Fluke DAQ

Application Software

Users Manual

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Introduction

Fluke DAQ Application Software (the Software) provides a graphical user interface (GUI) to the Fluke family of data acquisition products. Use the Software to:

- Configure device settings.

- Download/upload configuration to the devices.

- Send commands to and take readings from analog DIO module.

- Monitor a devices on-line values and alarms.

- Plot trend charts, and retrieve historical trends, alarms, and export data files in CSV format.

- View remotely from any browser.

Note

The Software supports the 2638A Hydra Series III Net DAQ devices (2640A and 2645A) , 1586A precision Temperature Scanner, and the 2680A and 2686A.

⚠**Caution**

To prevent loss of data, do not remove the PC card or USB memory device while the storage LED is on. Before the card is removed, stop the device scanning. Loss of power while data is stored can also result in loss of data.

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Contact Fluke

To contact Fluke, call one of the following telephone numbers:

- Technical Support USA: 1-800-44-FLUKE (1-800-443-5853)

- Calibration/Repair USA: 1-888-99-FLUKE (1-888-993-5853)

- Canada: 1-800-36-FLUKE (1-800-363-5853)

- Europe: +31 402-675-200

- Japan: +81-3-6714-3114

- Singapore: +65-6799-5566

- Anywhere in the world: +1-425-446-5500

Or, visit Fluke's website at www.fluke.com.

To register your product, visit http://register.fluke.com.

To download manuals, or to view, print, or download the latest manual supplement, visit http://us.fluke.com/usen/support/manuals.

Basic System Requirements

The Software requires:

- Operating system: (32 or 64 bit)

- Microsoft Windows Vista Service Pack 2

- Microsoft Windows 7 Service Pack 1

- Microsoft Windows 8 (excluding Windows RT)

- Microsoft Windows Server 2003 Service Pack 2

- Microsoft Windows Server 2008 Service Pack 2

- Microsoft Windows Server 2008 R2 Service Pack 1

- Microsoft Windows Server 2012

Computer:

- Memory available: 8 GB

- Processor: $\geq$1 GHz

- Available disk space: $\geq$3 GB recommended

- Application file size: 432 MB

Software Versions

Software versions 6.0 and above have two model versions as well as a full evaluation or demo version. This manual addresses the features of the full version (2680A-APSW). The other version is a Lite version (2680A-APSW/L). This version is a basic configuration and data

collection package with an alarm page to view and acknowledge system alarms.

A full-featured demo or evaluation version is also available that runs for 40 hours of total application runtime. Version differences are summarized in Table 1.

Table 1. Software Versions

Version	Multi-Instrument Use	Configuration and Data File Creation	Trend Chart, Printing and Chart Data Export	Web Connect View and Control	Automated Email Alerts	Alarm Page View	Alarm and Chart History View	OPC Server
2680A-APSW/DEMO (40 Hours)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2680A-APSW (Full)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2680A-APSW/L (Lite)	No	Yes	No	No	No	Yes	No	No

Register the Software

When the application is opened for the first time, it opens in the full-featured evaluation or demo mode. This full-featured version can be used on multiple computers for a maximum of 40 hours. After that time, it must be registered. This is a good training tool and can be run with one instrument connected, or in data-simulation mode without an instrument attached.

The activation key is located on your product CD. This key is either for a Lite version (2680A-APSW/L) or a Full version (2680A-APSW) based on your purchase. The licenses for 2680A-APSW or 2680A-APSW/L require registration and are licensed to a specific computer.

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Before you register the software, ensure you are registering it on the computer that is to be used in your application.

During the registration steps you are directed to a non-Fluke website for the registration process. The target computer does not need to be connected to a network for this process.

To register the Software:

1. Go to **All Programs>Fluke DAQ 6.0>Register**.

2. Allow Publisher Unknown access by clicking **Yes**.

3. Select **Softkey** and click **Check**.

4. Copy the Site Code from the site code box.

5. Go to http://www.indusoft.com/License-Activation-Commercial sign in or register on this site and paste the site code and activation key you receive from Fluke into the appropriate boxes.

    You will receive a return email with your site key.

6. Paste this number into the site key box and click **Authorize**.

Save your site key to assist you with moving your license to another computer at a later date.

If you have difficulty during this registration process, contact Fluke at electricalsupport@flukecal.com.

Before Installation

If you have an earlier version of the Software, you must uninstall it before a new version is installed. To save data and configuration files from a previous version to use in a new installation, copy the "config" folder or individual configuration files that are in the Fluke DAQ folder, to another folder on your computer.

The new version of the Software will convert these configuration files for use with the new version.

Installation

To install the Software:

1. Run the Launch.exe command from the CD. The installation program prompts for an installation location and checks if there is enough free space on the hard drive.

2. Click **Next** and wait for the installation to finish. Program application files are loaded under the Program Files folder on your C: drive. The default location for your data and configuration files is **C: users>Public>Public documents>Fluke DAQ**. The location can be changed during installation.

3. The installation program makes a shortcut on the desktop. Double-click the shortcut to start the Software.

The User Interface

This section explains the components of the interface.

Toolbar

A toolbar is shown on all Software dialogs. Use the toolbar buttons to add and configure devices and to navigate through the application. Move the mouse cursor over each button to view the tool tip that identifies each function. See Table 2.

Table 2. Toolbar Buttons

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Button	Function
	Logon Used to log on to the application. The Software administrator (Root user) can create user accounts and set up rights to configure devices. Guest users do not have rights to do configuration tasks.
	Security System Configuration The system security configuration feature lets the administrator: • Add and remove Software users • Allow users to configure devices • Change user passwords. Only the administrator (Root user) can use the security system configuration function.

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Table 1. Toolbar Buttons (cont.)

Button	Function
	Configuration Configure networks, devices, modules, and channels.
	Communication • Access the Communication dialogs • Show the communication status of connected network components • Interact with those components. The Communication button can also assume these states in the TreeView panel: • Dark computer screens on the button indicates that communication is disabled. • Color on the computer screens on the button indicates that communication is enabled. • A blinking red X through a computer screen indicates communication failure.
	Trend Access the Trend dialog to see the scanned data collected from 268XA devices.

Table 1. Toolbar Buttons (cont.)

Button	Function
	Alarm
	Use the Alarm View dialog to view On Line and History alarms.
	The Alarm status button can also assume these states in the TreeView panel:
	• When an alarm is activated, the icon turns red.
	• The icon turns black after an Ack (acknowledge) command is given (Last Alarm or All Alarms) in the Alarms dialog.
	Web and Alarm Mail Settings
	Used to enter Software web configuration information and to configure the Software to send e-mail messages when an alarm condition has been triggered.
	Exit
	Exit the Software.

The Workspace Area

The Workspace Area consists of a network TreeView and a set of buttons. See Figure 1.

Use the Workspace Area to:

• Open, Save, and Remove configuration files. **Save As** can also be used to rename an existing configuration file.

