices):

- waits for a connection request
- cannot answer any other connection requests or set up a connection during an active connection.

Safety aspects

Bluetooth contains different functions, which assure safe connections. A distinction is therefore made between functions that are intended to prevent the unauthorized use of a device and functions that prevent the monitoring of data exchanges.

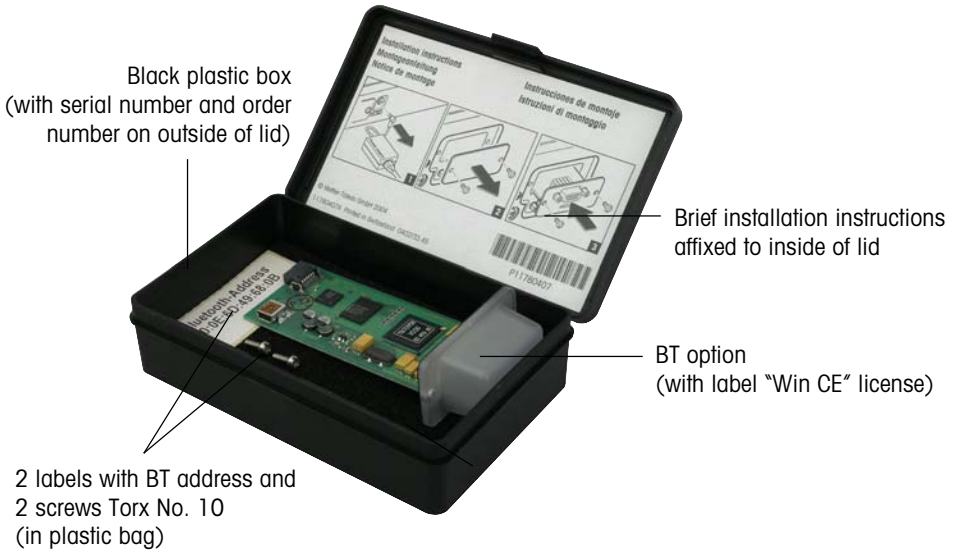
- **The following functions provide protection against unauthorized use**, they are however not always all available with each device:
 - BT devices can be made invisible for other devices. If this function is activated, the BT address for the device can no longer be determined. In other words, devices that do not already know their address (stored in the device), are unable to accommodate a connection.
 - A connection with new devices can be prohibited. Every request for connection must be confirmed by the user (authorization) before a connection is established.
 - A connection is only possible with a Pin code (authentication).
- **In order to prevent a connection from being monitored**, data exchanges can also be encrypted. However, this is only possible if authentication (with Pin code) has already been granted.

2 Check delivery and install BT option

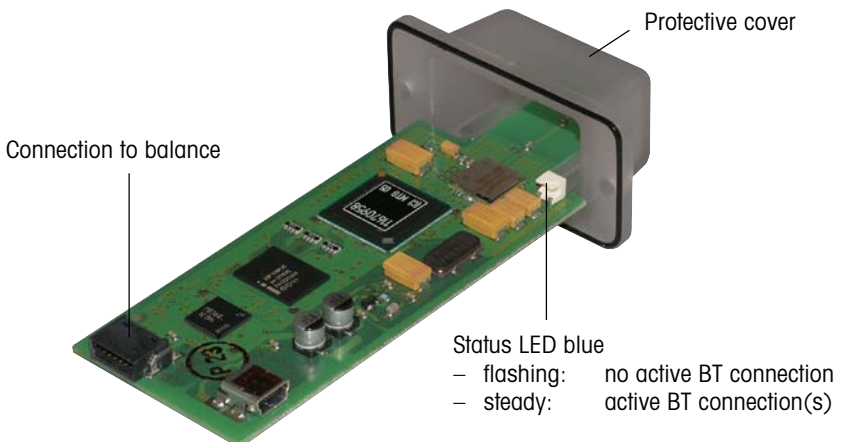
2.1 Check delivery

A standard delivery includes:

