



***STINGRAY 2 CHANNEL
USB OSCILLOSCOPE
(HT070202)
QUICK START GUIDE***



LIMITED WARRANTY

Lockin Pty Ltd trading as Haltech warrants the Haltech™ Programmable Fuel Injection System to be free from defects in material or workmanship for a period of **12 months** from the date of purchase.

Proof of purchase, in the form of a bill of sale or receipted invoice, which indicates that the product is within the warranty period, must be presented to obtain warranty service. Lockin Pty Ltd trading as Haltech suggests that the purchaser retain the dealer's dated bill of sale as evidence of the date of retail purchase.

If the Haltech™ Programmable Fuel Injection System is found to be defective as mentioned above, it will be replaced or repaired if returned prepaid along with proof of purchase. This shall constitute the sole liability of Lockin Pty Ltd trading as Haltech.

To the extent permitted by law, the foregoing is exclusive and in lieu of all other warranties or representations, either expressed or implied, including any implied warranty of merchantability or fitness. In no event shall Lockin Pty Ltd trading as Haltech, be liable for special or consequential damages.

DISCLAIMER

Haltech will not be held responsible for any damage caused by the incorrect installation or tuning of this product. It is the installers responsibility to ensure the wiring connections and pinouts match that of the vehicle the unit is being installed into.

Haltech has taken all care to make sure the connections match the specified vehicles listed, but variations in wiring and connections on vehicles can occur and therefore this should be checked BEFORE the unit is installed.

Haltech highly recommends installation and tuning of this product is to be carried out by a professional, with an understanding on installing and tuning engine management systems. Misuse of this product can destroy your engine.

WARNING – HALTECH OFF-ROAD USAGE POLICY

It is unlawful to tamper with your vehicle's emissions equipment.

This ECU is designed and sold for Sanctioned Offroad/Competition Non-Emissions Controlled Vehicles only. Using this product for street / road use on public highways is prohibited by law. It is the responsibility of the installer and/or user of this product to ensure compliance with all applicable local and federal laws and regulations. Please check with your local vehicle authority before using this product.

GENERAL INSTALLATION WARNING

Avoid open sparks, flames or operation of electrical devices near flammable substances. Always disconnect the battery cables when doing electrical work on your vehicle.

Do not charge the battery with a 24 Volt truck charger or reverse the polarity of the battery or any charging unit. Do not charge the battery with the engine running as this could expose the ECU to an unregulated power supply that could destroy the ECU and other electrical equipment.

All fuel system components and wiring should be mounted away from heat sources, shielded if necessary and well ventilated. Disconnect the Haltech ECU from the electrical system whenever doing any arc welding on the vehicle by unplugging the wiring harness connector from the ECU.

After completing the installation, make sure that there are no fuel leaks, and no wiring left un-insulated in case a spark or short-circuit occurs and causes a fire. Also make sure that you follow all proper workshop safety procedures. If you're working underneath a jacked-up car, always use safety stands!

Haltech Stingray 2 Channel USB Oscilloscope Quick Start Guide

Congratulations on your purchase of the Haltech Stingray 2 Channel USB Oscilloscope. This guide contains the specifications and installation procedure for the oscilloscope, drivers and application software.

The Haltech Stingray 2 Channel USB Oscilloscope combines the functions of Oscilloscope, Data Logger, Spectrum Analyzer, Volt Meter, Frequency Meter and Signal Generator into a single instrument.

It features simultaneous 12-bit sampling on both channels, a native sampling rate of 1MS/s (20MS/s for repetitive signals) and sophisticated hardware triggering including delayed time base and pulse width. It also has a 3rd channel which can be a waveform generator output or an external trigger input. Powered from USB, the Haltech Stingray 2 Channel USB Oscilloscope needs no external power supply.

The Software Easy Scope II (oscilloscope) and Easy Logger (data logging) software for windows is included on the Haltech Resource CD supplied.

