HL 640 "ChronoSplit"
Operations Guide

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Basic Principles

The TAG Heuer HL 640 "ChronoSplit" is a revolutionary personal "wireless" timing system primarily designed for sports training and some racing conditions.

The small ChronoSplit "TIMER" is carried by each athlete and acts as the time base (the ChronoSplit timer itself). Radio transmitters at the start, split and finish positions (attached to traditional timing sensors) send wireless impulses to start, split and stop each watch as the athlete progresses on course.

The relatively short radio transmission distance (from the sensor point transmitter to where the athlete is on course carrying the timer) results in greater reliability of the RF wireless signal.

Unlike traditional wireless systems where the radio transmissions must attempt to reach the length of the racecourse, this ChronoSplit method reverses the technical challenge and makes the wireless process much less prone to RF failure. Adding as many intermediate points as you like, there are in fact no theoretical limits to course length or the number of "splits" that any one training session can accommodate. RF signals now travel no further in any case than the distance of where the sensor transmitter is to where the athlete is on course at that moment (normally less than 10-20 meters at speed).

Carrying each timer on each athlete also reduces the burden on the coach. Coaches set up the racecourse and add the start (start gate) intermediate and finish (photocells) with ChronoSplit transmitters at each point. That's it. Timing is then completely automated and now there is no central timer to set up and operate.

Each athlete simply sets the ChronoSplit they carry to "auto/split" (or auto lap in some cases) mode and then goes racing. At the end of each run, times can be read off the watch on the LCD display and transmitted to coaches simply and effectively by radio or some other verbal means.

There is also a recall feature of all stored times and the ability to download all stored data to a PC with the simple RF/USB interface that loads data into an excel spreadsheet for further analysis.

Individual imbedded serial numbers and adjustable "ID" numbers on each ChronoSplit timer allow teams to track each timer and to adjust use based on an individual or a group of athletes. Data transmission to a PC includes the timer's serial number and the user adjustable ID to make analysis simple and consistent. Time of day and date of the training session are also transmitted so that training sessions and run numbers are easily identified.

Four separate "team" channels can be set between the ChronoSplit timers and the transmitters allowing four different training sessions to operate in close proximity without mutual interference.

The ChronoSplit system also allows teams and clubs to simply and effectively share the cost of the timing system. Many clubs opt to have each athlete buy and own their ChronoSplit (about $265 each – a minimal investment valid over many years). Clubs then just buy the equipment needed for the hill or track. The cost of the hill or track equipment varies, depending on what the program already owns for timing equipment. For instance, if the program already owns start gates and photocells (ex. by TAG Heuer or ALGE), then the investment would be only for the radio transmitters. As an example a starter package that includes everything you need for ski training and do elapsed timing (start and finish) is available through your TAG Heuer agent. The

kit includes six ChronoSplit timers as well. Additional timers can be purchased either by the program or individual members.

If needs grow you just add more individually-owned stopwatches or club-owned transmitters to the system. There are no theoretical limits. Athletes who leave the program can sell their ChronoSplit watches back into the teams, and take them to the next program that may use ChronoSplit. If ChronoSplit owners travel to other locations, they can also join in training sessions on other ChronoSplit Transmitter-equipped course or share resources with other teams for adding split times with no worries about compatibility or functionality.

A completely new way to resolve the always difficult constraints of common wireless systems, the TAG Heuer ChronoSplit personal timer is the reliable and cost effective new wave in wireless timing for training.

How to Use the ChronoSplit System

ChronoSplit (personal timer)

On (Off & Reset)
If the ChronoSplit stopwatch is off (LCD display blank), activate START/STOP and SPLIT/LAP simultaneously, then push SET and keep all of them held for 2 – 3 seconds to turn ON.

Use the same method to turn OFF (if not to be used for long periods). Note that doing so will wipe the Time-of-day and date, so only turn them off if you don't plan to use them for a few months.

If any abnormal operation is encountered, perform a reset of the ChronoSplit in the same way (turn off/on).

If the ChronoSplit will not respond to any button use, open the ChronoSplit with the special screwdriver provided and remove and reinsert the AAA battery.

ATTENTION. Make certain you have a real problem with the ChronoSplit before opening the case.

