NumaView™ Software

Addendum to T-Series Analyzer Manuals

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1. INTRODUCTION

This addendum is intended to provide an orientation to the Teledyne API 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 use, although some details are provided herein.

Please note that 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 NumaView™ software interface for running your instrument, and any boot thereafter opens to the last software interface used. See Section 6 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 1, "Introduction," describes the content of this document.

Section 2, "NumaView™ Software Interface and Menu Overview," provides a general orientation to the software interface pages and a description of the menus.

Section 3, "Displays: Functions and Configurations," describes the functions in the menu pages, and provides general setup information.

Section 4, "Software/Firmware Updates," lists steps for updating firmware.

Section 5, "Quick Reference Menu Structure," shows an easy-reference menu tree.

Section 6, "Interfaces: Mapping T-Series Legacy-to-NumaView™ Software," compares the two interfaces to assist with navigation to familiar operations and functions.

2. NUMAVIEW™ SOFTWARE INTERFACE AND MENU OVERVIEW

This section provides a general orientation to the graphical user interface (Figure 2-1) and a high-level description of the menus (Table 2-1)."

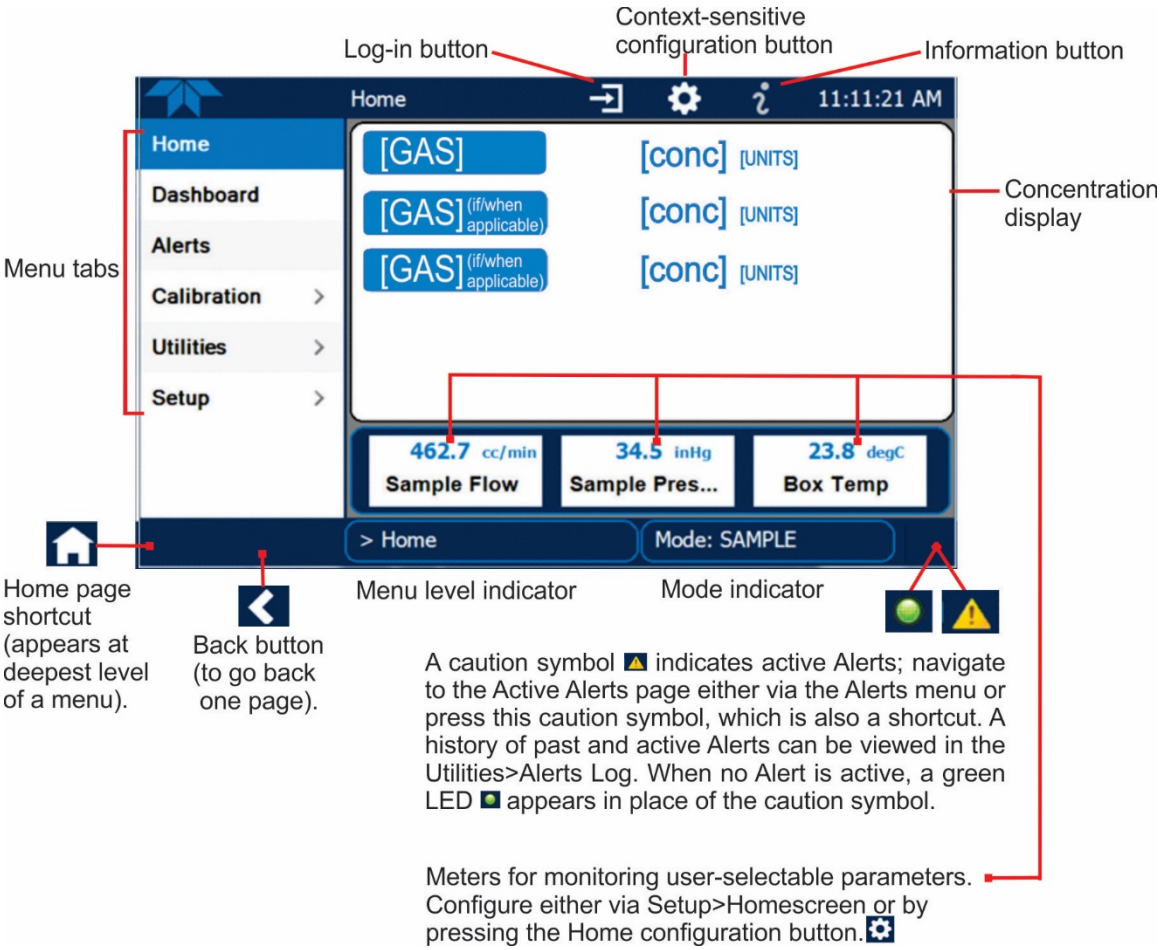


Figure 2-1. User Interface Orientation (not all instruments have multiple gases)

(Note that the last page on display prior to drilling into a menu remains on display until a choice in the menu is selected).

Table 2-1 describes the menus and provides cross-references for expanded details.

Table 2-1. Menu Overview

MENU	DESCRIPTION	LOCATION
Home	View and plot concentration readings and selectable meter readings.	Section 3.1
Dashboard	View user-selected parameters and their readings, some of which can be displayed in a live-plot graph.	Section 3.2
Alerts	View and clear active Alerts that were triggered by factory-defined Events as well as user-defined Events. (Active and past Alerts are recorded in the Utilities>Alerts Log).	Section 3.3
Calibration	Run calibration functions.	Section 3.4
Utilities	View logs, download data and firmware updates, copy configurations between instruments, and run diagnostics.	Section 3.5

MENU	DESCRIPTION		LOCATION
	Datalog View	Displays the data logs that were configured via the Setup>Data Logging menu. From this list a log can be selected and filters applied to view the desired data.	Section 3.5.1
	Alerts Log	Displays a history of Alert messages triggered by factory-defined and user-defined Events, such as warnings and alarms (See Section 3.6.2 for Events configuration).	Section 3.5.2
	USB Utilities	Serves multiple purposes using a flash drive connected to the instrument's front panel USB port: • download data from the instrument's Data Acquisition System (DAS), the Data Logger, to a flash drive (Section 3.5.3.3) • update firmware (Section 3.5.3.1) • transfer instrument configuration from/to other instruments (Section 3.5.3.2) • download operation functionality report (Section 3.5.3.4).	Section 3.5.3
	Diagnostics	Provides access to various pages that facilitate troubleshooting.	Section 3.5.3.3
		Analog Inputs	Measure voltage signals of several analog input parameters, including those from other instrumentation when the External Analog Inputs Option is installed. These can be logged in the internal data acquisition system (DAS), by configuring the Data Logger in the Setup>Data Logging menu (Section 3.6.1).	Section 3.5.4.1
		Analog Outputs	Show voltage signals for functions selected and configured in the Setup>Analog Outputs menu (Section 3.6.7). Rear panel connections are presented in the instrument user manual.	Section 3.5.4.2
		Digital Inputs	Show whether specific available Signal In features are active (ON) or inactive (OFF).	Section 3.5.4.3
		Digital Outputs	Show whether user-specified Signal Out features (configured in the Setup>Digital Outputs menu, Section 3.6.6) are active (ON) or inactive (OFF).	Section 3.5.4.4
		Flow Cal	Used to check and to calibrate the sample gas flow reading with actual flow measured by an external device.	Section 3.5.4.5
	(Other Diagnostics tools may be available depending on instrument and options).			

MENU	DESCRIPTION		LOCATION
Setup	Configure a variety of features and functions through these submenus for customized operation.		Section 3.6
	Datalogging	Track and record concentration and calibration data and selectable diagnostic parameters, the reports for which can be viewed in the Utilities>Datalog View menu (Section 3.5) and downloaded to a flash drive via the Utilities>USB Utilities menu (Section 3.5). Also, select configured Events (Section 3.6.2 and create customized triggers for data logging functions.	Section 3.6.1
	Events	Select parameters and define the conditions by which they are to be flagged and recorded in the Alerts log (Section 3.3) when they are triggered. Once configured, Events can be used to trigger Datalogs (Section 3.6.1).	Section 3.6.2
	Dashboard	Monitor instrument functionality (Section 3.2) via selectable parameters.	Section 3.6.3
	Auto Cal (with valve options)	When zero/span valve options installed, configure sequences for automatic calibration functions.	Section 3.4.2
	Vars	Manually adjust several software variables that define specific operational parameters. (Table 3-4 provides descriptions of the more common Vars, some of which may or may not be present in all instruments).	Section 3.6.4
	Homescreen	Configure the parameters to be displayed in the three meters (Section 3.1.1 and Figure 3-1).	Section 3.1.2
	Digital Outputs	Map the rear-panel digital outputs to a variety of signals present in the instrument to monitor the status of operating conditions, or custom Events. (See Setup>Events).	Section 3.6.6
	Analog Outputs	Send user-selected parameter readings in the form of user-defined voltage or current loop signals as outputs to a strip chart recorder and/or the data logger.	Section 3.6.7
	Instrument	View product and system information, including list of options, if any; view network settings; calibrate touchscreen; view/adjust Date and Time settings; and check for firmware updates when connected to a network that is connected to the Internet.	Section 3.6.8
	Comm	View and configure network and serial communications.	Section 3.6.9

3. DISPLAYS: FUNCTIONS AND CONFIGURATIONS

This section describes the interface pages and their functions and provides setup instructions for those that are configurable.

3.1. HOME PAGE

This section provides further description of the Home page and instructions for configuring the meters below the gas display.

3.1.1. HOME PAGE DESCRIPTION

Figure 2-1 presented an orientation to the main display screen; Figure 3-1 shows that pressing the gas name or its concentration value or a meter displays a live plot of their respective readings.

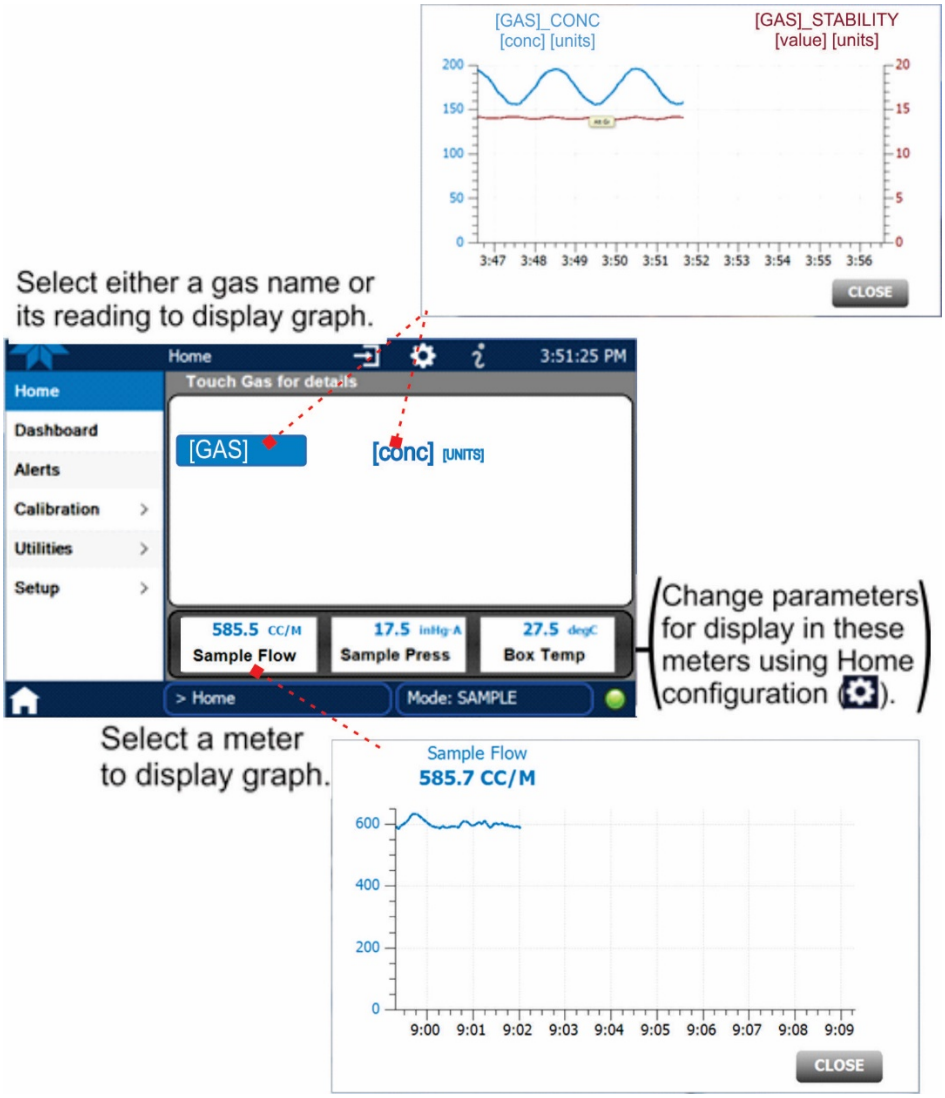


Figure 3-1. Displaying Graphs from Home Page

3.1.2. HOMESCREEN CONFIGURATION

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 (Section 3.6.5), 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 3-2).

