SOFTWARE

for the FT1 Thermal Gas Mass Flow Meter



Document #106515 Rev G



Disclaimer

This publication must be read in its entirety before performing any operation. Failure to understand and follow these instructions could result in serious personal injury and/or damage to the equipment. Should this equipment require repair or adjustment beyond the procedures given herein, contact the factory at:

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Download Technical Data Sheets from our website: www.foxthermal.com

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Fox Thermal FT1 Manuals: • Model FT1 Instruction Manual

All Fox Thermal Manuals and software available in English only.

Table of Contents

1. Introduction	Page 4
2. Installation	Page 5
3. Startup	Page 8
4. Operation	Page 10
a. Main Screen	
b. Charts Settings	10
c. Configure	
d. Gas-SelectX® Gas Menu	
e. Collect Data to Excel®	
f. Simulation Mode	
g. CAL-V™ Test	
h. CAL-V™ Certificate	
5. Definitions	Page 28

6. Index

Page 29

Introduction

Introduction

Thank you for purchasing the Model FT1 Thermal Gas Mass Flow meter from Fox Thermal. The Model FT1 is one of the most technically advanced flow meters in the world. Extensive engineering effort has been invested to deliver advanced features, accuracy measurement performance, and outstanding reliability.

The FT1 View[™] software allows users to easily display data and configure the FT1 to their specific application parameters. The software can also access the Gas-SelectX[®] menu, run the CAL-V[™] calibration validation diagnostic test, and log flow/temperature data.

The Model FT1 is available with two different options: the RS485 Communication option or the Pulse Output option. The FT1 View[™] software automatically adapts to the features in the FT1 meter.

This Manual contains the installation and operation instructions for the FT1 View[™] Software.

This manual is divided into the following sections: Introduction, Installation, Operation, Definitions, and Index.

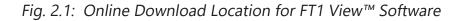
Installation

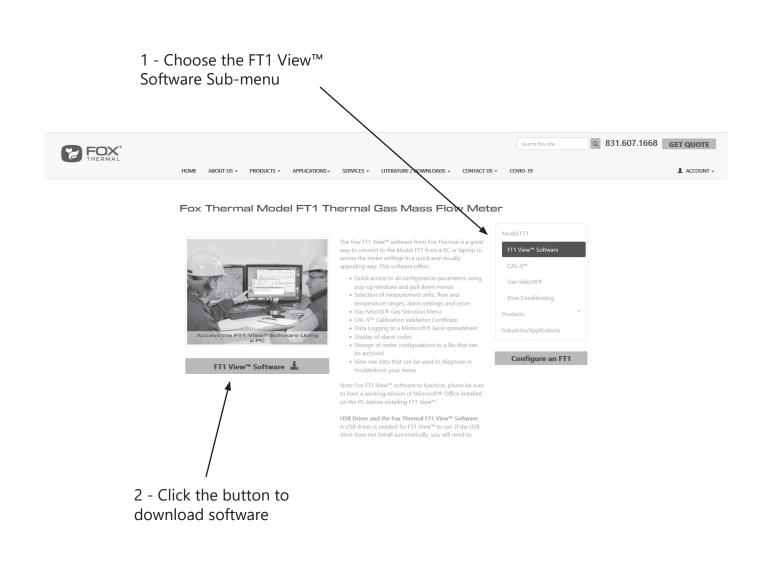
Installation

Open the enclosure by unscrewing the enclosure cap, loosen the two captive screws on the display assembly and rotate it open. Connect the FT1 to a PC with a USB (Type-A / Mini-B) cable. If the PC is connected to the internet and running Windows®, the PC will try to automatically load the VCP driver. If the driver does not load automatically, download the VCP driver at: https://ftdichip.com/drivers/vcp-drivers/



NOTE! The latest version of the FT1 View[™] software is available for download at www. foxthermal.com/products/ft1.php#ft1view





Installation

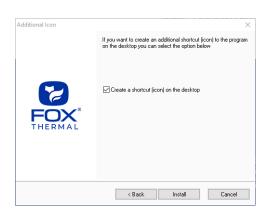
To install the FT1 View[™] program, run the downloaded "ft1-view-setup.exe" file. After clicking "Next" the screen will show:

Destination Folder	×
	Please choose destination folder for your program. This is the directory where the program and its support files are installed to.
FOX	Folder: C:\Program Files (x8E)\Fox Thermal\FT1View
FOX	Browse
Disk Space	Next > Cancel

Select the folder in which you wish to install FT1 View[™], then click "Next".

