

# TRICORDER MANUAL

## hood

Opening it powers the tricorder on; it can be rotated by 180 degrees

## sensor grille

## indicator lamps

Illuminate to match the colour of the button function blocks shown on screen

## aluminium screen bezel

## Tritan screen glazing

## TFT LCD screen

320 x 240 pixel resolution

## aluminium side panels

## button description blocks

coloured to match the illuminated watch crown lamps

## leatherette strap

1360 mm x 18 mm

## aluminium cross strut

## aluminium edged function discs

## primary function disc

Tricorder reads disc inserted in to rightmost position to select tricorder function

## motorised moiré disc

backlit with warm white LEDs

## aluminium bezel

## speaker grille

Hidden behind moiré display

## upper door

Opening it reveals functional discs and powers up moiré display

## Kydex textured casing panels

## aluminium upper door handle

## aluminium lower door handle

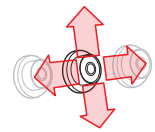
## lower door

Stores reconfigurable storage partitions and USB charging cable which should be used with any 5 V USB power supply output to charge the tricorder



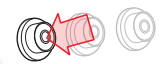
## RIGHT button

press click



## MIDDLE button

four-way jog and press click



## LEFT button

press click

## replaceable rechargeable battery

Use cable supplied attached to any 5V USB power supply outlet

## introduction

The 23rd century Tricorder developed by Wah Chang was standard issue on Starfleet vessels. A portable computer used to take environmental measurements, record data and display information was a vital piece of equipment aboard an exploratory ship such as the *U.S.S. Enterprise* NCC 1701.

This Tricorder is not a toy; it is a working display-grade replica developed to give its owner the maximum level of enjoyment. The Tricorder has been designed using extremely accurate 3D scans of one of the last remaining hero props from the 1960s Star Trek television show. Dedicated attention to detail, and the use of authentic materials, textures and finishes, have resulted in a fully-functioning, display-grade product that is highly faithful to the original prop.

With its authentic sound effects, real-world sensing, over 200 Captain's Logs, and the ability to record your own personal logs, the Tricorder provides plenty of opportunity for in-universe interaction and fun.

## charging the power cell

The Tricorder is powered by a rechargeable 18650 lithium-ion battery. Before first use, please charge your Tricorder for four hours. To charge the Tricorder, use a USB-C cable (supplied) via a suitable 5 V power supply.

When the Tricorder is not in use, please charge it at least every six months, to maintain the health of the battery.

## tricorder functionality

This Tricorder has multiple modes and functions. In order to fully enjoy your Tricorder, please study these instructions carefully. User instructions are also provided on our website at [www.thewandcompany.com/tricorder-manual](http://www.thewandcompany.com/tricorder-manual).

## compartments

The Tricorder has two compartments, an upper and a lower one.

The upper compartment houses the mode disc array, the moiré disc and the speaker (hidden behind the moiré). It incorporates a magnetic detector so that opening the upper door automatically illuminates the moiré disc and starts it rotating unless the moiré has previously been locked in position. (please see below for instructions on how to lock the moiré disc).

The lower compartment is a caddy space in which a box containing the USB-C cable and three dividers are initially stored.

## hood

The Tricorder hood has been designed to open to almost 180°. Always open the hood carefully and close it when the Tricorder is not in use or being displayed. Closing the hood turns off the screen. When the hood has been closed for more than 15 minutes, the Tricorder enters a very low-power hibernation mode.

## powering up and powering down

To power up the Tricorder, open the hood and click the middle button. After an initialisation, the the time and date are displayed along with three coloured blocks at the bottom of the screen.

When the hood is closed, the screen turns off to save battery power. If the hood is opened again within 15 minutes of being closed, the screen turns back on and displays the screen that was last shown when it was closed. If the hood has been closed for longer than 15 minutes, the Tricorder powers down and enters a hibernation mode. To power up from hibernation, open the hood and click-press the middle button. If you have saved a passcode via the settings menu, then you will also need to re-enter the passcode to use the Tricorder functions.

