



NumaView[™] Software

Addendum to T-Series Calibrator Manuals

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1. INTRODUCTION

This addendum is intended to provide an orientation to the Teledyne API NumaViewTM 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 except in some instruments (not new models), when first powered on, it performs a dual boot-up that allows a choice to switch between the T-Series legacy software interface and the NumaViewTM software interface. The default initial boot displays the NumaViewTM 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, "NumaViewTM 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, "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-NumaViewTM 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 1) and a high-level description of the menus (Table 2-1)."



Figure 1. User Interface Orientation



(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.

MENU		DESCRIPTION LOCATION				
Home	View and plot	View and plot concentration readings and selectable meter readings.				
Dashboard	View user-sele displayed in a	View user-selected parameters and their readings, some of which can be displayed in a live-plot graph.				
Alerts	View and clea well as user-d Utilities>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).				
Generate	Generate calik menu; perform created in Set	Senerate calibration gas mixtures configured in the Setup>Gas>Cylinder menu; perform gas phase titration (GPT) calibrations; execute sequences created in Setup>Sequences, and Levels created in Setup>Levels.Section 3.4				
Utilities	View logs, dov instruments, a	wnload data and f Ind run diagnostic	irmware updates, copy configurations between s.	Section 3.5		
	Datalog View	Displays the dat Logging menu. applied to view	ta logs that were configured via the Setup>Data From this list a log can be selected and filters the desired data.	Section 3.5.1		
	Alerts Log	Displays a histo defined and use (See Section 3.0	ry of Alert messages triggered by factory- er-defined Events, such as warnings and alarms 6.2 for Events configuration).	Section3.5.2		
	USB Utilities USB Utilities Serves multiple instrument's fro • download da (DAS), the D • update firmw • transfer instr		purposes using a flash drive connected to the nt panel USB port: ata from instrument's Data Acquisition System tata Logger, to a flash drive (Section 3.5.3.1) vare (Section 6) ument configuration from/to other instruments of del (Section 3.5.3.3)	Section 3.5.3		
	Diagnostics	Provides access	s to various pages that facilitate troubleshooting.	Section 3.5.4		
	Analog Inputs		This page shows voltage signals of several analog input parameters, including those from other instrumentation when the External Analog Inputs Option is installed.	Section 3.5.4.1		
	Analog Outputs		Shows voltage signals for three "fixed" functions and one configured function (Setup>Analog Outputs, Section 3.6.9).	Section 3.5.4.2		
	Digital Inputs		Shows whether specific available Signal In features are active (ON) or inactive (OFF).	Section 3.5.4.3		
	Digital Outputs		Activate (ON)/deactivate (OFF) user-specified Signal Out features (configured in the Setup>Digital Outputs menu, Section 3.6.6).	Section 3.5.4.4		
	Diluent MFC Cfg		Set the capacity of the diluent mass flow controller and/or adjust flow linearization.	Section 3.5.4.5		
	CAL1 MFC Cfg		Set the capacity of the calibration gas mass flow controller and/or adjust flow linearization.	Section 3.5.4.6		
		Auto Leak Check	Perform an automatic pressure leak check	Section 3.5.4.7		
	Pressure Cal Calibrate pressure of Cal Gas and/or Diluent Section 3.5.4.8					
(Other Diagnostics tools may be available depending on instrument and options).						

Table 2-1. Menu Overview



MENU		DESCRIPTION			
Setup	Configure a v customized o	Configure a variety of features and functions through these submenus for customized operation.			
	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 and downloaded to a flash drive via the Utilities>USB Utilities menu (Section 3.5.3.1). 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.	Section 3.6.2		
	Dashboard	Monitor instrument functionality (Section 3.2) via selectable parameters.	Section 3.6.3		
Vars Homescreen		Manually adjust several software variables that define specific operational parameters.	Section 3.6.4		
		Configure the parameters to be displayed in the three meters (Section 3.1.1 and Figure 3-1).	Section 3.6.5		
	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		
	Sequences	Create new or edit existing executable calibration sequences and the steps within the sequences.	Section 3.6.7		
	Levels	Create individual flow and concentration outputs for LEADS.	Section 3.6.8		
	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 3.6.9		
	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 3.6.10.1		
	Comm	View and configure network and serial communications.	Section 3.6.11		
	Gas	Configure cylinder ports for the component gases being used.	Section 3.6.12		



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

Figure 1 in the preceding section presented an orientation to the main display screen. Figure 2 shows that pressing a gas name or its concentration value or a meter below the concentration display, plots a live graph of their respective readings. (Note that not all dashboard items can be plotted). Other parameters can be selected for display in the meters; see Section 3.6.5 for configuration details.



