FLUID COMPONENTS INTERNATIONAL LLC

Configuration Software Manual

ST100 Series
Thermal Mass Flow Meter

Table of Contents

List of Figures

List of Tables

INTENTIONALLY LEFT BLANK

Introduction

The ST100 Configuration software is a PC application that lets the user easily set up and configure the ST100 Series Thermal Mass Flow Meter products. Use this tool for all instrument commissioning activity. This manual covers ST100 Configuration software v2.2.0.0.

Installation

Find the Software Configurator MSI install file in the Software folder on the product documentation CD. The file can be identified by name – ***ST100 Configurator Setup.msi***. Copy this file to a location on your PC designated for ST100 documentation.

Run the MSI installer file and follow the on-screen instructions to complete the installation. The installation process places an application shortcut icon on your PC desktop.

The ST100 Configurator icon looks like a pair of Binoculars.

Running the PC Configuration Application via USB

Double click the ST100 Configurator icon. The application opens to the Welcome Screen as shown below.

Figure 1 – Welcome Screen

Connect the instrument to the PC using the USB cable provided then turn the power ON. The ST100 USB connector is located on the customer interface board as shown in the figure below (remove blind lid for access).

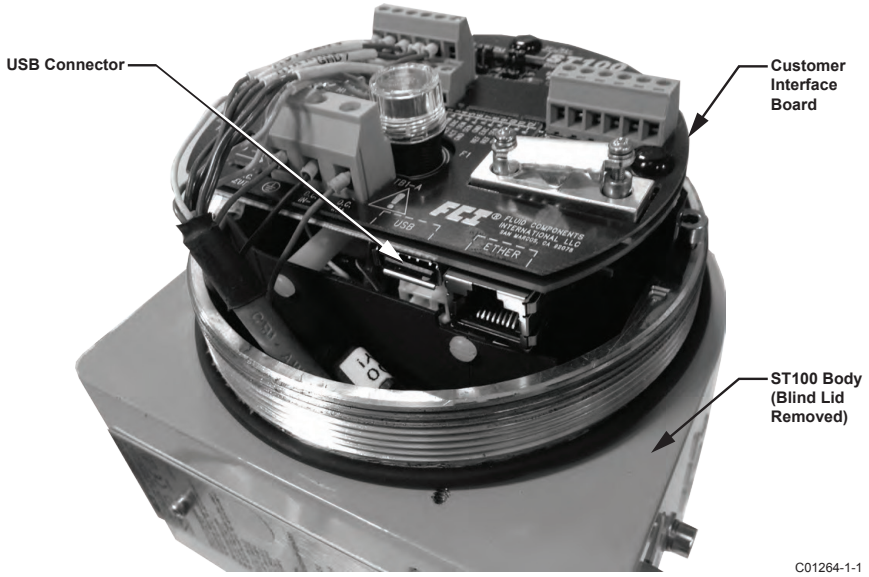


Figure 2 – USB Connector on Customer Interface Board (Digital Interface Shown)

Click the USB connect button at the top of the Welcome Screen.

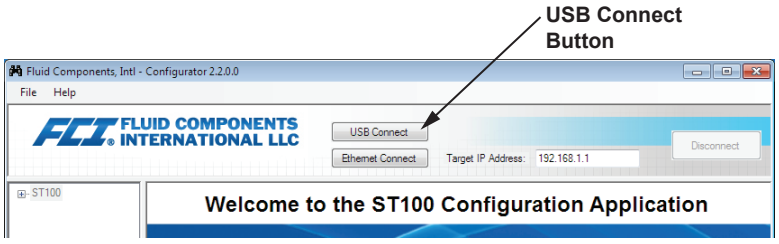


Figure 3 – USB Connect Button, Welcome Screen

Once connected, the ST100 Configuration application shows the Process Data screen as shown in the figure below.

