



FURNACE UTILIZATION AND REPORTING SYSTEM TRACKING AND REPORTING SOFTWARE

OPERATIONS MANUAL

Super Systems Inc. 7205 Edington Drive Cincinnati, OH 45249 513-772-0060 Fax: 513-772-9466 www.supersystems.com Super Systems Inc. USA Office Corporate Headquarters: 7205 Edington Drive Shipping Address: 7245 Edington Drive Cincinnati, OH 45249 Phone: (513) 772-0060 http://www.supersystems.com

Super Systems Europe

Unit E, Tyburn Trading Estate, Ashold Farm Road, Birmingham B24 9QG UNITED KINGDOM Phone: +44 (0) 121 306 5180 http://www.supersystemseurope.com

Super Systems México

Sistemas Superiores Integrales S de RL de CV Acceso IV No. 31 Int. H Parque Industrial Benito Juarez C.P. 76120 Queretaro, Qro. Phone: +52 442 210 2459 http://www.supersystems.com.mx

Super Systems China

No. 369 XianXia Road Room 703 Shanghai, CHINA 200336 Phone: +86 21 5206 5701/2 http://www.supersystems.cn

Super Systems India Pvt. Ltd.

A-26 Mezzanine Floor, FIEE Complex, Okhla Indl. Area, Phase – 2 New Delhi, India 110 020 Phone: +91 11 41050097 http://www.supersystemsindia.com

Table of Contents

Introduction	4
Setup and Use Diagram	5
Prerequisites	6
Installation	6
FURS Concepts	8
Data Point	8
Additional Technical Details	8
Data Point Group	9
Data Points, Data Point Groups, and Report Generation	10
Scripting (VBScript)	11
Report Templates	11
Configuration Screens	11
If Using Load Data and Running FURS for the First Time	11
Using the Software	13
Main Window	14
File Menu	14
View Menu	15
Settings Menu	15
Help Menu	17
Language Menu	17
Data Point Setup Window	17
Data Point Group Setup	19
Report Generation	22
Revision History	23
Appendix 1: Configuration File Settings (AppOptions.xml)	24

Introduction

Part of the SSi SuperDATA suite of programs, the **Furnace Utilization Reporting System (FURS)** provides powerful tools for analyzing and generating reports on utilization of furnace equipment. FURS works seamlessly with SuperDATA, generating reports and visual graphs based on log file data created by SuperDATA. The cost of fuel to run a furnace (or group of furnaces) can be estimated based on log data and rates provided by the user. FURS allows for customized scripting based on VBScript.

The setup diagram below shows the suggested procedure for installing, configuring, and using FURS.

Setup and Use Diagram

Step	Re	sult	See Page
Verify Prerequisites	Microsoft Netto SQL Server 2008	FURS prerequisites are installed. These include .NET Framework 3.5 or higher and, if using load data, SQL Server 2008 R2 Express Edition or higher.	6
Install Furnace Utilization Reporting System		FURS is installed and ready to be opened.	6
Configure Options	Options Gas Row Unt: Litres/Minute Currency: EUR Start of Week (Sunday Custom Unit Genetic	Options are configured for gas flow unit; currency type; start of the week; any custom unit needed for reporting purposes; and rates for electricity, gas, and the custom unit (if set up).	17
Create Data Points	Image: Setup Name LooM Minute 1 MINUTE Minute 2 MINUTE	Data Points are created for measurable properties of a furnace.	17
Create Data Point Groups; Assign Data Points to Groups	St Data Point Groups Setup Available Data Point Group(s) Data Point(s) in Test Marcle 1 Marcle 1 Marcle 1 Building 2 Marcle 1	Data Point Groups are created. Each group represents a particular area, location, or other logical grouping of Data Points. Data Points are categorized into appropriate Data Point Groups, allowing for accurate classification when reporting.	19
Run Reports		Reports are generated by FURS and used for cost/productivity analysis and planning.	22

Prerequisites

FURS has some prerequisites in order to run properly. Windows XP or higher operating system is required. Windows 7 or higher is recommended.

Microsoft .NET Framework 3.5 or higher is required to run FURS. The URL for .NET is as follows: <u>http://www.microsoft.com/net/downloads</u>.

Required for accessing load data (optional) from an SQL Server: SQL Server 2008 R2 Express Edition or higher. The URL for downloading SQL Server 2008 R2 Express Edition is as follows: <u>http://www.microsoft.com/en-us/download/details.aspx?id=30438</u>. [Note: If load data is being accessed, the <UseSQLEXPRUtilDB> option will be "true" in the AppOptions.xml file. See the Appendix 1: Configuration File Settings (AppOptions.xml) section for more information.]