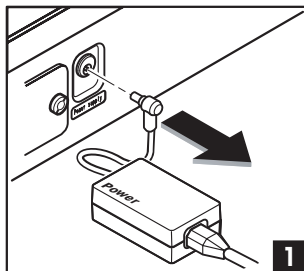
- Installation and operating instructions (this document)
- BT option (11132530) in plastic box:



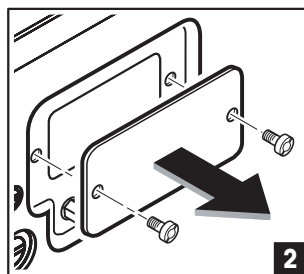
2.2 BT option overview



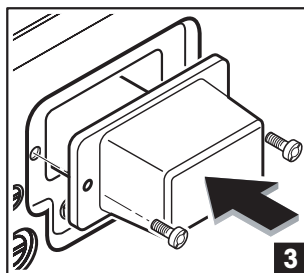
2.3 Installing the BT option



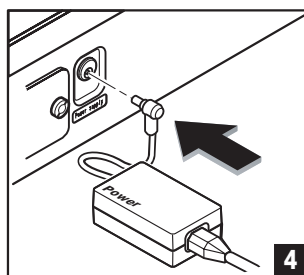
1. Disconnect the balance from the power supply before you install the BT option (remove the power adapter plug from the AC socket).



2. Undo the screws on the interface cover using a screwdriver (Torx No. 10) and remove the interface cover.



3. Carefully insert the BT option into the interface opening, align the BT option plug to the socket in the balance and insert the BT option as far as the stop. Secure the BT option using the screws that are supplied.

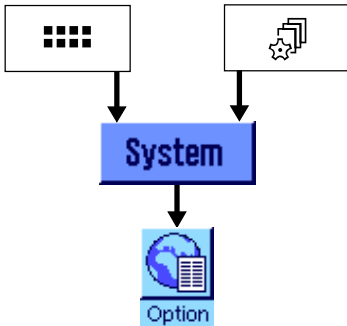


4. Reconnect the balance to the power supply (insert the power adapter plug into the AC socket).

3 Configuring the BT option

Before you can establish a connection to other BT devices, you must configure the BT option in the balance. The BT option is configured using the system setting "Option" of the balance software.

3.1 Calling up the configuration menu



Press button «**....**» to select the application menu or press button «**☰**» to select the user settings menu.

Then click on "System", to call up the system settings.

From system settings, click on "Option". The configuration menu (Global Settings) is displayed. It includes the following settings:

The screenshot shows the "Global Settings" screen with a blue header and a light blue background. The settings are as follows:

Device Name	Balance
Pin Code	Mettler-Toledo
Encryption	Off
Invisible	Yes

At the bottom, there are navigation arrows, a "1/2" indicator, and an "OK" button.

"Device Name": Enter the name of the BT option

"Pin Code": Currently has no function

"Encryption": Currently has no function

"Invisible": Determines whether the BT option is invisible to other BT devices.

The screenshot shows the "Global Settings" screen, page 2 of 2. The settings are as follows:

Messages	On
Show Connections	Connections:...

At the bottom, there are navigation arrows, a "2/2" indicator, and an "OK" button.

"Messages": Determines whether BT error messages should be displayed on the balance terminal.

"Show Connections": Displays a list of existing BT connections.

Detailed information of the individual settings in the configuration menu can be found in the following section.

3.2 Settings in the configuration menu



“Device Name”

As with all BT devices, the BT option is also identified by a twelve-digit hexadecimal figure and a name. Here you can change the name of the BT option (max. 32 alphanumeric characters).

Note: Use standard characters A to z and numbers 0 to 9 (ASCII 0020 to 007F) only. Special characters must not be used.

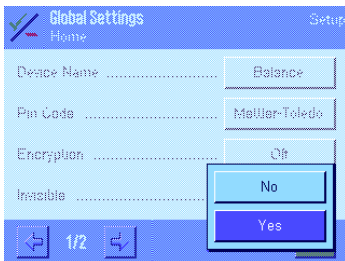
Once the changes have been confirmed, the device name is used to identify the button.

Factory default setting: “Balance” + twelve-digit BT address

Note: As soon as a connection has been established to a peripheral device, the device name can no longer be changed.