Figure 2. Home Page Description



3.2. DASHBOARD

The dashboard displays an array of user-selected parameters and their values (Figure 4). 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 5. Depending on the number of available parameters selected, the Dashboard can have more than one page. See Section 3.6.3. for configuration details.

		Dashboard	- 🗘 i	3:45:47 PM
Home		28.8 degC 🗠	27.7 psig 🗠	34.8 psig 🗠
Dashboard		Box Temp	Cal Gas Press	Diluent Press
Alerts			0.0 mV 🗠	0.105 LPM
1 Alert Active	-	Driver Version	O3 Gen Drive	O3 Gen Flow
Generate		45.7 degC ビ	20.5 psig 🗠	mV ビ
Utilities	>	O3 Gen Lamp Temp	O3 Gen Pressure	O3 Gen Ref
Setup	>	No	mV ビ	mV ビ
		O3 Gen Stabilizing	O3 Meas	O3 Ref
		<	1/2	>
		> Home	Mode: STAI	

Figure 3. Dashboard Page

		Dashboard	Ŧ	\$	i 3:35:00 P	PM
Home		57.2 degC 🗠	19.9 p	sig ピ	0.0 mV	
Dashboard		Box Temp	Cal Gas	Press	Cal1 MFC Drive	
Alerts		0.0 mV	8.8 ps	ig 🗠	SNGL	
Generate		Diluent MFC Drive	Diluent F as Press	Press	Range Mode	t
Utilities	>	19.	6 psig			
Setup	>	15	~			
		10				
A		> H 5				
Select a g parameter Dashboar to view a l	rapha r in the d pag	ble 0 = 3:40 3:41 e 0 ot.	3:42 3:43	3:44 3:45	3:46 3:47 3:48	3:49 Close

Figure 4. Viewing a Live Plot from Dashboard Page

Three of the dashboard parameters can be set up for continuous display as meters located below the concentration display of the Home page through the Setup>Homescreen menu (Section 3.6.5).

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 5).

While Alerts can be cleared from the Active Alerts page, they remain recorded in the Utilities>Alerts Log. To configure Events, see Section 3.6.2.



Figure 5. Navigating to the Active Alerts Page

Alerts appear as either latching or non-latching:

- Latching: displayed in Active Alerts screen when an Event is triggered and must be cleared by the user).
- Non-latching: (Active Alerts screen continuously updates based on the Event criteria, clearing on its own).

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 6). However, Alerts can reappear if the conditions causing them are not resolved. For troubleshooting guidance, refer to the instrument's user manual.

	Active Alerts	÷	\$	i	4:48:41 PM
Home	No Alerts Active				
Dashboard					
Alerts					
Generate					
Utilities >					
Setup >					
		_	_	_	
				Clear Se	lected
A	> Home		Mode: ST	ANDBY	

Figure 6. Active Alerts Cleared

3.4. GENERATE

The Generate menu (Figure 7) provides the ability to generate gases and their flows, to purge gases, to execute Sequences, to execute Levels, and to perform gas phase titrations (GPT, GPTZ, GPTPS – must have the ozone generator option installed). See Figure 8 and Figure 9. Consult the instrument user manual for detailed information.

Configure Sequences, Levels, and Gases through the Home>Setup menu (Sections 3.6.7, 3.6.8, and 3.6.12, respectively).



Figure 7. Basic Generate Menu









Figure 9. Generate: Gas Phase Titration (GPT) Menus



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 were configured in the Setup>Data Logging menu (Section 3.6.1). From this list a log can be selected and filters applied to view the desired data.

3.5.2. ALERTS LOG

The Alerts Log (Figure 10) holds a history of alerts that are triggered by factorydefined and user-defined Events, such as warnings and alarms.



Figure 10. Alerts Log



3.5.3. USB UTILITIES

The USB Utility page serves multiple purposes using a flash drive connected to the instrument's front panel USB port. These purposes include:

- downloading Data Acquisition System (DAS) data from the instrument to a flash drive (Section 3.5.3.1).
- updating firmware (Section 4).
- copying a configuration from one instrument to other same-model instruments (Section 3.5.3.3).



Figure 11. USB Utility Page

3.5.3.1. 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).