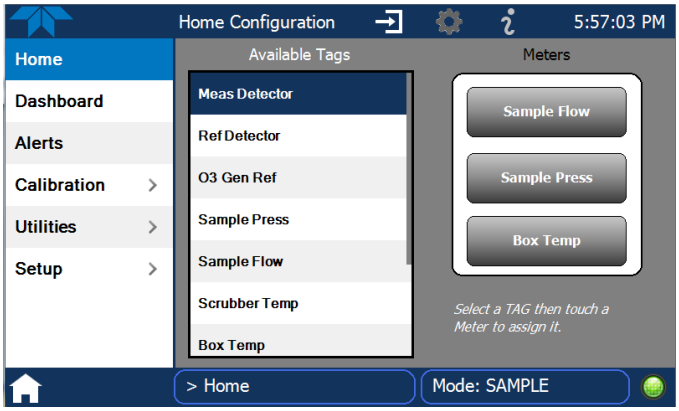


Figure 3-2. Home Configuration

3.2. DASHBOARD

This section provides further description of the Dashboard page and instructions for its configuration.

3.2.1. DASHBOARD DESCRIPTION

The Dashboard displays an array of user-selected parameters and their values. If there is a graphing icon in the upper right corner of a parameter, pressing that parameter displays a live plot of its readings as in Figure 3-3.

Three of the dashboard parameters can be selected for continuous display in the meters located in the lower portion of the Home page. (See Section 3.1.2 for Homescreen configuration).

Figure 3-3. Dashboard Page

3.2.2. DASHBOARD CONFIGURATION

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

Refer to Figure 3-4:

- 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 <<.

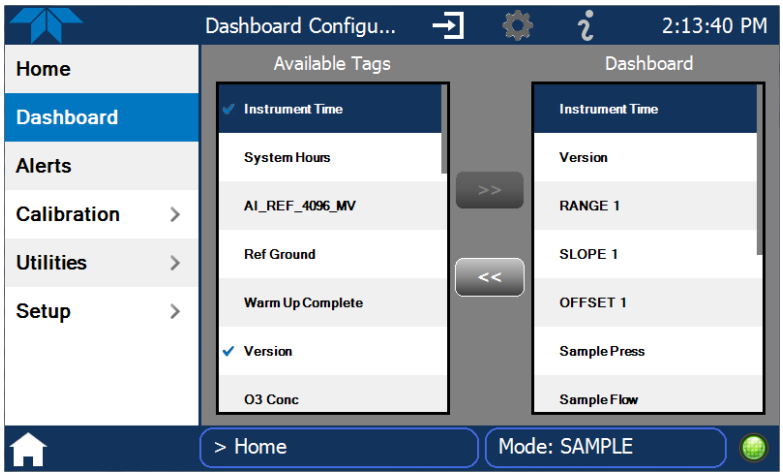


Figure 3-4. Dashboard Configuration

3.3. ALERTS

Alerts are notifications triggered by specific criteria having been met by either factory-defined conditions (standard and not editable) or user-defined Events (Section 3.6.2). The Active Alerts page shows the status of any active warning conditions or Events that have been triggered.

When Alerts are triggered, a caution symbol appears in both the Alerts menu tab and in the bottom right corner of the software interface, which serves as a shortcut to the Alerts page from any other page. View a list of currently active Alerts by pressing either the Alerts menu on the Home screen or by pressing the Alerts shortcut (Figure 3-5).

While Alerts can be cleared from the Active Alerts page, they remain recorded in the Utilities>Alerts Log. (Event configuration is presented in Section 3.6.2).

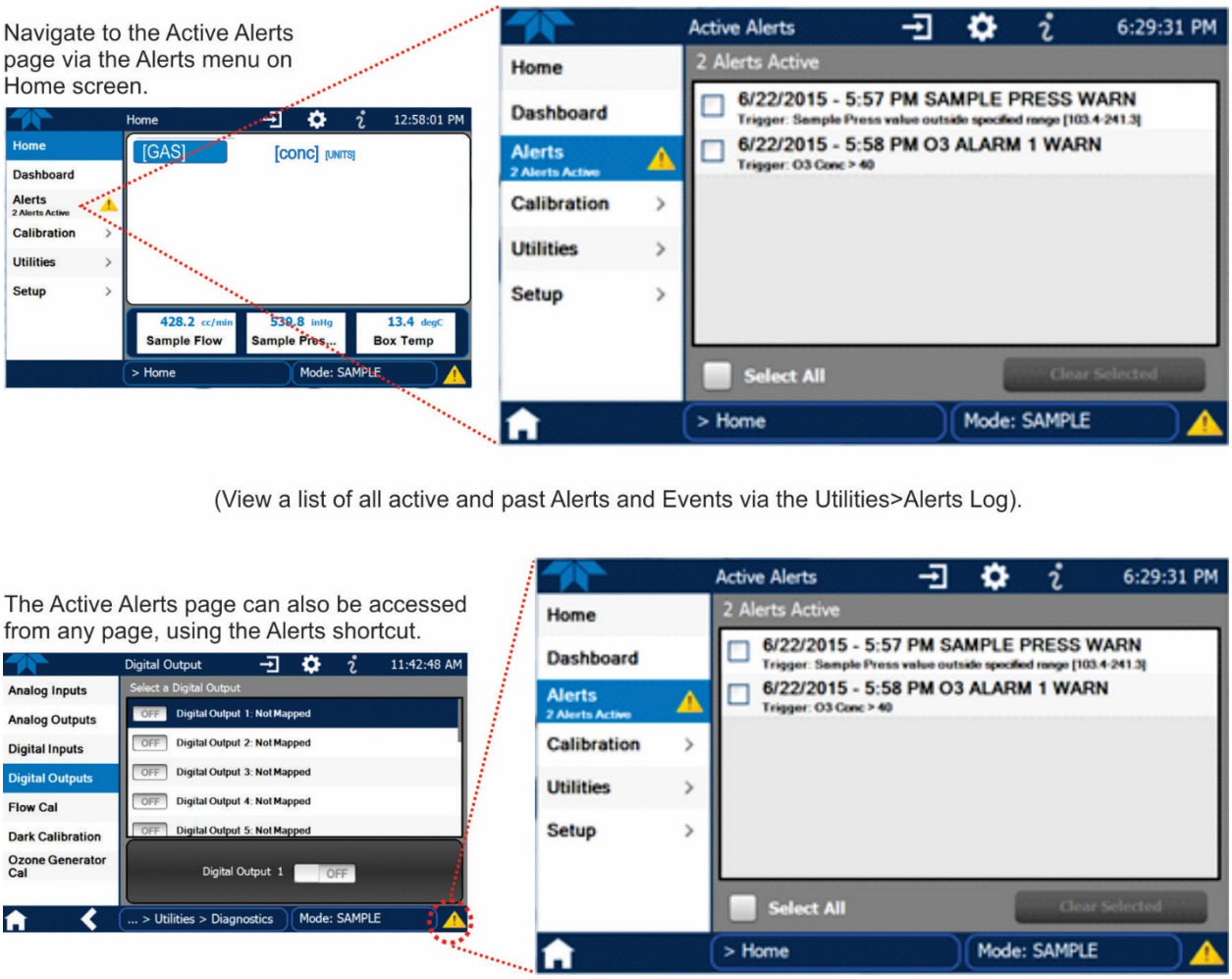


Figure 3-5. Navigating to the Active Alerts Page

Alerts appear as either latching (displayed in Active Alerts screen when an Event is triggered and must be cleared by the user) or non-latching (Active Alerts screen continuously updates based on the Event criteria, clearing on its own). See Section 3.6.2 for description and configuration of Events.

To clear Alerts from the Active Alerts page, either check individual boxes to choose specific Alerts, or check the Select All box to choose all Alerts, then press the Clear Selected button.

When all Alerts are cleared, the Alerts menu tab no longer shows the caution symbol, and a green LED replaces the caution symbol in the bottom right corner of the interface (Figure 3-6). However, Alerts can reappear if the conditions

causing them are not resolved. For troubleshooting guidance, refer to the instrument's user manual.

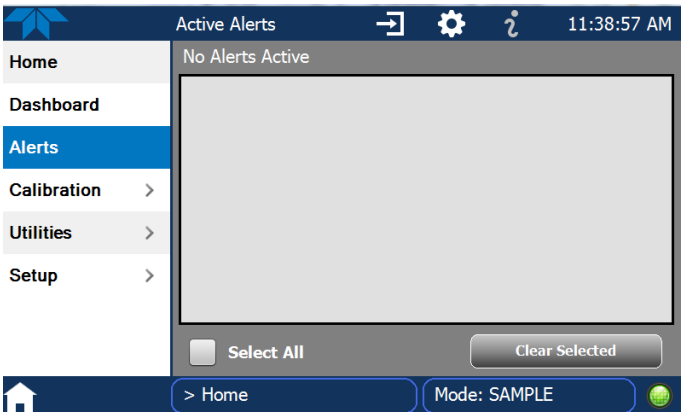


Figure 3-6. Active Alerts Cleared

Alerts and Events remain recorded in the Utilities>Alerts Log (Figure 3-7).

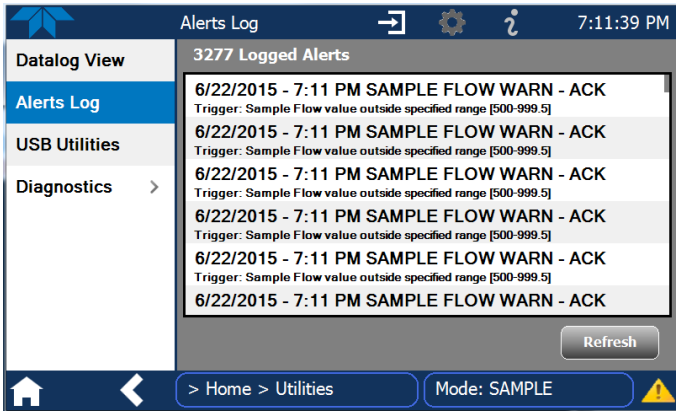


Figure 3-7. Utilities>Alerts Log of Active and Past Alerts and Events

3.4. CALIBRATION

This section describes the Calibration page and instructions for configuration of the automatic zero and span calibration and calibration check, a feature only available with zero/span valve options installed. Consult the instrument's user manual for calibration requirements, for precalibration information, and for calibration and check procedures.

3.4.1. CALIBRATION AND CALIBRATION CHECK DESCRIPTION

The Calibration menu provides Multi-Point (M-P) calibration. Although the Calibration menu can be used for both check and for actual calibration, a check does not require the Calibration menu. (A check can be done while in the Home page and flowing either the zero air or the span gas and checking the reading after the Stability (either in the gas graph or in the Dashboard) falls below 1.0 PPB; the Stability reading can be observed).

With valve options installed, the Calibration menu also provides for zero and span calibrations.

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, other buttons may be enabled, depending on what calibration functions are allowed per the configuration.

