

# *Driver's Display*

## *ALFA-Elite & ALFA-Pro*



*(Ver 1.0)  
(September 21, 2012)*

***Get a jump***



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***Small Systems Specialists***

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## **Introduction:**

Congratulations! You have just purchased the latest in rally technology. The *ALFA-Elite* Driver's Display is not only the remote readout for your rally computer, but also a complete stand-alone memory clock and dual odometer. It may be used separately from your *ALFA-Elite* in several modes, and it may also act as a backup clock for emergency use. Your driver's display is capable of synchronizing to both other *ALFA* brand clocks (such as the *ALFA-Checkpoint* and *ALFA-Club*) and the *ALFA-Elite* itself.

**The *ALFA-Elite* manual describes how to use this unit in the driver's readout mode. The purpose of this manual is to describe how the driver's display operates independently.**

## **Power On !**

The driver's display has a built in rechargeable (NiMH) battery pack. When fully charged, it can operate the display for several hours. The switch on the left hand side of the display turns on the battery. The battery will charge whenever the unit is attached to a 12 volt power source. The switch should be turned off when the display is not being used or will be stored in order to prevent draining the battery. (Note: The display will operate as the *ALFA-Elite*'s driver's readout regardless of the position of this switch.)

During normal operation with the *ALFA-Elite*, the driver's display may be unplugged at any time. With the battery switch on, the display will automatically switch to clock mode as soon as it is unplugged, and will revert to driver's readout mode when plugged back into the cable. Leave the switch on during normal operation to maintain the charge in the battery. If the battery goes dead or the switch is off, the driver's display will shut down when unplugged from the *ALFA-Elite*, but will resume normal operation when reattached. In this case, the time setting will be lost! (Note: Please allow the battery several hours to charge before separating the driver's display from the *ALFA-Elite*.)

An optional 12 volt power cable is available to operate the driver's display as a completely independent unit. This cable will charge the battery, power the unit, and also provide a place to attach a sending unit to use the odometer capability. In this mode, the driver's display has all of the same capability of the *ALFA-Club*. (Note: The *ALFA-Club* uses an LCD display which allows a much longer battery life. The driver's display, running in the *ALFA-Club* mode, should always be used with a 12 volt power source as the OLED display uses more power and the battery life shorter.)

When the driver's display first turns on, it will briefly display its serial number, and then will begin normal operation in Clock Mode or driver's readout mode as appropriate.

## **Independent Operation:**

There are two modes of operation, "Clock Mode" and "Odometer Mode". Within each mode there are various options which you may turn on and off. You may switch between these two basic modes whenever you like without effecting either the clock or the odometer.

See the "Menu Options" section of this manual for instructions on changing modes, setting the clock,

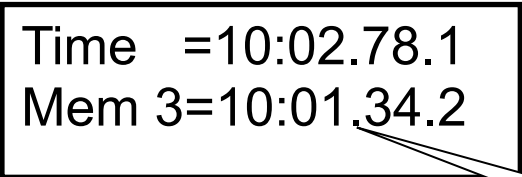


and selecting various options. Refer to the illustration for the location of all controls, connections and displays:

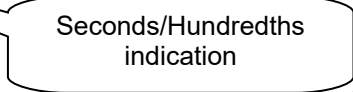
- The **DISPLAY** shows the user all time, distance and memory information. It is also used to create interactive menus to configure the clock for use.
- The **SCAN SWITCH** is used to display memories and to set values. This is a spring loaded switch which may be moved right (increment or next) or left (decrement or prior).
- The **HOLD BUTTON** is used to split (freeze) the clock and odometer display. It also is used as an ENTER button while configuring the *ALFA*. To access menu functions you press and hold the HOLD button while moving the scan switch left or right.
- The **BATTERY SWITCH** is located on the left side of the *ALFA*. Switch UP to turn on the battery, DOWN to turn it off.
- The **DIN CONNECTOR** provides a single point plug in for power, remote hold, and time synchronization.