Navigating on the ChronoSplit
Access to the different timing and operating modes is provided by using the MODE button in combination with the SPLIT/LAP button. The mode you are in is displayed in the left column of the LCD display of the ChronoSplit.

First, activate (Hold down) the MODE button and THEN simultaneously use the SPLIT/LAP button to scroll through the 10 timing/operation mode options in order of appearance:

Time
Date
Auto Split
Auto Lap
Man Split
Man Lap
Rec

ID
Team
PC

Setting Operating Parameters

All operating parameters (Time-of-Day set, date, etc.) must be reintroduced when a reset is performed or on initial start up. It is strongly suggested to carefully set all watches to the correct time-of-day and date and to set the ID number to a value that makes sense to your system of tracking the watch or the athlete using it.

IT IS IMPERATIVE that the CORRECT TEAM NUMBER is set on both the ChronoSplit timers being used and corresponding to the Transmitters placed on course with the sensors.

TIME

Displays the Time of Day stored and running in the watch. To adjust and set, press the SET button until the Hours segment starts to flash. Adjust the hours with START/STOP (+) or SPLIT/LAP (-). Press SET to confirm the selection and proceed to the same functions for minutes and seconds. At the exact moment of correct synchronization, press SET again when you are in the seconds adjust location.

DATE

Same as for TIME above but affects date setting. Confirm with SET.

AUTO SPLIT

The "Auto" denotes **Automatic**. This is the **Radio-Timing** mode and in particular this is Radio Timing Mode with **SPLIT** functions (There is another similar version with LAP functions). This **Auto Split** mode allows the watch to be driven by remote **radio signals** from the transmitters HL 640 - 1 attached to your timing sensors at each timing point (photocells, start gate, etc..)

AUTO LAP

Just like Auto Split above, this selects an **Automatic Radio-Timing** Mode with **LAP** functions. This mode is also driven by remote **radio signals** from the transmitters HL 640 - 1 attached to your timing sensors at each timing point (photocells, start gate, etc...)

(Note: intermediate times in lap mode are not shown on the LCD display but they are memorized for download and review later).

MAN SPLIT

A non-radio Manual stopwatch timing mode in **SPLIT** that takes all timing signals from the ChronoSplit buttons on the watch itself. Use the START button to begin timing, SPLIT button to effect Intermediate times, and STOP to finish. RESTART using START. After a STOP, use (hold down simultaneously) SPLIT to reset the ChronoSplit to zero and begin a new timing session.

MAN LAP

A non-radio Manual stopwatch timing mode in **LAP** that takes all timing signals from the ChronoSplit buttons on the watch itself. Use START to begin timing, LAP to effect lap timing, STOP to finish. After a STOP, use LAP to reset the ChronoSplit to zero and begin a new session.

REC AUTO S P L I T   REC MAN S P L I T

Recalls data on the ChronoSplit for viewing any of the recorded timing sessions directly in the LCD display of the stopwatch. Data is displayed in FIFO (First-in, First Out) memory recall. The memory can hold 1000 times and will be overwritten when used up. Use START/STOP to recall most recent session times. Use SPLIT/LAP to move to other timing sessions in the memory. The

best timing session encountered in the memory of all sessions will feature a "BEST" in the LCD display.

To erase the memory activate SET and then simultaneously START/STOP
(the LCD display will indicate REC -- -- -- --).

REC AUTO L A P   **REC** MAN L A P
Recalls data on the ChronoSplit for viewing any or the recorded LAP timing sessions. FIFO (First-in, First Out) memory recall. Use START/STOP to recall most recent session times. Use LAP to move to other timing sessions in memory. The best lap of each timing session encountered in the memory or all sessions will 3 feature a "BEST" in the LCD display.

To erase the memory activate SET and then simultaneously START/STOP
(the LCD display will indicate REC -- -- -- --).

ID
This is a user-adjustable IDentification number that can be assigned to each ChronoSplit (the default is "0001"). This can be any number from "0001" to "9999" and can refer to anything that suits your usage (such as the bib number of the racer being timed or some other ID number or reference) This user-adjustable ID may allow you to track data from each ChronoSplit using separate ID numbers and/or discern between different data sets from multiple ChronoSplits within a group of athletes. (Note that the individual serial number (different from the ID number) of each watch is sent on the RF data transmission to PC and in all cases this serial number is NOT user adjustable). Whatever you decide, use an ID number system for each watch that is relevant to how you want to track the watch itself or the athlete referenced to its use. Many users simply duplicate the serial number of the watch in the ID number or leave it at "0001" for example.

