Equipment

The TX5 laser scanner ships with the following equipment:

1	Scanner transport and carry case	**6**	USB memory card reader
2	AC power cable	**7**	Laser safety goggles
3	External power supply unit with cable	**8**	Quick Start Guide
4	PowerBlock battery	**9**	CD with SCENE software and manual
5	Memory card case	**10**	SD memory card (in the scanner)

The SD memory card, a tripod, and the PowerBlock battery or the external power supply unit with AC power cable are the minimum required equipment to carry out a scanning project.

Caution

The Trimble® TX5 scanner uses a laser system that produces an invisible laser beam with a wavelength of 905 nm. In accordance to the standard IEC 60825-1:2007, Ed 2.0, the TX5 laser scanner is classified as a Class 3R laser system. According to this standard, direct intrabeam viewing may be hazardous for the eyes when working within an area where the defined exposure limits are exceeded. Avoid direct eye exposure and do not stare into the laser beam.

Depending on national regulation or work place safety legislation, when working with Class 3R laser systems, it might be necessary to wear eye protection and to observe further safety measures when the defined exposure limits are exceeded and when exposure can occur. Please respect the laser safety measures described in your national and regional regulation and work place safety legislation and in the *TX5 User Guide* which can be found on the SCENE DVD.

INVISIBLE LASER RADIATON
AVOID DIRECT EYE EXPOSURE
CLASS 3R LASER PRODUCT
IEC 60825-1:2007

PO=20mW; λ=905nm
Max. Pulse = 0.0054sec

To enable you to identify the laser hazard area around the scanner within which the defined exposure limits are exceeded, the operating software of the TX5 scanner shows the actual valid axial and radial eye safety distances. Both values depend on the chosen resolution and quality.

The resulting hazard area surrounding the scanner can be described as a cylinder along the scanner's Z axis of rotation, where the radial eye safety distance is equivalent to the cylinder's radius and the axial eye safety distance is equivalent to its center line coming from the center of the scanner mirror.
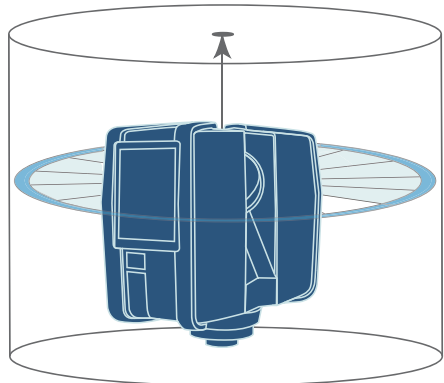
Getting Started

1. Set up the tripod

Extend and lock all legs of the tripod. Check that the tripod adjustment arrangements have been locked and that the legs are of even length. Ensure that the surface is stable, that the tripod's feet are secured and that it is firm in its position.

2. Mount the laser scanner onto the tripod

To mount the scanner to the tripod we recommend using a standard photo camera quick release. The quick release's plate must be equipped with a 3/8" screw to fit into the scanner's mount.

1. Remove the scanner from the transport case.
2. Attach the quick release's plate with its 3/8" screw to the central thread of the laser scanner's mount. Make sure to tighten the screw.
3. Mount the counter piece of the quick release onto the tripod.
4. Carefully mount the scanner with the attached quick release plate to its counter piece and lock its fastener. Test that the scanner is correctly locked in place by gently attempting to lift it from the tripod.

3. Insert the SD memory card into the scanner

1. Open the SD memory card slot cover.
2. Insert the SD card with the notched edge in the direction as illustrated until it clicks. The SD card might have a protective lock-switch at the top left. Make sure that this lock-switch is in the open position that allows the SD card to be written.
3. Confirm the direction of the memory card. If you forcibly insert the memory card in a wrong direction, the SD card, the card slot or data on the card can be damaged.
4. Close the cover.

4. Supply power to the scanner

The laser scanner can be operated with the battery or the power supply unit.

Supply power using the battery

Adhere to the battery safety measures described in the laser scanner manual. Insert or remove batteries from the laser.

Note – To insert the battery into the laser scanner, open the laser scanner's battery compartment. With its type label directed upwards, point the battery contacts to the scanner, push the battery straight in, and slide it into the battery compartment until the fastener clicks into position. Close the battery cover.

