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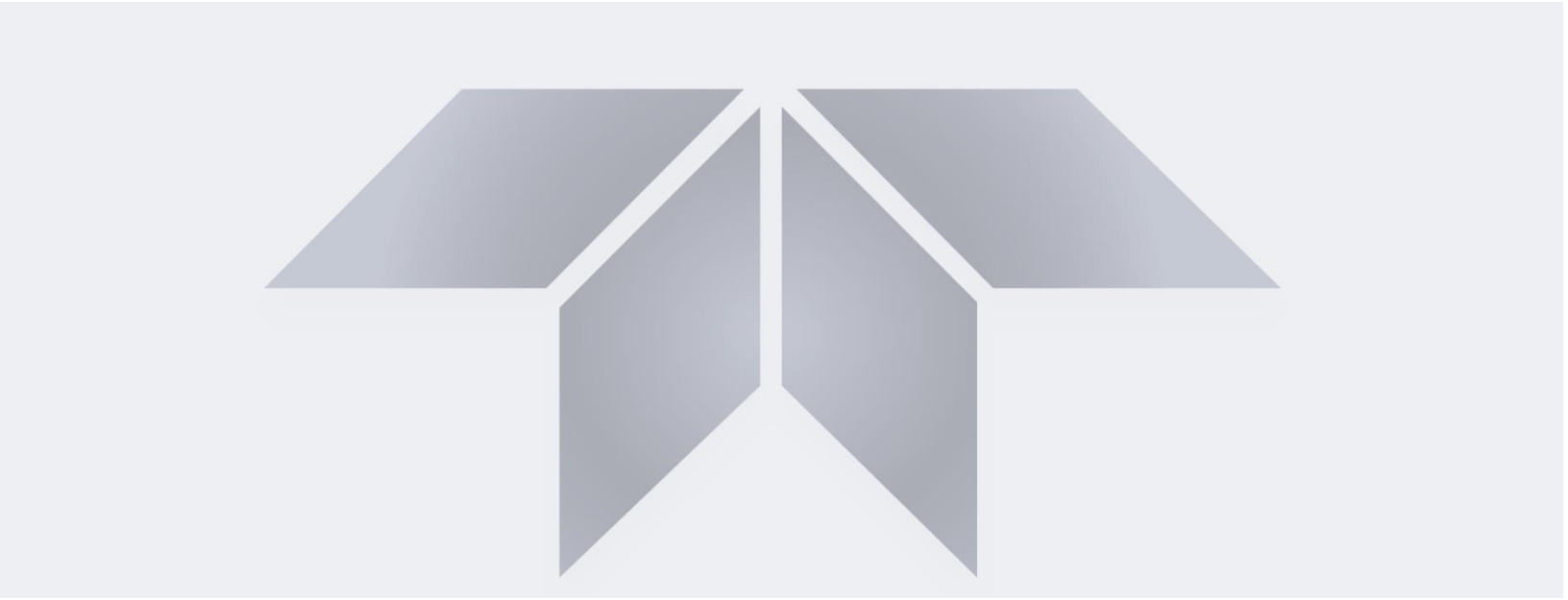

NumaView™ Software

Addendum to T-Series Manuals

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1. INTRODUCTION

This addendum is intended to provide an orientation to the new, NumaView™ software interface; it does not provide operational instructions, which are already covered in the instrument's user manual. The interface pages are self-explanatory and easy to operate, although some details are provided herein. This addendum focuses on what's new and different in the software, starting with a general orientation that maps the T-Series legacy software interface to the NumaView™ software interface, and then describes some of the new features in detail.

Please note that at the time of this writing the NumaView™ software is not yet EN/US EPA approved. When the instrument is first powered on, it performs a dual boot-up that allows a choice to switch between the T-Series legacy software interface and the NumaView™ software interface. The default initial boot displays the T-Series legacy software interface for running your instrument as certified, and any boot thereafter opens to the last software interface used. See Section 2.1 for instructions on switching between the two interfaces.

The NumaView™ software interface facilitates a more in-depth view of instrument status and readings in real time, including quick-view graphs; it also displays three additional readings of user-selected parameters for immediate view in "meters" located below the gas concentration display. The interface allows user configuration of many parameters, and includes brief help notes that provide descriptions and instructions for the editable parameters.

This addendum is structured as follows:

Section 2, "Interface Orientation: T-Series Legacy-to-NumaView™ Software," compares the two interfaces to assist with navigation to familiar operations and functions.

Section 3, "What's New," describes new features of the NumaView™ software.

Section 4, "Anatomy of the NumaView™ Software Interface," delivers further information regarding the new software interface pages.

Section 5, "Setup," provides details for setting up or viewing features, operations and functions significantly enhanced from the T-Series legacy software.

Section 6, "Firmware Updates," lists steps for updating firmware.

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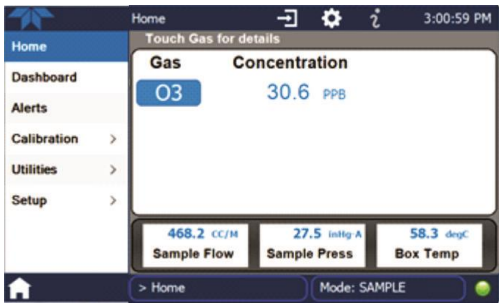
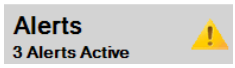
2. INTERFACE ORIENTATION: T-SERIES LEGACY-TO-NUMAVIEW™ SOFTWARE

The following table provides a high-level comparison of the two interfaces.

Component	T-Series Legacy Software Interface	NumaView™ Software Interface
Home Page, Sample Mode		
Navigation	Press the Setup button SETUP to go the Primary Setup Menu. Press the More button MORE to go to the Secondary Setup Menu. Press the EXIT button EXIT to back out to each preceding screen, one at a time.	Press the sidebar tabs to go to the corresponding menus. Press the Home button, shortcut to the home screen. Or keep the current display active and back out to each preceding menu in the sidebar by pressing the double arrow button.
Fault/Alert Indicator	Red FAULT LED blinking in upper left area of display and MSG/CLR buttons active 	Caution symbol for Alerts in lower right corner of display
Read Fault/Alert messages	Read each Fault message one at a time: press MSG button 	Read all Alerts in one display: either press Caution symbol (shortcut) or press Alerts tab: 

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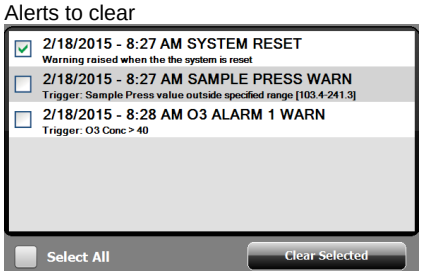
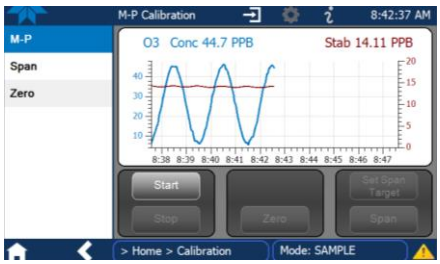
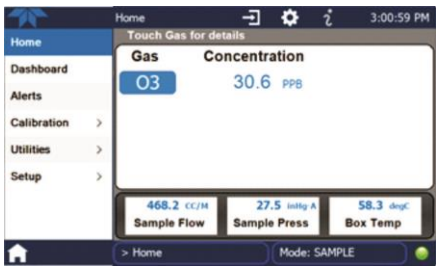
Component	T-Series Legacy Software Interface	NumaView™ Software Interface
Clear Fault messages	Press CLR button serially to clear Faults one at a time. When all messages are cleared, the Fault LED is no longer lit: 	Either press individual boxes to choose specific Alerts to clear  or press Select All box to choose all Alerts, then press Clear Selected button When all Alerts are cleared, the bottom right Caution symbol is replaced by a green LED:
Functional Checks	View the Test parameters, one at a time, by pressing the TST TST buttons to scroll the list 	View many parameters and their values a page at a time, by pressing the Dashboard button. (See “Anatomy of the NumaView™ software interface” for details on selecting parameters to be displayed).
Calibration	Press to start calibration. 	Press , , then for multi-point (M-P) calibration (M-P is the default; to access the Span and Zero menus, either the IZS or Z/S option is required). 
Sample Mode (Home screen)		 (See “Anatomy of the NumaView™ Software Interface” for details)

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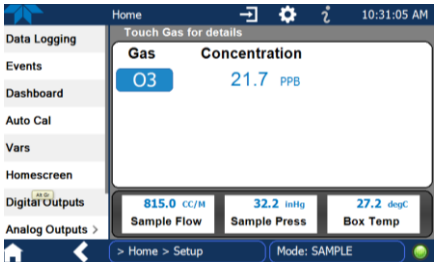
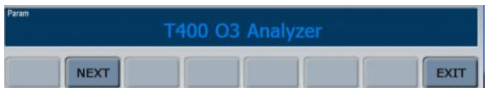
Component	T-Series Legacy Software Interface	NumaView™ Software Interface
Setup Mode	Press the Setup button SETUP to go to the Primary Setup menu Press the MORE button MORE to get to the Secondary Setup menu 	Press the Setup button Setup > to go to the single Setup menu.  Scroll the Setup menu
Analyzer Configuration (model, hardware, and software info)	SETUP > CFG 	Setup > Instrument

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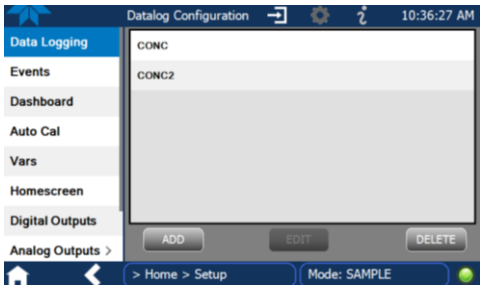
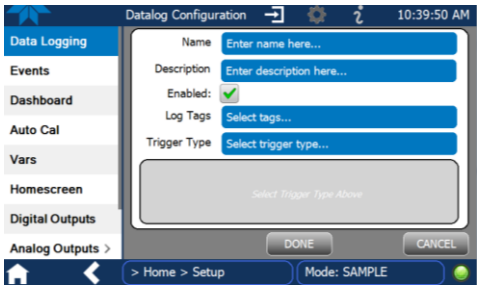
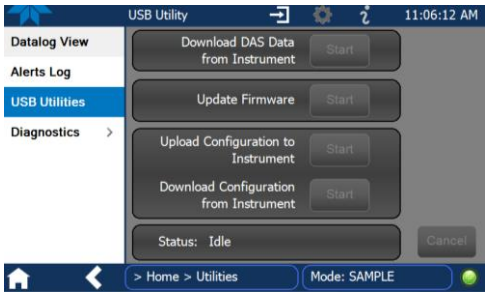
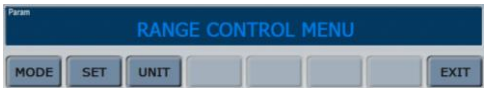
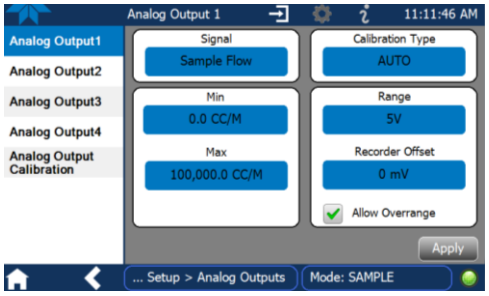
Component	T-Series Legacy Software Interface	NumaView™ Software Interface
DAS – internal Data Acquisition System	SETUP > DAS 	Setup > Data Logging (to edit/add DAS parameters)   Downloading DAS data is accomplished through the Utilities>USB Utilities menu. 
RNGE Configure analog output reporting range	SETUP > RNGE 	Setup > Analog Outputs 
PASS Calibration and Setup Passwords	SETUP > PASS 	Password no longer applies for Setup and Calibration menus.

