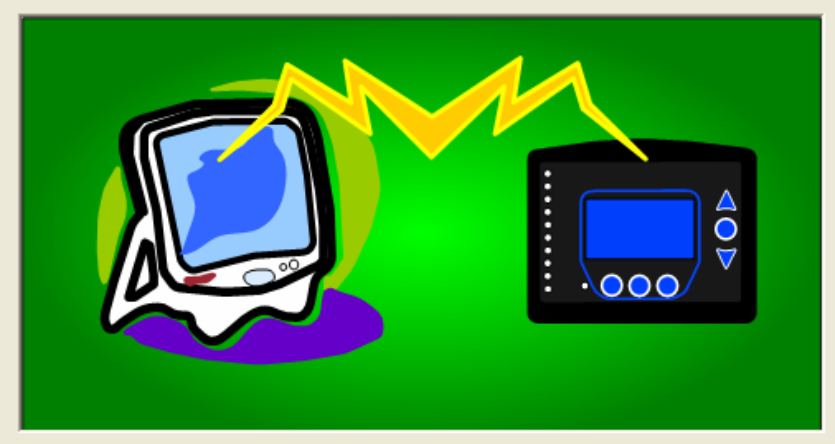
GSC400
PC INTERFACE



SOFTWARE MANUAL

Installation and User Manual for the GSC400 PC Software Interface

File: GSC400ConfigRev1.2.doc
January, 2007

Thank You for purchasing this DynaGen product

Please read manual before programming Unit

End-user Agreement for GSC400 PC Interface software.

GRANT OF RIGHTS

DynaGen Technologies grants you the following non-exclusive rights:

You may install and use the enclosed software product on your computer for reading and configuration of the GSC400 engine controller.

You may not reverse- engineer, decompile, or disassemble the software product, except and only to the extent that applicable law notwithstanding this limitation expressly permits such activity.

You may not rent or lease the software product.

LIMITATION OF LIABILITY

NO LIABILITY FOR CONSEQUENTIAL DAMAGES. To the maximum extent permitted by applicable law, in no event shall DynaGen Technologies or its suppliers be liable for any damages whatsoever (including, without limitation, damages for loss of business profit, business interruption, loss of business information, or any other pecuniary loss) arising out of the use of, or inability to use this software product.
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We welcome your comments and suggestions. Please contact us at:

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Table of Contents

PC INTERFACE SOFTWARE INSTRUCTIONS

Section 1 – Welcome

The GSC400 PC software interface is a program which allows programming and customization to DynaGen's GSC400 Engine Controllers. The GSC400 may be programmed manually via front panel buttons OR with the easy-to-use PC software interface which allows customization of inputs, outputs; AC sensing, engine logic settings, and much more. The GSC400 may be configured for common and advanced parameters from the front panel buttons or by using the PC software interface allowing a quick, user friendly display interface.

Section 2 – Installing the GSC400 Software

2.1 – Before you begin

In order to install and use the DynaGen software, you should have a basic understanding of how to use your computer. If you do not, we recommend that you ask someone who does to help you, or that you read the user manual that came with your computer.

If you encounter any problems or errors while installing the GSC400 software, please refer to Troubleshooting Guidelines On page 33.

2.2 – Minimum Hardware Requirements

For the DynaGen GSC400 software to work reliably and efficiently, your computer must meet or exceed the minimum requirements specified in the following table:

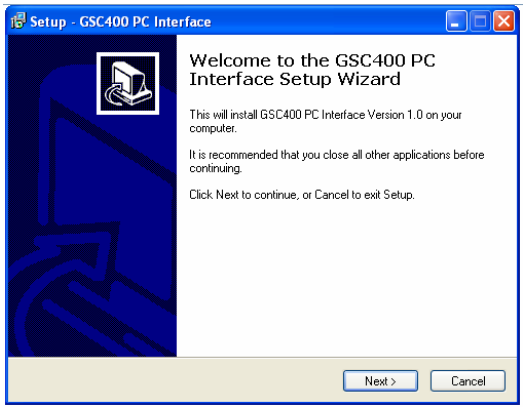
Operating System	Windows 98SE, 2000, ME, XP.
Processor	Pentium or equivalent processor
Memory	64 MB RAM
Hard Drive	20 MB Free Disk Space
Video card display	256 colors at 1024x768
Peripherals	CD-ROM Drive
Port	RS232 Serial (COM) Port Or USB (with adapter)*

*USB-Serial adapter required

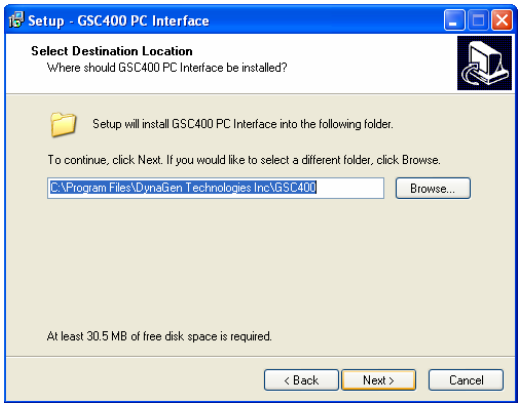
2.3 – Installing on Windows 98SE, 2000, ME, XP.

1. Exit all open applications, close any open windows, and disable any virus protection software before installing the GSC400 software. (Consult the instructions that came with your virus protection software.) If you have a previous version of the GSC400 PC Interface installed on your PC then you should uninstall the current version before installing the newer one.

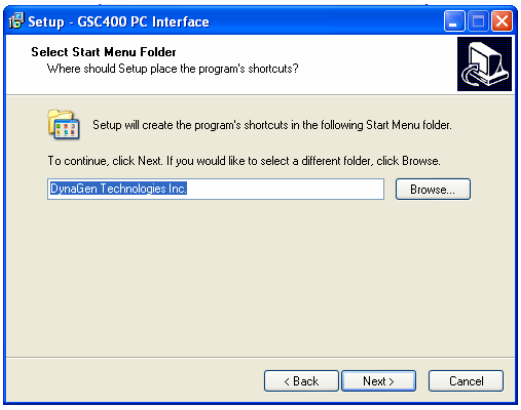
2. Insert the GSC400 PC Interface CD into your CD-ROM drive. After a few seconds the interface setup screen should be displayed. Click next to continue installation. If the installation does not start automatically, double click the “my computer” icon on your desktop, and then double-click the DynaGen PC Interface icon.



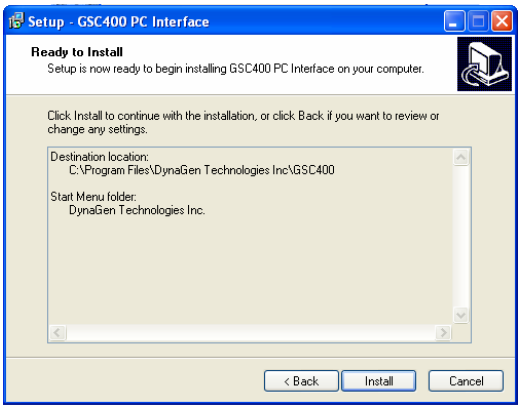
3. You are now presented with the destination screen. Click the next button to install the software to the default location. Click browse to choose a new location.



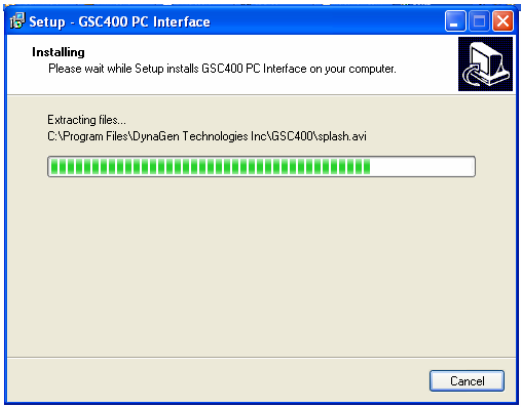
4. You are now presented with the Start menu screen. Click the next button to install the software to the default location. Click browse to choose a new location.



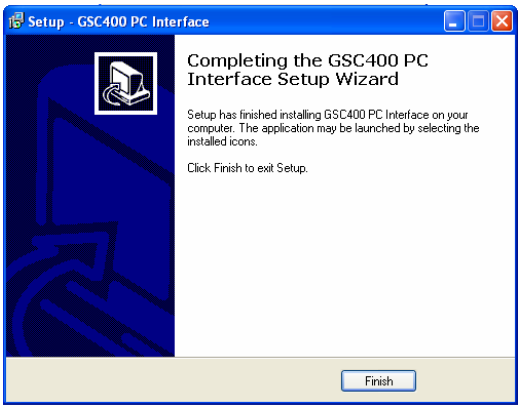
5. Click Install to continue setup installation which will install the program to the confirmed locations. Click Back to make changes.



6. A process bar displays the software being copied to your hard drive. This may take several minutes depending upon the speed of your computer and CD-ROM drive.
Press Cancel to abort setup.