Supply power with the external unit

Use a cable strap to attach the power supply unit to the tripod. This will help prevent damage to the cable connector. Wrap the strap around the power supply unit. Insert the small end into the slot and pull together. Attach the power supply to the tripod.

Connect the cable of the power supply unit to the power socket of the laser scanner. Use the end with the 90° bend connector. Confirm the direction of the power supply's plug. If you forcibly insert the plug in a wrong direction, the plug and the scanner can be damaged.

Connect the AC power cable to the power supply unit and to a power outlet. Check the input voltage on the type label before connecting. The upper LEDs on both sides of the laser scanner as well as the LED of the scanner mount begin to illuminate.

Caution – To avoid electrical shock, outdoor use of the power supply unit is not permitted. Use the power supply unit in dry indoor environments only.

5. Switch the scanner on

Press the On/Off button to start the boot process, which will be indicated by the scanner LEDs blinking.

When the scanner is ready, the LEDs stop blinking and illuminate solid; the Home screen of the operating software appears on the integrated touch screen.

6. Set the scanning settings

The scanning settings are the settings used by the scanner for recording the scan data. There are two ways to set the scanning settings: Change them manually or select a scan profile which is a predefined set of scanning settings.

To choose a predefined scan profile or to change the scanning settings manually, tap the **Parameters** button.

1. Tap the **Selected Profile** button. A list of all available profiles appears.

2. Select a profile. The selected profile is highlighted.

3. The scanning parameters change according to the settings of the selected profile. To see details of the selected profile, tap its button once again.

You may go back to the *Parameters* screen to change the scanning parameters manually.

Resolution and Quality: The selected resolution in mega points and the selected quality level. Click to adjust these values.

Scan Range: The scan area with its horizontal and vertical start and end angles. Push this button to adjust the scan area.

Select Sensors: Enable or disable the automatic use of the built-in sensors for the scan registration in SCENE (the available sensors vary depending on the scanner model).

Scan with Color: Switch capturing of colored scans on or off.

Eye Safety Distance [m]: The radial and axial eye safety distances according to your current settings.

Scan Size [Pt]: Shows the size of the scan in points horizontally x vertically. The vertical size may only be changed by setting a new resolution or by changing the scan area angle.

Scan Duration, Scan File Size: Expected scan time and file size in Megabytes according to the chosen resolution, quality, and scan range. Please note that the values shown here are approximate values.

Advanced Settings: Change the hardware filter settings.

7. Start a scan

Please respect all necessary safety measures and start your scan either by clicking on the **Start Scan** button on the display or by pressing the **Start/Stop** button on the scanner.

The scan process starts and the laser will be switched ON. The scanner will save the captured scan data to the SD card. The scanner's LEDs will blink red as long as the laser of the scanner is switched ON. During scanning, the scanner rotates clockwise by 180°. If scanning with color, the scanner continues to turn to 360° to take the pictures.

Caution – Remember that the scanner is turning and the mirror unit is rotating with high speed. Ensure that the scanner can move freely and that no objects can touch the mirror unit.

1. To stop scanning, touch the **Stop Scan** button in the scanning view or press the **Start / Stop** button on the scanner.

2. After having completed scanning and taking the pictures, the scanner might make another full turn in order to capture inclination data. Please do not move the scanner while this data is being recorded.

   When finished, a screen appears with a preview picture of the captured scan.

3. To view and process the captured scan data with the Trimble SCENE point cloud software, remove the SD card from the scanner, insert it into your computer, start the SCENE software and transfer the scans to your local hard drive. Now you can view and process the scans with SCENE. For more information, refer to the *SCENE User Guide*.

8. Shut down the scanner

To shut down the scanner, press its **On/Off** button or use the **Shut down** button in the operating software under *Manage*. All LEDs will start blinking and will stop blinking as soon as the scanner has finished the shut down process.

To prevent damages to the scanner, ***DO NOT*** disconnect the power supply and do not remove the battery before the scanner has finished shutting down.

9. Turn off the scanner

Once the scanner has been completely shut down, disconnect the AC power cable first, then disconnect the power supply cable from the scanner, remove the battery and secure the equipment in protective cases.

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