To input/adjust ID number; activate SET until the leftmost digit begins to flash. Input the new number with START/STOP (+) or SPLIT/LAP (-). Press SET to confirm selection and proceed to the other numbers as required. This ID number accompanies data downloaded to PC for easy identification of different data sets.

TEAM
Up to 4 different teams can use these systems within the same immediate area by setting each group of ChronoSplit to one of four different team groups. If this was not definable then training in the same area by groups of teams on different courses would prove problematic. This "team" adjustability could also be set for different courses within the same training space or just used to block out the effects of another visiting or group that's nearby. In all cases it is ESSENTIAL that the HL 640 – 1 transmitters **also** be set to the same "team" group number as the ChronoSplit(s) watches associated with those specific timing points. Activate SET to enter the change Team number function. Use START/STOP (+) or SPLIT/LAP (-) to select and confirm with SET.

PC
This allows for memory download of all stored timing session data to a PC using the appropriate RF (radio Frequency) interface and a USB port on the PC. The "RF to USB interface" unit receives data by wireless link to each ChronoSplit stopwatch and converts it into a USB signal that enters your PC. The resulting data is stored in a simple excel file which you can use and manipulate as you wish. The RF connection is established when you place a ChronoSplit watch within about 2 meters (about 2 yards) of the USB interface unit connected to your PC. You can also control this process manually from the stopwatch itself. It takes about 10 seconds to download 50 stored times. See the complete section on the RF to USB interface kit further in this manual.

Operating Notes, Remarks, Tips

Radio Frequency Techniques
This is a Radio Frequency (RF) system and despite the many advantages of the short-distance transmission concept it is still very important remember and to work within the basic principals of RF transmission for optimal success.

Keep in mind that unlike traditional wireless systems, the basic principal of the ChronoSplit wireless concept is to develop a much better **limited distance** connection to the time-base carried/worn by each athlete while on course. Each set-up may be different, but in general the wireless link to the watch does not need to exceed 20 meters (just enough to establish the short-distance link from where the transmitter is at the timing point to where the athlete is at the timing point at speed).

Best transmission distances (do not expect to exceed 30 meters) from the transmitters at the sensors to each athlete carrying/wearing the timer is achieved in a traditional manner by placing the transmitters and the antennas vertically and as high off the ground as practical and possible. Try to mount them at least 1 meter above any surface. A range of 30 meters or so is the best one can hope for with this unit, and in fact we don't want to see anything much over this as such performance defeats the whole purpose of this "transmitter to watch-on-course" concept. Remember, this is NOT a classic wireless system and we're not trying to send radio signals very far.

The start transmitters will normally only need to transmit a very short distance (athletes are normally very close - within a meter or so - and only just moving slowly if at all). You may in fact want to limit (attenuate) the transmission distance at the start (to focus only on the immediate athlete in the start position). To do so, lower the transmitter dedicated to the start closer to the ground or move them out of the vertical position. Never operate transmitters without the provided TAG Heuer Antenna specially made for the 640-1 TX unit.

Multiple Starts
As athletes gather at the start it is normal for ALL ChronoSplit timers in range to trigger from any and all start signals. The timers do not actually produce a running time or calculate splits or finishes unless they get a start (channel 1 from a Transmitter on the correct "team") and then subsequently another channel trigger (2, 3 or 4). What is important is that the last valid start is used before the watch in question goes on course and leaves the immediate range of the start transmitter set to channel 1.

Battery Save Mode
In AUTO SPLIT mode, each radio signal received from the transmitter programmed on CHANNEL 1 (START) briefly flashes 4 dashed (- - - -) on the LCD display (control of radio signal reception) of ChronoSplits in range. If the ChronoSplit does not receive any transmitted signals for more than 1 hour it will automatically enter TIME mode to conserve battery power.

Maximum Time Allowed
The maximum elapsed time recordable in any one timing session (run) is 15h 59'59"999.