7. Upon successful installation, the following screen will be displayed. Click finished



You have successfully installed the GSC400 PC interface. If you have encountered any problems or errors while installing the software, please refer to Troubleshooting Guidelines on page 33 or call DynaGen technical support Hot Line at 1-902-562-0133.

Section 3 – Connecting the GSC400 to your PC.

WARNING: ***NEVER CONNECT THE GSC400 PROGRAMMING CABLE INTO THE UNIT IF THE GSC400 IS POWERED ON.***

The GSC400 is easily connected to your PC for Reading, Configuration and programming. The GSC400 has a serial programming connector, which is identified on the labeling. A GSC400 programming cable must be used between the GSC400 controller and the PC for monitoring and programming capabilities. The GSC400 programming cable may be attached to the GSC400 in the serial connector location. The cable will be attached to the PC via the PC's serial port interface. If no serial interface exists on your PC, a USB-Serial adapter may be used to allow connection. When installing the GSC400 program cable into the controller's serial connector, be certain to take notice of the polarity of both connectors. The programming cable must be installed with the red marking facing towards the top of the GSC400 as seen in figure 3. Only connect the GSC400 programming cable into the unit if the GSC400 is powered off, installing the cable with the controller power on may cause permanent damage. With the programming cable connected to both the GSC400 and the PC's serial interface, the GSC400 is now ready for programming. Please contact DynaGen if additional cables or programming connectors are required.

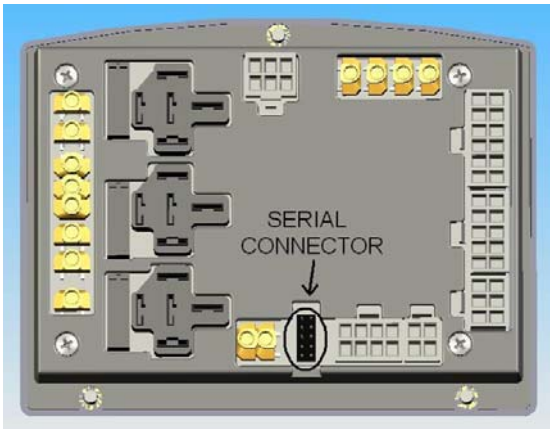


Figure1 – Serial Connector

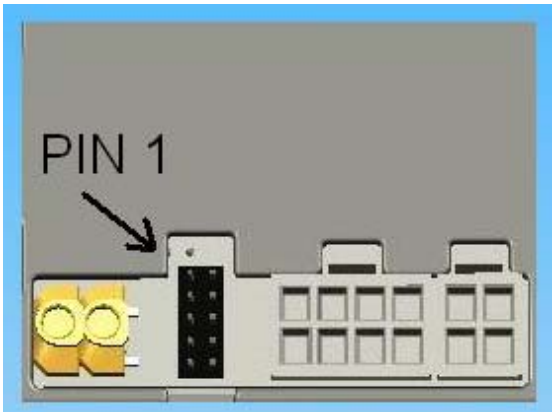


Figure2 – Connector Polarity

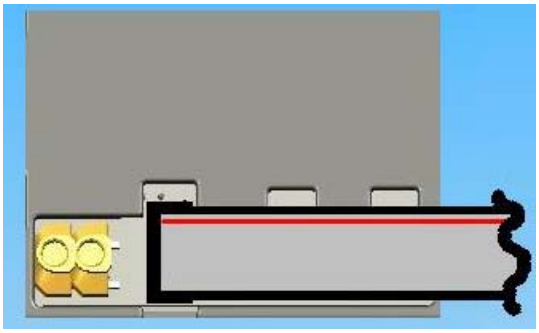


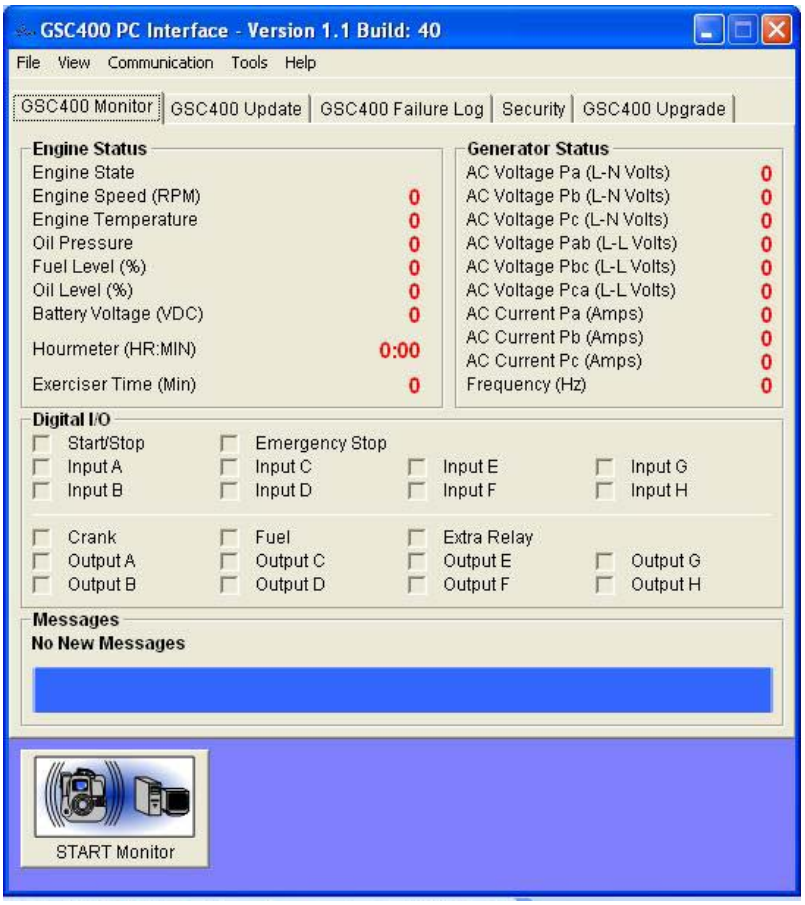
Figure3 – Cable Polarity

Section 4 – Using the GSC400 PC Interface Software.

4.1 – Starting the PC Interface Software

1. Click Start, Programs, DynaGen Technologies, then GSC400 PC Interface.

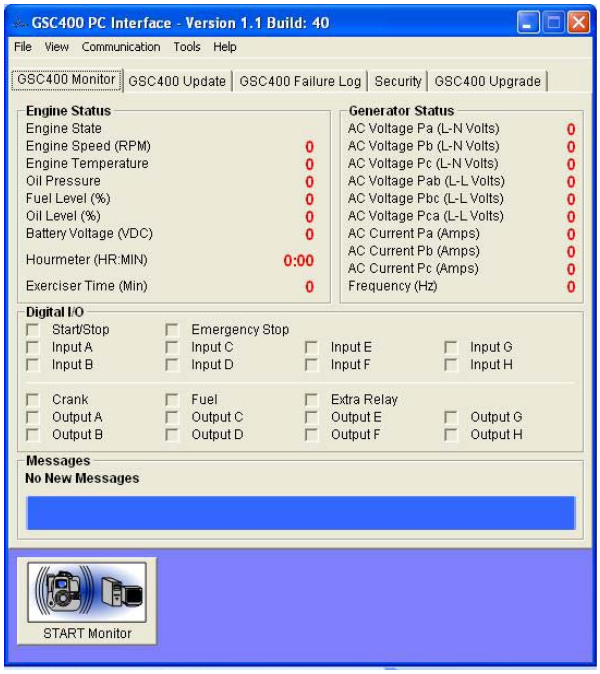
2. You will now see the GSC400 Monitor PC Interface screen.



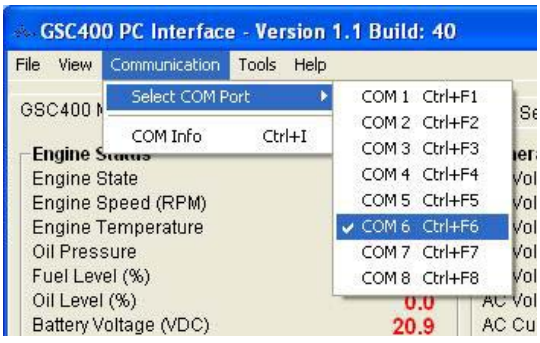
GSC400 Monitor Interface Screen

4.2 – GSC400 Monitor Interface Screen

When the GSC400 PC Interface software is opened on the PC, the default GSC400 Monitor screen window will be displayed. The user has many options from this screen to choose from including GSC400 monitoring, updating, failure logs, security and firmware upgrades. To monitor, read or write to the GSC400 the controller must be successfully connected to the PC.