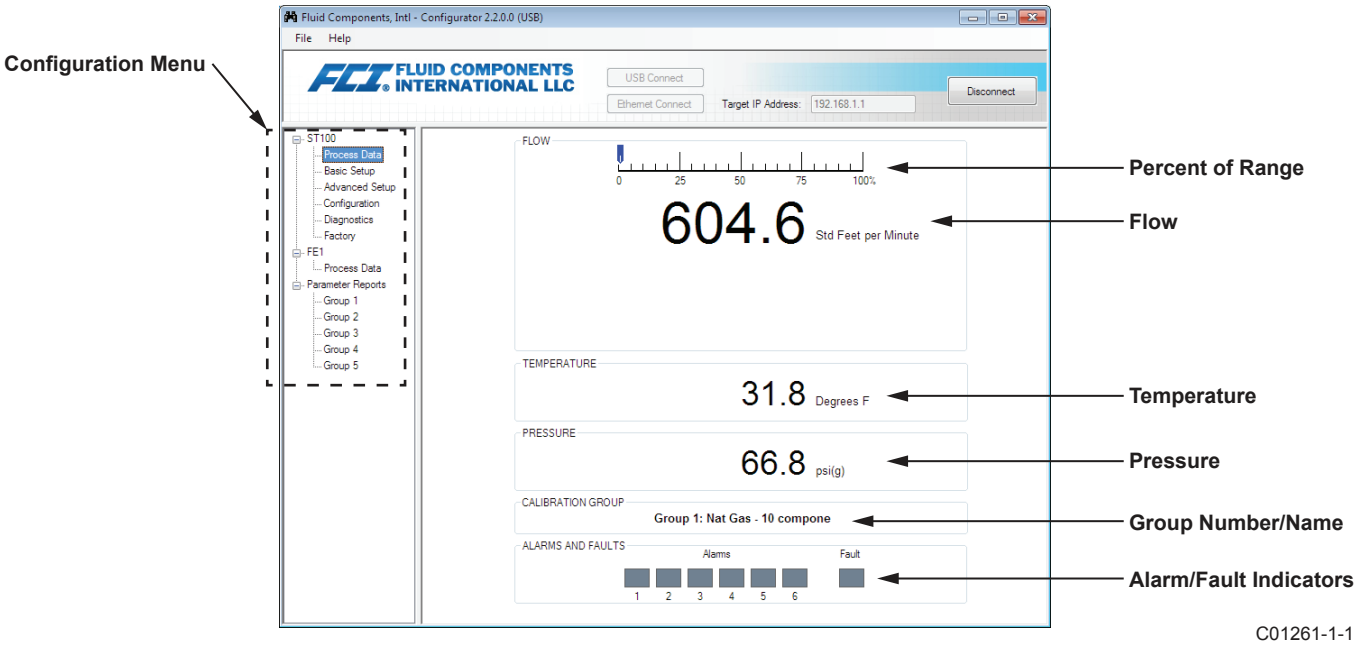


Figure 4 – Example Process Data Screen

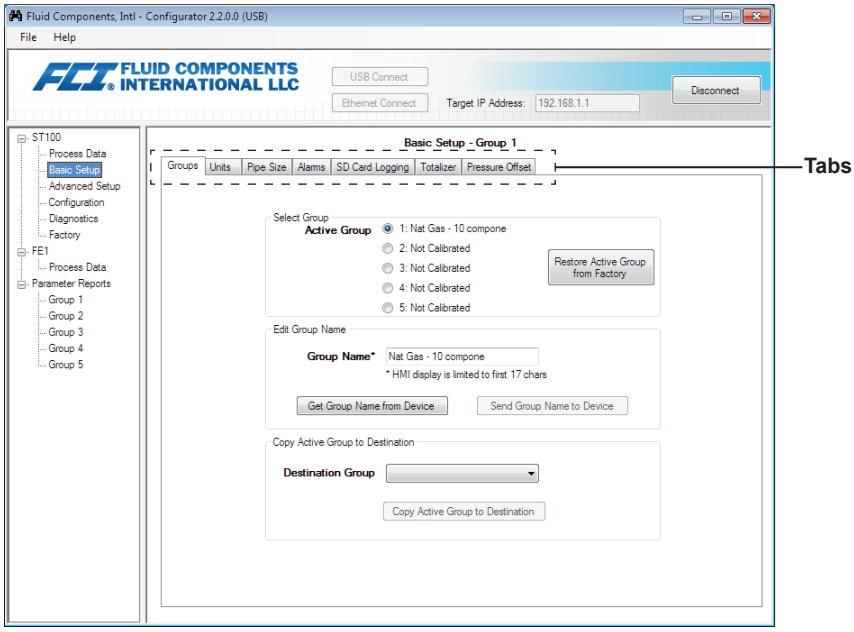
The ST100 Process Data screen shows the same data available on the instrument LCD display.

- Percent of range scale located on the top of the screen
- Flow
- Total Flow (if Mass or Volumetric units used)
- Temperature
- Pressure (for STP Series only)
- Calibration Group **number** and Group **name**
- Alarm and Fault indicators

The ST100 Series is set up using the configuration menu on the left side of the screen. The menu is displayed in a hierarchical tree structure:

Basic Setup Tab Screens

Select the **Basic Setup** branch on the menu tree. The **Groups Tab** is the first of several tabs across the top of the screen. Each tab provides a particular menu within the Basic Setup branch.



C01262-1-1

Figure 5 – Example Groups Tab Screen (Basic Setup)

The table below summarizes the tabs within the **Basic Setup** branch.

Table 1 – Basic Setup Tabs

Tab Name	Tab Description	Password Level
Groups	Select and name groups.	User
Units	Select flow, temperature and pressure units.	User
Pipe Size	Select pipe type and dimensions.	User
Alarms	Select and set alarm requirements; select for logging.	User
SD Card Logging	Select logging requirements.	User
Totalizer	Select and reset Totalizer requirements.	User
Pressure Offset	Offset pressure transducer.	User

[User password 2772]

To verify the current configuration of any setup parameter, click the **Get from Device** button on any of the Setup menus. After changing any of the setup parameters, click the **Send to Device** button. Verify the parameter change by clicking the **Get from Device** button again. Observe that the changed parameters are now displayed. The Basic Setup tab screens are shown below.