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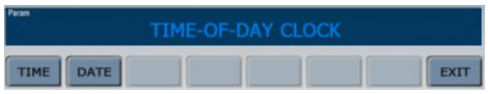
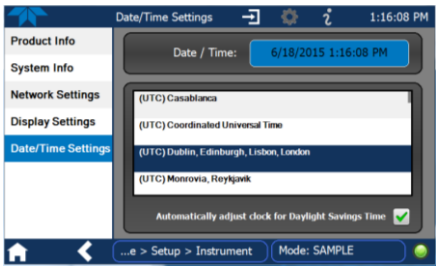
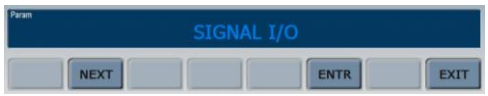
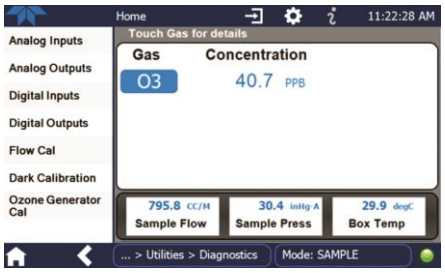
Component	T-Series Legacy Software Interface	NumaView™ Software Interface
CLK Configure clock: time and date	SETUP > CLK 	Setup > Vars > Instrument 
COMM Configure external communi-cation	SETUP > MORE > COMM 	Setup > COMM COM1 COM2 TCP Port1 TCP Port2 Network Settings See “Anatomy of the NumaView™ Software Interface” for details.
VARS System configuration variables	SETUP > MORE > VARS ENTR 	Setup > Vars
DIAG System diagnostic features and analog output configuration	SETUP > MORE > DIAG ENTR 	Utilities > Diagnostics (Diagnostics menu appears in the sidebar, while current display remains until a diagnostics parameter is selected). 

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2.1. SWITCHING BETWEEN SOFTWARE INTERFACES

As first shipped from the factory, the instrument initially boots to the T-Series legacy software interface. To switch between interfaces, connect a personal computer standard USB keyboard to a front panel USB port, and power-cycle the instrument while doing one of the following:

- Hold the “n” key during power-on to boot to the NumaView™ software.
- Hold the “t” key during power-on to boot to the legacy T-Series software.
- Powering on without holding any key boots to the software that was in use prior to last power-off.

3. WHAT’S NEW

This section provides a general description of new and improved features. Finer details are presented in Section 4, “Anatomy of the NumaView™ Software Interface.”

3.1. IMPROVED MENU

Not only is the menu simpler, but also navigation is more efficient. The current menu remains visible on the left side of the interface. Instead of “exiting” multiple menu depths one level at a time, the Home shortcut jumps immediately to the home page from anywhere in the interface. The home page is comprised of the Main menu list, the gas and concentration display, and three meters showing the readings of user-selected parameters.

If the menu is two or more levels deep, the back-arrow button returns the menu list to the preceding level without leaving the current display. See Section 6 for a break-out of the menu structure.

If there is information available about a page or a component, the information button at the top of the interface is white ; otherwise, it is grayed out .

The log-in button is used for entry into protected areas of the menu system; contact TAPI Technical Support regarding this feature.

3.2. SETUP OPTIONS

The context sensitive configuration button is used to customize configurable pages, such as Home and Dashboard, and configurable parameters such as Digital Outputs under the Utilities>Diagnostics menu. When in use or not available, this button is grayed out . Other parameters are set up through their respective menus, as described later in Section 5.

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3.3. GAS AND CONCENTRATION DISPLAY

This field of the interface shows the gas name(s) and respective concentration(s). In addition to the real-time read-outs, pressing the gas name or its value in this screen brings up a graph plotting the concentration and stability values.

Below the gas and concentration display are three meters for concurrent display of other selectable parameter readings (Section 5.6 provides instructions for configuring these meters). Pressing a meters can also display a graph when the parameter can be plotted. Some, such as Range, Offset, or Slope, are not graphed (Section 4.2 explains).

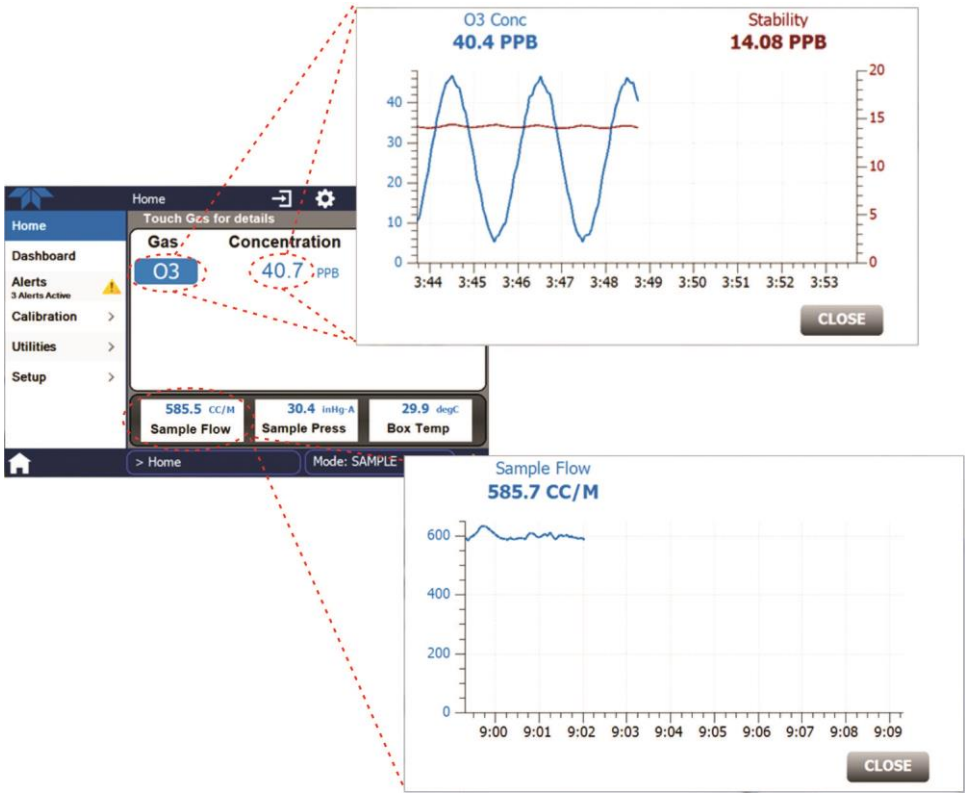

Figure 1. Gas Concentration Display and Graphs

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3.4. CONFIGURABLE DISPLAYS, ALERTS, AND EVENTS

Several features can be customized to suit user needs.

3.4.1. DASHBOARD

The dashboard displays an array of user-selected parameters and their values (Figure 2). If there is a graphing icon in the upper right corner of a parameter, pressing that parameter displays a plot. Dashboard configuration details are presented in Section 5.3.

Three of the dashboard parameters can be selected for continuous display in the meters located in the lower portion of the Home page. Homescreen configuration is presented in Section 5.6.

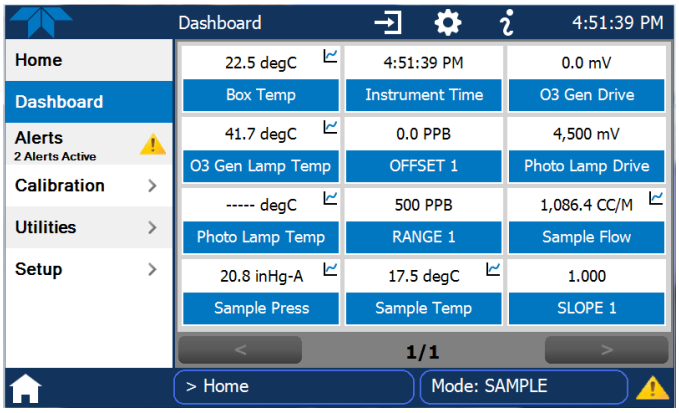

Figure 2. Dashboard

3.4.2. ALERTS

Alerts and Events are closely related. The Alerts screen shows the status of any active warning conditions or user-configured events. Details are presented under "Anatomy of the NumaView™ Software Interface" in Section 4.3.

3.4.3. EVENTS

Events are used to define the conditions that will trigger Alerts. Events can provide diagnostic information about the instrument, typically referred to as "Warnings", or they can provide additional instrument functionality, such as concentration alarms. The instrument comes from the factory with a number of pre-defined warning events (comparable to Warnings in the T-Series legacy software), and the NumaView™ software interface provides the capability to create additional, user-defined events. Event configuration details are presented in Section 5.2.

Events can also be used to create customized triggers for data logging functions (detailed in Section 5.1).

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3.5. DATA LOG

Like the legacy T-Series internal Data Acquisition System (DAS), this user-configurable data logger tracks and reports instrument data based on configurable periodic timers or event-based triggers for user-selected parameters (see Section 5.1).

4. ANATOMY OF THE NUMAVIEW™ SOFTWARE INTERFACE

This section provides pictorial documentation of some features of the new NumaView™ software interface; it does not go into granular detail as there are descriptions and instructions in the interface itself. For features whose setup and/or operation are not new and have not changed, the instrument manual still applies.

4.1. HOME

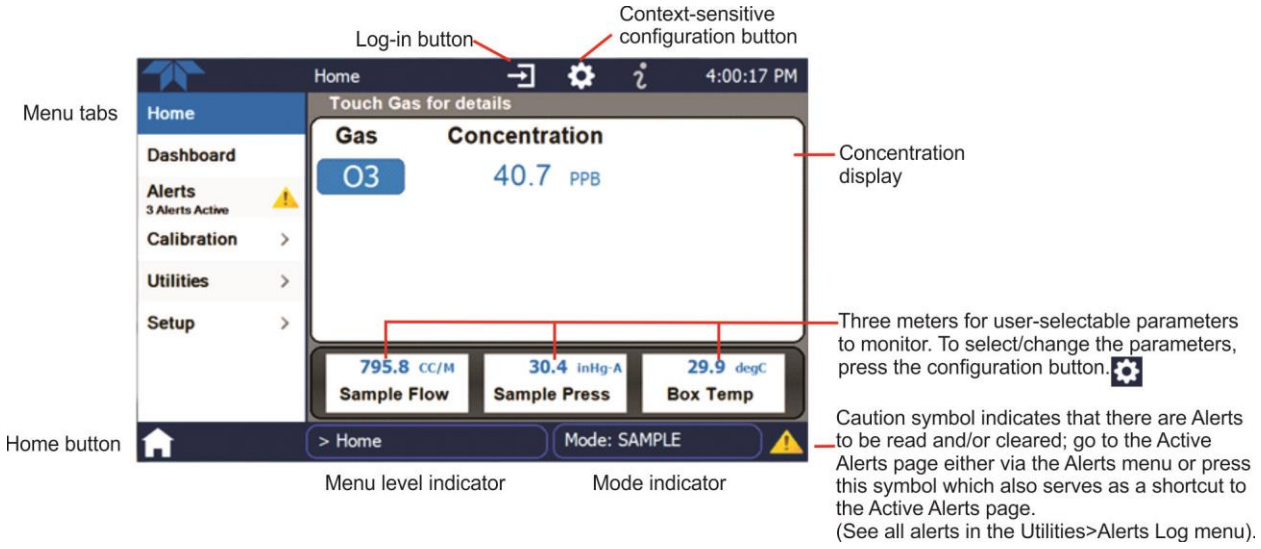

Figure 3. Home Screen

Figure 4 shows that pressing the gas name or its concentration value or a meter below displays a plot of the respective values. Note that not all meters are graphed, as explained next in Section 4.2.