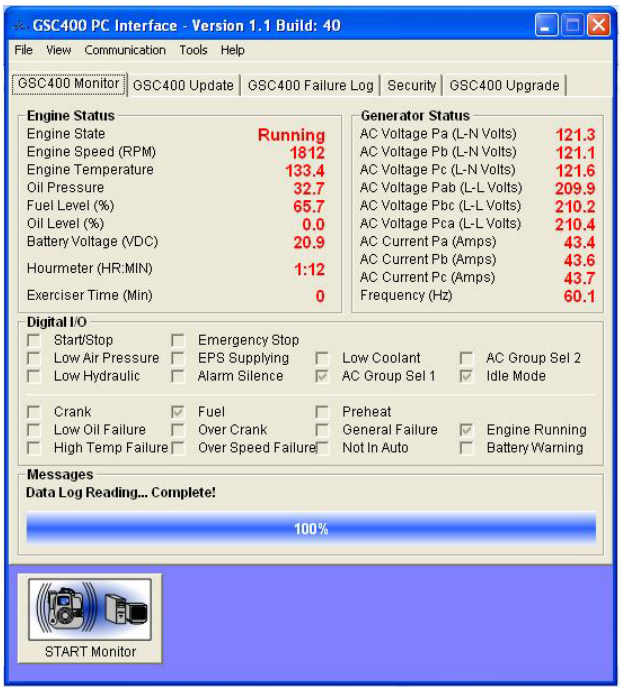


The GSC400 must be configured to the correct COM port setting for successful data transfer. If a “Communications Port Error” is displayed when tying to monitor, read or write to the GSC400 the correct COM port must be selected. The correct COM port may be selected under the Communication tab within the GSC400 interface screen. The correct COM port may be selected by simply choosing a different port from the list until the port error is eliminated. The correct port may be found by performing the following procedure.

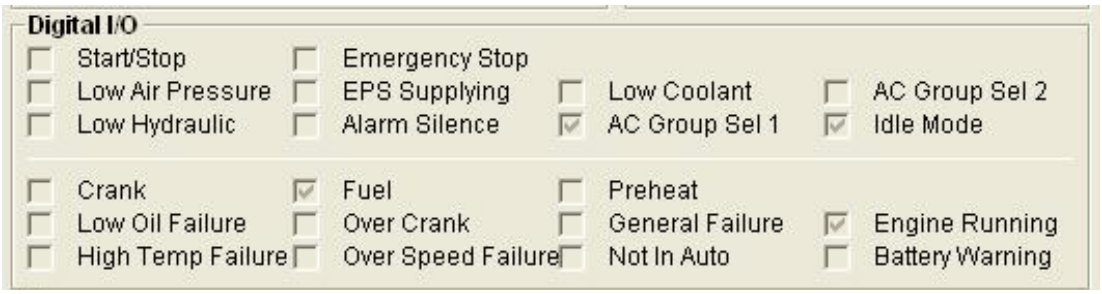


1. Open PC control panel
2. Double click on System
3. Click on Hardware Tab
4. Open Device Manager
5. Double click on Ports

When the GSC400 is successfully connected to the PC for data transfer, the engine and generator status may be displayed within the interface screen.
The monitoring status can be displayed by clicking the “Start Monitor” button located at the bottom of the GSC400 interface screen.



When monitoring engine and generator status digital inputs and outputs are also monitored. Inputs and outputs A thru H will depend upon the configuration of the GSC400 settings. A check represents that the function is currently active.



Example of Digital I/O monitoring

4.3 – GSC400 Update Interface Screen

Data transfer between the GSC400 and the PC software interface may be achieved by clicking the proper buttons on the bottom of the interface screen. Data may be read from the GSC400 and displayed within the PC interface screen or data displayed in the PC interface screen may be programmed to the GSC400. Storing or reading specific data such as engine logic, inputs, outputs, battery, speed, generator, J1939 or misc can be obtained by using the appropriate buttons. Storing or reading all data such as engine logic, inputs, outputs, battery, speed, generator, J1939 and misc can be obtained by using the Store All or Read All buttons.

1. Store engine Logic:
   Writes the current engine logic settings within the PC interface to the GSC400.

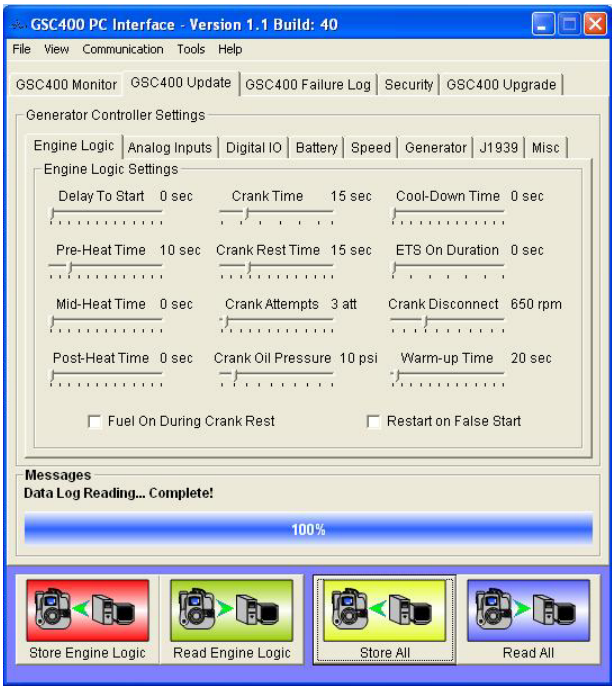
2. Read Engine Logic:
   Reads the engine logic setting values which are currently being used by the GSC400 and displays it to the PC interface screen.

3. Store All:
   Writes all current GSC400 settings within the PC interface to the GSC400 including Engine Logic, Analog Inputs, Digital I/O, Battery, Speed, Generator, J1939 and Misc.

4. Read All:
   Reads all current GSC400 settings values which are currently being used by the GSC400 and displays it to the PC interface Screen including Engine Logic, Analog Inputs, Digital I/O, Battery, Speed, Generator, J1939 and Misc.

The GSC400 Update screen allows configuration to the following parameters:

1. Engine Logic
2. Analog Inputs
3. Digital I/O
4. Battery
5. Speed
6. Generator
7. J1939
8. Misc



4.3.1 – Engine Logic

Engine Logic Settings:

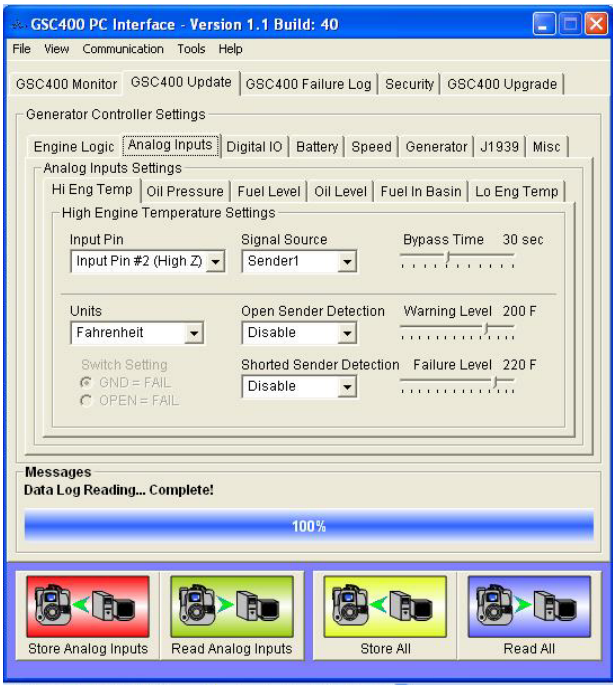
Engine Logic	Delay to Start	0-60 seconds
	Pre-heat Time	0-60 seconds
	Crank Time	3-60 seconds
	MidHeat Time	0-60 seconds
	Crank Rest Time	1-60 seconds
	Crank Attempts	1-60
	Fuel Crank Rest	Disable, Enable
	False Restart	Disable, Enable
	Post-Heat Time	0-60 seconds
	ETS On Duration	0-30 seconds
	Warm-up Time	0-600 seconds
	Crank Disconnect	100-2000 RPM
	Cool Down Time	0-600 seconds
	Crank Oil pres	0-90 KPa

Function	Description
Delay to Start	The time in seconds that the GSC400 will wait before starting the generator while receiving a start signal.
Pre-heat Time	Time in seconds that the GSC400 will preheat the engine. Preheat occurs before the engine cranking cycle.
Crank Time	Time in seconds the GSC400 will continue to crank the generator. The controller will engage the flywheel until engine start or the crank time expires.
MidHeat Time	Time in seconds that the GSC400 will preheat the engine. Midheat occurs during the engine cranking cycle
Crank Rest Time	Time in seconds the GSC400 will wait between crank attempts. If engine starting is unsuccessful after the specific crank time, the starter will disengage for a specific time period.
Crank Attempts	The number of crank attempts the GSC400 will perform before going into over crack failure.
Fuel Crank Rest	This enables an energized fuel output while the controller is in rest time.
False Restart	With this option enabled, when the engine goes into failure before the oil bypass time has passed, the GSC400 will re-attempt to start the generator.
Post-Heat Time	Time in seconds that the GSC400 will preheat the engine. Post-heat occurs during the initial stage of engine run.
ETS On Duration	Energize to stop. This output controls the fuel solenoid.
Warm-up Time	Time in seconds in order to allow the generator sufficient time to warm up. This option must be enable in order to be used.
Crank Disconnect	The frequency at which the GSC400 will disengage the crank, keeping the fuel on to run the generator.
Cool Down Time	Time in seconds the GSC400 will wait before shutting he generator down under a no load condition in order to allow engine cool down.
Crank Oil pres	This is the oil pressure which is exceeded during cranking. Pressure: Used for locked rotor detection.