- 1. From Home page, press USB Utilities menu to open the utility page.
- 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; available buttons will be enabled.



- 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: press Done and then remove the flash drive.

3.5.3.2. UPDATING FIRMWARE

It is possible to check for firmware updates, reload current firmware, and to update firmware remotely. Instructions are provided in Section 4 to facilitate finding them from a high level view of this addendum's contents.

3.5.3.3. 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 12. Configuration Transfer

- 1. In the source instrument, go to the Home>Utilities>USB Utilities 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 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.

When the Status field indicates that the upload is complete, remove the flash drive.



3.5.4. DIAGNOSTICS

The Diagnostics tab provides access to several diagnostics submenus. The interface for each menu item is self-explanatory. Consult the instrument user manual for their applications and uses.

Analog Inputs	
Analog Outputs	
Digital Inputs	
Digital Outputs	
Diluent MFC Cfg	
CAL1 MFC Cfg	Additional parameters, not shown here, may be
Auto Leak Check	included, depending on instrument configuration.
Pressure Cal >	Cal Gas Press Cal
	Diluent Press Cal

Figure 13. Diagnostics Basic Menu

3.5.4.1. ANALOG INPUTS

See description in Table 2-1 in this addendum. When the External Analog Inputs Option is installed, the voltage signals 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). 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 3.6.9); consult the instrument user manual for connection details.

	Analog Outputs 🛨 🏟 i 2:04:15 PM
Analog Inputs	Select an Analog Output
Analog Outputs	Analog Output 1: Diluent MFC Drive
Digital Inputs	0.0 mV
Digital Outputs	Analog Output 3: Cal2 MFC Drive 0.0 mV
Diluent MFC Cfg	Analog Output 4: O3 Gen Lamp Temp Not Calibrated
CAL1 MFC Cfg	
Auto Leak Check	O3 Gen Lamp Temp Not Calibrated
Pressure Cal >	
↑ <	> Utilities > Diagnostics Mode: STANDBY

3.5.4.3. DIGITAL INPUTS

Digital Inputs are used to initiate various user-programmable calibration sequences (configured in the Setup>Sequences menu). The Diagnostics>Digital Inputs page shows which parameters are energized (ON) or not energized (OFF). Consult the instrument user manual for the rear panel Control In connector details and Control Input information.



3.5.4.4. DIGITAL OUTPUTS

Select an output to change its ON/OFF state. 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. DILUENT MFC CFG

Change the capacity of the MFC for diluent by pressing the Flow Range button; adjust the linearization by editing the drive and/or the flow for each of 20 points in the Flow Table presented in this page. Also see description in Table 2-1 in this addendum, and find further information on diluent MFC in the user manual.





3.5.4.6. CAL1 MFC CFG

Change the capacity of the MFC for calibration gas by pressing the Flow Range button; adjust the linearization by editing the drive and/or the flow for each of 20 points in the Flow Table presented in this page. Also see description in Table 2-1 in this addendum, and find further information on CAL1 MFC in the user manual.



3.5.4.7. AUTO LEAK CHECK

View pressure drop versus measured pressure and calibrate if necessary by pressing the Check button. Consult user manual for leak-check setup.



3.5.4.8. PRESSURE CAL

Check the Measured versus Actual pressure of either the diluent gas or a calibration gas; adjust the Actual pressure and then calibrate. Consult user manual for verifying and calibrating the gas pressure sensors.



3.6. SETUP

3.6.1. SETUP>DATA LOGGING

The Data Logger is used for tracking and reporting instrument data based on userconfigurable periodic timers (Section 3.6.1.2) or Event-based triggers (Section 3.6.2). In the Home>Setup>Data Logging menu (Figure 14), 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).

For configuration details, see Sections 3.6.1.1 and 3.6.1.2.

For transferring captured DAS data from the instrument to a flash drive, see Section 3.5.3.1.



Figure 14. Setup>Data Logging Page

	Datalog Configur	ration 🛨 🔅 ້ວ 9:42:47 AM
Data Logging	Name	Enter name
Events	Description	
Dashboard	Enabled	
Vars	Log Tags	Select tag
Vars	Trigger Type	Select trigger type
Homescreen		
Digital Outputs		Select Trigger Type Above
Sequences		
Levels		Done
† <	> Home > Setu	p Mode: STANDBY 🔥

Figure 15. Datalog Configuration, New Log Page





3.6.1.1. CREATING A USER-DEFINED DATA LOG

Figure 16. Datalog Configuration



3.6.1.2. CONFIGURING TRIGGER TYPES

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 17. Datalog Periodic Trigger Configuration

Conditional Trigger

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



Figure 18. Datalog - Conditional Trigger Configuration



3.6.1.3. DOWNLOADING DATA

In the Utilities>USB Utilities menu logged data can be downloaded from the instrument to a flash drive. (Refer to the instrument's user manual for details about Data Acquisition System (DAS).