• Insert and Remove devices, modules, and channels
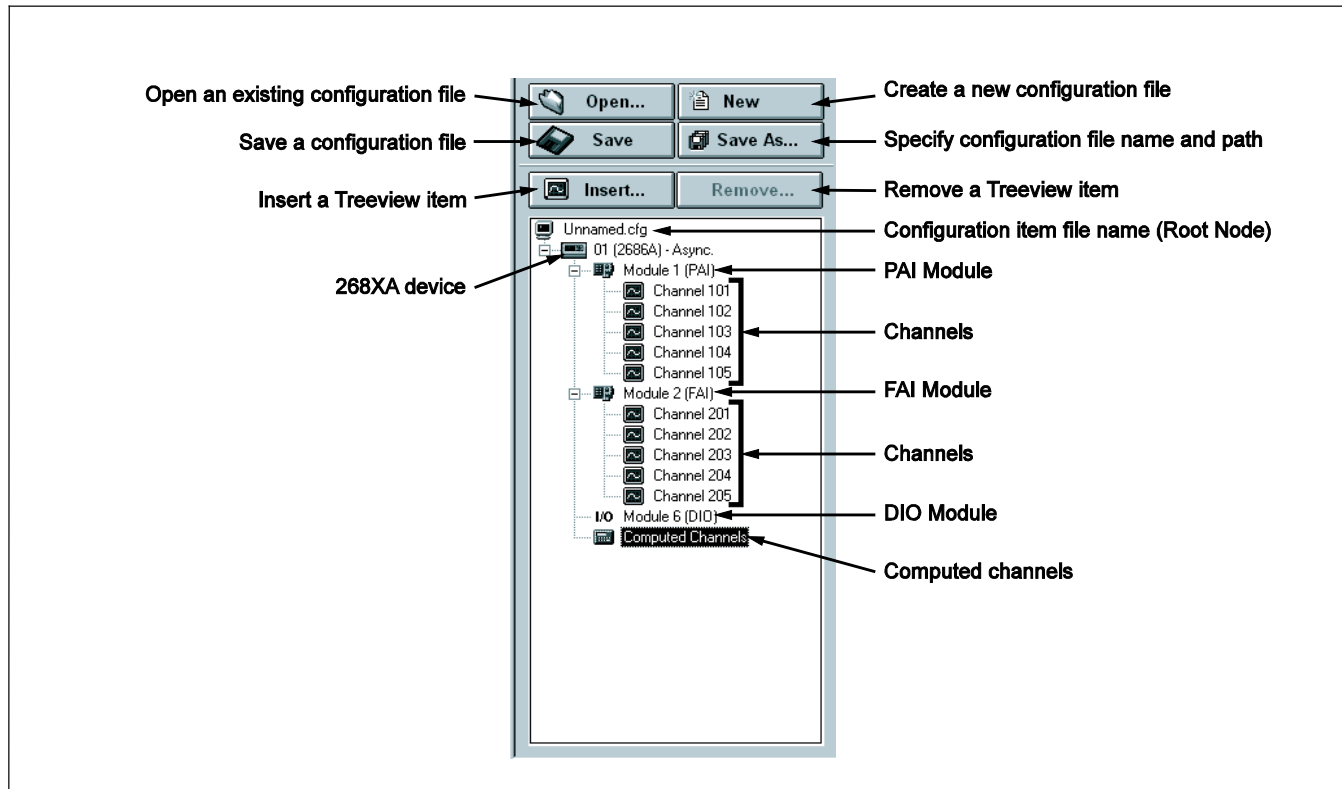
• Navigate through the configuration setup dialogs

Open an existing configuration file
Save a configuration file
Insert a Treeview item
268XA device

Create a new configuration file
Specify configuration file name and path
Remove a Treeview item
Configuration item file name (Root Node)
PAI Module
Channels
FAI Module
Channels
DIO Module
Computed channels

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Figure 1. Workspace Area

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Checking Operational Status

The icons in the TreeView change to show the device status. Table 3 explains the icons.

Table 3. Operational Status Indicators

Icon	State	Meaning
Device Status	Yellow or Blue	Device is not connected.
	Green	Device is connected and communicating.
	Red	Device error. View error information in the Communication dialog.
Module Status	Dimmed	Module is not being scanned.
	Green	Module is being scanned.
	Red	Module is being scanned and a channel is in alarm condition.
Computed Channel Status	Blue	Channels are not being scanned.
	Green	Channels are being scanned.
	Red	Channels are in an alarm condition
I/O Module 6	Black	All channels are off.
	Green	A channel is turned on by an external activation or by a user command.
	Red	A channel is activated by an alarm condition.

Configuration Dialogs

The Configuration dialog that is shown with the toolbar

configuration icon selected [icon] depends on the node (device, module, or channel) selected in the TreeView panel.

Copy and paste functionality can also be used to save configuration time. Channel settings can be copied from one channel to another in the same device, or an entire module or a group of channel settings can be copied from one device to another.

To copy a channel:

1. Highlight the channel to be copied.

2. Right-click the mouse and select **Copy**.

3. Highlight the module where the channel is to be added.

4. Right-click the mouse and select **Paste**.

A new channel with the same configuration is added to the module.

The same method can be used to change channel settings:

1. Highlight a channel.

2. Right-click the mouse and select **Copy**.

3. Highlight the channel to be changed.

4. Right-click the mouse and select **Paste** to paste the configuration information.

Note

When moving from a Configuration dialog to a Communication dialog, the device that was previously selected in the dialog is still selected. For example, if device 01 is selected in the Configuration dialog and you move to a Communication dialog, the device will only be highlighted if it was selected the last time you were in the Communication dialog. Dialog selections are remembered and are independent.

The Software uses the Configuration dialogs that are in the next sections.

Network Configuration Dialog

Use the Network Configuration dialog to group 2680A and NetDAQ products in a master/slave arrangement and to select the network type (General or Isolated). The Network Configuration dialog shows when the root node in the TreeView is clicked. 2638A and 1586A devices cannot be used in a Master/Slave grouping.

Device Configuration Dialog

Use the Device Configuration dialog to configure devices. This dialog is shown when a device in the TreeView is selected.

Use the Configuration dialogs to:

- Set up the device network settings (IP address and Port number)

- Verify the IP address or the USB port and the connection

- Upload and download the configuration from/to the device

- Save and load the configuration to and from the PC card (2686A only)

Note

*The **Save** command saves the actual 2686A configuration to the PC Card. The Load command loads the configuration from the PC Card to the 2686A.*

- Set up the device general settings

- Specify which module will control the trigger out signal for master/slave operation (2680A and NetDAQ only)

Module Configuration Dialog

Depending on the model, a device can have up to six modules with specific configuration settings. The Module Configuration dialog is shown as a module in the TreeView is selected.

Analog Channel Configuration Dialog

Use the Analog Channel Configuration dialog to set function, range, and alarm information.

DIO Configuration Dialog

Use the DIO Configuration dialog to enter totalizer configuration information. To set relays and I/O pins, see the DIO Communication dialog described later in this manual.

Computed Channel Configuration Dialog

Depending on the model, devices can have up to 60 computed channels, with all computed channels available for configuration in one view. 2638A Hydra Series III and 1586A Super-DAQ instruments have 20 on-board computed channels.

Computed channels provide a way to directly use measurement results in a calculation. The calculation results can be used to set alarms or as part of other calculations. Highlight the Computed Channel icon and click on **Insert**. The menu shown is appropriate to the model and its capabilities.

Detailed instructions to use the Configuration dialogs are provided later in this manual.

Note

Computed channel values are only updated when scanning is active.

Communication Dialogs

The Communication dialogs show the communication status of connected network components and let you interact with those components. The Software uses the Communication dialogs explained below.

Device Communication and Status Dialog

Use the Device Communication and Status dialog to:

- View device status and reset device errors

- Start/Stop scan and communication with all instruments

- Reset the totalizer

- Upload scan data from the PC Card or internal memory

- Format the PC Card or internal memory

- Remove scan data from the PC Card (2686A only)

Module Communication Dialog

Use the Module Communication dialog to:

- View the current channel values

- View the alarm conditions

- Start/Stop the Instrument scan

Digital I/O Points Dialog

Use the Digital I/O Points Communication dialog to set any available relays or DIO pins to active when an alarm condition occurs in the channel.

Computed Channels Dialog

Use the Computed Channels communication dialog to:

- View current values of computed channels

- View alarm conditions of computed channels

Security Dialogs

Use the system security features to protect device configuration information. The system security feature lets the administrator:

- Add and remove Software users

- Let other users configure devices

- Change user passwords

Trend Chart

Use the Trend chart to see the scanned data collected from the instruments. The charts can be On Line or Historical. Use **Export** to export data to a CSV file that can be manipulated with Excel.

Alarm View Dialog

Use the Alarm View dialog to see On Line and History alarms. Filter the alarms by device ID, module, and channel. When an alarm occurs, the device Icon in the configuration window changes to red. As long as the alarm exists, the Icon remains red. In the Alarm window, a red line of information shows the status of the alarm.

Web and Alarm Mail Settings Dialogs

Use the Web and Alarm Mail Settings dialog to enter the Software web configuration information and to configure the Software to send e-mail messages that report an alarm condition.

The Web Settings portion of dialog specifies a URL where scanned values from a 268XA device are to be sent.