### Clock Mode:

“Clock Mode” is generally used for timing checkpoints. (Also, use this mode to set the time as a backup for the *ALFA-Elite*.) In this mode, the display is divided into two areas – the Time of Day and the Memory. The time and memory are displayed in either Seconds or Hundredths of a minute, with precision to either 1/10 of a second, or 1/1000 of a minute. (You can tell which time mode is being displayed by looking for either a colon (seconds) or a decimal point (hundredths) between the minutes and seconds display.

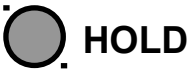


Time =10:02.78.1  
Mem 3=10:01.34.2



Seconds/Hundredths  
indication

The Time of Day runs continuously on the top line of the display, regardless of user input to split the clock or scan the memories. The HOLD button, when pressed, transfers the present Time of Day into the next available Memory, and displays this on the bottom line of the display. (The remote HOLD input may be triggered by an automatic timing line with the same effect.) Up to 32 “splits” may be stored in the *ALFA*’s memory. Note that once the HOLD has been triggered, there is about a ½ second delay before it may be triggered again. This prevents the front and rear wheels of a car passing over an automatic timing line from generating two splits.



Splits are stored in chronological order, and may be reviewed by using the “Scan” switch. This switch is spring loaded, so you simply move it right or left with your finger, and then let it return automatically to its center position. (Do not force the switch beyond its “click” position.) Moving the Scan switch RIGHT will display the next memory position (later time) and pressing the Scan switch LEFT displays the previous (earlier) memory. Note that when the HOLD is pressed, the most recent memory is automatically displayed regardless of user scanning. Also, if the memory size is exceeded (32 splits), the split is saved in the highest numbered memory, replacing whatever was previously stored.

## **Odometer Mode:**

Your *ALFA* contains dual odometers. In the Odometer Mode, your display shows these two odometers on the left side of the display, and displays the Time of Day in the upper right. The odometer is fully factor correctable (6 digit factor) like all other *ALFA* odometer products, and may be setup to display miles or kilometers.

045.376	10:02.78.1
002.400	HOLD

In Odometer Mode, pressing the HOLD button will alternately freeze and release the time and distance on the display. These continue to progress unseen, and the up to date values are displayed as soon as the Hold is released. The word "HOLD" appears in the lower right corner to remind you that the display is frozen. Note that the hold time is stored in the memory even when using Odometer Mode, and you may switch modes and review the memory at any time without effecting the odometer or the clock.

The Scan switch controls the direction of the odometer. Pressing the Scan switch right causes the odometer to run forward, pressing it left once parks the odometer (odometer off) and left again runs the odometer in reverse. Note that the shape of the decimal point in the odometer display indicates the direction of the odometer.

See the "Menu Options" section of the manual for other Odometer controls and options.

## **Clearing:**

To activate the clear function, press the HOLD button, and while holding it down, move the SCAN switch LEFT.