Installation

To install, open the "SetupFUR.msi" file. The **Setup Wizard** window will appear. Click "Next" continue.

Name	
🐻 setup.exe	
🔂 SetupFUR.msi	

😼 SSi Furnace Utilization Reporting	- • •
Welcome to the SSi Furnace Utilization Report Setup Wizard	ing 🕵
The installer will guide you through the steps required to install SSi Furnace Utili: your computer.	zation Reporting on
WARNING: This computer program is protected by copyright law and internation Unauthorized duplication or distribution of this program, or any portion of it, may or criminal penalties, and will be prosecuted to the maximum extent possible und	result in severe civil
Cancel < <u>B</u> ack	Next >

The **License Agreement** window will appear. Read the terms of the license and, if in agreement, select "I Agree" and then click "Next".

The next window will give you the options to change the installation folder for FURS, to install FURS for the current user or for all users of the computer, and to estimate the amount of disk space that will be used when the program is installed. Click "Next" to continue.

SUGGESTED: Record the folder name where FURS is installed so that you can refer to it in the future.

A **Confirm Installation** window will appear. Click "Next" to continue.

😸 SSi Furnace Utilization Reportin	a		
License Agreement	9		
License Agreement			
Please take a moment to read the lic Agree", then "Next". Otherwise click	ense agreement now. If : "Cancel".	you accept the tern	ns below, click "I
END-USER LICENSE AGR IMPORTANT-READ CARE! ("EULA") is a legal agreem entity) and Super Systems accompanies this EULA, we Systems Internet-based se to this EULA may accompt BY THE TERMS OF THIS I THE SOFTWARE. IF YOU OR LISE THE SOFTWARE	FULLY: This End-Us ent between you (eit Inc. for the Super S hich includes assoc rvices ("Software"). any the Software. Y EULA BY INSTALLI DO NOT AGREE, I	er License Agre ther an individual ystems software iated media and An amendment OU AGREE TO NG, COPYING, DO NOT INSTAL	eement I or a single e that d Super or addendum BE BOUND OR USING LL, COPY,
○ I Do Not Agree	Agree		
	Cancel	< <u>B</u> ack	Next >
🗒 SSi Furnace Utilization Reportin	a		
Select Installation Fo			
To install in this folder, click "Next". Eolder: [C:\SSNBin\SSi Furnace Utilizatio Install SSi Furnace Utilization Rep	n Reporting\		B <u>r</u> owse Disk Cost
© <u>E</u> veryone ⊚ Just <u>m</u> ei			
	Cancel	< <u>B</u> ack	<u>N</u> ext >
影 SSi Furnace Utilization Reportin	9		
Confirm Installation			
The installer is ready to install SSi Fu Click "Next" to start the installation.	rnace Utilization Reporti	ng on your compute	м.
	Cancel	< <u>B</u> ack	<u>N</u> ext >

An installation status window will appear.

If a window appears on screen asking if you want to authorize changes being made to your computer, simply choose "Yes".

📅 SSi Furnace Utilization Reporting	
Installing SSi Furnace Utilization Reporting	
SSi Furnace Utilization Reporting is being installed.	
Please wait	
Cancel < Back	<u>N</u> ext >
🔛 SSi Furnace Utilization Reporting	- • •
岁Si Furnace Utilization Reporting Installation Complete	
Installation Complete	
Installation Complete SSi Furnace Utilization Reporting has been successfully installed.	
Installation Complete SSi Furnace Utilization Reporting has been successfully installed.	
Installation Complete SSi Furnace Utilization Reporting has been successfully installed.	
Installation Complete SSi Furnace Utilization Reporting has been successfully installed.	
Installation Complete SSi Furnace Utilization Reporting has been successfully installed.	
Installation Complete SSi Furnace Utilization Reporting has been successfully installed.	
Installation Complete SSi Furnace Utilization Reporting has been successfully installed.	
Installation Complete SSi Furnace Utilization Reporting has been successfully installed. Click "Close" to exit.	
Installation Complete SSi Furnace Utilization Reporting has been successfully installed. Click "Close" to exit.	

Once the installation process has finished, the **Installation Complete** window will appear. Click "Close" to close the window.

FURS Concepts

Before using FURS, it is helpful to have an understanding of the concepts used in the software.

