SMART TOUCH™

PC PROGRAM INSTRUCTIONS FOR CREST and COPPERFIN MODELS

⚠ WARNING

This manual must only be used by a qualified heating installer / service technician. Read all instructions, including this manual, the Installation and Operation Manuals, and Service Manuals, before installing. Perform steps in the order given. Failure to comply could result in severe personal injury, death, or substantial property damage.

Lochinvar®
HIGH EFFICIENCY BOILERS & WATER HEATERS

Save this manual for future reference.

Contents

1 Installation

To begin installation, follow the steps below to download the software package and install it to your PC.

Program download

1. Visit www.LochinvarU.com.
2. Register or log in. If visiting for the first time, you will need to register a new account.
3. Click on the **Resources** link at the top of the page.
4. Click on the **SMART SYSTEM PC Software** link in the left column.
5. Select the version of the SMART SYSTEM PC program, based on your model number.
6. Click on the **View** button to begin the software file download.

Figure 1-1_LochinvarU Screen
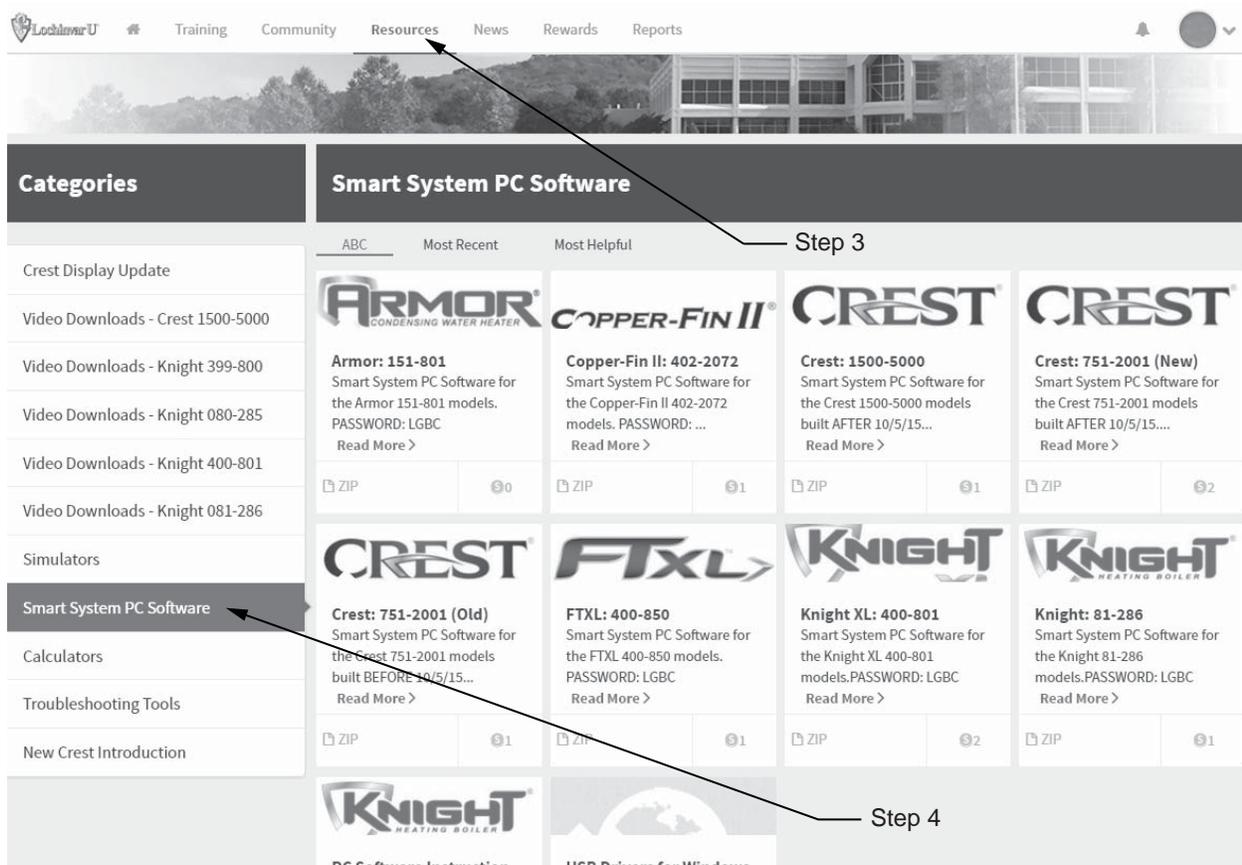
1   Installation

Program installation

1. Find the downloaded SMART SYSTEM PC program .ZIP file on your PC.
2. Extract the .ZIP files.
3. Open the folders containing the extracted files.
4. Select the WinPro application file.
5. If prompted, select RUN to run the application.