Manage a Network

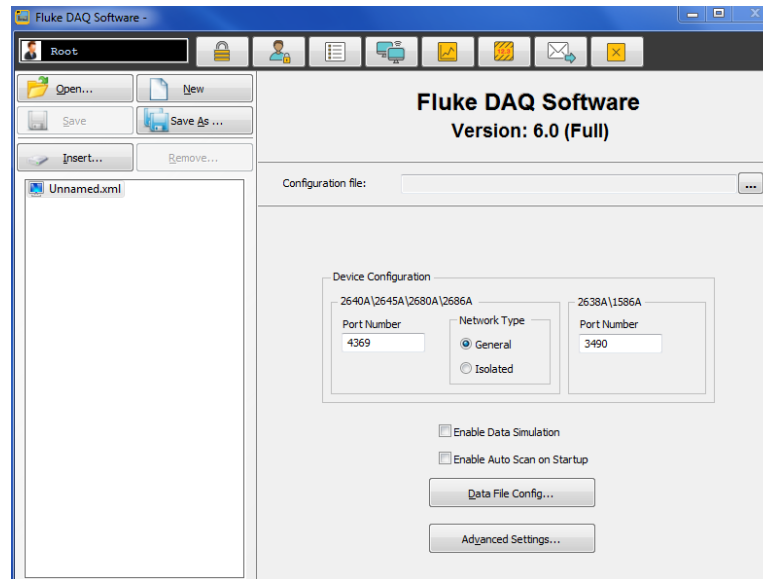The procedures below detail how to use the Software to:

- Insert and configure instruments, modules, channels, and computed channels

- Start a scan

- View scan data

- View alarms

Insert and Configure a Device

To insert and configure a device:

1. Double-click [icon] on the PC desktop to start the Software.

2. Specify basic settings in the Application dialog shown below.

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The dialog box entries include:

Configuration file

Click **Open…** to load an existing configuration file.

Network Type

Select **Isolated** if the PC is connected directly to the device, or **General** if the instrument is part of a network, USB or mixed LAN and USB configuration.

Port Number

4369 is the default port number for the 2680 Series and NetDAQ products. The default port for the 2638A Hydra Series III and 1586A Super-DAQ is 3490. Fluke recommends that you use the default port number.

Group is externally wired

2680A and NetDAQ devices may be wired together in a master/slave arrangement.

Advanced Setting autodisable scan – Interval 3 (autoscan rate) (Not applicable for 2638A/1586A)

Interval 3 is the rate at which alarm conditions are monitored. If disabled, alarm conditions are monitored only when the associated channel is scanned during a regular scan interval.

Max	999999 seconds
Min	0.001 seconds

3. To add a device, select the .cfg file in the TreeView panel and click **Insert**.

4. Specify the Base Channel (1 to 99) and Device Type and click **OK**. See the screen below. A device is attached to the new configuration. As part of the insertion process, a base channel number can be specified. This number is to differentiate channels in different devices. Insert a maximum of 99 Base Channels of the same Device Type. The Base Channel number auto-increments when devices are added.
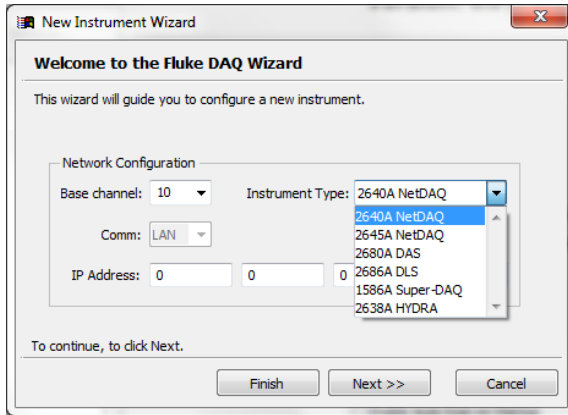
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Note

The Software also supports 2640A and 2645A NetDAQ devices, and 2638A and 1586A. Some of the Software configuration dialogs may differ from those for the 268XA.

5. In the TreeView panel, select the device just added.

6. Set the IP address or communication port number on the Device Settings dialog shown below. Note that the Auto (single) automatically detects and uses the active com port under USB control when only on USB instrument is connected. Other fields are optional. It may be necessary to contact an Internet support staff to determine the IP address.

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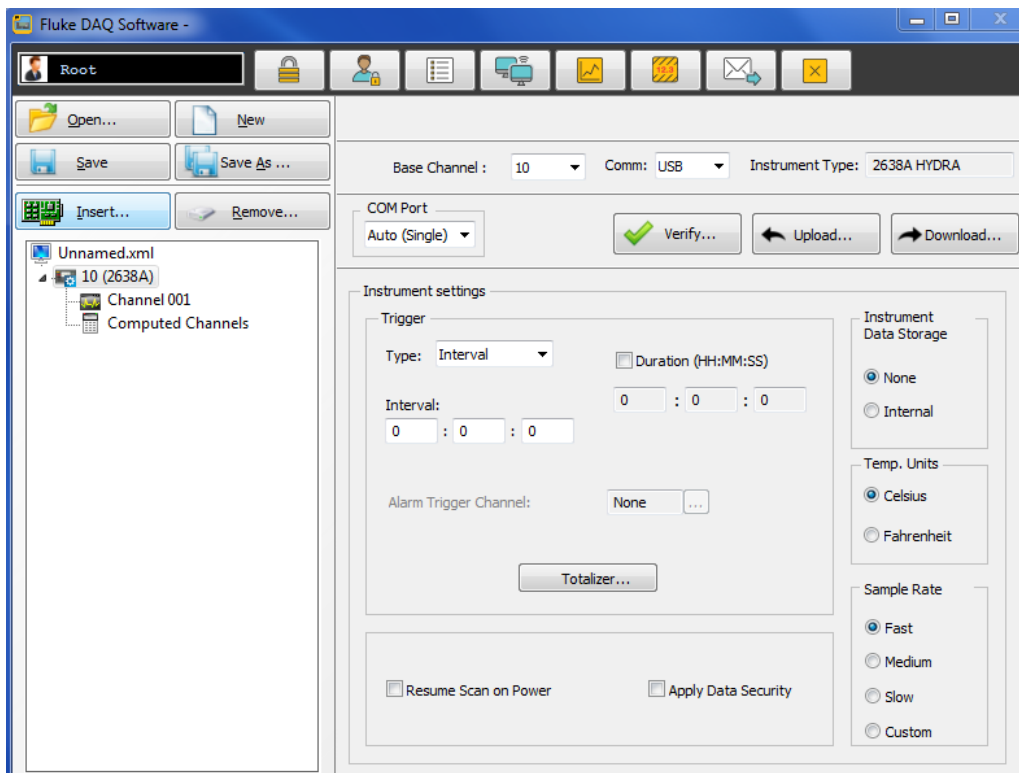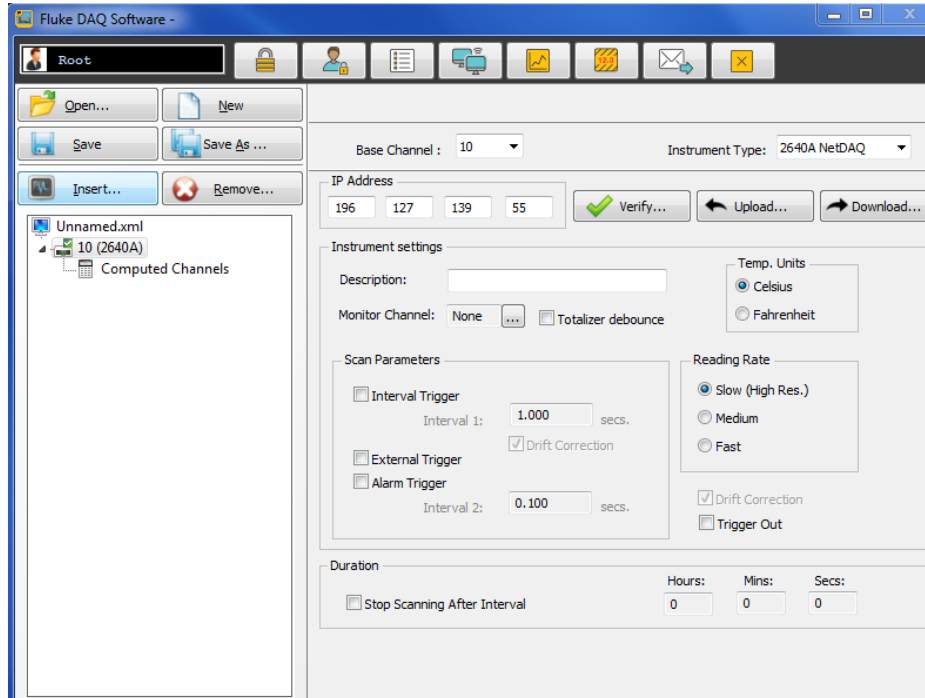
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Screen Terms

Because of the differences in instrument functionality and setups accommodated within Fluke DAQ, various terms and dialog boxes are shown with different instrument setup and communication procedures depending on the instrument selected in either configuration or communication menus. The following is a list of terms found on these setup pages:

2680A series and NetDAQ (2640A and 2645A) generally have similar page dialogs as do the 1586A and 2638A products.