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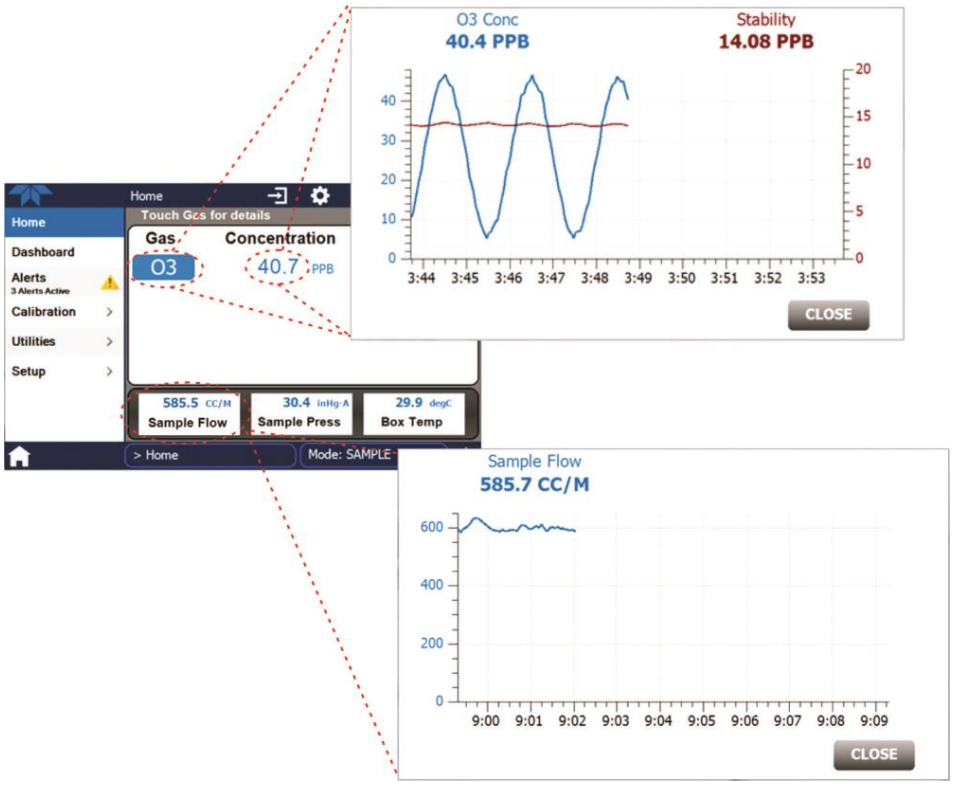

Figure 4. Concentration and Stability Graph and Meter Graph

4.2. **DASHBOARD**

From the Home page, pressing the Dashboard menu displays an array of user-selected parameters and their readings, which may flow onto more than one page. (See Section 5.3 for configuration details).

The graphing icon indicates parameters whose reading can be displayed as a plot when the parameter is touched.

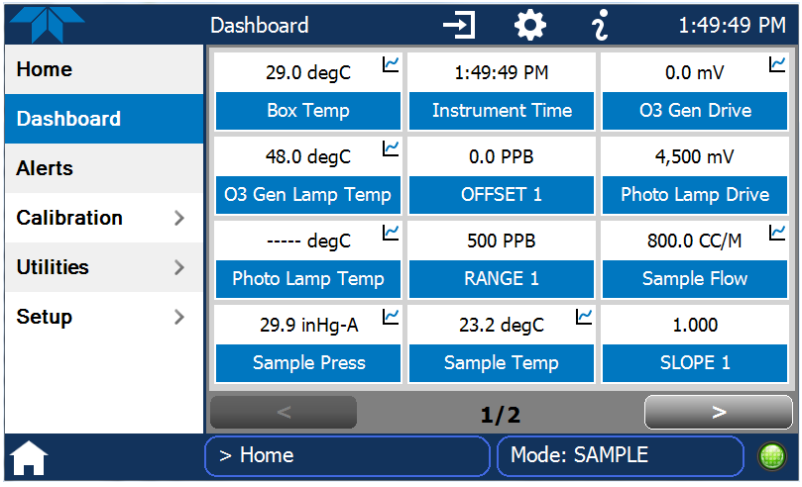

Figure 5. Dashboard Page

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4.3. **ALERTS**

Alerts (introduced in Section 3.4.2) are notifications of Events that have been triggered (introduced in Section 3.4.3). While some Events are standard, others can be specified for Alerts in the Setup> Events Configuration page (Section 5.2).

When Alerts are triggered, a caution symbol appears in both the Alerts tab and in the bottom right corner of the interface. A list of currently active Alerts can be viewed from Alerts menu accessible from the Home page or by pressing the Alerts icon short cut (Figure 6). A history of Alerts, both current and past, is displayed in the Alerts Log under the Utilities tab (Section 4.5.2).

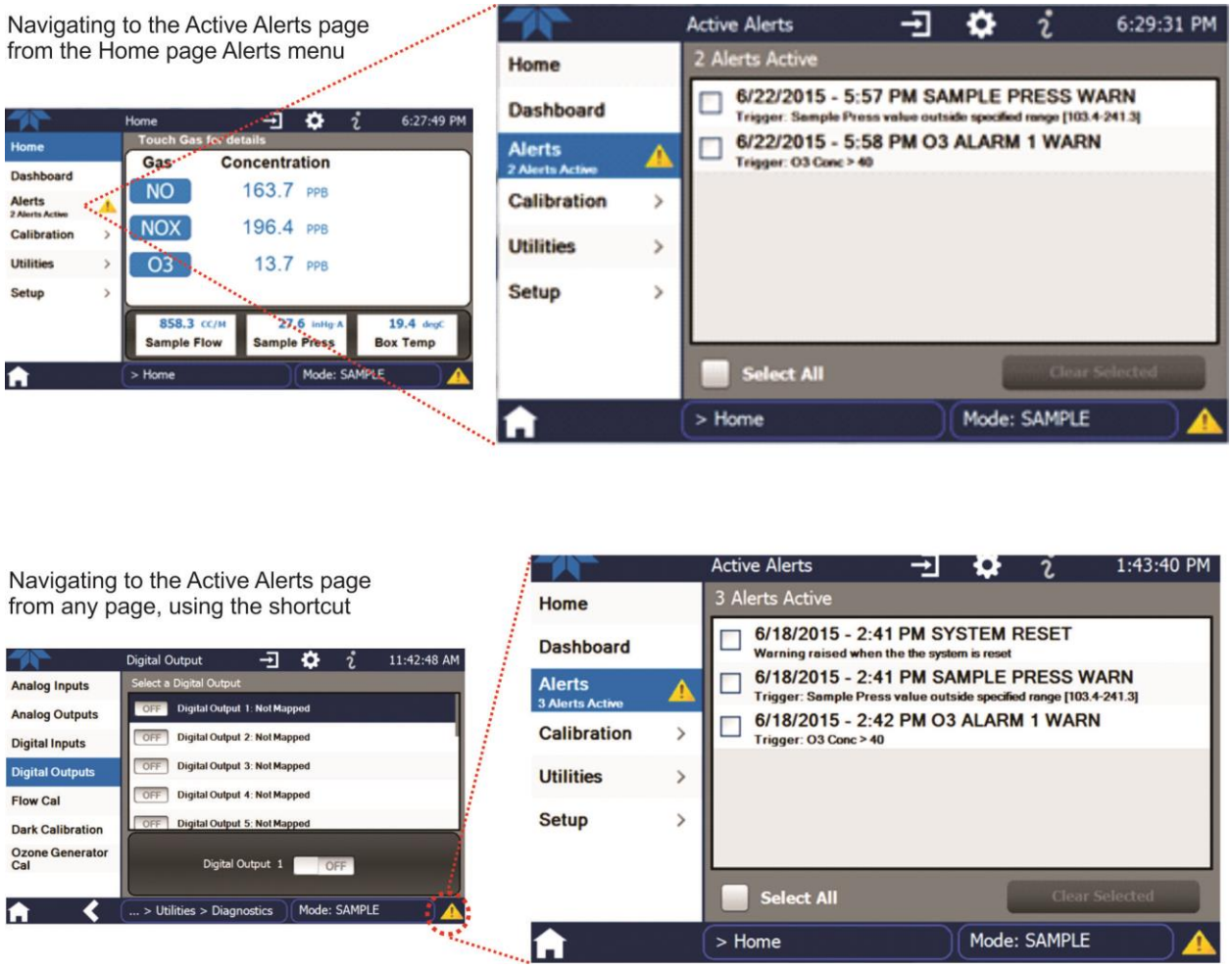

Figure 6. Navigating to the Active Alerts Page

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In the Active Alerts page, select any or all alerts and clear them from the Active Alerts page by pressing the Clear Selected button. When all alerts are cleared, the Alerts tab no longer shows the caution symbol, and a green LED replaces the caution symbol in the bottom right corner of the interface (Figure 7). However, this does not delete the history of alerts (Section 4.5.2).

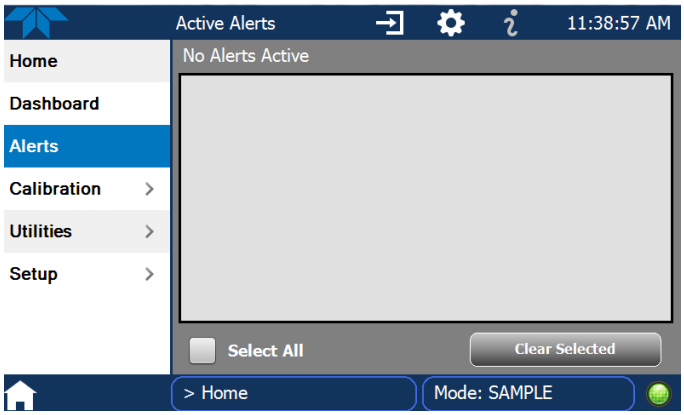

Figure 7. Active Alerts Cleared

4.4. CALIBRATION

The Calibration menu provides Multi-Point (M-P) calibration. To run Span Calibration, at least one option must be installed: O3 Generator, O3 Gen Ref Detector, or Zero Span valve. To run Zero Calibration, the analyzer must have any of those options or the the IZS valve option installed.

Consult the instrument user manual for calibration information.

The M-P Calibration page graphs the concentration and the stability. Once the Start button is pressed, various buttons may be enabled, depending on what calibration functions are currently allowed.