Program Group		\times
	Please enter a name of a program group where shortcuts to programs and documents will be placed in.	
	Program Group:	
	FT1View	
FOX		
THERMAL		
THERMAL		
	<back next=""> Cancel</back>	

Please enter a name for the Program Group or use the default FT1View name and click "Next".

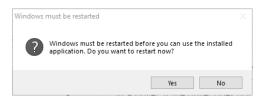


To find the program easily, you may choose to create a shortcut icon for your PC desktop by placing a check in the checkbox. Click "Install" to continue.

Installation



When the program is done installing, click "Exit".



To complete the installation process, close all applications, and restart your computer. The FT1 View Software will be ready to use after the computer has restarted.

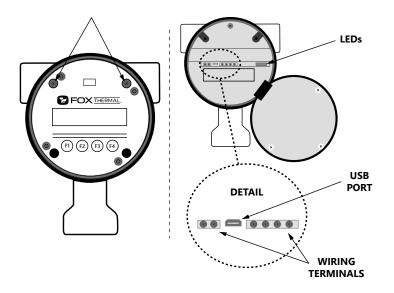
Startup

Power on the Meter

Refer to the FT1 Instruction Manual for Power input wiring instructions. The FT1 must be powered on to communicate with the FT1 View[™] software tool.

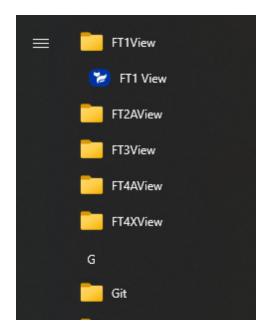
Connect the FT1 to a PC or Laptop via USB

Be sure to have your FT1 flow meter connected by USB to a PC or laptop that has FT1 View[™] software successfully downloaded to the operating system. Open the enclosure by unscrewing the enclosure cap, loosen the two captive screws on the display assembly and rotate it open. The USB port is accessible on the electonics board beneath the display.



Startup FT1 View[™] Software

After re-boot and connecting to a PC via USB, startup the FT1 View[™] software accessible in the Windows "Start" button or search bar.



Startup

COM Port Assignment

(1

Be sure to have your FT1 connected by USB to a PC or laptop before opening FT1 View[™]. Upon opening FT1 View[™] for the first time, Windows[®] will assign a "virtual COM port". The COM port number that has been assigned will appear automatically in the drop down box.

If the correct COM Port does not appear, go to Control Panel/Device Manager and click on Ports (COM & LPT). The COM port number should be displayed under the USB symbol.

If prompted, enter the assigned COM port in FT1 View[™] by using the drop down menu and press **OK**.

NOTE! The FT1 Meter must be plugged into the computer for the USB port to be detected.

Fig. 3.1: COM Port Selection Window

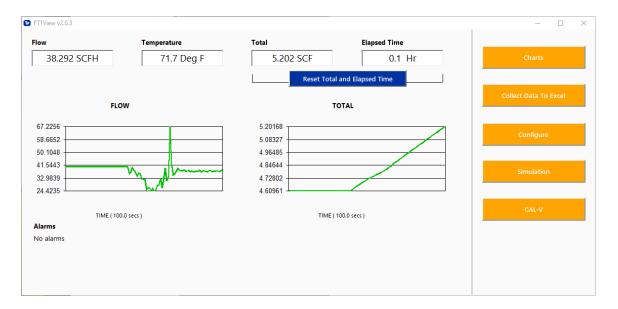
	\times
	•
ОК	
	ОК

Operation

Main Screen

The image below depicts the main screen that appears upon entering FT1 View[™].

Fig. 4.1: FT1 View[™] Main Screen



Flow & Temperature

FT1 View[™] will show values for flow and temperature in the pipe in real time based on how the flow meter has been configured (in this case, SCFH and °F). These values are in the upper left of the screen.

Total & Elapsed Time

Flow total and Elapsed Time are shown in the upper right of the screen and can be reset with the button just underneath the displayed values.

Charts Button

This calls up two charts that can be configured for flow, temperature, or total flow. Each chart can be individually enlarged and re-scaled from the original default settings.



NOTE! Data on the screen is refreshed at user selected update rate. See p. 12 for more information on setting up charts.

Collect Data to Excel Button

Selecting the Collect Data to Excel button allows all selected data to be logged to an Excel® file at the specified sample time. All readings are time/date stamped. For more information on using the data collection function, refer to "Collect Data to Excel" on p. 14.