The 1586A channel dialog pages accommodate the entry of calibration coefficients for some specialized probe selections within the range menu. For more information on entering probe coefficients see the product manual.

The dialog box entries include:

IP Address or Com port

Enter the IP address or Com port of the device to be added.

Verify Button

Click **Verify** to ping the device and verify that the IP address or Com port is correct.

Configuration transfer (2686A and 2680A only)

Transfer configuration information from the PC to the device or from a PC Card to a PC or the device. PC Card operations are available only for the 2686A.

Description (2680A and NetDAQ)

Enter a meaningful description of the device. 35 characters maximum.

Temperature Units

Specify Celsius or Fahrenheit. This automatically selects temperature units for all temperature measurements.

Monitor Channel (2680A and NetDAQ only)

Select a channel measurement to show on the front panel of the NetDAQ or 2680 products during operation. Increment though active channels or automatically scan through all active channels. Default is None. The 2638A display channels may be set to page through channels on the front display automatically or may be scrolled from the front panel manually during scanning.

Scan Parameters/Instrument Settings

Parameters that can be set to start, stop, and save scan data.

Note

Start Scan on Power Up (for stand-alone operation) or automatically start scanning after a power loss can also be selected.

Scan Overflow (2680 Series)

Overwrite old data or stop receiving data when the buffer is full.

Apply Data Security (2638A and 1586A)

This setting is not associated with the Software security programs settings which control program access. This setting is used for data and configuration files created internally by the 1586A and 2638A. When checked, and data storage is set to Internal or USB, this setting adds instrument user ID information to the setup file information stored in the running configuration file. This setting does not disallow unauthorized users (Guests) from running configuration files but identifies data created by authorized users and Guest (unverified) users. User data, authorized user, and user name or "Guest" is stored in the Fluke DAQ .XML configuration file.

The 2638A and 1586A create a signature field at the end of each scan data record to data being stored in internal memory. This signature field contains a unique checksum value at the time of recording.

When data is sent to the Software during a "Get Scan" operation, or imported from USB, or transferred from an exported chart file, the Software verifies the checksum contained in each record. If a checksum does not match, a warning is issued that the data has been corrupted and checksum values do not match.

Upload / Download (2638A and 1586A)

In configuration mode, Upload sends the configuration file to the remote instrument. Download sends the current configuration file to the instrument. Fluke recommends that you download the configuration file to remote instruments prior to initiating scan.

Instrument Data Storage (2638A and 1586A)

Selections in this section determine if or where the instrument will store scans in addition to the named CSV data file stored on the PC. **None:** data is only sent via remote port to the PC and scan date is not retained in the instrument. **Internal:** scans are also stored in internal memory.

Sample Rate

Fast, medium, and slow refer to the A/D measurement sample rate for the specific instrument selected: 2638A, 2645A, 2680A-PAI, etc. As a general rule, faster sampling returns slightly less accurate readings that may include more noise figures than slow sample rates. The Custom setting is found only on the 2638A. When *custom* is selected for an instrument mainframe, any channel may have a custom sample speed. The value set in the custom window on each channel is NPLC (Number of Power line Cycles). The default is 10. Refer to the product manual for specifications relating to various sample speeds.

Log to PC Card (2686A only)

- **Never**

  Ignore the PC card (default setting).

- **Always**

  Always write to the PC card. This selection is useful for stand-alone applications or when data backup is necessary.

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Note

When the card is full, an error message is generated and scanning stops.

The Software does not write or read data from the 2638A USB memory device. All interactions from the Software to the 2638A are to the internal memory of the 2638A.

- Trigger Out (2680A and NetDAQ only)

  Used to specify a Trigger Out module. Trigger out is the physical Trigger output of a 268XA device. It is the Trigger Out signal out on the rear panel connector of the mainframe. To set up a master/slave relationship, set a module in a 268XA device to control the Trigger Out signal and wire that signal to the Trigger In of all the slave devices. It will then be necessary to configure a module in a slave device to take a reading when an External Trigger is received. The External Signal is the same as the physical Trigger In located on the back of the mainframe.

Insertion and Configuration

Note

These examples of adding "modules" are specific to the 2680A series. However, NetDAQ products and 2638A and 1586A products are added in a similar fashion. These are added as instruments and channels instead of instruments, modules, and channels. The menu shown is based on the instrument type selected.

To insert and configure a module (2680A Series), see the figure below:

1. Highlight a device in the TreeView panel and click **Insert**.

2. Specify the number and type of modules to insert in the Module dialog box shown below.
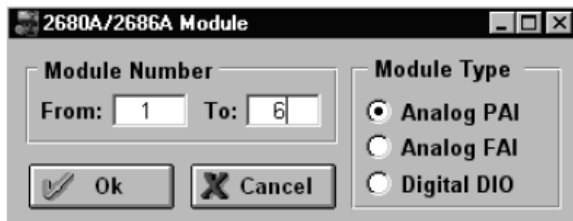
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The dialog box entries include:

- **Module Number**

  For the 2680A series, a maximum of six modules can be attached to the device. A Digital I/O can only be in Module Slot 6 and can have only one per device. The 2638A can accept three modules. The 1586A can accept two modules:

  o The High-Capacity

  o DAQ-STAQ module

- **Module Type (2680 Series)**

  Valid module types are Analog PAI, Analog FAI, or Digital DIO.

3. Click **OK**. The modules are added to the device and are shown in the TreeView panel.

4. Select one of the analog modules that were inserted and the Analog Module settings dialog is shown as in the panel below.
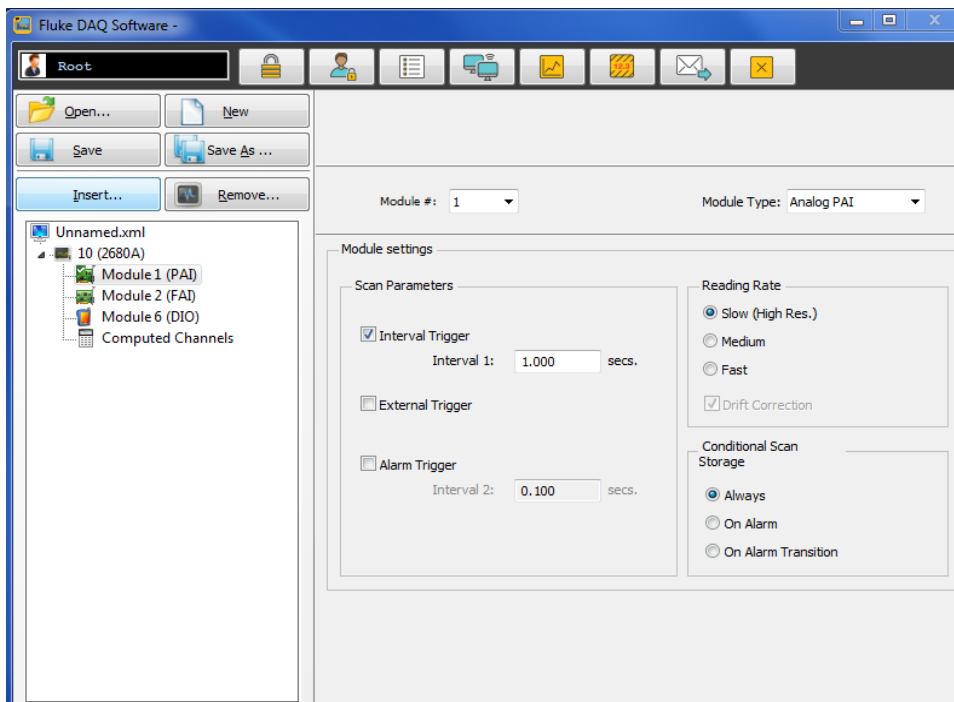
alg136.bmp

5. The dialog box entries include:

Interval Trigger

Uses the interval timer (interval 1 timer) to set the scan rate for normal operation in a module. The interval is user settable.