“Pin Code” and “Encryption”

Currently has no function.

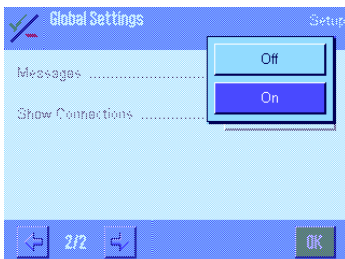


“Invisible”

Here you determine whether the BT option should be invisible to other BT devices (“Yes”) or not (“No”).

If the BT option is invisible, the BT option does not appear in the device list of other BT devices.

Factory default setting: “Yes” (invisible)

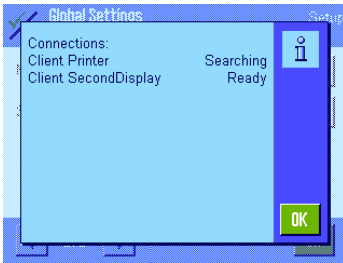


“Messages”

Here you determine whether BT error messages should be displayed on the balance terminal screen (“On”) or not (“Off”).

Factory default setting: “On”

Note: currently no function.



"Show Connections"

Press the "Connections ..." button to display a list of all connections that have been configured. The current connection status is displayed for each connection:

"Ready": Connection is active

"Searching": BT option is trying to establish a connection to the BT device (device and service are defined correctly).

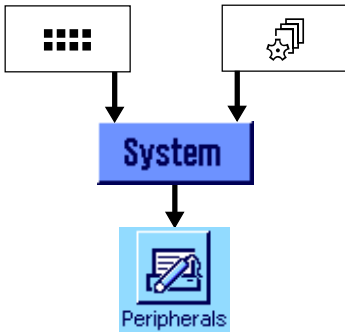
"Offline": The connection has been configured incorrectly (no device or service defined).



4 Configuring, activating and resetting BT connections

This section describes how to configure and activate a connection between the XP/XS balance using BT option and a BT peripheral device, and how to interrupt and then reestablish a BT connection and how to reset a BT connection.

4.1 Configuring and activating a BT connection

The general procedure used to configure and activate a connection between the XP/XS balance using BT option and a BT peripheral device is described briefly below. The same procedure applies to all types of peripheral devices (printer, auxiliary display, etc.).

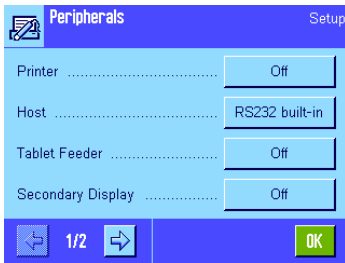


Press button «» to select the application menu or press button «» to select the user settings menu.

Then click on “**System**”, to call up the system settings.

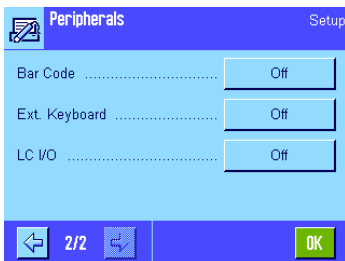
From system settings, press the button “**Peripherals**”.

Note: When the “Peripherals” menu is called up for the first time, the balance initializes the peripheral. This may take several seconds. During this period, the message “Initializing peripheral devices ...” is displayed.

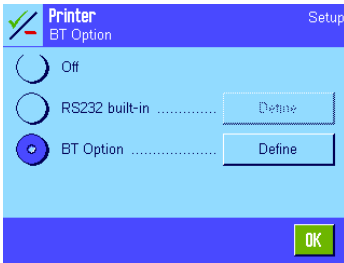


The menu is displayed which is used to select the type of peripheral device.

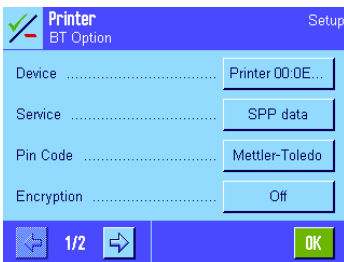
The button behind the relevant peripheral device indicates the connection from the balance to the peripheral device is deactivated “Off”, or whether the balance is connected to the peripheral device via the integrated RS232 interface “RS232 built-in” or if the built-in BT option “BT Option” is connected to the peripheral device.