Alternatively it can be downloaded from the Haltech website www.haltech.com

Haltech Stingray 2 Channel USB Oscilloscope Kit HT070202 includes

- Haltech Stingray 2 Channel USB Oscilloscope
- 2 x Probes
- USB Cable
- Case
- Haltech Resource / Software CD
- Quick Start Guide

Features

Hardware Features

- Combined Oscilloscope, Data Logger, Signal Generator, Spectrum Analyzer, Voltage Meter and Frequency Meter functions
- 12-Bit ADC Resolution
- 12-Bit data streaming simultaneously on both channels
- 32k Byte Waveform buffer
- Sampling Rate
 - Oscilloscope – 20MS/s (repetitive) , 1MS/s native
 - Data logger – up to 50kS/s
- Maximum input voltage +/- 50V DC (35V RMS AC)
- AC/DC coupling
- Edge min / max, pulse width and delayed trigger modes
- Analog Bandwidth 250KHz
- Inbuilt 10-bit waveform generator with +/- 3.5V output range and 1k buffer
- Bus Powered USB Interface (250mA)
- Instrument carrying bag included
- Attractive enclosure with rubberized mouldings
- Dimensions – W: 116mm x H: 30mm x D: 100mm
- Weight: 160g (excluding cable)

Easy Scope II Software Features

- Timebase – 2us / div to 50ms / div in 14 steps
- Y-Scale 10mV / div to 5V / div
- On screen X and Y measurement cursors
- FFT Spectrum Analyser display on both channels
- Meter displays – Min, Max, Mean, True RMS Voltage and Frequency
- Save results to CSV file
- Save screen to BMP file
- Waveform generation – Sine, Square, Triangle, Sawtooth and user defined waveforms

Easy Logger Software Features

- Sampling Rate selectable from >100,000 samples / sec to 100 sec/sample
- Flexible Y-axis scaling (V, mV, User Defined)
- Flexible X-axis scaling (Sample Number or Time)
- Save to CSV, BMP, TXT or Binary files
- Up to 3 on-screen cursors to track data
- Up to 4 pop-up or email alerts
- Text memos for incorporating user notes in the data

Getting Started

The Haltech Stingray 2 Channel USB Oscilloscope requires device drivers to be installed on your PC to enable communication with the instrument. Install the device drivers prior to installing the applications below.

Driver Installation

The latest device drivers are available through the Microsoft Windows Update service. Simply plug in the Haltech Stingray 2 Channel USB Oscilloscope via the USB Cable provided in the kit. When the Found New Hardware wizard appears, allow it to find the drivers from the windows update service. Windows 7 defaults to automatically download the drivers without prompts.

The Haltech Stingray 2 Channel USB Oscilloscope utilizes a 2-Channel FTDI chip, so the wizard will re-appear a second time to install the drivers for the second channel. On completion of installation the device is ready to use.

Application Installation

Easy Scope II

The Easy Scope II application file is found on the software page on the Haltech Resource CD. Click on the Easy Scope II software link to start the installation. Follow the on screen prompts to install the application.

Easy Logger

The Easy Logger application file is found on the software page on the Haltech Resource CD. Click on the Easy Logger software link to start the installation. Follow the on screen prompts to install the application.

Once installed the applications can be accessed through the Windows start menu

Hardware Information

The Haltech Stingray 2 Channel USB Oscilloscope has the following connections

- Channel A Input
- Channel B Input
- Signal Generator Output / External Trigger Input
- USB Input

The connections are outlined in figures 1 and 2 below

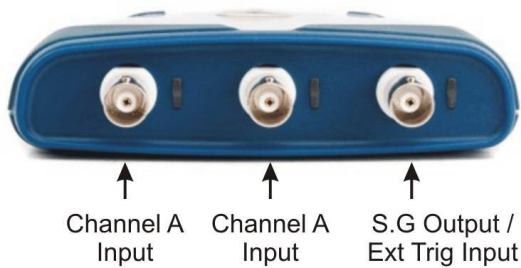


Figure 1- Haltech Stingray 2 Channel USB Oscilloscope front panel connections



Figure 2- Haltech Stingray 2 Channel USB Oscilloscope rear panel connection

Caution: Measuring High Voltages

The Haltech Stingray 2 Channel USB Oscilloscope is rated at +/- 50V DC Maximum Input (35V RMS AC) even with a x 10 oscilloscope lead attached. Measuring higher voltages than this directly may damage the instrument and invalidate the warranty. The instrument is not isolated. The ground of the internal circuitry connects directly to the ground of the host PC via the USB connection.

Troubleshooting

If a static / ESD discharge occurs down the earth lead of the oscilloscope, the unit may lock up and require the host PC to be re started to resume operation. In practice, this is an unusual condition and should not affect normal operation.

Haltech™
ENGINE MANAGEMENT SYSTEMS



HALTECH HEAD OFFICE: PH: +612 9729 0999
FAX: +612 9729 0900
EMAIL: sales@haltech.com

HALTECH US OFFICE: EMAIL: usa@haltech.com

See the Haltech Website for your local authorized dealer.

www.haltech.com

Version 2