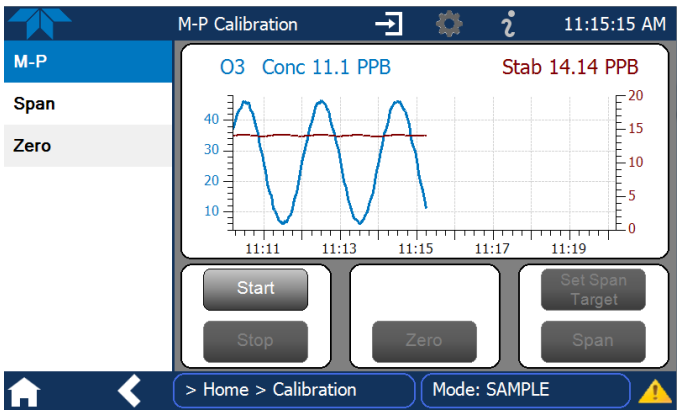

Figure 8. Multipoint Calibration Page

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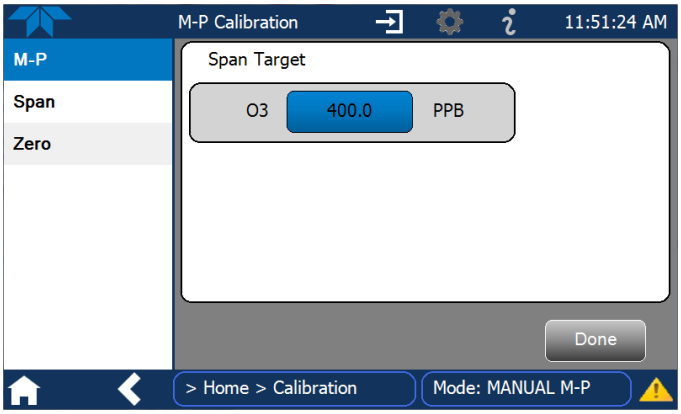

Figure 9. Calibration Span Target Page

To change the span target concentration, press the Set Span Target button.

Then press the button showing the current setting

. A numeric keyboard appears along with a field showing the current entry; press the numeric keys to edit.

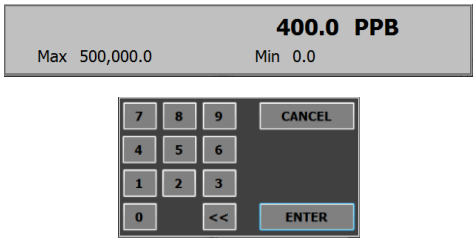

Figure 10. Editing Calibration Span Target

4.5. UTILITIES

The Utilities menu opens to the Datalog View, the Alerts Log, the USB Utilities, and the Diagnostics submenus.

4.5.1. DATALOG VIEW

The Datalog View tab displays a list of data logs that were configured in the Setup>Data Logging tab. From this list a log can be selected and filters applied to view the desired data. Refer to Section 5.1 for details.

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4.5.2. **ALERTS LOG**

The Alerts Log (Figure 11) displays a history of alerts that are triggered by factory-defined and user-defined Events, such as warnings and alarms.

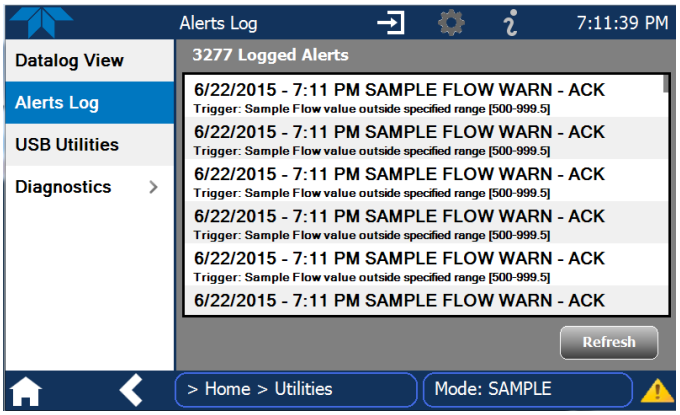

Figure 11. Alerts Log

See Sections 3.4.2 and 4.3 for more information.

4.5.3. **USB UTILITIES**

The USB Utility page serves multiple purposes using a flash drive connected to the instrument's front panel USB port. One purpose is transferring Data Acquisition System (DAS) data from the instrument to a flash drive. Section 5.1.3 provides instructions. Another is updating firmware. Section 6 provides instructions.

(A third purpose, which is not yet available, is copying a configuration from one instrument to other instruments).

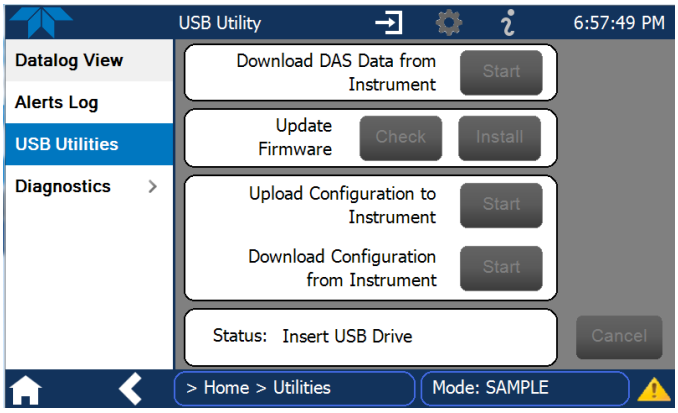

Figure 12. USB Utility Page

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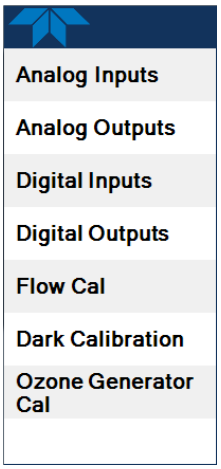
4.5.4. **DIAGNOSTICS**

The Diagnostics tab provides access to analog and digital inputs and outputs, and to calibration menus. The interface for each menu item is self-explanatory. Consult the instrument user manual for their applications and uses.



5. SETUP

The Setup tab in the Home page opens a submenu to either configure various programmable features or to view their current configurations and states. Once Setup is complete, the saved configurations can be downloaded to a USB drive and uploaded to other instruments. Section provides instructions.

Setup tasks are facilitated by any of various pop-ups that appear for naming, describing, and programming the available parameters. For example, a keyboard or a list of choices will appear when a blank field is pressed, as shown in Figure 13.

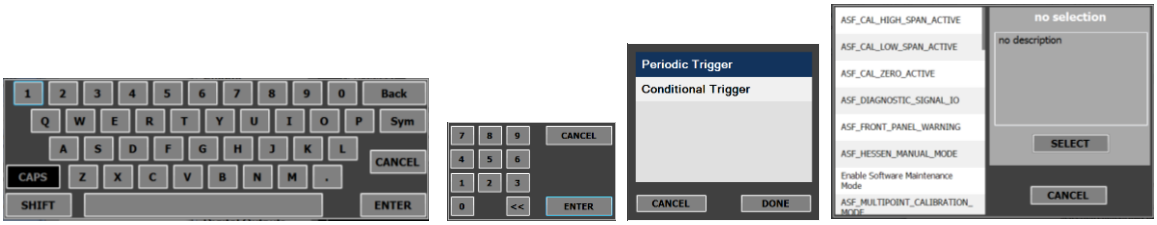


Figure 13. Configuration Pop-up Examples

Note that scrollable lists, such as some menus and parameter selections, are indicated by a gray bar on the right side of the list. Figure 14. Scrollable List Indicators shows examples. Drag the list to scroll.

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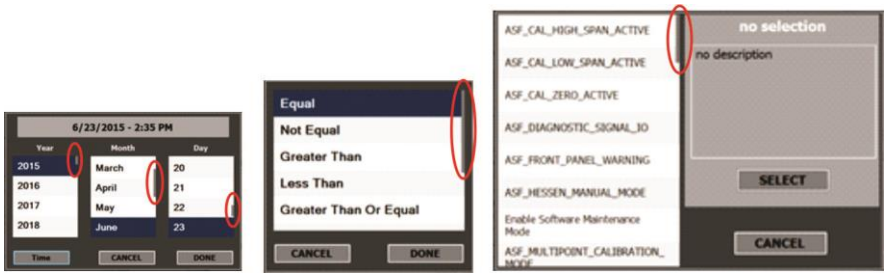

Figure 14. Scrollable List Indicators

5.1. DATA LOGGING

The Data Logger is the counterpart to the legacy T-Series DAS (consult the instrument user manual for DAS details), including a new trigger type called Conditional (track and log parameters that meet user-defined conditions). Configure the data logger via the Home>Setup>Data Logging menu; press the ADD button to create a new log (Figure 15), or select an existing log from the Data Logging list and press the EDIT or DELETE button to make the desired changes (Figure 16). See Sections 5.1.1 and 5.1.2 for configuration details. See Section 5.1.3 for transferring captured DAS data between the instrument and a flash drive.

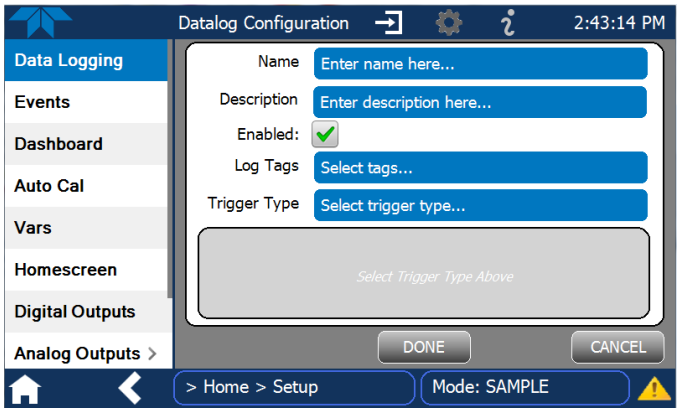

Figure 15. Datalog Configuration, New Log Page

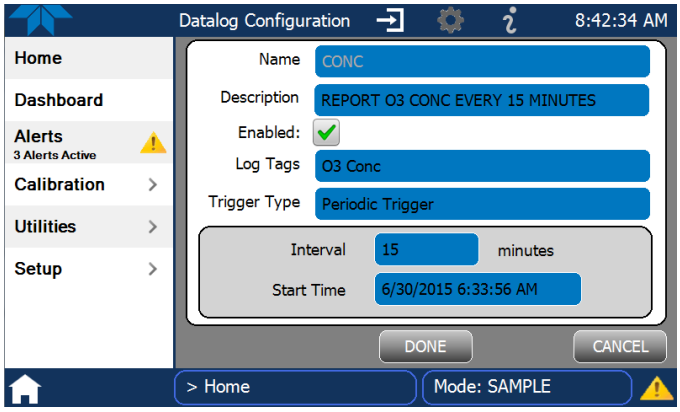

Figure 16. Datalog Configuration, Editing an Existing Log

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5.1.1. CREATING A USER-DEFINED DATA LOG

