

TRACK CYCLING



TRACK CYCLING SOFTWARE

User's Manual

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Version 1.6

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Caution and safety precautions

- Never use any other charger than the supplied or a type approved by Swiss Timing. This could destroy the battery, cause damage to unit, and possible cause personal injury due to fire or/and electrical shock.
- Never bypass a power cord ground lead by breaking off the ground pin, or by using inappropriate extension cords or adapters.
- Never plug a power cord into the AC power source until you have made sure that all installation, cabling and power levels, are proper, and that the applicable procedures in this manual have been followed.
- Protect the equipment against splashing, rain and excessive sun rays.
- Never use the device if it is damaged or insecure.
- Verify the selection of the power distribution.
- Verify that the voltage quoted on the rating plate is the same as your voltage. Connect the appliance only to power sockets with protective earth. The use of incorrect connection voids warranty.
- This program may be modified at any time without prior notification.
- Do not open the case; there is nothing that needs servicing inside it. Nevertheless, if the case must be opened, you must call for some qualified personnel. The power supply cable must be disconnected before opening the case.
- During the transport of all Swiss Timing equipment delivered with a reusable carry case, the said case should be used at all times. This is imperative to limit the damage, such as shocks or vibration that can be caused to the units during transport.
- The same cases should also be used when returning equipment to Swiss Timing for repair. Swiss Timing reserves the right to refuse all guarantees if this condition is not fulfilled.
- If the installation includes a horn, be sure to maintain a sufficient security distance from the public.

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Environment



This symbol indicates that this product should not be disposed with household waste. It has to be returned to a local authorized collection system. By following this procedure you will contribute to the protection of the environment and human health. The recycling of the materials will help to conserve natural resources.

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1 INTRODUCTION

TIMING MANAGER for *QUANTUM Cycling* is SWISS TIMING software for the control and management of SWISS TIMING track cycling timing systems.

The software controls the selection of all the various inputs/outputs required to time the many possibilities of track cycling. All timing events are recorded through each input port and are identified with a unique data code. Data from the timer interface is transmitted to the host computer (desktop or notebook) through an USB port. All data processing then takes place in that computer.

Data is stored (i.e. number of races or competitions) on the computer, or an external hard drive, enabling results from previous races to be recalled for examination or re-transmission to the scoreboard or re-printing of the results. Printed data is available in two formats.

The software concept enables start lists and event data including titles and records to be included in the timing data outputs. This enables competitor names and titles to be displayed using compatible scoreboard software.

The software includes a primary and a secondary interface to allow a second computer to follow a competition in parallel, with all contacts, to give live backup and peace of mind.

2 INSTALLATION

The Quantum Timing Manager application is designed to run on a Windows 7 computer (or later) with administrator permissions enabled accounts. Microsoft .NET or later is also required.

If your CD does not start automatically, browse the disk and select intro.exe to start the installation process.

Always start with the SwissTiming DRC Framework installer:
"Swiss Timing - DRC - Quantum - Runtime Setup.exe"

After the installation of DRC, you must restart your computer.

Then proceed with the Timing Manager application installer:
"Swiss Timing Quantum Timing Manager Setup.exe"

Note: The application must be installed on the same drive partition and user account as the framework.

If not previously installed, run the USB installation to load the USB drivers into the computer.

Repeat the above procedure on the secondary computer.

SWISS TIMING

January 2017

===== NEW INSTALLATION =====

- 1) INSTALL MICROSOFT .NET 4.5.1 FRAMEWORK. Available on the CD-ROM in "Microsoft" sub-directory.
- 2) INSTALL DRC Base libraries. Available on the CD-ROM in "DRC" sub-directory.
- 3) INSTALL Cycling Track Timing Manager software. "CtTimingManagerxxx.msi" available on the CD-ROM in "CT" sub-directory.
- 4) INSTALL INT217 software. "INT Configuratorsxxx.msi" available on the CD-ROM in "CT" sub-directory.
- 5) If you have Excel software, INSTALL Swiss Timing Excel interface software. "SwissTimingExcelInterfaceSetup_vxxx.msi" available on the CD-ROM in "CT" sub-directory.
- 6) If you have Gemini scoreboards, INSTALL CT Gemini interface software. "CTGeminiInstallerxxx.msi" available on the CD-ROM in "CT" sub-directory.
- 7) INSTALL QUANTUM USB Driver. Available on the CD-ROM in "Driver" sub-directory.
Note: the same driver is used for INT217.
- 8) Power on and connect INT217 to the computer. Eight new COM ports are created, assign them the COM number 21 to 28 as describe in chapter 2.3.3 of INT217 user's manual (available on the CD-ROM in the "Manuals" "INT217" sub-directory).
- 9) Power on and connect QUANTUM to the computer. Four new COM ports are created, assign them the COM number 5 to 8 (same procedure as previous point).

===== UPGRADING FROM A PREVIOUS INSTALLATION =====

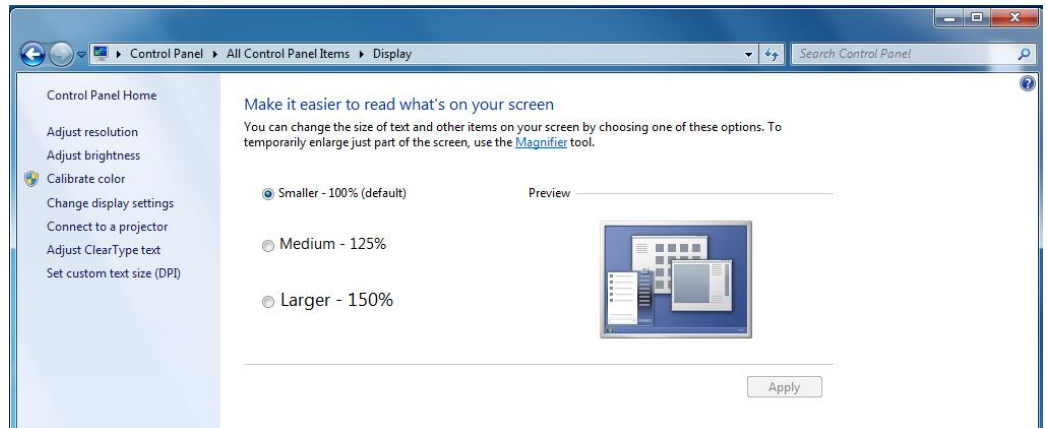
From Control Panel, uninstall previous version:

- 1) Uninstall Previous Quantum Sports Application
- 2) Uninstall Previous DRC

Then reinstall from the CD.

Other things to check

Be sure the size of text stay in 100%, otherwise you will lose icons or others in the Cycling software.



3 SOFTWARE

3.1 Starting the software

“Timing Manager”. The Swiss Timing Dongle delivered with your system should be in a USB socket when you start the software. If it is missing, you will see a yellow warning message telling you that the software functionality has been limited.

SwissTiming Dongle NOT FOUND or NOT VALID.
Functionality is limited!

Insert the dongle and the message will clear, restoring all functionality. If you have a limited amount of available USB ports, the dongle may be removed after the software starts, freeing the port for other devices. It is wise however to keep the dongle nearby in the event that you have to restart the software or the computer.

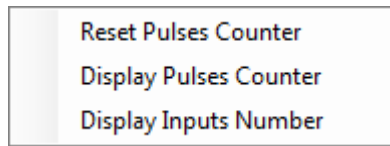
3.2 Screen Layout

There are several areas on the main screen, each with their own tasks.

At the top, there is an input status, showing a counter of number of impulses received from the contacts installed on the track. On 200m track position, you should install a 3.5m track contact for main 200m A and a 7.5m track contact for 200m B (as backup).

Start A	Start B	Pur. A	Pur. B	Gun	200m A	200m B	100m	Finish	Printer	Pulses	Transponders
0	0	0	0	0	0	0	0	0	On	On	On

By clicking left or right mouse button on input status window, you can select one task in the following window.



Display Inputs Number will show the impulsion channel selected (COM of your Primary laptop connected) for each track contact.

Start A	Start B	Pur. A	Pur. B	Gun	200m A	200m B	100m	Finish	Printer	Pulses	Transponders
I9	I10	I14	I15	I1	I11	I12	I13	I16	On	On	On

Below the menus are shortcut icons to the main tasks.



To the right of the menus are Noise Level indicators for the transponders, the internal time and ‘On Air’ status of the Quantum, and a manual selector to switch between Transponder tables. The main window has three tabs, the actual **Timing** screen, **Passing List** and **Noise Level**.

3.3 Devices (and setup)

We assume the default COM number have been defined for Quantum and INT217 in the device manager (see chapter [9.2 Configuration of COM number](#)).

The devices form can be opened from the Devices icon or from the “File” menu [Alt+f],[d]

3.3.1 <Overall>

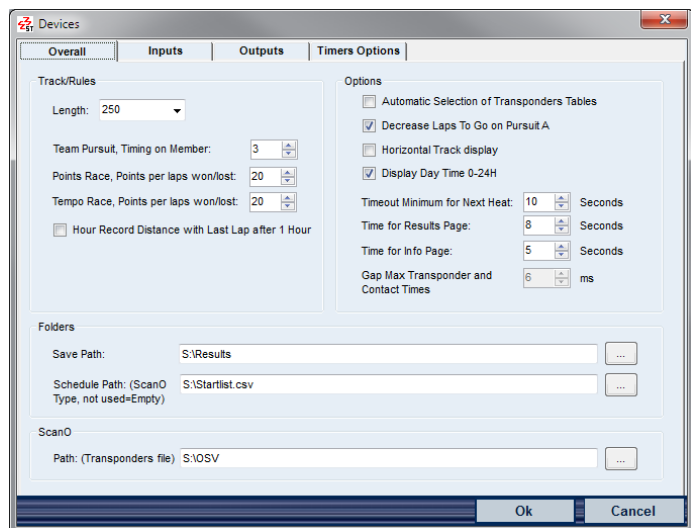
Track/Rules

You can select track lengths of 200m, 250m or 333m. This is used to calculate the number of laps required for a given distance.

For the Team Pursuit, you have the possibility to choose on which Member the Timing will be done.

The rule for the number of points awarded for gaining or losing a lap in the Point Race and Tempo Race can be modified here. If a previous session is loaded, the result will be recalculated using the current value.

By default, the distance calculated for the last lap is calculated with the average of the before-last lap of the Hour Records. Here you can choose to take the average of the last lap.



Options

Automatic Selection of Transponders Tables

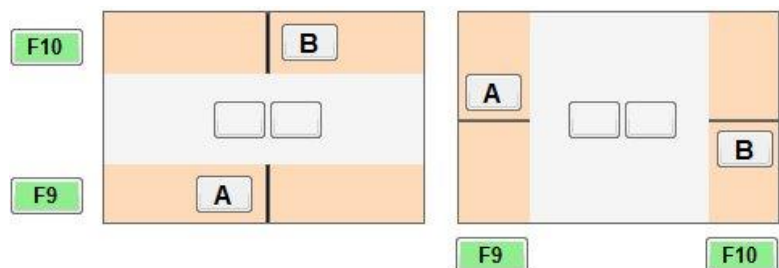
By using the correct race codes (see [appendix 10.4](#)) the **Transponder Table** can be automatically selected when you open a new session if this option is checked.