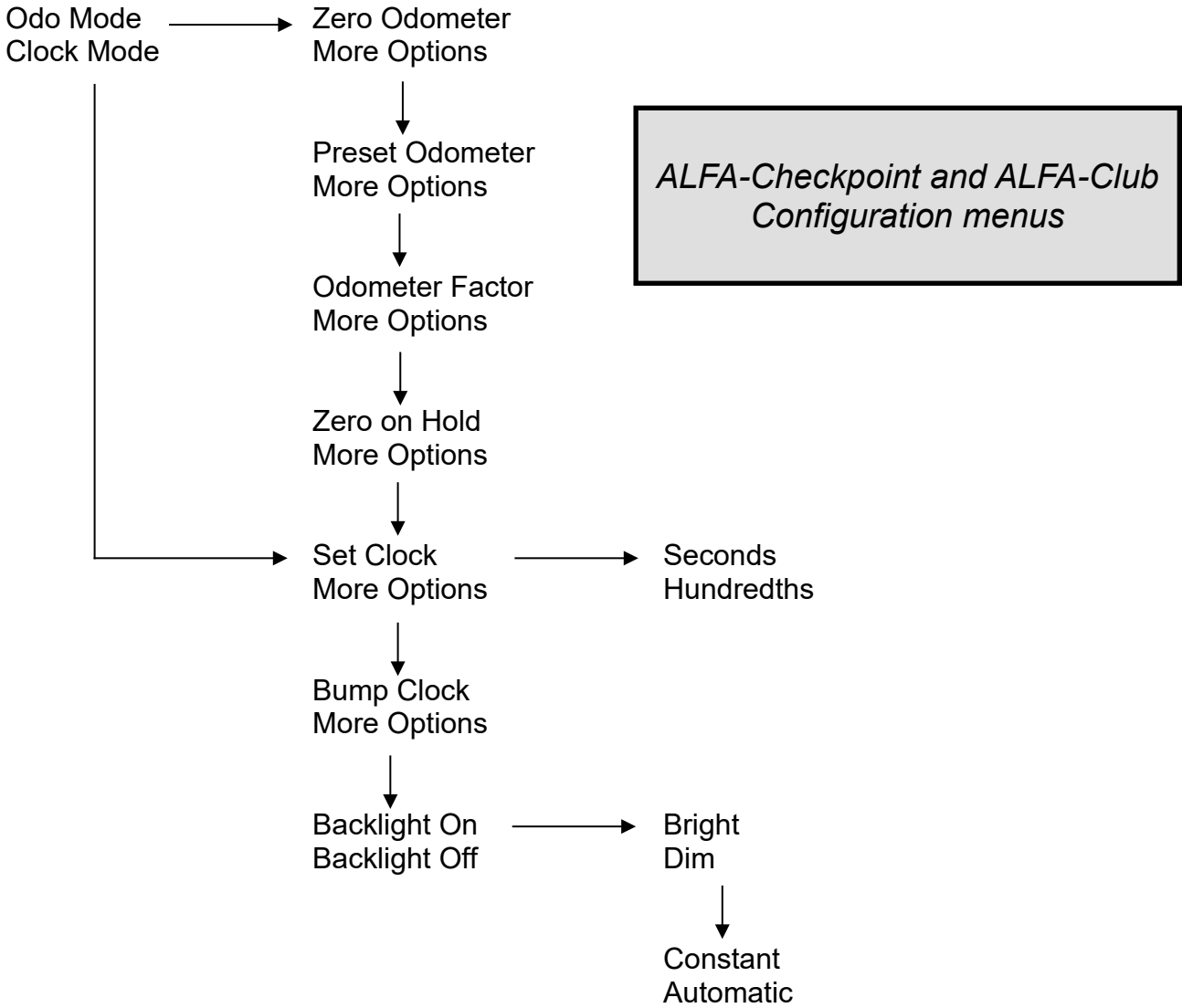
In Clock Mode, the Clear function will erase all of the memorized splits. In Odometer Mode, the Clear function resets the second odometer (incremental distance) to zero.

## **Menu Options:**

All of the remaining features and functions of your *ALFA* are accessed through interactive menus. To access these menus, press and hold the HOLD button and move the Scan switch RIGHT.

Whenever a menu appears, you will be asked to make a selection using the Scan switch. To select the option on the top line of the display, press the scan switch RIGHT, and to select the option on the lower line of the display press the scan switch LEFT. Pressing the HOLD button will terminate the menus and return to normal operation.

The following menu options are available:



**Odo Mode / Clock Mode:**

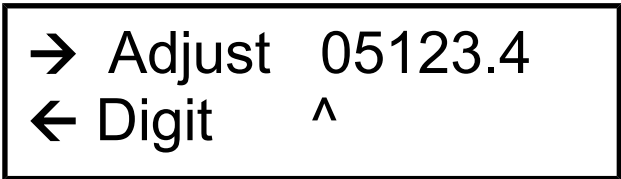
Selects the display mode as described above. If Clock Mode is selected, options pertaining to the Odometer are skipped.