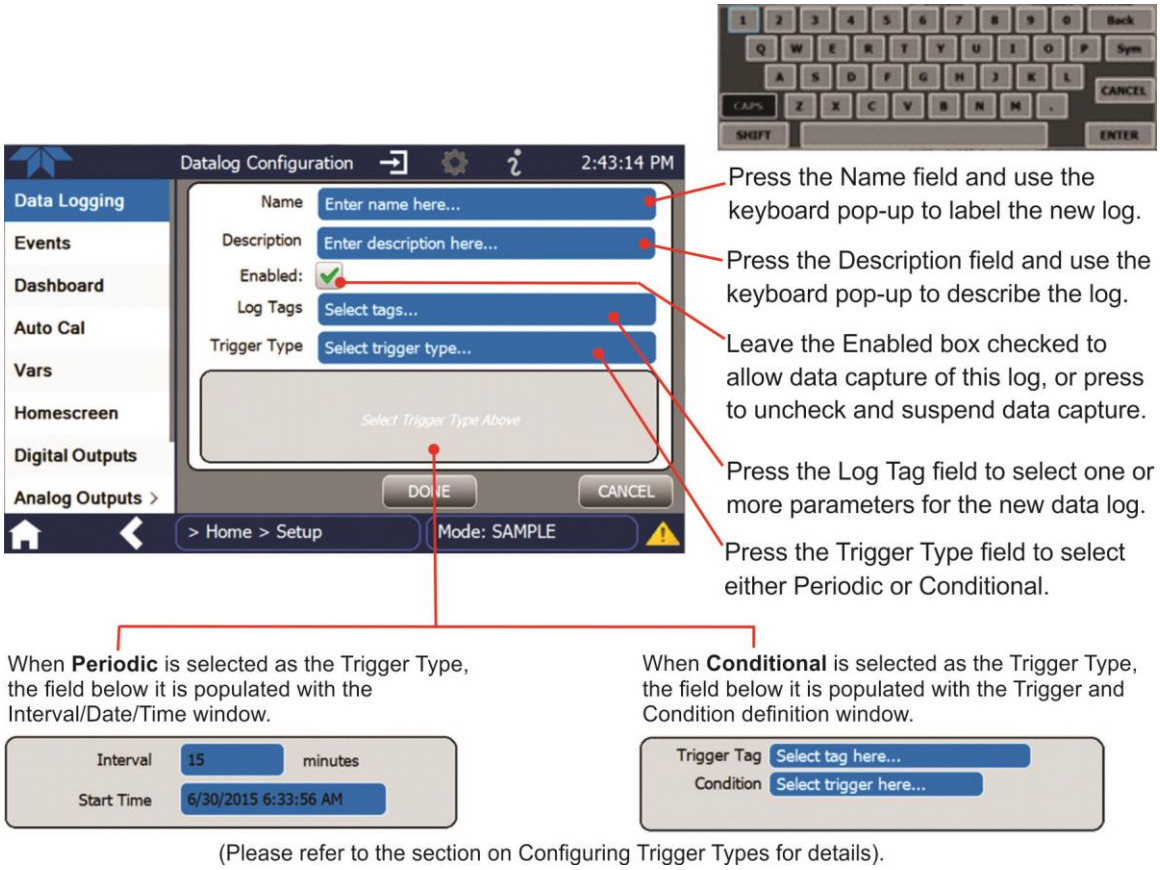

Figure 17. Datalog Configuration

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5.1.2. CONFIGURING TRIGGER TYPES

5.1.2.1. PERIODIC TRIGGER

The Periodic trigger is a timer-based trigger that is used to log data at a specific time interval. Periodic Trigger requires an interval that is set to number of minutes and a start time that is set to date and time.

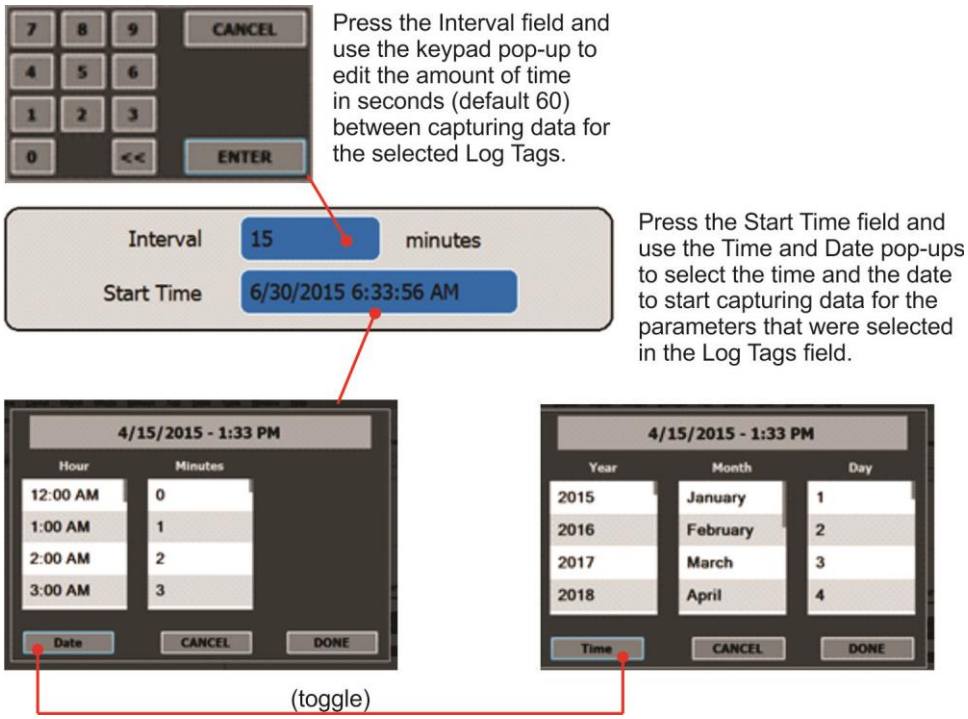

Figure 18. Datalog Periodic Trigger Configuration

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5.1.2.2. **CONDITIONAL TRIGGER**

Conditional Trigger tracks/records data for user-selected parameters that meet specified conditions.

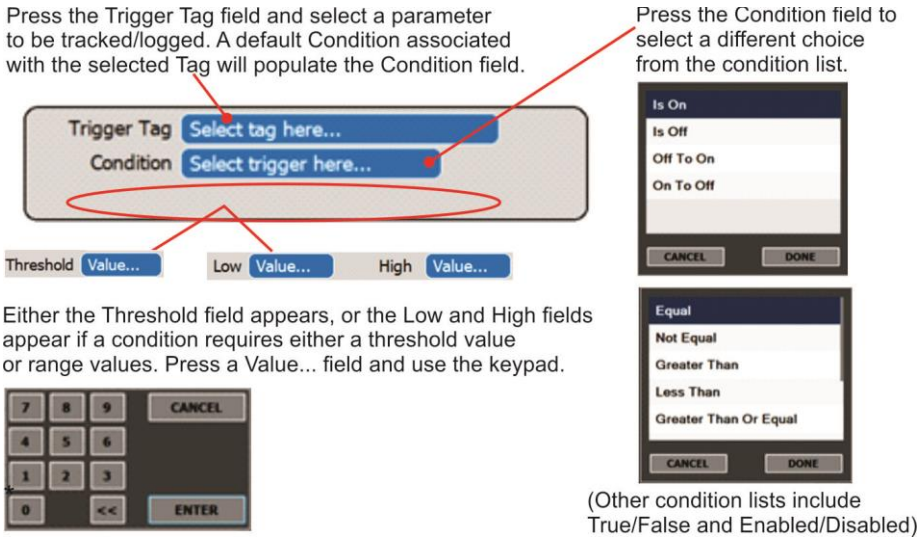

Figure 19. Datalog - Conditional Trigger Configuration

5.1.3. **DOWNLOADING DAS DATA**

In the Utilities>USB Utilities menu DAS data can be downloaded from the instrument to a flash drive, as presented here. (Refer to the instrument's user manual for details about DAS).

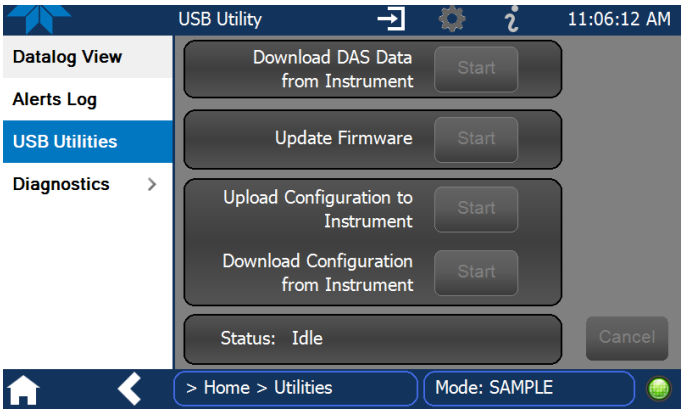

Figure 20. DAS Data Utility

1. Press USB Utilities menu to open the utility page (Figure 20).
2. Insert a flash drive into a front panel USB port and wait for the Status field to indicate that the drive has been detected and available buttons are enabled.

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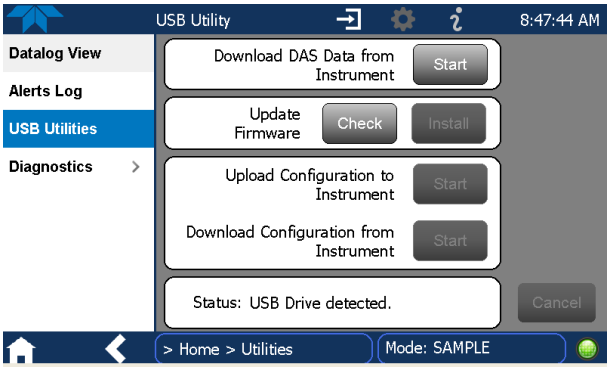

3. To copy the data to the flash drive, press the Start button next to "Download DAS Data from Instrument." (The Cancel button will be enabled).
4. When complete, as indicated in the Status field, the Cancel button becomes the Done button, which you can press and then remove the flash drive.

5.2. **EVENTS**

Events are occurrences that relate to any operating function, and will trigger Alerts (Section 4.3). Some Events are standard and not editable while others are user-configurable; creating and editing user-defined events are depicted next.

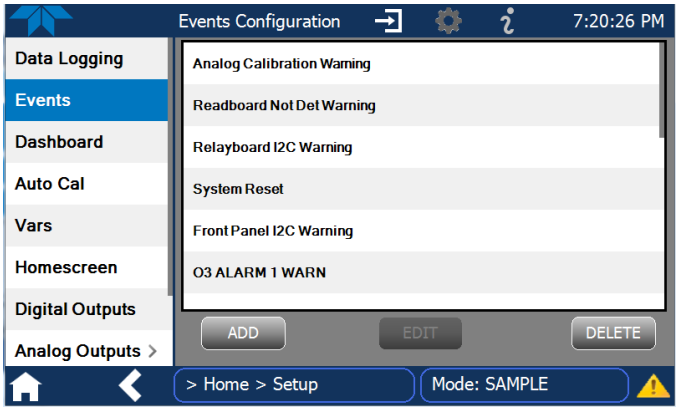

Figure 21. Events List

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5.2.1. CREATING USER-DEFINED EVENTS

In the Home>Setup>Events menu (Figure 21) press ADD to create a new Event. Figure 22 depicts what to do next. The Enabled box allows the choice of whether to track and record the Event. The Visible box allows the choice of whether or not to display the Event in the Alerts tab when it is triggered, although it will still be recorded. The third box allows the choice of whether or not to make it a Latching Event.