Press the button next to the type of peripheral device (e.g. printer, auxiliary display), for which you would like to configure a BT connection.



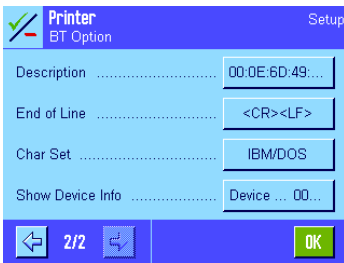
Select the "BT Option" and then press the button "Define".



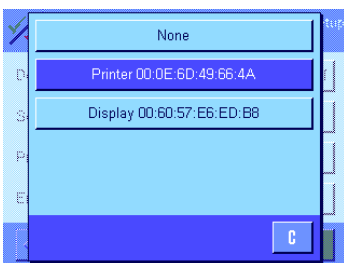
The configuration menu is displayed for the BT connection. The structure is the same for all peripheral devices.

Press the relevant button to call up the corresponding setting.

Once the setting has been confirmed, the display returns to the configuration menu. The set value is used to identify the button.



A detailed description of all settings in the configuration menu is given below.



"Device"

This setting is used to determine for which BT device the connection is to be established.

Once the setting has been called up, the BT option searches for BT devices within the receiving range, from which it is receiving a signal. This may take some time. During the search period, the message "Please wait ... searching devices" appears.

A list is then displayed which details the available devices (see diagram). Select the desired device from the list and wait until the configuration menu appears again (may take several seconds).

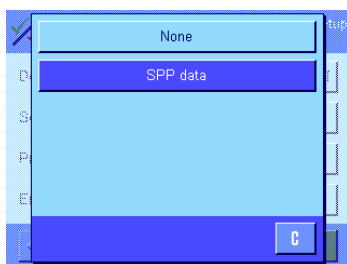
Note: The list may also includes devices for which a connection has already been configured, but where the connection is currently not active (interrupted).

Note: If the desired device does not appear on the list, press the button "None" or "C". The display returns to the configuration menu. Then check whether the relevant device is switched on, whether it is in "Sleep mode" (this is sometimes the case for bar code readers) or whether it is set to "invisible". Once the problem has been resolved, call up the setting "Device" once again.

"Service"

This setting is used to determine the service that is to be used for the transmission of data.

Once the setting has been called up, the BT option determines which services are made available by the assigned BT device. This may take some time. During the search period, the message "Please wait ... searching services" appears.



A list is then displayed which details the services that are supported (see diagram). From the list, select the service that is to be used for the serial transmission of data (usually "SPP data") and wait until the configuration menu reappears (may take several seconds).

Note: The description of the serial transmission of data is not the same for all BT devices. The exact description of the service can be found in the instructions for the relevant device. If an incorrect service is selected, then a connection cannot be established at a later stage to the peripheral device.

Note: There are BT devices where the available services are only displayed once the Pin code has been entered (see following setting).



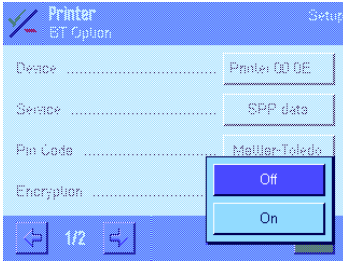
"Pin Code"

This setting is used to determine the "Pin Code" for the selected peripheral device.

Note: The Pin code for METTLER TOLEDO devices is set by default to "Mettler-Toledo" (check spelling). The Pin code for third-party devices can be found in the instructions for the relevant device.

If an incorrect Pin code is entered, then a connection cannot be established at a later stage to the peripheral device.

Note: If the peripheral device does not support authentication using a Pin code or if authentication by means of a Pin code is not to be used, then you should delete the Pin code which has been entered if necessary.



“Encryption”

This setting is used to either switch the data transmission encryption on (“On”) or off (“Off”).

Factory setting: “Off”

Note: The encryption can only be activated if the device has a Pin code (see above) and if it supports the encrypting function.