<u>Data Point</u>

The main building block of a FURS report is a Data Point. A **Data Point** represents a measurable property associated with a furnace. Examples might include fuel consumption, non-production time, load time, or percentage of utilization during certain periods of the day. Data is gathered from SDIO (the SuperDATA communications engine) and, for calculations that involve loads, from an SQL database. Using scripting within the program, the user can then instruct FURS on how to use that data to generate meaningful calculations on a furnace property. These calculations are used to generate Data Points, which are then used to generate graphs, tables, and reports within FURS.

Additional Technical Details

A data point represents a one-minute resolution data item which is calculated by using any number of available "raw data points" as inputs. The VBScript language can be used on the inputs to create the desired output.

Currently, data points with the following units of measurements are available in the program:

- *scfm* (Standard Cubic Feet per Minute)
- *m³m* (Cubic Meter per Minute)
- litres/minute
- *kwh* (Kilowatt Hour)
- minute
- USD (US Dollar)
- *EUR* (Euro)
- *GBP* (British Pound Sterling)

A data point will have a script (in VBScript syntax) that tells the program how to generate usable data from raw data. A simple script to determine a data point value follows:

result.value = (c1s1.value + c2s2.value + c3s3.value) / 3

In the above script, the data point value is simply the average value of the three raw data points: clsl.value, c2s2.value, and c3s3.value. The names of raw data points are predefined as cxsy.value. Descriptions for the raw data points are available in the program.

Depending on the unit of measurement of the data point, available reports for the data point will be determined automatically by the program. For example, a data point with a unit of measurement of *scfm* will have a "Gas Usage" report available.

Data Point Group

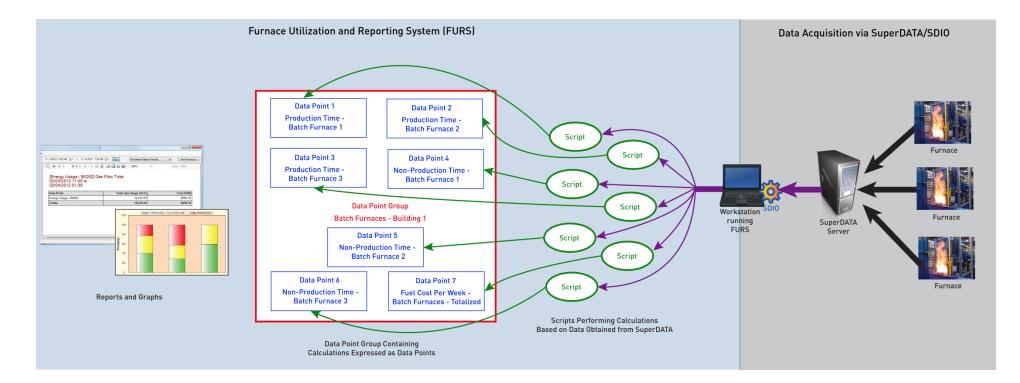
Once Data Points have been defined, they can be added to Data Point Groups. A **Data Point Group** is a collection of data points typically organized by shared location, building, department, type of furnace, or some other common trait. For example, a Data Point Group may be created for "Batch Furnaces – Building 1" and may include Data Points such as:

- Production Time Batch Furnace 1
- Production Time Batch Furnace 2
- Production Time Batch Furnace 3
- Non-Production Time Batch Furnace 1
- Non-Production Time Batch Furnace 2
- Non-Production Time Batch Furnace 3
- Fuel Cost per Week Batch Furnaces Totalized

With FURS's scripting abilities, the possibilities become very diverse as the availability of raw data increases.

Data Points, Data Point Groups, and Report Generation

The diagram below illustrates how FURS operates. First, the SuperDATA server acquires data on furnace operation from furnace instrumentation. That data is shared with a computer running FURS using SDIO, the SuperDATA communications engine. Using the acquired data, FURS executes one or more scripts. The results of the script calculations are then applied to Data Points within Data Point Groups. Using the organized data, FURS can generate reports and graphs.



Scripting (VBScript)

The purpose of a script is to allow the generation of reportable data from raw data. A script will have an output and one or more raw data input(s). Programming logic would be used on raw data points to generate the reportable output.

Below are the naming conventions for use in scripting:

- Script output shall always be referenced as: result.value
- Script input(s) shall be referenced as: cxsy.value (where x is the channel number and y is the slot number).

Examples of valid raw data points: c1s1.value, c2s2.value, c10s2.value.