Decrease Laps To Go on Pursuit A

If you have a compatible tracker system and semaphore display connected, the **Laps To Go** can be automatically displayed by checking this option. Still future option.

Horizontal Track display

The visual representation of the pursuit finish lines and the rider position(s) can be rotated to match the timing operators view (infield or outfield control room) of the actual track. If checked, a horizontal image is displayed, otherwise, a vertical image is used.



Display Day Time 0-24H

If you have an overnight event, this option sets the Quantum for not counting over 24 hours. If not checked, the Quantum will count over 24 hours.

Timeout Minimum for Next Heat

By setting a Timeout Minimum you can prevent information for the current heat being overwritten too quickly if the operator prepares the system for the next heat. Select a value from 0 to 100 seconds.

Time for Results Page

Defines the time during which the results page will be displayed on the scoreboard. Select a value from 0 to 100 seconds.

Time for Info Page

Defines the time during which the info page will be displayed on the scoreboard. Select a value from 0 to 100 seconds.

Gap Max Transponder and Contact Times

Defines the maximum gap between the transponder time and the contact time. If the difference is too big, the contact time will not be associated to the number of the transponder, and the time taken will be the transponder time.

Folders

Save Path is a folder where Timing Manager will save the results and printer text of all new races. It is also the default folder used when you choose "Load Session from File". Creating and selecting a new (aptly named) folder for each day will make managing and reviewing your results much simpler.

Example: C:\CT_Aigle\08.11.2013

Schedule Path can contain the path and filename of a CSV format file containing the event schedule and optionally, the competitor list. See [8.1.1 Files \[Startlist\]](#) for more information.

Example: C:\CT_Aigle\starlist.csv

Path: (Transponders file) can contain the path and filename for the transponder data to be shared with an OMEGA Scan'O'Vision system.

3.3.2 <Inputs>

Main Timer

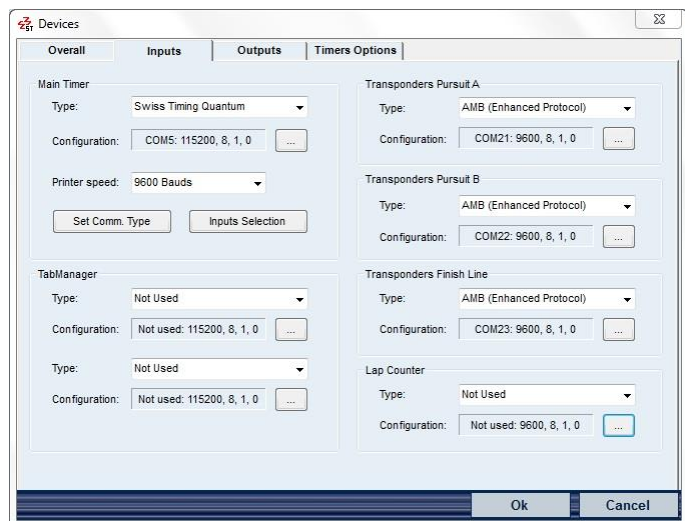
There is currently only one type of timer to be selected; Swiss Timing Quantum.

Printer speed

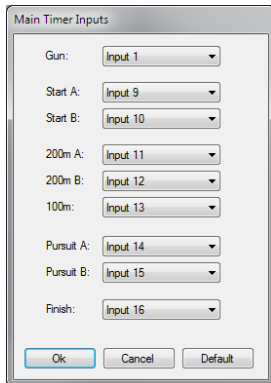
By default is 9600 bits per second

Set Com Type can be either USB mode or serial mode. The default is USB mode.

This is the communication cable between the Timing Manager computer and the main timer. The Swiss Timing Quantum unit has both USB and serial (RS232) connectors for both primary and secondary systems.



Inputs Selection links the actual contacts to the Main Timer inputs.



You can select any valid input (from 1 to 32) to act as trigger for each of the timing points. However the default values are set according to the track wiring, so these should only be changed if you understand the actions and outcome. For example, the pulse from the finish line tape switch will arrive on input 16 by default.

Inputs 1 to 7 are available on the back of the Quantum. You could connect a photo cell or push button directly to these inputs. By changing the input for Finish to input 2, any race that would normally stop on the finish line would now stop when input 2 receives a pulse.

TabManager

This function is not available yet.

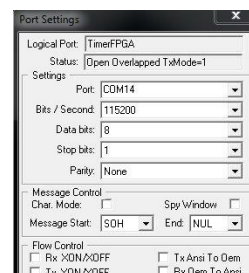
Transponders

There is currently only one type of transponder to be selected; "AMB (Enhanced Protocol)". If you are not using transponder antenna at any of the timing points, select "Not Used".

Use the **Configuration:** dialog to set the com port number of a transponder. By default they are connected to the INT 217 Serial Line Router on

Com21 (Pursuit A), Com22 (Pursuit B) and Com23 (Finish Line).

Use the **Configuration:** dialog to set the com port number according to your computer configuration. This can vary from computer to computer depending on previous resource allocations, and can also change if a USB cable is connected to a different USB socket on the computer. The other settings should normally remain unchanged unless advised by Swiss Timing support staff.



Lap Counter

You can configure this field if you want to see the state of the lap counter in the timing software.

There is currently only one type of lap counter to be selected; "Swiss Timing".

By default the Lap Counter is connected to the INT 217 Serial Line Router on **Com27**.

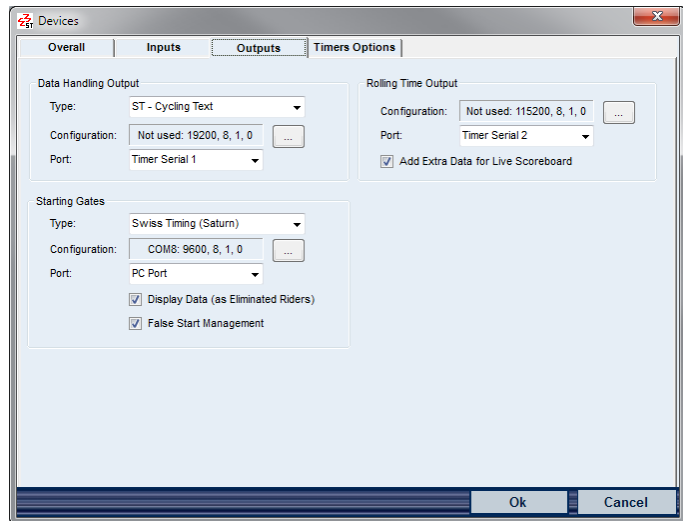
3.3.3 <Outputs>

Data Handling Output

By default, Data Handling information is sent to the Quantum Timer Serial 1. By changing the port to PC Port, you can redirect the output using the **Configuration:** dialog to set the com port number and properties.

Rolling Time Output

By default, Rolling Time (scoreboard) information is sent to the Quantum Timer Serial 2. By changing the port to PC Port, you can redirect the output using the **Configuration:** dialog to set the com port number and properties.



If you are displaying live timing on a compatible alphanumeric/video display, check the **Add Extra Data for Live Scoreboard** to enhance the output.

NOTE: If Data Handling or Scoreboard is distributed to multiple devices with an **INT 217** or equivalent, **it is recommended that you do not change the default settings.**

Starting Gates

If you have compatible Starting Gates, select **Swiss Timing (Saturn)** as the type. Use the **Configuration:** dialog to set the com port number and properties of the port.

Display Data (as Eliminated Riders)

Check the box if you like to display the eliminated rider on the display of the trackers. Be aware the trackers display only 2 digits (riders numbers from 1 to 99).

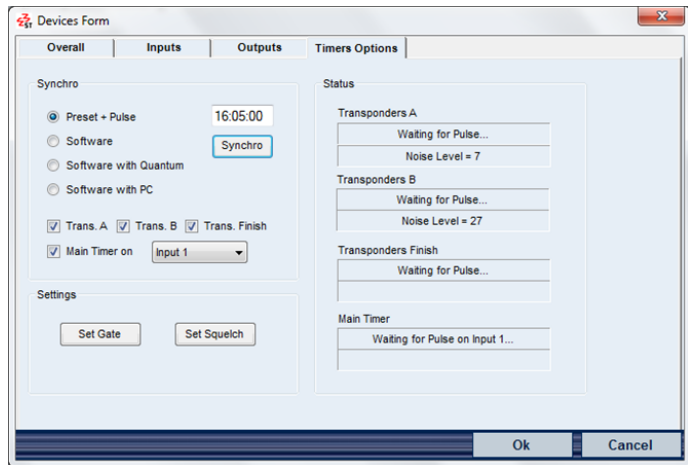
False Start Management

In Pursuit Race, Time Trial, if the box is checked, in case of a false start, the corresponding semaphore will be illuminated. In fact, if a pulse is detected on a contact strip (Pursuit A or B) before the end of the count down, the software will interpret it as a false start (be aware that the central console must have the firmware version 1.29 or above to work).

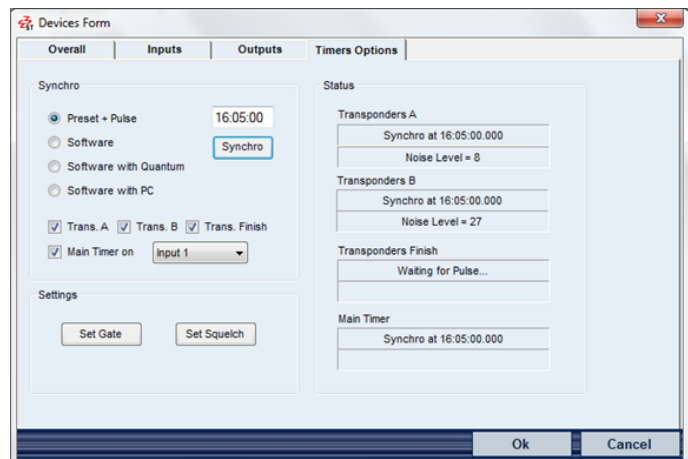
3.3.4 <Timers Options>

Synchro

Sets and synchronises the daytime across all timing devices. Choose from the radio buttons the method, and uncheck any device that is not to be synchronised. Press the Synchro button to action your method. The Status panel will display feedback from each device that has been successfully synchronised. If you select Preset and Pulse, the Synchro button arms the method and waits for a pulse to arrive on the input selected. INPUT1 is the pushbutton connected to Input1 in the backpanel of the Quantum. This synchro impulsion can be also delivered by a GPS system.



As soon you have received the synchro pulse, the Main Timer and the connected transponder boxes will answer with the corresponding synchronization time.



