

Accucros

Autocross Timing and Scoring System

User manual

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● Getting Started

System requirements:

- Required - 386 class or better IBM compatible PC
 - Mouse or other pointing device with DOS mouse driver installed.
 - MS-DOS, Windows 3.X, Windows 95/98 operating systems.
- Recommended.
 - 486 class or better IBM compatible PC
 - External trigger device(s).
 - Game or serial port for triggering.
 - DOS compatible Printer
 - Uninterruptable Power Supply (UPS)

Loading Accucross:

Accucros comes as a single file on a 3.5 inch floppy. You could run Accucros from floppy disk, but performance will be much better if you copy it to a directory on your computers hard-drive. One way to do this is from the DOS prompt:

```
Make a new directory:      mkdir \accucros
Copy Accucros file:       copy a:\accucros.exe \accucros
Change to the new directory: cd \accucros
Now start Accucros:       accucros
```

You should now see the Accucros welcome screen.

The first time you start Accucros, you will see a warning screen that says no classes were loaded. This is because the class name file (classes.txt) has not been created, and is only displayed when there is no 'classes.txt' file in the directory Accucros is in. Adding class names is covered in the following section.

A UPS (Uninterruptable Power Supply) is good insurance against the sometimes suspect quality of power available at some event locations. They are available for less than \$100 and will give you plenty of time to save you registration and timing data if you have a power failure.

● Accucros features

Accucros was designed emphasizing ease of use. Most functionality is simple point-and-click using the mouse. You will find that even people with no computer experience will be running Accucros with only minimal training.

The Accucros menu bar has four selections:

File - Save and load data files, exit the program.

Event - Opens the windows needed for running the event, including registration, staging, scoring, and editing data.

About - Info about Accucros and GPSoftware.

Menu summary:

File -

Save - Save the registration and timing information to a file. The first time data is saved, you will be asked for a filename. This becomes the default for any further 'Saves'. When you save data, the current data file will be backed up (renamed with a '.bak' suffix), and the latest data will be saved using the default filename.

Save As - The same as Save, but you will always be prompted for a filename. This will become the new default filename for all subsequent Saves.

Load - Load a previously saved Accucros data file. Useful for loading pre-entered registration data or recovering from a computer malfunction. Note: If there is already some registration data entered and you Load a file, you could end up with some duplicated entry numbers. The name of the file you loaded will be the default filename when saving.

Import Registration - Load registration data only. Duplicate entry numbers are ignored, as is any timing data. The default filename is NOT changed. The intended use is for using two computers, one for registration and another for timing. The registration computer can save its data to floppy disk, then the disk can be transferred to the timing computer and a "Load Registration" performed. This will update the timing computer with any new registration entries.

DOS Shell - Temporarily halts Accucros and returns to the DOS prompt. For advanced users only! This is the only thing you can do (besides Exiting) that will cause Accucros to not handle timing triggers.

Exit - Exit Accucros. You will be prompted for confirmation, but registration and timing data is not automatically saved.

Event -

Registration - Just what the name implies. The address fields are optional. You must press the 'Accept' button for the data to be stored. It is a good idea to save your data every so often. Use 'Find' to speed up registration by searching the driver database.

Staging - Brings up a list of all registered entries. Stage an entry for timing by either typing in the entry number in the input line at the top, or Double-clicking with the mouse on an entry number from the list (recommended).

A timing window for the entry will appear. The entries will respond to start/stop triggers in the order they were staged.

Scoring - Allows you to run a variety of reports. The list on the left shows what selections are available. When an item is 'marked', a checkmark will show up on the left side of the item. The report will be run using only the items that have been marked.

Edit - Brings up a window that allows you to edit or delete registration data, and edit run times. Selecting an entry and pressing 'Edit' (or double-clicking the entry) brings up a registration data edit window. Selecting an entry and pressing 'Delete' will delete the entry (and any run times logged to that entry).

'Edit time' brings up a small window that lets you edit or delete the run times for an entry. You cannot access other windows until the Edit window is closed.

Setup - This sets system wide parameters. Here you can add/delete/edit classnames and PAX indexes, set the triggering modes, and enable printing of a 'timing slip' after each run, and set the printer port.