External Trigger

Uses the Trigger input signal to start a scan. Each time the external trigger is activated, another scan is taken.

Alarm Trigger (NetDAQ and 2680A Series modules)

Uses a second-interval timer (interval 2 timer) to start to scan when an alarm condition is encountered by the module. There is an interval timer (interval 3 timer) used to look for alarms. The default for that timer is 0.1 s for the FAI and 1 s for the PAI.

Drift Correction (2680A and NetDAQ only)

Automatically selected when the reading rate is set to Slow (High Res.). The check box can also be clicked to clear the check box. Drift correction is used primarily to compensate for temperature drift. Clearing the check box lets readings be taken more quickly.

Reading Rate / Sample rate

Select the slow reading rate for high precision or the fast reading rate for high speed. Actual reading rate depends on the function selected.

Conditional Scan Storage (2680A Series modules)

Used to specify when to store scan data. Always is the default selection. On Alarm stores scan data as long as the alarm condition exists. On Alarm Transition stores scan data only when the alarm first occurs. On Alarm stores the least amount of data.

On Line CSV file creation

Moves scan data directly to a CSV-compatible file instead of storing it first in a binary format.

Note

If configuring a DIO module, NetDAQ, 2638A, or 1586A, the Totalizer Configuration dialog is shown as in the screen below.
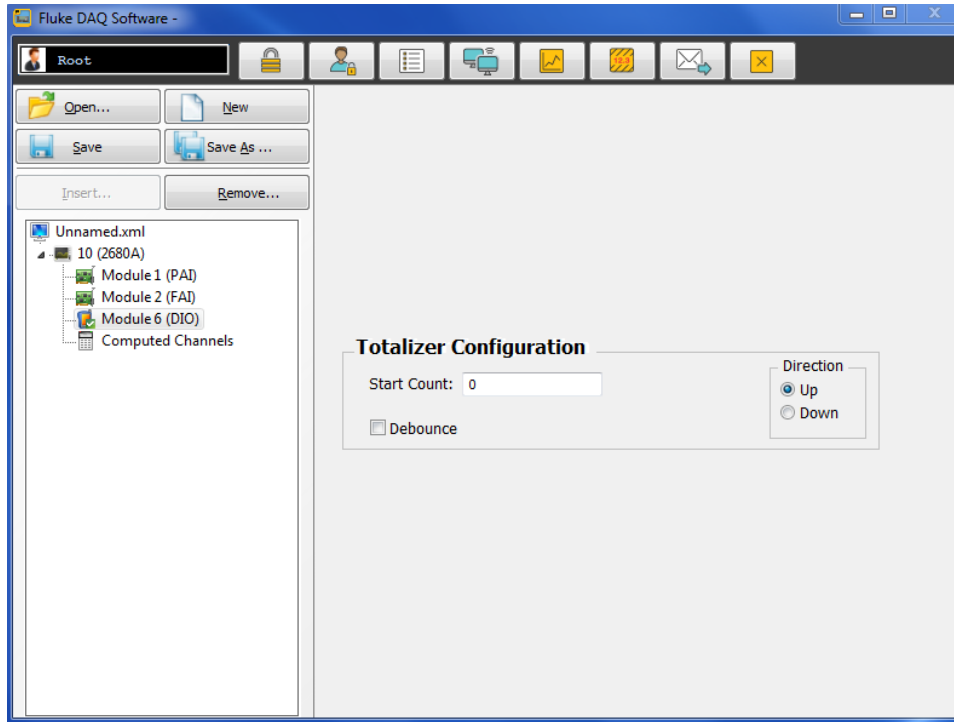
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The dialog box entries include:

Start Count

Used to specify a start count.

Debounce

Select debounce to ignore signals with a <2 ms (500 Hz) duration. Otherwise, signals up to a maximum of 5 kHz can be counted.

Direction (2680A and NetDAQ)

If a start count is entered, the start count is reloaded when the totalizer reaches the terminal count. The totalizer can count up or down to zero.

The IO module can be highlighted and [icon] can be clicked for more DIO settings including digital IO points and relays.

Insert and Configure a Channel

After a module is selected, it is necessary to add channels to the module.

To insert and configure a Channel:

1. Highlight a module in the TreeView panel and click **Insert**.

2. Specify the number of channels to insert on the Insert Channel dialog box.

alg113s.bmp

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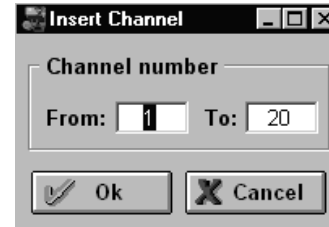
3. Click **OK**. The channels are added to the module and are shown in the TreeView panel below.

4. Select a module. A channel-settings dialog is shown.
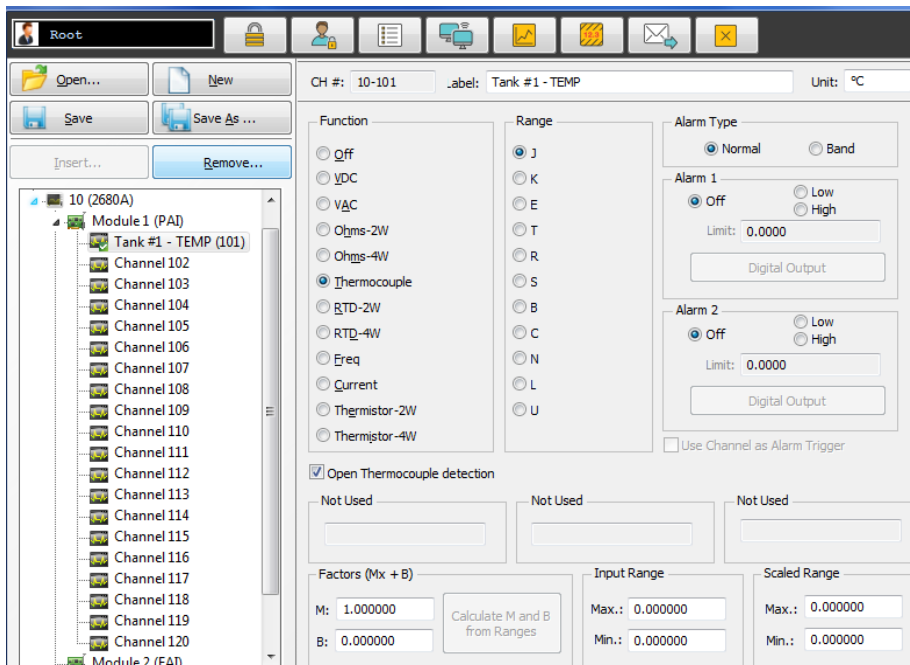
alg115s.bmp

The dialog box entries include:

CH #

XX-YYY. The first two digits identify the chassis (01-99). The next digit identifies the module (1-6), and the last two digits identify the channel (1-20).

Label

Use the label field to identify where the channel is used in the application.

Unit Label

Used to identify the unit of measurement (°C or °F).

Function

Identifies the type of measurement.

Note

For 2638A and 1586A, on Current ranges, all current measurements are made with a user-installed shunt resistor (except Ch X21 and X22 of the 2638A and 1586A which are direct current inputs). To set up a current channel, the shunt value and Mx+B value must be entered.

Range

Amplitude range for the measurement. Use auto when unsure of the range.

Alarm Type

Use Normal alarm if the measurement goes above or below the Alarm 1 or Alarm 2 level. Use Band to alarm if the signal falls between two levels (2680A and NetDAQ).

Alarm 1 or Alarm 2

Each channel has two alarms. They can be set to Off, Low, or High. An alarm condition occurs when a measurement falls below a low alarm value (Low) or rises above a high alarm value (High). The Software records all alarm conditions in a data file.

