TacticID-1064ST

TacticID-1064ST
User Manual

TacticID-1064ST

1. TacticID-1064ST Safety Overview

The TacticID-1064ST is a handheld Raman instrument designed for rapid identifications of unknown materials based on their Raman spectral signature. The instrument has a touch screen with intuitive software for easy operation by specialists and non-specialists alike. The functions, general instrument configurations, and scanning and identification of samples are done through the embedded software TOS (TacticID-1064ST Operating System), while data management and reporting are done by synchronizing the instrument data onto a PC via the TacticID-1064ST PC software TID21. The instrument is housed in an IP68-rated case that provides protection from ingress of dust and protection in water up to 1.5m deep for up to 30 minutes without harmful effect.

1.1 Safety Warning and Labels

The TacticID-1064ST system contains one Class 3B laser light source of 1064 nm laser excitation. The product complies with the US Federal Code of Regulations 21 CFR 1040.10, Laser Products.

Please read through this user manual before operating the system.

The NOHD (Nominal Ocular Hazard Distance) of TacticID-1064ST is 9 inches (23 cm) when there is no sample adaptor on the lens shaft. The laser warning label is located on the rear panel of the system together with the manufacturer identification. The laser warning label displays the laser safety, wavelength and power of the laser source. The manufacturer's general identification includes warning information and also displays the manufacturer name, address, model number, maximum laser power, serial number, manufacturing date, and power supply specifications.
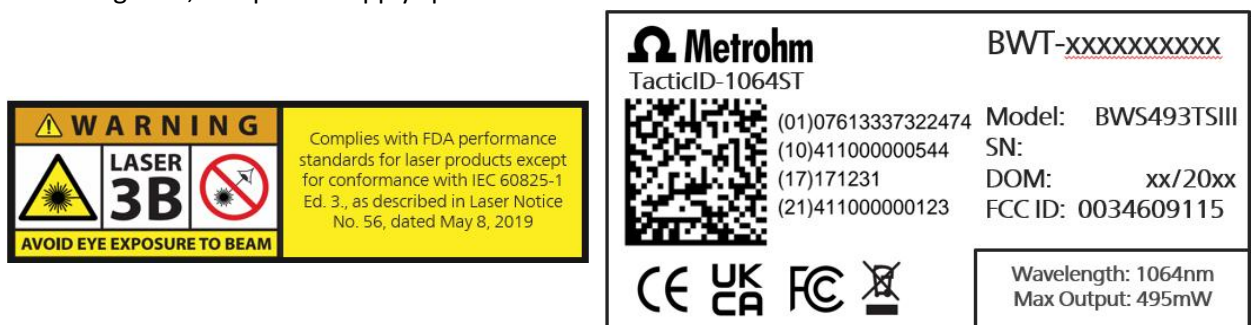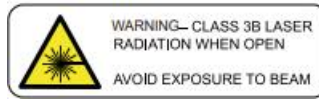

Laser Apture label
   It is pasted on the front of the device, beside the Laser Emission Aperture.

There is a panel label inside, on the top of the laser cover.

WARNING– CLASS 3B LASER
RADIATION WHEN OPEN

AVOID EXPOSURE TO BEAM

1.2 FCC WARNING

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.

—Increase the separation between the equipment and receiver.

—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

—Consult the dealer or an experienced radio/TV technician for help.

Note: The Grantee is not responsible for any changes or modifications not expressly approved by the party responsible for compliance. such modifications could void the user's authority to operate the equipment.

The device has been evaluated to meet general RF exposure requirement.

This equipment complies with FCC's RF radiation exposure limits set forth for an uncontrolled environment. This device and its antenna(s) must not be co-located or conjunction with any other antenna or transmitter.

1.3 Laser Emission Aperture and Beam Shutter

Located at the laser emission aperture, the laser emission label indicates that the laser energy emission occurs at the corresponding port. The device is equipped with CDRH-compliant laser safety measures. The laser emission aperture is located on the top of the device where the sampling accessory is also
installed.

