Programming SureStart™

This document describes how to program the SureStart unit with the uCal programmer, and how to use the supplied software. The software runs on a PC or Laptop under Window 98, ME, 2000 or XP.

The programming kit consist of the programmer (uCal), a CD disk containing user manuals and software for a PC or Laptop, and two cord sets. The cord sets connect the uCal programmer to the SureStart unit and to your PC/Laptop.

Installing the uCal Software on your PC/Laptop

The CD contains an installation program (Install_SureStart) that automatically installs the software and necessary support files on your PC/Laptop.

Connecting the uCal Programmer to your PC/Laptop

The uCal programmer is connected to your PC/Laptop with a standard RS-232 cable (supplied in the kit). An optional USB adapter kit may be ordered if your PC/Laptop does not have a Serial port (RS-232). Note: The uCal Programmer is powered by the SureStart unit, i.e. the uCal Programmer WILL NOT WORK unless connected to the SureStart Unit. The SureStart unit MUST ALSO be connected to a power source.

Optional USB Adapter Kit

The optional USB adapter kit Converts a standard USB port into a serial port that is compatible with the uCal programmer. This kit also comes with a USB driver for Windows. This driver enables the standard uCal software and programmer to be used with a USB port.

Installing the USB Driver for Windows

Start your computer. Insert the USB Driver CD into your CD Drive. Plug the USB Connector (of the USB to Serial Adapter) into a USB port on your PC/Laptop. Follow the on-screen instructions of Window's device manager. When the device manager is finished, you are ready to run the uCal software.
See the USB Driver Installation instructions for specifics on Windows 98, ME, 2000 and XP.

Connecting the uCal Programmer to the SureStart™ Unit

Note: The uCal Programmer supports in vehicle programming (i.e. SureStart can be programmed while installed in a car, van, truck or boat etc.) or regular bench top programming (SureStart is not installed in a vehcile or vessel).

A custom cable is supplied in the kit that connects the uCal programmer to the SureStart unit. Both ends of this cable are identical. Either end connects to the SureStart or the uCal.

Starting the programming sequence

Make Sure that the PC/Laptop software is installed before you start this step.

In-Vehicle Programming

1) Turn off the ignition switch in the car, truck, van or boat etc.
2) Connect the Custom Cable to both the SureStart and the uCal Programmer. Connect the "Quick Connect" terminals together and attach the RED Clip to battery + , and the Black clip to Battery -. The Sure Start Marine has a Weather pack Connector that mates with the Programmer cable.
3) Connect the Serial (RS-232) Cable to both the PC/Laptop and the uCal Programmer (use the optional USB adapter kit if your PC/Laptop is not equipped with a serial Port).
4) DO NOT START YOUR VECHICLE/VESSEL !!
5) Launch the SureStart Software on your PC/Laptop.

Instructions for the PC/Laptop software are included below.