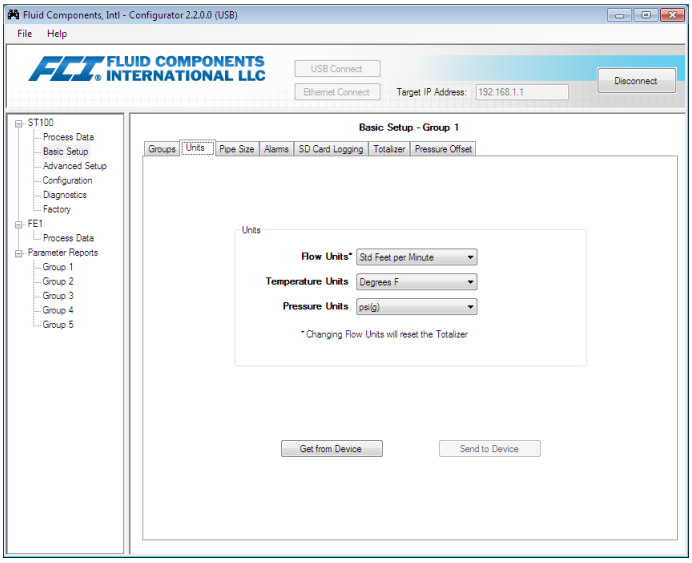


Figure 6 – Example Units Screen

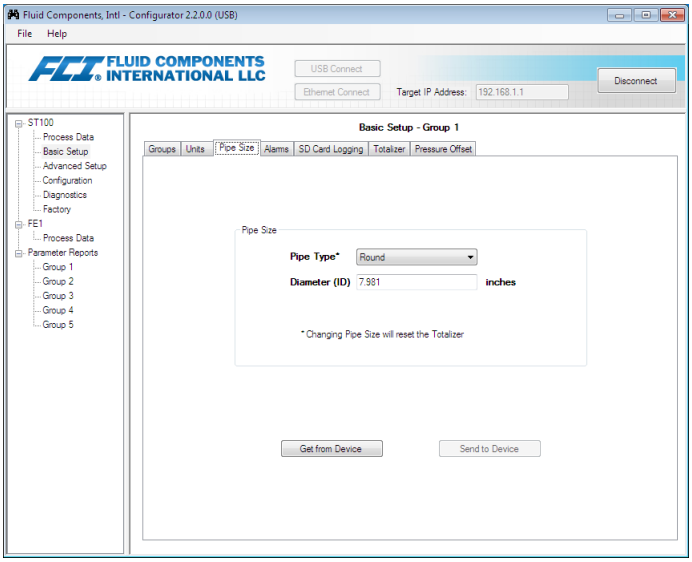


Figure 7 – Example Pipe Size Screen

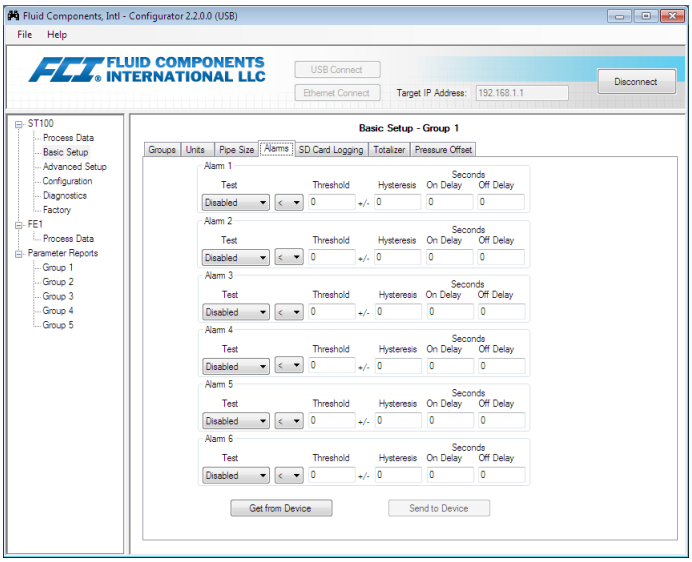


Figure 8 – Example Alarms Screen

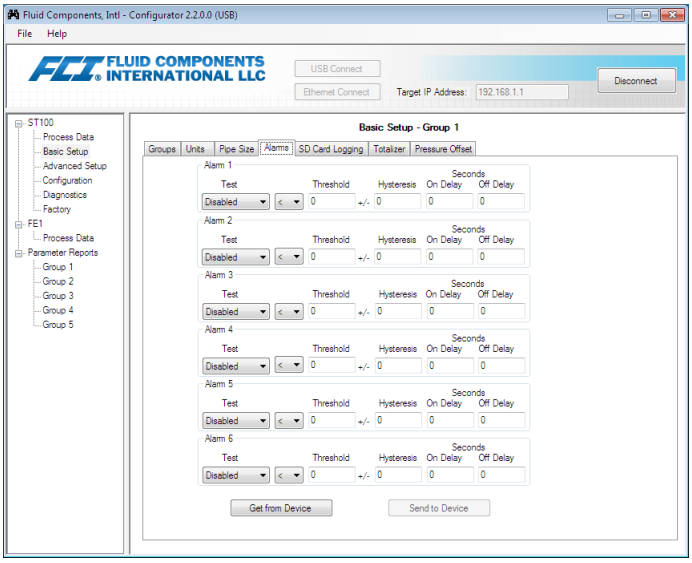


Figure 9 – Example SD Card Logging Screen

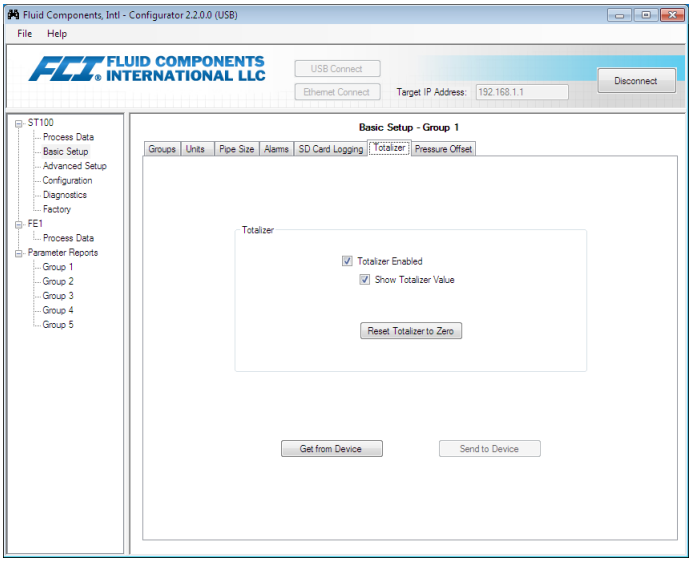


Figure 10 – Example Totalizer Screen

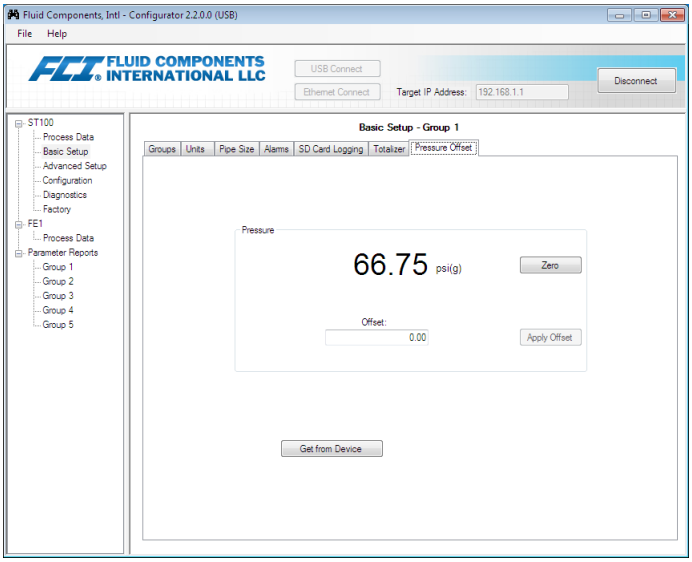


Figure 11 – Example Pressure Offset Screen

Advanced Setup Tab Screens

Select the **Advanced Setup** branch on the menu tree. The **User Parameters Tab** is the first of several tabs across the top of the screen. Each tab provides a particular menu within the Advanced Setup branch.

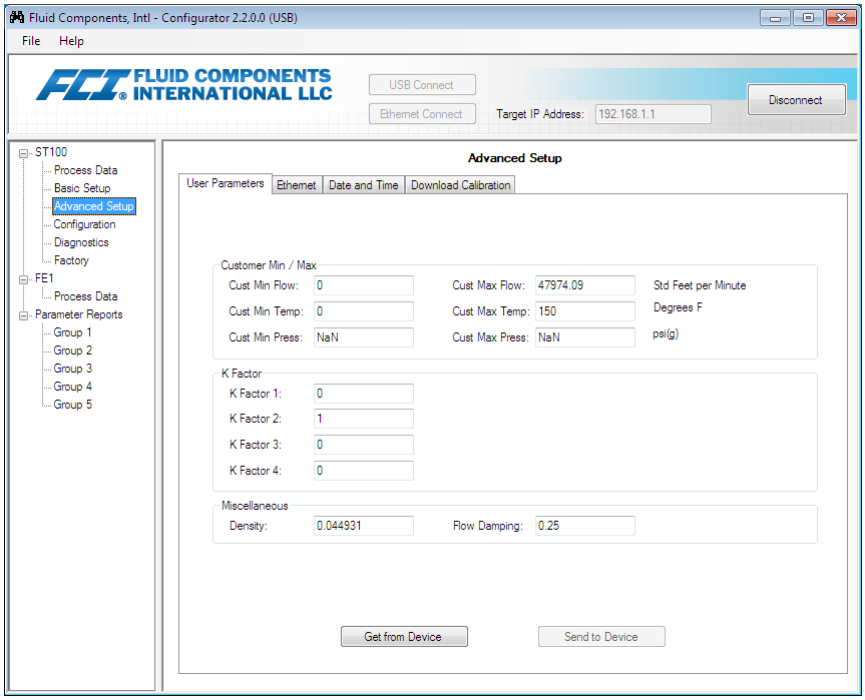


Figure 12 – Example User Parameters Tab (Advanced Setup)

The table below summarizes the tabs within the **Advanced Setup** branch.

Table 2 – Advanced Setup Tabs

Tab Name	Tab Description	Password Level
User Parameters	Shows min/max process variable limits, K Factor, Density, Damping.	User
Ethernet	Sets Ethernet address values.	User
Date and Time	Set Clock date and time.	User
Download Calibration	Lets users download a full calibration to their ST100 via a text file. Contact FCI to obtain the .txt file that was generated by the factory linearization software (Cal2).	User

[User password 2772]

To verify the current configuration of any setup parameter, click the **Get from Device** button on any of the Setup menus. After changing any of the setup parameters, click the **Send to Device** button. Verify the parameter change by clicking the **Get from Device** button again. Observe that the changed parameters are now displayed. The Advanced Setup Tab screens are shown below.