Quickly Seeing Your Times
There is a rapid access feature to be able to quickly see the times from the last timing session. When in Auto Split or Auto Lap, activate MODE and press START/STOP. This takes you quickly to the **REC** "recall" screen where all times from the last recorded session are now visible. This technique can also momentarily block all incoming radio timing signals in AUTO SPLIT or AUTO LAP while you review the last timing session data on the LCD screen. This feature is particularly useful as athletes gather again at the start after their last timed run. ATTENTION: remember to return to AUTO SPLIT or AUTO LAP mode prior to the next timed run.

Time Between Impulses

A transmitter can't transmit timing impulses closer than 270ms together (That's about 3/10ths of a second) If you intend to take speed measurement splits or to do acceleration drills it means that the distance between 2 successive photocells (sensors) must be a minimum of 10 meters apart at speed of 100km/h).

USING THE HL 640-1 TRANSMITTER

Each 640-1 transmitter (TX) is a stand-alone impulse radio that is placed at each timing point with an associated timing sensor attached.

A minimum system for split timing would include 2 units; one at the start, one at the finish. Each TX must have some kind of timing sensor (a start gate, photocell, tape switch, manual button, or acoustic transducer) that uses normally-open working contacts to drive the impulse to a timing system. You will find that most existing sensors even from competing manufacturers will work with these radio units. Banana jacks on the bottom of the transmitters accept the simple connection necessary from the timing sensor associated with it.

- A transmitter **set as Channel 1 must be used at the START**.

- A transmitter **set as Channel 4 must be used at the FINISH.**

- Transmitters set as Channel 2 or 3 are used as INTERMEDIATE split times (use as many as you like).

A new timing session (or "run") is triggered automatically on a ChronoSplit timer that receives a Channel 1 START signal sent from a transmitter. All timing sessions (runs) must end with a Channel 4 FINISH. Anything that happens on channels 2 or 3 between valid 1 and 4 impulses on any timer is treated as an intermediate time split. All time data is saved to the ChronoSplit memory. Lap functions may differ.

Checking and/or Setting Transmitter Functions
Each transmitter has LED lamps and function buttons to assist in checking or for setting function modes. They include:

BATT (Battery Level Check)
TEST (A manual quick-test button that sends an impulse for testing or actual manual timing)
TEAM (Shows or adjusts the Team setting)
CHANNEL (Shows or adjusts the Channel setting)

A **SET button** is used in conjunction with the other buttons to change features of the Team and Channel functions. Activate and hold this SET button while activating the team or channel buttons. The LED's will indicate the selection (1 through 4).

Set Correct Channel
Each transmitter must be set and placed correctly on the race-course based on the function it plays in the timing session you plan. Channels behave differently based on the selected mode of the ChronoSplit timers as described below.

In AUTO SPLIT
CHANNEL 1 must be used for the START. This causes the ChronoSplits set in Auto Split mode to start from zero. Only the last received start signal is used by the ChronoSplit for valid timing. When a valid START impulse is received on channel 1 the ChronoSplit will display (-- -- -- --) briefly to confirm receipt and to show it is properly triggered by a start signal. There will not be a running time shown on the LCD.

CHANNEL 2 and 3 both have the same function and serve as **intermediate time point(s)**. This feature provides **unlimited** intermediate time functions in a sequential numbering system with BEST time indication for the session held in memory for display or download. Cooler than cool.

CHANNEL 4 must be used for the FINISH of each timing run (session) In AUTO SPLIT mode the receipt of this channel 4 signal ends the timing session (run) and stops all other timing functions until another valid START signal (channel 1) is received. If a timing session does not end with a channel 4 impulse the ChronoSplit will automatically create a new timing session when a new start is received (Such as in the case of a did-not-finish).

In Mode AUTO LAP
CHANNEL 1 is used as the START on the initial LAP **plus** it is used to signal the end of each successive lap with sequential numbering of each lap recorded on the LCD display. BEST lap of each session is also indicated on the display.

CHANNEL 2 For the 1_{st} intermediate time within a LAP (times are memorized but not visible on the LCD display)

CHANNEL 3 For the 2_{nd} intermediate time within a lap (inter 1 / inter 2)

CHANNEL 4 For the 3_{rd} intermediate time within a lap (inter 3 / inter 4)
A 4_{th} intermediate is also calculated (inter 3 / finish)

TEAM
4 choices of TEAM designation are possible so that up to 4 different sets of timing equipment may be used by 4 different teams within the same radio reception area without interference. TEAM number on transmitters **must match** TEAM number on the ChronoSplit(s) being used.