Desktop Programming

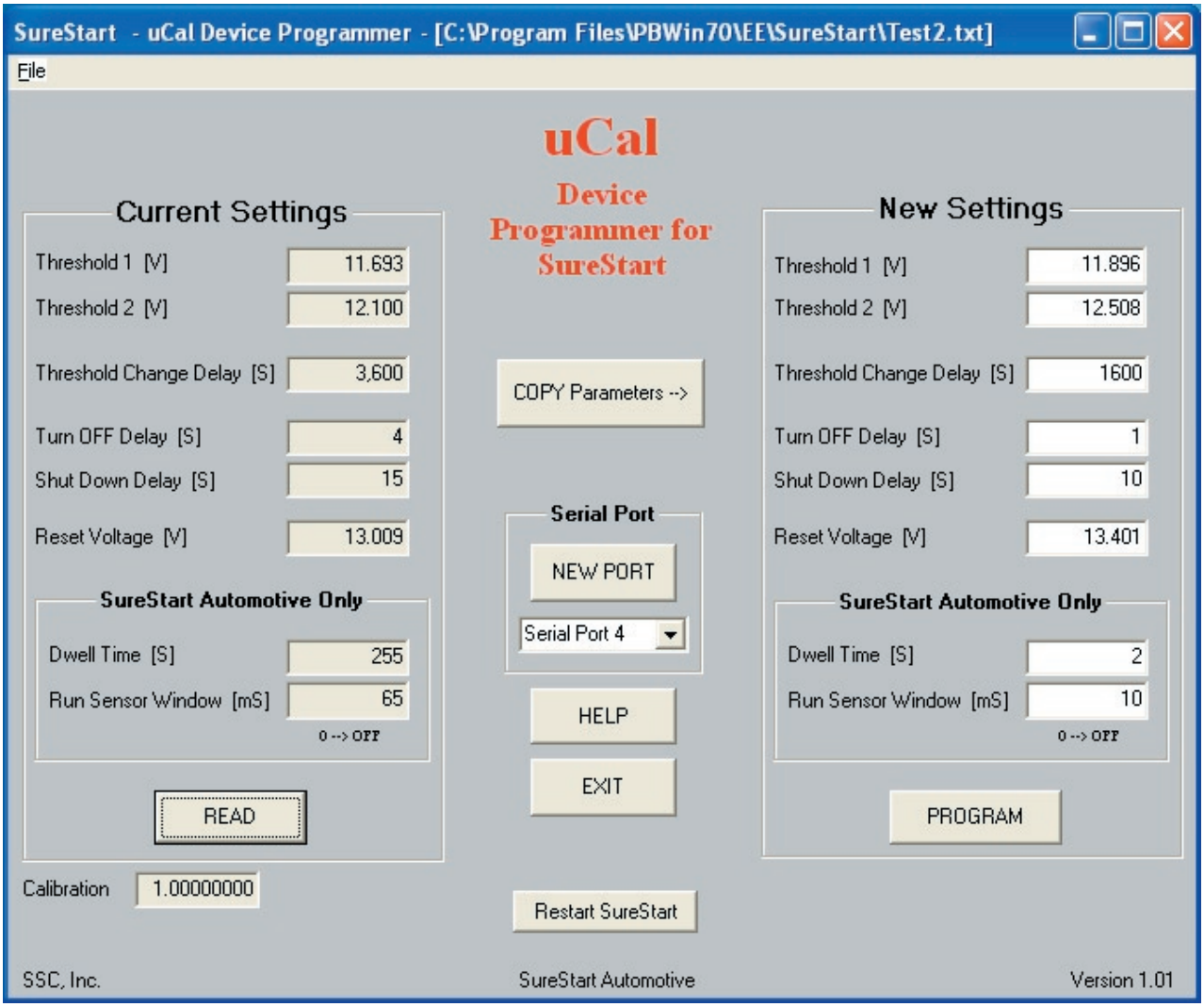
Note: Desktop programming requires that the SureStart unit is connected to a 12V DC power supply.

1) Turn off the 12V Power Supply
2) Connect the 12V Power Supply to SureStart (Both Positive and Ground) (See SureStart installation instruction for details).
3) Connect the Custom Cable to both the SureStart and the uCal Programmer. (The RED Clip Connects to +12V and the BLACK Clip to Ground).
4) Connect the Serial (RS-232) Cable to both the PC/Laptop and the uCal Programmer (use the optional USB adapter kit if your PC/Laptop is not equipped with a serial Port)
5) Turn on the 12V Power Supply
6) Launch the SureStart Software on your PC/Laptop

Instructions for the PC/Laptop software are included below.

Instructions for SureStart™ Software

The software that controls the Programming of the SureStart has two screens, a main screen and a help screen. Various messages and alerts are also employed. A picture of the main screen is shown below.



The border has the standard minimize, maximize and close button. It also shows the current file. "Unsaved File" indicates that no file has been opened or saved.

The File Menu (top left corner) Lets you Open, Save and Print Programming values. This lets the user store programming values for different vehicles/vessels etc. to be opened and re-used at a later time. The programming values can also be printed (All the values that you see on the screen is what prints). Only the "New Settings" programming values are stored to a file with the "Save" or "Save as" command. "Open"ing a file puts the programming values from that file only into the "Current Settings" are of the screen.

The Read Button transfers the current programming values from the SureStart into the "Current Settings" area of the screen.