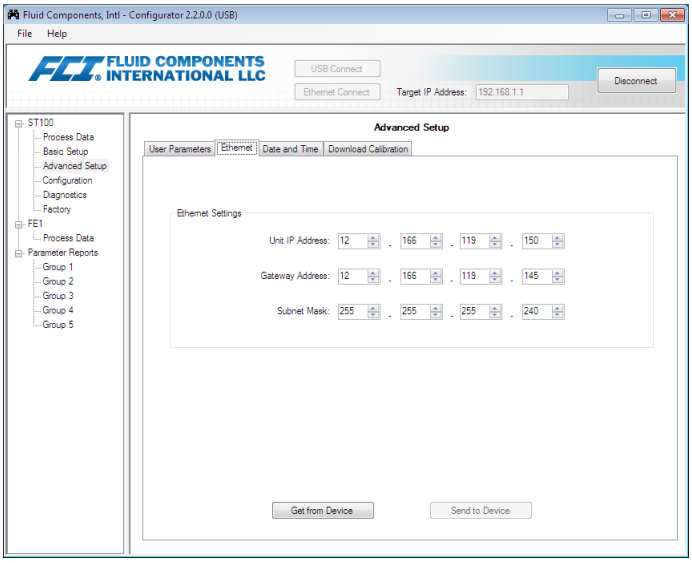


Figure 13 – Example Ethernet Tab (Advanced Setup)

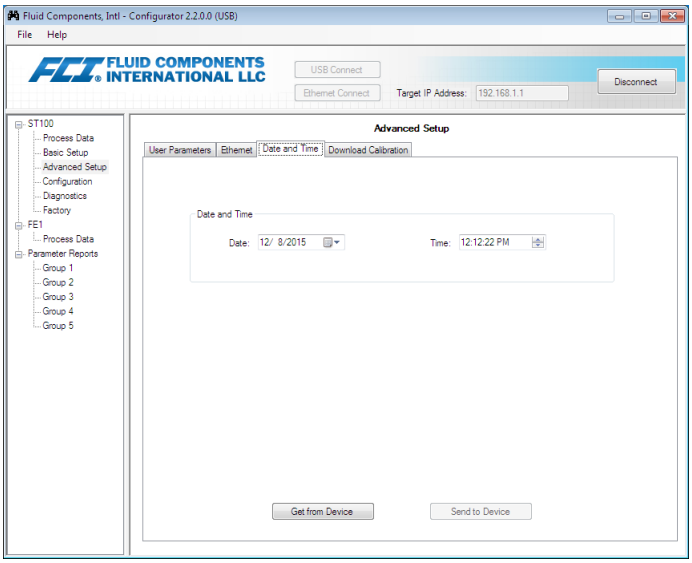


Figure 14 – Example Data and Time Tab (Advanced Setup)

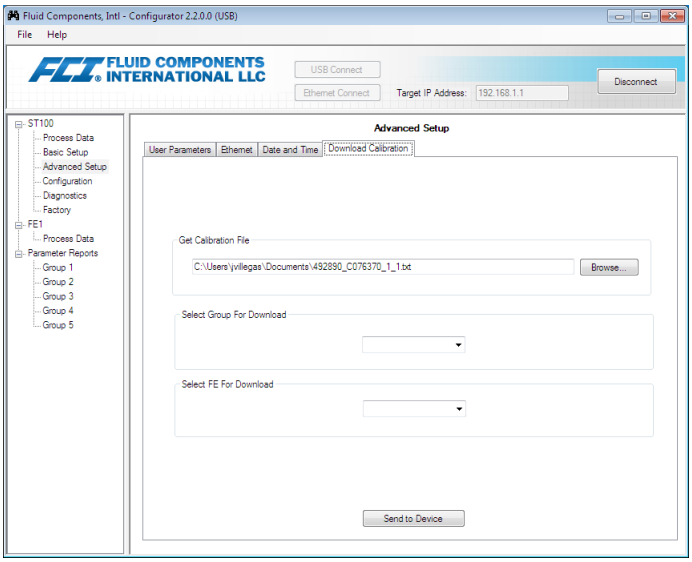


Figure 15 – Example Download Calibration Tab (Advanced Setup)

Configuration Tab Screens

Select the **Configuration** branch on the menu tree. The **Output Tab** is the first of several tabs across the top of the screen. Each tab provides a particular menu within the Configuration branch.

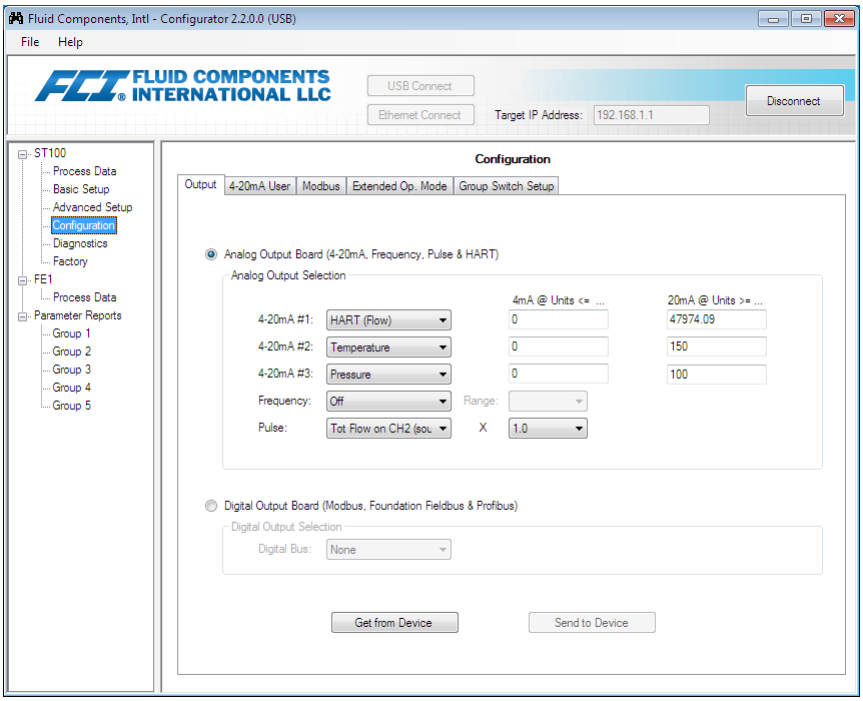


Figure 16 – Example Output Tab (Configuration)

The table below summarizes the tabs within the **Configuration** branch.

Table 3 – Configuration Tabs

Tab Name	Tab Description	Password Level
Output	Sets: 4-20 mA channels zero and span values, Freq and Pulse parameters.	User
4-20mA User	Manual mA Output loop check; configure/enable NAMUR fault.	User
Modbus	Sets Modbus communication parameters.	User
Extended Op. Mode	Expands flow measurement capabilities by providing 4 additional modes of operation. Refer to “Extended Operational Modes” in Complete Manual 06EN003400 for detailed information.	User
Group Switch Setup	Sets up automatic calibration group switching depending on specific process data values or an external 4-20 mA output driving the ST100 auxiliary input port. Refer to “Auto FE Calibration Group Switch (FCS)” and “External Control Group Switching (EGS)” in Complete Manual 06EN003400 for detailed information.	User

[User password 2772]

To verify the current configuration of any setup parameter, click the **Get from Device** button on any of the Setup menus. After changing any of the setup parameters, click the **Send to Device** button. Verify the parameter change by clicking the **Get from Device** button again. Observe that the changed parameters are now displayed. The **Configuration** Tab screens are shown below.