**Laser Emission
Aperture**
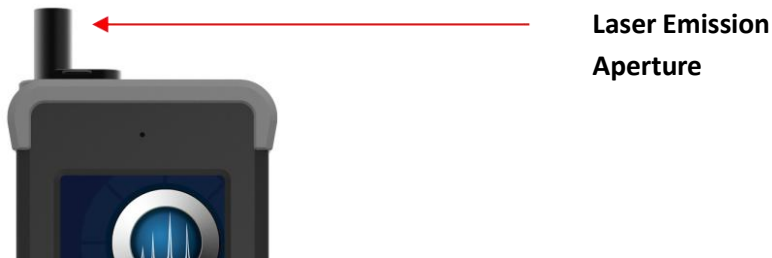
CAUTION: The device should be powered down if the shaft is removed. Though sample accessories can be readily changed, unnecessary removal of the shaft is strongly discouraged.

1.4 Remote Interlock

The remote interlock facilitates the laser 'on' and 'off' remote control function. When the laser stop key is inserted into the slot, the interlock is closed, and laser emission can be enabled. When the key is pulled out, the interlock is opened, and the laser does not emit and cannot be turned on.

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1.3 Precautions

- **The 1064 nm laser is not visible to the human eye, but can still impose serious ocular damage or ignite samples if proper Laser Safety precautions are not followed. Operate with caution.**
- **Never point the device directly at a person.**
- **Never look directly into the laser beam path or scattered laser light from any reflective surface.**
- **Never look directly into the laser source.**
- **Maintain low beam level when performing experimental setup to prevent inadvertent beam-eye contact.**
- **Avoid wearing jewelry and watches with shiny and highly reflective surfaces.**
- **Post the laser danger sign in the working area.**
- **As a precaution against accidental exposures to the laser beam or its reflection, always wear laser safety glasses with sufficient attenuation for the laser.**
- **1064 nm laser is not visible. Do not look directly into laser emission aperture. Never point the laser at a person. Do not perform scans while installing adaptors.**
- **Lower laser power settings are recommended when measuring dark, flammable, or explosive samples as they may heat up and potentially burn or ignite.**

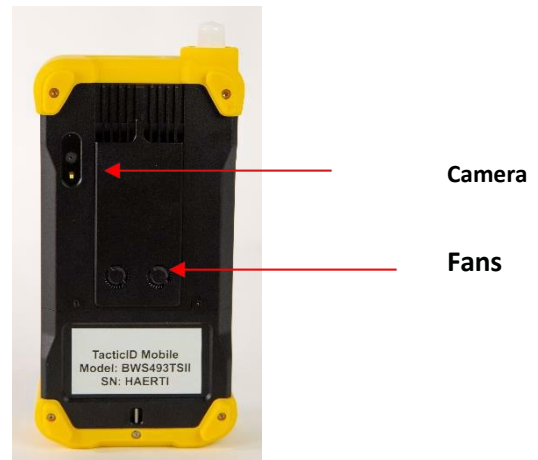**Sources for additional information and assistance on laser safety:**

CDRH-Radiological Health Program

Office of Communication, Education and Radiation Programs
Center for Devices and Radiological Health
US Food and Drug Administration
10903 New Hampshire Avenue W066-4613, Silver Spring, MD 20993 USA
Tel: 1-800-638-2041
Fax: 1-301-847-8149
dsmica@fda.hhs.gov

Laser Institute of America
13501 Ingenuity Drive, Suite 128, Orlando, FL 32826 USA Tel:
1-407-380-1553
Fax: 1-407-380-5588
www.lia.org

2. Getting to Know Your Tactic

Laser Emission Aperture

Laser Indicating LED

Rubber Jacket

Power On/Off button

Laser Switch/ Acquisition button

Camera

Fans

TacticID Mobile
Model: BWS493TSII
SN: HAERTI

Warranty seal labels are positioned on both sides of the system under the rubber jacket. Any attempt to open the panel(s) of this device will break these seals and void the warranty.

TacticID-1064ST

2.2 Power Supply

The TacticID-1064ST can be run on either the external power supply or on the battery. A fully charged battery can last from 4 hours to a full day depending on the usage of the device. The battery status is displayed in the top right corner of the screen when the device is powered on. The battery power can be viewed from any screen by swiping down. The battery is installed inside the device and cannot be removed without the use of tools.

The TacticID-1064ST battery can be charged with our manufacturer-supplied 15 V 3.6A DC power adaptor. When charging with the power adaptor while the device is not powered on, the battery level, the date and the time will be displayed in the center of the screen even though the system is not powered on. A rechargeable battery pack may be purchased for charging the device in the field. The external battery pack can be hot swapped for continuous charging and use without turning the device off. A car charger can also be used with the device.