Configure Button

This function is used to adjust the application parameters of the FT1. The application parameters can be set using FT1 View[™] software or manually using the FT1 display. For more information on configuring application parameters, refer to p. 16.

Simulation Button

This function can be used to verify that all the flow meter outputs are working properly. The easiest way to perform this check is to enter a specific temperature or flow rate. The corresponding analog outputs can be verified using a DMM and using a timer for the pulse. Refer to p. 22 for more information on how to use the Simulation function.

Calibration Validation Diagnostic Test Section

CAL-V[™] Button

Calibration validation allows customers to validate the accuracy and functionality of the meter in the field with a push of a button. By performing a simple test, the operator can verify that the meter is running accurately.

The CAL- V^{TM} calibration validation test is explained in greater detail on p. 24.

Alarms

The unit can be configured for high/low alarms for either flow or temperature. The "alarms window" displays any alarms or warnings.

FT1 View[™]

Operation

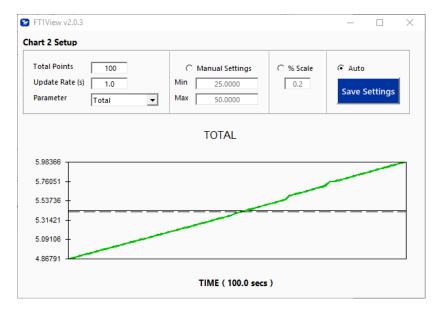
Charts Settings

From the main screen, click on "Charts". Two charts will appear side-by-side. Each chart can be selected for flow, temperature or total flow.

Fig. 4.2: Chart Settings Window - Chart 1

 FTIView v2.0.3 Chart 1 Setup 		1	– – ×
Total Points 100 Update Rate (s) 1.0 Parameter Flow 💌	C Manual Settings Min 25.0000 Max 50.0000	© % Scale	Auto Save Settings
	FLOW		
67.2256 58.6652 - 50.1048 - 41.5443 -			
32,9839	<u></u>		
	TIME (100.0 secs)		

Fig. 4.3: Chart Settings Window - Chart 2



Total Points

The total points specifies the number of points plotted on the graph. Older data is automatically omitted.

Update Rate

The update rate controls the data refresh rate.

Parameters

Flow, temperature or total flow can easily be selected for charting.

Manual Chart Setting

The Manual mode allows a user to input min/max values for chart scaling. When entering new values, click on Save Settings for them to take effect.

Percent (%) Scale

This sets the scale to a plus/minus specified percentage from the initial measured value. Typically, the minimum/maximum is scaled at plus/minus 10% of that initial value.

Automatic Chart Setting

Automatic mode lets the program adjust the scaling on a real-time basis based on the entire range of values.

Save Settings

Click the Save Settings button to save the chart settings to the main screen window. These settings can then be closed by clicking on the "X" at the top right corner of the window.

Collect Data to Excel

The Data Logger screen can be accessed from the main screen. Clicking the "Collect Data to Excel" button will prompt the user for a password. Enter a Level 1 (1234) or Level 2 (9111) password and the Data Collection window will appear.

Fig. 4.4: Data Collection Window - Logging Turned Off

Logged Values		Sample Time Hrs Min Sec 00 ▼ : 00 ▼ : 01 ▼	
CSV (Current Sense Voltag Flow Flow NM3/H Gas Temperature Total Elapsed Time		Value	
Field I Data Selection	ata Data Preview		
Custom Data	nam\Documents\FT1_View_2_1_1_Datalog	g.xlsx	
FT1View v2.1.1		>	×

You may enter custom fields onto the top of the final log file, click on a field to enter the text. Select the sample time from the drop down menu, and then select the required data from the Data Selection list. Select or create a name for the Excel® file and then press the "Start Data Logger" button.