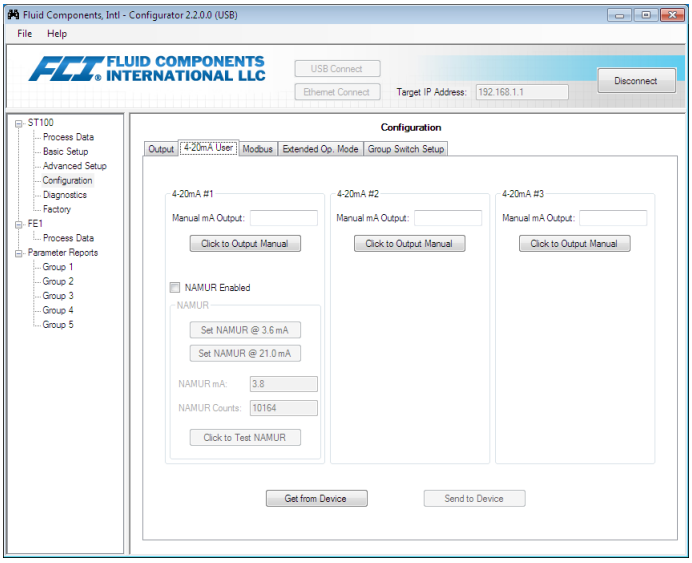


Figure 17 – Example 4-20mA User Tab (Configuration)

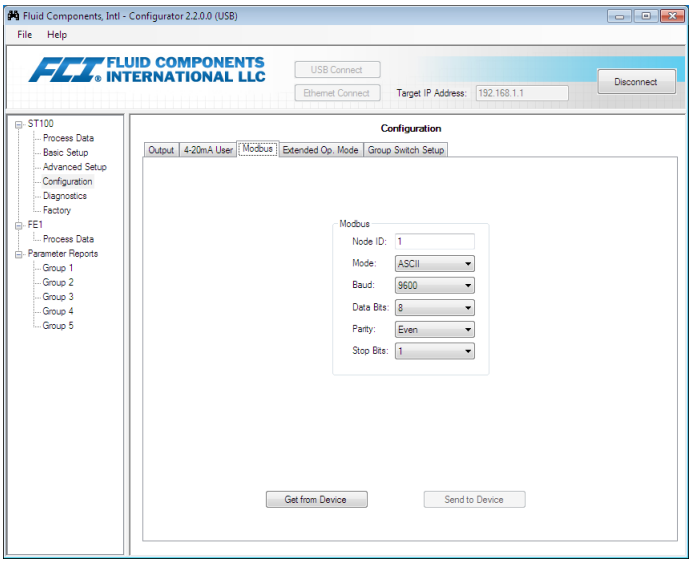


Figure 18 – Example Modbus Tab (Configuration)

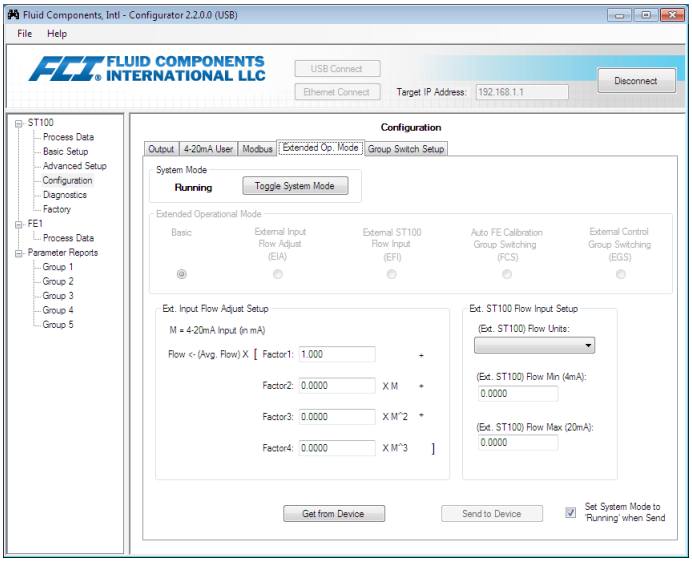


Figure 19 – Example Extended Op. Mode Tab (Configuration)

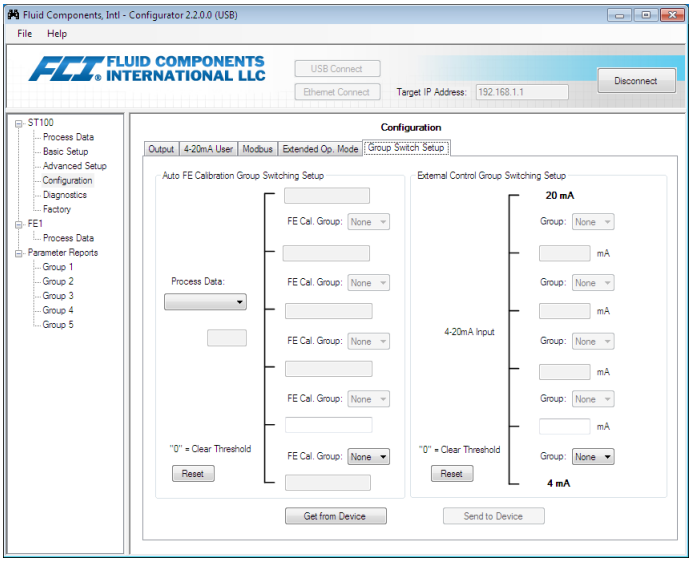


Figure 20 – Example Group Switch Tab (Configuration)

Diagnostics Tab Screens

Select the **Diagnostics** branch on the menu tree. The **Status Tab** is the first of several tabs across the top of the screen. Each tab provides a particular menu within the Diagnostics branch.

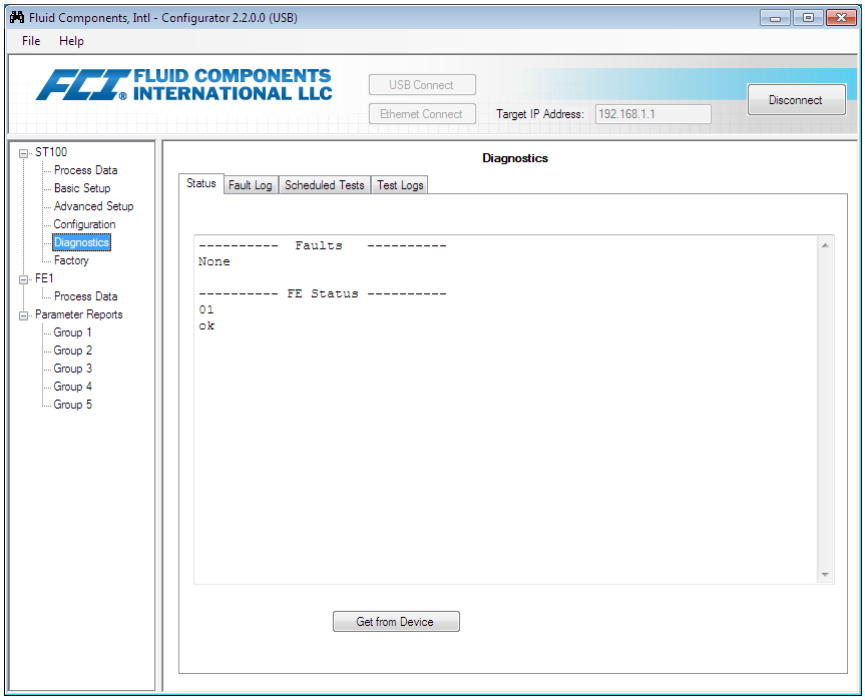


Figure 21 – Example Status Screen (Diagnostics)

The table below summarizes the tabs within the **Diagnostics** branch.