Possible Example:

A customer is interested in knowing how much time his furnace is in production based on the following condition:

- Furnace temperature (identified by clsl.value) is greater than 1400 degrees F.
- A recipe is running (when c2s2.value = 1)

The below script will be appropriate for this case:

```
if (cls1.value > 1400 and c2s2.value = 1) then
    result.value = 1
else
    result.value = 0
end if
```

Report Templates

The program will allow saving all of its configuration parameters in a template to allow that template to be reused later. Report templates will be saved in separated XML files to allow greater portability. Report templates can be modified and saved. Multiple report templates can be created but only one can be used at a time. The Save and Load template feature is accessible under the File menu of the program.

Configuration Screens

All configuration information will be stored in the database of the program. The order of configuring in this section is important and should be followed before reports can be generated.

The screens are captured on a new installation of the program so that a user can easily follow after installing his program.

If Using Load Data and Running FURS for the First Time

Before running FURS for the first time on the computer where it is installed, follow these steps. Doing so will help ensure that FURS starts and runs smoothly and that the program is able to recognize where to obtain load data from.

- 1. Determine whether the load database will be:
 - a. Stored on the local machine or
 - b. Accessed from a server.

2. In Windows Explorer, open the folder where FURS is installed. A common folder location for FURS is "C:\SSi\Bin\SSi Furnace Utilization Reporting" (but this is not always the case).

🔍 🗢 📕 🕨 Computer 🕨 OS (C:) 🕨 SSi	Bin SSi Furnace Utilization Reporting			• 1	Search SSi
Organize 🔻 🚼 Open 🔻 Burn I	New folder			8=	→ 🗍
☆ Favorites	Name	Date modified	Туре	Size	
Desktop	Images	6/19/2014 3:25 PM	File folder		
Downloads	Scripts	6/19/2014 3:25 PM	File folder		
Recent Places	Templates	6/19/2014 3:25 PM	File folder		
Google Drive	AppOptions.xml	6/9/2011 9:29 AM	XML Document	1 KB	
kyDrive	AutoUpgrade.Lib.dll	6/17/2010 10:16 AM	Application extens	36 KB	
	🚰 dat.sdf	6/17/2011 11:18 AM	SQL Server Comp	272 KB	
🧊 Libraries	💭 favicon.ico	12/29/2009 12:58	Icon	6 KB	
Documents	EUR.exe	6/17/2011 11:20 AM	Application	1,160 KB	
👌 Music	FUR.exe.config	3/3/2011 8:31 AM	CONFIG File	2 KB	
E Pictures	🖹 FUtilDBGen.sqlce	1/26/2011 8:33 AM	Microsoft SQL Ser	6 KB	
Subversion	🔁 Help.pdf	10/17/2013 10:44	Adobe Acrobat D	558 KB	
Videos	Interop.MSScriptControl.dll	6/17/2011 11:20 AM	Application extens	15 KB	
	Microsoft.ReportViewer.Common.dll	7/29/2008 3:09 PM	Application extens	3,564 KB	
🜉 Computer	Microsoft.ReportViewer.ProcessingObjec	1/14/2011 9:02 AM	Application extens	52 KB	
🚢 OS (C:)	Microsoft.ReportViewer.WinForms.dll	7/29/2008 3:09 PM	Application extens	332 KB	
💮 BD-ROM Drive (E:) SDStatus	🚳 msscript.ocx	7/13/2009 9:14 PM	ActiveX control	93 KB	
👝 SolidState (F:)	🚳 sqlceca35.dll	5/25/2010 3:35 PM	Application extens	336 KB	
🖵 Engineering (\\ssisvr) (J:)	🚳 sqlcecompact35.dll	5/25/2010 3:35 PM	Application extens	83 KB	
🕎 Systems (\\ssisvr) (L:)	🚳 sqlceer35EN.dll	5/25/2010 3:35 PM	Application extens	145 KB	
Marketing (\\SSITERMINAL) (M:)	🚳 sqlceme35.dll	5/25/2010 3:35 PM	Application extens	64 KB	
🖵 Quality System Documentation (\\ssisv	🚳 sqlceoledb35.dll	5/25/2010 3:35 PM	Application extens	169 KB	
🖵 AutoCAD (\\ssisvr) (R:)	🚳 sqlceqp35.dll	5/25/2010 3:35 PM	Application extens	630 KB	
🖵 Techdata (\\ssiterminal) (T:)	🚳 sqlcese35.dll	5/25/2010 3:35 PM	Application extens	341 KB	
🖵 Visual MFG (\\ERPSVR) (V:)	SSIGlobablization.dll	10/14/2010 11:05	Application extens	14 KB	
🖵 Firmware (\\SSISVR) (W:)	SiLoadsDBInfo.xml	5/27/2011 10:05 AM	XML Document	1 KB	
🖵 Docs (\\ssisvr) (X:)	SSiSite_EULA.rtf	9/27/2010 10:17 AM	Rich Text Format	27 KB	
🖵 Main (\\ssisvr) (Y:)	🚳 System.Data.SqlServerCe.dll	5/25/2010 4:58 PM	Application extens	266 KB	
🖵 SD_Install_CD (\\ssisvr) (Z:)	🚳 ZedGraph.dll	7/13/2006 11:49 PM	Application extens	264 KB	