All settings in this screen are stored in the file 'classes.txt'.

About -

Accucros - Accucros copyright notice.

GPSoftware - How to contact GPSoftware.

● Using Accucros

General -

Accucros was designed to take advantage of a mouse (or other pointing device) to provide a simple to use, point-and-click interface. Of course, you must have a mouse driver loaded before starting Accucros. You can use Accucros using only the keyboard, however it is slightly awkward.

With the mouse, select items by placing the mouse cursor on it and pressing the left mouse button. On some fields, the field is made active on the first mouse click, then the action is performed when the field is clicked on again.

If you choose to navigate with the keyboard, use the tab key to move around the different fields inside of the windows. When a button is highlighted (changes color), pressing the 'Space' bar will 'press' the key.

Hotkeys -

Hotkeys give you quick access to some Accucros features.

F1 : Save file. Use this often!

F2 : Registration window.

F3 : Staging window.

F4 : Scoring window.

Alt-A: Save As.

Alt-E: Edit window.

Alt-G: About GPS software screen.

Alt-H: DOS Shell.

Alt-L: Load file.

Alt-N: Focus next window.

Alt-R: Load registration data.

Alt-S: Setup window.

Alt-U: About Accucros screen.

Alt-X: Exit Accucros.

Setup -

This is where you configure the system to fit your needs best. Setup data is saved in a file called 'classes.txt' and will be re-loaded everytime Accucros is run. The first time you run Accucros, you will need to use the 'Setup' window to add classnames.

Classes - Add a class by selecting 'Add'. Enter the classname (4 characters max), the PAX index, and the run group. Default values for PAX is '1.000', and the default run group is 1. A data file named 'classes.txt' will be created that contains all classnames you enter and is updated whenever you add or edit a classname. Repeat 'add' until all your classes are entered. If you move the Accucros program to another computer or directory, also copy the 'classes.txt' file to the same directory. You can also edit and delete classes.

Accucros uses the run group to sort how cars are displayed in the staging window, if that sorting option is selected. This is very powerful in that you could specify exactly the order for each class to appear in the staging list.

Delay - Sets a time that the timer will ignore triggers after the first trigger. This allows cars to get completely pass the timing lights. NOTE: If using single trigger mode, another car can't be started until the delay time has elapsed since the previous run was completed.

Single or Dual triggers - 'Single' if you are running only one timing light, or you run two timing lights in parallel. Use 'dual' if you run two timing lights using both trigger inputs. To run multiple cars on the course, you must have dual timing triggers.

START and STOP triggers per run - These settings allow you to run multiple laps. This is done by telling Accucros how many start and stop triggers to be expected during a run. By default, each is set to '1', meaning that there will be one start trigger and one stop trigger per run. Valid range is

from 1 to 99. Settings are saved and recalled when you start Accucros, so you may have to change the settings at different events.

The timer will ALWAYS start on the first start trigger.

The timer will stop after the specified number of start AND stop triggers have occurred.

If using 'Single' trigger, the Stop trigger setting is ignored.

Source - Sets the input port for the timing triggers.

Print timing slip - Select if you want a timing summary printed after each run. A timing slip is a one line printout of the last run made. It is intended to provide a hardcopy backup of run data in the unfortunate event of a computer malfunction, not as a slip to be handed out to competitors after running. Highly recommended.

Printer - Sets the parallel port that the printer is connected to. Most computers only have a LPT1 port.

Staging order - Here you can set the order that the cars are listed in the staging list, by number, class, or run group. You can also select 'print list' to print the staging list as it appears in the staging window.

Driver Database - Disable or enable searching and saving to the driver database. Enter a name for the active database. You can have multiple driver databases, but only one is active at a time. As time goes on, the database will grow in size causing slow 'Find' performance. Use the utility program supplied with Accucros to maintain driver databases.

OPTIONAL:

Spectator Display – Disable or enable spectator display and set communication port settings.

Defaults to "Off", if using a spectator display you will need to enable this each time Accucros is started.

Remote Terminal - Disable or enable remote terminal and set communication port settings.

Defaults to "Off", if using a remote terminal you will need to enable this each time Accucros is started.