Table 4 – Diagnostics Tabs

Tab Name	Tab Description	Password Level
Status	Indicates system status and fault flags.	Read only
Fault Log	Shows fault history.	User
Scheduled Tests	Enable/disable internal Delta R resistance check – results logged to SD card.	User
Test Logs	Shows internal Delta R resistor check (IDR) log results.	User

[User password 2772]

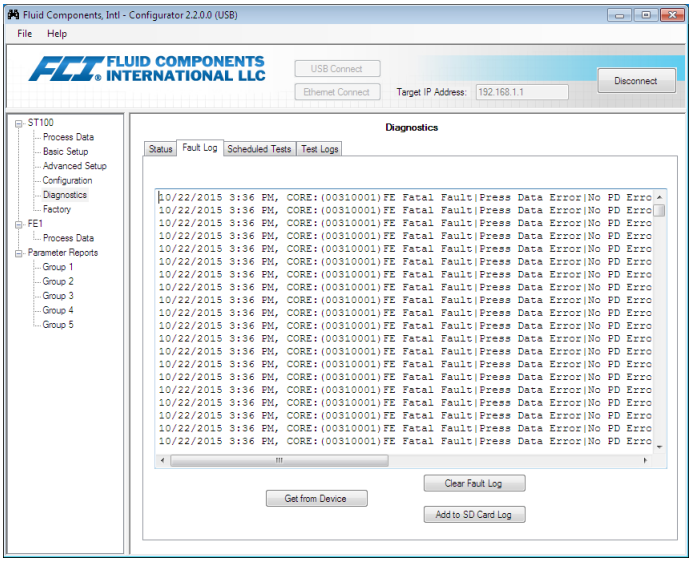


Figure 22 – Example Fault Log Tab (Diagnostics)

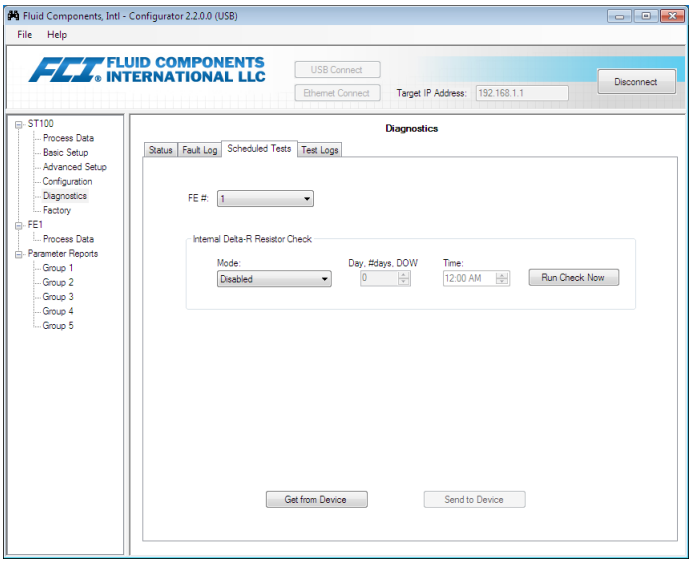


Figure 23 – Example Scheduled Tests Tab (Diagnostics)

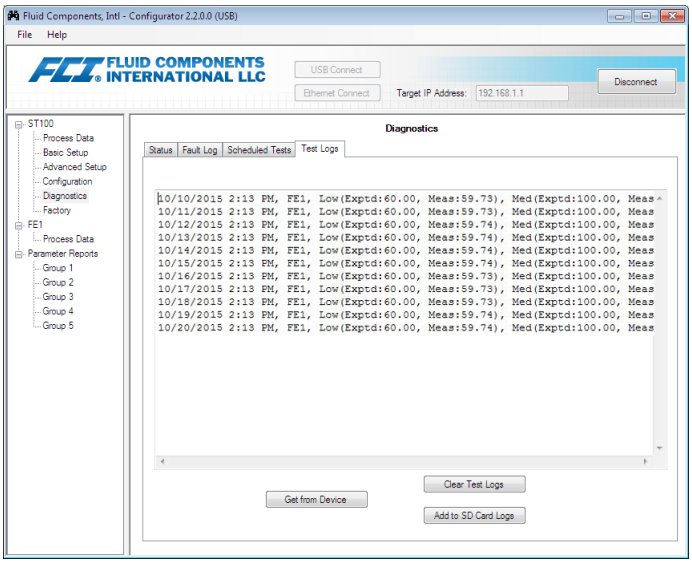


Figure 24 – Example Test Logs Tab (Diagnostics)

Factory

Table 5 – Factory Tabs

Tab Name	Tab Description	Password Level
Factory Parameters	For Factory use only.	Factory
Identification	For Factory use only.	Factory
4-20mA Factory	For Factory use only.	Factory
Options	For Factory use only.	Factory
HART	For Factory use only.	Factory
Memory	For Factory use only.	Factory

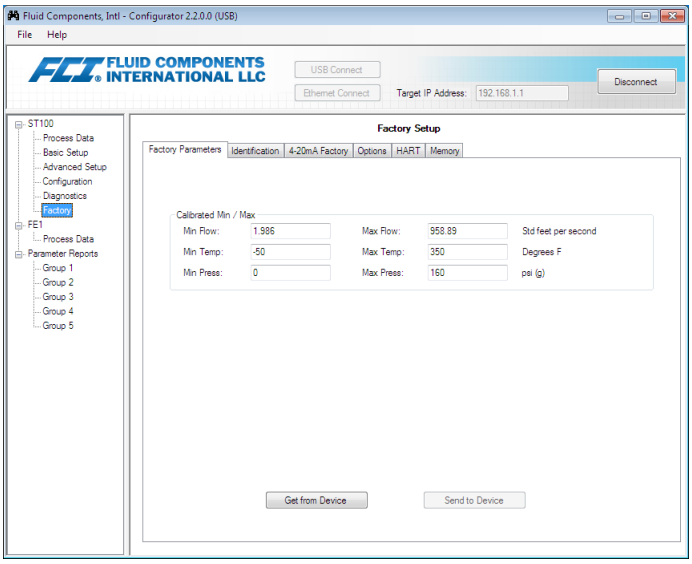


Figure 25 – Example Factory Parameters Tab (Factory)

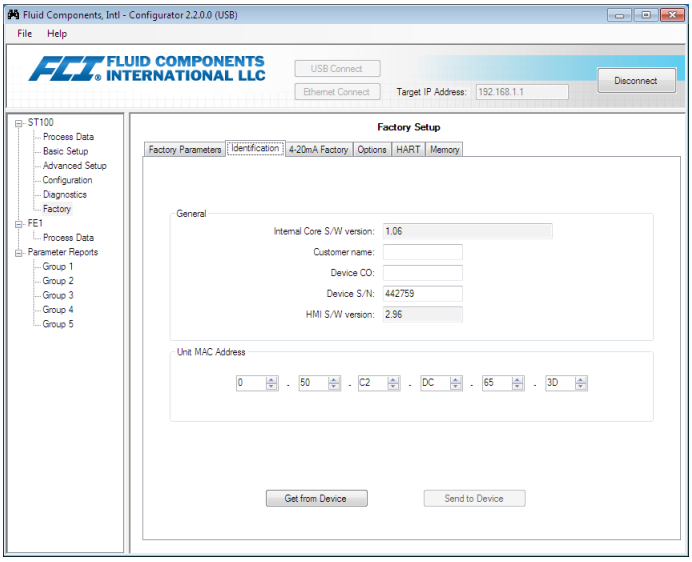


Figure 26 – Example Identification Tab (Factory)