- 3. Open the file AppOptions.xml in a text editor (such as Notepad).
- 4. Find the tag for option **UseSQLEXPRUtilDB**. The open tag is <UseSQLEXPRUtilDB> and the close tag is </UseSQLEXPRUtilDB>. The value for the option will be *true* or *false*.



- 5. The next actions you take will be based on whether the load database is stored locally or accessed from a server.
 - a. If the load database will be stored on the local machine, make sure that UseSQLEXPRUtilDB is *true*. Then save the AppOptions.xml file and close it. Proceed to the Using the Software section.
 - b. If the load database will be accessed from a server, make sure that UseSQLEXPRUtilDB is *false*. Then enter the following parameters for the SQLEXPRUtilDBConnString:
 - Server (the location of the SQL Express server)
 - Database (the name of the database)
 - UserID (the login/user ID of a user with permissions needed to access the database)
 - Password (the password for the user)
 - Trusted_Connection (True or False—whether the SQL connection is trusted or not)

Save the AppOptions.xml file and close it. Proceed to the Using the Software section.

Using the Software

IMPORTANT!

If you are running FURS for the first time on the computer where it is installed and intend to use FURS to analyze load information, please refer to the section If Using Load Data and Running FURS for the First Time before using this section.

Main Window

This is the entry point and the main window of the program.

XX SSE formace Utilization Reporting Image: Control of the second s
Prevent Object 5/ 2/2010 12:00 AM • 5/ 8/2010 12:00 AM • Run Time Running a Load Image: Dear Point Group To Create a report object from the top left side list. To Create a report object from the top left side list. Image: Dear Point In Freet Select on of the scalable reports from the lower left side list. Image: Dear Point Select on of the scalable reports from the lower left side list. Image: Dear Point Select on of the scalable reports from the lower left side list. Image: Dear Point Select on of the scalable reports from the lower left side list. Image: Dear Point Select on of the scalable reports from the lower left side list. Image: Treet Select on of the scalable reports from the lower left side list. Image: Treet Select on of the scalable reports from the lower left side list. Image: Treet Select on of the scalable reports from the lower left side list. Image: Treet Select on of the scalable reports from the lower left side list. Image: Treet Select on of the scalable reports from the lower left side list. Image: Treet Select on of the scalable reports from the lower left side list. Image: Treet Select on of the scalable reports from the lower left side list. Image: Treet Select on of the scalable reports from the lower left side list.
Deta Point Group Department 1 in Production Select a deta time range using the section above this instruction. Color Run button. Test Test USD Mrute 2

The menu section at the top of the window allows access to features of the program such as save template, load template, data point setup, data point group setup, non-production time setup, options, etc.

The left hand side panels allow users to select what object to report on and what report to display on the right hand section of the window.

Description
This option allows you to save a template file with the .tfl extension.
The template file contains the Data Point and Data Point Group data
and can be loaded into FURS in future instances.
This option allows you to select a template file for FURS to load.
Once the template file is loaded, saved Data Point and Data Point
Group information will be loaded into the program.
This option closes FURS.

View Menu

Option	Description
Show Left Panel	When this option is checked, the left menu is displayed. The left menu shows Data Points, Data Point Groups, and report types that are available within FURS.