Users can also charge the TacticID-1064ST device using commercially available off-the-shelf battery packs and car chargers. The minimum requirement for the battery pack is the 15V option with at least 3A output, and a USB-C to USB-C cable. Please make sure to use the USB-C port for charging, as the USB type A port does not provide the power needed to charge the device. Please also be careful when using commercial products with the TacticID-1064ST, as B&W Tek cannot guarantee the quality of third-party power adaptors.

2.3 TacticID-1064ST Cleaning

TacticID-1064ST requires minimal maintenance and care. To clean the TacticID-1064ST touchscreen, wipe it with a soft cloth dampened with ethanol or isopropanol. The main body of the device may be wiped down with water, and plastic surfaces may be cleaned with soap and water. Use ethanol to clean the emission shaft. The rubber jacket may be cleaned with any of the above. A mild bleach solution may be used to wipe down the device. Do not use chlorinated cleaning products or other solvents for any part of the device.

In order to prolong the device lifetime and maintain good operating practice, please do not clean the device by immersion in bleach solutions or similar agents. In the rare cases where special decontamination protocols are necessary, please allow the device to be fully dried before turning it on, or contact support for help.

2.4 Power Button

To turn on the device, press and hold the power button ⏻ for more than 3 seconds. While powered on, pressing the power button once will shut off the screen while keeping the device running. Press and hold the power button for more than 2 seconds and choose options on the screen to turn off the device.

When the power button is pressed once, the device will go to standby mode.

2.5 Laser Button

The laser can be turned on only when the system is in the Scan menu, Performance Validation, or Library

menu. To turn on the laser, press the **Laser** button

> **In the case of an emergency, the laser can be turned off by pressing the Laser button or the Home button.**

2.6 Camera (13MP)

The camera is located on the back of the device. The camera function provides the capability for the user to capture the image of the packaging, label or physical appearance of the sample and then save to be included in the report. Image can be saved with each scan. The camera is also equipped with a flashlight. The camera function can be disabled if necessary.

Camera and Flash light

2.8 Back Cooling Fans

The cooling fans are located on the back of the device. The cooling fans allow the instrument to be continuous running in a hot environment with exceptional performance. The cooling fan can be removed for cleaning and replaced if necessary. The cooling fan will turn off once the device goes to sleep.
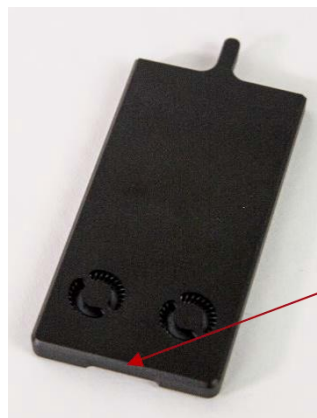
Open from here

3. TacticID-1064ST Operation

3.1 Power On/Off

To power on the system, press and hold the **Power** button for 2-3 seconds. A screen indicating the system's initialization process will be displayed. After the initialization is completed, two warning messages will be presented, each for a few seconds, followed by the user Login screen. The device will then be operational. After the device is operational, pressing the Power button once will shut off the screen and the device will go into sleep mode. The battery will continue draining slowly during sleep mode. Typically, a brand-new fully charged device can maintain charge **under sleep mode** for more than 150 hours. To wake the device from sleep mode, press the power button once again.

There are two ways to turn the system off:
Soft power-down: press and hold the **Power On/Off** button for about 2-3 seconds. A message will appear confirming the shutdown request. Press **ACCEPT** to confirm the operation and the system will turn off. Press **CANCEL** to cancel the request and return to the previous screen. During soft power-down, a system message informing the status of the shutdown sequence will display. The message will go away shortly. Once the back fan stops, the device is shut down completely.
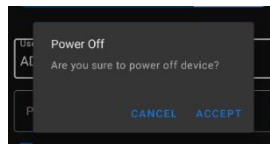
Hard power-down: press and hold the **Power** button for more than 10 seconds. The device will power down using hardware-means independent of software operation. Please avoid using hard power-down unless necessary.

3.2 User Login

There are two levels of user accounts available, Administrator (ADMIN) and Operator (OPRT). The identity of the currently logged-in user appears at the top of the Menu accessible from the top left of the screen.

ADMIN

Administrator-level user accounts have access to all functions and options of the TOS-XM, specifically the Library and Setup options.