Figure 19. DAS Data Utility

- 1. Press USB Utilities menu to open the utility page (Figure 19).
- 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.



- 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.

3.6.2. SETUP>EVENTS

Events are occurrences that relate to any operating function, and are used to define the conditions that will trigger Alerts (Section 3.3). Events can provide diagnostic information about the instrument, typically referred to as "Warnings", or they can provide additional instrument functionality, such as concentration alarms. Some



Events are standard and not editable while others are user-configurable, described here.

	Events Configuration 🚽 🌸 i 3:11:44 PM
Data Logging	Analog Calibration Warning
Events	Readboard Not Det Warning
Dashboard	Relayboard I2C Warning
Vars	System Reset
Homescreen	Front Panel I2C Warning
Digital Outputs	O3 ALARM 1 WARN
Sequences	
Analog Outputs >	Add Edit Delete
- A <	> Home > Setup Mode: STANDBY 🥥

Figure 20. Events List

3.6.2.1. CREATING USER-DEFINED EVENTS

In the Home>Setup>Events menu (Figure 20) press ADD to create a new Event. Figure 21 depicts the steps for creating an Event. In the center of the display, 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 21. Event Configuration



3.6.2.2. EDITING OR DELETING EVENTS

Select an Event from the list (Figure 20) and press the EDIT button to view or edit the details (Figure 22). To delete an Event, select the Event from the list and press the DELETE button.



Figure 22. Existing Event for Viewing or Editing



3.6.3. SETUP>DASHBOARD

The Dashboard can be configured to display an array of parameters, and can extend to more than one Dashboard page.

- 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

	Dashboard Configu	-E 🔅	i	1:58:08 PM
Data Logging	Available Tags		Dasht	ooard
Events	Package Version		Range Mode	
Dashboard	✓ Range Mode		Box Temp	
Vars	V Box Temp	>>	Diluent Press	
Homescreen	✓ Diluent Press		Cal Gas Press	
Digital Outputs	🗸 Cal Gas Press		Diluent MFC Dr	ive
Sequences	✓ Diluent MFC Drive		Cal1 MFC Drive	,
Levels	Call MFC Drive			
📩 👘 <	> Home > Setup	Mode	e: STANDBY	

Figure 23. Dashboard Configuration Page through Setup Menu

Note that the Dashboard Configuration page can also be reached by pressing the shortcut icon the Dashboard page.

		Dashboard Configu	-)	i	3:17:03 PM
Home		Available Tags		Dashb	oard
Dashboard		System Hours		Driver Version	
Alerts		Ref 4096mV		Package Version	
Generate		Ref Ground	_>>	Box Temp	
Utilities	>	Warm Up Complete		Diluent Press	
Setup	>	 Driver Version 	_	Cal Gas Press	
		Package Version			
		Range Mode			
A		> Home	Mode	: STANDBY	

Figure 24. Dashboard Configuration Page through Dashboard Shortcut



3.6.4. SETUP>VARS (VARIABLES)

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 25. Vars Configuration Page

3.6.5. SETUP>HOMESCREEN

Configuring the Homescreen involves selecting a parameter to display in each of the three meters located below the concentration display. From the Setup>Homescreen menu scroll through the list of available tags and select one, then touch a meter to apply. Repeat for the other two meters.

	Home Configuration \rightarrow	🔅 🦸 2:00:13 PM
Data Logging	Available Tags	Meters
Events	O3 Stability	Diluent Press
Dashboard	O3 Meas	
Vars	O3 Ref	Cal Gas Press
Homescreen	O3 Gen Ref	Box Temp
Digital Outputs	Photo Flow	
Sequences	Box Temp	Select a TAG then touch a Mater to assign it
Levels	Photo Samp Temp	neter to assign it.
↑ <	> Home > Setup	Mode: STANDBY

Figure 26. Home Configuration through Setup>Homescreen Menu

Home Configuration can also be reached by shortcut while in the Home page by pressing the context-sensitive configuration button interface. (This button can also be used to customize other configurable parameters when on the respective page, such as Digital Outputs under the





Utilities>Diagnostics menu). When in use or not available, it is grayed out (Figure 27).