Settings Menu

Option		Descr	ription		
Data Points Setup	This option brings u	ıp the Data Poi	nts Setup	window. See	the Data
	Point Setup Window	/ section on pa	ge 17 for r	nore details.	
Data Point Group	This option brings u	ip the Data Poi	nt Group S	Setup window	. See the
Setup	Data Point Group Se	etup section or	n page 19 f	or more deta	ils.
Price Point Setup	This option allows y in heat treating pro- field, with the unit o The Cost per Unit is for the price point c defined periods acc	cesses. The ga of measurement entered in the an be manuall	is is deterr nt determine Cost field y entered	mined by the ned by the Ur I. Start and e or selected fi	Gas Type nits field. nd dates
疑 Price Point Setup				×	
Name	Start Date End Date	Units	Cost	Gas	
	Add & Edit Price Point			8	
	Pre-defined Periods		▼		
	Price Point Name	[Name Your Price Point	t]		
	Start Date	07/12/2014 13:43			
	End Date	08/12/2014 13:43			
	Cost	0.0088			
	Units	SCFM	•		
	Gas Type	n.a	•		
	0	Cancel			
Add Co	py Edit Delete]	ОК	Cancel	
					-

	Optior	า		Des	cription		
Shift Se			This option give	s you the ability t		n FURS. Tim	es are
	•		entered in a 24-hour format (for example, 4:00 p.m. is entered as				
			16:00).				
	55/ Shi	ift Setup					
		Name		Start Time	End Time		
		1st		06:00	14:00		
		2nd		14:00	22:00		
			Add & Edit Shift		8		
			Shift Na	me 3rd			
			Start Ti	me 22:00			
			End Ti	me 06:00			
				00.00			
				K Cancel			
		ld Copy.	. Edit Del		ОК	Cancel	
		сору.		sic			
Non Pro	oductio	n Time	Using this optio	n, you can enter	specific periods	s of non-prod	uction
				on what the non			
ĺ	SV Non	Production Tim	A				1
		rioddellon min	-				
		Data Point	Start Time	End Time	Notes		
	Þ	Minute 1	08/11/2014 13	:44 08/12/2014 1	13:44 Notes		
			\\ ଯ Add & Edit Non P	roduction Time	- • •		
			Data Point				
			Data Folin	Test	▼		
			Start Time	8/12/2014 2:19 -			
			End Time	0/10/2014 2:25 -			
				8/12/2014 3:25 -			
			Notes	Burner maintenahce perfo	omed		
				pone			
					-		
				OK	Cancel		
						Canaci	
	Ad	id Ed	t Delete		ОК	Cancel	

Super Systems Inc.

Option	Description	
Options	Options allow you to configure units and rates used within FURS. Gas flow units can be standard cubic feet per minute (SCFM), cubi meters per minute (M3M), or litres per minute. Currency can be U Dollars (USD), Euro (EUR), or British pound sterling (GBP). The	
	start of the week can be set up as any of the seven days of the	
	week. A custom unit can be set up, along with rates for electricity	,
	gas, and whatever custom unit is set up.	
	Options 💼 📼	
	Gas Flow Unit: M3M	
	Currency: USD -	
	Start of Week Sunday	
	Custom Unit Generic	
	Electricity Rate: 0.011 USD/KWH	
	Gas Rate: 0.0088 USD/M3	
	Custom Unit Rate 0.021 USD/Generic	
	OK Cancel	

Help Menu

Option	Description
Check for Updates	This option will check for updates to the FURS program. If updates are available, FURS will give you the option to have them downloaded and installed. An Internet connection is needed for this option to work.
Open Help File	This option will bring up the manual for FURS.
About	This option will bring up a window showing version details for FURS. It also provides the link to download the installation file for Realtime Utilization features.

Language Menu

The Language menu displays the available languages for the FURS interface. Two letters denoting each available language are shown. For instance, *en* represents English.

Data Point Setup Window

To access this window, select Settings -> Data Points Setup... from the main window.

This window allows setting up data points for use in the program. The following figure shows this window.

Furnace Utilization Reporting System (FURS) Operations Manual

	UoM	Script	Gas	Resets to 0
Test	MINUTE	result.value = c1s20.value	n.a	
Test KW	Total KW	result.value = c1s0.value	n/a	
Test USD	USD	result.value = c1s9.value	n/a	
Minute 1	MINUTE	if(c1s0.value > 1)thenresult	. n.a	
Minute 2	MINUTE	if(c1s1.value < 200) thenre	. n.a	

Clicking **Add...** (Or **Edit** when applicable) in the above screen will bring up the screen below. Note that the available raw data points are listed on the right side of the window.