The Copy Button copies the "Current Settings" area of the screen to the "New Settings" area of the screen

The Program Button re-programs SureStart with the programming values from the "New Settings" area of the screen.

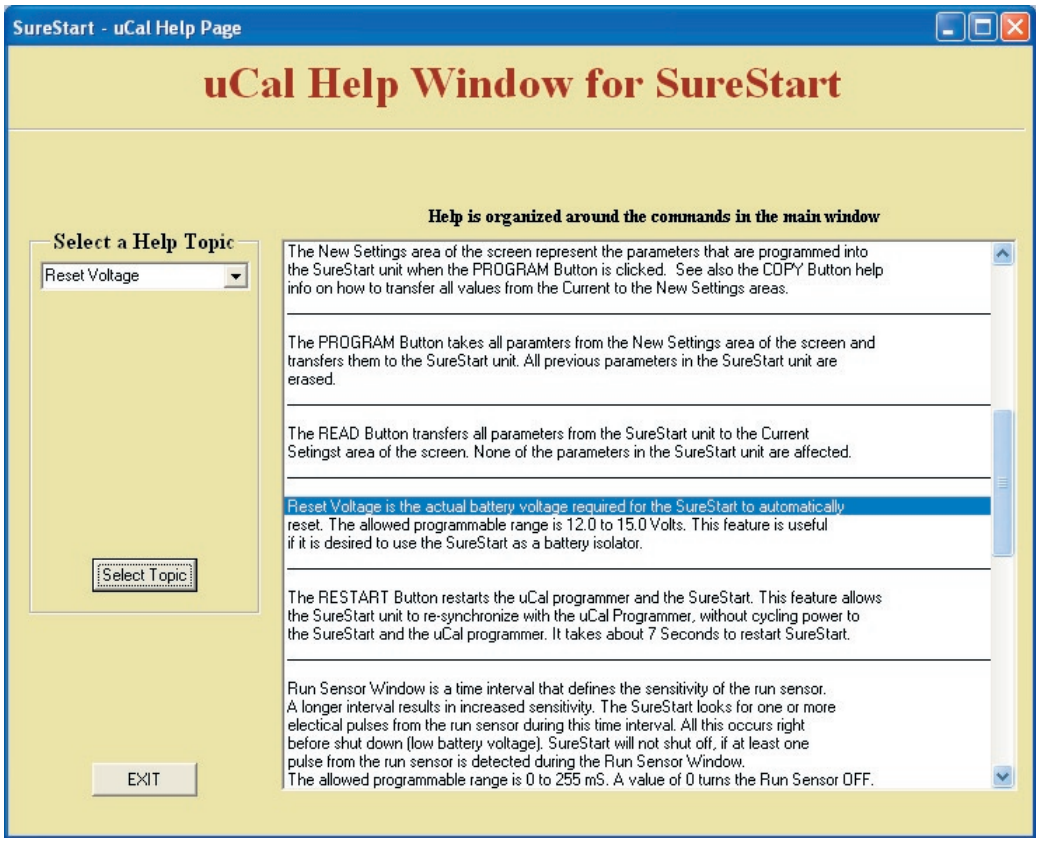
The Help Button opens the help screen. All the programming parameters are described as well as the function of the various buttons. This description is detailed below as well.

The Select Serial Port Box has pop-up box that lets you select a different serial port. Your Serial cable is normally connected to serial port 1. The USB to Serial adapter normally uses port 3 or 4, use windows device manager to determine which port to use, if unsure.

The New Port Button Activates the new port.

The Exit Button closes the Main window and quits the Pace1 program.

The Restart SureStart Button turns the SureStart off, and then back on. This function can be used to restore the communication link between SureStart and the uCal Programmer.



The uCal help Window for SureStart gives you a brief description of a programming parameter or a "Button". The scrollable window on your right lists descriptions for all programming parameters and "Buttons".

The Select a Help Topic pop-up box lets you pick a topic of interest.

The Select Topic Button scrolls the window on your right to the topic you chose.

The Exit Button closes the help window and returns the Main window.

