iTINT

Photopic Vehicle Tint Tester

iTINT is our next generation photopic vehicle window tint tester that has been developed from our tried and tested tintman instrument. It incorporates many of its predecessor's unique features such as magnetic clamping for solo operation combined with the latest microprocessor technology, fast wireless printing and Wi-Fi control. When optionally paired with a compatible smartphone or tablet, vehicle registration details and geo-location can be included in the printout and the test results sent for cloud storage.

• **Light source:** White light source produced by stabilized incandescent tungsten filament lamp focused into near parallel beam. Approximate colour temperature 2850 ^{0}K conforming to CIE illuminant A. Overall diameter 30 mm.

• **Detector:** Large area silicon photodiode fitted with eye response photopic filter. Relative spectral response follows the CIE photopic luminosity function. Overall diameter 30 mm.

• **Clamping arrangement:** Self aligning magnets for automotive glass up to 12mm thick. Optical head has 2.5 metre cable length to readout unit.

• **Readout unit:** Handheld with detachable light source and detector connected via colour coded cables. Simple one-button operation with tactile feel. Overall dimensions 120 mm x 80 mm x 35 mm. Soft grip sides.

• **Readout display:** Alphanumeric OLED with up to 13 mm character height. Gives operational prompts and low battery warning.

- **Cable extensions:** Cables can be extended by 10 metre, essential for buses and other large vehicles.

- **Measurement range:** 0 to 100 % transmission. Display resolution 0.1 %.

- **Accuracy:** Better than ±3 % transmission over measurement range after check against reference glass.

- **Real time clock:** accurate quartz crystal clock allows the readings to be time stamped.

- **Memory:** stores over 4000 tint tests with GPS location, time and date stamped.

- **Battery:** internal 3.7 Volt Lithium battery. For recharging, instrument is supplied with 12 Volt DC mains power pack and vehicle 12 Volt socket lead. Over 250 tests from fully charged battery.

- **Reference Glass:** UKAS calibrated shatterproof reference window. Each is marked with actual transmission and is provided with a UKAS calibration certificate.

- **Instrument Calibration:** UKAS traceable factory calibration against UKAS calibrated 20%, 40%, 60% and 80% nominal transmission glasses. A calibration certificate is provided. Annual re-calibration is recommended.

- **Environmental conditions:** -10 ^{0}C to +50 ^{0}C operating temperature range. Maximum humidity 90 %RH non-condensing.

- **Wireless interfaces:** Wi-Fi and Bluetooth 4.2. Built-in webserver provides web browser micro-site for Wi-Fi enabled smartphones and tablets. Remote readout and control available for smartphones and tablets (Android and iPhone). Vehicle details, location, and notes can be entered together with latitude and longitude information if GPS is available from the device. All this information is included in the printout.

- **Wireless Printer:** Thermal dot matrix. Battery powered, with internal rechargeable lithium battery. Bluetooth interface, 58mm paper width.

- **Carry case:** All supplied in strong carrying case.

iTINT Website

You can enhance the versatility of iTINT by linking it via Wi-Fi to its interactive web site on a smartphone or tablet. Both iOS (iPhone) and Android devices are supported, though Android offers the greatest flexibility for printing.

For example, the smart device allows you to input the vehicle details, test conditions, notes on window being tested etc., and the geo-location of the tint test. This additional information is recorded with the test and will appear on the subsequent printout.

As well as giving a more detailed review of the stored test results, you can also operate iTINT remotely from the smart-device. The website is suitable for mobile or fixed devices.

The iTINT interactive website has seven pages which are accessed by clicking or tapping one of the seven buttons on the left hand side of the index page shown below.

Vehicle Details

This page is used to input the vehicle registration or ID together with other information about the test. The vehicle registration can have up to 31 characters.

By clicking on the left or right arrow buttons, other details can be preloaded from information already in iTINT. You can set-up 99 Make and Models, 99 Locations, 32 Notes, and 16 Operators; the selected number of the respective text is shown between the arrows. Each text line can have up to 16 characters and can be edited and saved as required.