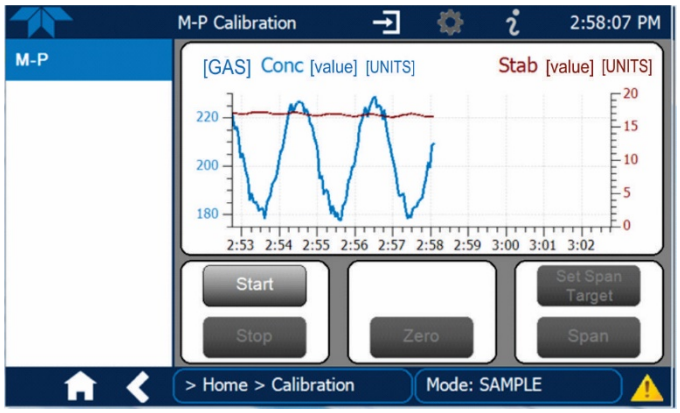


Figure 3-8. Multipoint Calibration Page

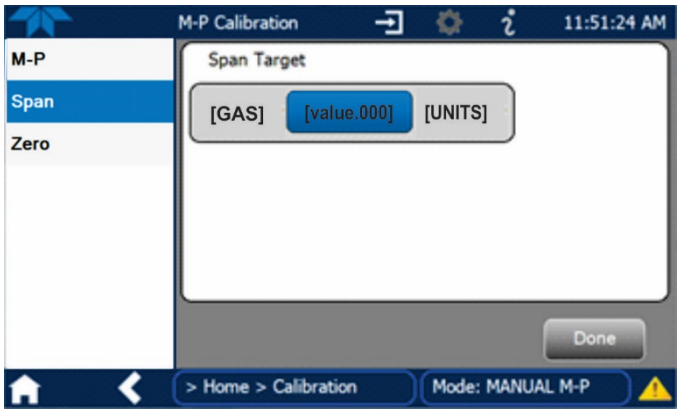


Figure 3-9. Calibration Span Target Page (with valve option)

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

Then press the concentration value button showing the current setting. Use the keypad to edit.

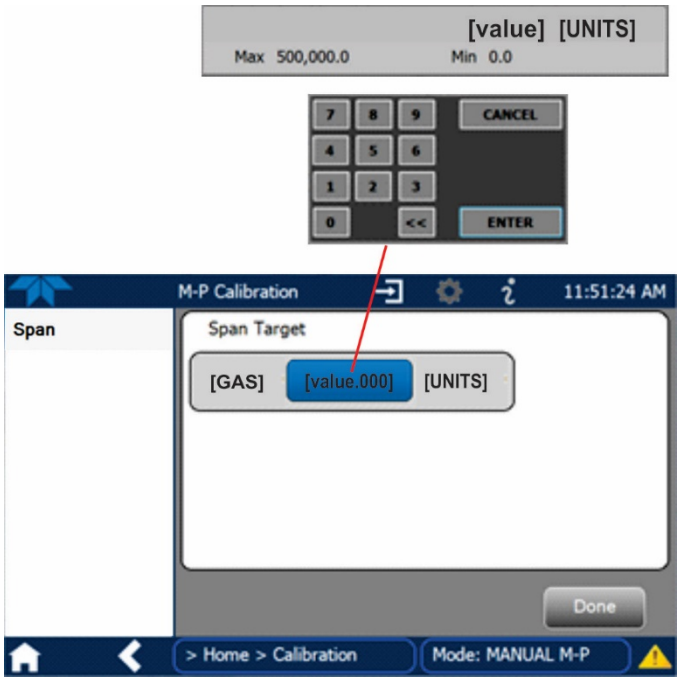


Figure 3-10. Editing Calibration Span Target

3.4.2. AUTOMATIC CALIBRATION (AUTOCAL) CONFIGURATION

This feature is available only with zero/span options installed, and is configured through the Setup>Auto Cal menu. The Auto Cal feature allows unattended periodic operation of the ZERO/SPAN valve options by using the instrument's internal time of day clock. Auto Cal operates by executing preprogrammed calibrations or calibration checks set up by the user to initiate the various calibration states of the analyzer and to open and close valves appropriately. It is possible to set up and run up to three separate preprogrammed calibrations or

calibration checks (labeled # **1**, **2** and **3**). Each calibration or check can operate in one of three modes (Zero, Low or High), or be disabled.

Table 3-1 and Table 3-2 show how to set up the operating states of each calibration or check, and Table 3-3 shows how to program the automatic execution of each.

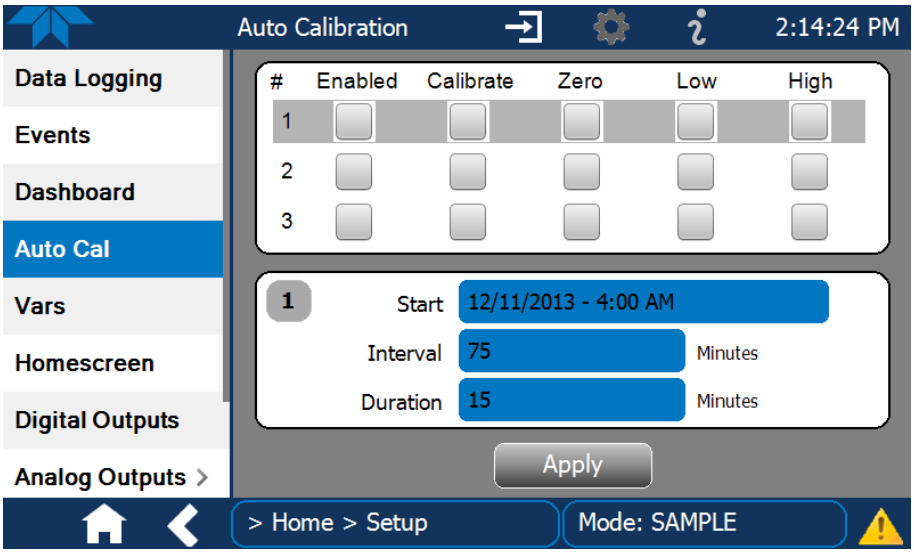


Figure 3-11. Auto Cal Page

Table 3-1. AUTO CAL States

MODE NAME	ACTION
Enabled	☑ enables the sequence; ☐ disables the sequence.
Calibrate	☑ enables an actual calibration when the Enabled box is also ☑. ☐ allows a calibration check when the Enabled box is also ☑.
Zero	☑ causes the sequence to perform a Zero calibration when both the Calibrate and Enabled boxes are also ☑. ☑ causes a Zero check when the Enabled box is also ☑ and the Calibrate box is unchecked (☐). ☐ disables Zero calibration and check
Low	☑ causes the sequence to perform a Low Span calibration when both the Calibrate and Enabled boxes are also ☑. ☑ causes a Low Span check when the Enabled box is also ☑ and the Calibrate box is unchecked (☐). ☐ disables Low Span calibration and check
High	☑ causes the sequence to perform a High Span concentration calibration when both the Calibrate and Enabled boxes are also ☑. ☑ causes a High Span check when the Enabled box is also ☑ and the Calibrate box is unchecked (☐). ☐ disables the High Span calibration and check.

Table 3-2 shows how the selection boxes would be enabled/disabled for calibration checks and calibrations.

Table 3-2. Auto Cal Setup Combinations

MODE	ACTION	STATE				
		Enabled	Calibrate	Zero	Low	High
Zero	Check	☑	☐	☑	☐	☐
	Calibrate	☑	☑	☑	☐	☐
Low	Check	☑	☐	☐	☑	☐
	Calibrate	☑	☑	☐	☑	☐
High	Check	☑	☐	☐	☐	☑
	Calibrate	☑	☑	☐	☐	☑
Zero Low High	Check	☑	☐	☑	☑	☑
	Calibrate	☑	☑	☑	☑	☑

For each sequence, there are four parameters that control operational details: Date, Time (both in the Start field), Interval, and Duration, as presented in Table 3-3.

Table 3-3. Auto Cal Programming Sequence Execution

ATTRIBUTE	ACTION
Start	When the Enabled box is "on" ☑, the Sequence (identified by its number) begins on the date and time shown in the configurable Start field. (Click the field for the pop-up window and toggle between the Time (Hour/Minutes) and the Date (Year/Month/Day) attributes to edit as needed).
Interval	Number of minutes to skip between each Sequence execution. (Click the field to input the number of minutes in the pop-up window).
Duration	Number of minutes that each Sequence execution is to run. (Click the field to input the number of minutes in the pop-up window).

Important

IMPACT ON READINGS OR DATA

- **The programmed STARTING_TIME must be a minimum of 5 minutes later than the real time clock. (Set real time clock through the Setup>Instrument menu).**
- **Avoid setting two or more sequences at the same time of the day.**
- **Any new sequence that is initiated from a timer, from the COM ports, or from the contact closure inputs will override any sequence that is in progress.**
- **Although it is permissible to run calibrations with the Internal Zero Span (IZS) valve option, it is recommended that calibrations be performed using external sources of Zero Air and Span Gas traceable to EPA standards.**

3.5. UTILITIES

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

3.5.1. DATALOG VIEW

The Datalog View tab displays a list of data logs that are configured in the Setup>Data Logging menu. From this list a log can be selected and filters applied to view the desired data. Refer to Section 3.6.1 for details of Data Logging.

3.5.2. ALERTS LOG

The Alerts Log (Figure 3-12 shows an example) displays a history of alerts that are triggered by factory-defined and user-defined Events, such as warnings and alarms. See Section 3.3 for details about the Alerts page and Section 3.6.2 for Events.

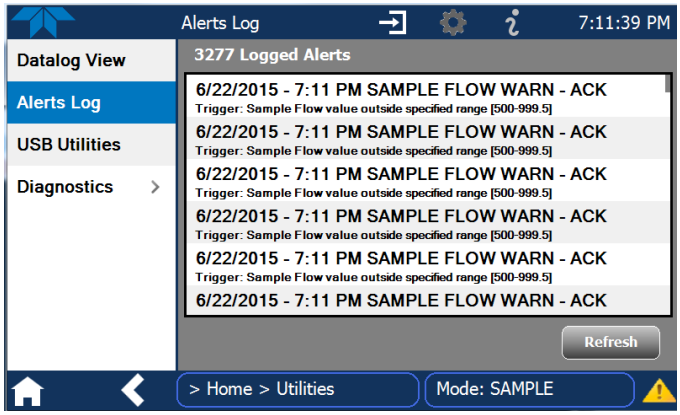


Figure 3-12. Alerts Log

3.5.3. **USB UTILITIES**

The USB Utilities page serves multiple purposes using a flash drive connected to the instrument's front panel USB port. The USB Utilities menu accommodates:

- updating firmware (Section 3.5.3.1).
- copying a configuration from one instrument to other same-model instruments (Section 3.5.3.2).
- downloading Data Acquisition System (DAS) data from the instrument to a flash drive (Section 3.5.3.3).
- downloading a report on the instrument's basic operation functionality (Section 3.5.3.4).

Figure 3-13. USB Utilities Pages

3.5.3.1. UPDATING FIRMWARE

An automatic weekly check for updates can be enabled in the Setup>Vars>Periodically Check for Updates menu, and/or a check for updates can be prompted at any time in the Setup>Instrument>Remote Update page. Downloading updates can be performed either remotely or manually.

Remote Updates

The instrument must be connected to a network that is connected to the Internet. In the Setup>Instrument menu, select the Remote Update menu and press the Check for Updates button. If an update is available, the Update button will be enabled.

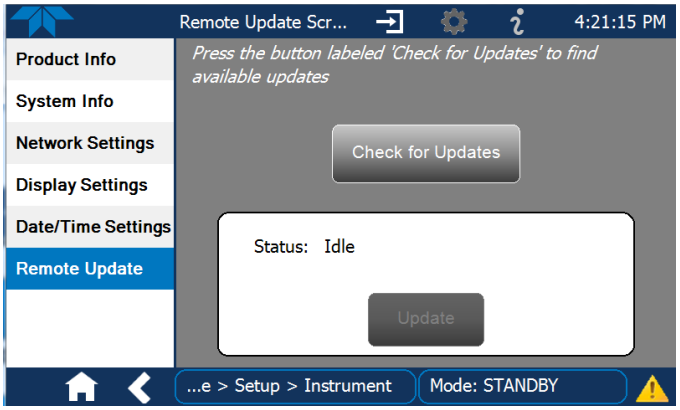


Figure 3-14. Remote Update Page

Manual Reload/Update Procedures

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

1. Follow Technical Support's instructions for copying the firmware files to a flash drive.
2. Go to the Utilities>USB Utilities>General menu.