Programming Values/Parameters

The **"Current Settings"** area of the Screen contains all the Programming values that are either read from SureStart ("Read" Button) or read from a file ("File -> Open"). The **"New Settings"** area of the screen contains all programming values that are either re-programmed into the SureStart ("Program" Button) or stored to a file ("File -> Save" or "File -> Save as"). The Print Command Prints all values shown on the screen (File -> Print).

Note: It is a good idea to read back the programming values into the "Current Settings" area of the screen after you re-program SureStart. This confirms that SureStart accepted the new values/parameters.

Only the "Current Settings" area of the screen will be described, since the "Current Settings" area of the screen is identical to the "New Settings" area of the screen. It should be noted, though, that only the "New Settings" are of the screen allows editing.

Calibration is a read-only parameter that shows the calibration value of the A/D Converter inside the SureStart. This parameter is set during final test of SureStart. It is not re-programmable.

Dwell Time [S] is a time delay, in Seconds, from when the SureStart shuts off, until the reset function is enabled. This assures that SureStart won't accidentally reset on noise, transients or electrical surges. The allowed programmable range is 0 to 255 Seconds. The factory Default is 5 Seconds.

NOTE: The Dwell time is fixed at 3 Seconds when SureStart is turned OFF by grounding the test lead.

Reset Voltage [V] is the actual battery voltage required for the SureStart to automatically reset. The allowed programmable range is 12.0 [V] to 15.0 [V]. This feature is useful if it is desired to use SureStart as a battery isolator. See the SureStart Data Sheet. The factory default is 13.0 [V]

Run Sensor Window [mS] is a time interval that defines the sensitivity of the run sensor. A longer interval results in increased sensitivity. The run sensor detects when the engine in your vehicle/vessel is running. SureStart is prevented from shutting off as long as the engine is running in your vehicle/vessel AND the run sensor is not disabled (run sensor window = 0). The SureStart Marine does not have a run sensor, since it employs a 3 way switch or RF Remote.
SureStart looks for one or more electrical pulses from the run sensor during this time interval, right before shut down (low battery voltage). SureStart will not shut off, if at least one pulse is detected from the run sensor during the run sensor window. The allowed programmable range is 0 to 255 milli Seconds. The factory default value is 65 milli Seconds.

Shut Down Delay [S] is a time delay, in Seconds, from when SureStart detects a low battery voltage until it actually turns off. The battery voltage has to be low during the entire shut down delay in order for the SureStart to turn off. The allowed programmable range is 1 to 255 Seconds. The factory default is 15 Seconds.

Threshold 1 [V] is the lower of the 2 thresholds (battery voltage at which SureStart turns off. SureStart default to threshold 1 when your vehicle/vessel is driven, and most of the time that your vehicle/vessel is parked/docked. The allowed programmable range is 8 to 15 Volts. The factory default is 11.7 Volts.

Threshold 2 [V] is the higher of the 2 thresholds. SureStart switches from threshold 1 to threshold 2 when your vehicle/vessel is parked/docked and the Threshold Change Delay has expired. Threshold 2 is then maintained during 1 minute, after which SureStart reverts to threshold 1. Threshold 2 assures that small electric loads do not slowly discharge your battery to a level where permanent battery damage is incurred. Threshold 2 is not

allowed to be set lower than threshold 1. The allowed programmable range is 8 to 15 Volts. The factory default is 12.1 Volts.

Threshold Change Delay [S] is a time delay, in Seconds, after which SureStart switches from threshold 1 to threshold 2. This time delay is not in effect when your vehicle/vessel is driven and the run sensor is active (not turned off). The timer for this delay is stopped as long as the run sensor detects that your vehicle/vessel is driven. The allowed programmable range is 0 to 65,535 Seconds (0 to 18.2 Hours). The factory default is 3,600 Seconds (1 Hour).

Turn OFF Delay [S] is a time delay, in Seconds, from when the SureStart test lead is grounded, until SureStart actually turns off. The test lead has to be grounded continuously during this time delay in order for SureStart to turn off. This delay prevents SureStart from accidentally turning off due to electrical transient, surges or noise. The allowed programmable range is 1 to 4 Seconds. The factory default is 2 Seconds.

For additional information, please do not hesitate to contact Safety Systems and Controls, Inc. 713/465-8839