A fully charged Tricorder will last about a year in hibernation.

## button function display block

The three coloured blocks at the bottom of the screen show the function of the three buttons. The watch crown lamps are illuminated to match the coloured blocks.

## button functions

Three buttons are used to control all the Tricorder's functions.

The middle button is a four-way jog and press-click button; the left and right buttons are single-action press-click buttons.

## setting the time and date

The time and date are set on the settings screen. From the home screen, click the right-hand button [SETTINGS] to enter the settings screen, and using the middle jog button, jog down five times to highlight the [TIME-DATE] display block. Press-click the jog button to select [TIME-DATE] to go into setting mode, and press-click it again to start setting the time. Jog up and down

to increase or decrease the hour. When the correct hour is set, jog right to set the minutes. After setting the minutes, jog right again to set the year. Note that the day of the week is automatically set depending on the year, month and day. Press-clicking the jog button at any time confirms the setting. Click the left button [BACK] to return to the settings screen with the time now correctly set.

## setting your name

You can personalise your Tricorder by entering your name in the settings screen. Click the right button [SETTINGS] from the home screen to enter the settings menu and, using the middle jog button, jog down and right once to highlight the [NAME] display block. Press-click the jog button to select and enter the name setting screen. Using the jog buttons scroll around the alphabet press-clicking to select up to about 12 characters (including spaces). Press-click the left button [CONFIRM] to set your new name, or the right button [BACK] to cancel and return to the settings page.

## setting a passcode

You can set a number passcode to prevent unauthorised access to your Tricorder's functions. To set a passcode of up to seven digits, click the right button [SETTINGS] from the home screen to enter the settings menu and, using the middle jog button, jog down and right to highlight the [PASSCODE] display block. Press-click the left button [CONFIRM] to set your new passcode, or the right button [BACK] to cancel and return to the settings page.

Please make a note of the passcode before the Tricorder hibernates. Once the passcode is set you may only gain access to the Tricorder's functions from hibernation by entering the passcode on the screen that appears immediately after initialisation. If you forget your passcode, you can unlock the Tricorder by entering 1701, or by resetting the Tricorder (see below).

## the classic prop's grey screen

In order to use or display the Tricorder as it was most often shown on screen, the display may be set to show a flat grey colour. To select the grey screen display, from the home screen, press-click the middle button [PROP].

When the grey screen is displayed, the watch crown lamps are all lit blue, and the screen does not display the button function display blocks. Hold the middle jog button up or down to adjust the grey brightness to suit ambient conditions. Press-click the middle jog button to toggle the classic Tricorder scanning sound on and off. Click the left button to cycle through a further two alternative watch crown illumination sequences. The first click changes the illumination of the watch crowns to red, green, and blue. The second click illuminates the watch crowns with a changing multicolour sequence. The third click returns the watch crowns to the all-blue illumination setting. Clicking the right button at any time returns to the home screen.

If the grey screen is going to be used for display purposes for any time over a few minutes, it is recommended that the Tricorder is plugged into a charging power source via its USB-C cable while on display.

## discs

This Tricorder has removable discs. Each disc corresponds to a different Tricorder functional mode. The Tricorder mode is printed on one face of the disc and laser etched into a portion of the disc rim. When inserted in the Tricorder, the discs may be rotated to show or hide the laser-etched text. When all the discs are inserted and rotated to hide the text, the array of discs closely resembles the turned metal tube that made up this part of the original hero prop.

Before first use, remove the discs from their protective packaging and insert them into the slots located to the left of the moiré disc in the upper compartment.

The Tricorder mode automatically changes to that of the disc inserted into position #1 (the right-most slot). When a disc is inserted into position #1, an audio chime plays, and the Tricorder enters that mode. Use the discs to switch between Tricorder functional modes.

The left display block on the home page displays the function of the disc inserted in position #1. Clicking the left button from the home screen selects the mode shown in the left display block.