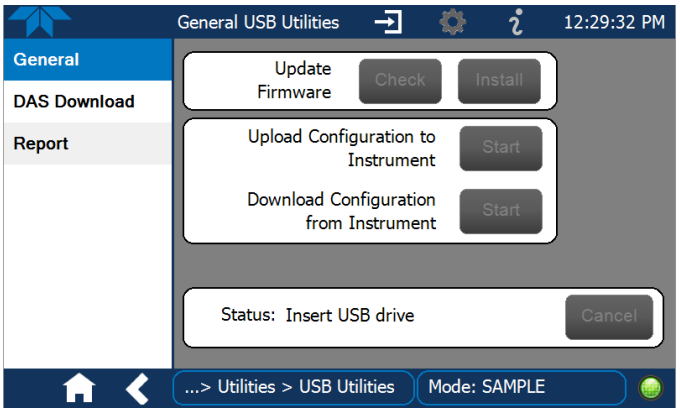


Figure 3-15. Manual Update Page (and other utilities)

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.
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, and note the messages in the Status field at the bottom of the page. Use the Cancel button if necessary.
6. When complete, as indicated in the Status field, press the Done button, which replaces the Cancel button, and remove the flash drive.
7. Power off and restart the instrument to complete the new firmware installation.

3.5.3.2. TRANSFERRING CONFIGURATION TO OTHER INSTRUMENTS

Once an instrument is configured, the same configuration can be copied to other instruments of the same Model. This encompasses essentially anything the user can configure and does not apply to instrument-specific settings such as those that are configured at the factory for calibration.

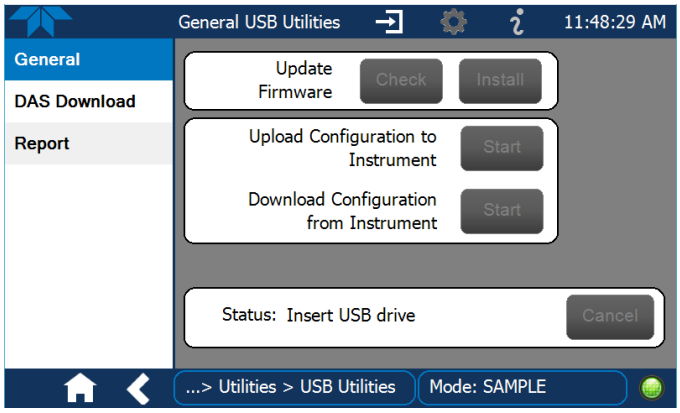


Figure 3-16. Configuration Transfer

1. In the source instrument, go to the Home>Utilities>USB Utilities>General page.
2. Insert a flash drive into either of the two front panel USB ports.
3. When the Status field indicates that the USB drive has been detected, press the “Download Configuration from Instrument” Start button.
4. When the Status field indicates that the download is complete, remove the flash drive.
5. In the target instrument, go to the Home>Utilities>USB Utilities>General page.
6. Insert a flash drive into either of the two front panel USB ports.
7. When the Status field indicates that the USB drive has been detected, press the “Upload Configuration to Instrument” Start button.
8. When the Status field indicates that the upload is complete, remove the flash drive.

3.5.3.3. DOWNLOADING DAS DATA

From the Utilities>USB Utilities>DAS Download menu 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).

1. Insert a flash drive into a front panel USB port and wait for the Status field to indicate that the drive has been detected; available buttons will be enabled.

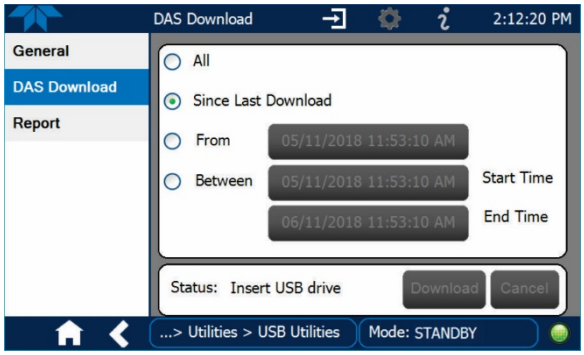


Figure 3-17. DAS Download Page

2. Select all or define a period from which to download the collected data.
3. Press the Download button, and when complete, as indicated in the Status field, press the Done button (changed from "Cancel") and remove the flash drive.

3.5.3.4. OPERATIONAL HEALTH CHECKS: DOWNLOADING REPORTS

Navigate to the Utilities>USB Utilities>Report menu (Figure 3-18) to download a report on the basic operations of the instrument. The report is generated every 24 hours to a Web services "cloud" where it is available for viewing by Teledyne API technical support personnel. To download the report for your own viewing on a computer or to send to others, insert a flash drive into a front panel USB port and press the Download button, which is enabled when the instrument detects the flash drive.

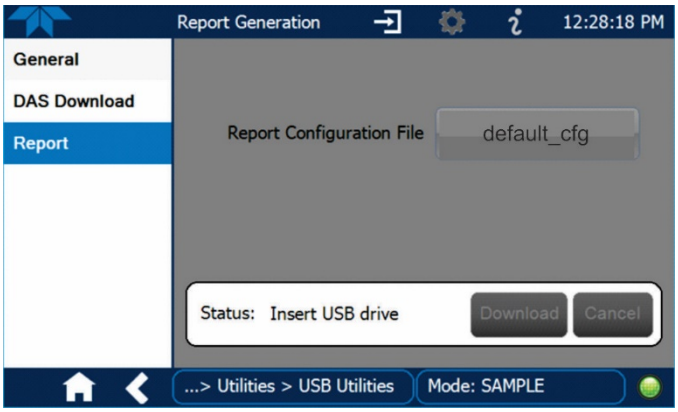
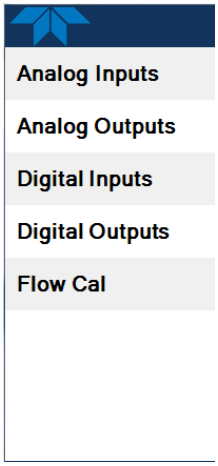


Figure 3-18: Report Generation Page

3.5.4. DIAGNOSTICS

The basic Diagnostics tab provides access to analog and digital inputs and outputs, and to the Flow calibration menu. Other diagnostic tools may be available depending on components and options installed. The interface for each menu item is self-explanatory. Consult the instrument user manual for their applications and uses.



3.5.4.1. ANALOG INPUTS

Described in Table 2-1 in this addendum, consult the instrument user manual for the rear panel Analog In connection details.

3.5.4.2. ANALOG OUTPUTS

See description in Table 2-1 in this addendum and Setup>Analog Outputs also in this addendum (Section 3.6.7); consult the instrument user manual for connection details.

3.5.4.3. DIGITAL INPUTS

See description in Table 2-1 in this addendum, and consult the instrument user manual for the rear panel Control In connector details and Control Input information.

3.5.4.4. DIGITAL OUTPUTS

See description in Table 2-1 in this addendum and Setup>Digital Outputs also in this addendum (Section 3.6.6); consult the instrument user manual for rear panel Status connector details and status signals information.

3.5.4.5. FLOW CAL

Although this is a calibration function, checking and calibrating the flow are chiefly used for diagnostic purposes. Table 2-1 in this addendum provides a description of the Flow Cal function; the instrument user manual provides details.

3.6. SETUP

The Setup menu is used to configure the instrument's software features, to gather information on the instrument's performance, and to configure and access data from the Datalogger, the instrument's internal data acquisition system (DAS). Once Setup is complete, the saved configurations can be downloaded to a USB drive and uploaded to other instruments of the same model (Utilities>USB Utilities>General, Section 3.5.3.2).

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 configured through their respective Setup menus.

3.6.1. SETUP>DATA LOGGING

The Data Logger is the counterpart to the legacy T-Series Data Acquisition System (DAS); consult the instrument user manual for DAS details). The Data Logger includes a new trigger type called Conditional to 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 3-19), or select an existing log from the Data Logging list and press the EDIT or DELETE button to make the desired changes (Figure 3-20).

See Sections 3.6.1.1 and 3.6.1.2 for configuration details.

See Section 3.5.3.3 for downloading captured DAS data from the instrument to a flash drive.

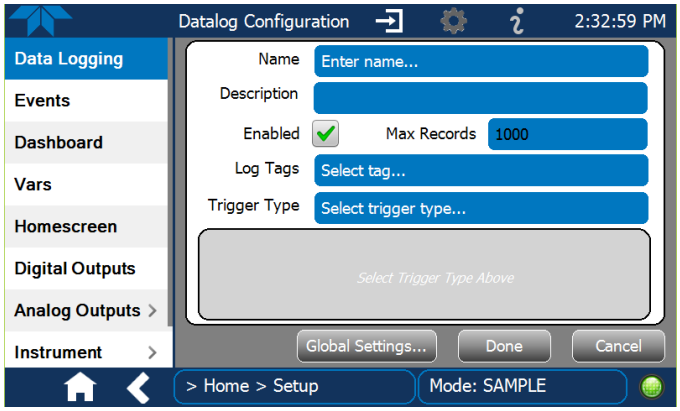


Figure 3-19. Datalog Configuration, New Log Page

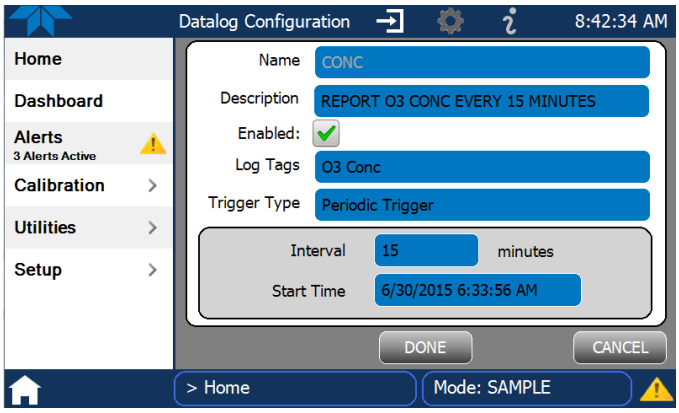


Figure 3-20. Datalog Configuration, Editing an Existing Log

3.6.1.1. CREATING A USER-DEFINED DATA LOG

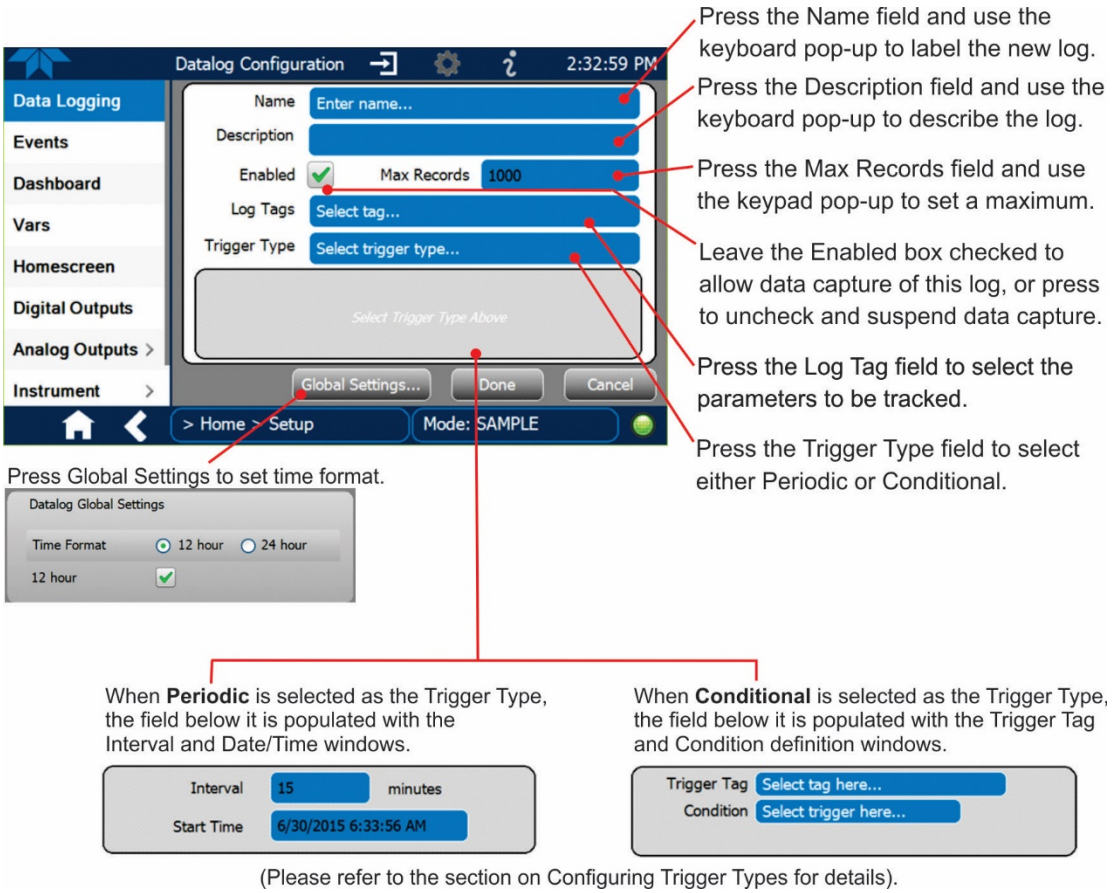


Figure 3-21. Datalog Configuration

3.6.1.2. CONFIGURING TRIGGER TYPES

Currently, there are two trigger types: Periodic Trigger and Conditional Trigger.