**Zero Odometer:**

Sets the first odometer (overall distance) to zero. See the “Odometer Mode” section for zeroing the second (incremental) odometer.

**Preset Odometer:**

This selection allows you to preset the first odometer to any value. Once selected, the display shows the present odometer value, and two switch options. Moving the Scan switch LEFT selects which digit will be altered, and



pressing the Scan switch RIGHT increments the digit. By manipulating the scan switch, all 6 digits of the odometer may be changed, one at a time.

When the desired value is entered, press the HOLD switch to resume normal operation.

### **Odometer Factor:**

The odometer correction factor is entered in the same manner described for presetting the odometer. The correction factor is used to calibrate your *ALFA* odometer so that it measures the same distance as the rally-master for easier course following. (Note: The default factor is 5000, which is correct for 2000 pulses per mile.)

To determine your odometer correction factor use this formula:

$$\text{New Factor} = \frac{\text{Current Factor}}{\text{Measured Miles}} \times \text{Course Miles}$$

For example: Start the odometer leg with the factor set to 5000. The end of the odometer check leg is officially at 12.56 miles, but your *ALFA* measured only 11.21 miles. 5000 divided by 11.21, multiplied by 12.56 equals 5602. 5602 is your new factor and should be entered into your *ALFA*.

### **Zero-on-Hold:**

This feature of the *ALFA* causes the second odometer (incremental distance) to be automatically zeroed whenever the HOLD button is pressed. The previous distance is displayed while the new distance is accumulated in the background. When the HOLD is released, the new distance is immediately displayed.

### **Set Clock:**

After selecting the time keeping mode, either seconds or hundredths, you set the minute and hour in the same manner as the Odometer and Correction Factor. The usual procedure is to set the clock to the next whole minute, and strike the HOLD button as the correct time passes.

If you have more than one *ALFA*, you only need to perform this procedure on one of them. Use the optional Time Sync cable to automatically adjust all of your clocks to the exact same time. (See "Time Synchronization" below)

### **Bump Clock:**

The “Bump Clock” feature allows you to make fine adjustments to the clock after manually setting it. The clock may be off by some fraction of a second due to slow reflexes, and the Bump Clock feature allows you to adjust the clock in +/-  $1/10^{\text{th}}$  of a second or +/-  $1/1000$  minute increments.

For example, if the clock is  $1/2$  second slow, using the Bump Up selection 5 times will bring it into sync with the official time clock.

### **Backlight On/Off:**

For OLED (standard) equipped driver’s displays, this setting has no effect. If your *ALFA* is equipped with an LCD display, it has an adjustable backlight. It may be turned on or off, bright or dim, and has an automatic setting which preserves battery life. *The best battery life is obtained when the backlight is completely OFF.* The DIM setting uses about half as much power as the BRIGHT setting, but even the DIM setting uses 3 times as much power as keeping the backlight completely off. (The LCD display used in the *ALFA* is a type which has extremely good viewing characteristics with no backlighting while in normally lit situations. The backlight is only necessary in darkness.)

The best compromise is to use the AUTOMATIC backlight setting when you are running the *ALFA* on battery power. This setting turns on the backlight for about 5 seconds whenever the HOLD or SCAN is activated. The default setting for the *ALFA* is DIM and AUTOMATIC.

Note that you should only use the CONSTANT setting (either bright or dim) when running with the 12-volt adapter!

### **Time Synchronization:**

The *ALFA* is equipped with *Rally Link*™ which allows one clock to read the time settings from another clock through an optional Sync Cable. ***No user input is required to sync two clocks,*** simply plug the COLORED end of the sync cable into the Master Clock, and the BLACK end of the sync cable into the clock which needs to be set. Immediately, the two clocks will be in perfect sync – *that’s all that’s required!* Once the clocks are in sync, simply unplug the cable.