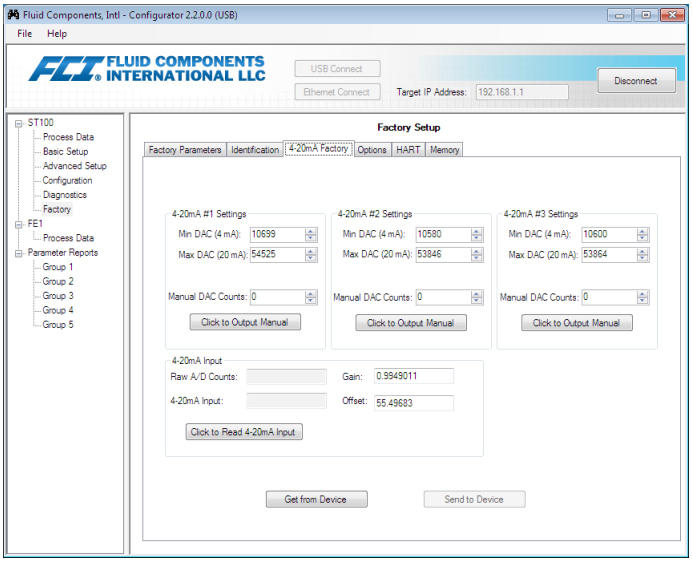


Figure 27 – Example 4-20mA Factory Tab (Factory)

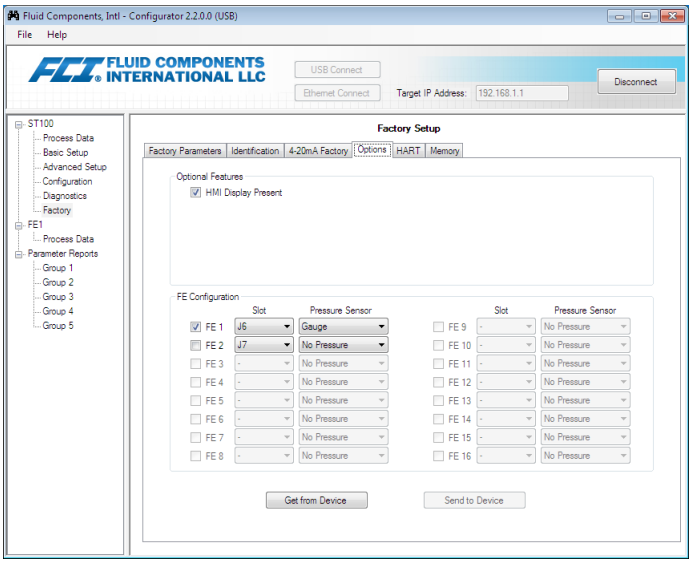


Figure 28 – Example Options Tab (Factory)

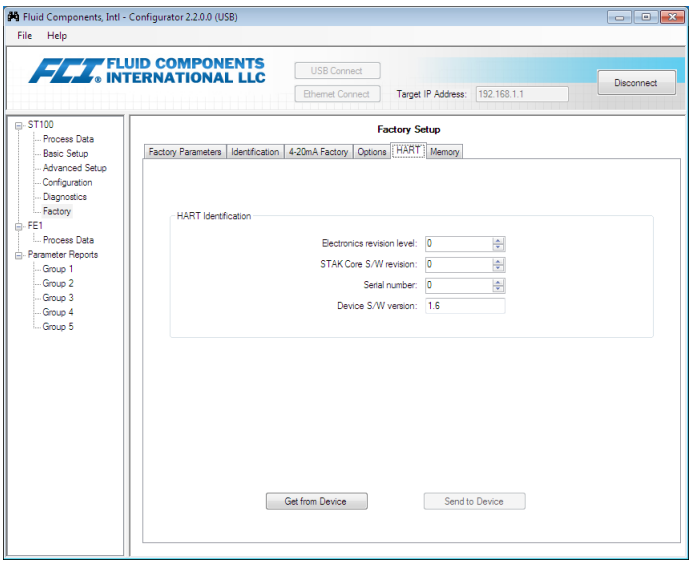


Figure 29 – Example HART Tab (Factory)

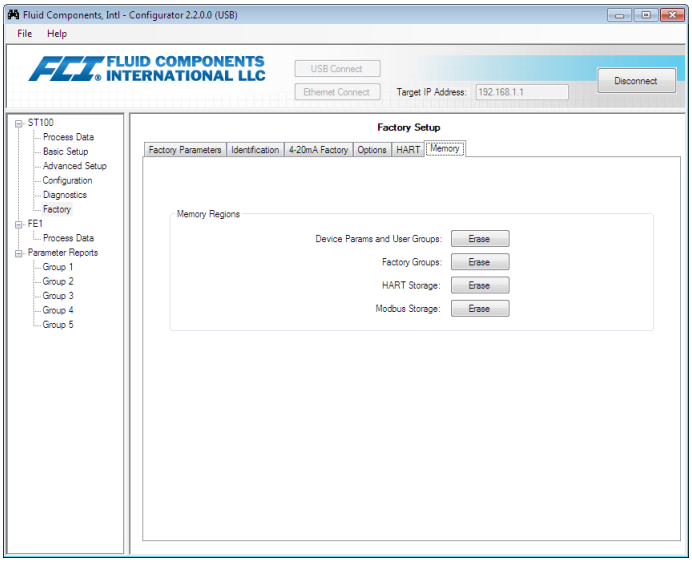


Figure 30 – Example Memory Tab (Factory)

FE1 Process Data

The FE1 description refers to Flow Element 1 of the system. The system is capable of supporting multiple flow elements but for the purpose of this manual we will discuss a single point system with one flow element. Select the **FE1 Process Data** branch on the menu tree. The figure below shows an example FE1 Process Data screen.

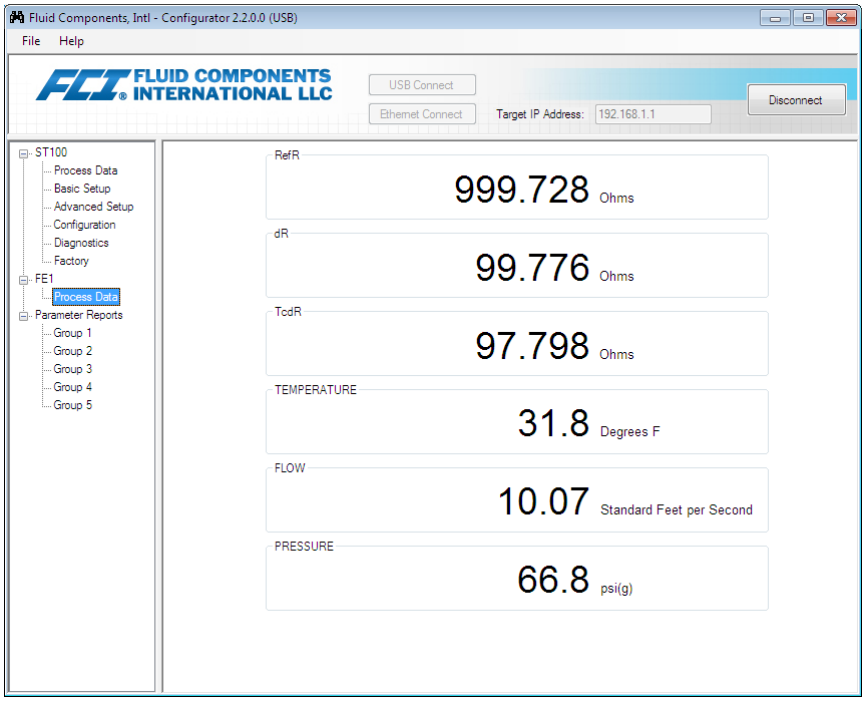


Figure 31 – Example Process Data Screen (FE1)

This screen displays the real time values of the following flow element parameters:

- RefR – Reference RTD resistance
- dR – Delta resistance between the active and reference RTDs
- TcdR – Temperature Compensated dR value
- Temperature – Real time temperature value
- Flow – Real time flow value
- Pressure – Real time pressure value (for STP models)

This screen can be helpful when diagnosing system faults.