USB installation

Your PC will communicate with the SMART SYSTEM control through the USB cable or the USB cable adapter combo included with your kit.

NOTE: Units that utilize the USB cable adapter combo will require a specific USB driver, which may be installed by starting the SMART SYSTEM PC program and following these steps:

1. Click on the **Settings** or **Setup** pull-down menu.
2. Click on **ComPort** or **Install USB**.
3. Select the USB driver appropriate for your PC's operating system.
4. The driver will install automatically.

Program setup

The PC will assign a ComPort to your new adapter. You will need to know the ComPort number it uses in order to tell the Smart System PC program which one to communicate with:

1. Click on "**Start**", then "**Control Panel**". Click on the "**System**" icon (use the Classic View), then on the "**Hardware**" tab, and then on the "**Device Manager**" button. You will see a list of the hardware on your PC.

2. Double click on **"Ports (COM & LPT)"**. You will see an entry called **"USB Serial Port (COM4)"**. The ComPort number may be different on your computer, but the device description will be the same. The SMART SYSTEM PC program can communicate through ComPorts 1 – 16 on all models. If the ComPort value assigned by your computer is larger than what is available in the SMART SYSTEM PC program, you will need to manually reassign the ComPort on your computer.

3. Go back to the **"Ports (COM & LPT)"** area referenced above and take note of any unused ComPort between COM1 to COM16. Double click on the **"USB Serial Port"**.

4. Click on the **"Port Settings"** tab, then on the **"Advanced"** button. Select an unused ComPort number (preferably COM1) in the range of COM1 to COM16, then click on **OK**. Click **OK** on the previous window and then close all of the other windows.

5. Restart your PC to make sure the new ComPort number is active. When you attach the USB cable to the PC, the PC should now recognize the cabled connection. The first time you start up the SMART SYSTEM PC program, click on the **"Settings"** tab at the top of the screen, then click on **"ComPort"**. Select the ComPort number assigned to the USB cable above.

The program displays temperatures in °F. If you wish to display temperatures in °C, click on the "**Settings**" tab along the top of the Main Screen window, and choose "**Celsius**" from the "**Temperature**" pull-down menu.

⚠ **CAUTION**   DO NOT connect a phone line to the phone jack on the front display.

1   Installation

Figure 1-2 SMART TOUCH PC Main Screen

Figure 1-3 Sitecs937Lab Main Screen

Starting the program

To start the program, double-click on the icon (if you put it on your desktop), or click on **Start,** then **Programs,** and select the program. See FIG 1-2 and FIG 1-3 above.

There are two access levels for this program. The user access level allows only certain settings to be changed. The installer access level allows more settings to be changed. The program defaults to the user level when started. You will notice that a lock symbol appears in the lower right-hand corner of the window. To move to the installer level, a password must be entered. This password is located on a label on the CD-ROM case. You may enter the password by clicking on the "key" button in the upper left-hand corner of the window. A window opens in which you can type in the password (see FIG. 1-4). Note that the password is case sensitive and is in all CAPS. Click on the **Ok** button, or press the **Enter** key. You will notice that the lock symbol at the lower right-hand corner of the window has changed into a key symbol.

There are some fields along the bottom of the window (FIG. 1-2): The left field shows the location of the program. The next field shows the status of the communication between the PC and the SMART TOUCH. This will say "No connection" when the program is started. As soon as the program sends or receives data from the SMART TOUCH, this field will show "Connected". The right field shows the filename of the parameter file in the program's memory (see parameters in Section 6).