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.

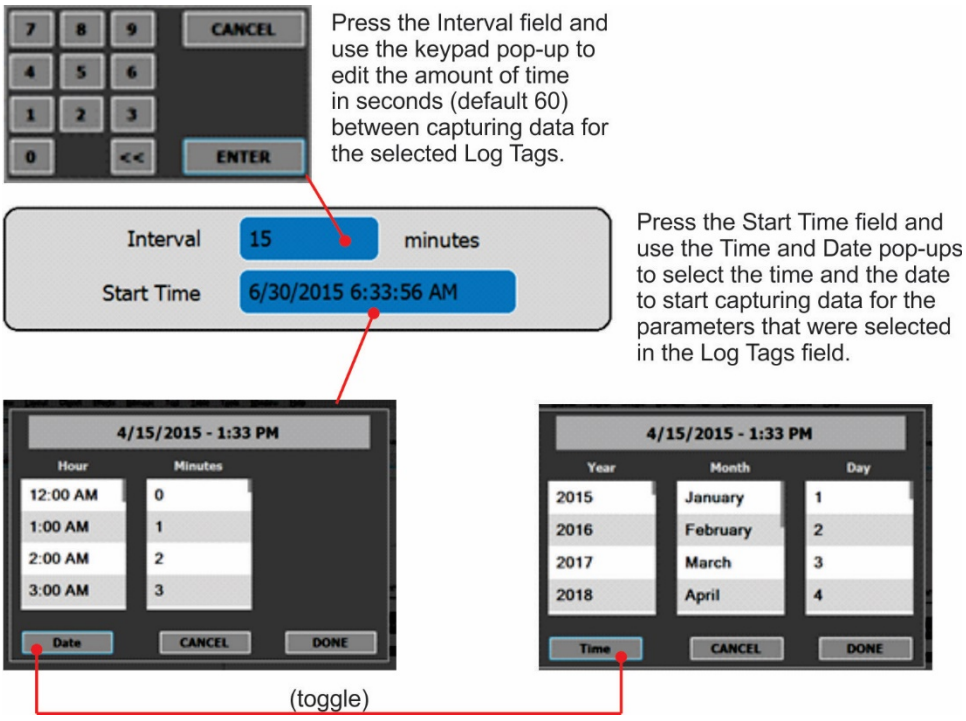


Figure 3-22. Datalog Periodic Trigger Configuration

Conditional Trigger

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

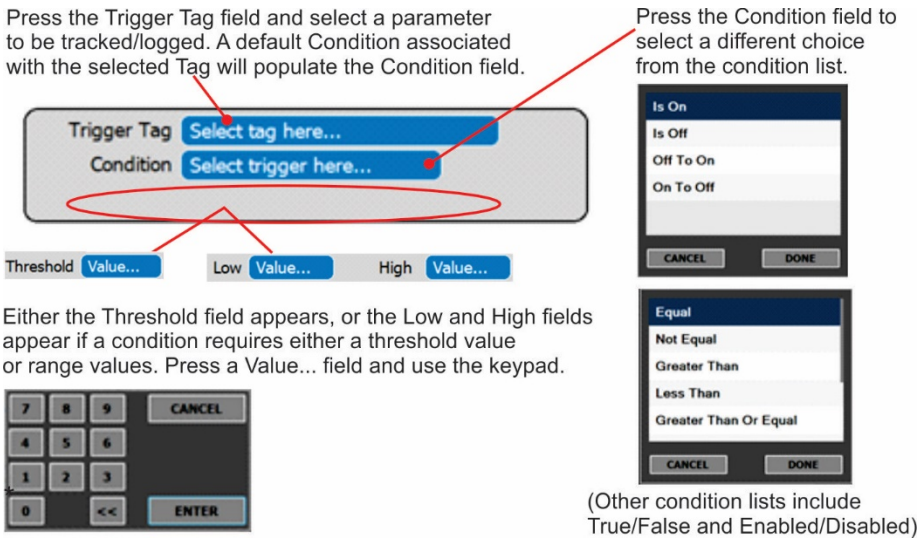


Figure 3-23. Datalog - Conditional Trigger Configuration

3.6.2. EVENTS

Events are occurrences that relate to any operating function, and will trigger Alerts (Section 3.3). Events can provide diagnostic information about the instrument, typically referred to as "Warnings", or they can provide other information on instrument functionality, such as concentration alarms. Some Events are standard and not editable while others are user-configurable; creating and editing user-defined events are depicted next.

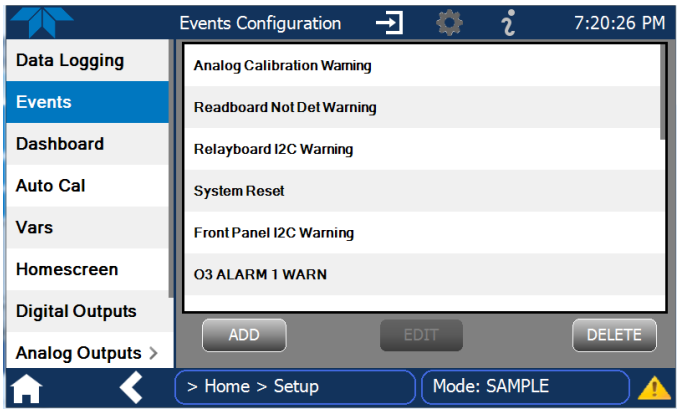


Figure 3-24. Sample Events List

3.6.2.1. CREATING USER-DEFINED EVENTS

In the Home>Setup>Events menu (Figure 3-24) press ADD to create a new Event. Figure 3-25 depicts configuration of Event components. The check boxes for Enabled, Visible, and Latching are described below, followed by an example illustration (Figure 3-26) of a configured Event.

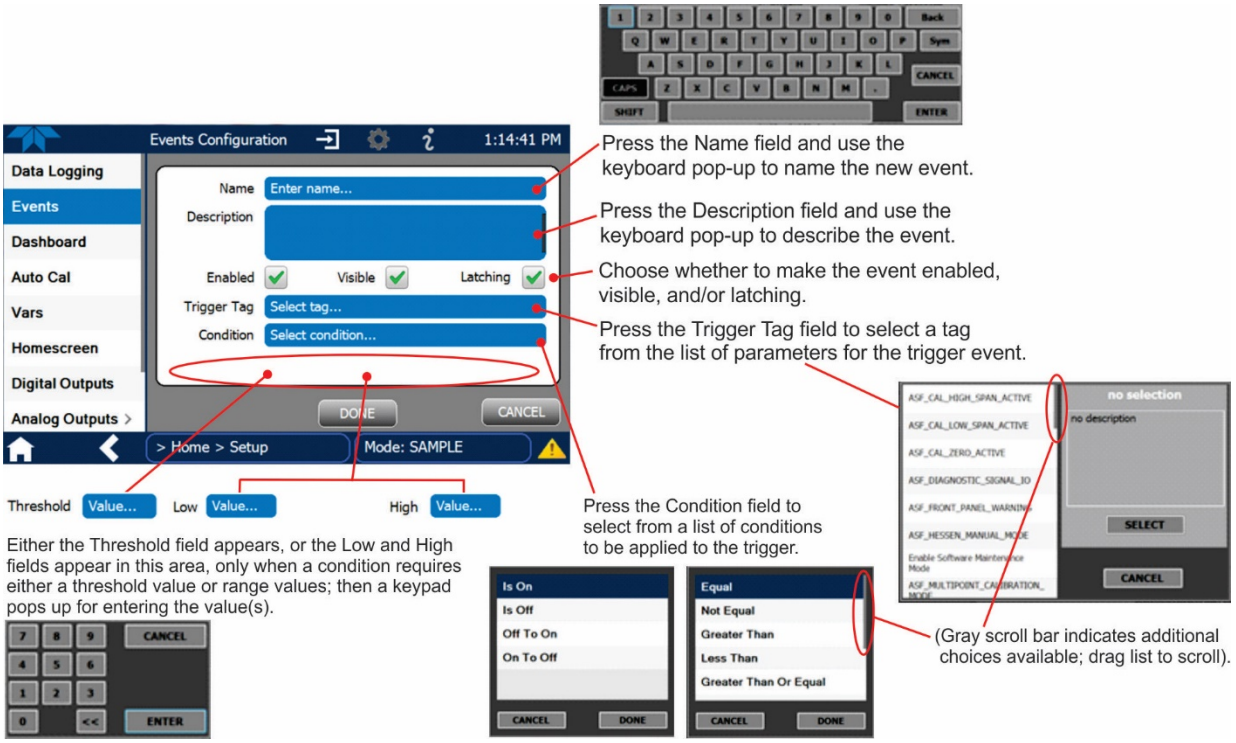


Figure 3-25. Event Configuration

- Enabled allows the choice of whether to track and record the Event (uncheck this box to “turn off” or deactivate the Event without deleting it). An Event must be enabled in order to use the Visible and the Latching options.
- Visible allows the choice of whether or not to display the Event in the Alerts page when it is triggered (it will still be recorded and can be viewed in the Utilities>Alerts Log).To use this option, the Event must be enabled.
- Latching allows the choice of whether or not to keep an Event visible even if the conditions that triggered it were to correct themselves. (Latching requires that the user interact with the Active Alerts screen to manually clear the Alert and internal Event state. Non-latching allows the entry in the Active Alerts screen and the internal Event state to continuously update based on the Event criteria, requiring no user interaction to clear the Alert or Event state).

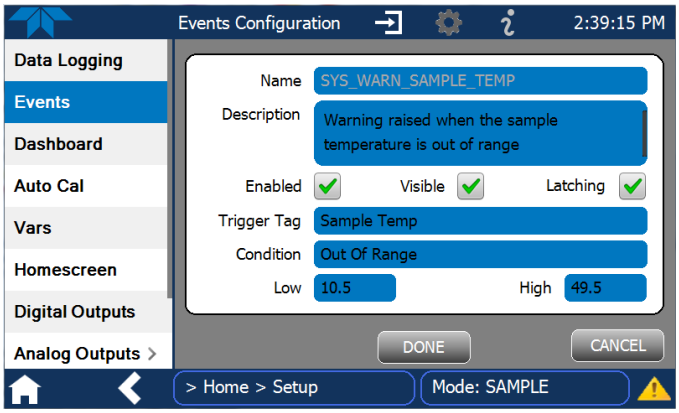


Figure 3-26. Configured Event Example

3.6.2.2. EDITING OR DELETING EVENTS

Select an Event from the list (Figure 3-24) and press the Edit button to view or edit the details (Figure 3-27). To delete an Event, select the Event from the list and press the Delete button.