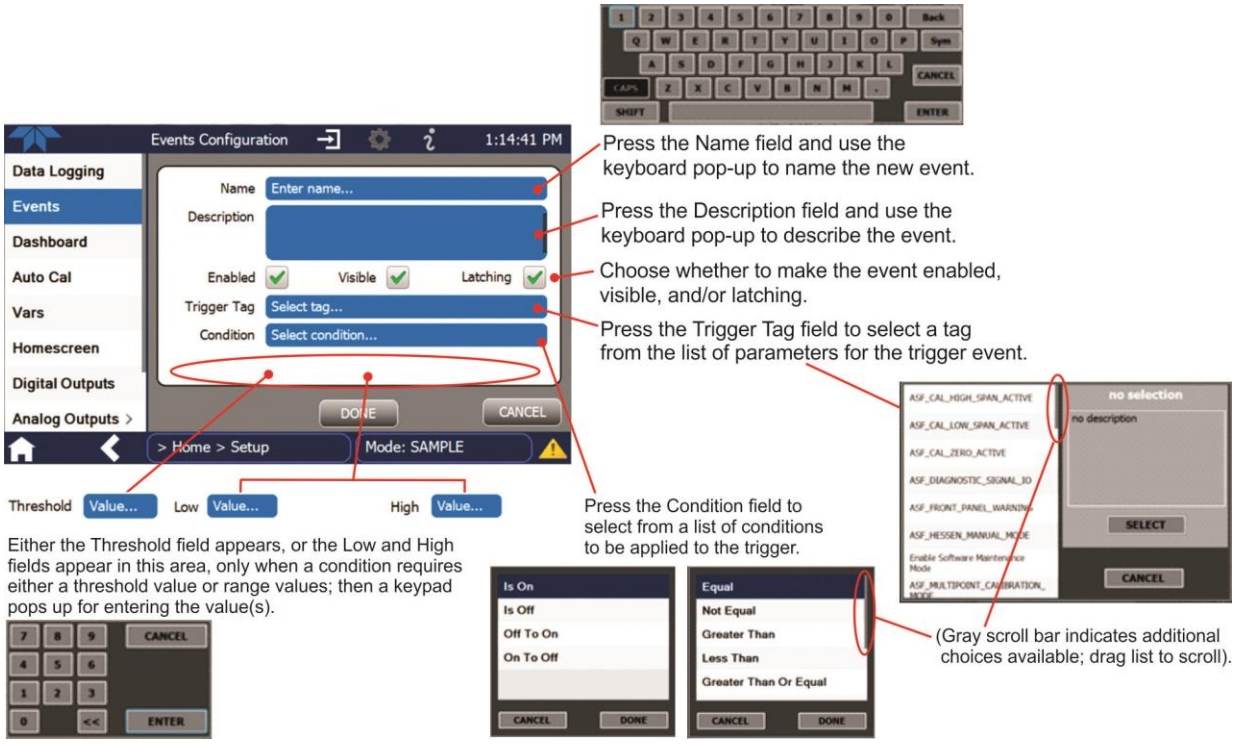

Figure 22. Event Configuration

5.2.2. EDITING OR DELETING EVENTS

Select an Event from the list (Figure 21) and press the EDIT button to view or edit the details (Figure 23). To delete an Event, select the Event from the list and press the DELETE button.

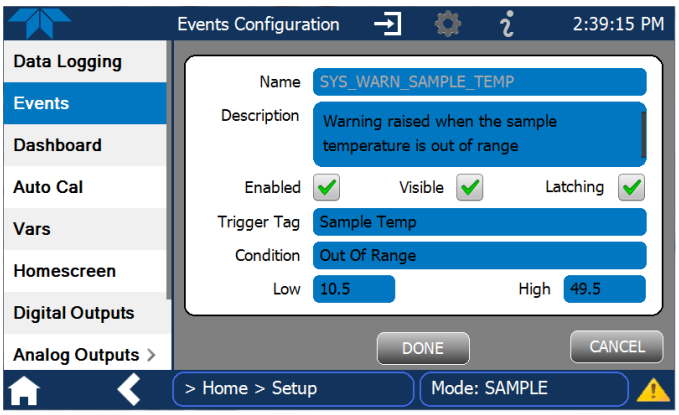

Figure 23. Existing Event for Viewing or Editing

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5.3. DASHBOARD

Go to the Dashboard Configuration page either from the Dashboard page by pressing the configuration button (shortcut), or from the Setup>Dashboard menu.

To add a parameter for display in the Dashboard, make a selection from the "Available Tags" column and press the right-pointing button >>.

To remove a parameter from the Dashboard, select a tag from the "Dashboard" column and press the left-pointing button <<.

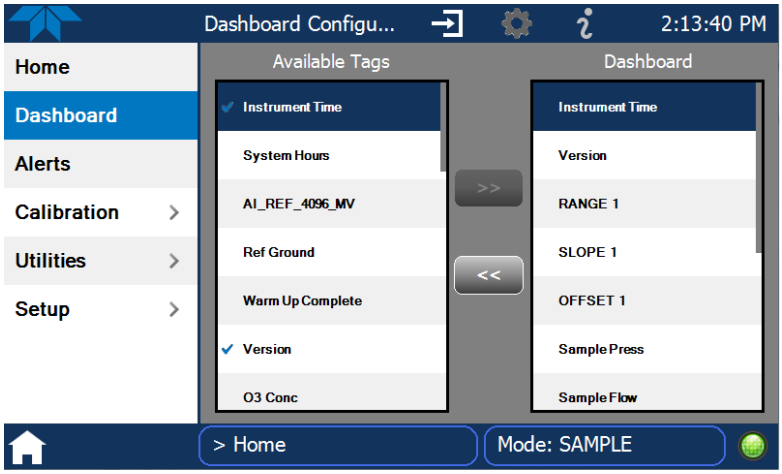

Figure 24. Dashboard Configuration

5.4. AUTO CAL

Auto Cal is only available when the IZS or Z/S valve option is installed. To set up Automatic Calibration, make your choices and provide your Start, Interval, and Duration times in the SETUP>Auto Cal page. Refer to your analyzer's user manual for information on auto cal.

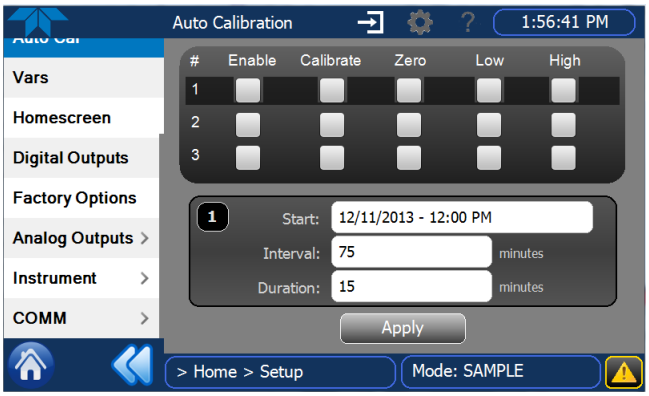

Figure 25. Auto Cal Configuration Page

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5.5. **VARS**

The Vars configuration page allows selecting a Variable and pressing the Edit button to change its values or conditions. Refer to your analyzer's user manual for information on Vars.

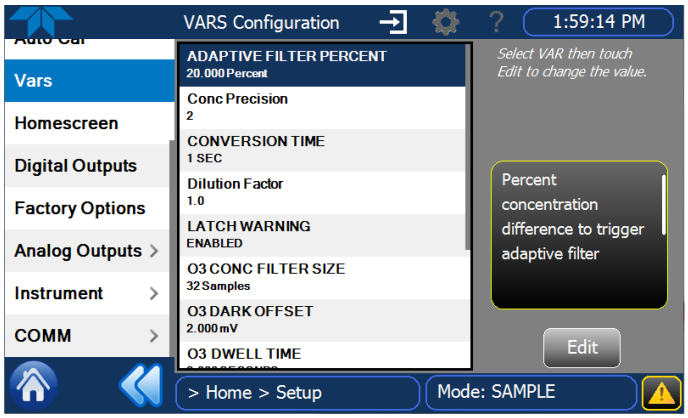

Figure 26. Vars Configuration Page

5.6. **HOMESCREEN**

Configuring the Homescreen involves selecting a parameter to display in each of the three meters located below the gas concentration field. From the Setup>Homescreen menu (Figure 27), scroll through the list of available tags and select one, then touch a meter to apply. Repeat for the other two meters. Home Configuration can also be reached by shortcut: while in the Home page, press the context-sensitive configuration button .

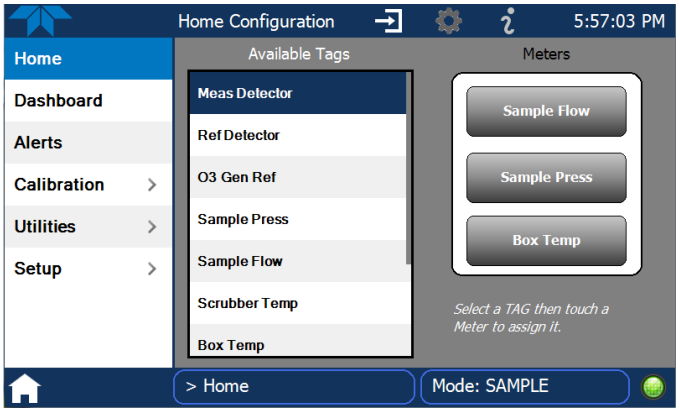

Figure 27. Home Configuration

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5.7. DIGITAL OUTPUTS

One of the new features of the new NumaView™ software interface is user-configurable Digital Outputs (formerly called Status Outputs). The mapping of the function of each Digital Output can be specified by the user, and the Output can be mapped to a wide variety of "Signals" present in the instrument. In addition, users can create their own custom "Signals" using Events (Section 5.2).

To map Digital Outputs to Signals, select a pin in the Outputs list, then make a selection from the Signals list and press the Map button; if needed, change the polarity by pressing the Polarity button. Save any changes by pressing the Apply button or discard the changes by instead pressing the Home button (a pop-up provides a warning that the changes will be lost, and will prompt for confirmation to apply changes or not).

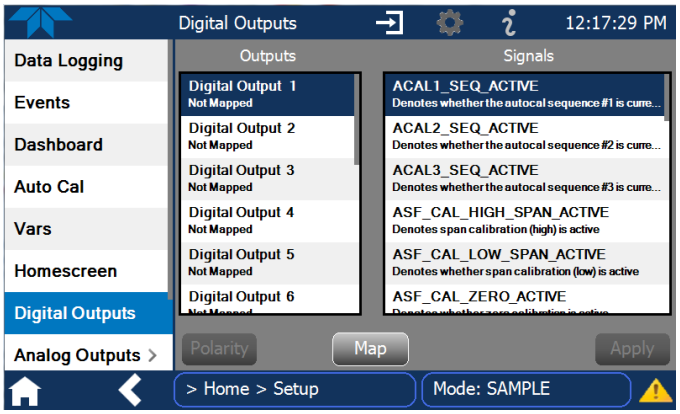

Figure 28. Digital Outputs Setup

5.8. ANALOG OUTPUTS

One of the new features of the new NumaView™ software interface is user-configurable Analog Outputs. The mapping of the function of each Analog Output can be specified by the user, and the Output can be mapped to a wide variety of values (or "Signals") present in the instrument.

The Setup>Analog Outputs menu provides a choice among four analog outputs and an analog output calibration. Note that the last page on display prior to going to the Analog Outputs menu remains until one of the choices is selected.

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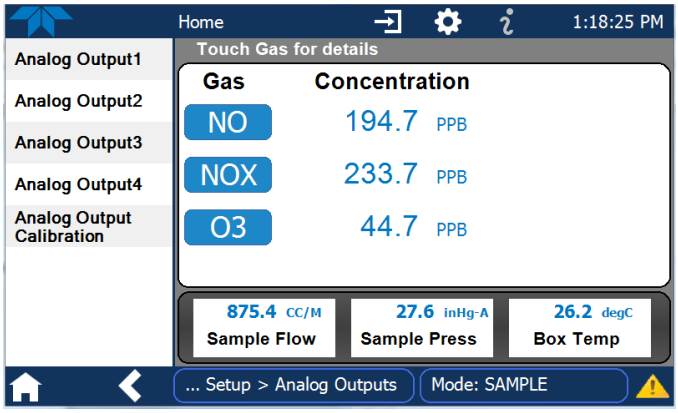

Figure 29. Analog Outputs Menu

Each of the Outputs can be configured by pressing the Output, selecting an option from a list, and choosing or entering a value for each field. Refer to your analyzer's user manual for details on analog outputs.