PRO version – Supports Spectator Display and Remote Terminal simultaneously. Communication port settings are fixed at COM1 for triggers and Spectator Display, COM2 for Remote terminal.

Defaults to "Off", you will need to enable these options each time Accucros is started.

Registration -

Type in entry number, name, class and car type. Address information is optional. The car 'class' must be one that has been input in the 'Setup' window. Entries may duplicate numbers, but the class must be different.

The 'Find' button searches the driver database for a match to data that has been entered in the registration window. You may enter multiple search data, such as a car number and class. If ONE match is found, the registration data is automatically filled in. Press 'Accept' to register the data in the event. If multiple matches are found, you are presented with a list of matches to choose from. Double-click on the your selection and the registration data is filled in. A warning will be displayed if no matches are found. A warning will also be displayed if you attempt a 'Find' but the driver database is not enabled (this being done in the 'Setup' window). Data is added to the driver database when you 'Accept' data, unless the data was entered via a 'Find' and you haven't modified any registration fields.

'Find' examples:

Enter car number '4'.

Press 'Find'.

A list will be displayed showing all cars numbered '4'.

Enter class 'MOD'

Enter lastname 'Smith'.

Find shows all people lastname 'Smith' that are also in the 'MOD' class.

Remember to use the 'Save' menu selection to save your data periodically!

Staging -

Selecting an entry from the staging window opens a timing window for the selected entry and puts it in a timing 'que'. If the entry number is used in more than one class, a small window will popup prompting you for the car class. The timing windows will handle triggers in the order the cars are staged: (i.e. The first start trigger will start the timer for the first car staged, etc...). You can stage as many cars as you like, however the screen may become cluttered if too many are staged.

Timing data can be entered several ways.

1. Select the 'Time' field using the mouse or tab button, and type in a time manually. Enter the time in a MMSS.DDD (minutes, seconds, decimal) format. Accucros will format the numbers correctly. For example, to enter a time of '1:23.456' you would enter '123.456'. This is how you would enter timing data manually.
2. Trigger timing by using the S/S (Start/Stop) button, just like a stopwatch.
3. Trigger timing using some type of external triggering device, such as infrared triggers. This is the most accurate and is the intended usage.

When a start trigger comes in, the timer for the first entry in the que will start and you will see it's stopwatch running. When the stop trigger comes in, the timer stops and Accucros automatically 'focuses' the window and places the cursor in the 'penalty' line which allows you to quickly enter any penalty time. Then press the 'Enter' key or select 'Log Time' with the mouse. The new time will be added to the run time list at the bottom. The 'Close' button will be highlighted, and the window can be closed again by pressing the 'Enter' key again or selecting 'Close' with the mouse.

One warning when staging cars by typing in a number rather than using the mouse: Since Accucros automatically gives focus to the timing window for a car that has just completed a run, you might find yourself typing into the 'penalty time' field for a car when you had intended to stage a car. This is why selecting a car from the staging list with the mouse is recommended.

You can also log a run time with the modifiers DNF, DNS, or DSQ. The modifier is set by selecting the 'down arrow' associated with the text field just to the right of the penalty input line with the mouse (or tabbing to it then pressing the down-arrow key) which will bring up a menu listing the penalty modifiers.

DNF - Did not finish. This run will not be used when calculating results.

DNS - Did not start. This run will not be used when calculating results.

DSQ - Disqualified from event. *No runs of this entry will be considered when running a 'fast time' report.*

Score - A normal run. This is the default.

Typical use scenario -

Stage a car by double-clicking an entry in the Staging window.

Start trigger starts timer.

Stage the next car by double-clicking and entry in the Staging window.

Stop trigger stops timer. Cursor is moved to 'penalty' field.

Type penalty time in on the keyboard, if any.

Press 'Enter' key. Time is logged to the run time list. 'Close' button is highlighted.

Press 'Enter' key to close the window.

Scoring -

You can create reports anytime during or after an event.

Select report selections -

Classes - Report comparing entries on a class-by-class basis.

Groups - Report comparing all selected classes together.

PAX - Compares all PAX entries, applying the PAX index for the class.

Individual - Report comparing individual entrants to each other.

Select the report type -

All times - all times for each entry selected are printed in the order they were run.