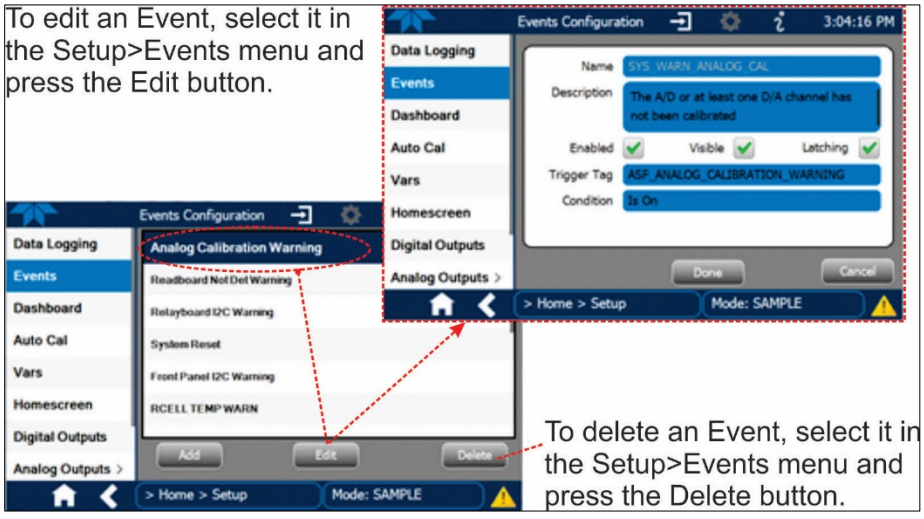


Figure 3-27. Edit or Delete an Event

3.6.3. SETUP>DASHBOARD

Dashboard description and configuration details are presented in Section 3.2

3.6.4. SETUP>VARS (VARIABLES)

Vars are software variables that define operational parameters automatically set by the instrument's firmware, and are user-adjustable through this menu (Figure 3-28). Access the menu to see the list of variables (Table 3-4 lists and describes some of the common Vars); select a variable to view its description; touch the Edit button to change its setting(s).

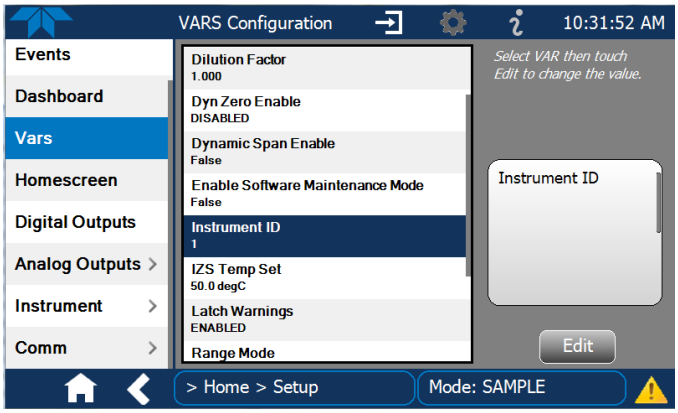


Figure 3-28. VARS Configuration Page

Table 3-4. Common Variables with Descriptions

VARIABLE	DESCRIPTION
NOTE: This list includes several of the most common Vars; selecting any Var in the NumaView™ software interface will display its description in the information field to its right. Depending on configuration, some, all, or more of these variables appear in your instrument's Vars menu.	
Conc Precision	Sets the number of significant digits to the right of the decimal point display of concentration and stability values.
Daylight Savings Enable	Enable or disable Daylight Savings Time (also see Setup>Instrument>Date/Time Settings).
Dilution Factor	Used with Dilution Factor Enable option; default is set to a gain of 1.000
Dilution Factor Enable	Sets the instrument to compensate for diluted sample gas, such as in continuous emission monitoring (CEM) where the quality of gas in a smoke stack is being tested and the sampling method used to remove the gas from the stack dilutes the gas. Once the degree of dilution is known, this feature allows the user to add an appropriate scaling factor to the analyzer's gas concentration calculations so that the undiluted values for measurement range and concentration are shown on the instrument's front panel display and reported via the instrument's various outputs. 1. Set the appropriate units of measure (Setup>Vars>User Units). 2. Select the reporting range mode (Setup>Vars>Range Mode). 3. Set the reporting range upper limit (Setup>Analog Output). Ensure that the upper span limit entered for the reporting range is the maximum expected concentration. Do this for each gas if more than one gas. 4. Set the dilution factor (Setup>Vars>Dilution Factor). Example setting: a value of 20 means 20 parts diluent and 1 part sample gas. 5. Calibrate the analyzer; ensure that the calibration span gas is either supplied through the same dilution system as the sample gas or has an appropriately lower actual concentration.
Dyn Zero Enable	Dynamic zero automatically adjusts offset and slope of the gas response when performing a zero point calibration during an AutoCal.
Dynamic Span Enable	Dynamic span automatically adjusts the offsets and slopes of the gas response when performing a span point calibration during an AutoCal.
Enable Software Maintenance Mode	Set instrument to continue sampling, while ignoring calibration, diagnostic, and reset instrument commands. This feature is of particular use for instruments connected to Multidrop or Hessen protocol networks.
Instrument ID	Set unique identifier number for the instrument when it is connected with other instruments in multidrop configuration or on the same Ethernet LAN, or when applying MODBUS or Hessen protocols. (Setup>Vars>Instrument ID)
Max Concentration Range	Set the highest concentration expected, as this is used by the CPU to adjust Preamp physical ranges.
Measure Mode	Selects the gas measurement mode in which the instrument is to operate.
Range Mode	Controls range mode, single (SNGL) or dual (DUAL). (When set to DUAL, ensure that Max Concentration Range has been set).
System Hours	Total system runtime hours
TPC Enable	Enables or disables the Temperature and Pressure Compensation (TPC) feature. (Refer to the respective operation manual for information on TPC).
User Units	Change the concentration units of measure.

3.6.5. SETUP>HOMESCREEN

Homescreen description and configuration details are presented in Section 3.1.

3.6.6. SETUP>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 3.6.2).

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).

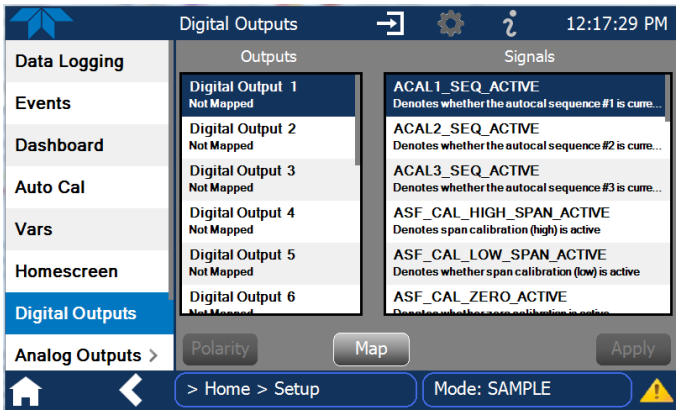


Figure 3-29. Digital Outputs Setup

3.6.7. SETUP>ANALOG OUTPUTS

Analog Outputs is a new feature that can be configured by mapping the output to a wide variety of "Signals" present in the instrument.

The Setup>Analog Outputs menu provides a choice among four analog outputs and an analog output calibration (Figure 3-30).

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

Figure 3-30. Analog Output Configuration Example

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

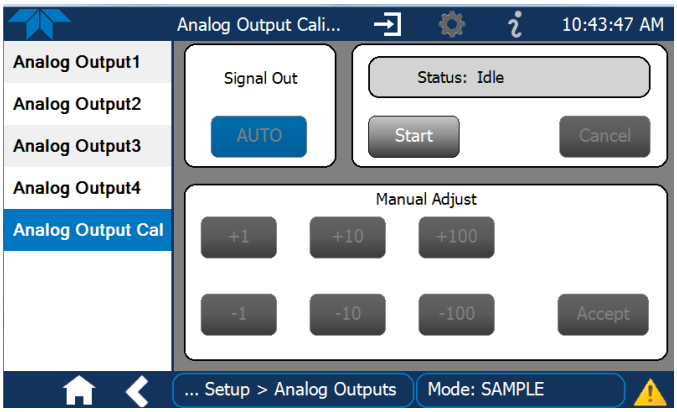


Figure 3-31. Analog Outputs Group Calibration Screen

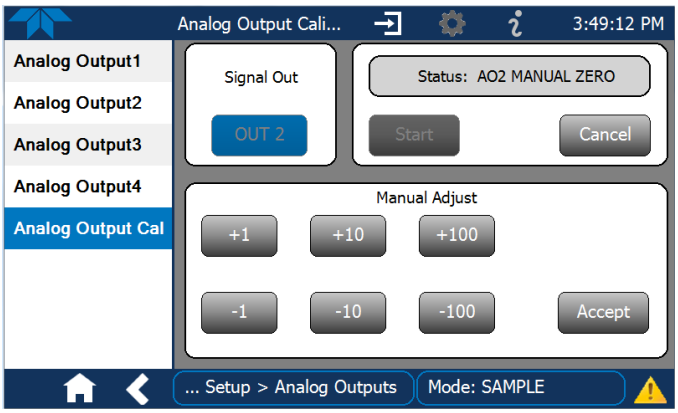


Figure 3-32. Analog Outputs Manual Calibration Screen (AOUT2 Example)

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.

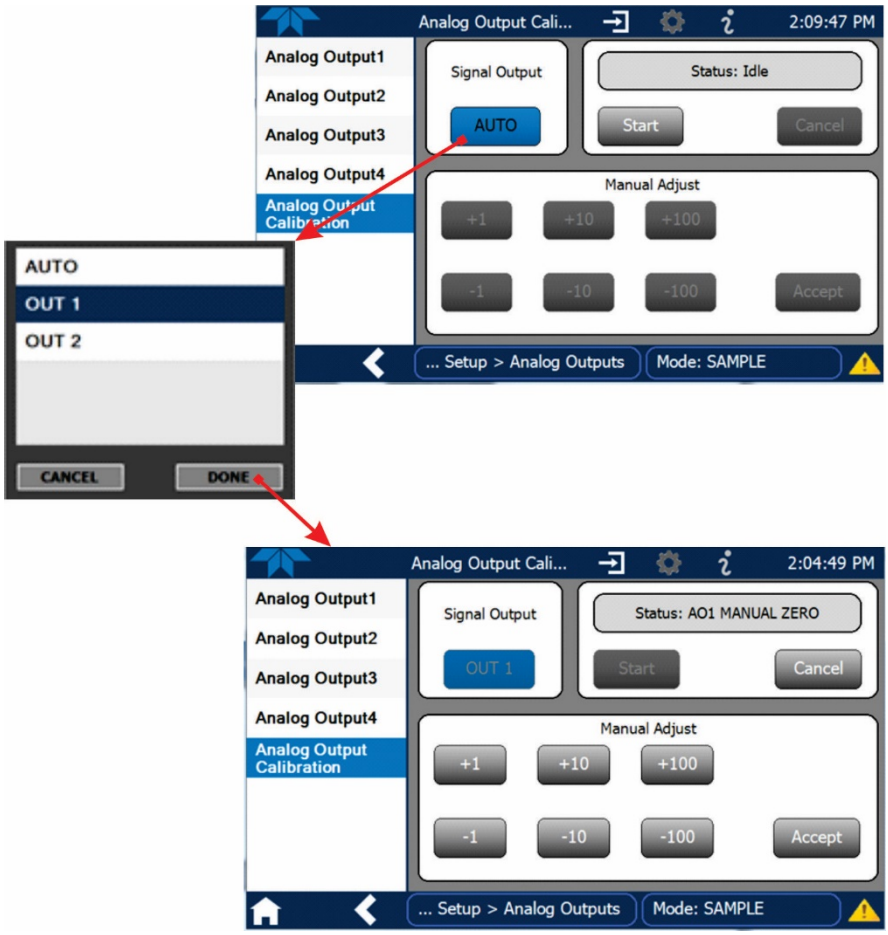


Figure 3-33. Analog Output Manual Calibration Page

3.6.8. SETUP>INSTRUMENT

The Instrument menu provides product information and configurable instrument settings.