This scheme reduces the amount of data entry required from the smart device.

The Notes could include information about the window being tested. For example, windscreen, front side window and so on.

Click geo-location to get the latest GPS latitude and longitude, you will need to have the Turnkey Print Service App installed from Google or Apple.

When finished, click SAVE and all the information will be sent to iTINT ready for the next tint test.

Remote Control

This page lets iTINT be operated remotely. It replicates the Click, Double Click, and Hold functions of the OK button on the actual iTINT instrument. The blue text shows what's appearing on its blue OLED display.

Note you cannot print using this Remote Control panel.

Saved Results

This page is used to review the saved tint tests. Up to 4001 tests with identifying numbers between 0000 and 4000 can be saved. There are four "tabs" of details, preceded by the average transmission measured, the vehicle registration or ID, the number and time of the test, and the name of the organisation doing the test.

Use the left and right arrows to move between tests, don't forget to click on the relevant tab to activate.

The Readings tab shows the results of the measurements.

The 100% spacer ring reading should be 100%.

The Reference glass (REF) reading should be within ±1.5 % of that on its label.

The Details tab shows information about the test, you may choose to specify the window type in the notes.

The Diagnostics tab shows information that helps to validate that iTINT was working correctly.

Finally, the Calibration tab gives a summary of the instrument's calibration.

If you click the PRINT button, any of the individual tabs can be printed from your browser using an installed printer. You will be prompted to select a printer.

Alternatively, if you click the TICKET button, a summary of the test will be produced in a new window in the form of a ticket. A typical ticket is shown below, it is similar to the printed ticket produced by the thermal printer supplied with iTINT.

If you click or tap anywhere on the ticket it will print to your chosen printer. The time you printed it is shown at the bottom. Just close the ticket window when finished.

You can use the thermal printer supplied with iTINT to print from the browser ticket window. You must install the Turnkey Print Service App first. At the moment this App is only available for Android devices via the Google Store.

Note that the number in square [] brackets after the test number is the test index. This starts at [0] for a new instrument and increases by one after every 4001 tests. It is designed to help distinguish large numbers of historic tests.

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Bluetooth and WI-FI

This page is used to configure the Bluetooth and Wi-Fi connections of your iTINT. The Bluetooth Printer address should have been set by the factory, you'll only need to change this if you change the printer.

Check the checkbox if you want to connect iTINT as a station of an existing network and enter the correct SSID and Password. For security, the password is not echoed back. When connected the IP and MAC address of the station are shown. You can also use the station name (default iTINT) as the station's address on your network. It may take several reconnects before the station name is registered with your network's DNS.

Click **SAVE** to save any changes in the iTINT flash memory. You must restart iTINT via the slide switch after changing the SSID or Password.

Each iTINT has a unique 64-bit ID and is shown at the bottom of this page. The last two digits are combined into the iTINT's hotspot name, in this case its iTINT-95. Search for this name in your smart-devices Settings>Wi-Fi menu and connect your browser to page 192.168.4.1, you should then see the index page of the iTINT website.

Calibration

This page just summarizes the calibration details of the instrument.

Your company or organisation name will appear with the test results and on the printout. Click Set Time to set the time and date of your iTINT, use the time zone entry to set up daylight saving etc.

Click **SAVE** to save any changes in the iTINT flash memory.

Reference Glasses

For calibration purposes, iTINT uses 4 reference glasses with nominal transmissions of 10 %, 20 %, 50 % and 70 %. The exact transmission value of each glass has been determined to International Standards by a UKAS certified laboratory and is shown in the table below.

Calibration certificates are available for these glasses. During calibration the transmission of each glass is measured by iTINT, together with that of 0% and 100 % transmission spacers. These values are shown in the right hand column below.

When all the measurements have been taken, iTINT creates and saves its own calibration curve between 0 % and 100 % transmission. This curve consists of five linear segments or splines, 0% to Glass 1, Glass 1 to Glass 2, and so on to Glass 4 to 100 %. This ensures unprecedent accuracy for the readings from iTINT.

iTINT should be factory re-calibrated annually.

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