Data Point Name	Available raw data points		Snapshot Ti	me: 8/28/2014 2:22 PM 🔍 🗸 Upda	te Snapshot
Fumace 1 In Production	Data Point ID	Channel	Slot	Snapshot	*
Unit of Measurement	c1s0.value	F42Temp	Atm	0	
MINUTE -	c1s1.value	F42Temp	Atm_sp	0	
Resets to 0	c1s2.value	F42Temp	Temp		
	c1s3.value	F42Temp	Temp_sp	0	
Daily Utilization to SDIO	c1s4.value	F42Temp	Probe_temp	0	
Day Start Time	c1s5.value	F42Temp	Probe_mv	0	
02:00 PM	c1s6.value	F42Temp	Atm_pout	0	
	c1s7.value	F42Temp	Temp_pout	0	
Channel Slot F42Temp Slot 0	c1s8.value	F42Temp	Events_out	0	
F42Temp Slot 0	c1s9.value	F42Temp	Events_out_sp	0	
Weekly Utilization to SDIO	c1s10.value	F42Temp	Prog_Rem_time	0	
	c1s11.value	F42Temp	Quench_Time	0	-
Week Start Day	Script: Edit this script using th	e available raw data points as inputs ==>		-	
Sunday 👻	if (c1s2.value > 1300) then			
Channel Slot	result.value =	1			
F42Temp - Slot 0	else result value =	0			
Monthly Utilization to SDIO	end if	-			
Month Start Date					
0					
Channel Slot					
F42Temp V Slot 0	Select from saved scripts	Save script to template	erify script	OK Can	

Creating a data point using the above window is straightforward. A data point name, a unit of measurement, and a script are the required information. A sample script is automatically inserted as a hint. Once a data point is customized as needed, clicking OK will save it to the

database. The newly created data point is now ready for reporting or for inclusion in data point group(s).

In the above screen, a data point named "Furnace 1 In Production" will be created. The script of this data point will yield a result of 1 (minute) for any minute that the value of c1s2.value is greater than 1300°F. The right side grid of the window indicates that c1s2.value contains temperature information.

Other features in this window:

- Select from saved scripts...: allows users to select from any saved script to use with current data point.
- Save script to template: allows users to save current script to a text file to use later.
- Verify script...: allows users to check the current script for any errors so that adjustments can be made. This feature also allows users to provide input(s) and verify that the script generates the correct output.
- Update Snapshot: allows users to pick a time and see values of raw data points at that time to get a perspective of the data.

Data Point Group Setup

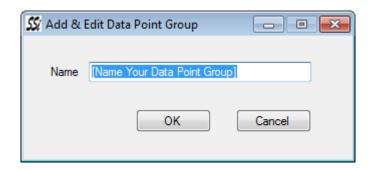
To access this window, select Settings -> Data Point Group Setup... from the main window.

This window allows adding/editing data point groups. Information needed to set up a data point group includes a name and needed data points.

\\ Data Point Groups Setup			
Available Data Point Groups Setup Test Minutes	Data Point(s) In Selected Group Minute 1 Minute 2	<	Available Data Point(s) To Add Test Test KW Test USD
		× >>	
Add Edit Delete			OK

Clicking Add... in the above screen will bring up the screen below.

Furnace Utilization Reporting System (FURS) Operations Manual



Provide a name for the data point group.

🕵 Add & I	Edit Data Point Group		×
Name	Department 1 in Production		
	ОК	Cancel	

After the data point group is added, data point(s) can be added to the group as shown in the following screens.

🕵 Data Point Groups Setup				- • •
Mata Point Groups Setup Available Data Point Group(s) Test Minutes Department 1 in Production	Data Point(s) In Selected Group	<	Available Data Point(s) Test Test KW Test USD Minute 1 Minute 2	
Add Edit Delete		<	ОК	Cancel

Resulting main window after the data point group is added follows.

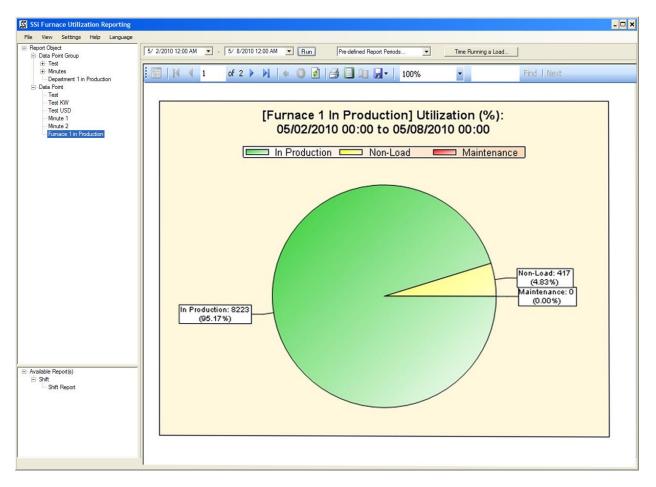
Super Systems Inc.