Figure 1-4 Password Window
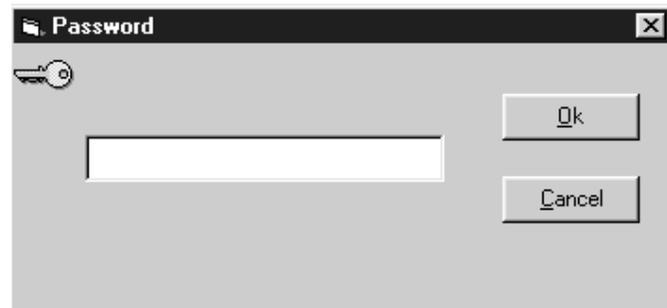
2 Status Screen

Figure 2-1 SMART TOUCH Status Screen
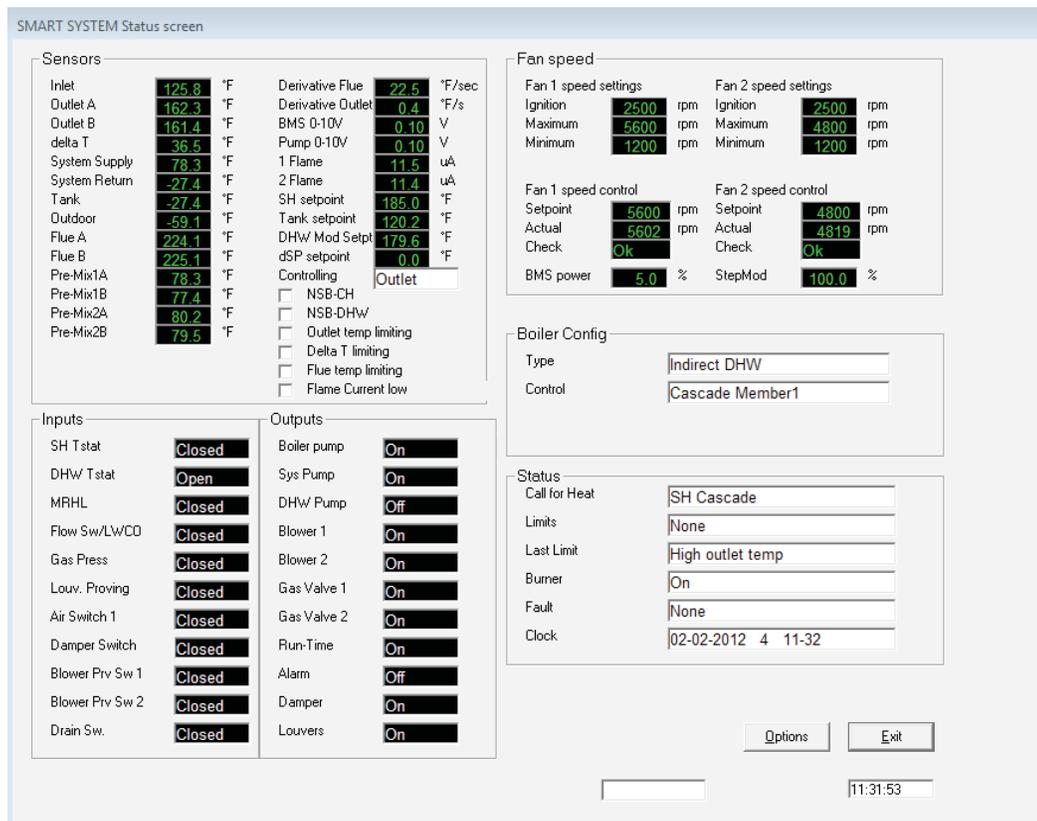
To monitor and record the operation of the heater, click on the **Status** tab along the top of the Main Screen window (FIG. 1-2, page 4).

The Sensors section displays the current temperatures. It also shows the delta T across the heat exchanger and the voltage being applied to the 0-10Vdc input (FIG. 2-1). The controlling sensor is shown below the items mentioned above. The default controlling sensor is the Outlet sensor. If a System Supply sensor is connected, the control will automatically use it as the controlling sensor.

Below the temperature readings are Derivative Flue and Derivative Outlet. These show how quickly these temperatures are changing. The control will take certain actions based on these values. Finally, the 0-10Vdc input Voltage and Flame Current are shown.