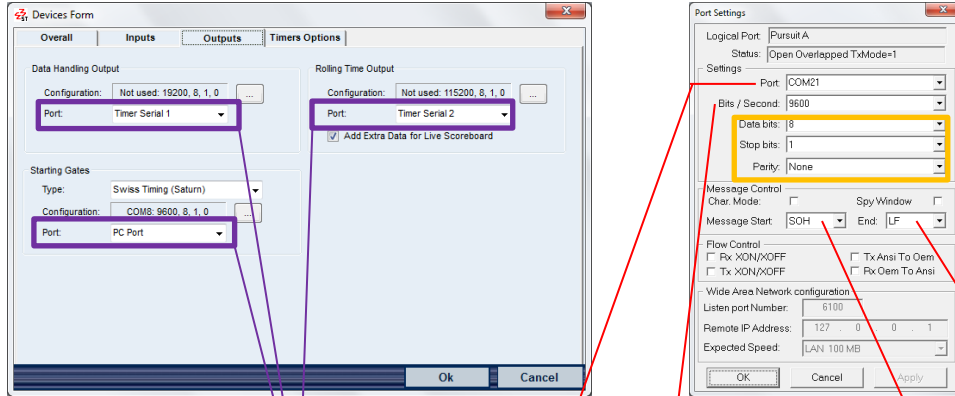
Set Gate is no longer required for new decoder. Do not care.

Set Squelch sets the audio suppression on transponders. The default is 30 for current systems, in a range from 0 to 255.

With the Squelch setting you can suppress weak transponder signals. With Squelch to 30, all transponder with received strength below 30 will be ignored.

3.3.5 Resume

If default COM number have been defined for Quantum and INT217 in the device manager (see chapter 9.2 Configuration of COM number), there is a resume of default parameters:



Name	Port	Port	Bits / Second	Message Start	End
Main Timer		COM5	115200	SOH	NUL
Transponder Pursuit A		COM21	9600	SOH	LF
Transponder Pursuit B		COM22	9600	SOH	LF
Transponder Finish		COM23	9600	SOH	LF
Data Handling Output	Timer Serial 1	Not used	19200	SOH	EOT
Rolling Time Output	Timer Serial 2	Not used	115200	SOH	EOT
Starting Gates	PC Port	COM8	9600	SOH	EOT

Fix parameters for all devices:

Data bits:	8
Stop bits:	1
Parity:	None

4 TRANSPONDERS

4.1 Overall Transponder Table

Every transponder has a unique ID embedded in it which is made up of two alphanumeric characters, a dash and five numbers. To simplify this you can label and identify your transponders with the numbers from 1 to 1000 in the IDTransponder Table.

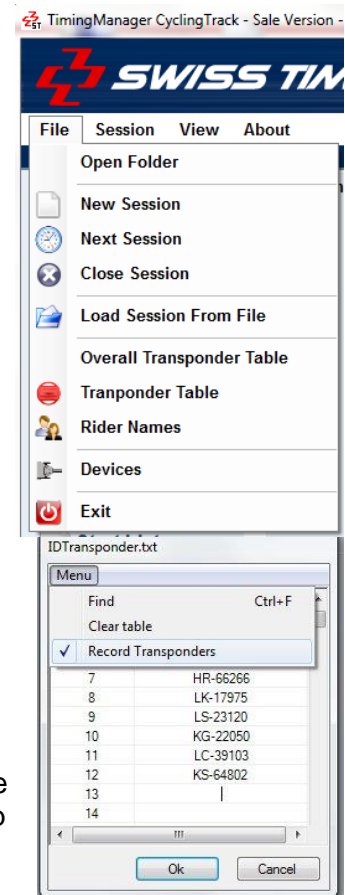
This table can be created once, and used whenever you need to use your transponders with Timing Manager.

To create the table, open the “File” > “Overall Transponder Table” menu. You can type in each transponder number, or have the software do it automatically.

From the dialog menu, choose “Record Transponders”. You will be asked for the next label number, (so that you can add to the list at any time). Then you simply pass each transponder over an antenna one at a time, in sequence.

It therefore is practical to prepare your transponder set beforehand by sticking an identity label onto each one.

When completed and you click OK, the table is saved. The default location is C:\SwissTiming\DRCAApp\OVR\CT\Bin\IDTransponder.txt but this may be different if you have installed the software on a different drive or root folder. We recommend that you make a backup of this file to keep with your transponder set.



4.2 Transponder Table

Bib number is the “dossard” in French, labelled on the rider.

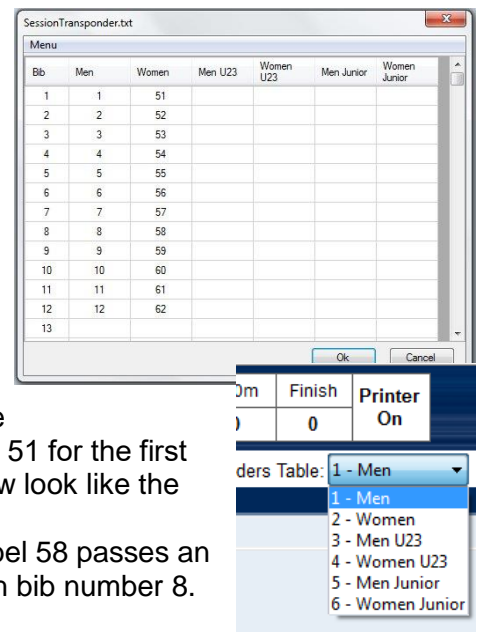
Men number is the transponder number

KS-64802 is the transponder ID

On this example bib 1 is for Men and Women, but normally it is not the case.

The transponder table connects an athlete bib number to a transponder, using the label from the overall transponder table. You can associate the same bib number to a different label (transponder) number for each category of both Men and Women. If you plan to allocate your transponders to bibs in a sequential way, you can quickly complete the table. For example, highlight the Women cell in the row for bib 1. Use the “Menu”>”Assign a Group (from the current position)” and enter 51 for the first number then 62 for the last number. The list for women will now look like the image shown here.

Therefore, when the Women table is used and transponder label 58 passes an antenna, Timing Manager will recognize this as the athlete with bib number 8.



4.3 Passing List

The passing list tab on the main screen shows a history of inputs to the system. It can be viewed to gain an overview of how well the system is performing or to check one point. Using the Filter Point list and search button, the log can display, for example, only the activity from the finish line.

Log Time	Pt	Bib	Trans. Label	Trans. ID	Trans. Time	Time	Hits	Strength	Noise Level	Low Battery
15:55:52.711	Trans F	3	3	HF-69464	16:24:12.137	16:24:12.137	70	118	13	
15:55:56.391	Trans F		LS-23120	LS-23120	16:24:16.376	16:24:16.376	26	118	15	
15:56:01.447	Trans F		HR-66266	HR-66266	16:24:21.113	16:24:21.113	44	57	13	
15:56:29.621	Trans B		HR-66266	HR-66266	1:35:24.696	1:35:24.696	64	138	26	
15:56:33.510	Trans B		LS-23120	LS-23120	1:35:28.385	1:35:28.385	76	105	23	
15:56:41.493	Trans B		HR-66266	HR-66266	1:35:37.077	1:35:37.077	75	128	26	
16:11:02.297	Gun					1:49:58.067				
16:11:02.297	Gun					1:49:58.067				
16:11:02.297	Gun					1:49:58.067				
16:11:02.408	Trans B			9991		1:49:58.068				

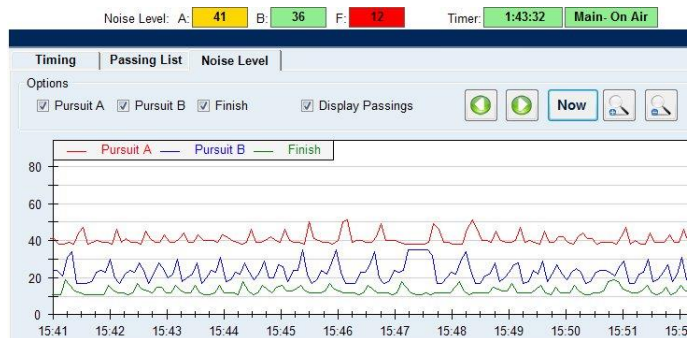
You can also compare pulses from the tapeswitch with the transponder times.

Pur. B Tapeswitch B
 Trans B Transponder B

The batteries inside the transponders are expected to last four to five years with typical usage. So do not expect to see anything in the Low Battery column too soon.

4.4 Noise Level

Noise is the superposition of disturbing influences on the signal from the transponder to the antennae. It can be introduced by radios, tv cameras, nearby cables. It will also be seen while the start gates are positioned over the pursuit lines. Using traffic light colours where green is good, Pursuit A and B plus the finish antenna can be constantly monitored on the status line at the top of the display.



On the Noise Level tab, these levels are logged and can be reviewed historically or in real time. This can be an aid to analyzing an unexplained drop in signal quality when someone or something is moved near an antenna.

5 SESSIONS

A session is a race or a number of heats within a race category. Where a round comprises the best-of-three races, the round would comprise of three sessions. Each entry in the schedule is one session.

If you are working with a schedule using STARTLIST.CSV you can start a session from the main screen shortcut or the “File”>”Next Session” menu.

If you do not have a schedule, you can create a session from the “File”>”New Session” menu.

Existing (previous races) can be opened from the “File”>”Load Session From File” menu. If you already have a session open, you will see a warning that it will be closed before opening another session.

When you open a session, you need to be on the **Timing** tab to see the information.

5.1 New Session

Selecting the “File”>”New Session” menu opens the Session Options dialog presenting the elements to define the session.

Gender

Together with **Type**, the **Gender** selected is used to create the Event Name.

Together with **Category**, **Gender** is used to select the correct transponder table when the

Overall>Options>Automatic Selection of Transponder Tables is checked. If it is not checked, the correct table should be manually selected from the drop down list on the main screen.

Type

There are currently eleven race types defined in Timing Manager. The type of race selected determines which inputs are expected to be used for receiving the start signal and intermediate and finish pulses. It also automatically fills in the default values for your track length to the Options fields Pulses Number and Laps Number. These values can be overwritten after you have selected the race type. By learning the inputs used in each race type, it is also possible to use a configuration to create another type of unspecified race.

Options

The **Event Name** and the **Phase Name** are combined to create the filename that the session will be saved as. If the combination already exists in your save folder, you will see a message asking you to change the Event Name or Phase Name.

The **Pulses Number** is the number of times one rider transponder will be read during a race, so if half laps are required in a pursuit race, this will be double the number of laps.

The **Laps Number** is the total displayed at the start of the race.

The **Heat Number** or **Sprint Number** is the number of heat or sprint.

5.2 Next Session

The Next Session shortcut on the main window, or “File”>”Next Session” displays the schedule. Select the next race and press OK to open it. If the race has already been completed, then Timing Manager will load the session from the saved file. Otherwise it will offer to create a new file.

5.3 Session Menu

5.3.1 “Session”>”Options”

Session Options opens the same dialog as [5.1 New Session](#) but only allows the **options** values of the session to be modified.

5.3.2 “Session”>”Start List”

Session Start List opens a dialog and displays the bib numbers of the teams and competitors entered. It can also be opened by the shortcut icon on the main screen. The layout of this varies according to the race type selected. More detail is given in the race type descriptions.