BEEP
An acoustic confirmation tone ("beep") is emitted with each valid transmission or TEST from the transmitters.

TEST
A TEST button to send and simulate TEST radio signals without triggering by an external sensor on the inputs, or for manual use at the timing point without a sensor (photocell etc.) is provided.

BATT
A BATT button provides insight into the battery condition of each transmitter. Press and release while looking at the four green LEDs. Full battery shows all 4 LED's but you'll want to see at least 3 LED's fire up if you plan to operate in temperatures lower than -5C. Much depends on your expected operating temperature. Since the overall concept of this wireless system requires reduced power (only 4mw), any battery indication will get you through the day. A transmitter battery will last 2 to 3 years and is easily replaced. There is no on or off switch since current draw only occurs when a signal is actually sent.

Antennas
You will kill a transmitter pretty quickly if you operate it without an antenna or with the wrong antenna load. Like all radio systems, the transmitters must be installed in a vertical position with the antenna clear of any obstruction or mounting device for best coverage. Optimally install transmitters at least 1 meter above the ground or as high as possible. For start or intermediate locations that are close to the start position you can restrict transmission distance by placing the transmitters closer to the ground (20-30cm) or by moving the transmitter installation out of the vertical plane. This technique should be tested prior to timing and will depend on the terrain

profile in the timing area between timing points. Use the test button and a ChronoSplit timer in auto mode to check transmission range.

TROUBLESHOOTING

Getting nothing?
- Team Number on all TX units and Timers must be the same
- Timers must be in either **Auto Split** or **Auto Lap** mode to receive radio timing signals. The radio timing does not work in MAN (Manual), TIME or any other mode than Auto Split or Auto Lap.
- Antennas installed on the TX units?

Still Nothing?
- TX set to Channel 1 must be at the START
- TX set to Channel 4 must be used at the FINISH
- Check Transmitter Battery
- Make sure the Timers are actually on. Honestly, it happens.

Other Hints:
- Set correct Time-of-Day and Date in each ChronoSplit Timer
- Set Correct ID number
- Erase REC memory before each training session
- Test RF distance to each stopwatch for proper operation BEFORE a timing session by using the TEST buttons on the Transmitters. Increase transmit distance by making sure the transmitters are installed vertically with the antenna fully in the clear. The higher the transmitter is placed the further the signals will go. Attenuate (reduce) transmit distance by placing transmitters lower to the ground or moving the Transmitters out of the vertical position (often the case at the start).
- Never operate any transmitter without the correct antenna provided by TAG Heuer.
- It is normal and correct for all watches within range of any start transmitter to trigger after a valid start is received. Note that only THE LAST START (from transmitter channel 1) will be used in timing calculations relative to any splits and the finish.
- A DNF (Did-not-Finish) condition is automatically handled by the acceptance of another valid start on the next run.

3. TECHNICAL SPECIFICATIONS

ChronoSplit HL 640 Personal Timer
- Memory for 1000 times at $1,1000_{th}$ sec.. Display resolution to 1/100ths sec. Up to 99 Sessions in Memory
- Quartz Time Base Precision: +/- 5 ppm
- Overall net time system precision better than +/- 0,5 msec.
- Internal Battery 1 x "AAA" 1200mAh
- Battery Power Consumption in Auto Split / Auto Lap modes : 2 mA
- Battery Power consumption in Standby mode : 20 μA
- Autonomy: about 100 days at 5 hours of timing per day.
- Operating temperature range : -15°C à + 60°C
- Low Temperature "LCD" display
- Battery state indicator
- Radio Impulse Indicator
- Download data Interface Indicator
- Choice of 4 different "Team" designations
- Adjustable Individual ID number
- Hard-Coded Serial Number in data transmission
- Sealed ABS red case