## settings

Clicking the right button [SETTINGS] from the home screen loads the settings screen. Use the middle jog button to navigate the screen. Adjust the screen brightness, the watch crown lamp brightness, the sound level and the moiré position by holding the middle jog button left or right. The adjusted setting is retained when moving to another setting or leaving the settings screen.

## setting the moiré position

The moiré rotation position can be adjusted from the Settings screen, so that a visual pattern matching the screen-used hero prop can be created. Adjusting the moiré automatically turns off the backlighting and sets the moiré motion to **LOCKED**. To unlock the moiré disc, turn on rotation and its backlight, use the middle jog button to scroll down to highlight **AUTOMATIC** and press-click to select.

## moiré backlight enable/disable

The moiré backlight can be disabled or enabled from the settings screen. Use the jog buttons to highlight the required mode and press-click to select.

## disc override

Changing discs is not required to move between the Tricorder's functional modes. The modes may be manually selected from the override screen. The override screen may be entered from the settings screen. To enter the override screen, click the right button [ **SETTINGS** ] to go to the settings screen and then click the left button [ **OVERRIDE** ] to go to the override screen.

When the override screen is displayed, scroll around the coloured mode blocks using the middle jog button to highlight any one of the nine Tricorder functional modes. Press-click the middle jog button to enter the highlighted mode.

## the tricorder functional modes

There are nine different Tricorder modes, eight of which can be accessed by inserting the relevant disc into the #1 position in the disc array, or going to the override screen and navigating to the required functional mode. The engineering mode does not have an associated disc and can only be accessed via the override screen.

## STATUS

Status mode has two associated screens: **TRICORDER** and **SHIP**. On either screen, the left button toggles to the other one. **STATUS: TRICORDER** is the first screen to load and shows the charge status, the computation core temperature, which disc is active, and how much audio remains for personal logs.

Clicking the left button [ **SHIP** ] loads the **STATUS: SHIP** screen, which shows the state of three of the *Enterprise's* critical systems, dilithium crystals, shields and hull integrity, and where the issue is located along with a short explanatory note. Every time you load the page, the Tricorder appears to check these critical systems and displays the ship's status. Eighty percent of the time the *Enterprise* is issue-free. On the occasion of a reported issue, the report of that issue will remain for a certain period to allow time for the Engineering team to evaluate the issue and resolve it. Clicking the left button [ **DEVICE** ] reloads the Tricorder status screen.

## PLANETARY

The Planetary Data mode has 15 associated screens, providing access to planetary statistics for 15 different planetary bodies orbiting Sol in the home solar system. Navigate around the display box grid to highlight different display boxes. Clicking on the highlighted celestial body loads an image of that body along with a list of its key statistics: atmosphere, diameter, Earth mass, surface temperature, number of satellites, and its planetary class.

## LOGS

The Tricorder contains an archive of the original audio recording of every Captain's and ship's log from the *Enterprise's* first five-year mission. In total, there are 233 log records; 203 recorded by Captain Kirk and 30 recorded by other members of the crew. The logs are arranged by season and in blocks of about 25 per screen. On the **CAPTAIN'S LOGS – BY SEASON** screen, navigate to and then highlight the season and episode you want to retrieve and press-click the middle jog button to open that episode range. On the **EPISODES** screen, navigate to and then highlight the recording you want to play. Press-click the middle jog button on the highlighted entry to load the log detail screen and automatically play the audio clip. While the audio is playing, press-click the middle jog button to toggle between play and pause. Hold the jog button to the right or left to skip forward or back through the audio clip. Click the left button to stop the playback and return to the start of the clip. Click the right button to reload the **EPISODES** screen.

A full catalogue of the original logs can be found online at [www.thewandcompany.com/tricorder-logs](http://www.thewandcompany.com/tricorder-logs).