4.3.2 – Analog Inputs

The GSC400 Analog Input screen allows configuration to the following inputs:

1. Hi Engine Temp
2. Oil Pressure
3. Fuel Level
4. Oil Level
5. Fuel in Basin
6. Low Engine Temp



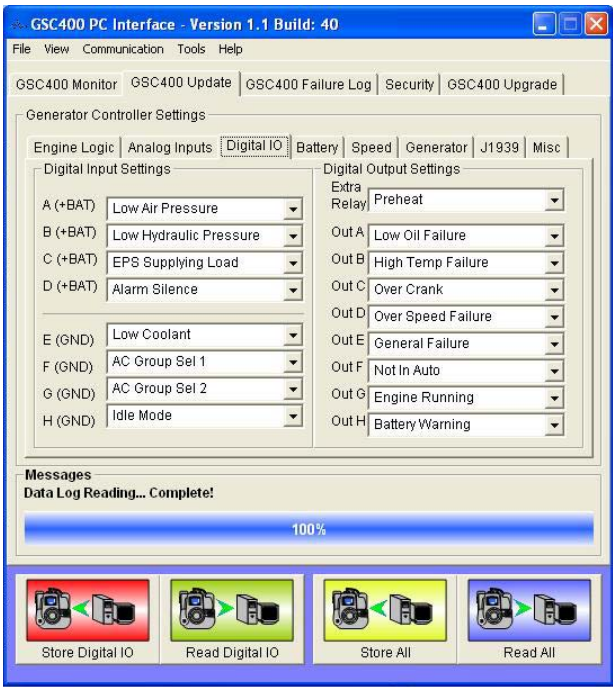
Options for each parameter:

Specific Input	Input Pin	Disable, Analog 2-7*
	Signal Source	J1939, Switch input, Sender
	Bypass Delay	0-60 Seconds
	Switch Setting	GND = Fail, Open = Fail
	Shorted Sender	Disable, Warning, Shutdown
	Open Sender	Disable, Warning, Shutdown
	Units	selectable
	Warning Level	Adjustable
	Failure Level	Adjustable

*Analog inputs 2, 5, 6 and 7 are designed for high impedance senders.
Analog inputs 3 and 4 are designed for low impedance senders.

Function	Description
Input Pin	Input 2-7 may be configured to a specific input. A specific function can be assigned to more then one input pin to allow a greater current output. If using a sender be careful to select a Low or High input impedance location to correspond to the sender specifications. Reserve may be selected to configure proper setting without assigning an active input.
Signal Source	How to obtain an engine failure. The J1939 interface may be selected for a J1939 compliant engine. The switch input may be selected for a mechanical switch gauge types. Senders may be selected for electronic gauge types.
Bypass Delay	When to recognize an engine failure. Bypass delay is the time in seconds the GSC400 will wait after crank success before checking engine for a failure input.
Switch Setting	When the Switch Input is selected as the signal source, the switch setting can be configured for a ground or open failure. Gnd means that ground would be a failure, +BAT would be “Engine OK”. Open means that open switch contacts would be “Failure”, and closed switch contacts would be a “Engine OK”.
Shorted Sender	When the Sender Input is selected as the signal source, a shorted sender can display a warning, shutdown the engine or be set to have no effect (disabled).
Open Sender	When the Sender Input is selected as the signal source, an open sender can display a warning, shutdown the engine or be set to have no effect (disable).
Units	How to display warning and failure level values.
Warning Level	The value when using an electronic sender or J1939 input, to initiating a warning.
Failure Level	The value when using an electronic sender or J1939 input, to initiating a Failure.

4.3.3 – Digital I/O



The GSC400 Digital I/O screen allows configuration to the following:

Digital Input:

1. Input A
2. Input B
3. Input C
4. Input D
5. Input E
6. Input F
7. Input G
8. Input H

Digital Output:

1. Output A
2. Output B
3. Output C
4. Output D
5. Output E
6. Output F
7. Output G
8. Output H

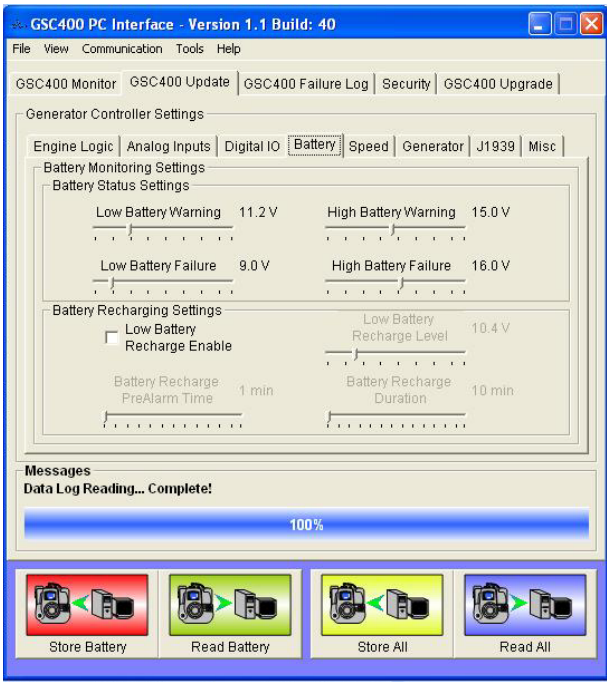
Digital Input:

Digital Input Setup All selections apply to each individual input	Input A (Bat=Fail) Input B (Bat=Fail) Input C (Bat=Fail) Input D (Bat=Fail) Input E (Gnd=Fail) Input F (Gnd=Fail) Input G (Gnd=Fail) Input H (Gnd=Fail)	Disable, Low Air Pressure Low Hydraulic Pressure, EPS Supply Load Alarm Silence, Low Coolant, Volt Select 1, Volt Select 2, Idle Mode, Start/Stop Auxiliary Warn/Failure

Digital Output:

Digital Output Setup All selections apply to each individual output	Extra Relay Output A Output B Output C Output D Output E Output F Output G Output H	Disable, Warm-Up, ETS, Pre-heat, Cooldown, Over Crank , High Temp Fail , High Temp warn, Low Oil Fail , Low Oil warn, Under Speed Fail, Under Speed Warn, Over Speed Fail Over Speed Warn, Low Fuel Fail Low Fuel Warn, Battery Fail, Battery Warn, Low Coolant Fail, Low Coolant warn, Not in Auto, Failure, Crank Rest, Engine Running, Crank On, Exerciser Alarm, Recharge Alarm Under Volt Warn, Over volt warn, Over Amp Warn, Fuel in Basin, Volt Regulator, Low Temp Warn. Back Light, Aux Warn.

4.3.4 – Battery



The GSC400 Battery screen allows configuration to the following:

Battery Status Settings:

1. Low Battery Warning
2. Low Battery Failure
3. High Battery Warning
4. High Battery Failure

Battery Recharging Settings:

1. Low Battery Recharge Enable
2. Battery Recharge PreAlarm Time
3. Low Battery Recharge Level
4. Battery Recharge Duration

Battery setup Parameters:

Battery Setup	Low Auto Charge	Disable, enable
	Charge Pre-Alarm	1-60 minutes
	Charge Duration	10-240 minutes
	Recharge Level	7-24 volts
	Low Warn Level	7-24 volts
	Low Fail Level	7-24 volts
	High Warn Level	12-32 volts
	High Fail Level	12-32 volts

Function	Description
Low Battery Warning	The battery voltage level to be detected as a low voltage to sound or display a warning to the user that the battery's voltage level has reached a specific value.
Low Battery Failure	The battery voltage level to be detected as a low voltage displaying to the user that the battery's voltage level has reached a specific value requiring an engine start for recharging.
High Battery Warning	The battery voltage level to be detected as a high voltage to sound or display a warning to the user that the battery's voltage level has reached a specific value.
High Battery Failure	The battery voltage level to be detected as a high voltage displaying to the user that the battery's voltage level has reached a specific value requiring an engine start stop when recharging.
Low Battery Recharge Enable	Low battery recharge enabled allows for the automatic starting of the engine in low battery conditions. The engine will run to charge the battery.
Battery Recharge PreAlarm Time	Recharge pre-alarm allows for the automatic warning of the engine starting in low battery conditions. The alarm will sound to warn of a low battery condition and that the engine will be starting.
Low Battery Recharge Level	The level which a low battery will be charged to when requiring charging, not exceeding the charge duration.
Battery Recharge Duration	Recharge duration is the number of minutes the engine will run to charge a low battery.