Figure 27. Home Configuration through Home Shortcut

3.6.6. SETUP>DIGITAL OUTPUTS

One of the new features of the new NumaViewTM software interface is userconfigurable 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 28. Digital Outputs Setup

3.6.7. SETUP>SEQUENCES

For automatic calibration sequences of multiple steps, the Sequences menu is used to create new sequences, edit existing sequences, and edit steps within a sequence. Sequences are executed from the Generate menu (Section 3.4). Refer to the instrument manual regarding automatic calibration sequences.



Figure 29. Sequences Menu for Automatic Multi-step Calibrations



Figure 30. Configuring a Sequence Step, Example



	Sequences Configur	-	🌣 i	2:20:54 PM
Data Logging	Step Type		GENERATE	
Events				
Dashboard	AUTO Gas	NO	100.0	РРМ
Vars	Total Flow	2.000	SLPM	
Homescreen	Duration	1.0	Minutes	
Digital Outputs			_	
Sequences				
Levels				Done
† <	> Home > Setup		Mode: STANDE	3Y 🔥 🔥

Figure 31. Completed Sequence Step, Example

3.6.8. SETUP>LEVELS

For information on using LEADS (Dasibi) Operating Levels, consult your calibrator's user manual. This section provides instructions to program, edit, and activate Levels.

3.6.8.1. PROGRAMMING LEVELS

Up to twenty Levels can be programmed, using a range of ID numbers from 0-98 (99 is reserved for "Standby").

- 1. Click the "New" button in the Levels Configuration page (default level ID is "0", and the default Action is "Generate"). Use the Edit button to start programming the new Level.
- 2. Use the Level field to assign a different ID (numeric keypad pops up)
- 3. Use the Action field to assign the type of step to execute
- 4. As applicable, assign a target concentration, gas type, and/or flow rate(s).

If the applicable is installed, assign a Mode for O3 Gen depending on the option:

For the O_3 Generator option, choose OFF, Constant, or Reference For the Photometer option or the O_3 Generator and Photometer options together, choose OFF, Constant, or Bench

- 5. Configure one or both of two Status output blocks:
 - Status Block1: This block corresponds to the physical CONTROL OUTPUT connections located on the back panel of the calibrator.
 - Status Block2: The second status block does not correspond to any physical output but is used to communicate status over the serial data port.
- 6. Press the Done button to complete the programming for the individual Level.



Levels C	Configuration 🛨 🔅 칺 2:40:51 PM		
Homescreen	New 2	Γ	Step Type MANUAL
Digital Outputs			MANUAL Gas ZERO
Sequences			Flow Cal 0.0000 Dil 0.000 SLPM
Levels 1	Levels Configuration	→ 😧 2 2:40:51 PM	O3 Gen Mode OFF
Analog Outputs >		New	×
Instrument >	Sequences		Step Type GENERATE
Comm >	Levels		AUTO Gas ZERO
Gas >		Edit	Total Flow 0.000 SLPM
🔒 🔇 > Hon	me > Setup	6	
	Instrument >		Step Type GPT
	Comm >	Dalata	GPT NO 0.0 PPM
	Gas >	Delete	O3 0.0 PPB
	A C Home > Setup	Mode: STANDBY	Total Flow 0.000 SLPM
Homescreen	Configuration → 2 2:42:01 PM	¥	
Disitel Outputs	Level 4 0		Step Type GPTZ
		MANUAL	GPTZ NO 0.0 PPM
Sequences	Action 5 GENERATE	GENERATE	O3 during GPT 0.0 PPB
Levels		GPTZ	Total Flow 0.000 SLPM
Analog Outputs >	Status Block1 (7) Status Block2	GPTPS	
Instrument >			Step Type GPTPS
Comm >		CANCEL DONE	GPTPS NO 0.0 PPM
Gas >	Done 8	-	03 0.0 PPB
🔒 < > Hom	me > Setup Mode: STANDBY		Total Flow 0.000 SLPM

Figure 32. Levels Programming and Editing

3.6.8.2. EDITING/DELETING LEVELS

To edit an existing Level, navigate to the Setup>Levels menu, select a Level and start with Step 3 above.