The default login password is 9999. After the initial login to the system, the ADMIN can set a new password for security reasons. The ADMIN also sets the account setting of what password strength is required. (see section 3.12.2) **For first time login, before doing performance validation, please set the time zone and local time by going to Menu (the ▤ icon on the top left) → Settings → General → Date & Time. Once the time is set, restart the device. After that, install the polystyrene cap and do performance validation.**

OPRT

Operator-level accounts have access to selected functions: Scan, Data Transfer, Performance Validation,

Diagnosis and Results Display.

The default login password is 9999. After the initial login to the system, the Operator is prompted to set a new password for security reasons. The password should follow the password requirements set for the device.
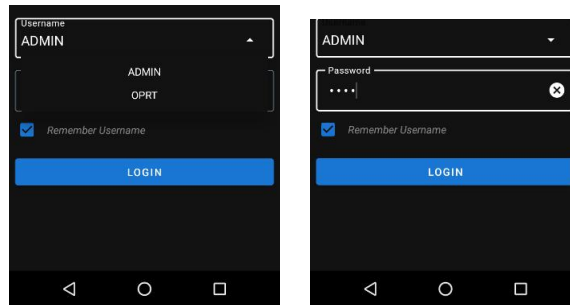
3.4 Scan Operation

The home screen after login is the main interface for operation and allows the user to scan a sample once the sample is positioned correctly. The scan is done with the setting defined in the Operation Preset or with adjustments that can be made on this screen. (The detailed settings of the operation are configured in the Operation Preset. See section 3.3 for details). The **N** at the lower left corner of the home screen stands for Normal mode operation. Additional scan modes may be added to future software versions and could be chosen by users here. The user can also change the laser power before starting the scan. Press on the laser power display box in the lower right to toggle through different laser power settings. The available power levels include: Operation Preset laser level set in the selected Operation Preset, and 10% to 100% in 10% increments. Press the Laser button to start the scan.

The progress ring provides the user with a visual reference for the progress of the scan. The system sets a default initial integration time for the first scan. The integration time will then be automatically optimized. A dark scan will follow the sample scan. While the dark scan is being collected, the sample needs to remain in the same position until the dark scan is completed.
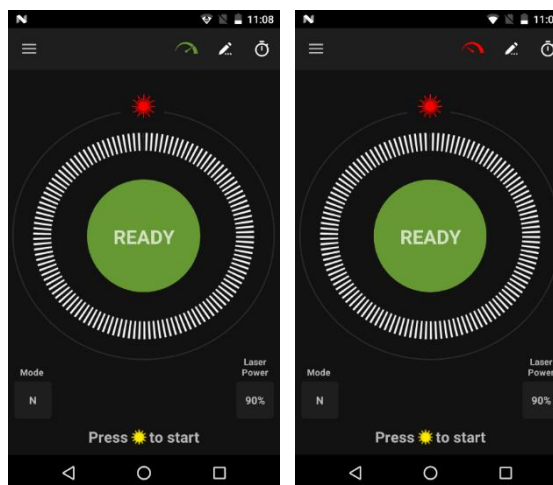

Initiating the scan

The scan is initiated by pressing the physical 🔆 button. This turns the laser on, and scans the sample, which is then analyzed, and a result returned. For safety reasons, this is the only button that can start the laser.