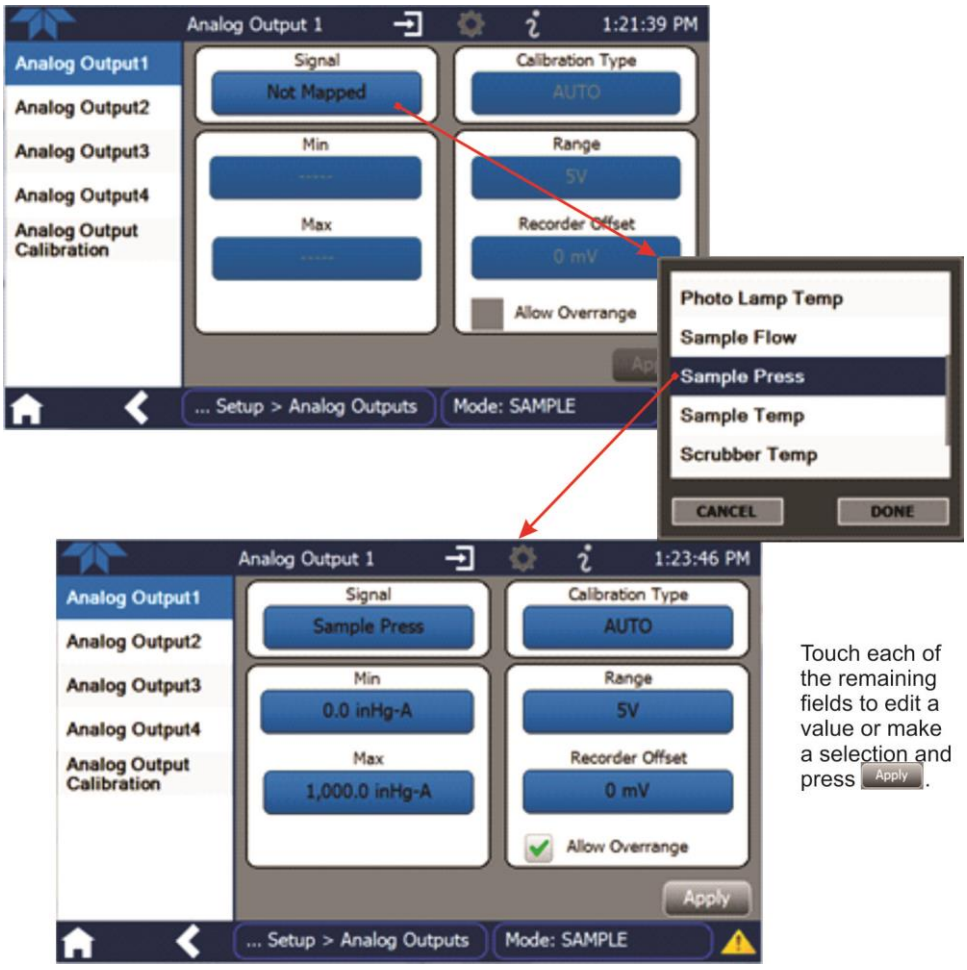

Figure 30. Analog Output Configuration Page

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Calibrate analog outputs by pressing Analog Output Calibration; for automatic calibration (default), press the Start button.

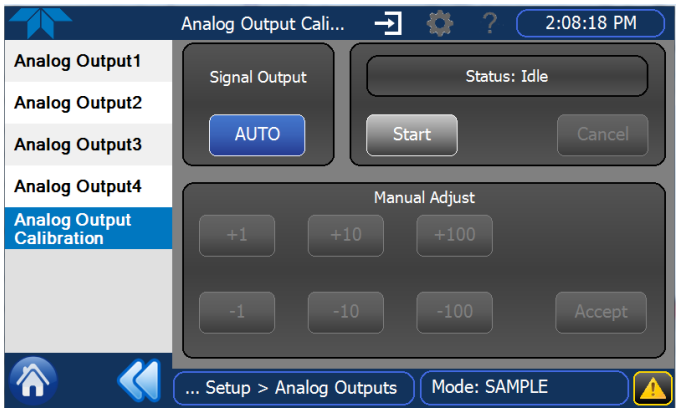

Figure 31. Analog Output Auto Calibration Page

If an Analog Output was assigned Manual Calibration Type, press the AUTO button and select the Output to manually calibrate and adjust values as necessary.

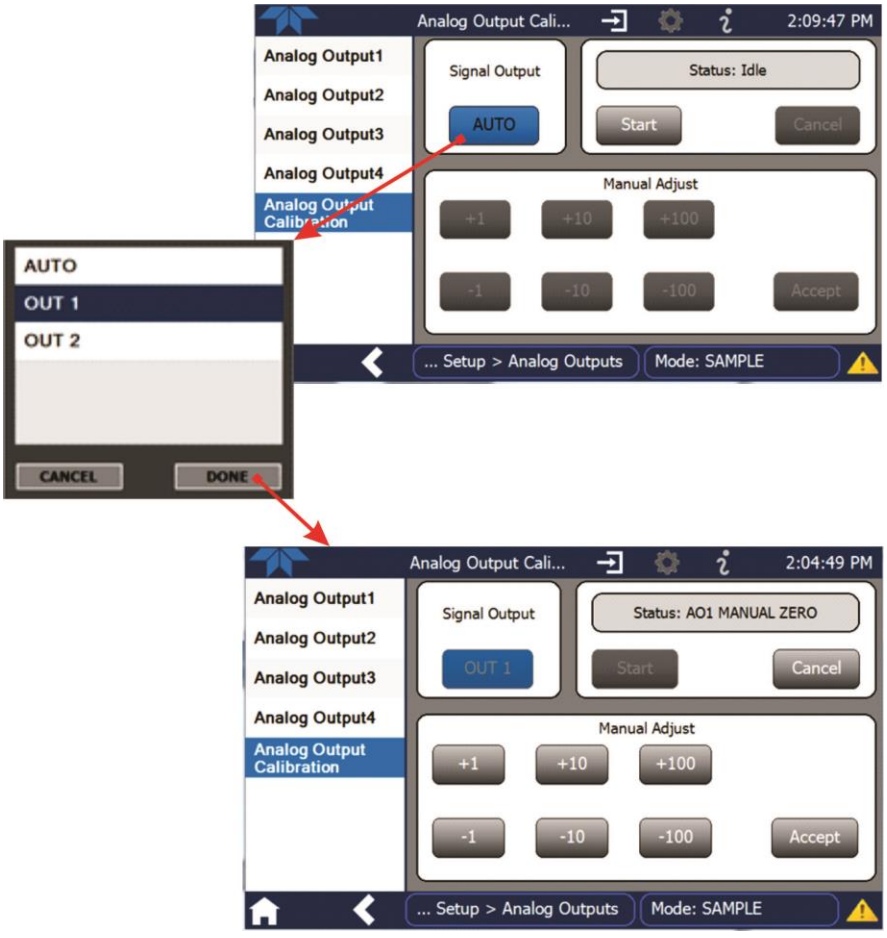

Figure 32. Analog Output Manual Calibration Page

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5.9. INSTRUMENT

The Instrument page shows product information and configurable instrument settings.

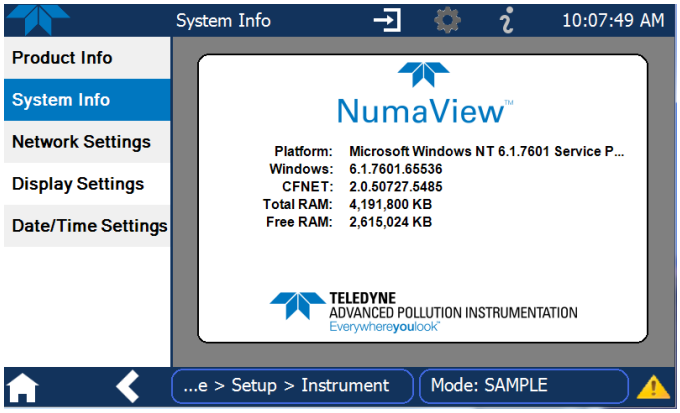

Figure 33. Instrument System Information Page

5.9.1. INSTRUMENT DATE/TIME ADJUSTMENTS

The Date/Time Settings menu allows changes to time zone, hour, minutes after the hour, and date, including auto-adjust for Daylight Savings Time.

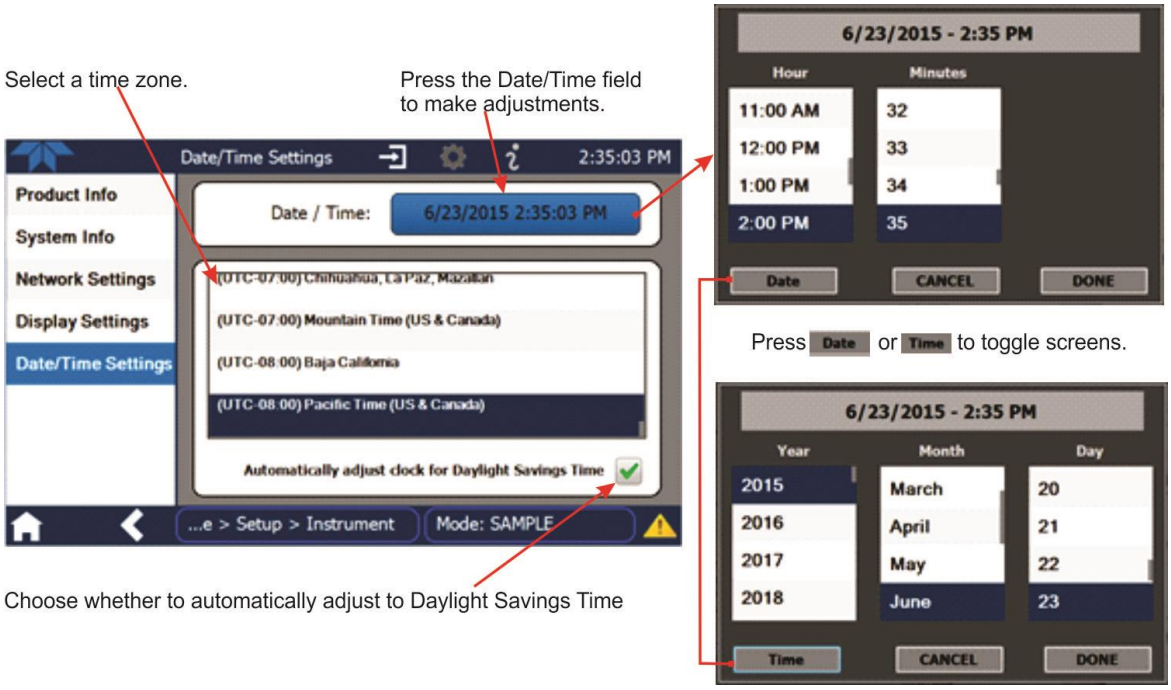

Figure 34. Date and Time Configuration Page

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5.9.2. INSTRUMENT DISPLAY CALIBRATION

Although unlikely, if ever the touchscreen appears unresponsive or responds incorrectly, the screen can be calibrated via the Setup>Instrument>Display Settings menu.