4.3.5 – Speed

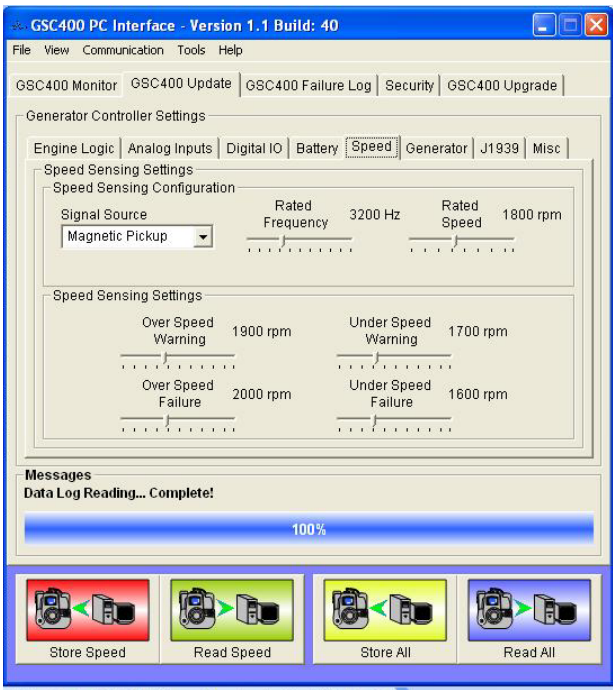
The GSC400 Battery screen allows configuration to the following:

Speed Sensing Configuration:

1. Signal Source
2. Rated Frequency
3. Rated Speed

Speed Sensing Settings:

1. Over Speed Warning
2. Under Speed Warning
3. Over Speed Failure
4. Under Speed Failure



Spd Sensing	Signal Source	J1939, Mag pickup
	Rated Freq	10-9990 Hz
	Rated RPM	200-4000 RPM
	Over Speed Warn	100-5000 RPM
	Over Speed Fail	100-5000 RPM
	Under Speed Warn	100-5000 RPM
	Under Speed Fail	100-5000 RPM

Function	Description
Signal Source	How to recognize engine speed. The J1939 interface may be selected for a J1939 compliant engine. The magnetic pickup option may be selected for speed sensing from the engine flywheel. Generator output option may be selected for speed sensing directly from the Generator output.
Rated Frequency	Normal running frequency of the engine. Used to calculate engine speed.
Rated Speed	Normal running speed of the engine. Used to calculate engine speed.
Over Speed Warning	When the engine is running the RPM level is measured, the GSC400 can be configured for a choosing failure warning value. This warning value is the value in RPM which the controller will recognize if the RPM level exceeds the setting and sound an audio alert.
Under Speed Warning	When the engine is running the RPM level is measured, the GSC400 can be configured for a choosing failure warning value. This warning value is the value in RPM which the controller will recognize if the RPM level goes beneath the setting and sound an audio alert.
Over Speed Failure	When the engine is running the RPM level is measured, the GSC400 can be configured for a choosing failure value. The Failure value is the value in RPM which the controller will recognize a failure and shut down the engine.
Under Speed Failure	When the engine is running the RPM level is measured, the GSC400 can be configured for a choosing failure value. The Failure value is the value in RPM which the controller will recognize a failure and shut down the engine.

4.3.6 – Generator

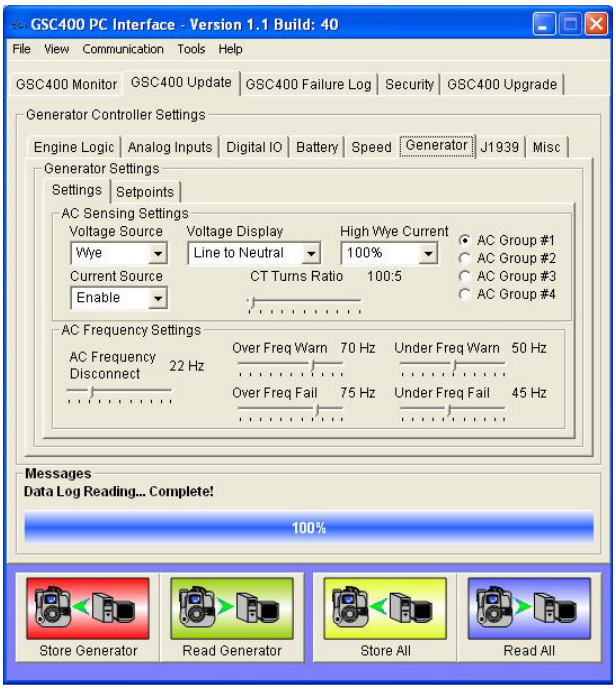
The GSC400 Generator screen allows configuration to the following:

AC Sensing Settings:

1. Voltage Source
2. Current Source
3. Voltage Display
4. CT Turns Ratio
5. High Wye Current
6. AC Group

AC Frequency Settings:

1. AC Frequency Disconnect
2. Over HZ Warn
3. Over HZ Fail
4. Under HZ Warn
5. Under HZ Fail



AC Sensing	Voltage Source	Disable, Wye
	Current source	Disable, Enable
	Voltage Display	Line-Line, Line-Neutral
	Turns Ratio	5-5000A:5A
	High Wye Current	50%, 100%
	Voltage Group	Single, Three, Wye, Three
AC Frequency	Freq. Disconnect	1-100 Hz
	Over HZ Warn	1-100 Hz
	Over HZ Fail	1-100 Hz
	Under HZ Warn	1-100 Hz
	Under HZ Fail	1-100 Hz

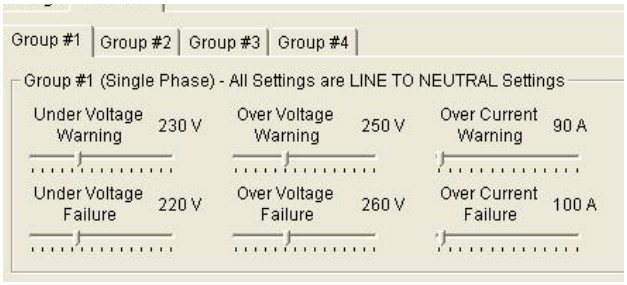
Function	Description
Voltage Source	How to recognize the AC power source. The disable option may be selected if no AC power source is being monitored. The Wye or Delta option may be selected for AC voltage monitoring.
Current source	Allows monitoring of the current draw on the engine. The enable option may be selected for monitoring the amount of current being draw from the engine. The disable option may be selected if no current monitoring is required.
Voltage Display	Select the AC power system type line-line or line-neutral.
Turns Ratio	The turns ratio is user adjustable and must match the current CT being used. The correct value may be seen on the current CT and must enter the value in the correct format as XA:5A where X is the setting enter from the CT.
High Wye Current	In Three Phase High Wye Voltage connections, current readings will vary depending upon how current CT's are placed in the system. Select 50% if the current from the CT is only half of the total system current. Select 100% if the current from the CT is the total system current.
Freq. Disconnect	This is the frequency at which the GSC400 will disengage the crank, keeping the fuel on to run the generator.
Over HZ Warn	When the engine is running the frequency level is measured, the GSC400 can be configured for a choosing failure warning value. This warning value is the value in HZ which the controller will recognize if the frequency level exceeds the setting and sound an audio alert.
Over HZ Fail	When the engine is running the frequency level is measured, the GSC400 can be configured for a choosing failure value. The Failure value is the value in HZ which the controller will recognize a failure and shut down the engine.
Under Hz Warn	When the engine is running the frequency level is measured, the GSC400 can be configured for a choosing failure warning value. This warning value is the value in HZ which the controller will recognize if the frequency level goes beneath the setting and sound an audio alert.
Under HZ Fail	When the engine is running the frequency level is measured, the GSC400 can be configured for a choosing failure value. The Failure value is the value in HZ which the controller will recognize a failure and shut down the engine.

The GSC400 Generator screen allows for AC group settings. Select the proper AC group which matches the type of AC power source being monitored. Although only one AC source may be monitored at one time, settings may be configured for all groups through the setpoint tab to allow for quicker compatibility when changing from one AC source to another.

