TIMER / PC / DISPLAY data communications.

The complexity of the cables, PC settings, timer settings and the display settings is a function of the problems inherent in making each PC and software product (USSA/FIS by Split Second, Dtris, Msports, etc) work together. Split Second is a very powerful and complete software system, but it has its quirks which are mostly related to the hardware (PC) that it runs on. Not all hardware architectures are same - so don't blame software authors or the timing manufacturers and distributors for those frustrations. In all cases check with the software author about compatibility and serial port (COM) cable configurations.

Modern Laptops and PCs for example do not generally come with "legacy" COM ports (RS232) but rather arrive with USB serial ports and PCMCIA slots.
Since the venerable ALGE S4 and most homologated systems from the past that are still in service supply data as RS232, you must adapt to RS232 COM from USB, or if you are fortunate and run coal-fired laptops you might have one
(1) RS232 COM port available. It is very rare to have multiple COM ports on a laptop or PC these days which is actually what you need to do this cleanly (one COM for data in from the timer, another for data out to display).

With only one COM port available the issue then becomes making that one data conduit capable of taking data IN (TOD and timing channel) from the Timer and sending it OUT (net time, ranking, name, bib) to the display(s). Most software products will do this in different ways, but the basic hindrance is that COM ports can only operate at ONE DATA SPEED (baud rate).

One data speed per COM port means that the timer and the display(s) must communicate with the PC in identical terms. Even within the same timer manufacturers, often timer data speeds destined to displays and PCs are very different. This is because the data requirements of driving a display are quite different than sending data to a PC for processing. The Display is often further away (so we want a slower data rate to ensure better transmission over a longer wire distance) whereas the PC is normally close by and will expect more data in TOD to flow faster.

Software authors don't always grasp the significance of this and it can be frustrating. It is for example not uncommon to see that even though timers like the ALGE Timy and the TAG Heuer HL540 allow you to adjust the baud rate, the software authors don't support this.

In general ALGE Displays run at 2400 baud and ALGE to PC data rates can vary from 2400, 4800 or 9600 and up. Again, most timing systems today allow you to adjust that speed on all ports but not all of the software authors have done that yet. TAG Heuer systems use 9600 for all data flow (which is why some people have trouble driving those displays with long or compromised cables). The ALGE GAZ series displays are baud speed switch able (2400 or 9600). Some displays arrive with that switch installed, others may have to have it added to the display circuit board. All new ALGE LED displays have software switches that allow you to control the data speed and display format (HH:MM:SS / BIB-RANK / MM:SS:HH etc.).

Note also that the RS232 data signal out of a PC is normally much weaker than what comes out of an ALGE or TAG Heuer timer directly, so there are no guarantees on the data signal strength outbound to your display. In all cases use excellent transmission cables and don't blame the software authors either - this is a PC-related issue that none but the PC manufacturer has any control over.

A PC COM port has a typical 9 pin (or if you're really thrifty and still running that old coal-fired tower PC from 1989 - a 25 pin connector) RS232 connectors. To use one 9 pin COM port for data in and data out we will access:

DB-9 Male on the PC
Data Ground - Pin 5
Transmit data - Pin 3
Receive data - Pin 2

Further, we will also make sure that data flows without the need for "handshaking" and tie together some other pins at the PC end (see our Cable Guide for a complete description):

DTR + DSR (Pins 6 +4)
RTS + CTS (Pins 7 + 8)

Join these pins together and the PC port is opened irrespective of what the software may or may not be doing. Up side? It works. Down side? If there is too much data flow from the timer and you blow the input buffer, the PC may choke on the inbound data (highly unlikely). My theory is that something is better than "nothing."

If you are stuck with an imitation "ALGE" display made by some crafty sportsman out of spare parts, and you can't adjust the data rate at the display end, you will have to change the data out rate at the timer. On devices like the ALGE Timy and 8000/1+ series this is done in simple software menus. Same for the new TAG Heuer CP 540.

The ALGE Timer S4 is a bit trickier and has adjustable data speeds (baud rates) for the 3 data output ports (Display, Printer, RS232) The default settings of the S4 Timer data ports are:

Display: 2400
Printer: 2400
RS232: 4800

In all cases the transfer protocol is N, 8, 1.

Refer to the ALGE Timer S4 Manual for a complete description - however make certain that the PC software you are running expects data from the correct timer data port since the data stream differs. Not all software products use the RS232 port and require connection to the "display" or "printer" port. Why? Not sure, so you'll have to ask them. It's a mystery to us and it never gets addressed.

The adjustment of the S4 Timer settings is most easily effected through the use of a PC utility program called "COMtoFILE." This is readily available at www.alge-timing.com under the "download" section of their website. This utility has a Timer S4 control section that has all of the hex control codes for easy adjustment of the S4 with a bi-directional data cable (Alge Part#: 067-02 with handshake, or 904-02 without handshake). You can also use any simple communications program such as MS HyperTerminal to send data (hex codes) to the timer and get data (memory dump) from the timer, but you need to know what you're doing. COMtoFILE is a much simpler solution.

To adjust the COM port speed, here are the hex codes:

RS 232c interface (15):
Baud rate adjustment:

You can change the baud rate of the RS 232 interface (15) by input of a hexadecimal code. In order to change the baud rate you have to use the actual baud rate in effect at the time.

88(Hex) 9600 baud
89(Hex) 4800 baud
8A(Hex) 2400 baud
8B(Hex) 1200 baud

Default pre-adjusted baud rate is: 4800

NOTE: The use of a bi-directional data cable IS NOT RECOMMENDED in live timing situations. Since we have no control over timing software authors nor the particulars of your PC hardware, use of a data cable that RECEIVES DATA ONLY on the PC from the timer is HIGHLY RECOMMENDED. This prevents any chance of the timer settings being changed or affected during any live event (which happens).

The data transfer cables we describe here are made for 9 pin connectors at the PC side. If you're using 25 pin COM ports, God love you, and yes, we have those as well. Also note the difference between "with handshake" and "without handshake" data cables. This is something we cannot control because it is mostly a software issue. In general we recommend "without-handshake" cables.

At the Timer end you'll be faced with a circular DIN connector (ALGE). There as well we slam open the timer data port without handshake so that when connected, data simply flows without software or hardware interaction.

Data TX - Pin 1.
Data Rx -   Pin 3.
Data Ground - Pin 2
CTS + RTS Pins 4 + 5 linked or handshake to PC side

All data cables are available from ALGE or TAG Heuer to cope with whatever your particular situation warrants. To recap, we recommend the following:

1)   Get a Bi-Directional data cable for use with COMtoFILE to adjust your S4
        a.   Alge Cable 067-02 (S4, Tx+Rx, with handshake)
        b.   Alge Cable 904-02 (S4, Tx+Rx, without handshake)
2)   Get the "COMtoFile" program from the Alge website
        a.   www.alge-timing.com
3)   Get a receive-only data cable for use with "live timing" software
        a.   Alge Cable 907-02 (S4, Tx only, data out to display, no handshake)
        b.   Alge Cable 939-02 (S4, Tx only, data out to display, handshake)
4)   If you have only one COM port, adjust all settings on the display and the RS232 port of the timer and PC to the same data speed. If using ALGE displays you would have a choice between 2400 (default) or 9600.
You'll need a data cable that has data in from the timer and data out to the display on one connector.
        a.   Alge Cable 907-02 (S4 Timer)
        b.   Alge Cable 938-02 (Timy Timer)
5)   Adjust the ALGE display to the correct data speed or adjust the timer to the correct data speed.