You can also record and then play up to eight of your own personal logs and audio clips of approximately 30 seconds

each. To record your own personal log, on the **CAPTAIN'S LOGS – BY SEASON** screen, navigate to one of the grey "personal log" display boxes in the lower half of the screen and click-press the middle jog button to select it. Once the recording screen is displayed, the middle button toggles between [ **RECORD** ] and [ **PAUSE** ]. While the recording is paused, use the left button to [ **STOP** ] recording. Once you have clicked the left button to stop recording, follow the on-screen directions to either [ **SAVE LOG** ], continue to [ **RECORD** ] more, or [ **REVIEW** ] the log. When you are reviewing the log, press-click the middle jog button to toggle between [ **PAUSE** ] and [ **PLAY** ], hold the jog left or right to rewind or fast forward, use the left button to [ **SAVE LOG** ], or the right button to go [ **BACK** ] and cancel/delete the recording.

To play your own personal log, on the **CAPTAIN'S LOGS – BY SEASON** screen, navigate to and then highlight one of the red "personal log" display boxes in the lower half of the screen and click-press the middle jog button to select it.

## ARCHIVE

The Tricorder contains 12 archive images and video clips including the content shown on Spock's Tricorder in "The City on the Edge of Forever" and some other images and animations seen on the *Enterprise's* main bridge viewscreen or smaller monitor screens. The button function display blocks do not appear on the screen when the archive clips and images are shown. Clicking the right button takes you back to the archive selection screen where you can navigate to another image or animation.

## ORIENTATION

The Tricorder monitors its orientation and acceleration in three-dimensional space using two accelerometers and one magnetometer. When selecting the Tricorder's orientation function, the primary orientation screen displayed is a version of the "compass" seen on the *Enterprise* helm. The Tricorder monitors its rotation and the directional grid turns as the Tricorder is rotated in the x-y plane. Before first use (and occasionally thereafter), the Tricorder's magnetometers will need calibrating. To calibrate them, press-click the left-hand button to show the calibration screen. Press-click the middle button to begin calibrating. The calibrating process is achieved by rotating the Tricorder through 360° in each of the x, y, and z axes. To do this, hold the Tricorder facing you, turn it end over end once, then turn it as if it were on a turntable, all the way through one full revolution, then turn it as if it was mounted on a clockface, all the way round the dial and back to upright again. When you have completed the three rotations, you should see three large coloured crosses on the screen. Press-click the left button [ **CONFIRM** ] to fix the Tricorder's calibration, coloured crosses should centre on the screen to show that the Tricorder is now calibrated. Press-click the right [ **BACK** ] button to return to the compass screen.

To use the compass, hold the Tricorder horizontally or adjust the hood so that the screen is horizontal and point the Tricorder in different directions. Press-click the middle jog button to set the heading indicated by a red rectangle on the grid. Once the heading is set, when you deviate from the heading, arrows at the bottom of the display indicate the direction you need to follow in order to get back to the heading. The heading remains set until it is reset by press-clicking the middle button to set a new heading. No information display blocks are shown on the compass screen. Press-click the right button to exit the compass.

**Note:** this compass is designed for in-universe fun and cosplay, and is not intended for direction finding in safety-critical situations where equipment designed specifically for orienteering is indicated. When following any compass always pay attention to your surroundings.

## ATMOSPHERE

The Tricorder monitors three basic ambient conditions: temperature, relative humidity and barometric pressure. Note that due to the location of the components inside the Tricorder's housing, there will be some lag and inaccuracy in the temperature and humidity measurements. The barometric pressure sensor is very sensitive and changes resulting from wind or small changes in altitude, due to climbing stairs, for example, will be displayed.

## RADIATION

Use the Tricorder to detect electromagnetic (EM) radiation fields. The EM sensor is located in the bottom of the Tricorder. To sense EM radiation, hold the Tricorder with the base directed towards or near an insulated domestic electricity supply such as a cable or wall socket. **CAUTION! NEVER touch the Tricorder on ANY live terminal or uninsulated live wires.** The Tricorder

senses EM radiation fields using coupling of the electromagnetic field produced by a domestic power cable (or an electronic device) with the sensor plate inside the bottom of the Tricorder.

While the Tricorder is in Radiation Sensing Mode, the classic scanning sound will be played.