Fig. 4.5: Data Collection Window - Logging Turned On

FT1View v2.1.1				—
Excel Filename				
Select C:\Us	ers\nburnam\Docume	nts\FT1_View_	2_1_1_Datalog.xlsx	
Field	Data			
Serial Number	F12345			
Performed By	John Doe			
Location	Marina CA			
Flow		15	Csv 🛛	
V Flow		15	Csv II	
Flow NM3/H				0.038960412
Flow NM3/H		0	Flow [SCFM]	0.038960412 0.0000002026047 0.00000032737483
		0		0.000002026047
Gas Temperature		0 8 12	Flow [SCFM] FloVol [NM3/H]	0.0000002026047 0.00000032737483
Gas Temperature Total		0 8 12 20	Flow [SCFM] FloVol [NM3/H] Gas_temp [Deg F]	0.000002026047 0.00000032737483 75.146935 4469.83
Gas Temperature Total	1774 0.000000 0.0000	0 8 12 20 21	Flow [SCFM] FloVol [NM3/H] Gas_temp [Deg F] Total [SCF] ElapsedTime [Hrs]	0.0000002026047 0.00000032737483 75.146935
 ✓ Gas Temperature ✓ Total ✓ Elapsed Time Logged Values 		00 75.099579 -	Flow [SCFM] FloVol [NM3/H] Gas_temp [Deg F] Total [SCF] ElapsedTime [Hrs]	0.000002026047 0.00000032737483 75.146935 4469.83 2.8666666 Sample Time
✓ Gas Temperature ✓ Total ✓ Elapsed Time 1/28/25 15:29:36 0.038 2.850000 1/28/25 15:29:37 0.038	3774 0.000000 0.0000 3732 0.000000 0.0000	00 75.099579 - 00 75.123314 -	Flow [SCFM] FloVol [NM3/H] Gas_temp [Deg F] Total [SCF] ElapsedTime [Hrs] 4469.830000 4469.830000	0.000002026047 0.00000032737483 75.146935 4469.83 2.86666666 Sample Time Hrs

When "Start Data Logger" is pressed, the data is recorded in the specified Excel[®] file - and also displayed in the Logged Values window. Pressing "Stop Data Logger" ends data acquisition.

Operation

Configure

From the main screen, click on the "Configure" button and enter the requested password for either Level 1 (1234) or Level 2 (9111) access.

Fig. 4.6: Password Window

Password Entry	×
Enter Password ****	
	ок



NOTE! Most users will only need access to the Level 1 screen to do basic setting of units, alarms and output scaling.

The FT1 View[™] software recognizes the meter configuration automatically. The meter configuration determines whether the screen in Fig 4.7 or 4.8 will appear.

Fig. 4.7: Level 1 Configuration Screen - RS485 Option

FT1View v2.0.3	3							—) ×
Meter Info		Process Varial	bles						
Firmware	FT1 V9.1	Flow 0. SC	FM		Temperature	67.79 Deg F		Reset Total	
Password Level	Level 1	Total 21.72	38 SCF		CSV	0.04606 V	GHV 0.0 BTU/Ft3		
Serial	F06658	Massflow 0. Kg	/Hr		Elapsed Time	0.4 Hrs	Density 1.22569 Kg/M3		
Main SN	Q60946							Reset CRC	
Bridge SN	P97795	Gas-Mix				Current Alarms			
Sensor SN	300580	Gas Type	Air		-	No alarms			
Alarm Codes	None	Methane	0.000000	Air	100.000000				
		Carbon Dioxide	0.000000	Propane					
Meter Setting		Nitrogen	0.000000	Butane	0.000000				
Pipe ID	4.026 In	Helium	0.000000	Oxygen	0.000000				
Cutoff	1. SCFM	Argon	0.000000	Ethane	,				
Filter	0.8 Sec	Hydrogen	0.000000	*Max of	5 gases				
Ref.Temp	60. Deg F			TOTAL	100%				
Ref.Pressure	14.73 Psia					-			
Password	1234	4-20 mA Outp	ut Configurat	ion					
		Data Select	Flow		-	[
		20 mA Value	100. SCFM						
Unit Select		4 mA Value	0. SCFM						
Flow Units	SCFM 👻	Namur Fault Acti	ion Not used		-	[
Temp. Units	Deg F 🗨								
Pressure Units	PSIA 👻								
Alarm Limits									
High Flow Limit	,								
Low Flow Limit	,								
High Temp Limit								erial COM Setting	
Low Temp Limit	0. Deg F							enar COM Setting	