To the right of the sensor temperature readings are the various setpoints. The SH setpoint is the setpoint the SMART TOUCH uses during a space heating call for heat. Note that this setpoint will depend upon the outdoor temperature if the outdoor air sensor is connected. When the 0-10Vdc input is used, this setpoint will vary with the input voltage if it is used to control the setpoint. The HW setpoint is the setpoint used when a Tank sensor is connected. The HW Mod Setpt is the outlet temperature setpoint used when heating an indirect HW tank. The dSP setpoint is not used. Below these is a check box indicating if Night Setback is active or not.

Below the Sensors section is the Inputs section (FIG. 2-1). This section displays the status of the Enable (SH Thermostat) Input, HW Thermostat, Manual Reset High Limit, Flow Switch/Low Water Cutoff (optional), Gas Pressure Switch, Louver Proving Switch (optional), Air Pressure Switch, Blocked Drain Switch, Auto Reset High Limit Switch, and the status of the SH and DHW demands from ModBus.

Next to the Inputs section is the Outputs section (FIG. 2-1).

2 Status Screen

Figure 2-1 continued. . .
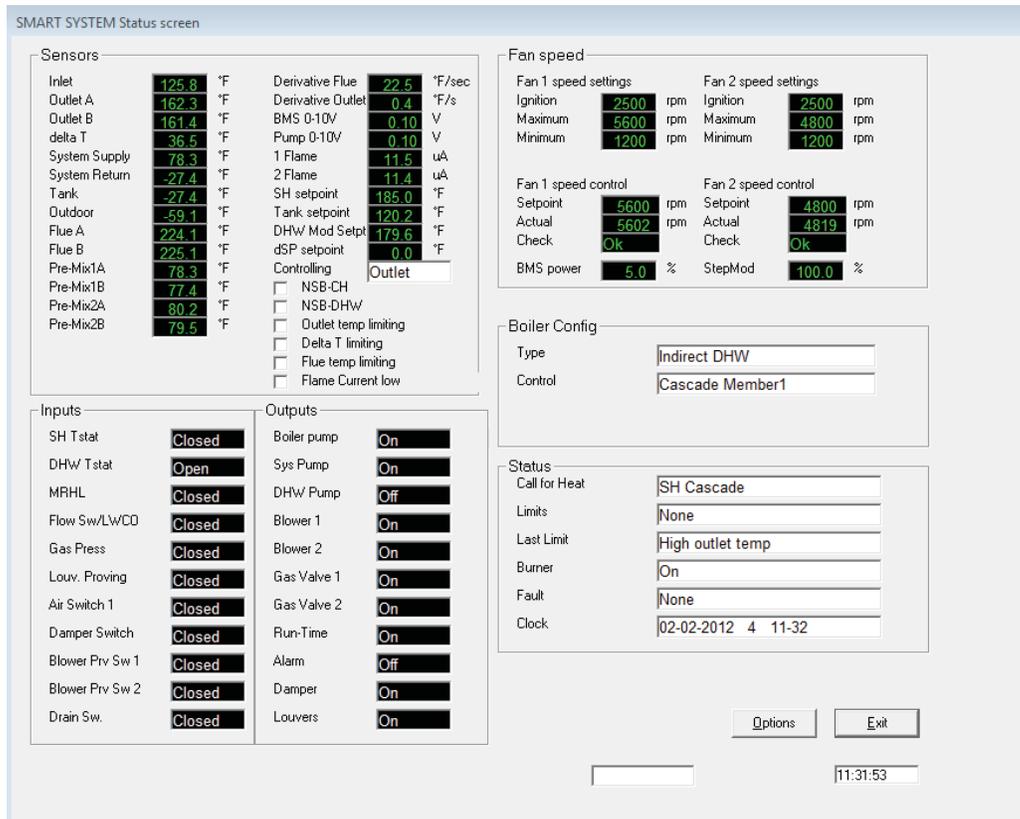
While in the SMART TOUCH Status Screen, you can generate a log file of the readings as the heater operates. Click on the **Options** button at the bottom right-hand corner of the screen (FIG. 2-1). Press the **LogFile** button and define a log file name and the directory in which you want it to be located. Click **OK**. When you want to start logging data, click the **Log** button. The **Log** button will turn green to indicate that it is logging. You will also notice the filename at the top of the window, and will see the size increase as data is logged to the file. To stop logging, click on the **Options** button, then click on the **Log** button again. The **Log** button will turn back to gray to indicate that logging has stopped. If you desire to log data over an extended period of time, you may want to select a longer Log every time so the log file doesn't grow too large.