Setpoint Menu:

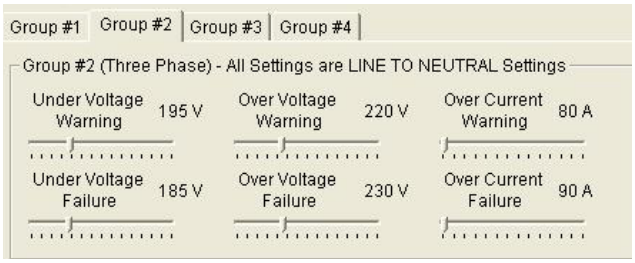
Group #1 (Single Phase)

Allows settings for:
Under/Over Voltage Warning
Under/Over Voltage Failure
Over Current Warning
Over Current Failure



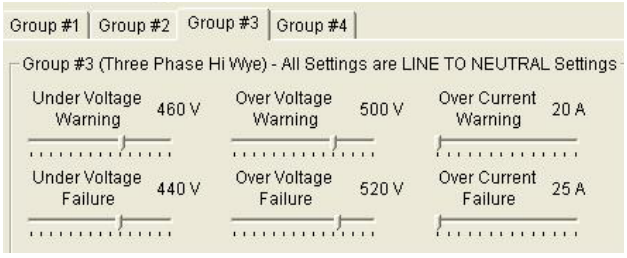
Group #2 (Three Phase)

Allows settings for:
Under/Over Voltage Warning
Under/Over Voltage Failure
Over Current Warning
Over Current Failure



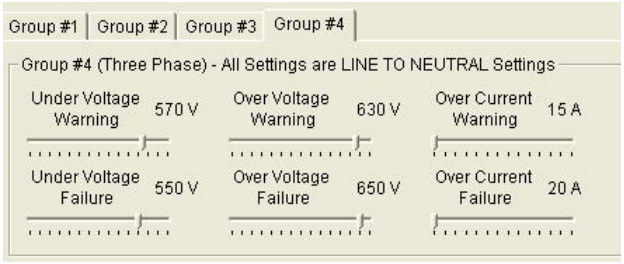
Group #3 (Three Phase Hi Wye)

Allows settings for:
Under/Over Voltage Warning
Under/Over Voltage Failure
Over Current Warning
Over Current Failure

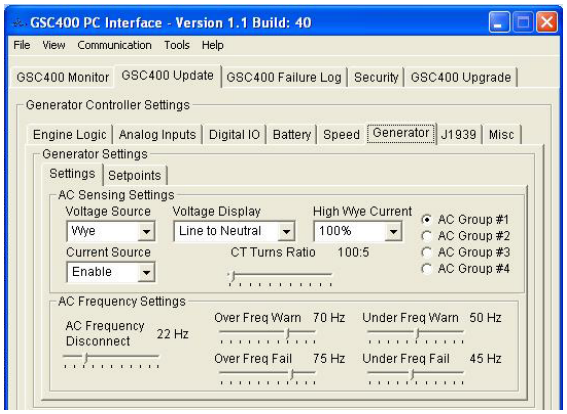


Group #4 (Three Phase)

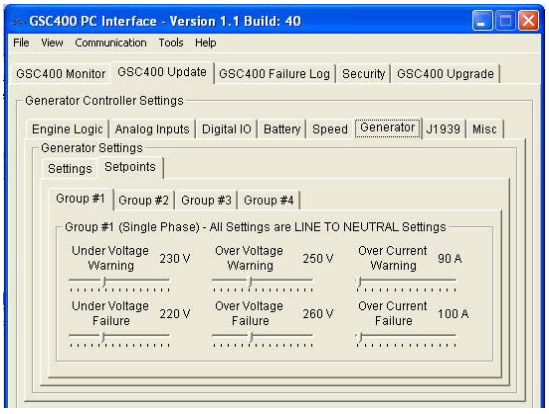
Allows settings for:
Under/Over Voltage Warning
Under/Over Voltage Failure
Over Current Warning
Over Current Failure



Although all AC voltage groups may be configured within the setpoint menu and wrote to the GSC400 at the same time, only one group at any one time may be monitored within the settings menu.
This procedure is recommended when multi AC systems will be monitored allowing multi settings to be entered for all groups which can be used for on the fly monitoring between different systems.



Generator Settings menu



Generator Setpoint Menu

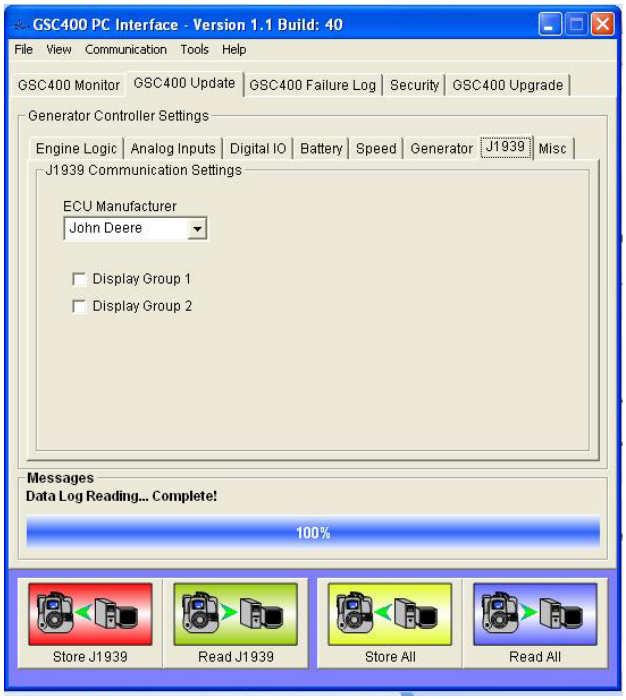
Function	Description
Under Voltage Warning	This warning value is the level in which the controller will recognize if the generated voltage falls beneath the setting and sound an audio alert.
Over Voltage Warning	This warning value is the level in which the controller will recognize if the generated voltage exceeds the setting and sound an audio alert.
Under Voltage Failure	Failure value is the value in which the controller will recognize if the generated voltage falls beneath the setting and will initiate a failure.
Over Voltage Failure	The Failure value is the value in which the controller will recognize if the generated voltage exceeds the setting and will initiate a failure.
Over Current Warning	This warning value is the level in which the controller will recognize if the generated current load exceeds the setting and sound an audio alert.
Over Current Failure	This Failure value is the value in which the controller will recognize if the current draw exceeds the setting and will initiate a failure.

4.3.7 – J1939

The GSC400 J1939 screen allows configuration to the following:

ECU Manufacturer:
1. John Deere
2. Volvo

Display Group:
5. Display Group 1
6. Display Group 2



FUNCTION	SELECTION AND RANGE	
J1939	Manufacturer Display Group 1 Display Group 2	Select Engine Manufacturer Currently Disabled Currently Disabled

a.) Manufacturer: Select engine manufacturer from list (John Deere/Volvo/DDC).

b.) Display Group1: Enable/Disable extra display parameters displayed while running. Currently disabled.

c.) Display Group2: Enable/Disable extra display parameters displayed while running. Currently disabled.

Engine Manufacturer	Display Group 1	Display Group 2
John Deere	Percent Engine Torque, Percent Friction Torque, Percent Load	Intake Temperature, Fuel Temperature, Fuel Rate
Volvo/DCC	Percent Engine Torque, Percent Friction Torque, Percent Load	Boost Pressure, Oil Temperature, Fuel Rate

4.3.8 – Misc

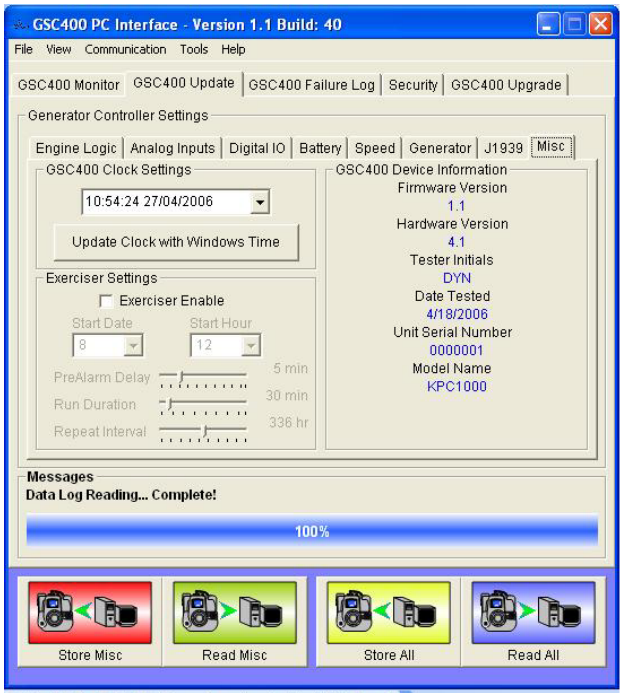
The GSC400 Misc screen allows configuration to the following:

GSC400 Clock Settings:

1. Update time with windows time

Exercise Settings:

1. Exerciser Enable
2. Start Date
3. Start Hour
4. PreAlarm Delay
5. Run Duration
6. Repeat Freq.



Exerciser setup	Exerciser Enable	Disable, enable
	Run Duration	10-240 minutes
	Pre-Alarm Delay	1-20 minutes
	Repeat Frequency	1-672 hours
	Start Hour	0-23
	Start Date	1-31