leter Info		Process Variab	les				
rmware	FT1 V9.1	Flow 0. SCFI	н	Temperatur	e 68.34 Deg F		Reset Total
ssword Level	Level 1	Total 219.5 S	SCF	CSV	0.04867 V	GHV 0.0 BTU/Ft3	
rial	F12544	Massflow 0. Kg/h	Hr	Elapsed Tim	e 2.8 Hrs	Density 1.22569 Kg/M3	
ain SN	Q02598						Reset CRC
lge SN	40166-0207	Gas-Mix			Current Alarn	ns	-
nsor SN	300580		Air		 No alarms 		
rm Codes	None		01000000	ir 100.00000	00		
				ropane 0.000000			
eter Setting				utane 0.000000			
e ID	4.334 In	L		0.000000			
toff	800. SCFH			thane 0.000000			
er	0.8 Sec	Hydrogen	0.000000 *1	Max of 5 gases			
.Temp	60. Deg F		т	OTAL 100%			
.Pressure	14.73 Psia						
sword	1234	4-20 mA Outpu	ut Configuratio	n			
		Data Select	Flow		-		
		20 mA Value	80000. SCFH		=		-
it Select		4 mA Value	0. SCFH		Digital Outpu	ut Select	
w Units	SCFH 👻	Namur Fault Actio	n Not used		Pulse Output		1
mp. Units	Deg F 🔹			-			
essure Units	PSIA 👻					Configuration	
					Pulse Option	Max Flow & Max Frequency	1
arm Limits					Max Frequency	Max Freq= 100 Hz	
h Flow Limit	,				Max Flow	Max Flow= 80000 SCFH	Display Setting
	0. SCFH				Pulses Per Unit	Pulse per Unit= 4.5	
w Flow Limit gh Temp Limit	,						

Fig. 4.8: Level 1 Configuration Screen - Pulse Output Option

Meter Info

Firmware: FT1 meter firmware revision level.

Password level: FT1 View Password level entered.

Serial Numbers: Serial numbers of the meter, the main board, bridge and sensor (factory set). **Alarm Codes:** Displays the alarm codes as described in the meter manual. These codes are written out in the Current Alarms menu.

Meter Settings

Pipe Inner Diameter (ID): The pipe inner diameter can be entered in either inches or millimeters, depending on whether the flow or mass measurement units selected are metric or US standard. Once entered, the program will automatically recalculate the pipe cross-sectional area for the velocity/flow calculations. A precise ID is required to ensure accurate flow measurement.

Cut-off: A gas flow rate at (or below) the cut-off setting will cause the meter to read zero. Default cut-off is set to 1% of maximum flow value.

Filter: Changing this value will increase or decrease the damping of the flow rate reading. Increase the setting to increase damping. The default setting is 0.8 seconds.

Ref. Temp: Reference Temperature - Reference temperature and pressure are the standard (or normal) temperature and pressure (STP) for which the flow rate is calculated. This is set in the factory according to the customer's original AppID data.

Operation

Ref. Pressure: Reference Pressure - Reference temperature and pressure are the standard (or normal) temperature and pressure (STP) for which the flow rate is calculated. This is set in the factory according to the customer's original AppID data.

Password: The Level 1 password can be changed to a new value (number or letter characters up to 4 digits).

K-factor: Enter a percent value [-200 to 200] to scale the flow output. Final Flow = Flow + (Flow * K Factor/100)



NOTE! K-factor settings are only available with Level 2 Password

Unit Select

The "Unit Select" section is used to change the desired units of the flow rate, temperature and reference pressure parameters.

Alarm Limits

Users can set both high/low alarms for both flow and temperature. When a limit is reached, an alarm message is displayed. In addition, if the meter's digital output is activated, breaching the alarm limit automatically activates a discrete output to control an external buzzer, light or some other way to alert the operator.

Process Variables

Flow: Current flow rate in selected units
Total: Cumulative mass or volume flow in selected units
Massflow: Current mass flow rate
Temperature: Gas temperature (Fahrenheit or Celsius)
CSV: Current sense voltage of sensor measurement circuit
Elapsed Time: Time since the Totalizer was reset
GHV: Gross Heating Value of measured gas
Density: Density of measured gas

Gas-Mix

This Gas-SelectX[®] menu allows the user to choose from a list of gases. More information on Gas-SelectX[®] can be found on p. 21.

4-20mA Output Configuration

The FT1 has one analog 4-20mA output that is configurable for either flow or temperature. Though the FT1 will be scaled for the specific application coming from the factory, FT1 View[™] allows the operator to easily re-scale the 4-20mA output as needed.

Digital Output Select

This selection configures the FT1 digital output for either pulses (counts) or as an alarm discrete output.

If the pulse (counts) output is selected, it can be programmed in three different ways using the pulldown menu "Pulse Output Configuration".

- Maximum flow and maximum frequency
- Pulses per Unit
- Units per Pulse



NOTE! This is only available on a meter configured for Pulse Output. If RS485 option has been ordered, the Pulse option is not available.

Reset Total Button

The Reset Total button will clear the total and elapsed time.