5.3.3 “Session”>”Omnium Points”

Allows you to enter Omnium points before the points race, they will be added to the points of the race for the calculation and display of the rankings table.

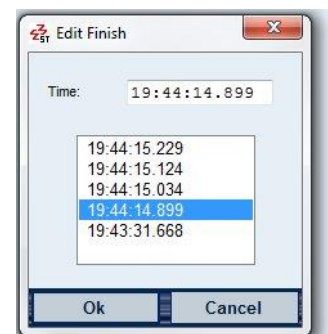
5.3.4 “Session”>”Edit Start Time”

Edit Start time opens a dialog which will display the current start time if the race has already started, and a list of other valid start pulses received. You can substitute the current start time with one from the list, or introduce a new start time manually. If the race is still in progress, the running time will be adjusted. If the race is completed the finish time(s) will be adjusted.

5.3.5 “Session”>”Edit Finish Time”

If the race type is a pursuit race, you will first be asked if you wish you edit Pursuit A or Pursuit B.

The dialog will show you the precise daytime of the finish pulse, and a list of other valid pulses for that finish line. You can see on the Timing tab event list (and on the printer is you are using one) all armed and unarmed pulses and can use this to determine the correct pulse to use. For example, if a lapped rider crosses the finish a few milliseconds before the winner, he would stop the timing. The actual winning time will be calculated by inserting the next daytime pulse on the list.



5.3.6 “Session”>”Clear all the Results”

Clear all the results removes all the saved data for the session. As this is not a recoverable action, you will be asked twice to confirm that you really want to do this.

5.3.7 “Session”>”Export Results”

Export Results opens a *save as* dialog and will save the session results in CSV format to a filename and location of your choosing. This file can be used by third party applications such as Microsoft EXCEL.

5.3.8 “Session”>”Resend all Data to Scoreboard”

Resend all Data to Scoreboard is used when the scoreboard device has crashed and all the information previously sent is lost.

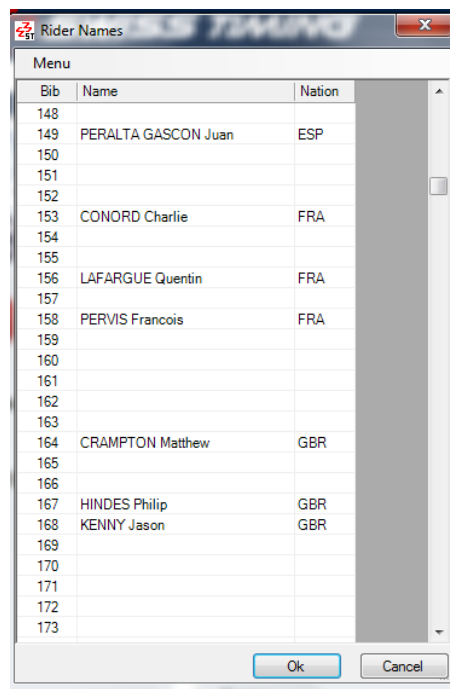
5.4 Close Session

Closes and saves the current session. A session can be reopened using the “File”>”Load Session From File” and the session will continue from the point at which it was closed.

6 RIDER NAMES

From the menu “File”>”Rider Names” you can associate names with the bib numbers in your start list. You can type them one by one or paste a list from the menu.

The paste function expects the data to be in the order Bib, Name, Nation in consecutive columns on an Excel spreadsheet.



Note that the list will always show all bib numbers from 1 to 1000, so if you paste a list of riders names beginning with bib number 100, you will need to scroll down the list to see them.

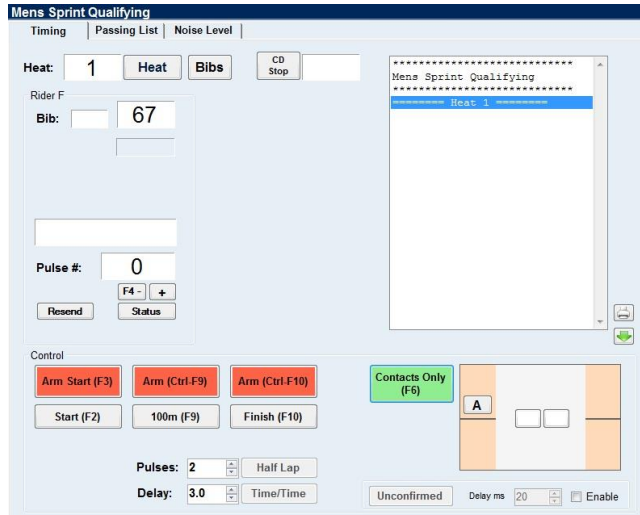
7 TIMING

In Timing manager version 4.1.6 and later versions, buttons to simulate each pulse coming from the track are integrated on each timing session.

7.1 Sprint Qualifying

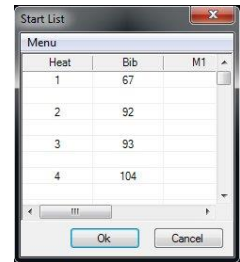
For Sprint Qualifying, timing will start on the 200m pulse. There is an option to have a 100m split time. For the split time, you can set the **Delay** but as the finish will be around four seconds later it needs to be quite short.

If you do not have a transponder antenna or contact at the 100 meter position then the **Pulses** value should show 1 rather than 2 at the start of the race. This can be adjusted directly but should be set in session options to be correct for all heats.



With a start list, the heat number and rider bib number will be displayed. If you create a new session, you must introduce both the heat number and bib number before starting the timing. You can also create or edit the start list from "Session">"Session Start List".

For qualification, each bib number in the start list should be entered in the same row as the heat number.



You can choose to time this race type with either transponders or the track contacts. Press [F6] or the control button to switch between modes. The button will be green with the current mode as text when ready. Press [F3] or the Arm Start control button when the commissaire is ready to start the race. Pressing [F3] once more will disarm the start, if there is a delay on the track.

Once the race is started the finish will automatically be ready to receive the next pulse. If it expects a 100m split, the finish contact is not armed until the 100m pulse is received. **Pulse#** displays the number of armed pulses received. To advance directly and arm the finish, click the **+** button on the main window. To recover an accidental pulse click the **-** button, or press [F4]. Pressing [F2] resets the timing to 0.000 (requires 2nd confirmation) and disarms the start.



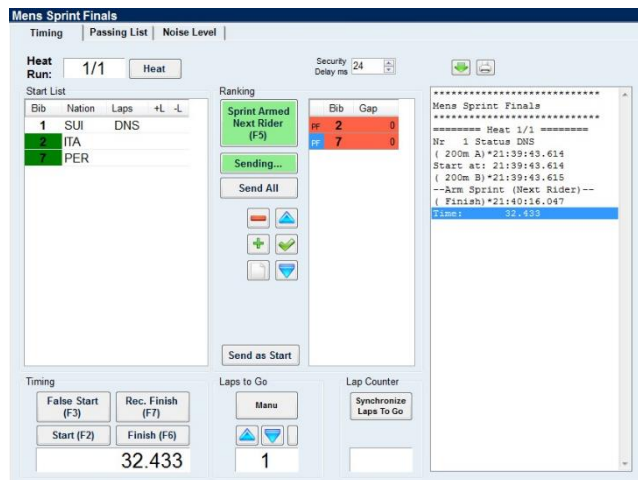
Status for a heat can be set with the **Status** button. You can remove a status flag by selecting "In Race".

7.2 Sprint Finals

For Sprint Finals, timing will start on the 200m pulse and finish on the Finish pulse.

If you are displaying the Laps to Go this can be decreased automatically as the lead rider is detected or manually. Toggle this mode by clicking on the **Auto** button.

The Heat and Run numbers are displayed, and can be advanced with the **Heat** button. It is important to remember that you must create a session for each run if you do not want to overwrite the previous runs result.



With a start list, the riders bib numbers are listed. If you create a new session, you can optionally introduce bib numbers before starting the timing by creating or editing the start list from "Session">"Session Start List". The riders in a heat are listed vertically with the Heat number at the top of the column.

Press [F3] or the Arm Start control button when the commissaire is ready to start the race. Pressing [F3] once more will disarm the start, if there is a delay on the track.



Once the race is started, to allow time for trailing competitors to cross the finish line, there will be a delay of five seconds before the finish line will automatically arm. You can manually override this with [F3] or the **Timing** buttons.

With transponders in use, the finishing order will be displayed in **Ranking**. With contacts, you can double click on each bib number in the **Start List** or without a start list you can introduce bib numbers to the Ranking by clicking on the **+** button. A selected rider is removed from the Ranking list with the **-** button. Riders positions in the list can be moved up and down with the two arrow keys. The check button between the arrows can be used to mark two or more riders in the ranking list as being temporarily subject to a photo finish decision. You can also double click riders in the ranking list to do this. The background colour of a riders bib number in the start list will change to green when he is already in the ranking list.

To set the **Status** of a rider, right click on the rider in the start list to see the status menu.

7.3 Flying Lap

The timing of a Flying Lap is almost the same as 7.1 Sprint Qualifying.

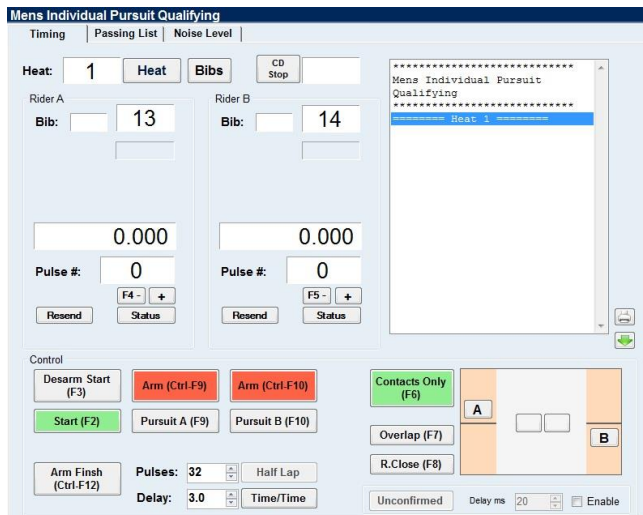
The timing will start on the Finish pulse. There is an option to have both 200m and 100m split times. For the split times, you can set the **Delay** but it needs to be quite short.

The 200m, 100m and finish are all armed after the start pulse is received, so if the rider misses a split the finish will still stop the clock correctly.

The start list is also the same as for Sprint Qualifying.

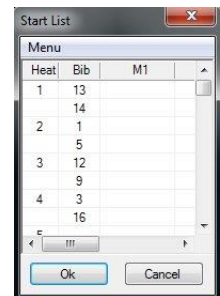
7.4 Individual Pursuit

The Individual Pursuit race is started from starting gates on each side of the track, normally with two riders. The gates are opened and timing started simultaneously with a pulse generated on Start A. For Timing Manager, this should be from a Swiss Timing (Saturn) Tracker. Intermediate times and the finish(es) are from the two pursuit lines. The intermediate times are made every half lap. For example, you should select 32 pulses for 16 laps. [F8], [F9] allows to arm or disarm contact A or B.