- Physical Dimensions : 90 x 60 x 19mm
- Weight: 87 grams

Transmitter HL 640-1
- 1 input for timing sensor connection via banana plugs. Normally open working contact.
- 4 programmable channel functions : (start / intermediate(s) / finish)
- Choice of up to 4 different "Team" designations
- Battery State Test (BATT)
- Radio Transmission Test (TEST)
- Operating Frequency: ISM band, 868,992 MHz
- Transmitter power 4 mW, Antenna 1/4 wave. Imp. 50 Ohms
- Range : Up to 30 to 50m (better than 15m at 130 km/h)
- Internal Lithium Battery (flat-type – user changeable)
- Battery autonomy of about 3 years
- Water resistant Aluminum enclosure
- Dimensions : 150 x 82 x 32mm
- Weight: 380 grams

Radio (RF) to USB Interface HL 640-2
- Connection to PC's USB port (Windows 98 / NT / 2000 / XP)
- RF timing data transmission frequency: 868.992MHz
- Range : about 3 meters
- Optional HL 640-3 connection for Pocket PC
- Data Transmission Software provided by TAG Heuer

HL 640-2 USB INTERFACE

Timing data is memorized in all ChronoSplit timers and can be transmitted to a PC for further processing. The data download link for each watch is likewise wireless. This is facilitated through the use of a special Radio Frequency (RF) to USB (Universal Serial Bus) interface unit. Once correctly installed and running on your PC, simply placing a watch within proximity (up to 2 meters) of the RF/USB interface will cause the watch to download to a simple excel file for processing.

The Software is very simple and the resulting excel file is intended to be a simple way for you to start building your own analysis tools in this ubiquitous format. Check our on-line "help forums" often to see how other clients may have adapted to similar needs and to share calculation methods.

We apologise in advance for any linguistic shortcomings of the TAG Heuer software functions which were authored in French and translated to English. This however has no bearing of the functional excellence and stability of the actual application.

DRIVER SETUP

In order to download the ChronoSplit data on your PC, you have to **install the plug & play interface drivers** and the download software on initial use with each separate PC you intend to work with. "Follow the different steps described below CRAREFULLY" Get this right and you'll be able to analyze all the timing data you collected during your training session very efficiently on a PC.

DRIVER SETUP

In order to download the ChronoSplit data on your PC, you have to **install the plug & play interface drivers** and the download software.

1. Plug the USB Interface in a USB port of your computer

The very smart people at Microsoft Corporation came up with the standard Windows plug & play wizard. This assures them of a constant flow of income from confused clients locked in a never-ending circle of non-functional "help" screens that link back to an on-line payment website. This convoluted Windows installation wizard is twinned with an almost impossible-to-understand USB installation application that will detect the presence of the new unknown device (in this case the RF/USB interface) and will ask for the setup of the appropriate drivers. Remarkably (and I'm not kidding) it will take 4 separate driver installations to make this one USB device actually work. It's really something.

When first plugged in the install wizard will detect 4 devices associated with the RF/USB interface:
1. Dual RS232 **(FT2232C Channel A)**
2. Dual RS232 **(FT2232C Channel B)**
3. USB Serial Port
4. USB Serial Port

Setup the drivers

As previously mentioned you will have to **repeat the driver installation procedure 4 times** as described below to install the 4 separate and required drivers. **Be careful to follow it step by step – there are no shortcuts**. The screenshots and the procedure described below are valid for Windows XP. On older versions of Windows, the wizard windows are different but the process is mostly identical.

Device 1 : FT2232C Channel A
Select "No"
Click on "Next"
Select "Install from a list or specific
location (Advanced)
Click on "Next"
Select "Search for the best driver in these locations."
Select "Include this location in the search:"
Browse to select the folder containing the
drivers : CD drive letter **:\drivers**
Click on "Next"
For Windows 98 users, select
CD **:\drivers98**
Click on "Continue Anyway"
Click "Finish" to close the wizard
End of the setup of device 1

Device 2 : FT2232C Channel B
Repeat exactly the same steps as for the device 1.

Device 3 : USB Serial Port
Repeat exactly the same steps as for the device 1.

Device 4 : USB Serial Port
Repeat exactly the same steps as for the device 1.

Note that under Windows 98 the USB Serial Port should not be installed.

Troubleshooting

Trouble? With a Windows PC trying to install a USB driver? Wow. How unlucky and unusual. You must be one in a million. Go buy that lottery ticket NOW. If you want to see if this Windows Installation Wizard process actually worked on your C then open Window's "Device Manager".