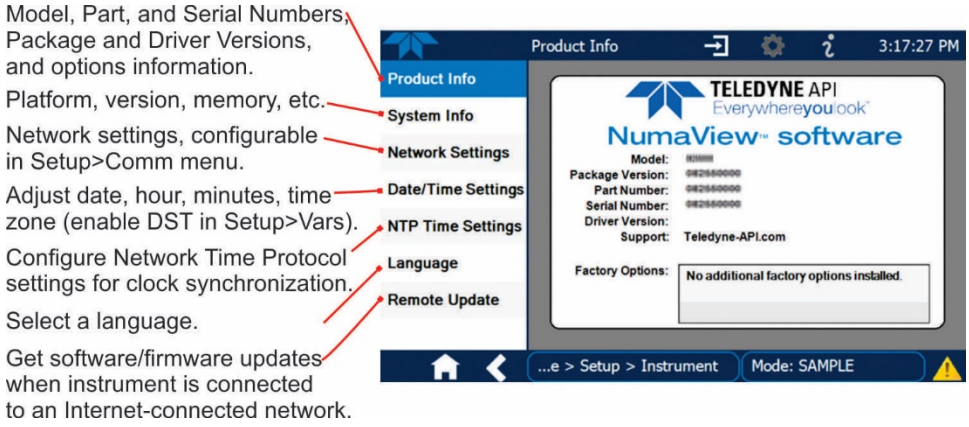


Figure 3-34. Setup>Instrument Menu

3.6.8.1. 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.

Note that if the Time Zone requires change, it must be set first, and the instrument must be restarted before making any other changes, including date or time, to ensure changes are not lost.

Important

IMPACT ON TIME ZONE

If the instrument is restarted without allowing adequate time for a Time Zone change to be accepted, the change will be lost. Verify the change by returning to Home page, then navigating back to the Date/Time Settings; if the selected Time Zone is highlighted, then the change is set for taking effect after the instrument is restarted.

Changes to date and/or time do not require a reboot.

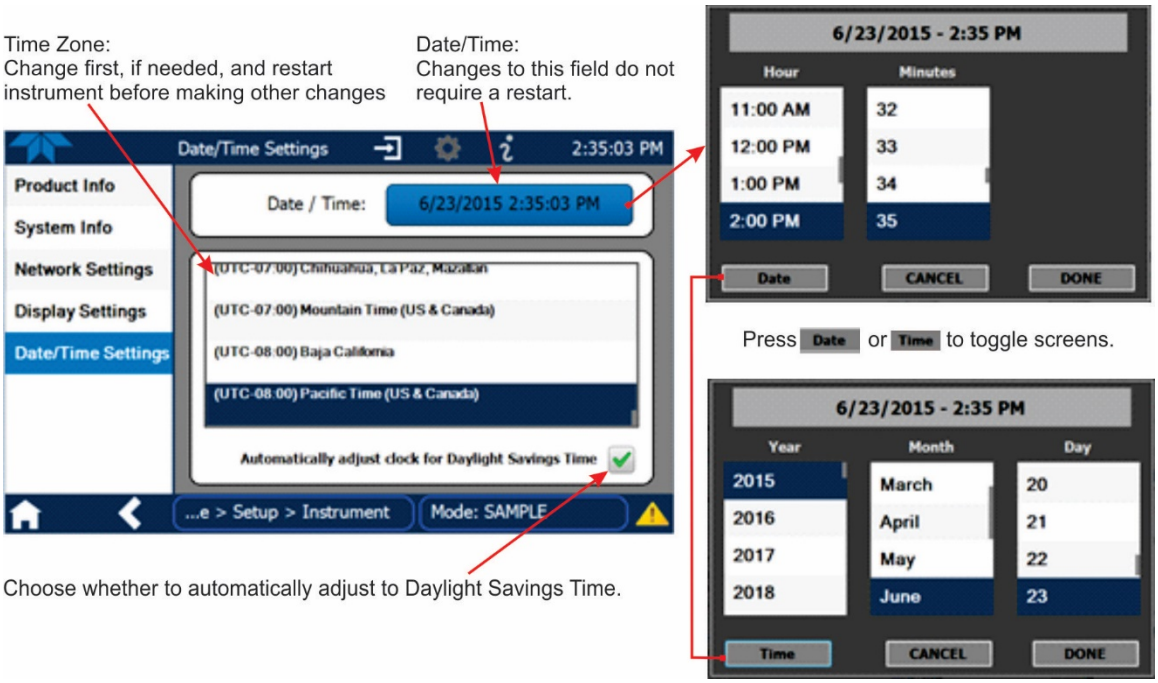


Figure 3-35. Date and Time Configuration Page

3.6.8.2. TOUCHSCREEN CALIBRATION (FOR EARLIER INSTRUMENTS)

These instructions apply only to instruments shipped before January 2017.

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

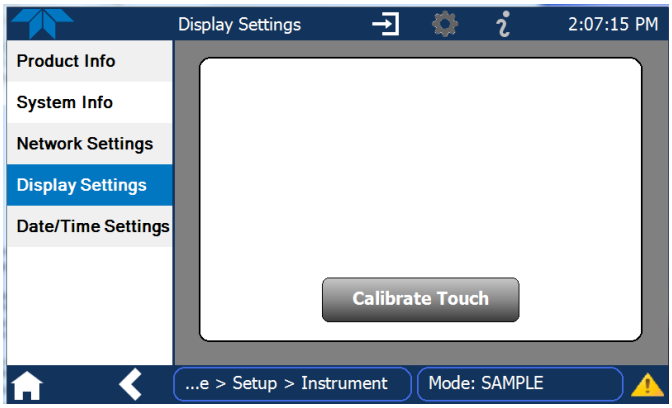


Figure 3-36. Touchscreen Calibration Page

1. Connect a mouse to either of the front panel USB ports.
2. Navigate with the pointer to Setup>Instrument>Display Settings.
3. Click on “Calibrate Touch” and a crosshair appears in the center of the display screen.

   Note that a timer function is enabled, allowing only 15 seconds to start the calibration process. If the timer expires, the instrument will exit the calibration screen and return to normal operation.

4. Click the very center of the crosshair.
5. When a new crosshair appears in the upper left corner of the screen, carefully and accurately click and hold the very center of that crosshair until it finishes shrinking, then release.
6. Repeat Step 5 for each of the corners.
7. 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.
8. 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:

api-techsupport@teledyne.com / 800-324-5190

3.6.9. SETUP>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.

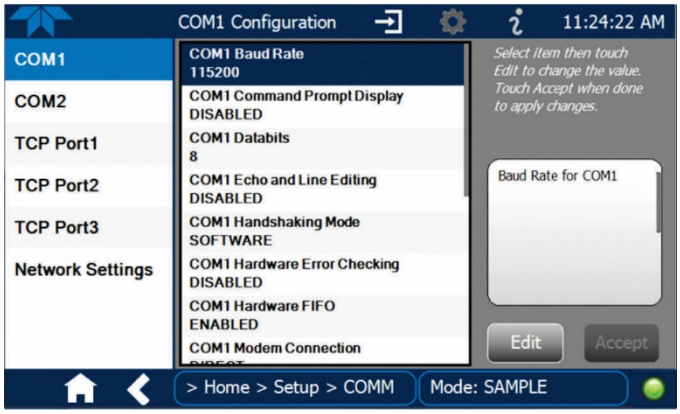


Figure 3-37. Communications Configuration Menus

Note that the choices for COM1 and COM2 protocol appear in a pop-up as shown in Figure 3-38.

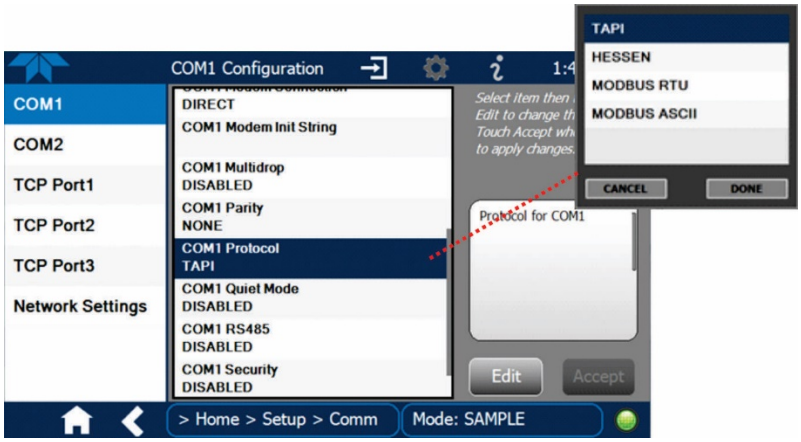


Figure 3-38. COM1 and COM2 Protocol Selection

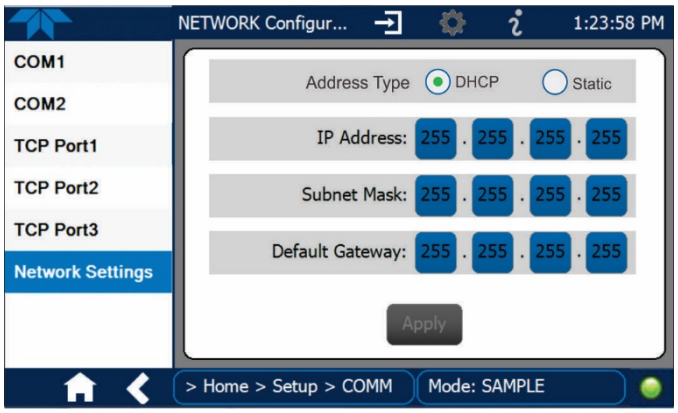


Figure 3-39. Network Configuration Page

4. SOFTWARE/FIRMWARE UPDATES

It is possible to check for firmware updates, reload current firmware, and to update firmware remotely. These operations are carried out through either the Setup>Instrument>Remote Update menu or through the Utilities>USB Utilities>General menu. Instructions are provided in Section 3.5.3.1. An automatic weekly check for updates can be enabled in the Setup>Vars>Periodically Check for Updates menu.

5. QUICK REFERENCE MENU STRUCTURE

This section provides a high-level breakout of the NumaView™ software interface menu structure; their descriptions are presented in Table 2-1. Submenus specific to instrument models and their options are not shown here, but are typically included in the respective 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 Diagnostics)

Setup
- Data Logging
- Events
- Dashboard
- Auto Cal
- Vars (Table 3-4 describes some of the more common 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
  - Date/Time Settings
  - NTP Time Settings
  - Language
  - Remote Update
- Comm
  - COM1
  - COM2
  - TCP Port1
  - TCP Port2
  - TCP Port3
  - Network Settings

6. INTERFACES: MAPPING T-SERIES LEGACY-TO-NUMAVIEW™ SOFTWARE

As first shipped from the factory, the instrument initially boots to the NumaView™ software interface (see Figure 6-1 and Figure 6-2) and can easily be switched to the T-Series legacy software interface (see Figure 6-3) at any time (see Section 6.1).

