

RS232 Scoreboard/Speed Gun Data Monitor



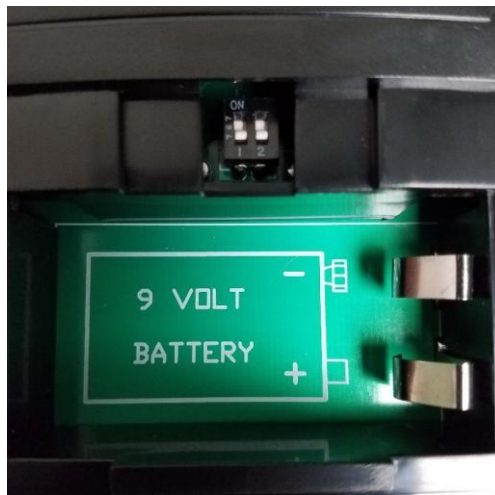
Owners Manual

Preliminary

Welcome to Version 3 of the Serialtools Scoreboard/Speed gun data monitor.

Version 3 has a number of new features. The most important being that it is now field upgradeable. Also new is a 2.0 inch LCD screen that is viewable from total darkness to direct sunlight. It is now powered with a single 9 volt battery. Besides showing scoreboard game clock and basketball shot clock it will also indicate when it is connected to a valid RS232 port. With the addition of the Tissot Swiss Timing Score system the meter can port power an in line RS422 to RS232 converter.

Installing a Battery



First remove the rubber boot. Grasp the rubber boot at the top with one hand while pushing the meter out through the hole in the back. To replace the boot, insert the meter into the bottom of the boot first and then push the meter into the boot while stretching the top over the 9 pin connector.

Remove the battery door. Insert a 9 Volt alkaline battery observing the polarity markings.

Note; the meter and the battery are protected from damage caused by accidental reverse polarity.

Also note the 2 dip switches just above the battery compartment. These switches put the meter into "UPGRADE" mode. For normal operation they MUST remain OFF, or down towards the battery.

Turning the Meter On/Off

To turn the meter on, depress and hold the power button for a count of 2 then release. To turn the meter off, depress the power button until the exit screen appears then release.

The meter will auto-power off if no data is sensed in approximately 2.5 minutes in the scoreboard data mode and 5 minutes in the speed gun data mode.

The Main Menu Screen



The Menu screen appears when the selector switch is in position 1. This screen indicates where to set the rotary selector switch to test each device contained in the meter.

The Device Under Test Screen Layout



- 1) If the meter senses an active serial port a [232] will appear here. If Tissot is selected a [PWR] will appear here indicating that port power is available for use with an inline 422 to 232 adapter.
- 2) This indicates the software version.
- 3) This is the battery capacity indicator. It will read empty when the battery reaches 5.5 volts capacity.
- 4) This is the selector switch position.
- 5) This indicates the Device selected to test.
- 6) This indicates the Baud rate of the device selected to test.

No Data



If no data is being received, the display will read NO DATA.

Data Not Recognized



If the meter cannot make sense of the data it's receiving it will state "Data Not Recognized".

The following will cause "Data Not Recognized" to be displayed;

- 1) Ground and Data wires reversed .
- 2) Non-Matching Baud rates. Example; If a Stalker speed gun is sending data at 9600 but the meter is set to Stalker Sport which is configured for 1200 the meter will indicate the error on the screen with a "Data Not Recognized".
- 3) Incorrect identifier bytes. Both OES and White Way include an identifier byte in their data to indicate which sport is loaded into the controller. If the identifier byte received doesn't match the meter's internal list of sports then an error is indicated on the screen "Data Not Recognized".

Meter Software Priorities

The priority function of the meter software is to capture data into a buffer, analyze it, parse it, and then display it.

With no data present at the connector, the meter has nothing to do but scan what position the selector switch is in. When data is sensed it stops scanning the switch position and starts collecting data into a capture buffer until the buffer is full. Capture buffer size varies and is determined by which device is being tested and can range from quite small to very large.

If the user plugs in a data cable that is sending data before he/she has selected the device to test, the user may experience a long pause as the meter will start collecting data immediately. If the meter is trying to load a large buffer from a device that is only sending small amounts of data, maybe once per second, it may take a few seconds to finish loading the buffer before the software returns to scanning the selector switch. It is recommended to make the selection of device to test first and then connect the data cable to the meter.

Working with Tissot and RS422

Working with Swiss Timing Tissot scoreboards requires a small amount of knowledge working with RS422. RS422 is actually easier to work with than RS232. Tissot sends their data at 115200 Baud which is very high/fast compared to other scoreboards. This high data rate limits cable distances of RS232 to just a few feet. To use the Tissot RS232 ports you would need a pair of high speed short haul modems. If you use the RS422 ports you can use cables up to 1200 meters in length. The main difference between RS232 and RS422 is the that 232 is unbalanced and 422 is balanced.