Reset CRC Button

CRC (Cyclical Redundancy Check) is a value that verifies that all critical values in the meter's database are good. This check is performed once every minute. The Reset CRC button clears and generates a new value.

Display Setting

The information displayed on the front panel of the FT1 can be configured by clicking on the "Display Setting" button in the lower right portion of the Configuration Screen in Fig, 4.7 or 4.8. The four dropdown boxes can be used to select the data to present on Screen 1 and Screen 2 of the flow meter display. By selecting "Alternate", the screen automatically switches between the data screens.

Serial COM Settings

The serial communication settings can be accessed by clicking on the "Serial COM Settings" button in the lower right portion of the configuration screen in Fig. 4.7.

If the FT1 has a serial communication option, this function can be used to set the serial communication parameters.

Fig. 4.9: Select Serial Communication Window

Configure Se	erial Com		-	\times
Serial Comm	nunications			
Bus Type Address Baud Rate Parity	Modbus • 1 • 9600 • None •	BACnet ID Name	127 123456 FT1	
Configure Se	erial Com		_	×
Configure Se Serial Comn			-	×
		· Max Master	127	×
Serial Comn	nunications	Max Master BACnet ID	127	×
Bus Type	Hart		121	×

Serial Comm	nunications				
Bus Type	BACnet	Max Master	127		
Address	1	BACnet ID	1		
Baud Rate	9600	- Name	Fox F	T4A	
Parity	None	-			

0

NOTE! This is only available on a meter ordered with the RS485 Modbus RTU, BACnet MS/ TP, or HART options. If the Pulse Output option has been ordered, the RS485 Modbus RTU or BACnet MS/TP options are not available. The HART option is only available if the Pulse Output option is ordered.

Operation

Gas-Mix: The Gas-SelectX[®] Gas Menu

Each FT1 flow meter is set to the customer's configuration at the factory. To change the gas or gas mix in the FT1, choose from the following list of gases under "Gas-SelectX":

- Air
- Argon
- Butane
- Carbon Dioxide
- Ethane
- Methane
- Natural Gas
- Nitrogen
- Oxygen
- Helium
- Hydrogen
- Propane

H

• Custom 5-Gas Mix (Any pure gas from list above, excludes Natural Gas)

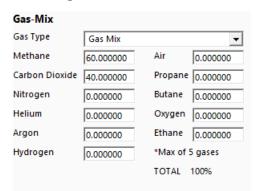
Fig. 4.10: Gas-SelectX[®] Menu

1View v2.0.3				- 🗆
ter Info		Process Variables		
ware	FT1 V9.1	Flow 38.027 SCFH Temperature	74.86 Deg F	Reset Total
word Level	Level 3	Total 22.5688 SCF CSV	0.04630 V GHV 609.9 BTU/Ft3	
al	F12544	Massflow 1.27 Kg/Hr Elapsed Time	0.6 Hrs Density 1.15602 Kg/M3	
n SN	Q02598			Reset CRC
je SN	40166-0207	Gas-Mix	Current Alarms	
or SN	300580	Gas Type Gas Mix	No alarms	Normalize Gas %
n Codes	None	Methane 60.000000 Air 0.000000		Normalize Gas 70
		Carbon Dioxide 40.000000 Propane 0.000000		
er Setting	s	Nitrogen 0.000000 Butane 0.000000		
D	4.334 In	Helium 0.000000 Oxygen 0.000000		
f	0. SCFH	Argon 0.000000 Ethane 0.000000		
	0.8 Sec	Hydrogen 0.000000 *Max of 5 gases		
emp	60. Deg F	TOTAL 100%		
ressure	14.73 Psia			
vord	1234	4-20 mA Output Configuration		
	0.%	Data Select Flow		
		20 mA Value 80000. SCFH		
Select		4 mA Value 0. SCFH	Digital Output Select	
Units	SCFH 💌	Namur Fault Action Not used	Pulse Output	
. Units	Deg F 👻	, interest		
ure Units	PSIA -		Pulse Output Configuration	
	1.316		Pulse Option Max Flow & Max Frequency	
m Limits			Max Frequency Max Freq= 100 Hz	
Flow Limit	0. SCFH		Max Flow Max Flow= 60000.012 SCFH	
Flow Limit	0. SCFH		Pulses Per Unit Pulse per Unit= 5.9999986	
Temp Limit	0. Deg F		Units Per Pulse Unit per Pulse= .1666667	
r remp chine				Serial COM Settings

NOTE! A list of pure and mixed gases available on the FT1 flow meter are kept on the Fox website at www.foxthermal.com.