With a start list, the heat number and riders bib numbers will be displayed. If you create a new session, you must introduce both the heat number and bib number(s) before starting the timing. If there is only one rider then leave the other lane blank.

You can also create or edit the start list from "Session">"Session Start List". The bib number for rider A in the start list should be entered in the same row as the heat number. The bib number for rider B should be entered directly below it.

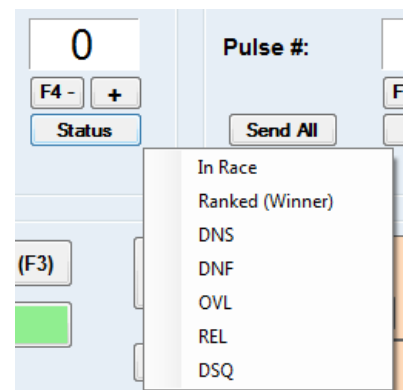


You can choose to time this race type with either transponders or the track contacts. Press [F6] or the control button to switch between modes. The button will be green with the current mode as text when ready. Press [F3] or the Arm Start control button when the commissaire is ready to start the race. Pressing [F3] once more will disarm the start, if there is a delay on the track.

Transponders will manage which rider is crossing which pursuit line. With contacts this has to be managed with the software. The track image will show which rider (A or B) it expects to next cross each finish line. Image 1 shows the two riders approaching their own line. In image 2, rider B has crossed his line and will next cross line A, after rider A. If rider B catches and passes rider A you must press [F7] or the **Overlap** button. During finals the rider overlapped is eliminated. The software will invert the two rider icons (image 3). If it looks impossible to judge which rider will reach the same line first, press [F8] or the **Riders Close** button and the software will give both riders the time of the first pulse received (image 4).



For each rider **Pulse#** displays the number of armed pulses received. To add a pulse, click the + button on the main window. To recover an accidental pulse click the - button, or press [F4] (or[F5]). Pressing [F2] resets the timing to 0.000 (requires 2nd confirmation) and disarms the start.



Status for each rider can be set with the **Status** buttons. You can remove a status flag by selecting "In Race".

Gap/Time or **Time/Time** button toggles the display of the second clock, where gap will temporarily begin from 0.000 on the first riders pulse.

This event shall be organized in two series:

The qualifying rounds to select the best 4 riders on the basis of their times.

For the finals, the riders with the two best times shall ride off the final for the first and second place while the two others shall ride off in the final for third and fourth places.

Races shall be run over

- 4 km for Men
- 3 km for Women
- 3 km for Junior Men
- 2 km for Junior Woman
- 4 km for Team

Trackers

After the start routine is done, the trackers will display the number of laps and must be operate (decrease laps) directly on the tracker displays by one operator on each side of the track.

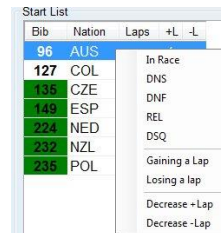
7.5 Time Trial

Time Trial races are timed in the same way as 7.4 Individual Pursuit races.

7.6 Keirin

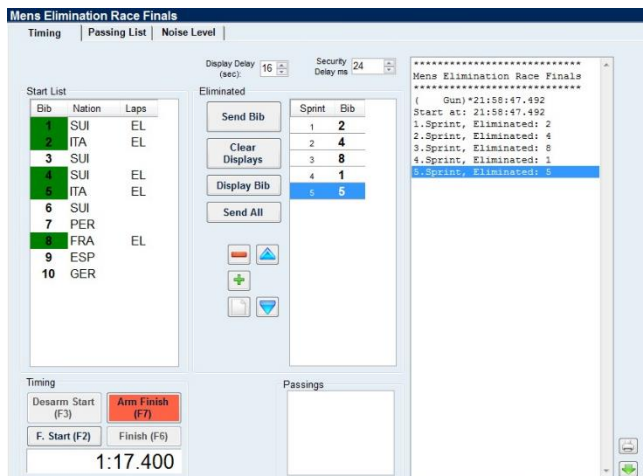
Keirin races are timed in the same way as 7.2 Sprint Finals races.

In the Start List are additional columns to record the gaining or losing of a lap. In the Status menu (right click in the Start List) are commands for increasing or decreasing a riders lap status.



7.7 Elimination Race

Elimination races are timed in the same way as 7.2 Sprint Finals races. Instead of a Ranking List you have an Elimination List. Double Click on the Rider in the Start List to be eliminated, or change a riders status to EL. In addition, with transponders available, they populate the **Passings** list, and you can also double click on the bib number of the last rider to pass the finish line.

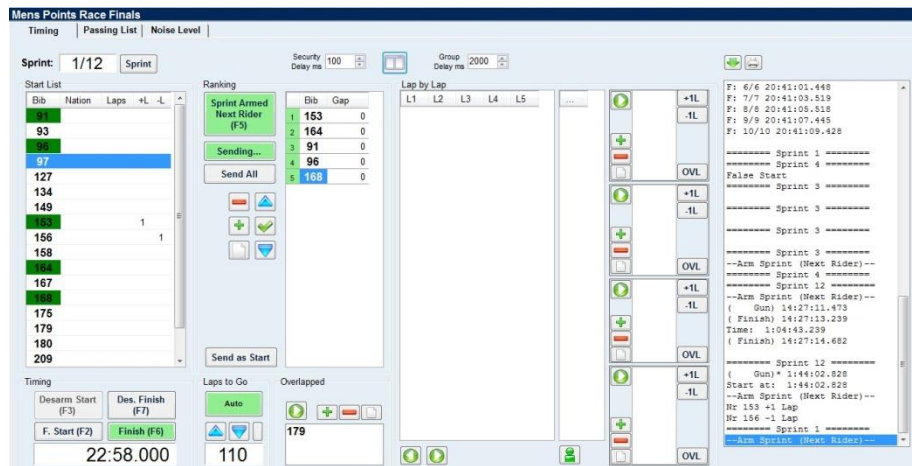


7.8 Points Race

Points races are timed in the same way as [7.2 Sprint Finals](#) races.


With transponders, they keep track of the number of laps for each rider and can give the result of a sprint. Select the sprint number with the **Sprint** button. Arm the sprint with [F5] or the **Sprint Armed** button.

Without transponders, manually award the sprint places with a double click on a rider in the start list, or click on the + button and introduce a bib number.



A rider can be inserted into a position by first highlighting the rank desired. The gaining or losing a lap is added to a rider by using the right click menu on a rider in the start list.

The current points can be viewed with the menu "View">"Ranking Window".

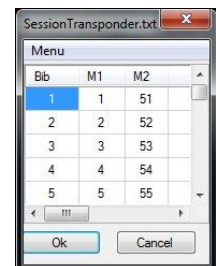
For transponder users, additional information can be collected and viewed by expanding the main screen with the pane icon . As well as lap by lap lists of riders, riders can be put into groups, and moved from group to group with the + and - buttons. Users without transponders can close these panes as they cannot be used without transponders.



7.9 Madison

The Madison race is the same as [7.8 Points Race](#).

In the start list, enter only the bib number for the team. In the transponder table, enter the bib numbers of the two riders in each team next to their team bib number.



7.10 Scratch Race

The Scratch race is the same as [7.8 Points Race](#).

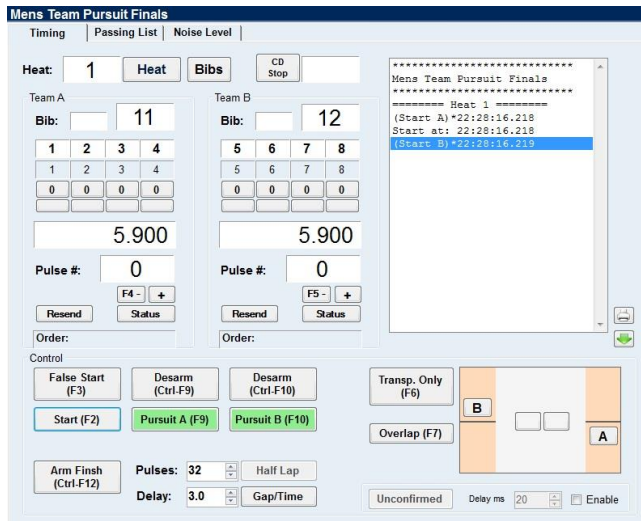
7.11 Team Pursuit

Team Pursuit works in the same way as [7.4 Individual Pursuit](#), with some additions.


For transponders, **Member** selects which rider in the team to time. The default is 3.

In addition to the team bib number, the four rider numbers are also displayed, each with their own lap counter. At the end of a race, the ... buttons open a dialog to manually input the rider order for each team, and who, if anyone pulled out.

On tracks less than 400 meters, each team shall ride alone against the clock.
Distance is 4 km for Men & Women



In the start list for Team Pursuit, the Team in A are entered in the row with the Heat number, starting with the team bib number and followed by the bib numbers for the four team members. The team in B are entered in the row below in the same way.



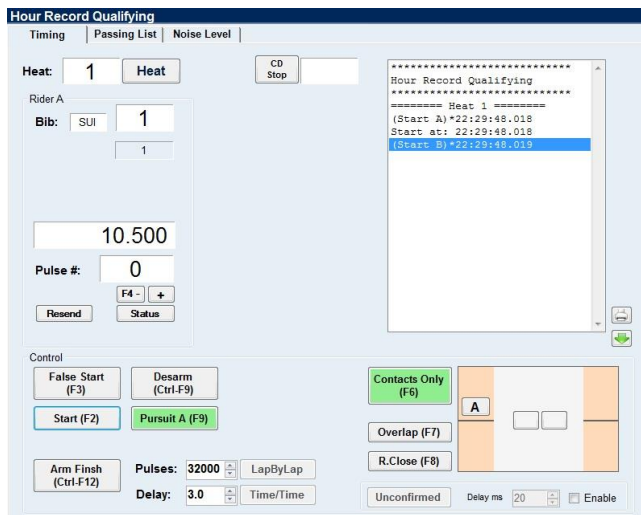
Heat	Bib	M1	M2	M3	M4
1	15	99	47	52	54
	33	64	62	59	57
2	31	87	89	92	98
	55	22	26	25	21

7.12 Team Sprint

Team Sprints work in the same way as the [7.11 Team Pursuit](#) races.

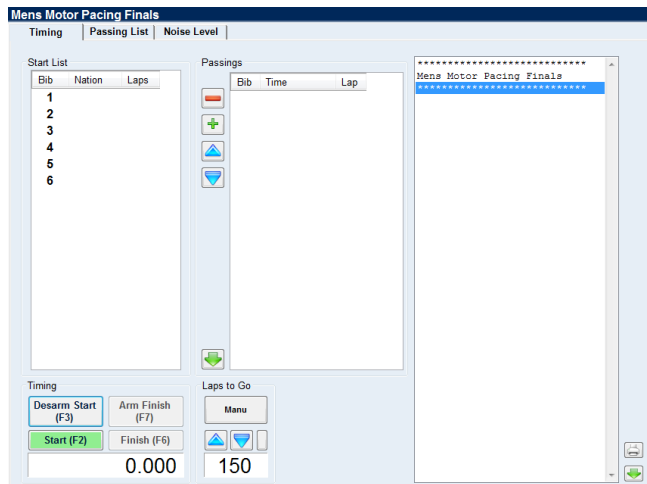
7.13 Hour Record

Hour Record works like the [7.4 Individual Pursuit](#), but the target is to reach the maximum distance in one hour.