Parameter Reports

A **Parameter Reports** screen displays the calibration information saved in the ST100 Series unit for a particular calibration group numbered 1-5. Selecting a parameter report for a particular calibration group displays that group's info/data. Similar to other setup menus there are **Get** and **Send** buttons to receive (from ST100) and transmit (to ST100) a calibration parameter. Use of the **Send** button, however, is a factory-only operation that requires a special password.

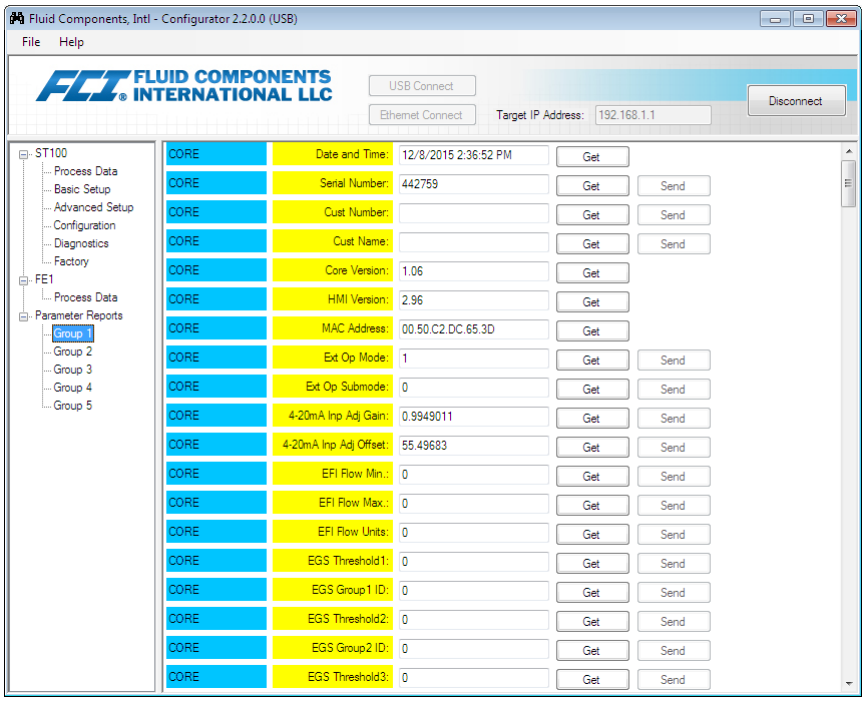


Figure 32 – Example Parameter Report, Group 1

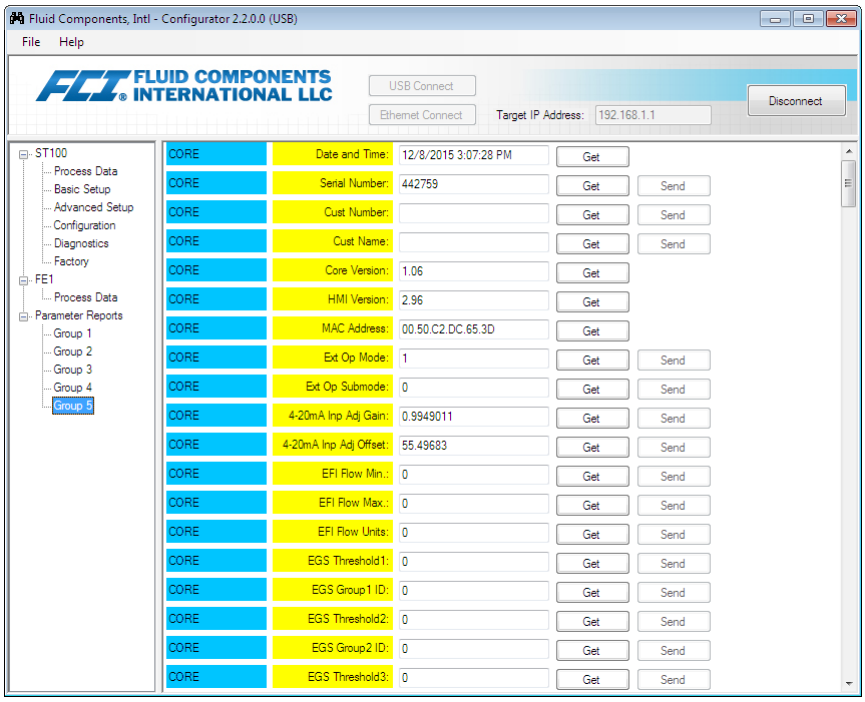


Figure 33 – Example Parameter Report, Group 5

Customer Service/Technical Support

FCI provides full in-house technical support. Additional technical representation is also provided by FCI field representatives.

By Mail

Fluid Components International LLC
1755 La Costa Meadows Dr.
San Marcos, CA 92078-5115 USA
Attn: Customer Service Department

By Phone

Contact the area FCI regional representative. If a field representative is unable to be contacted or if a situation is unable to be resolved, contact the FCI Customer Service Department toll free at 1 (800) 854-1993.

By Fax

To describe problems in a graphical or pictorial manner, send a fax including a phone or fax number to the regional representative. Again, FCI is available by facsimile if all possibilities have been exhausted with the authorized factory representative. Our fax number is 1 (760) 736-6250; it is available 7 days a week, 24 hours a day.

By Email

FCI Customer Service can be contacted by email at: techsupport@fluidcomponents.com.

Describe the problem in detail making sure a telephone number and best time to be contacted is stated in the email.

International Support

For product information or product support outside the contiguous United States, Alaska, or Hawaii, contact your country's FCI International Representative or the one nearest to you.

After Hours Support

For product information visit FCI at www.fluidcomponents.com. For product support call 1 (800) 854-1993 and follow the prerecorded instructions.

Point of Contact

The point of contact for service, or return of equipment to FCI is your authorized FCI sales/service office. To locate the office nearest you, please go to www.fluidcomponents.com.

NOTES

Flow & Level Instrumentation
Solutions for Industrial Processes

FCI's Complete Customer Commitment. Worldwide
ISO 9001 and AS9100 Certified

Visit FCI on the Worldwide Web: www.fluidcomponents.com

FCI World Headquarters
1755 La Costa Meadows Drive | San Marcos, California 92078 USA | Phone: 760-744-6950 Toll Free (US): 800-854-1993 Fax: 760-736-6250

FCI Europe
Persephonestraat 3-01 | 5047 TT Tilburg, The Netherlands | Phone: 31-13-5159989 Fax: 31-13-5799036

FCI Measurement and Control Technology (Beijing) Co., LTD | www.fluidcomponents.cn
Room 107, Xianfeng Building II, No.7 Kaituo Road, Shangdi IT Industry Base, Haidian District | Beijing 100085, P. R. China
Phone: 86-10-82782381 Fax: 86-10-58851152