Don't know how to do that? Don't feel ashamed, over 98% of Windows users have no idea what we've been talking about for the last 3 pages, so go if you're this far into it, give "Device Manager" it a whirl.

Access "Device Manager" by right clicking on My Computer (not mine, yours). Now right click on "Properties" and in the resulting box right click the tab for "hardware". After that you should see a button box for "Device Manager". Right click that to enter Device Manager. Now wasn't that simple? Thanks Bill.

After proper installation of the 4 drivers, you will find new devices (yellow in the picture) in the Device Manager window: If you do not see these devices when the USB Interface is plugged, you have to re-install the USB interface drivers as described before. Chances are that too will end in abject failure. Why it would work in round two by following the exact same process that balled it up in round one is quite antithetical, but then again we watched the same mistakes inflicted in Vietnam heaped on Iraq; so why not try installing this messed-up 4 port driver yet again just for grins. Windows has a mind of its own and may just take pity on you in repeated attempts.

If you were successful and you can see these four devices in Device Manager, note that the two USB Serial Port can be disabled if necessary. Sure, there's great idea: They work, so let's DIABLE them. Perfect. Windows Plug & Play Wizard will however detect a **new** device if you happen to plug the now functional USB Interface into a **different** USB port of your computer than the one for which you installed the drivers. This is another perfectly normal and incredibly irritating profit-center attribute for Microsoft Corporation. You can re-install the drivers for this port if you whish to do so, otherwise, use always the same USB port on your computer. It **almost** makes you want to cry.

5. DATA DOWNLOAD SOFTWARE SETUP

Data Download Software Requirements
Computer with USB port
Windows 98, NT, 2000, XP
Microsoft Excel to use ChronoSplitExcel

If Microsoft Excel is not present on your computer, sell it. You can use the alternate download software that is delivered, but that would indicated a level of desperation not seen in these parts for some time This software is called ChronoSplitDownloader.exe and is installed in your main installation folder:
eg. c:\program files\tagheuer\chronosplit\.
Have fun.

This software will generate a somewhat useless but entertaining text file containing all the data downloaded from the ChronoSplit.

Data Download Software Setup
Insert the CD in your computer.
Run setup.exe from your CD and follow the instructions to install the download software on your PC.

6. DATA DOWNLOAD ON PC

Use of ChronoSplitExcel

1) Plug the RF/USB interface in the dedicated USB port of your computer. Note that you always should use the same USB port, otherwise the Windows Plug & Play Wizard will detect a new device and you will have to setup the drivers for this port as well. Weclome to the World of Bill Gates. Call him and see if he cares.

2) Start ChronoSplitExcel from the icon on your desktop or from the menu.

3) Excel will be launched and a worksheet will be created to get the data from the ChronoSplit.

4) Set your ChronoSplit in PC mode and press the "Download data" button in ChronoSplitExcel or leave your ChronoSplit in Auto Split or Auto Lap mode and click in "Force to PC mode" before to click on the "Download" button to force the ChronoSplit to switch automatically to PC mode and to download the data. If the communication with the interface is interrupted, the ChronoSplit will switch back to its initial mode after 20 seconds.

5) The download will start and you'll be able to follow the progression in ChronoSplitExcel. If the download doesn't start because of interface USB drivers troubles, try again. Unplug and re-plug the interface and try again. Keep trying. Think of how much money Bill Gates has made selling this useless software garbage as you keep trying to make this simple device work on a standard USB port. It all stinks and it's remarkable that we all put up with it.

6) The received data is written in rows and columns in Excel. See below for the description of the download data:

ChronoSplitExcel
Excel output
Column Description of the data:
A ID number of the ChronoSplit
B Serial number of the ChronoSplit
C Session date and start time
D ChronoSplit mode
E Total time of the session (or lap in AUTO LAP) in seconds and thousands of a second
F … Intermediate / Partial times recorded during the session

Remarks
-The decimal time format in seconds and thousands of a second allows you to easily calculate any type of time calculations to make custom analysis of your training data.
-One line per session in AUTO SPLIT and MANUAL SPLIT modes.
-One line per LAP in AUTO LAP and MANUAL LAP modes.
-If a total time is 0, it means that the session (Run) was not ended by an impulse from a transmitter's CHANNEL 4 in AUTO SPLIT or CHANNEL1 in AUTO LAP.

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