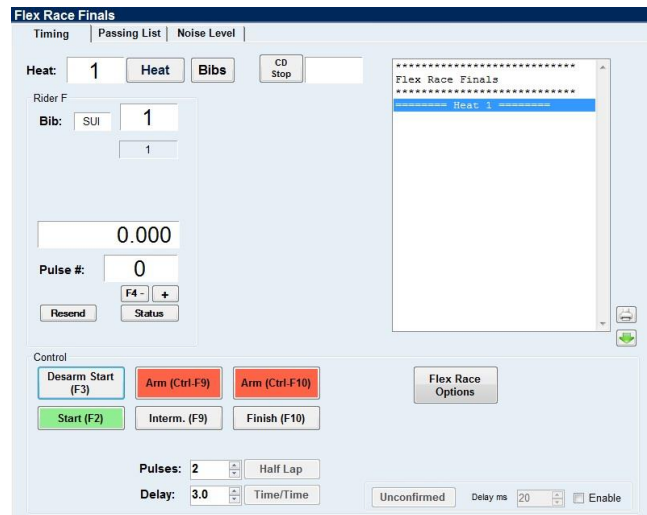
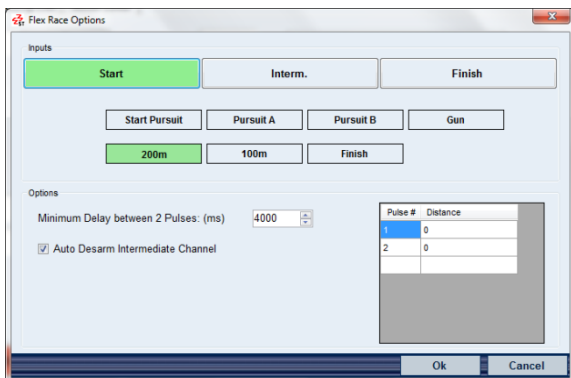
7.14 Motor Pacing

The Motor Pacing race is the same as a [7.10 Scratch Race](#), but each rider rides behind a motorcycle-mounted pacer.



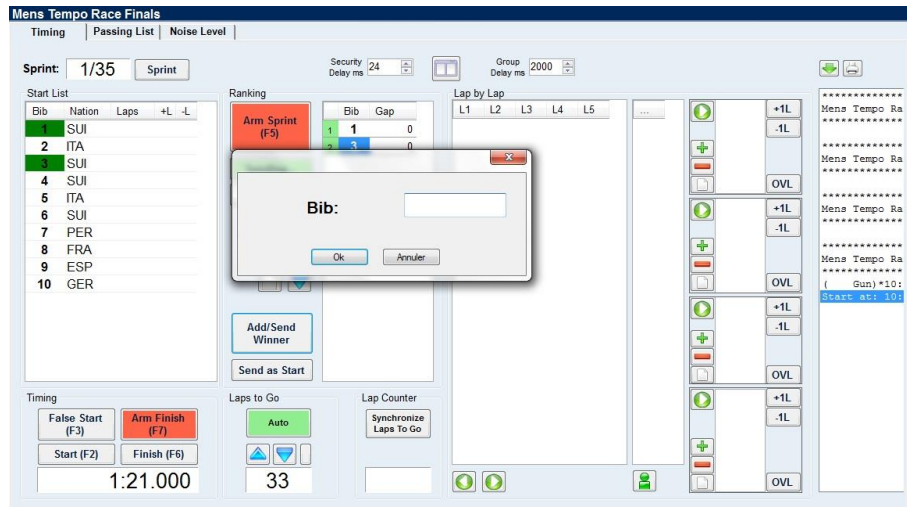
7.15 Flex Race

The Flex Race allows to specify where the start is, and where the intermediate and where the finish are.



7.16 Tempo Race

The Tempo Race is the same as [7.8 Points Race](#). Except that sprints are on each lap, and the 1st of each sprint only wins 1 point. Once the race has started, you can use the “Add/Send Winner” button to enter the bib number of the 1st of each lap. Once in the last lap, this box will disappear to let you arm Finish, and on the list you will see the order of the competitors on the finish line.



8 PROTOCOLS

8.1 Data Handling

8.1.1 Files [Startlist]

File will be used to define the start list.

By default the filename is STARTLIST.CSV but any filename is acceptable.

If sharing the start list with Scan'O'Vision then STARTLIST.CSV should be used.

Principles:

- The start lists are all introduced in one single file.
- The STARTLIST.CSV file can be edited in any text editor. It is nevertheless more practical to use an Excel file (STARTLIST.XLS) and to save it as STARTLIST.CSV at the end of editing, or to create it with third party software.
- We recommend this file (for Primary system) is contained in a local subdirectory of the software (the dialog of the Schedule Path permits pointing to a location on a network).
- If the names are not contained in the start list, it is possible to assign them using the menu "Start List".

Definitions:

The first line of the file is planned for the commentaries and is not used for the start lists, then the STARTLIST file can contain two line styles:

- If the first field of the line is not empty, it is the beginning of a new start list (line title). The following fields of the line define the title and the date of the race.
- If the first field of the line is empty, it is an entry for the start list (data line). This entry is for the race defined by the first line titles above.
- In a line, the fields are separate by the ";" character.

Line title:

In order, the fields for the title lines are:

- Identification or code of the race [minimum 1 character, maximum 8 characters]
See also [10.4 Race Codes](#).
- Date planned for the departure of the race [maximum 10 characters, recommended format: DD.MM.YYYY]
- Hour planned for the start of the race [maximum 8 characters, recommended format: hh:mm:ss]
- Five empty fields
- Length of the race in metres [numeric, maximum 6 numbers].
- First line of the title of the race [maximum 50 characters].
- Second line of the title of the race [maximum 50 characters]. **Not currently used**
- Name of the sponsor of the race [maximum 25 characters].
- Time of Record 1 [format hh:mm:ss.dc]. **Not currently used**
- Time of Record 2 [format hh:mm:ss.dc]. **Not currently used**
- Text for Record 1 [2 characters as WR, OR, NR]. **Not currently used**
- Text for Record 2 [2 characters as WR, OR, NR]. **Not currently used**
- Length and type of the race for scoreboard [maximum 11 characters]. **Not used**
- Title of the race for scoreboard [maximum 11 characters]. **Not used**
- Event number of the race for scoreboard [maximum 11 characters]. **Not used**
- Heat number of the race for scoreboard [maximum 11 characters]. **Not used**
- Unique race identification code (RSCcode), format DDSEEEPUU. *1
 - DD : Discipline
 - S : Sex (M, W, X) Fill with '0' if not applicable.
 - EEE: Event. Fill with '000' if not applicable.
 - P: Phase. Fill with '0' if not applicable.
 - UU: Event unit. Fill with '00' if not applicable.
- Time of Record 3 [format hh:mm:ss.dc]. **Not currently used**
- Text for Record 3 [2 characters as WR, OR, NR]. **Not currently used**

- Two empty field.

***1:** Not mandatory, only used in some competitions such as the Olympic Games.

Data line:

In the order, the fields for the lines dated are:

- 3 empty fields (of which the first to identify the data line).
- Lane or order number [number, 0 to 255].
- Bib number [0 to 999999].
- Last name [maximum 15 characters].
- First name [maximum 15 characters].
- Nation or club [maximum 25 characters].
- 15 empty field.
- Athlete TV name [maximum 50 characters]. ***2**
- Athlete Identification Code [maximum 50 characters]. ***3**

***2:** Maximum length in the startlist.csv file should correspond to Full Screen Template used.

***3:** Can be used for licence number, accreditation number...

Notes:

The indicated maximum lengths are those valued by Timing Manager. The file can contain longer fields but they will be truncated at the time of the import.

The data lines can optionally contain the first name, the last name and the competitor's nation. If these three fields are empty, the Timing Manager software will add the names automatically according to the Start List file.

Example of STARTLIST.CSV file:

Event Code;Date;Time;Lane/order;Bib No;Name;First Name;Nation;Length;Title 1;Title 2;Sponsor;Record 1; Record 2;Record Code 1;Record Code 2;SCB text length;SCB category;SCB event;SCB heat;RSC code;Record 3;Record Code 3;Athlete TV name

```
MS1001;25.05.2013;09:30;,,,,;Mens Sprint;16e Final Heat 1;TISSOT;,,,
,,,,158;PERVIS;Francois;FRA;,,,,,
,,,,209;KAWABATA;Tomoyuki;JPN;,,,,,
MS1002;25.05.2013;09:35;,,,,;Mens Sprint;16e Final Heat 2;TISSOT;,,,
,,,,179;FORSTEMANN;Robert;GER;,,,,,
,,,,164;CRAMPTON;Matthew;GBR;,,,,,
MKFR01;25.05.2013;10:30;,,,,;Mens Keirin;First Round Heat 1;TISSOT;,,,
,,,,156;LAFARGUE;Quentin;FRA;,,,,,
,,,,180;LEVY;Maximilian;GER;,,,,,
,,,,200;CECI;Francesco;ITA;,,,,,
,,,,217;NG ;Josiah;MAS;,,,,,
,,,,219;VERDUGO;Edgar Ismael;MEX;,,,,,
,,,,230;DAWKINS;Edward;NZL;,,,,,
,,,,243;DMITRIEV;Denis;RUS;,,,,,
WSCFI01;25.05.2013;11:00;,,,,;Womens Scratch Race;Final;TISSOT;,,,
,,,,15;OLABERRIA DORRONSORO;Leire;ESP;,,,,,
,,,,17;BERTHON;Laurie;FRA;,,,,,
,,,,23;DIAO;Xiao Juan;HKG;,,,,,
,,,,29;PAWLOWSKA;Katarzyna;POL;,,,,,
,,,,33;PAVLEDOVA;Alzbeta;SVK;,,,,,
,,,,36;HAMMER;Sarah;USA;,,,,,
,,,,47;MACHACOVA;Jarmila;CZE;,,,,,
,,,,52;KING;Dani;GBR;,,,,,
,,,,54;POHL;Stephanie;GER;,,,,,
,,,,57;RYAN;Caroline;IRL;,,,,,
,,,,59;BRONZINI;Giorgia;ITA;,,,,,
,,,,62;ARREOLA NAVARRO;Sofia;MEX;,,,,,
,,,,64;WILD;Kirsten;NED;,,,,,
,,,,99;HOSKINS;Melissa;AUS;,,,,,
,,,,107;INGHELBRECHT;Sarah;BEL;,,,,,
,,,,114;BARAZNA;Katsiaryna;BLR;,,,,,
,,,,259;ROMANYUTA;Evgeniya;RUS;,,,,,
,,,,276;KLIMCHENKO;Tetyana;UKR;,,,,,
MMFI01;25.05.2013;11:30;,,,,;Mens Madison;Final;TISSOT;,,,
,,1;;AUSTRALIA;;AUS;,,,,,
,,1;1;O'SHEA;Glenn;AUS;,,,,,
,,1;37;EDMONDSON;Alexander;AUS;,,,,,
,,2;;AUSTRIA;;AUT;,,,,,
,,2;39;GRAF;Andreas;AUT;,,,,,
,,2;102;MUELLER;Andreas;AUT;,,,,,
,,3;;BELGIUM;;BEL;,,,,,
,,3;40;DE KETELE;Kenny;BEL;,,,,,
,,3;106;VAN HOECKE;Gijs;BEL;,,,,,
,,4;;CZECH REPUBLIC;;CSZ;,,,,,
,,4;132;HACECKY;Vojtech;CSZ;,,,,,
,,4;133;HOCHMANN;Jiri;CSZ;,,,,,
,,5;;DENMARK;;DEN;,,,,,
,,5;48;MORKOV;Jesper;DEN;,,,,,
,,5;141;MOLLER;Mathias;DEN;,,,,,
,,6;;SPAIN;;ESP;,,,,,
,,6;148;MUNTANER JUANEDA;David;ESP;,,,,,
,,6;150;TORRES BARCELO;Albert;ESP;,,,,,
,,7;;France;;FRA;,,,,,
,,7;16;BRISSE;Vivien;FRA;,,,,,
,,7;155;KNEISKY;Morgan;FRA;,,,,,
,,8;;GREAT BRITAIN;;GBR;,,,,,
,,8;51;DOULL;Owain;GBR;,,,,,
,,8;170;YATES;Simon;GBR;,,,,,
,,9;;GERMANY;;GER;,,,,,
,,9;53;BOMMEL;Henning;GER;,,,,,
,,9;181;REINHARDT;Theo;GER;,,,,,
,,10;;HONG KONG;;HKG;,,,,,
```