“Description”

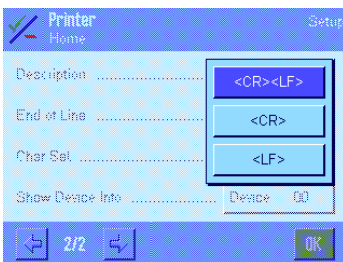
All METTLER TOLEDO devices have a name ex works, which includes the **device type** e.g. “Printer” or “Display” and a **description of the device** (the twelve-digit BT address ex works).

This setting is used to determine the description of the device for METTLER TOLEDO devices. The description of the device can include a maximum of 32 alphanumeric characters.

Once confirmed, the description is written back to the device. If a problem occurs during this procedure, the balance will issue the message “Can’t set description”

Note: Use standard characters A to z and numbers 0 to 9 (ASCII 0020 to 007F) only. Special characters must not be used.

Note: In the case of third-party devices or older METTLER TOLEDO devices, the description of the device and the device name cannot be changed.



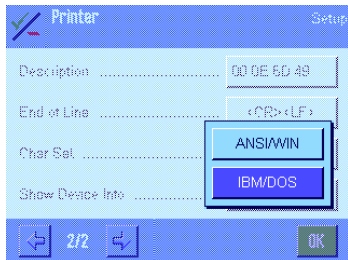
“End of Line”

This setting is used to determine the end of line character for the transmission of data.

Selection possibilities: <CR><LF>, <CR> or <LF>

Factory default setting: <CR><LF>

Note: Details of the end of line character that is to be used for the transmission of data can be found in the instructions of the relevant device.



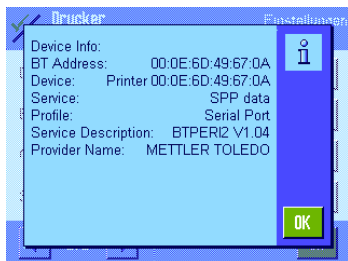
“Char Set”

This setting is used to determine the character set table that is to be used for the data transmission.

Selection possibilities: IBM/DOS (e.g. for printer BT-P42) or ANSI/WIN (e.g. for BT display)

Factory default setting: Dependent on the device

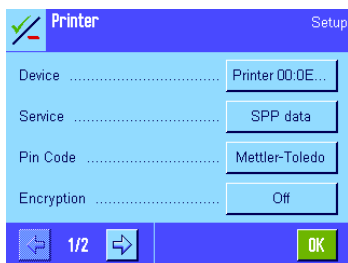
Note: Details of the character set table that is to be used for the data transmission can be found in the instructions of the relevant device.



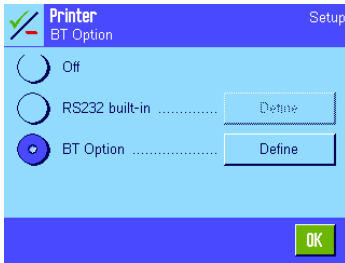
“Show Device Info”

Select this menu item to display information about the relevant peripheral device. This includes:

- “**BT Address**”: Address
- “**Device**”: Name
- “**Service**”: Selected
- “**Profile**”: Profiles supported by the device
- “**Service Description**”: If provided by the device
- “**Provider Name**”: Manufacturer’s name, if provided by the device



Once all settings have been determined in the configuration menu, press “OK”. The settings are stored.

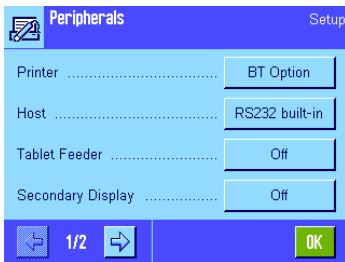


In this menu, press "OK" again. The BT option then tries to establish a connection to the peripheral device.

As soon as the connection is active, the relevant METTLER TOLEDO peripheral device is no longer visible to other BT devices.

Note: Use the menu item "Show Connections" in the configuration menu of the BT option (see Section 3.2) to display the status of all defined BT connections.

For METTLER TOLEDO peripheral devices, the blue LED which is continuously lit, indicates that the peripheral device is actively connected to the BT option.