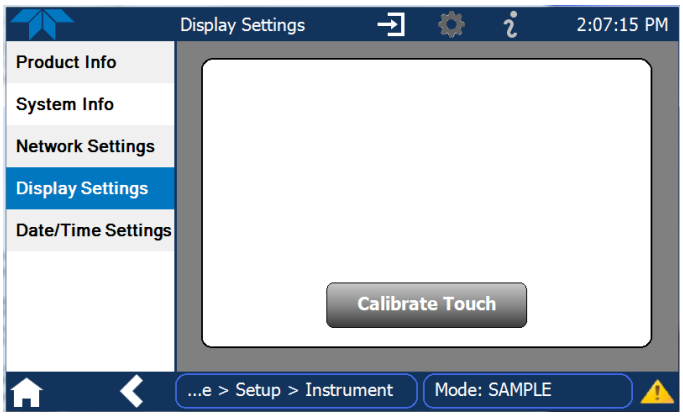

Figure 35. Touchscreen Calibration Page

1. Turn off the instrument and connect a keyboard to one of the front panel USB ports.
2. Turn on the instrument and immediately press and hold both the **left** CTRL and **left** SHIFT keys.
3. Hold the keys until the screen is blue and displays a mouse pointer.
4. Release the keys to display a crosshair in the center of the screen.
5. Note that a timer function is enabled, allowing only 15 seconds to start the calibration process. If the timer expires, the instrument will continue to boot to normal operation.
6. Carefully and accurately press and hold the very center of the crosshair until it finishes shrinking, then release.
7. When a new crosshair appears in the upper left corner of the screen, repeat Step 6.
8. Complete the process for each of the corners.
9. Once the process is completed, a CANCEL and an ACCEPT button appear in the lower left corner: Test the accuracy of the calibration by touching parts of the screen and see that the mouse pointer follows your touches.
10. If you press the CANCEL button, the calibration won't be altered. Otherwise, press the ACCEPT button.

If any difficulties persist, contact TAPI Technical Support:

sda_techsupport@teledyne.com / 800-324-5190

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5.10. **COMM (COMMUNICATIONS)**

The COMM page is for configuring the communications ports. (The last page on display prior to going to the Setup>COMM menu remains on display until one of the submenus is selected). Refer to the communications sections in your instrument's user manual for configuration details.

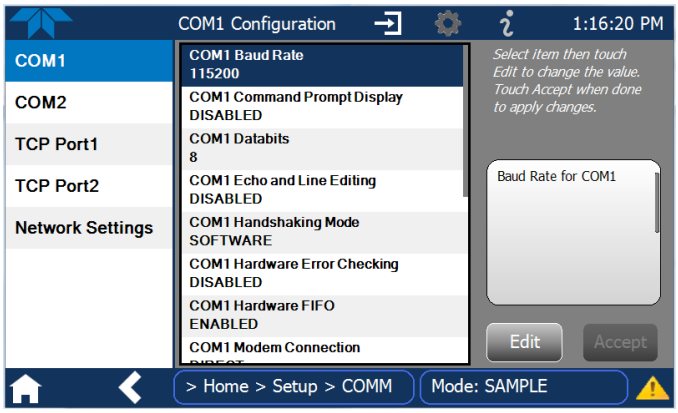

Figure 36. Communications Configuration Page

Note that the choices for COM1 and COM2 protocol appear in a pop-up as shown in Figure 37.

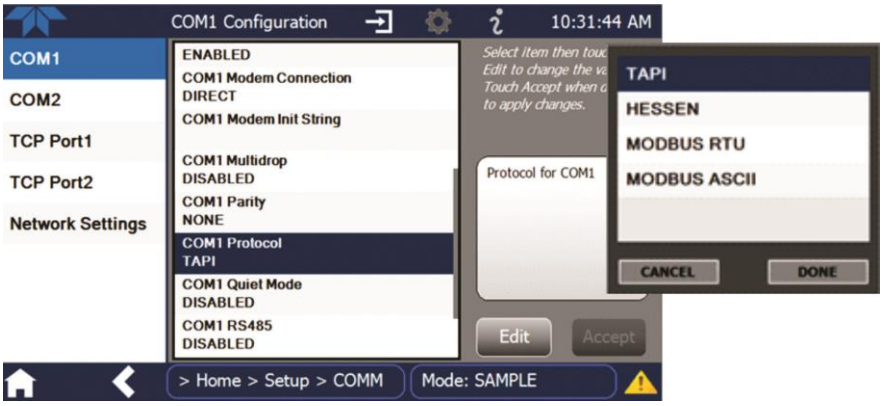

Figure 37. COM1 and COM2 Protocol Selection

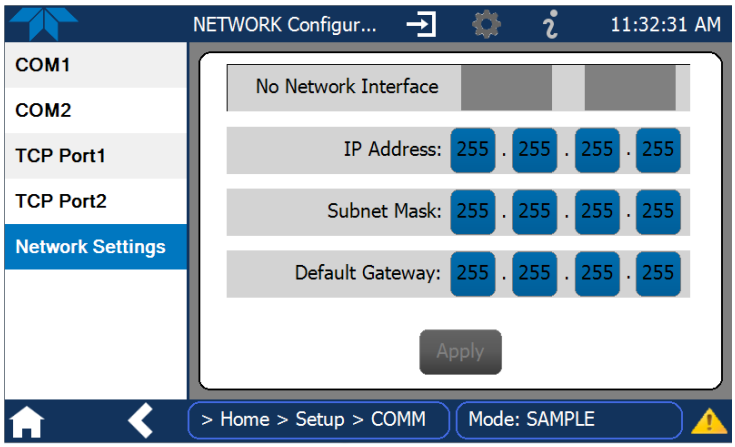

Figure 38. Network Configuration Page

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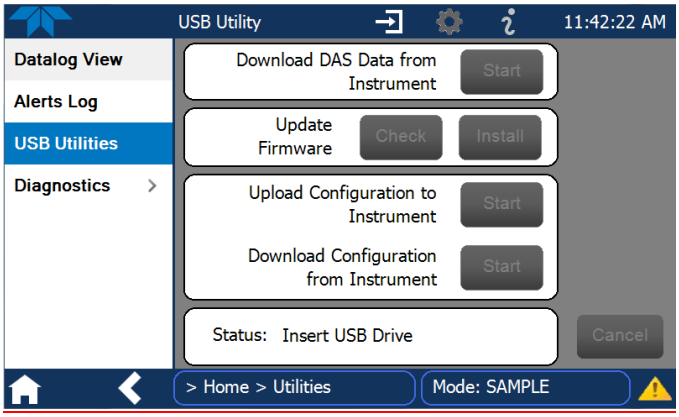
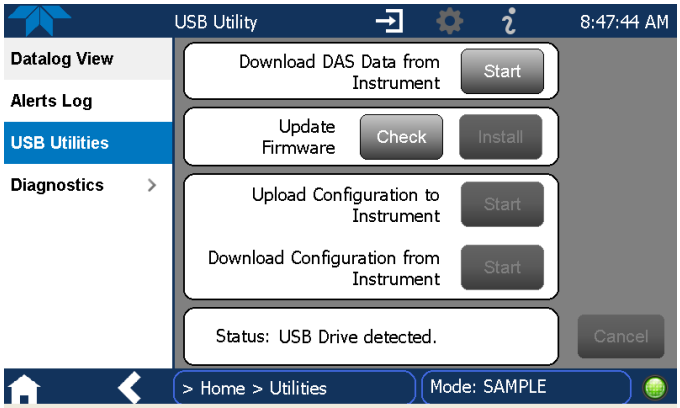
6. FIRMWARE UPDATES

To reload or update firmware, first contact Technical Support to obtain the applicable file(s): sda_techsupport@teledyne.com / 800-324-5190.

1. Follow Technical Support's instructions for copying the firmware files to a flash drive.
2. On the instrument's front panel Home menu, press USB Utilities to open the utility page.



3. Insert a flash drive into a front panel USB port and wait for the Status field to indicate that the drive has been detected.



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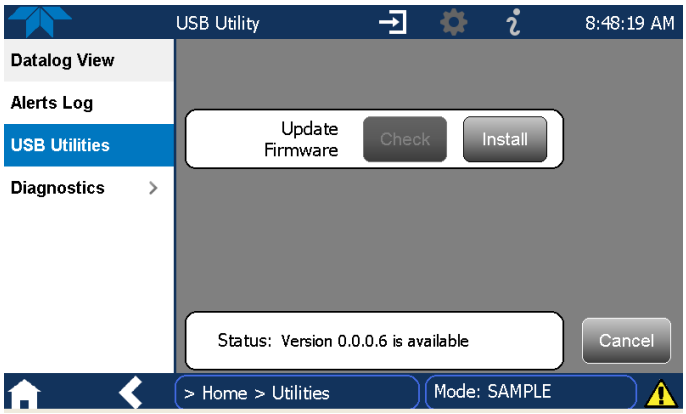
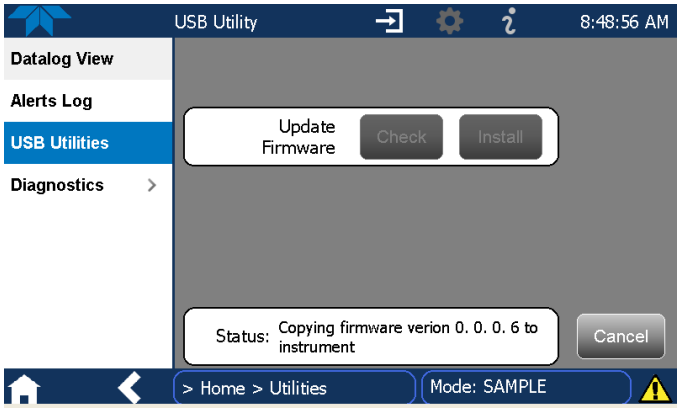
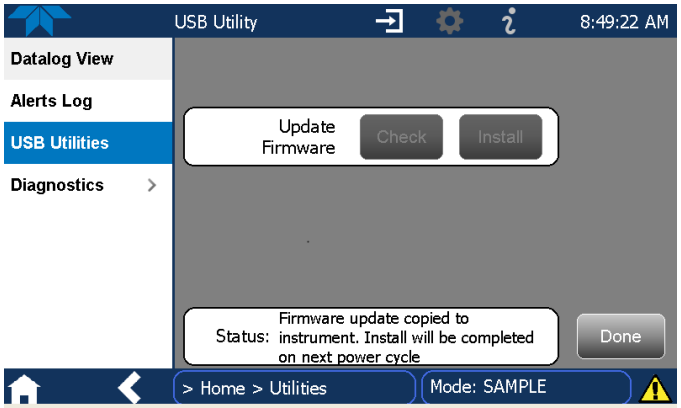
4. In the Update Firmware field, press the Check button for the instrument to determine whether the firmware on the flash drive is more recent than what is currently installed. Once it's been determined that the firmware is new, the Install button will be enabled; if the firmware version on the flash drive is the same as or older than the current firmware of the instrument, the Install button will not be enabled.



5. Press the Install button.



6. When complete, as indicated in the Status field, press the Done button and remove the flash drive. Power off and restart the instrument to complete the new firmware installation.



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7. QUICK REFERENCE MENU STRUCTURE

This section provides a high-level breakout of the NumaView™ software interface menu structure; submenus are not shown here as they vary per specific instrument models and their options. Refer to Appendix A Menu Trees of the instrument's user manual.

Home
Dashboard
Alerts
Calibration
- M-P Multi point calibration
- Span – Span calibration (requires IZS or Z/S valve option)
- Zero – Zero calibration (requires IZS or Z/S valve option)

Utilities
- Datalog View
- Alerts Log
- USB Utilities
- Diagnostics
  - Analog Inputs
  - Analog Outputs
  - Digital Inputs
  - Digital Outputs
  - Flow Cal
  - (Other Model-Specific Utilities)

Setup
- Data Logging
- Events
- Dashboard
- Auto Cal
- Vars
  - (Various Model-Specific Configuration Variables)
- Homescreen
- Digital Outputs
- Analog Outputs
  - Analog Output(1 thru 4)
  - Analog Output Calibration
- Instrument
  - Product Info
  - System Info
  - Network Settings
  - Display Settings
- Comm
  - COM1
  - COM2
  - TCP Port1
  - TCP Port2
  - Network Settings

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