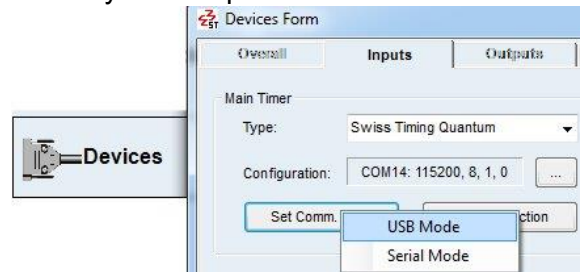
...10;22;KWOK;Ho Ting;HKG;.....
...10;190;CHEUNG;King Lok;HKG;.....
...11;ITALY;ITA;.....
...11;58;CICCONE;Angelo;ITA;.....
...11;199;BERTAZZO;Liam;ITA;.....
...12;MEXICO;MEX;.....
...12;218;INFANTE AGUIRRE;José Ramon;MEX;.....
...12;220;YEPEZ ARELLANO;Diego Jonathan;MEX;.....
...13;NETHERLANDS;NED;.....
...13;63;STROETINGA;Wim;NED;.....
...13;228;SCHEP;Peter;NED;.....
...14;RUSSIAN FEDERATION;RUS;.....
...14;244;KOVALEV;Evgeny;RUS;.....
...14;245;KOVALEV;Ivan;RUS;.....
...15;SWITZERLAND;SUI;.....
...15;263;DILLIER;Silvan;SUI;.....
...15;264;MARGUET;Tristan;SUI;.....
...16;UKRAINE;UKR;.....
...16;270;LUTSYSHYN;Roman;UKR;.....
...16;272;RADIONOV;Mykhaylo;UKR;.....
WPF101;25.05.2013;11:30;.....;Womens Points Race;Final;TISSOT;...
...38;ANKUDINOFF;Ashlee;AUS;.....
...41;KOPECKY;Lotte;BEL;.....
...43;DYLKO;Alena;BLR;.....
...44;GLAESSER;Jasmin;CAN;.....
...45;DOMINGUEZ MASAGUE;Yudelmis;CUB;.....
...47;MACHACOVA;Jarmila;CZE;.....
...52;KING;Dani;GBR;.....
...54;POHL;Stephanie;GER;.....
...55;WONG;Wan Yiu Jamie;HKG;.....
...57;RYAN;Caroline;IRL;.....
...59;BRONZINI;Giorgia;ITA;.....
...60;ISHII;Hiroko;JPN;.....
...62;ARREOLA NAVARRO;Sofia;MEX;.....
...64;WILD;Kirsten;NED;.....
...66;WOJTYRA;Malgorzata;POL;.....
...68;CHULKOVA;Anastasiya;RUS;.....
...71;KONONENKO;Valeriya;UKR;.....
MOFL_02;25.05.2013;12:02;.....;Mens Omnium Flying Lap;TISSOT;.....
...8;LIU;Hao;CHN;.....;Hao LIU
WSELI_01;25.05.2013;12:15;.....;Womens Elimination Race;Final;TISSOT;.....
...36;HAMMER;Sarah;USA;.....;Sarah HAMMER
...47;MACHACOVA;Jarmila;CZE;.....;Jarmila MACHACOVA
...52;KING;Dani;GBR;.....;Dani KING
...54;POHL;Stephanie;GER;.....;Stephanie POHL
...57;RYAN;Caroline;IRL;.....;Caroline RYAN
...59;BRONZINI;Giorgia;ITA;.....;Giorgia BRONZINI
...62;ARREOLA NAVARRO;Sofia;MEX;.....;Sofia ARREOLA NAVARRO
...64;WILD;Kirsten;NED;.....;Kristen WILD
...99;HOSKINS;Melissa;AUS;.....;Melissa HOSKINS

9 TROUBLESHOOTING

9.1 Connection to Quantum

Open device manager in windows, and expand the node 'Ports (COM & LPT)'
 With the Quantum switched on, when you insert the USB cable to your computer you should see four entries appear 'USB Serial Port (COMxx) where xx is normally four sequential numbers.

The lowest of these numbers will be the port that the Quantum will use to connect with the computer. This should match the entry in Devices – Inputs – Configuration: and the Set Comm. Type would normally be USB Mode.



If you do not see the four entries appear, use the USB troubleshooting feature of the setup program.

9.2 Configuration of COM number

When USB peripheral such as Quantum and INT217 is connected for the first time to a computer, some virtual COM ports are created. Their port number is defined by the computer and may vary depending on previously installed peripherals. Swiss Timing recommend to fix the port number of these device with default values; when the new device is connected, powered and discovered by the computer, run the Windows Device Manager to check them (Figure 1):

[Start] "Control Panel" [System and Security] [System Device Manager] double click on "Ports"

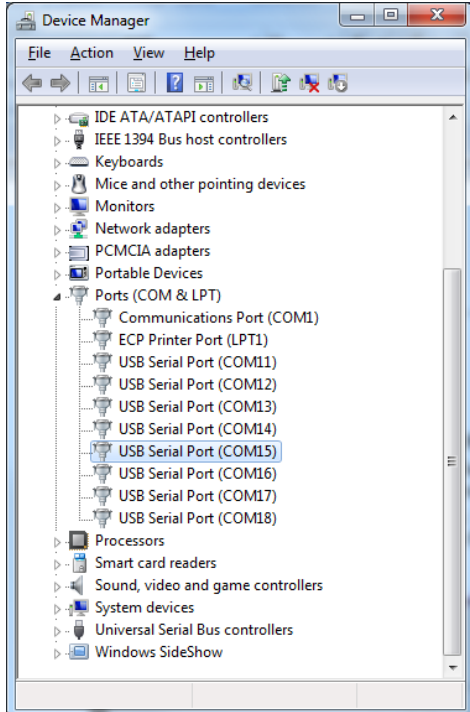


Figure 1

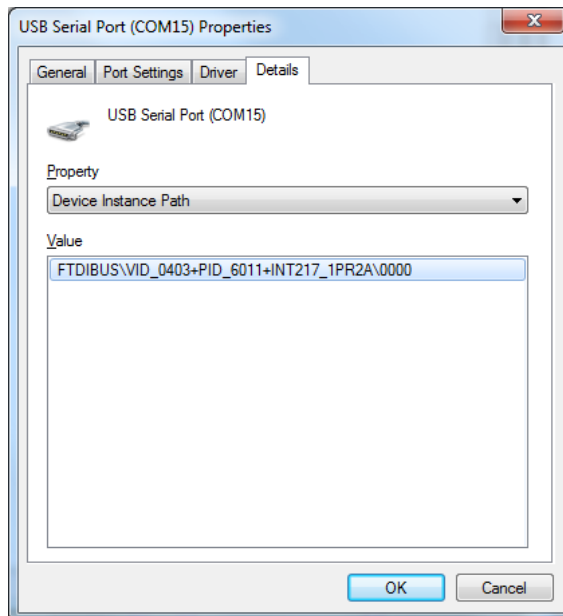


Figure 2

Open the Windows Device Manager and, for the eight INT217 COM ports or four QUANTUM COM ports:

- a) Do a right click and select "Properties".
- b) Select <Details> tab.
- c) Choose "Device Instance Path" (see [Figure 2](#)).
- d) Verify that ...INT217... or ...TIM021... (= Quantum) indicates in "Values" and notes the following characters ("1PR2A" in the above print screen).
- e) Select <Port Settings> tab.
- f) Click on [Advanced] button.
- g) Select the "COM Port Number" in relation to the characters noted in point [d](#)) and bellow table.
- h) Validate by clicking on the [OK] button.
- i) Close the window by clicking on the [OK] button.

Primary

INT217_1PR1A → COM 21
INT217_1PR1B → COM 22
INT217_1PR1C → COM 23
INT217_1PR1D → COM 24
INT217_1PR2A → COM 25
INT217_1PR2B → COM 26
INT217_1PR2C → COM 27
INT217_1PR2D → COM 28

TIM021_1PRA → COM 5
TIM021_1PRB → COM 6
TIM021_1PRC → COM 7
TIM021_1PRD → COM 8

Secondary

INT217_2SE1A → COM 21
INT217_2SE1B → COM 22
INT217_2SE1C → COM 23
INT217_2SE1D → COM 24
INT217_2SE2A → COM 25
INT217_2SE2B → COM 26
INT217_2SE2C → COM 27
INT217_2SE2D → COM 28

TIM021_2SEA → COM 5
TIM021_2SEB → COM 6
TIM021_2SEC → COM 7
TIM021_2SED → COM 8

10 APPENDIX

10.1 Abbreviations and symbols

Abbreviations	

Symbols	

Syntax for buttons, labels, menu items etc. in the applications	
Keys, Buttons and labels	[key], [OK], [Result]
Menu items	"Menu1" > "Menu2" > ...
Tabs	<Tab name>
Switches ("switch" box)	'Active'
Program and error messages	"Connection succeeded"
Files	test.bmp
Folder structure	Folder1 / Folder2 / ...