3.5.2 Camera

After each scan, the user may also take one picture to document the sample or other related scan information. Simply click on the camera icon, click "Open Camera", and aim the camera at the object. Click the ▣ icon to take a picture. Users can rotate each picture by clicking the rotate button.
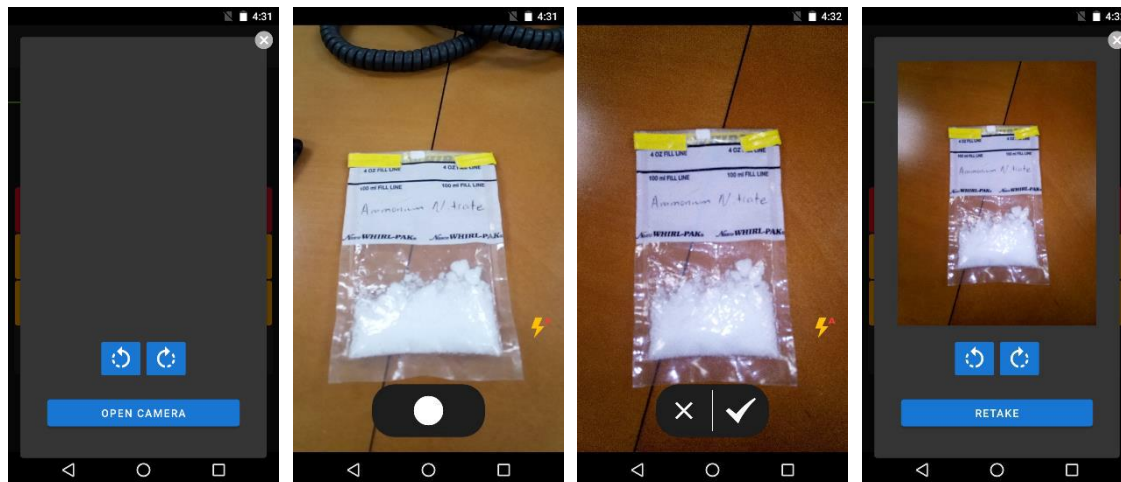
3.10 Data Transfer

TacticID-1064ST allows data export without connecting to a PC. This function, using the OTG technology, is illustrated in section 3.7.

TacticID-1064ST uses TID21 for data reporting and management in a secure database. The TID21 software must be installed on a PC or server where the secure database will be kept and data managed. The user needs to establish a connection to a PC where TID21 is installed and synchronize the data from the TacticID-1064ST to TID21 database on the PC. The TacticID-1064ST device can be connected to the PC using Wi-Fi, USB, or Bluetooth.
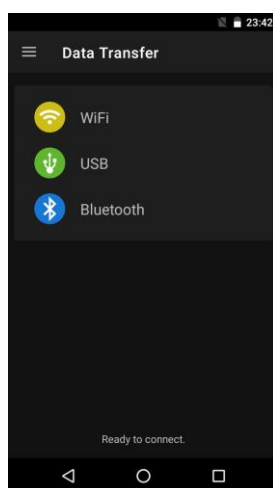
To establish a connection between the TacticID-1064ST device and PC:

• Set up connection on the TacticID-1064ST from the Menu → Data Transfer and choose the type of connection that will be used.

• Open TID21 on PC.

• Connect the instrument by the selected connection (For USB connections, connect the cable first before

pressing the USB icon).

• Login to TacticID-1064ST via TID21 software on PC with the same user credentials as logged into the TOS-XM on the unit.

NOTE: For information on TID21 installation, driver installation, and device connection, refer to the document "TID21 Software Installation and Setup Guide". You may talk to your IT department if restrictions are applied to your working environment.

Wi-Fi Connection

TacticID-1064ST supports Wi-Fi 4 protocol of IEEE 802.11 b/g/n, with WPA/WPA2 encryption protocol. Turn on the Wi-Fi on the device and a list of available wireless (WLAN) networks will be displayed. Press Refresh to update the available wireless networks if needed. Scroll down the list and select the appropriate wireless network SSID. Enter the password and tap Connect to the network. Wait until the network shows it's connected, then click the back key to return to the data transfer screen. The device is now ready to be connected to the TID21 software.
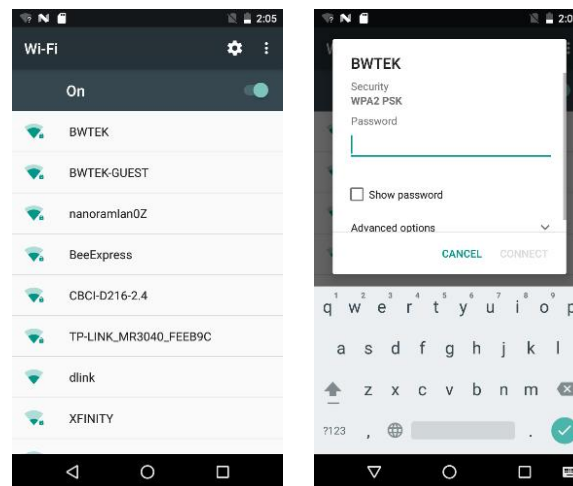
USB Connection

TacticID-1064ST is integrated with USB2.0 port for data communication. Use the factory supplied USB-C to USB-A cable to connect the device to the PC. Turn on the USB connection by tapping on the left of USB. Once the blue dot appears on the right, the device is ready to be connected to the TID21 software.