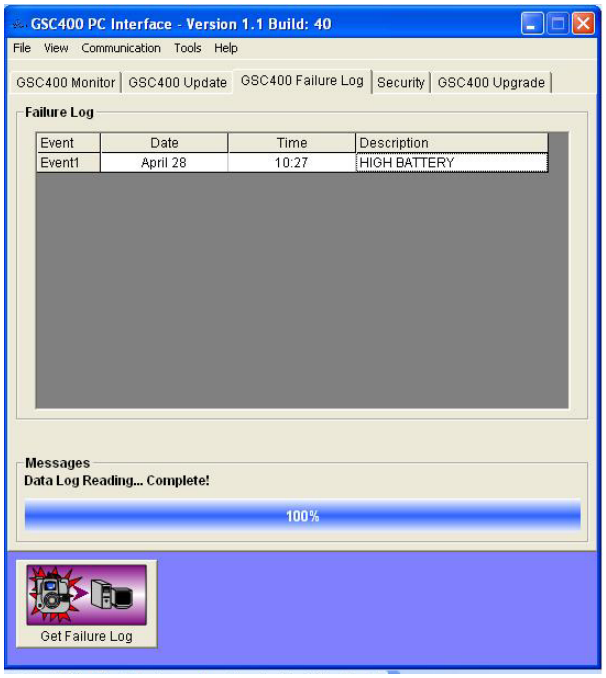
The GSC400 clock settings may be set by pressing the “Update Clock with Windows Time” button. The GSC400 Time and Date will be set as to the Time/Date on the programming PC. The GSC400 has an internal power backup which will power the Clock display while the controller is not powered by a DC power source. If the controller is not power by the DC source for approx 3 weeks the controller time will display 00:00:00. The “Update Clock with Windows Time” will need to be initiated.

Function	Description

Exerciser Enable	The exerciser is user selectable as enabled or disabled. The exerciser enable allows for the automatic starting and stopping of the engine.
Run Duration	The exerciser will automatically run the engine for a specified duration. The run duration is user selectable from 10-240 minutes.
Pre-alarm Delay	This is the delay time that the GSC400 will sound an audible alert before the exerciser starts the engine. The higher the delay setting the longer warning will be sounded to anyone who may be around the engine.
Repeat freq	The exerciser is capable of automatically starting and stopping the engine multiple times. The user may select the repeat frequency according to the start hour and date. The selectable range is between 0-672 hours.
Start Hour	The exerciser will automatically start the engine depending upon the start hour setting
Start Date	The exerciser will automatically start the engine depending upon the start date setting

4.4 – GSC400 Failure Log Screen

The GSC400 Failure Log screen may be viewed to display GSC400 failure conditions. A list of failures are displayed within the GSC400 failure log screen. A total of 100 failure conditions are recorded and may be viewed by scrolling through the list.
Date, times and descriptions of failure condition are displayed. The “Get Failure Log” button located in the bottom corner of the Failure log screen window is used to load the failure list stored in the GSC400 to be displayed in the pc interface window.



4.5 – GSC400 Security Screen

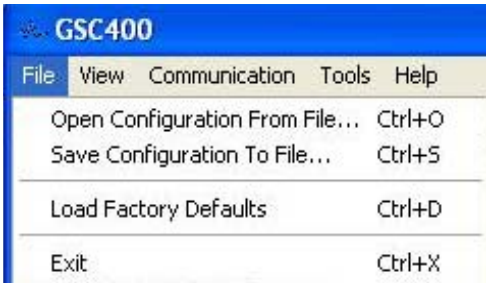
The GSC400 Security screen allows for both administrator and user password settings.
To change the administrator or user password, click the proper password box and enter a new password. As each character of the password is entered, the program will automatically advance to the next position. The “Write Passwords” button located in the bottom of the Security screen window is used to write the newly entered passwords within the interface window to the GSC400.

4.6 – GSC400 Upgrade Screen

The GSC400 Upgrade allows for future upgrades to the GSC400 software. Periodically the GSC400 software will be upgraded to include new or updated features. The firmware version installed on the GSC400 may be confirmed by viewing the firmware version under the Misc screen within the GSC400 Update menu.

4.7 – GSC400 File Menu

The GSC400 File Menu allows selection to the following:



1. Open Configuration from File
2. Save Configuration to File
3. Load Factory Defaults
4. Exit

4.7.1 – Open Configuration from File

Configuration settings may be entered within the GSC400 PC interface automatically using a configuration file.

4.7.2 – Save Configuration to File

Configuration settings within the GSC400 PC interface may be saved to a configuration file for quick access.

4.7.3 – Load Factory Defaults

The GSC400 may be reset to factory default settings in the event of incorrect setting problems.

4.8 – GSC400 View Menu

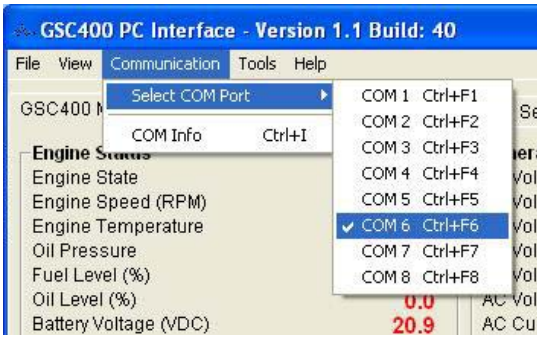
The GSC400 View Menu allows selection to the following:

1. GSC400 Controller View

4.8.1 – GSC400 Controller View

Displays a visual graphic of the GSC400.

4.9 – GSC400 Communication Menu



The GSC400 communication Menu allows selection to the following:

1. Select COM Port
2. COM Info

4.9.1 – Select COM Port

Select the proper COM port for data transfer between the GSC400 and PC. See section 4.2 GSC400 monitor interface screen on page 9 for more information.

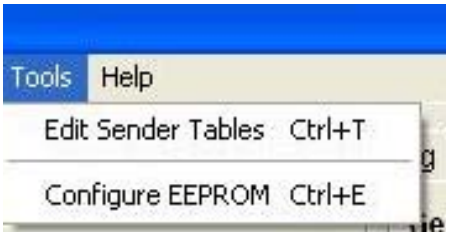
4.9.2 – COM Info

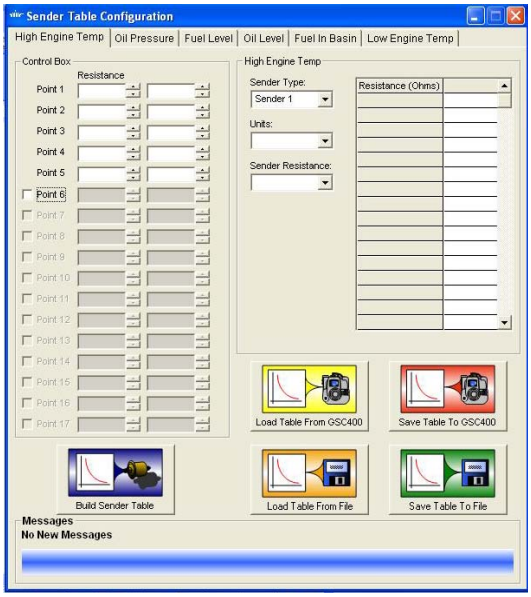
Displays information about the select COM port.

4.10 – GSC400 Tools Menu

The GSC400 tools Menu allows selection to the following:

1. Edit sender tables
2. Configure EEPROM





4.10.1 – Edit sender tables

This tool allows you to create and save sender tables to the GSC400. Please see section 4.12 on page 32 for more information.

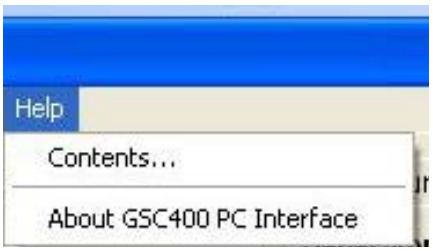
4.10.2 – Configure EEPROM

This utility allows you to view the locations in the EEPROM on the GSC400 controller. You can choose to read one byte or all bytes in EEPROM.

4.11 – GSC400 Help Menu

The GSC400 help Menu allows selection to the following:

1. Contents
2. About GSC400 PC Interface



4.11.1 – Contents

The GSC400 PC interface has included a help section explaining the various functions and settings of the interface.