10.2 Index of tables and figures

Figure 1	29
Figure 2	29

10.3 Version history

Version	Date	Modifications since last version
1.0	12/06/13	Initial version
1.1	21/11/13	Draft version
1.2	05/03/15	Final version
1.3	29/07/15	Added option for Madison + Motor Pacing updates
1.4	30/09/15	Added code MT Motor Pacing Team
1.5	16/03/17	Added code TR Tempo Race
1.6	23/11/18	Example of Startlist updated

10.4 Race Codes

Composition of the code: GTPH

G = Genre

T = Type of Event

P = Phase

H = Heat

Genre :

X = Mixed

M = Men

J = Men Juniors

U = Men Under23

W = Women

Y = Women Juniors

V = Women Under23

Type :

S = Sprint

FL = Flying Lap

TT = Time Trial (Klm ou 500m)

IP = Individual Pursuit

TP = Team Pursuit

TS = Team Sprint

K = Keirin

SC = Scratch Race

ER = Elimination Race

P = Points Race

M = Madison

O = Omnium

FR = Flex Race

MP = Motor Pacing

MT = Motor Pacing Team

TR = Tempo Race

Phase :

Qualifying Sprint, Flying Lap, Time Trial, Pursuit, Team Pursuit, Team Sprint:

QU = Qualifying

Sprint:

FI = Finals

2F = 1/2 Finals

5F = Race for 5-8 Place

4F = 1/4 Finals

8F = 1/8 Finals

FB = Finals B

2B = 1/2 Finals B

4B = 1/4 Finals B

6 = 1/8 Finals Repechages

9 = 1/16 Finals Repechages

10 = 1/16 Finals Repechages

Pursuit, Team Pursuit, Team Sprint:

FI = Finals
2F = 1/2 Finals
4F = 1/4 Finals

Keirin:

FI = Finals
SR = Second Round
FRRE = First Round Repechages
FR = First Round

Scratch, Elimination Race:

FI = Finals
QU = Qualifying

Points Race, Madison:

FI = Finals
Q1 = Qualifying Heat 1
Q2 = Qualifying Heat 2
Q3 = Qualifying Heat 3

Omnium:

FL = Flying Lap
P = Points Race
ER = Elimination Race
IP = Individual Pursuit
SC = Scratch Race
TT = Time Trial (Klm or 500m)

Heat :

xx = Heat Number

Sprint:

xxRy = Heat Number + R + Run Number (1/4, 1/2 and Finals)

Points Race, Madison:

Sxx = Number of the Sprint
SFI = Final Sprint

10.5 CT Templates Scoreboard

Scoreboard: 10x32

Protocol :

Running Time / Net Time:

```
[SOH] [DC3]R→F+[STX] [DLE]XXXXhh:mm:ss.d→→[EOT]
[SOH] [DC3]N→F+[STX] [DLE]XXXXhh:mm:ss.dcm[EOT]
XXXX = 0000 pour race Time ou Rider A Time
XXXX = 0006 pour Rider B Time
```

Count-Down:

```
[SOH] [DC3]R→F! [STX] [DLE]XXXXhh:mm:ss.d→→[EOT]
XXXX = 0016
```

Clear Running Time/Count -Down:

```
[SOH] [STX] [DLE]XXXX[ERL] [EOT]
XXXX = 0000 pour race Time ou Rider A Time
XXXX = 0006 pour Rider B Time
XXXX = 0016 pour Count-Down
```

Data :

```
[SOH] [DC3]D→[STX] [DLE]«xx»«yy»«nCharacters»[EOT]
xx = colonne yy = ligne
```

Clear Data :

```
[SOH] [DC3]D→[STX] [DLE]«xx»«yy»[ERL] [EOT]
xx = colonne yy = ligne
```

```
0000 = Titre ligne 1
0001 = Titre ligne 2
0002 = Titre ligne 3
0003 = Free Text
etc...
```

```
0011 = Rank Rider A
0111 = Bib Rider A
0211 = Name Rider A
0311 = NOC Rider A
0411 = Gap Rider A
0511 = Average Rider A
0711 = Average mph Rider A
```

```
0012 = Rank Rider B
0112 = Bib Rider B
0212 = Name Rider B
0312 = NOC Rider B
0412 = Gap Rider B
0512 = Average Rider B
0712 = Average mph Rider B
```

```
0013 = Distance Best Time
0113 = Bib Best Time
0213 = Name Best Time
0313 = NOC Best Time
0413 = Time Best Time
```

0021 = Rank 1.Ranking
 0121 = Bib 1.Ranking
 0221 = Name 1.Ranking
 0321 = NOC 1.Ranking
 0421 = Time/Points 1.Ranking
 0521 = Laps 1.Ranking

0022 = Rank 2.Ranking
 etc...

0031 = Laps To Go
 0032 = Current Distance
 0033 = Average Race
 0133 = Average mph Race

Sprint Qualifying / Flying Lap

Frame : 0

```

-----
< MEN'S SPRINT >
< QUALIFYING (200M) >
-----
                FINISH
2. 39 GANE L.      FRA  10.299    0032
                +0.033    0011 / 0111 / 0211 / 0311 / RT0000
                AVG: 60.123KM/H 0411
                                0511

1. NOTHSTEIN M.  USA  10.166    0021 / 0221 / 0321 / 0421
-----
    
```

Sprint Finals

Frame : 1

```

-----
< MEN'S SPRINT >
< 1/8 FINALS >
< HEAT 2 OF 6 >
-----
1. 39 GANE LAURENT FRA  0021 / 0121 / 0221 / 0321
2. 111 EADIE SEAN  AUS  0022 / 0122 / 0222 / 0322
3. 38 VILLANUAVE JOSE ESP  0023 / 0123 / 0223 / 0323
4. 39 VAN EIJDEN JAN NED  0024 / 0124 / 0224 / 0324

LAPS TO GO: 1      10.222    0031 / RT0000
-----
    
```

Time Trial

Frame : 2

```

-----
< MEN'S 1KM TIME TRIAL >
-----
1.174 BURKE S.      GBR  58.722    0021 / 0121 / 0221 / 0321 / 0421
2. 78 KWOK H.      HKG  59.382    0022 / 0122 / 0222 / 0322 / 0422
3.265 KUCZYNSKI K. POL  1:00.463  0023 / 0123 / 0223 / 0323 / 0423
                50      CD0016
1000m BURKE S.      GBR  58.722    0013 / 0213 / 0313 / 0413
2. 78 KWOK H.      HKG  59.382    0011 / 0111 / 0211 / 0311 / RT0000
AVG: 60.624KM/H    +0.660    0511 / 0411
-----
    
```

Individual Pursuit

Frame : 3

< MEN'S INDIVIDUAL PURSUIT >
 < QUALIFYING >
 < HEAT 2 OF 8 >

xyyy
 0000
 0001
 0002

50
 FINISH
 1. 4 ZIJLAARD L. NED 3:30.816
 AVG: 51.230KM/H
 4. 6 ULMER S. NZL 3:36.816
 AVG: 49.123KM/H

CD0016
 0032
 0011 / 0111 / 0211 / 0311 / RT0000
 0511
 0012 / 0112 / 0212 / 0312 / RT0006
 0512

Team Pursuit Qualifying

Frame : 4

< MEN'S TEAM PURSUIT >
 < QUALIFYING >
 < HEAT 2 OF 8 >

xyyy
 0000
 0001
 0002

50
 4000m AUSTRALIA 3:25.816
 1. GREAT BRITAIN 3:30.816
 AVG: 51.230KM/H +5.660

CD0016
 0013 / 0213 / 0413
 0011 / 0211 / RT0000
 0511 / 0411

Team Pursuit Finals / Team Sprint

Frame : 5

< MEN'S TEAM PURSUIT >
 < FINALS >
 < HEAT 2 OF 8 >

xyyy
 0000
 0001
 0002

50
 FINISH
 1. FRANCE 4:05.224
 AVG: 51.230KM/H
 2. NEW ZEALAND 4:05.224
 AVG: 49.123KM/H

CD0016
 0032
 0011 / 0211 / RT0000
 0511
 0012 / 0212 / RT0006
 0512

Keirin

Frame : 6

< MEN'S KEIRIN >
 < FIRST ROUND REPECHAGES >
 < HEAT 2 OF 2 >

xyyy
 0000
 0001
 0002

1. 70 VASILOPOULOS L. GRE
 2. 83 KAMIYAMA Y. JPN
 3. 85 OTA S. JPN
 4. 91 KIKSIS A. LAT
 REL 120 JERABEK J. SVK
 DNF 124 CABRERO D. ESP
 LAPS TO GO: 8 10.222

0021 / 0121 / 0221 / 0321
 0022 / 0122 / 0222 / 0322
 0023 / 0123 / 0223 / 0323
 0024 / 0124 / 0224 / 0324
 0025 / 0125 / 0225 / 0325
 0026 / 0125 / 0226 / 0326
 0031 / RT0000

Scratch Race / Points Race / Motor Pacing / Tempo Race

Frame : 7

```

-----
< MEN'S SCRATCH RACE >          xxyy
<   FINALS >                    0000
<   HEAT 1 OF 2 >                0001
                                0002

1. 70 VASILOPOULOS L. GRE 20    0021 / 0121 / 0221 / 0321 / 0421
2. 83 KAMIYAMA Y.L. GPN 10     0022 / 0122 / 0222 / 0322 / 0422
3. 85 OTA S. JPN 8             0023 / 0123 / 0223 / 0323 / 0423
4. 91 KIKSIS A. LAT 5          0024 / 0124 / 0224 / 0324 / 0424
5.120 JERABEK J. ESP 2         0025 / 0125 / 0225 / 0325 / 0425
LAPS TO GO: 15 11:25          0031 (ou 0033) / RT0000
-----
    
```

Madison

Frame : 8

```

-----
< MEN'S MADISON >              xxyy
<   FINALS >                    0000
<STANDINGS AFTER SPRINT 1 OF 12> 0001
                                0002

1. FRANCE 20 0021 / 0221 / 0421 / 0521
2. ARGENTINA 10 -1 0022 / 0222 / 0422 / 0522
3. AUSTRIA 8 -1 0023 / 0223 / 0423 / 0523
4. SPAIN 5 -1 0024 / 0224 / 0424 / 0524
5. RUSSIA 2 -1 0025 / 0225 / 0425 / 0525
LAPS TO GO: 15 11:25          0031 (ou 0033) / RT0000
-----
    
```

Elimination Race

Frame : 9

```

-----
< MEN'S ELIMINATION RACE >    xxyy
<   FINAL >                    0000
<   RIDER ELIMINATED >        0001
                                0002
    
```

999

0111

BELLUTTI ANTONIO ITA

0211 / 0311

Hour Record

Frame : 10

```

-----
< HOUR RECORD >                xxyy
<   Free text >                 0000
                                0001

BELLUTTI ANTONIO HKG          0211 / 0311
50                             CD0016
Time: 0:49:25                 RT0000
Laps: 125                     0811
Distance: 31250M              0911 / 1011 (miles)
Average: 38.125KM/H           0511 / 0711 (mph)
Lap Time: 30.266              1111
    
```

Reference:	0:58:00	0413
Gap:	+1:25	0411

NOTES