To delete an existing Level, navigate to the Setup>Levels menu, select a Level and use the Delete button.

3.6.8.3. ACTIVATING LEVELS

To activate an existing Level, from Home page navigate to the Generate menu, press the LEVEL button, then select the Level by its ID, and press the Generate button.

3.6.9. SETUP>ANALOG OUTPUTS

The Setup>Analog Outputs menu provides the ability to configure and calibrate one configurable analog output, which can be mapped to a wide variety of values (or "Signals") present in the instrument. (There may be others that are "fixed" and will appear in the Utilities>Diagnostics>Analog Outputs page)

The Setup>Analog Outputs menu the analog output (Figure 31). Note that the last page on display prior to going to the Analog Outputs menu remains until one of the choices is selected.



	Analog Output 4 -	• 🔅	ໍ 4:10:32 P	Analog Output	: Cali 🕂 🔅 î 4:11:52 PM
Analog Output Cfg	Signal Out		alibration Type	Analog Output Cfg	t Status:
Analog Output Cal	Not Mapped		AUTO	Analog Output Cal	
	Min		Range	No Map	Start Cancel
			5V		
	Max	R	ecorder Offset		Manual Adjust
			0 mV	+1	+10 +100
		AI	low Overrange		
			Analy	-1	-10 -100 Accept
			Appiy		
- A 🗘	Setup > Analog Output	s Mode: ST		, 🔒 🖌 🔝 Setup > Ar	nalog Outputs Mode: STANDBY

Figure 33. Analog Outputs Menus: Configuration and Calibration

Configure the Output (Figure 34) by pressing the button in the Signal Out field, selecting an option from the pop-up list of choices, and selecting or entering a value for each of the remaining fields. Refer to your analyzer's user manual for details on analog outputs.



Figure 34. Analog Output Configuration Page



Calibrate the analog output in the Analog Output Cal menu; for automatic calibration (default), press the Start button.

	Analog Output Cali 🛨 🔅 칺 4:21:15 PM
Analog Output Cfg	Signal Out Status: Idle
Analog Output Cal	AUTO Start Cancel
	Manual Adjust
	+1 +10 +100
	-1 -10 -100 Accept
A X	Setup > Analog Outputs Mode: STANDBY
<u> </u>	

Figure 35. Analog Output Auto Calibration Page

If an Analog Output was assigned Manual in the Calibration Type field in the configuration menu, make adjustments as necessary in the Manual Adjust field of the calibration menu.

3.6.10. SETUP>INSTRUMENT

The Instrument page shows product information and configurable instrument settings.



Figure 36. Setup>Instrument Menu



3.6.10.1. 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 37. Date and Time Configuration Page



3.6.10.2. 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.

	Display Settings	÷	Q	i	2:07:15 PM
Product Info					
System Info					
Network Settings					
Display Settings					
Date/Time Settings					
		Calibra	te Toucl	1	
A 〈	e > Setup > Ir	nstrument	Mode:	SAMPLE	

Figure 38. 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 or touch "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 or touch the very center of the crosshair.
- 5. When a new crosshair appears in the upper left corner of the screen, carefully and accurately click or touch 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 verify 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:

sda_techsupport@teledyne.com / 800-324-5190



3.6.11. 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 39. Communications Configuration Page

Note that the choices for COM1 and COM2 protocol appear in a pop-up as shown in Figure 40.







Figure 41. Network Configuration Page



3.6.12. SETUP>GAS

Configure various mixes of up to three gas concentration(s) per cylinder port. Refer to the instrument user manual for information regarding user-defined gas types and source gas cylinders.



Figure 42. Gas Setup Menus



4. FIRMWARE UPDATES

There are two ways to update firmware: remotely and manually.

4.1. REMOTE FIRMWARE UPDATES

The instrument must be connected to a network that is connected to the Internet. Navigate to Setup>Instrument>Remote Update and click Check for Updates. If an update is available, it can be downloaded through this page.

	Remote Update Scr 🚽 🔅 칺 4:21:15 PM
Product Info	Press the button labeled 'Check for Updates' to find available updates
System Info	
Network Settings	Check for Updates
Display Settings	
Date/Time Settings	Status: Idle
Remote Update	
	Update
↑ く	e > Setup > Instrument (Mode: STANDBY

4.2. MANUAL 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. From the Home>Utilities menu, press USB Utilities to open the utility page.