Fast times - Sort the report, using only the fastest time for each entry selected. Any runs marked DNF, DNS or DSQ will not be used.

Entry List - Prints only entry information, without timing data.

Mailing List - Prints out name and address information. No run data, car, or class information is listed.

Select an item from the list by double-clicking on it with the mouse. A checkmark will appear next to the item. Or, you can select the item and press 'Mark'. Pressing 'Mark' again de-selects the item. 'Mark All' selects all items, 'Clear All' de-selects all items.

Press 'OK' to run the report. You will then be prompted for the report destination:

Screen - Prints report to the computer display.

Printer - Prints report to the printer. If you select the 'form feed' checkbox, a form feed will occur after each report.

File - Prints the report to a file. Specify the filename in the line at the bottom.

Examples:

End of day report -

Select 'Classes' in the Score button box.

Press 'Mark All'.

Select 'Fast time' in the Report button box.

Press 'OK', select output destination.

Run a report comparing classes -

Select 'Groups' in the Score button box.

Double mouse click on the classes to report on in the list box.

Select 'Fast time' in the Report button box.

Press 'OK', select output destination.

Check results for a few selected entries -

Select 'Individuals' in the Score button box.

Double mouse click on the names to report on in the list box.

Select 'All times' in the Report button box.

Press 'OK', select output destination.

Printing a long report prevents you from doing anything else while the printer does its job. However, if you are timing a car during printing, the Accucros triggering system will still function properly and the entry being timed will still record an accurate run time.

• Timing and connecting to triggers.

The Accucros timing system is based on interrupt level sampling routines that guarantee .001 second resolution. You can do other tasks such as registration, editing, or running reports while cars are on course. If the car trips the trigger the time will be captured and be reported accurately. The only things you can do to corrupt the trigger accuracy is to temporarily suspend Accucros by exiting to DOS, or exiting Accucros altogether.

There are several options to connect the timing triggers to the computer.

Game (joystick) port, COM1, COM2 serial ports.

The timing triggers need to provide a switch output, either mechanical or a transistor output. The triggers should operate in a 'dark operate' mode, meaning that the switch should close when the beam is interrupted by a passing car.

T1 - Start trigger. Also stop trigger on single trigger systems.

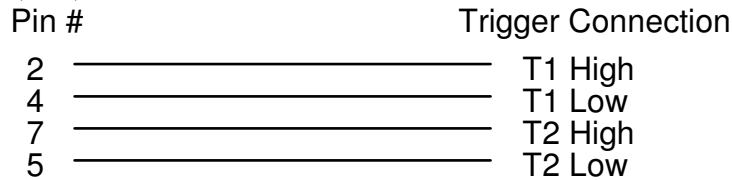
T2 - Stop trigger on dual trigger systems.

'High' connections are the trigger signal line.

'Low' connections are usually tied to ground (common).

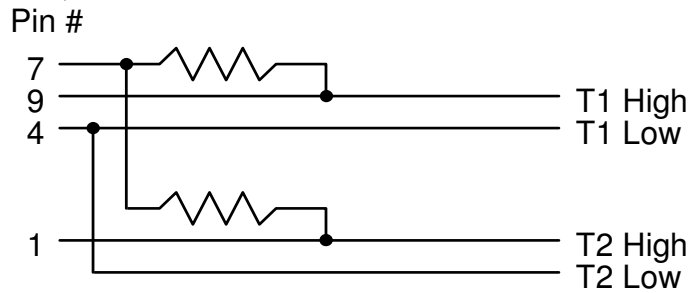
Game port connections:

15-pin D connector (male)



COM (serial) port connections:

9-pin D connector (female). Resistors are 4.7Kohm



● Driver Database Utility

The 'Find' performance used when registering entrants will degrade as the driver database size grows. For this reason a utility program is included that allows you to maintain driver databases used by Accucros. The program has the same look and feel as Accucros.

To Install:

Copy the file "accudata.exe" from the Accucros disk to your hard drive. Having it installed in the same directory as Accucros is a good idea.

Assuming Accucros is installed in the "accucros" directory on drive C.,

```
copy a:\accudata.exe c:\accucros
```

Program Features:

File:

Load and save database files.