Open Thermocouple detection

Provides for notification if an open thermocouple is detected.

Factors (Mx + B)

Used to scale measurements. Mx + B scaling multiplies a measurement by a multiplier (M) and then applies an offset (B). For example, Mx + B scaling of 100x + 50 applied to a measured value of 1.15 would result in a reading of 100(1.15) + 50 = 165.

Input or Scaled Range

Use the M and B values to calculate the Input and Scaled range or the Input and Scaled range can be entered and the Software will calculate the M and B values.

Configure a Computed Channel

Computed channels provide a means to calculate values based on measurements. For example, if Channel 1 measures dc V and Channel 2 measures dc I, a computed channel could be used to calculate instantaneous power (Channel 1 x Channel 2).

For a computed channel to execute, it must be associated with the scanning of a module or instrument. Choose a module in the Scan with Module area for this association. The default is module 1.

To configure a computed channel:

1. Highlight the Computed Channels icon in the TreeView panel show and click **Insert**.

2. Specify the number of channels to insert on the Insert Channel dialog box shown below.
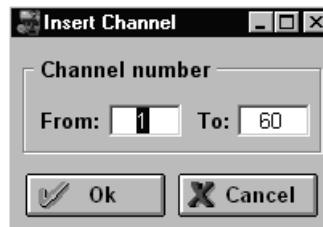
alg117s.bmp

3. Click **OK**. The computed channels are added and are shown in the TreeView panel.

4. Select a computed channel. The Computed Channel settings dialog is shown.

alg119s.bmp

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The dialog box entries include:

CH

Computed channels are assigned channel numbers from 901 to 960. 901 to 960 in the 2680A and X501 to X520 where X represents the input module (1-3), on the 2638A and 1586A.

Label

Use the label field to identify where the computed channel is used.

Unit Label

The value to apply to the label. For example, the calculated value can be shown as Watts.

Function

- Take the average reading from one channel.

- Subtract the measurement of one channel from the measurement of another channel.

- Generate an equation based on measurements.

Alarm Type

Use Normal alarm if the measurement goes above or below the Alarm 1 or Alarm 2 level. Use Band to alarm if the signal falls between two levels (2680A and NetDAQ).

Alarm 1 or Alarm 2

Each channel has two alarms. The alarms can be set to Off, Low, or High. An alarm condition occurs when a measurement falls below a low alarm value (Low) or rises above a high alarm value (High). The Software records all alarm conditions in a data file.

Digital Output

Used to output a digital signal or close a relay if an alarm is detected.

Use Channel as Alarm Trig.

Select if channel reading will be used to trigger an alarm.

Trigger Scan With Module

Calculate the computed channel any time a module is scanned (2680A and NetDAQ).

Channel A or Channel B

Select from the configured channels in the device.

Note
Channels in another device cannot be selected.

Equation

Computed channel equations.

Average Channels

Select which channels to average.

Factors (Mx + B)

Used to enter a linear equation in two ways. Either enter the slope (M) and offset (B) or enter input range. Scale range, slope, and offset are entered automatically when **Calculate** is clicked. "X" will be replaced with the computed channel number.

Input or Scaled Range

Use the M and B values to calculate the Input and Scaled range or enter the Input and Scaled range and the Software calculates the M and B values.

Use Equations with Computed Channels (2680A and NetDAQ series)

Note

The calculations below are not available for the 2638A/1586A. Calculations for these models can be seen in the menu by selecting a computed channel.

Each computed channel can have an expression of 250 characters but the maximum number of characters available in all 60 channels is limited to 6,000 characters. See the screen below.

For example, an equation to calculate the rate of flow in gallons per second could be used. The rate of flow could be calculated as follows:

Since TS is in milliseconds, divide by 1000 to calculate gallons per second. In this example, during the first pass, C902 will not be defined and the result will not be a number (#Inf). However, in subsequent passes, C902 will be defined and will provide the correct result.

C101 = A fabricated measurement to force the time calculation

C901 = (TOT-C902)/(TS/1000)

C902 = TOT

Note

One physical channel configured in the module that is being scanned is necessary for this to work. However, the channel is not used in the expression.

Computed channels and the time value are initialized to zero at the start of the scan. Physical channels that have not been measured are still initialized to positive infinity.

To measure the total energy used by a simple system, a calculation could be generated with the equation

energy = R x I^2 * time, as follows:

>   c101 = Ohms
>
>   c102 = Current
>
>   c959 = c959+c960
>
>   c960 = c101*c102^2*ts/1000

Note

This equation assumes that the resistance and current are constant for the duration of the time interval. It also does not calculate the energy used in the first increment of time.

Enter the expression in the window shown below.
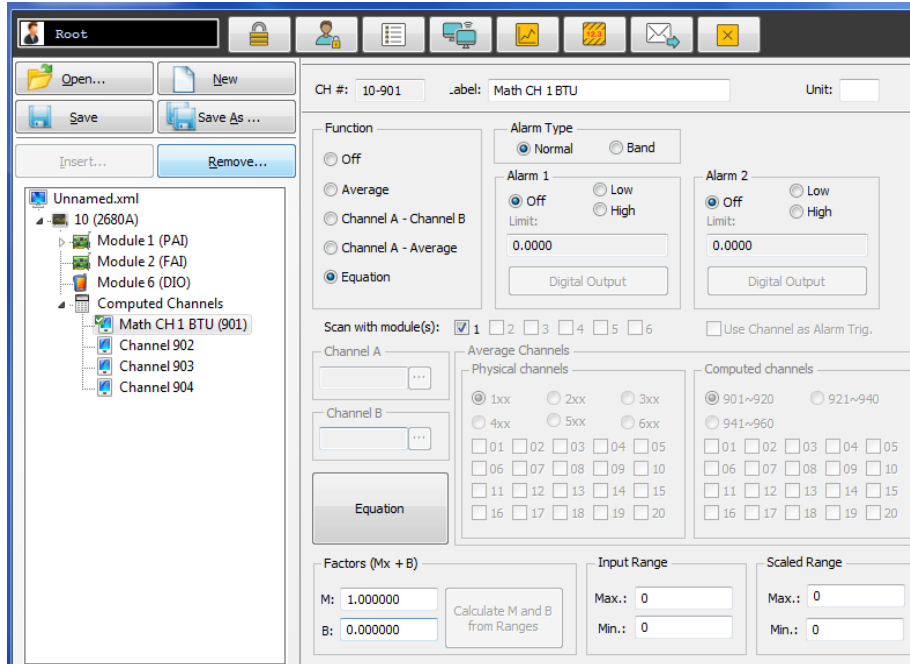
alg119s.bmp

Below is a list of the valid notations:

Axxx - Alarm on/off (Boolean value of 1 or 0)

Cxxx - Any channel measurement

C9xx - Computed channel

TS - Time since last measurement (milli seconds)

TOT - Totalizer

Operators - +, -, *, /, **, unary +, unary -, abs, exp, int, ln, log, and sqr.

Start a Scan

Use a configuration scan, a device scan, or Spy to scan for data. All scan options are available in the Communication window.

Note

Channels must be configured for operation before a scan is started.

Start a Configuration Scan

To start a configuration scan:

1. Click on the Software toolbar and highlight the configuration in the TreeView panel shown below.

2. Click to start the scan. Click to stop the scan.

Start a Device Scan

To start a device scan:

1. Click on the Software toolbar and highlight a device in the TreeView panel shown below.

2. Click to start the scan. Click to stop the scan.

Get Info

Reads internal memory on 2638A and 1586A, USB memory usage and Flash memory usage (2686A).

Get Scans

Opens dialog box to allow specific instrument module or channel data to be extracted from the existing data file, instrument memory, USB or Flash drive.

Format

Erases all data files and configuration files in instrument memory (2638A, 1586A) or Flash drive (2686A) as selected by the user. This function does not format the USB drive connected to a 2638A or 1586A.