When the meter is in Tissot mode the DTR pin has a current limited 9 volts applied to it so as to port power the majority of inline RS422 to RS232 converters. The Meter has been tested to work with the following converters;

- B&B Electronics 422PP9R
- US Converters XS202
- DTech DT9003
- UTek UT202
- CommFront CVT-422-1

All of these adapters use a D-sub 9 pin connector for the RS422 side. Be aware that there is NO pin out standard for RS422 and D-sub 9 pin connectors. Consult the owner's manual of your RS422 converter to identify the RXD+ and RXD- input pins to receive the Tissot data.

Some RS422/RS232 converters come with a D sub 9 pin to screw terminal adapter to facilitate interfacing bare wire to the push terminals on the Tissot distribution panel. To utilize the RJ45 jacks you will need to assemble a D-sub 9 pin to RJ45 adapter. The StarTech GC98FF is one such adapter. There is some assembly required, the end user must plug the wires from the RJ45 side into the D sub connector, correctly. The Red wire should connect to the RXD+ pin position and the Green wire should connect to the RXD- pin position. Again, consult your RS422/RS232 adapter manual for the proper pin locations of RXD+ & RXD-.

Firmware Upgrades

Data meter version 3 is field upgradable. Bug fixes, league sanctioned changes, additions are all possible now without the need to return the meter. To do an upgrade you will need a computer running MS Windows, a 9 pin D sub cable & a 9 pin NULL adapter. The program, the updated firmware and step by step instructions will be sent via email. The process is quick and very reliable. The process does require moving the 2 tiny dip switches to ON to enter upgrade mode which are hidden beneath the battery cover. When the upgrade process is complete the 2 dip switches MUST be returned to the off position.

FAQs

Q. Help.... I just put a new battery in and the meter refuses to shut off.

A. The dip switches behind the battery door are in "Upgrade" mode. Make sure both switches are in the OFF position, down, towards the battery.

Q. A school we cover uses the new Stalker II speed gun. They have it set up for 2400 baud. Is it possible to have new firmware written that supports Stalker at 2400 baud?

A. Yes, just contact support@serialtools.tv with your request.

Q. What other baud rates are supported by your meter?

A. 300, 600, 1200, 1800, 2400, 4800, 7200, 9600, 19200, 38400, 57600 and 115200. All with 0% timing error.

Q. We cover a school that uses a Trans Lux scoreboard that was factory modified to supply serial data at 19200 instead of the usual 9600. Can new firmware be written?

A. Yes, just contact support@serialtools.tv with your request.

Q. We carry a pair of RS422/RS232 inline adapters to bring back speed gun data. Is it possible to have DTR turned on so we can port power our adapters from the meter when we are testing?

A. Yes, just contact support@serialtools.tv with your request.

Q. The show producer forgot his USB to RS422 adapter. He does have a USB to RS232 adapter. Can I feed him Tissot data using the RS232/RS422 adapter I use with my meter?

A. Yes it will work.

Warranty Information

SERIALTOOLS.TV TWO YEAR WARRANTY

SERIALTOOLS.TV will repair, without charge, any defects due to faulty materials or workmanship for two years from the date of purchase. This warranty does not cover part failure due to normal wear or tool abuse. This warranty does not apply to accessories or damage caused where repairs have been made or attempted by others. This warranty gives you specific legal rights and you may have other rights which vary in certain states or provinces.

RESPONSIBILITY OF ORIGINAL PURCHASER (initial User):

* To process a warranty claim on this product, email SUPPORT@SERIALTOOLS.TV requesting service or repair. Include a brief description of the problem, your name and contact information. You will receive an RMA number and shipping information. Freight costs, if any, must be paid by the purchaser.

* Use reasonable care in the operation and maintenance of the product as described in the Owners Manual(s).

THIS WARRANTY DOES NOT COVER:

* Merchandise that has become damaged or inoperative because of ordinary wear, misuse, cold, heat, rain, excessive humidity, freeze damage, use of improper chemicals, negligence, accident, failure to operate the product in accordance with the instructions provided in the Owners Manual(s) supplied with the product, improper maintenance, the use of accessories or attachments not recommended by SERIALTOOLS.TV, or unauthorized repair or alterations.

* Expendable parts or accessories supplied with the product which are expected to become inoperative or unusable after a reasonable period of use, including but not limited to adapters, cables and carrying cases.

* ANY INCIDENTAL, INDIRECT OR CONSEQUENTIAL LOSS, DAMAGE, OR EXPENSE THAT MAY RESULT FROM ANY DEFECT, FAILURE OR MALFUNCTION OF THE PRODUCT IS NOT COVERED BY THIS WARRANTY. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

SERIALTOOLS.TV