You can also produce a bitmap of the window. Click on the **Options** button, then the **Bitmap** button. A bitmap of the window will be saved into the ENCONFLS directory below the directory in which the SMART TOUCH program resides.

3   Graphics Screen

Figure 3-1 SMART TOUCH Graphics Screen
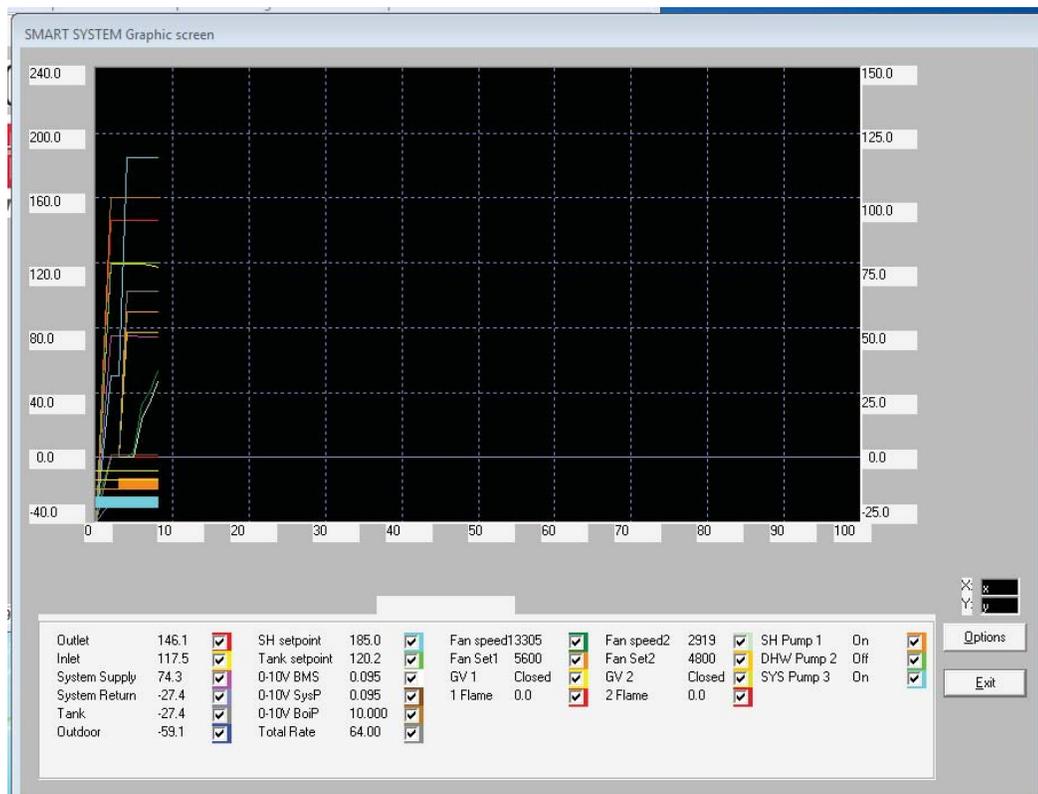
The Graphics Screen allows you to observe the changes in various readings while the heater operates (see FIG. 3-1). Note that the vertical scale has two numbers for each division. By default, the Outlet Temperature, Inlet Temperature, System Supply Temperature (if connected), Outdoor Temperature (if connected), Tank Sensor Temperature (if connected), Space Heating setpoint, Tank setpoint, 0-10Vdc input voltage, and fan speed are plotted.

In addition, the status of the ON/OFF devices are indicated by horizontal lines. When these readings are off, the line is thin; when on, the line is wide. Any of these readings can be removed from the graph by deselecting them at the bottom of the window. The current values of these readings are also displayed at the bottom of the window as depicted in FIG. 3-1.

The time scale and vertical (Y) scale can be changed by clicking on the **Options** button to get the Options window, and then the **Up** or **Down** buttons for the desired scale. The top number represents °F, and the bottom number represents °C. Press the **Ok** button to close the Options window. The background color of the Graphics Screen can be changed by pressing the **Display** button on the Options window.