Advanced

Synchronizes instrument time and date prior to scan initiation (2680A, 2686A, NetDAQ).
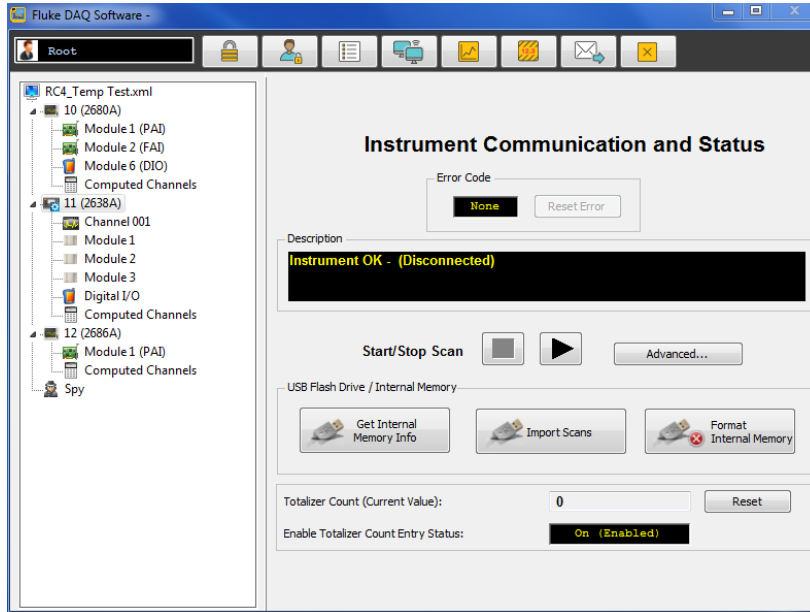
alg122s.bmp

Start a Scan with Spy

Spy triggers and collects its own measurements from a maximum of eight channels from any combination of devices. The data is not stored and the devices that are checked do not need to be scanned.

2680A series and NetDAQ series can operate in Spy mode while scanning or not scanning within a configuration file. Display updates for these models are sub-interval to that set in the configuration file. The 2638A and 1586A models may only be used in the Spy mode when the units are not scanning. Display updates with these models are made at the interval setting of the current configuration file.

To start a Spy scan:

1. Click on the Software toolbar. The Spy icon is shown as the lowest item in the TreeView panel shown below.

2. Click the Spy icon. The Spy window is shown. A maximum of eight channels can be selected, including DIO and totalizer.

3. Click to start the scan. Click to stop the scan.

alg123s.bmp

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View Module Measurement Data

Measurement data from a module can be seen as it is recorded. Select a module to show all 20 Computer Channels. Modules that have no channels configured show **???????**. NC indicates that a channel is not configured.

To view module measurement data:

1. Click ![icon] on the Software toolbar.

2. Highlight a module in the TreeView panel and the module measurement data is shown as in the screen below.

alg124s.bmp
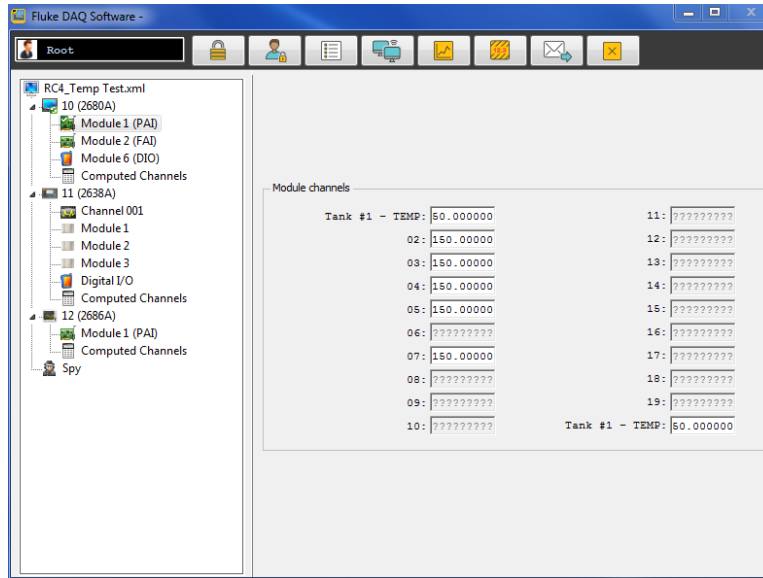
Use the Digital I/O Points Communication Dialog

Use the Digital I/O Points Communication dialog to set any of the relays or DIO pins active when an alarm condition occurs in the channel. Status of all of the relays and DIO pins can also be viewed and IO bits and relays can be set or cleared.

- Bits or relays that are set show a green dot.

- Bits or relays set by an alarm have a red dot.

- A bit set by an external signal has a blue dot.

There is no way to set a relay externally. When a relay is set, it has closed contacts. When a bit is set, it has a logic low signal (also called active low).

To view the digital I/O points dialog:

1. Click on the Software toolbar.

2. Highlight an I/O module in the TreeView panel and the Digital I/O Points dialog is shown.
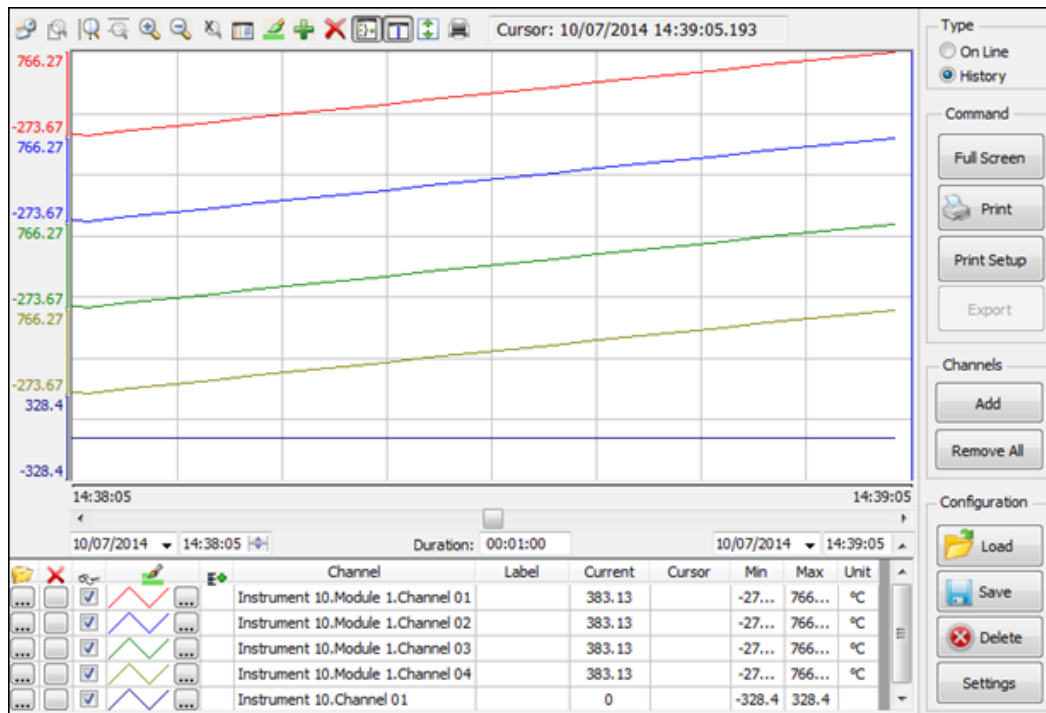
41
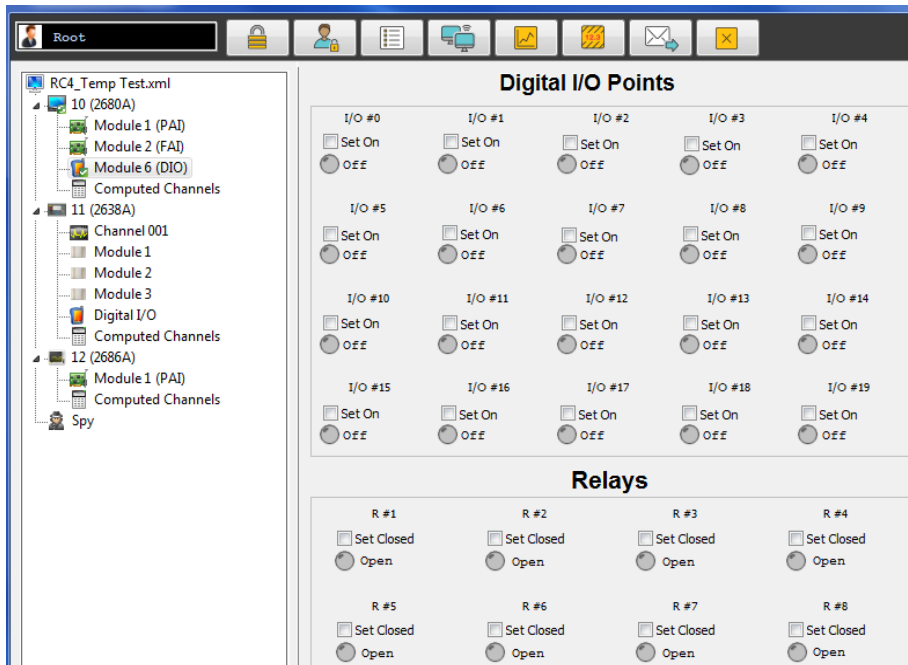
alg125s.bmp

Trend View

Use the Trend dialog to view the collected scanned data.