## AUDIO

The Tricorder's audio analyser uses a system-in-package (SIP) electro-acoustic transducer housing a micro-electro-mechanical system (MEMS) sensor with an application-specific integrated circuit (ASIC) to measure the ambient sound levels. The main microcontroller uses a Fast Fourier Transform (FFT) to convert the sound waveform into the frequency domain and plot the spectrum on the Tricorder's display.

## ENGINEERING

The Engineering screen does not have an associated disc and can only be displayed via the override screen.

The information displayed on the Engineering screen was used in the development of the Tricorder and remains to provide a quick diagnostic screen to enable the user to check the function of the Tricorder's critical systems and components.

## display stand

The Tricorder can be displayed on its display stand. The stand comprises a satin nickel-plated, die-cast base with an injection moulded block on its top surface so that when resting in place, the Tricorder is held just off the surface of the stand. The moulded block contains two magnets which are attracted to a metal bar in the base of the Tricorder to provide extra stability when the Tricorder is in position on the stand. Always display the Tricorder on a flat, horizontal and stable, surface away from passing traffic that might dislodge or knock it. Be careful to place the strap out of reach of being snagged or pulled by anyone, especially children or pets who might see the strap as something to play with. The Tricorder is heavy and may be damaged and will cause injury if it falls on someone or a pet.

## strap CAUTION

Do not allow children to play with the Tricorder. The Tricorder is not a toy and the Tricorder strap could get entangled with them and cause serious injury or death if it became wrapped around a child's neck.

## factory reset

The Tricorder can be reset by gently poking a SIM card ejector tool into the small hole located on the left side of the hood, which is visible when the hood is rotated open by 90°. Resetting the Tricorder erases the time and date setting, and any name or passcode settings you have entered.

## care instructions

The Tricorder is a high-tech device designed for display purposes and should be handled with care. Clean only with a soft, slightly damp cloth; do not immerse in water; do not force the compartment doors open past their maximum opening points. Do not press on the spinning moiré display as this can damage the spinner and motor.

To protect the Tricorder while not on display, keep it safely in its protective leatherette transit case. The Tricorder should only be used when its operating temperature is between 10°C and 40°C (50°F to 100°F).

## important battery information

This Tricorder contains a lithium-ion battery, type 18650. Misusing or mishandling lithium-ion batteries can pose a serious risk of personal injury or property damage. This product is only to be connected to equipment bearing either of the following symbols:

**1** Do not dispose of the battery into fire or a hot oven; mechanically crushing or cutting of the battery can result in an explosion. **2** Do not leave the battery in an extremely high temperature surrounding environment that can result in an explosion or the leakage of flammable liquid or gas. **3** Do not expose the battery to extremely low air pressure that may result in an explosion or the leakage of flammable liquid or gas. **4** Rechargeable batteries are only to be charged under adult supervision. **5 CAUTION:** Risk of explosion or fire if the battery is replaced by an incorrect type. **Must only be replaced with a high-quality 18650 battery with a safety vent, from a reputable manufacturer such as Panasonic, Samsung, LG or Sony.**



## supplier's declaration of conformity

47 CFR § 2.1077 Compliance Information

Model name: TRICORDER, Model number: WRC13920. Issuing Party: The Wand Company Limited, 3 Laundress Lane, Cambridge CB2 1SD, UK. info@thewandcompany.com  
Responsible Party – U.S. Contact Information (for FCC matters only): Americas Compliance Consulting LLC dba iCertifi, 1001 SW Disk Drive, Suite 250, Bend, Oregon 97702, USA  
FCC\_sDoC@icertifi.com

FCC Compliance Statement 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. Caution: Changes or modifications not expressly approved by The Wand Company could void the user's authority to operate the equipment.

## more instructions and troubleshooting

For more detailed instructions and troubleshooting please visit [www.thewandcompany.com/tricorder-manual](http://www.thewandcompany.com/tricorder-manual)



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Please retain these instructions for future reference. ITEM No. WRC13920