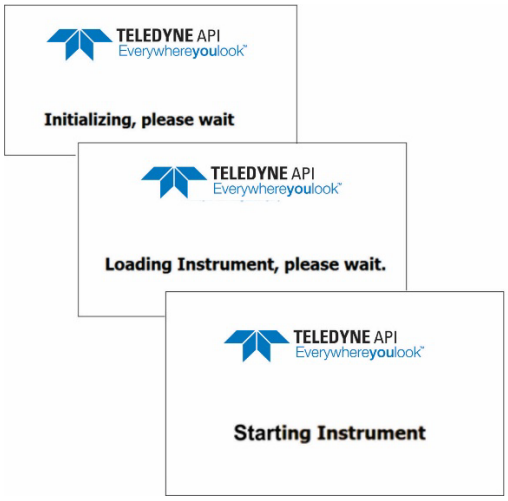


Figure 6-1. NumaView™ Software Status Screens at Startup

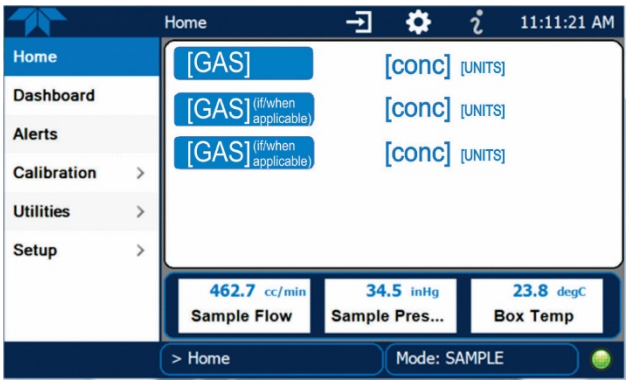


Figure 6-2. Model of NumaView™ Software Home Page

Figure 6-3. Model of Legacy Home Page

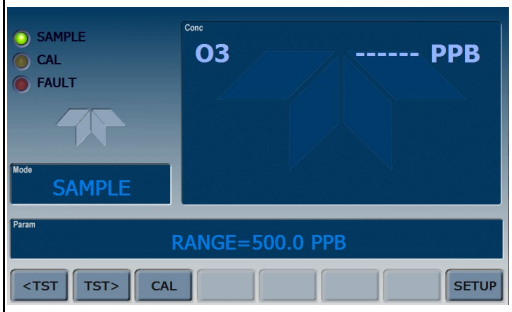
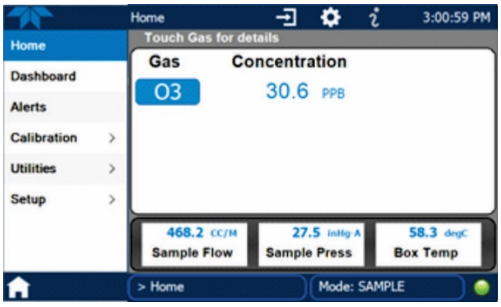
6.1. SWITCHING BETWEEN INTERFACES

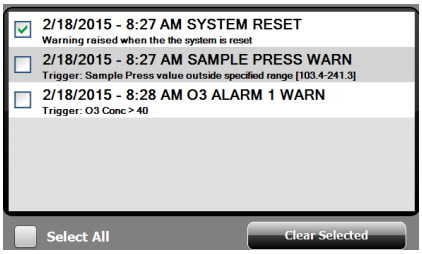
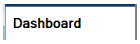
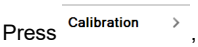
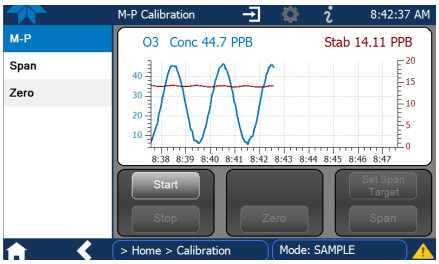
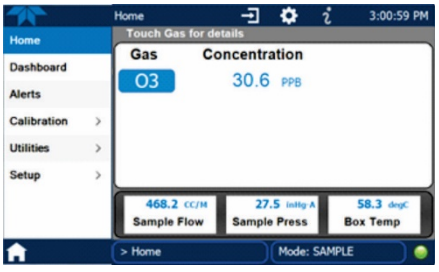
To switch between interfaces, connect a personal computer standard USB keyboard to a front panel USB port, and power-cycle the instrument while doing one of the following:

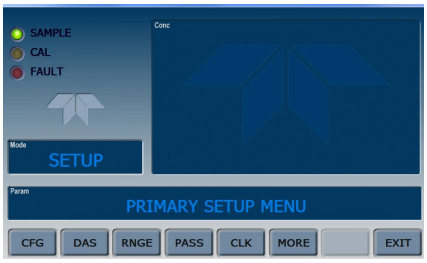
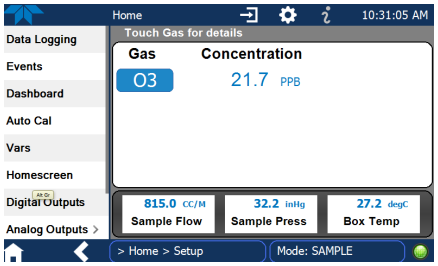
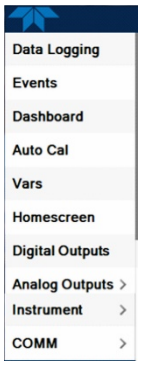
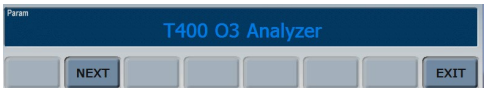
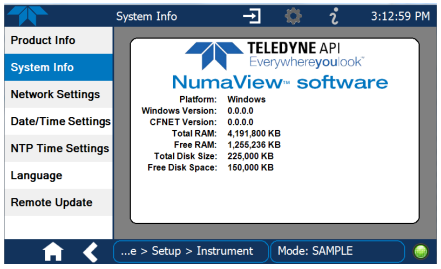
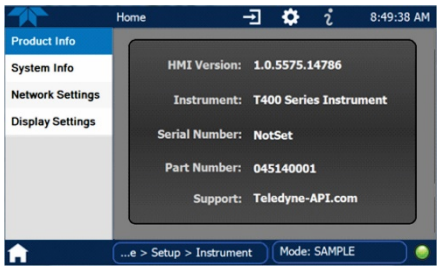
- Hold the “n” key during power-on to boot to the NumaView™ software.
- Hold the “t” key during power-on to boot to the legacy T-Series software.
- Powering on without holding any key boots to the software that was in use prior to last power-off.

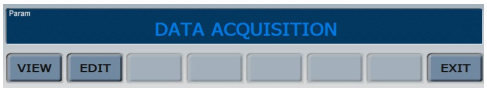
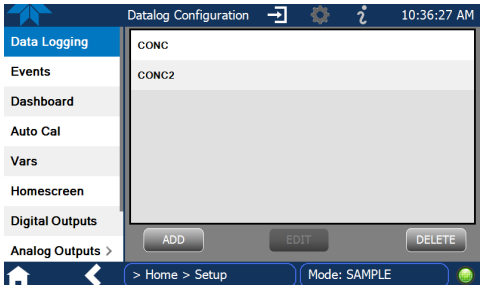
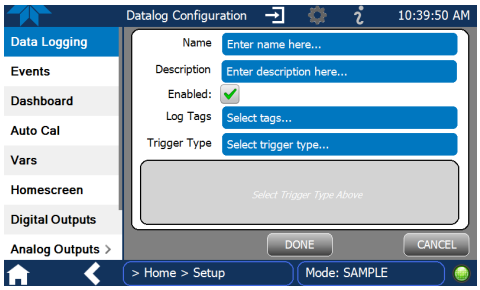
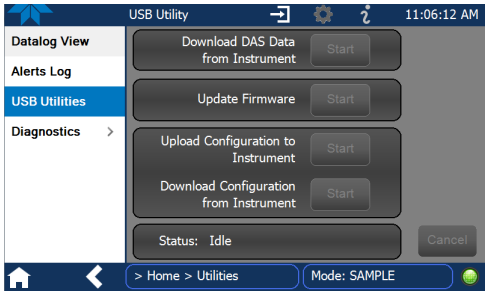
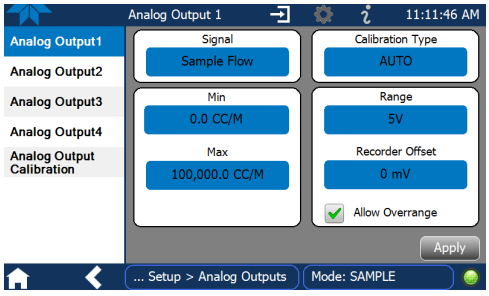
6.2. DUAL INTERFACE MAP

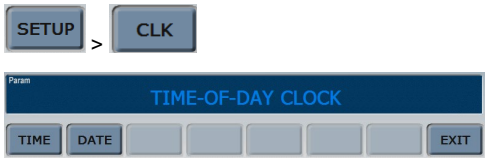
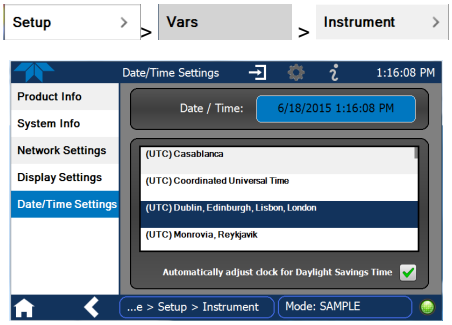
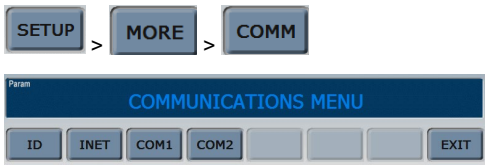
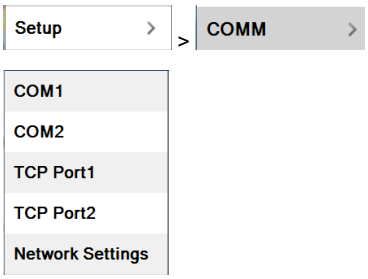
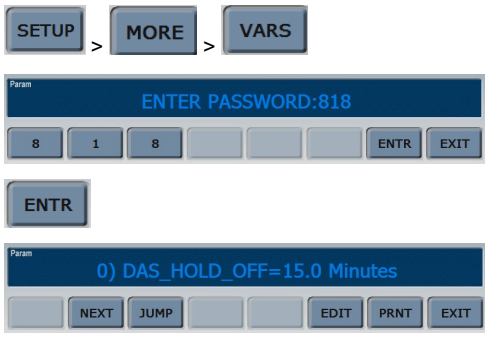
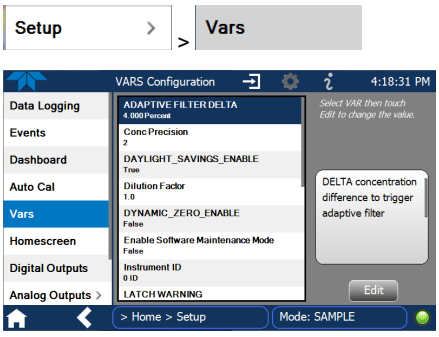
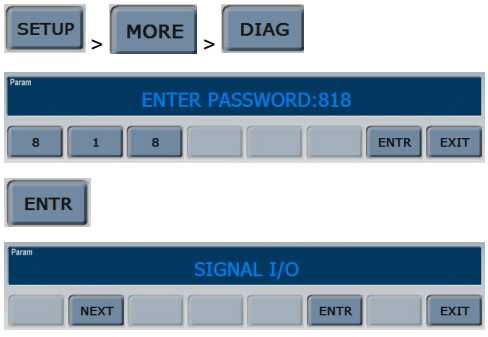
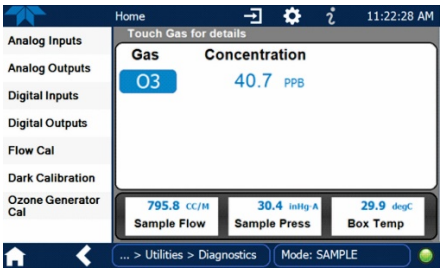
The following table provides a high-level comparison of the two interfaces.

Component	T-Series Legacy Software Interface	NumaView™ Software Interface
Home Page, Sample Mode		
Navigation	Press the Setup button to go the Primary Setup Menu. Press the More button to go to the Secondary Setup Menu. Press the EXIT button 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:

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 “” for details)

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  (instruments shipped prior to January 2017): 

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.

Component	T-Series Legacy Software Interface	NumaView™ Software Interface
CLK Configure clock: time and date		
COMM Configure external communi-cation		 See “” for details.
VARS System configuration variables		
DIAG System diagnostic features and analog output configuration		Utilities > Diagnostics (Diagnostics menu appears in the sidebar, while current display remains until a diagnostics parameter is selected).