Operation

Fig. 4.11: Setting the Gas-SelectX[®] Custom Gas Mixture



When the "Gas Mix" option is chosen, a series of additional gas concentration fields will become editable. These fields are labeled "Methane", "Carbon Dioxide", "Nitrogen", etc. A default amount will appear in each field, but any of up to five (5) of these can be changed to any percentage between 0.000001 and 100. All remaining gases not used in the 5-Gas Mix must be changed to 0. The total for the five (5) gases chosen for the mix must equal 100% or an error will occur.



NOTE! If the total of the five (5) gases is greater or less than 100%, an alarm will show. Adjust the percentages until 100% is achieved.

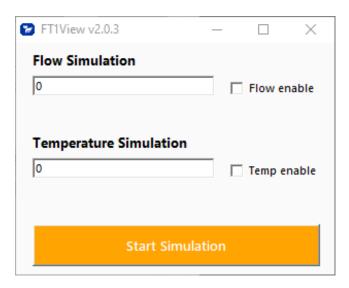
Normalize Gas Percentage

In the scenario where the desired gas mix does not total to an even 100%, use the "Normalize Gas %" button to scale the gas mix proportionally so that the total results in 100%.

Simulation Mode

To enter simulation mode, click on the button marked "Simulation" in the Main screen and a password will be requested. Enter the password and then the Simulation screen will be shown.

Fig. 4.12: Simulation Mode Window



The simulation mode simulates flow rate and temperature. Click on the required data and enter a value. Simulation mode allows users to verify the operation of the analog output, digital outputs and totalizer at simulated flow rates and temperature.



CAUTION! FT1 outputs (4-20mA, pulse and alarm) - when in simulation mode - may affect the user's system. The user should ensure that this simulation state of operation cannot cause a hazardous or destructive event.

Fig. 4.13: Simulation Running

😰 FT1View v2.0.3	—		\times
Flow Simulation	V	Flow e	nable
Temperature Simulation	V	Temp e	nable
Halt Simula	tion		

In Simulation mode, all FT1 outputs and the Totalizer respond as if in normal measurement mode. Click "Halt Simulation" to end.

Operation

CAL-V™

CAL-V[™] is performed to verify the proper operation of the FT1 flow meter. From the Main screen, click on the "CAL-V" button to access the CAL-V[™] Menu Window.

Fig. 4.14: CAL-V™ Menu Window

Test Type	Hold last flow va	lue 👻	[
Log File	C:\Users\nburnar	m\Documents\CAL-V_log_FT1	Browse File			
	Field	Data				
	Performed By					
	Meter TAG					
	Comments					
Test	I					
CAL-V Value]			
Time Remaining						
			Perform CAL-V			

On the CAL-V[™] Menu Window, there are fields to enter information about the person performing the test, meter tag information, and any other important information may be entered into the comments area. Below that are blank fields that accept any text input - all of these fields will show up on the final certificate.

A drop-down menu allows the user to choose between these two options:

- Flow goes to Zero during CAL-V[™]
- Flow holds the last value during CAL-V[™]

Please note that the test will take about five minutes. If the "go to zero" option is chosen, the flow measurement will stop and go to zero for this period. If the "hold value" option has been chosen, the totalizer will continue to increment..

The user can specify a folder name and location to store the test results.

When ready to start, click the "Perform CAL-V" button.

FT1 View[™]

Operation

Fig. 4.15: Running a CAL-V[™] Test

CAL-V Setting	s			
– Test Type	Hold last flow va	lue 👻		
Log File	C:\Users\nburnan	n\Documents\CAL-V_log_FT1	Browse File	
	Field	Data		
	Performed By	John Doe		
	Meter TAG	1234		
	Comments	Test Run		
	Serial Number	F12345		
	Location	Marina CA		
Test	J			
CAL-V Value		6.7		
Time Remaining		285 s		
Result			Stop C/	AL-V

A Pass/Fail message for the CAL-V[™] test will be displayed at the test conclusion.