A maximum of 32 channels can be selected to view on the trend chart.

To use the trend feature:

Click on the Software toolbar.

alg126.bmp

The dialog box entries include:

On line

Updates current readings for the selected channels.

History

You can scroll through historical trend data using the end-time point adjustments and duration controls.

Full screen

Enlarges the trend graph presentation to the full size of the attached monitor.

Print

Prints the current graph to a local or network printer as identified in the print setup.

Print setup

Configures a printer as designated by the user.

Export

Exports data from a selected data group to a CSV (comma separated variable) formatted file to the data folder. Data may be selected for the entire data file or individual instruments and channels over a selected time frame.

ADD

Opens a dialog box that lets you select the channels in the current configuration file to be added to the trend chart.

Remove all

Removes all channels from the current trend chart.

Load

Loads a previously saved chart file.

Save

Saves a chart file configuration which includes selected channels and chart properties.

Delete

Opens a dialog box that displays all saved chart configurations which then may be selected for deletion.

Settings

Adjusting vertical or horizontal divisions to the current graph, enabling or disabling the auto-scale feature and allows adjusting of the number of decimal points shown in the chart data display.

Chart tools

Small icons above the chart offer various ways to control the way the chart is presented. Place your mouse arrow over each icon to show the icon function. Functions include: Period (duration change), Zoom in, Zoom out, cancel Zoom, Legend properties, Pen Style, Add/Delete Pen, Multiple sections, Cursor, Auto Scale, and Print.

View Alarms

Use the Alarm View dialog to view On Line and History alarms. The alarms can be filtered by device ID, module, and channel. When an alarm occurs, the color of the device icon in the configuration window changes to red. As long as the alarm exists, the icon remains red. In the Alarm window, a red line of information shows the status of the alarm.

If the alarm condition goes away before the alarm is acknowledged, the alarm icon changes to blue. When an alarm is acknowledged, it turns green. All alarm conditions are recorded in the Alarm History dialog. If an alarm shows in red in the Alarm History dialog, it will not be duplicated. If an alarm is active, it must be acknowledged before it will be shown again. When a channel has two alarms, only one alarm can be active at a time. If one alarm becomes active and then a second alarm becomes active, the Software acknowledges the first alarm and shows the second alarm as active.

To view alarms, see the figure below:

Click on the Software toolbar. The Alarm View dialog is shown.

When the On Line option is selected, a red line of text with information about the alarm is printed to the screen when a new alarm is detected.

alg129.bmp

The dialog box entries for On Line include:

Type

Specify On Line or History alarm view.

Ack

Click the appropriate button to acknowledge the Last Alarm or All Alarms.

Alarm Device Filters

Choose to view alarms from a select set of devices, modules, and channel.

When the History option is chosen, alarms can be viewed over a period of time. Each time an alarm changes state, the new color is added to the history screen. Alarms that have occurred over a period of time or for specific devices, modules, or channels can be viewed.

The dialog box entries for History include:

Type

Specify On Line or History alarm view.

Period of Viewing

Specify the year, day(s), and month to view.

Ack

Click the appropriate button to acknowledge the Last Alarm or All Alarms.

Alarm Device Filters

Choose to view alarms from a select set of devices, modules, and channel.

Use the Software System Security Features

The system security features can be used to protect device configuration information. The system security feature lets the administrator:

- Add and remove Software users

- Allow other users to configure devices

- Change user passwords

Only the administrator (Root user) can use the security system configuration function.

Note

The Root password is blank when the Software is installed on a PC. Use the system security features to create and remove an administrator password and grant additional access to the Software.

To use the system security feature:

Click ![icon] on the Software toolbar. The System Security Dialog is shown.

alg131s.bmp

Configure Web and Alarm Mail Settings

Use the Web and Alarm Mail Settings dialog to enter Fluke DAQ web configuration information and to configure the Software to send e-mail messages to report alarm condition.
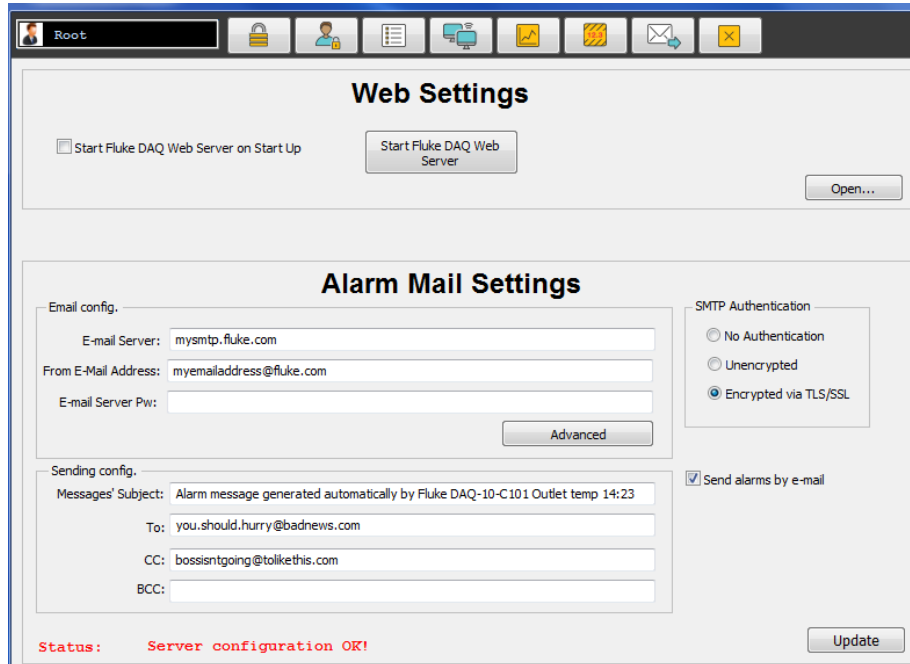
Use the Web Settings portion of the dialog to specify a URL where scanned values from your 268XA device are to be sent. Use the Alarm Mail Settings portion of the dialog to configure the Software to automatically send e-mail messages that report an alarm condition using the Simple Mail Transfer Protocol (SMTP).

Note

To use the e-mail and web features, the PC must be connected to a network supporting the Transmission Control Protocol/Internet Protocol (TCP/IP).

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To enter web and alarm mail settings:

Click on the Software toolbar. The System Security Dialog is shown.

alg132s.bmp

The dialog box entries include:

Data Server IP Address

The IP address of the computer running the Software. The Software fills in this field with the first IP address found on the computer.

Note

This setting must be changed to use a different interface or if the Dynamic Host Configuration Protocol (DHCP) is used on your server. If a DHCP server is used, use the computer name instead of an IP address.

Uniform Resource Locator (URL)

The address where the Software web files will be stored on the Internet.

SMTP Server IP Address

SMTP name or IP address. SMTP is the Simple Mail Transfer Protocol, a protocol for sending e-mail messages between servers.

Originator E-Mail Address

Sender e-mail address.

User Name

User name for authentication.

Subject

Subject shown in the e-mail message.

To

Type the names of the people to send the message to.

CC

Type the names of the people to send a copy of the message to.

BCC

Type the names of people who should receive the message while their names are hidden from other recipients of the message.

Send alarms by e-mail

Select the check box to enable the alarm mail settings feature.

Update

Click **Update** after changing any of the alarm mail settings.