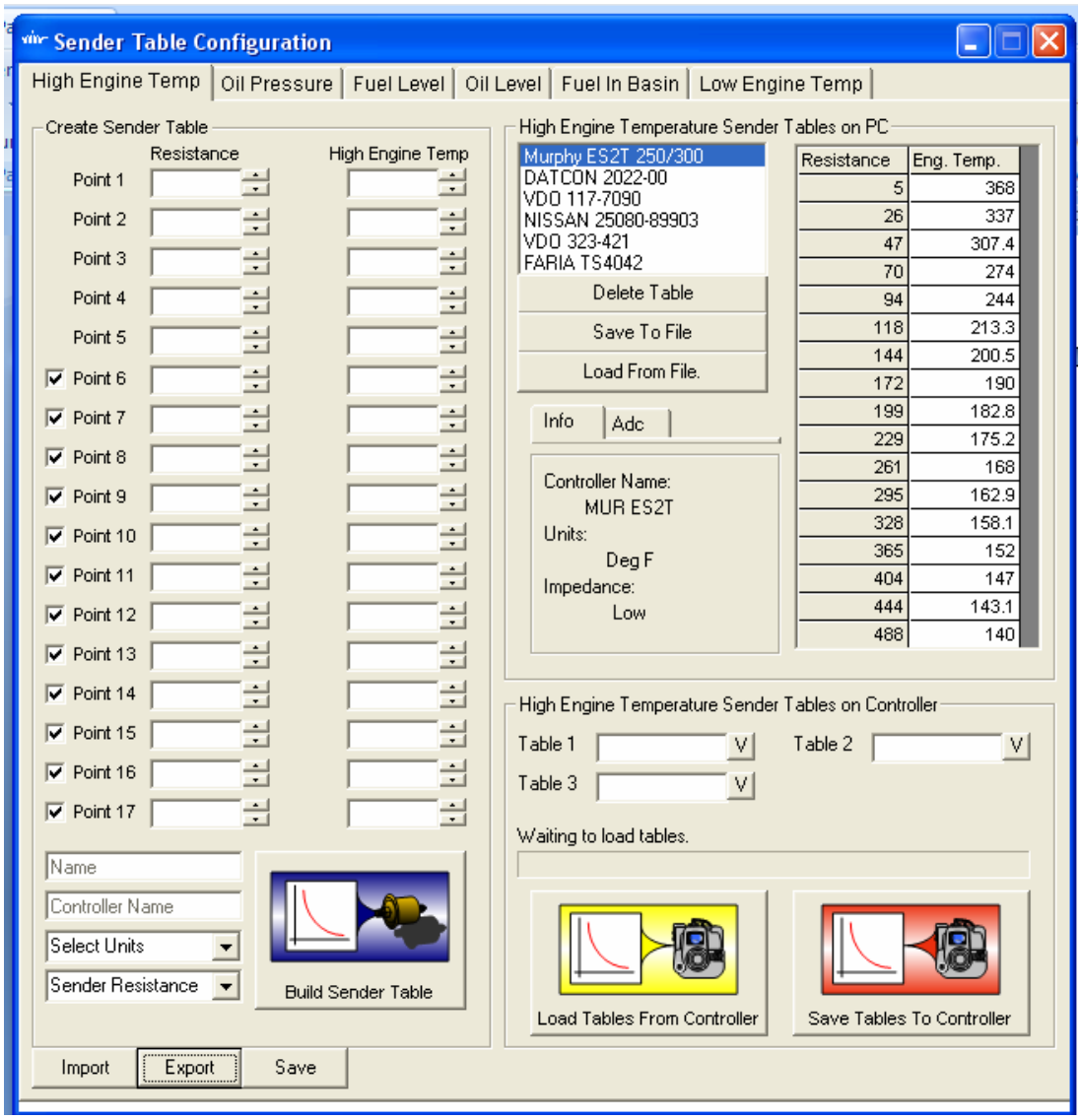
4.11.2 – About GSC400 PC Interface

Displays the GSC400 PC interface information including the revision number.

4.12 -- Edit Sender Tables Utility

This utility allows the user to create and save analog input sender tables to the GSC400 for the following analog inputs:

1. High Engine Temperature
2. Oil Pressure
3. Oil Level
4. Fuel In Basin
5. Low Engine Temperature



4.12.1 – Introduction, Saving and Loading

There are six tabs at the top of the window. Click on the appropriate one to see the list of tables loaded for that sender type. Note that the Fuel Level sender table cannot be viewed from the PC interface.

Some commonly used tables are preloaded into the utility. When you open the utility for the first time you will see these tables in the list of tables in the middle top portion of the window. The resistance/values as used by the GSC400 controller are displayed in the table to the far right of the window. Additional information is displayed under the “Load From File” button.

Any new tables you create are automatically saved when you close the utility. To save manually click the Save button at the bottom of the window. It is a good idea to do this regularly to prevent loss of data. The files are saved to a master backup, .tmf, file. To create a backup of all the tables click the Export button at the bottom of the window. To load a .tmf file click the Inport button at the bottom of the window. All the tables of all sender types currently in the utility are saved to the .tmf file.

You can also save and load individual sender table files. This is useful for sharing individual tables between people. To save a sender table click on one of the table names in the list of tables and click the “Save To File” button. You can then select the filename. To load a table click the “Load From File” button and select the filename ending in .tbl. The .tbl file must be of the appropriate sender type. For instance, you cannot load a Oil Pressure sender table into a Oil Level list of tables so make sure you are in the appropriate tab. You can delete a table by clicking the “Delete Table” button below the list of tables.

4.12.2 – Creating a Sender Table

1. To create a sender table from scratch click on one of the tabs at the top corresponding to the sender type (oil pressure, low engine temperature, etc) that you would like to create.
2. You can as many as 17 and as few as 5 resistance/value combinations. The default is 17. To enter fewer uncheck the box next to the point you want to stop at.
3. Enter the resistance and value combinations in the boxes. Resistance must be a whole number (no decimals). The value (i.e. temperature) can be entered as a decimal number.
4. Enter the name for the table that you would like to appear in the list of the tables in the PC interface.
5. Enter the name that will appear in the GSC400 controller menu. It is limited to eight characters.
6. Select the desired units.
7. Select the sender impedance type. There are two types: high impedance and low impedance.
8. Click the build sender button.

The table will appear in the list of tables to the right with the name you selected for the table name. The resistance and values can be seen in the table to the far right and more detailed information on the table can be found in the area below the list of tables.

4.12.3 – Saving Sender Tables to the GSC400 Controller

1. Pick the desired sender type to load by selecting one of the six tabs at the top.
2. When in the right tab, click the “Save Tables To Controller” button. It is the big red button in the lower right hand corner.
3. Another window will appear. Select a table from the list of the left and click on the appropriate Add button. Click the Save button to the right of the Add button you used to save the table to the GSC400.
4. Wait until the table is loaded to the GSC400. A progress bar at the bottom of the window will appear and notify you of the status.
5. You can save up to three tables to the GSC400. Table 1 will appear at the top of the list while Table 3 will appear at the bottom of the list in the GSC400 menu. Repeat to load the other two tables if desired.

4.12.4 – Viewing Sender Tables From the GSC400.

You can view details about the tables saved to the GSC400.

1. Pick the desired sender type to view by selecting one of the six tabs at the top.
2. Click the “Load Tables From Controller” button. It is the big yellow button at the bottom of the window.
3. The tables will load. The progress bar above the button will tell you when loading is complete.
4. When loading is complete click the “V” buttons beside the table you wish to view. A window will appear showing you the resistance/value table and other information on the table.

Note that you cannot save a GSC400 table to the list of tables in the PC interface.

TROUBLESHOOTING GUIDELINES

TROUBLE	POSSIBLE CAUSE	SUGGESTED ACTION
Computer locks or stalls during program installation.	A conflict with another program currently running on your computer.	Exit all open applications, close any open windows, and disable any virus protection software.
Program Installation does not start automatically when CD is placed in drive.	A problem with the auto-start feature.	Double click the my computer icon on your desktop, and then double-click the GSC400 PC interface icon.
After installing PC interface the program will not start.	Improper installation of the program	Uninstall PC interface and reinstall
Problem detecting computers COM port during operation.	Program not properly set to use the correct COM port for data communications.	Choose the correct COM port. See section 4.2 on page 9.
Message stating “This is not a configuration file”.	Chosen file was not a proper configuration file.	Open a proper saved configuration file.
When reading the GSC400 a popup message stating “Communications Port Error” appears.	The GSC400 may not be properly connected to the PC	Make sure the GSC400 is properly connected to the serial port with the supplied cable.
Message stating, “Disk is full” when saving configuration files to disk.	Trying to save to a CD Rom or disk that is full.	Deleting files from the disk or using a disk with sufficient space.
Message stating, “Device is not ready” when saving configuration files to disk.	Trying to save to a CD Rom or disk that is not present.	Make sure a disk is placed in the proper drive.
Constant Low oil failures.	• Low oil level • Choosing the sender setting value to high, causing the GSC400 to always fail since the value of the sender is always below the chosen failure set point.	• Add oil • Choose a lower sender failure set point.
Constant Temperature failures.	• Low coolant level • Choosing the sender setting value to low, causing the GSC400 to always fail since the value of the sender is always above the chosen failure set point.	• Add coolant • Choose a higher sender failure set point.