To sync the clock in the ALFA-Elite to the clock in the driver’s display, see the instructions in the ALFA-Elite manual.



## **12 Volt Power Cord:**

The optional 12 Volt power adapter allows you to power your clock from any 7-16 volt power source. It also provides the attachment point for a sending unit and for a remote hold switch or timing line.

There are 2 connection points on the cable:

- 1: The DIN connector which attaches to the ALFA.
- 2: The Terminal Block which provides screw terminals for easy attachment of the sending unit and hold switch.

The terminals are as follows:

- RED:** +12 volt power input. **Also the power connection for a sending unit.**
- BLACK:** Ground. This is the common point for power, sender and hold inputs.
- GREEN:** Sending unit pulse input.
- BLUE:** Hold switch input.

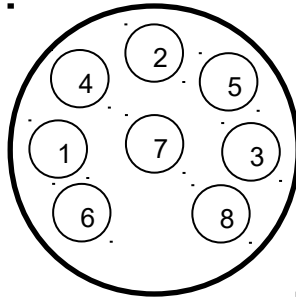
Notes:

- 1: The battery in your driver's display will act as a backup for the 12 volt power. It takes several hours to fully charge the battery and its life will be limited prior to being completely charged.
- 2: It is best to wire the ALFA directly to the battery or fuse box, and not use a lighter cord. Use a lighter cord only for temporary installations.
- 3: **The ALFA sending unit will operate from 5-16 volts DC.** If you use another brand sending unit, make sure it will withstand the 12 volt power source.
- 4: You can connect the pulse input directly to the pulse output of most car's Vehicle Speed Sensors (VSS). In this case, DO NOT connect the 12 volt power to the VSS – it gets its power from the car's system independently. See WWW.RALLY.CC for VSS connection details.
- 5: When using the ALFA with a sending unit, the clock MUST be powered from the car's 12 volt system. ***The internal battery will not power the sending unit.***

## Technical Information:

This information is provided for the technically curious and otherwise insane user. There is no need for most users to read or understand this section. The manufacturer of this *ALFA* Clock/Odometer takes no responsibility for damage caused to or by, this or any other equipment, when created or wired by the user.

The 8 Pin DIN connector on the right side of the ALFA is its outlet to the rest of the world. The pins are defined as follows:



Male DIN connector as viewed from the solder side

1. 12-volt DC power input. The *ALFA* requires a minimum of 6-volts DC to operate. Power consumption is approximately 10ma-15ma without the backlight, 50ma with the backlight dim, and 80ma with the backlight bright.
2. Serial RS-232 communications input. (Accepts +/- 5-10 volt signal)
3. Display mode switch. (Open for clock/odo mode, ground for remote display mode)
4. Serial communications output. (Diode protected 5 volt signal)
5. Odometer sending unit input. (Diode protected. Trip to ground)
6. Not Connected.
7. Remote HOLD input/output. (Diode protected. Trip to ground for input, Open collector output)
8. Ground

Note: To use the *ALFA* in odometer mode with a standard sending unit requires the use of external 12-volt power. The ALFA may be tapped into the existing speed sensor of many newer vehicles, and in that case may be used on battery power as long as a common ground is supplied.

## **WARRANTY:**

Your *ALFA* is warranted against defects in material and workmanship for a period of one year from the original date of purchase. This warranty does not cover any parts broken due to abuse, neglect, or misuse of this product as determined by Small Systems Specialists.

The Liquid Crystal Display is warranted against electrical failure for one year, but not against breakage of the glass enclosure.

Although every effort has been made to assure reliable, accurate operation, Small Systems Specialists will not be responsible for any loss of money, property, time, or trophies due to the malfunction of this product. Good operating practice dictates that the user verify the product is in good working order before it is relied upon in competition.

The ALFA, like many electronic clocks, may require periodic calibration. This function will be performed for the cost of shipping and handling only at any time during the life of the product.