Furnace Utilization Reporting System (FURS) Operations Manual

🔀 SSi Furnace Utilization Reporting		- 🗆 ×
File View Settings Help Language		
E - Report Object ⊡ Data Point Group	5/ 2/2010 12:00 AM 💌 - 5/ 8/2010 12:00 AM 💌 Run Pre-defined Report Periods 💌 Time Running a Load	
B Test B Mrutes Department 1 in Production Data Point Test Test Test KW Test USD Mrute 1 Mrute 2 Fumace 1 in Production	To Create a report : 1. Select a report of the value for the top left side list. 2. Select on of the value interports from the boyer left side list. 3. Select a date time range using the section above this instruction. 4. Click Run button:	
Shift Report		

Report Generation

From here users can follow the instructions on screen (green text) to generate report(s). Following is a sample report for the data point that was created earlier.



Furnace Utilization Reporting System (FURS) Operations Manual

Revision History

Rev.	Description	Date	MCO #
New	New manual		
А	Changes to manual to reflect interface changes and functionality extensions	9/10/2014	2150

Appendix 1: Configuration File Settings (AppOptions.xml)

Each installation of the program comes with a configuration file named AppOptions.xml, which controls how the program works.

The location of the file is the installation folder of the program. The default location for this file is C:\SSi\Bin\SSi Furnace Utilization Reporting.

This section will provide explanations for each setting in the file.

Below are the contents of the default AppOptions.xml file:

```
<?xml version="1.0" encoding="utf-8"?>
<Options xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"</pre>
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
 <GasUsageUoM>SCFM</GasUsageUoM>
  <Currency>USD</Currency>
 <GasRate>0.0088</GasRate>
 <ElectricityRate>0.11</ElectricityRate>
 <UseSQLEXPRUtilDB>false</UseSQLEXPRUtilDB>
 <<u>SQLEXPRUtilDBConnString</u>>Server=localhost\sqlexpress;Database=FurnaceUtil;User
ID=SSiUser; Password=ssissis; Trusted Connection=False; </ SQLEXPRUtilDBConnString>
  <LoadDBConnString>Server=localhost\sqlexpress;Database=SSiLoads;User
ID=SSiUser; Password=ssissis; Trusted Connection=False; </ LoadDBConnString>
  <LoadsTableName>Loads</LoadsTableName>
 <LoadIDColName>LID</LoadIDColName>
 <LoadFurnaceColName>Furnace</LoadFurnaceColName>
 <LoadOperatorColName>Operator</LoadOperatorColName>
 <LoadStartColName>DateTimeIN</LoadStartColName>
  <LoadEndColName>DateTimeOUT</LoadEndColName>
</Options>
```

Explanations of settings:

- <GasUsageUoM>: Unit of Measurement for gas usage such as SCFM (Standard Cubic Feet per Minute) or M3M, etc.
- <Currency>: Currency type for use with cost reports. Example values are USD, EUR, etc.
- <GasRate>: Gas price per one gas unit specified in the <GasUsageUoM> setting and in the currency specified in the <Currency> setting.
- <ElectricityRate>: Electric price per KWH in the currency specified in the <Currency> setting.
- <UseSQLEXPRUtilDB>: 1.) If set to true: To use a centralized Furnace Utilization SQL database server specified in the <SQLEXPRUtilDBConnString> setting. 2.) If set to false: To use the local SQL CE database on the local machine for all the configurations for the program.
- <SQLEXPRUtilDBConnString>: Connection settings for the centralized Furnace Utilization SQL database. This setting will only be used if <UseSQLEXPRUtilDB> is set to true.
- <LoadDBConnString>: Connection settings for the Load Entry SQL database.
- <LoadsTableName>: Name of the Loads table within the Load Entry SQL database.
- <LoadIDColName>: Name of the LoadID column of the Loads table within the Load Entry SQL database.
- <LoadFurnaceColName>: Name of the Furnace column of the Loads table within the Load Entry SQL database.

- <LoadOperatorColName>: Name of the Operator column of the Loads table within the Load Entry SQL database.
- <LoadStartColName>: Name of the TimeIn column of the Loads table within the Load Entry SQL database.
- <LoadEndColName>: Name of the TimeOut column of the Loads table within the Load Entry SQL database.