Once the device is ready to be connected, a TacticID-1064ST icon should show up at the TID21 Device interface. Click the icon to select the device, then log in TID21 using the currently-logged-in account in the TOS-XM. In other words, if the TOS-XM is logged in with the ADMIN account, and password 9999, type in the same account and password (ADMIN, 9999) to establish the connection between TOS and TID21.

Bluetooth Connection

Turn on Bluetooth by selecting the Bluetooth option for data transfer. Once the blue dot appears on the right, the device is ready to be connected to the TID21 software.
TID21 will recognize the TacticID-1064ST and an icon with serial number will appear in TID21. Click the icon to select the device, then log in TID21 using the currently-logged-in account in the TOS-XM.

3.11 Setting

Users can access the device setting menus and make changes to the device time, language, sound, and display. The setting section has both General and Advanced settings.

3.11.1.1 Sound

In this section the user can adjust the volume of the sound of the instrument. The "Other sounds" and "Sound enhancement" section are reserved functions. Please contact your local support before using these reserved functions.

3.11.1.2 Language and input

Users can also add and select the display languages and keyboard for TOS-XM.
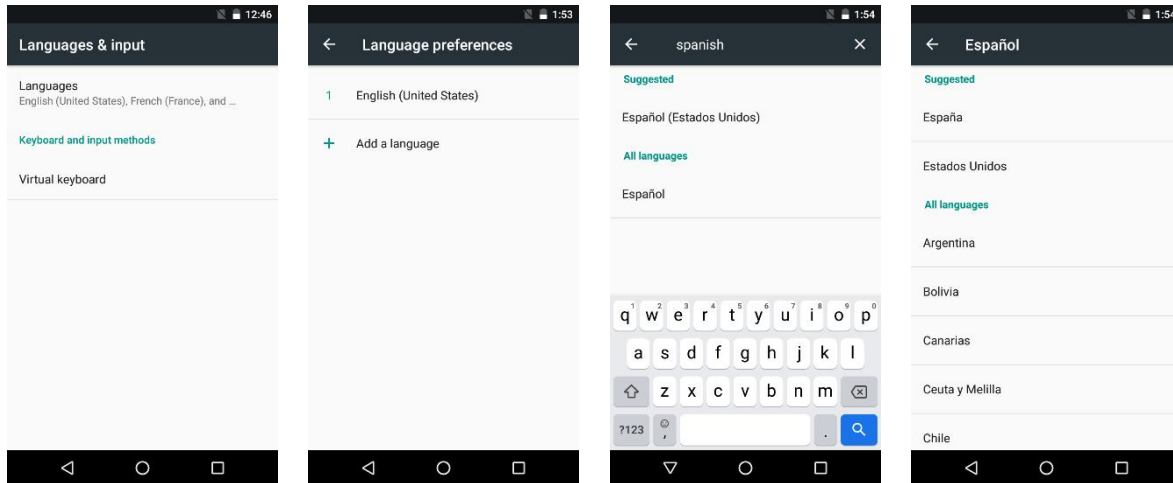

Click "Languages" → "Add a language" → Click the magnifying glass to search for the language. Please choose the language and your region and add it to the list. These are the languages that we currently support for TOS-XM operation system:

1. English
2. Simplified Chinese
3. Traditional Chinese
4. Japanese
5. Spanish
6. Korean
7. German
8. French
9. Turkish
10. Polish
11. Italian
12. Portuguese