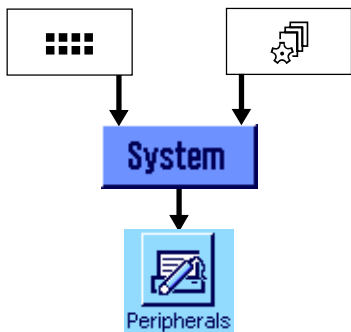
The balance returns to the menu where you can select the type of peripheral device. The button next to the type of peripheral device indicates that a device is connected to the balance via the BT option.

If you want, you can repeat the procedure described in this section for other peripheral devices (e.g. auxiliary display, bar code reader, etc.).

4.2 Deactivating/activating an active BT connection

An active BT connection can be deactivated and then reactivated at any time.

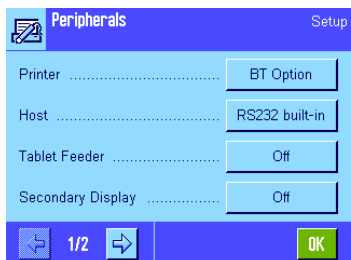
Note: Connections to BT devices that are not being used should be deactivated, otherwise the BT option continues to try and establish a connection to the relevant BT devices.



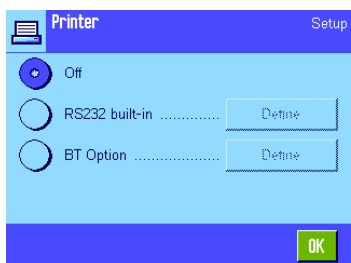
Press button «⋮» to select the application menu or press button «⌂» to select the user settings menu.

Then click on **“System”**, to call up the system settings.

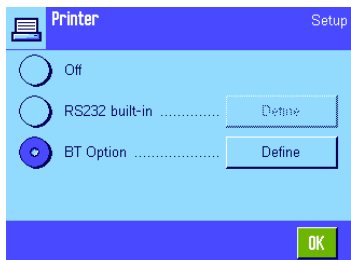
From system settings, press the button **“Peripherals”**.



In the selection menu, press the button for the peripheral device, where the BT connection is to be deactivated or activated.



Select **“Off”** and press the **“OK”** button if you want to interrupt the BT connection to the relevant peripheral device, or ...

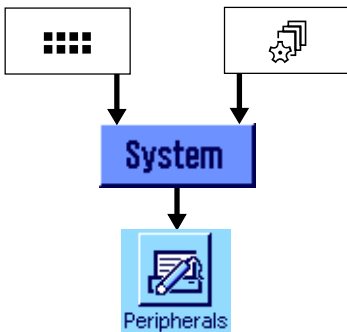


... select **“BT Option”** and press the **“OK”** button if you want to restore the BT connection to the relevant peripheral device.

4.3 Resetting a BT connection

Configuration data from a BT connection is always stored. This is why devices where the connection has been deactivated (see Section 4.2) reappear on the list of available devices. So that a device that is no longer being used, does not appear on the list any more, the relevant BT connection has to be reset. Proceed as follows:

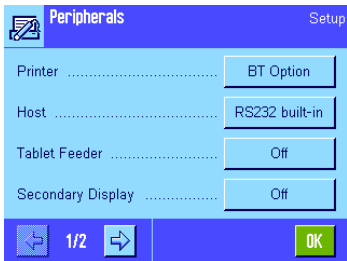
Deactivate the BT connection to the relevant peripheral device, as is described in Section 4.2 and then switch off the device.



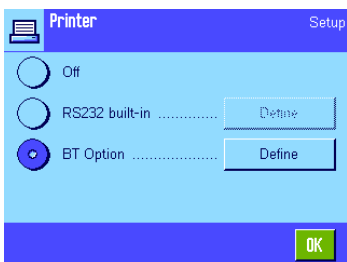
Press button «...» to select the application menu or press button «☰» to select the user settings menu.

Then click on "System", to call up the system settings.