3. Insert the flash drive with the firmware files 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.

	USB Utility		ໍ 8:48:19 AM
Datalog View			
Alerts Log			
USB Utilities	Update Firmware	Check	Install
Diagnostics >			
	Status: Version C).0.0.6 is available	Cancel
A K	> Home > Utilities	Mode:	



5. Press the Install button.

	USB Utility	Ŧ	\$	i	8:48:56 AM
Datalog View					
Alerts Log					
USB Utilities	Update Firmware	Check		nstall	
Diagnostics >					
	Status: Copying f	îrmware ver nt	rion 0. 0.	0.6 to	Cancel
A (> Home > Utilities)(Mode: S	SAMPLE	

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.





5. QUICK REFERENCE MENU STRUCTURE

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

Home Dashboard Alerts Generate Auto Manual Purge [GPT – with ozone generator option installed] [GPTZ – with ozone generator option installed] [GPTPS – with ozone generator option installed] Sequence Level Standby Generate Utilities Datalog View Alerts Log **USB** Utilities Diagnostics Analog Inputs Analog Outputs **Digital Inputs Digital Outputs** Diluent MFC Cfg CAL1 MFC Cfg Auto Leak Check Pressure Cal (Other Model-Specific Utilities, possibly) Setup Data Logging **Events** Dashboard Auto Cal Vars (Various Model-Specific Configuration Variables) Homescreen **Digital Outputs** Sequences Levels Analog Outputs Analog Output Cfg Analog Output Cal 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 Gas Cylinder



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

For users with dual-interface instruments (T-Series Legacy and NumaViewTM software), the following table provides a high-level comparison of the two interfaces. Note that, depending on options installed, not all features shown herein will be available in your instrument.

Component	T-Series Legacy Software Interface	NumaView™ Software Interface
Home Page	ACTIVE TAULT AUTO TIMER FAULT FAULT CAL 0.0000 0.0000 LPM DIL 0.000 0.0000 LPM Pres A-GAS=XXXX <tst tst=""> GEN STBY SETUP</tst>	Home I:39:05 PM Home Target Actual Dashboard NO 400.0 401.9 PPB Alerts Adverts Actual Actual Actual Senerate Dil Flow 0.0500 0.0500 LPM Dil Flow 4.950 4.935 LPM 749.3 cc/M 35.4 InHq 30.1 degc 30.1 degc
		Sample Flow Photo Press Box Temp Home Mode: GENERATE
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 and in Alerts menu.
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)



Component	T-Series Legacy Software Interface	NumaView™ Software Interface
Clear Fault messages	Press CLR button serially to clear Faults one at a time.	Either press individual boxes to choose specific Alerts to clear 2/18/2015 - 8:27 AM SYSTEM RESET 2/18/2015 - 8:27 AM SAMPLE PRESS WARN Trigger: Sample Press value outside specified range [103 + 241.3] 2/18/2015 - 8:22 AM O3 ALARM 1 WARN Trigger: 03 Conc > 40 Select All Clear Selected or press Select All box to choose all Alerts, Select All then press Clear Selected button
	When all messages are cleared, the Fault LED is no longer lit:	Clear Selected 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. □ Dashboard (See "Anatomy of the NumaView TM Software Interface" for details on selecting parameters to be displayed).
STANDBY Mode	ACTIVE GAS Actual GAS Actual GAS ACTUAL GAS ACTUAL GAS ACTUAL GAS ACTUAL CAL 0.0000 0.0000 LPM DIL 0.000 0.0000 LPM DIL 0.000 0.0000 LPM TIME=16:17:00 CTST TST> GEN STBY SETUP THE STBY SETUP	Generate Inst Mode: STANDBY Dashboard Inst Mode: STANDBY Inst Mode: STANDBY Generate Generate GENERATE GENERATE Utilities SEQUENCE Generate Setup Standby Cancel Generate Image: None Mode: STANDBY Image: None The Standby button is in the Generate page. Image: None Image: None Image: None
GEN Mode (Generate) AUTO MAN (manual) PURG (purge) GPT GPTPZ GPTPS SEQUENCE	Press GEN to get into the Generate menu.	Press Generate, to go to the Generate page Generate - 2 4:13:46 PM Home Inst Mode: STANDBY Dashboard Alerts Generate Generate Utilities Setup Setup Standby Cancel Generate Mode: STANDBY