As with the Status Screen, a log file can be generated to record the performance of the appliance. Click on the **Options** button to open the Options window. Click on the **LogFile** button to create a file name and define the folder in which to put it. Once a Log File is defined, click on the **Log** button to start logging the readings. The **Log** button will turn green to indicate that the program is logging, and the log file size will appear at the top of the Graphics Screen window. Note that the file size will increase as more readings are logged. Click on the **Log** button again to stop logging of the readings. The **Log** button will turn gray again to indicate that logging has stopped.

A bitmap can also be generated of the Graphics Screen. Click on the **Options** button, and then the **Bitmap** button. A bitmap of the window will be saved into the C:/program files/SMART TOUCH PC/ENCONFLS directory.

4   Fault History Screen

Figure 4-1 Fault History Screen

The Fault History Screen provides historical data about the operation of the SMART TOUCH controls.. Click on the **Fault history** button along the top of the Main Screen window (FIG. 1-2), and then click on **Read from Control** in the pull-down menu. After uploading data from the selected program, a window will appear with the status of numerous counters and lists of the most recent events (see FIG. 4-1 above). Included are details of the control board serial number, software version, default parameters, production date, and last service date. The number of times various faults have occurred is also shown. The last 10 faults are listed, as well as the last 10 blockings (a blocking is an event that causes the burner to shut off). In addition, the number of hours the control has operated in various states is shown, as well as the number of successful and failed ignition attempts. Finally, a count of internal checks is shown.

The total number of occurrences of certain faults are also stored in the control and shown on the left side of the screen. The column on the right shows the total occurrences since the control was built. The column on the left shows the total occurrences since the table was reset. Press the **Erase table** button at the bottom of the window to clear the totals in the column on the left. This will also clear the Last 10 faults and the Last 10 blockings.

Some of this information may be needed by a service technician to diagnose a problem, so provision is made to create a file in which to save this data. Click on **Save file**, and define a file name and the folder in which to save it. A bitmap can also be saved by clicking on the **Bitmap** button at the bottom of the Fault History Screen (FIG. 4-1). The bitmap file will be saved to the folder ENCONFLS located below the file in which the SMART TOUCH program resides.

5   Cascade Screen

Figure 5-1 Cascade Screen

The Cascade Screen provides the status of the cascade system. The PC must be connected to the Leader (address 0-1) appliance. Click on the **Cascade** button along the top of the Main Screen window (FIG. 1-2).

By clicking on the **Options** button, a log file can be defined, and logging can be started and stopped in the same way as with the Status and Graphics Screens previously described. A bitmap of the current screen can also be saved if desired.

6 Parameters

Parameter information screens

By accessing the Parameter Information Screens on the SMART TOUCH program, the installer can view all of the SMART TOUCH parameters. The installer can also change certain specific parameters to fine tune the operation of the boiler to the installation.

To access the parameter list, click on the **Parameters** button along the top of the Main Screen window (FIG. 6-1). Next click on **Retrieve Parameters from Controller** in the pull down menu (see FIG. 6-1). This will upload the current parameters in the SMART TOUCH to the PC.

Adjustable parameters are located in:

Set 1: **Serial Number and Date**

Set 2: **Functional Data**

Set 4: **Menu Values**

While many parameters are viewable in each set, only select parameters are adjustable. To make an adjustment to a parameter, select the parameter to be changed from the appropriate set. Click on the box next to the parameter and type in the value for the parameter.

Once an adjustment has been made to a parameter, it must be programmed into the SMART TOUCH. On the Parameter pull down menu, click on the **Program Parameters into Control** button. This will bring up another pull down menu. If a parameter was changed in just one set, select the set from the menu and click on it. If changes were made in multiple sets, select the **Store Parameter Set 0-6** from the menu and click on it. This will program the new parameters into the SMART TOUCH. If the parameters are based on a parameter set from a different model, they may not be compatible with this model. In that case, the program will display a message to let you know. You may compare parameter **1AR** in the SMART TOUCH control, and in the new parameter file, to determine if they are compatible.

While the programming is taking place, the SMART TOUCH will go into a lockout mode. It will require that the **Reset** button on the display be pressed after the programming has been completed before the unit will be allowed to operate.

Figure 6-1 Parameters Pull-Down Menu Screen

NOTES