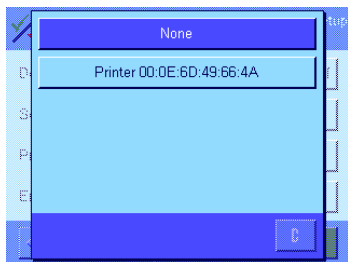
From system settings, press the button "Peripherals".



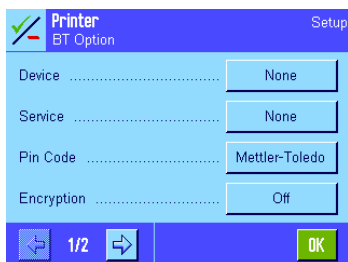
From the selection menu, select the peripheral device for which you want to reset the connection (e.g. "Printer").



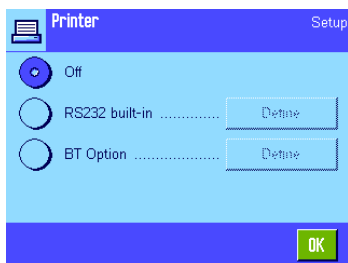
Select the "BT Option" and then press the button "Define".



In the configuration menu, select the setting "Device". From the list of available devices (which is displayed following a search process), press the button "None".



Wait until the configuration menu appears again (may take several seconds). The connection has now been reset, the settings "Device" and "Service" are set to "None". Press the "OK" button.

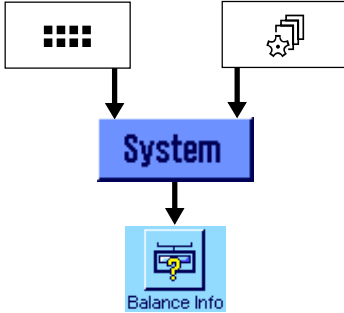


Select "Off" and then press the "OK" button. The balance returns to the selection menu for the peripheral device.

Note: By selecting "Master Reset" for the balance, the BT option is reset to the factory default settings (BT connection not configured). Before you select "Master Reset", please read the relevant notes in the operating instructions for your balance.

5 Additional information

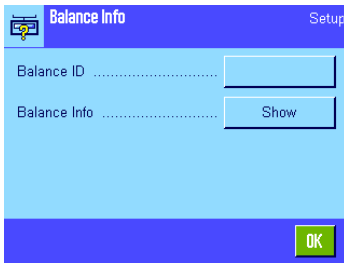
Additional information can be found on BT option under the system setting "Balance Info".



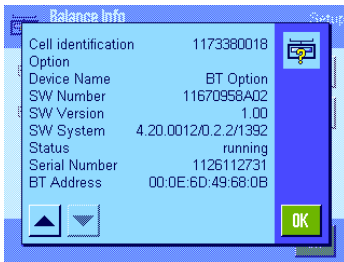
Press button «:» to select the application menu or press button «» to select the user settings menu.

Then click on "System", to call up the system settings.

Under system settings, press the button "Balance Info".



In this menu, press the "Show" button.



Continue pressing the button with the downward facing arrow until the BT option information is displayed. The following information is displayed:

"Device Name"

"SW Number"

"SW Version"

"SW System"

"Status"

Possible operating states include:

- running: BT option OK
- shutdown: BT stack not active **
- ready: BT stack not active **

"Serial Number"

"BT Address"

** These problems can only be eliminated by restarting the balance (switch balance off and then on again).

6 Appendix

6.1 Technical data

Radio transmission

Frequency range	2,402 ...2,480 GHz
Transmission power	typical 1 mW (0 dBm), Bluetooth class 2
Input sensitivity	improved -80 dBm
Modulation	GFSK Modulation with frequency hopping procedure

Bluetooth

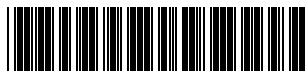
Version	1.1
Protocols	L2CAP, SDP, RFCOMM
Bluetooth Profile	Generic access, Service Discovery, Serial Port
Role of BT option	Client

6.2 Accessories

Accessories	Order No.
BT-P42 Bluetooth printer	11132540
BT-BLD Bluetooth auxiliary display with bench stand	11132555
BTS option	11132535

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Subject to technical changes and to changes in the
accessories supplied with the instruments.

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