After adding language to the list, simply press and hold the ═ icon, and drag the language to the top of the list to make it the displayed language.
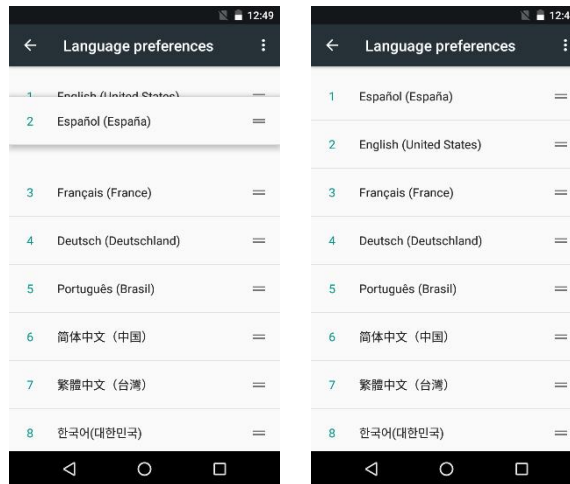
When new languages are added to the list, a new keyboard is usually available as well. Press and hold the space key to select the keyboard you want to use. TOS-XM support UTF-8 characters, gifs or pictures are not supported.
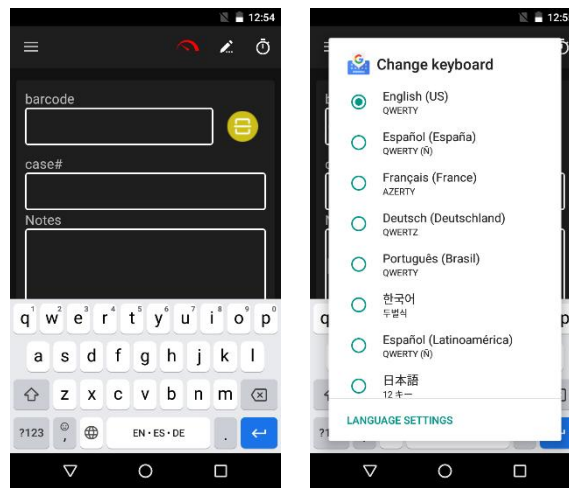

3.11.1.3 Date and time

Press Date and Time under the Setting function to adjust the time based on the location of your area. When selecting the time zone, user can click the "three dot" button on the top right to arrange the time zone alphabetically for easier search. If the time is changed, when user exits this screen, the software will restart automatically to reflect the change in time.

3.11.1.4 Status

The status section shows the device status including laser status, spectrometer status, laser temperature, detector temperature, chamber temperature, available storage, etc.
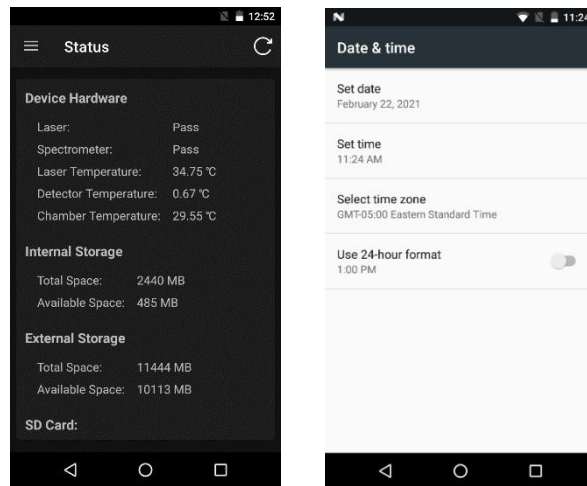
Users can choose to turn on/off location finding for each scan result. When the location is turned on, the device will try to locate GPS coordinates after each scan. It is recommended that GPS is only turned on when a user is outdoors (where the GPS signal is strong) or the instrument is connected to a Wi-Fi that has internet services. If the GPS signals are too low, it might require a long time to locate the coordinates. If neither option is available, location data will show not available.
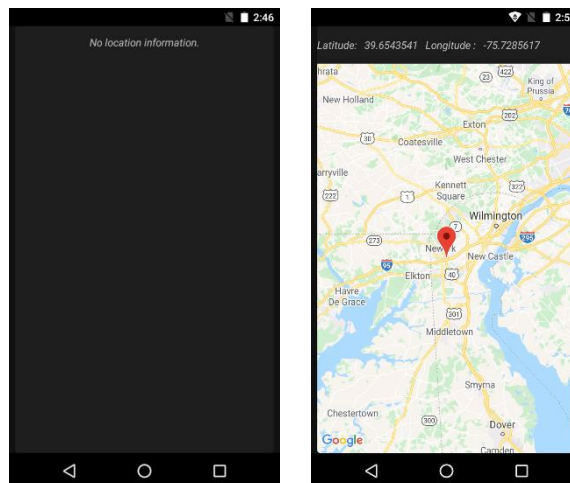
Location data will be automatically included in the scan history viewing and the scan report. Users can use their local map services on PC to type-in the coordinates and find out the location.
Other non-GPS location services are available. Please contact B&W Tek factory for details.

3.11.1.5 Fan

User can choose to turn the fan off permanently for special situational requirements. It is recommended that the fan is turned on to achieve best performance over long hour tasks.