Fig. 4.16: CAL-V™ Results Window

	5			
est Type	Hold last flow va	lue 🔻		
og File	C:\Users\nburnan	n\Documents\CAL-V_log_FT1	Browse File	
	Field	Data		-
	Performed By	John Doe		_
	Meter TAG	1234		
	Comments	Test Run		
	Serial Number	F12345		
	Location	Marina CA		
est				
AL-V Value		0.07		
ime Remaining		000 s		
esult	CAL-V Pass (0.)		Perform CAL-V	

CAL-V™ Certificate

A CAL-V[™] Certificate can be created by pressing the "View Certificate" button. CAL-V[™] test data is logged to a file. When a CAL-V[™] certificate is requested, the FT1 View[™] software will search the log file for the meter serial number and create the certificate from the last test performed.

Fig. 4.17: CAL-V[™] Certificate

FOX HERMAL			399 Reservation Road Marina, CA 93933 USA Phone: 831-384-4300 sales@foxthermal.com
	1 CAL-V™ CERTI		E
	ALIBRATION VALIDA		
CAL-V [™] Performed on:	January 28 2025	3:40:20 PM	
Firmware version:	FT4A V9.1		
	F12345		
CAL-V [™] Results:	CAL-V PASS		
CAL-V™:	0		
Test Temperature:	75.7 F		
Tag #/Meter Location:	1234		
Test performed by:	John Doe		
Additional Comments:	Test Run		
Serial Number:	F12345		
Location:	Marina CA		
CAL-V [™] is a calibration routine that v * Repeatability of sensor * Repeatability of sensor electronics * Confirms Calibration Algorithms At the conclusion of the test, the met A "pass" result confirms the meter is	validates the flow meter's calibration accura ter will display a pass/fail message and the measuring accurately.		following:
CAL-V [™] is a calibration routine that v * Repeatability of sensor * Repeatability of sensor electronics * Confirms Calibration Algorithms	validates the flow meter's calibration accura ter will display a pass/fail message and the measuring accurately.		following:

CAL-V[™] Log The "View CAL-V Log" button allows the operator to view a log of previous CAL-V[™] tests that have been performed on the meter.

Fig. 4.18: CAL-V™ Log

FT1	View v2.1.1									-		×
Ser.Nb	Date	Time	Verify	PAS	S/FAIL Temp	Perform by:	TAG	Comm	nents			
F12345 F12345 F12345 F12345 F12345 F12345 F12345 F12345 F12345 F12345 F12345	July 16 202: July 16 202: July 29 202: January 02 January 02 January 02 January 02 January 03 January 03 January 03 January 28	4 15 4 08 2025 1 2025 2 2025 2 2025 2 2025 1 2025 1 2025 1	09:55:17 10:56:45 11:01:07 14:05:01 08:08:11 09:22:06	0.07 0.01 23 -0.15 -0.04 0.03 -0.03 -0.72 0.47	CAL-V PAS CAL-V PAS CAL-V PAS CAL-V PAS CAL-V PAS CAL-V PAS	75.9 F John I 72.9 F John I	Doe Doe n Doe n Doe n Doe n Doe n Doe n Doe n Doe n Doe	1234 1234	Test Run Test Run Test Run Test Run Test Run Test Run	Serial [Serial [Serial [Ser [Ser [Ser [Ser [Ser [Ser [Ser]	Number Number Number al Numb al Numb al Numb al Numb al Numb al Numb	
<												\sim

Appendix

Glossary of Terms and Definitions

COM	Communication
CSV	Current Sense Voltage
DMM	Digital Multimeter
ID	Inner Diameter
mA	Milliamps
PC	Personal Computer
RTD	Resistance Temperature Detector
STP	Standard Temperature and Pressure
mA PC RTD	Milliamps Personal Computer Resistance Temperature Detector

FT1 View[™]

Appendix

Index

Alarm Limits, 18 Analog 4-20 mA output (Pulse Output enabled models only), 19 Configure, 11 Address (RS485 enabled models only), 20 Analog 4-20 mA Output, 18 Alarm Limits, 18 Baud rate (RS485 enabled models only), 20 Digital Output (Pulse Output enabled models only), 19 Filter value, 17 Cutoff, 17 Frequency Output (Pulse Output enabled models only), 17 Gas-SelectX[®], 19 Pipe Area, 17 Serial Communication (RS485 enabled models only), 20 Unit settings, 17 Filter value, 17 Frequency Output (Pulse Output enabled models only), 17 Gas-SelectX[®], 19 **Glossary**, 28 Installation, 5 Introduction, 4 USB, 5 CAL-V[™], 24



Wiring



Troubleshooting Tips



Definition of Terms



NOTE! is used for Notes and Information



WARNING! is used to indicate a hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION! is used to indicate a hazardous situation which, if not avoided, could result in minor or moderate injury.



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