Component	T-Series Legacy Software Interface	NumaView™ Software Interface
Setup Menus	Press the Setup button setup to go to the Primary Setup menu	Press the Setup button to go to the single Setup menu.
	ACTIVE Terpet Astant AUTO FAULT FAULT Ferm PRIMARY SETUP MENU GAS SEQ CFG CLK PASS MORE EXIT	Home Target Actual Dashboard Alerts
	Press the MORE button MORE to get to the Secondary Setup menu	Data Logging
	ACTIVE Actual Actual Actual FAULT France FAULT France FAULT France FECONDARY SETUP MENU COMM FLOW VARS DIAG EXIT	Events Dashboard Vars Homescreen Digital Outputs Sequences Analog Outputs > Instrument > Communications> Gas >
Source Gas Configuration	SETUP SAS	Setup >> Gas (03 gas is in Setup>Vars, and there is no longer a USER menu)
	ACTIVE Target Actual AUTO FAULT Frees O3 GAS CONFIG MODE ADJ PHOT EXIT	The Mode choices are in Setup>Vars>O3 Gen Mode. Adjusting the drive voltage is in Setup>Vars. Photometer calibration is in Utilities>Diagnostics.
Sequence Configuration	SETUP > SEQ	Setup > Sequences



Component	T-Series Legacy Software Interface	NumaView™ Software Interface
	A ACTIVE A AUTO A AUTO FAULT Rea Rea Rea REA REAL R	Sequences Configur 2 2 10:37:57 AM Vers Homescreen Digital Outputs Sequences Analog Outputs > Instrument > Communications Gas > Home > Setup Mode: STANDBY
Calibrator Configuration (CFG)	SETUP CFG	Setup > Instrument Product Info 3:11:32 PM System Info Instrument System Info Instrument Display Settings Instrument Display Settings Instrument Date/Time Settings Instrument Remote Update Instrument Display Settings Support Date/Time Settings Support Display Settings Support Date/Time Settings Display Settings Display Settings Display Settings Display Settings Display Settings Display Settings Display Settings Display Settings Display Settings
CLK Configure clock: time and date	SETUP CLK Pare TIME-OF-DAY CLOCK TIME DATE EXIT	Setup Vars Instrument Product Info Instrument Instrument Product Info Instrument Instrument Network Settings Instrument Instrument Date/Time Settings Instrument Instrument Date/Time Settings Instrument Instrument Date/Time Settings Instrument Instrument Instrument Instrument Instrument
PASS Calibration and Setup Passwords	SETUP > PASS PASSWORD ENABLE:OFF OFF ENTR EXIT	Password no longer applies for Setup and Calibration menus.
COMM Configure external communi- cation	SETUP MORE COMM Parte COMMUNICATIONS MENU ID INET COM2 EXIT	Setup > Communications> COM1 COM2 TCP Port1 TCP Port2 Network Settings
FLOW configuration	SETUP > MORE > FLOW	Setup > Vars



Component	T-Series Legacy Software Interface	NumaView™ Software Interface
VARS System configuration variables	SETUP > MORE > VARS	Setup > Vars
	Pain ENTER PASSWORD:818 8 1 8 ENTR EXIT	VARS Configuration — 2 2 10:37:57 AM Data Logging Events Dortight Savings Exable Train Databloased Distribution Exate Distribut
	ENTR	Vars Dyn Zero Enable Spacifies the number of concentration Homescreen Enable Software Maintenance Mode decimal dig ts Digital Outputs Instrument ID
	0) DAS_HOLD_OFF=15.0 Minutes	Sequences Latch Warnings DAWL/D Analog Outputs 33 Gen Lamp Temp Selpoint C Home > Setup Mode: STANDBY A
DIAG System diagnostic features and analog output configuration	SETUP > MORE > DIAG	Utilities > Diagnostics > (Diagnostics menu appears in the sidebar, while current display remains until a diagnostics parameter is selected).
	ENTER PASSWORD:818 8 1 8 ENTR EXIT	Analog Inputs - 2 2 10:37:57 AM Analog Inputs - 2 2 10:37:57 AM Cal Gas Press Sensor - mV
	Prom SIGNAL I/O	Digital Inputs Dilutert Press Sensor O3 Gen Lamp Temp Raw Digital Outputs — wV O3 Gen Ref Photo Flow Cal O3/Perm Press
	NEXT EXIT	CAL1 MFC Cfg CAL2 MFC Cfg CA

6.1. SWITCHING BETWEEN SOFTWARE INTERFACES

As first shipped from the factory, the dual-interface 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 powercycle 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.