Event:

Add drivers to a driver database using the same registration window used by Accucros.

Maintaining a database:

Occasionally you should run the utility to clean up an existing database by deleting any duplicate or old data. It is a good idea to create a new database yearly. Loading a database brings up a window that allows you to delete, edit, and save data. There is also a simple search capability available. You can also add new entries to the database with the registration window. This is useful for setting up a new database prior to the year's first event.

• Q&A

Q: How can I tell if the triggers are working?

In the middle of the status bar (bottom row on the screen) is an indicator that will display 'Start', 'Stop', or 'Start/Stop' for about two seconds after a trigger is activated. 'Start/Stop' is displayed when using a single trigger, or if a start and stop trigger come in simultaneously.

Q: What does the number on the bottom far right of the status bar mean?

That is the amount of system memory available. It will change depending on the number of entries, how many windows are open, etc... If there is not enough memory do perform an action (such as creating a report), the program will display an error but should not crash.

Q: So how many entries can I have?

There is no hard limit on the number of entries or number of runs, it really depends on the amount of system memory available. Accucros is a DOS program, so it is subject to the 640K memory barrier. As an example, 150 entries with four runs each and running a large report requires about 400K of memory. If your system is optimized to provide maximum conventional memory, the practical limit (running a 'full' report) is around 280 entries with four runs each. Running reports with less items selected would allow you to have even more entries.

There are ways around this limit, read further.

Q: Is there a way to run more cars than that?

You could register groups of cars and save them into separate data files. At the event, load the data file for 'group 1' and run them. Save the data, then load the data file for 'group 2'. This would just limit your ability to run reports to only entries saved in each run group file.

Q: What is that 'spinner' thing in the upper left hand corner?

It is an indicator showing that the program is busy doing something, and won't be able to immediately respond to button presses. On fast machines, you may almost not even notice it.

Q: We are running multiple cars on course, and one of them pulls off course without crossing the stop trigger.

Since Accucros relies on the sequential nature of Autocrossing, you need to either stop that car's timer by pressing the S/S (Start/Stop) button in the timing window or close the window before the next car finishes.

Q: How does Accucros detect timing triggers?

Accucros intercepts the system timer interrupt and 'polls' the port the trigger is connected to at a rate fast enough to guarantee resolution of .001 seconds. Even if the program is busy (printing, or running a report), the time the trigger came in will still be captured. If you were running multiple cars, one car could start and another finish simultaneously and both triggers would be captured.

Q: Does Accucros run on Windows3.1 and Windows95/98?

Windows 95/98 limits the Accucros trigger detect routines to a resolution of about .002 seconds which is still pretty fine resolution. With Windows 3.1, no problems have been observed, and when running in 'full screen' mode you cannot see any difference from running under DOS (when running inside a DOS window, the stopwatch updates appear slow, but external trigger accuracy is unaffected). However, since Accucros intercepts interrupt signals (and does not prevent some other program from overriding what Accucros has changed) it should really be considered a 'system controller' program that is safest when it has total control over the computer (i.e. boot in DOS mode).

Q: How about Windows NT, 2000, or ME?

Windows ME does not have a native DOS mode, so it will run but with reduced timing accuracy. Windows NT or 2000 is not supported.

Q: Our computer went down, and we hadn't done a 'Save' in the last hour.

If you had 'print timing slip' enabled, you can load your last 'Save' and hand enter any run times that occurred since then. If you didn't enable 'print timing slip', you unfortunately cannot recover the run times since the last save.

Q: Can I run registration on one computer and timing on another?

Yes. On the registration computer, 'Save' to floppy disk and then insert the disk into the timing computer, then perform a 'Load Registration' and load the file from floppy. Registration data on the timing computer will get updated with any additional entries. Any duplicate entries are ignored, and the default filename is not changed.

Gary Poole
GPSsoftware

● Considerations:

Time of day setting: Accucros partially uses the system bios time counter for timing. This means that if the system time crosses midnight while a car is being timed, the result will be inaccurate. Make sure the computer's time is set correctly using the DOS 'time' command before running Accucros. If you actually have a need to run an event at midnight, contact GPSoftware for a solution.