FT-3400 ELECTROMAGNETIC FLOW METER Configuration Utility Installation and Operation Guide



SAFETY INFORMATION

This meter was calibrated at the factory before shipment. To ensure correct use of the meter, please read this manual thoroughly.

Regarding this Manual:

- This manual should be passed on to the end user.
- Before use, read this manual thoroughly to comprehend its contents.
- The contents of this manual may be changed without prior notice.
- All rights reserved. No part of this manual may be reproduced in any form without ONICON's written permission.
- ONICON makes no warranty of any kind with regard to this material, including, but not limited to, implied warranties of merchantability and suitability for a particular purpose.
- All reasonable effort has been made to ensure the accuracy of the contents of this manual. However, if any errors are found, please inform ONICON.
- ONICON assumes no responsibilities for this product except as stated in the warranty.
- If the customer or any third party is harmed by the use of this product, ONICON assumes no responsibility for any such harm owing to any defects in the product which were not predictable, or for any indirect damages.

SAFETY PRECAUTIONS:

The following general safety precautions must be observed during all phases of installation, operation, service, and repair of this product. Failure to comply with these precautions or with specific WARNINGS given elsewhere in this manual violates safety standards of design, manufacture, and intended use of the product. ONICON Incorporated assumes no liability for the customer's failure to comply with these requirements. If this product is used in a manner not specified in this manual, the protection provided by this product may be impaired.

The following messages are used in this manual:

WARNING

Messages identified as "WARNING" contain information regarding the personal safety of individuals involved in the installation, operation or service of this product.

CAUTION

Messages identified as "CAUTION" contain information regarding potential damage to the product or other ancillary products.

IMPORTANT NOTE

Messages identified as "IMPORTANT NOTE" contain information critical to the proper operation of the product.

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SECTION 1.0: INSTALLING THE CONFIGURATION UTILITY

1. Go to <u>www.onicon.com</u> then click on the "Downloads" tab at the top and select "Network & Software Information".



2. Download the Diagnostic GUI and run the file name Diagnostic-GUI-3.0.19660

Flow and Energy Measurement	A Measurement Solutions	Products	Downloads	About Us	Blog	Find Your Rep	Contact Us
NE	TWORK & SOFT	WARE	INFOR	RMATIC	ON		
Downloads Menu	All networking documentation provid 6140 or your local ONICON represe	led here represer ntative if you nee	ts the most current d assistance in loca	version of the doc ting an earlier vers	ument. Plea sion of any d	se contact ONICON at (; ocument.	727) 447-
Catalog Sheets			BTU (Energy	/) Meters			
Guide Specifications	Diagnostic-GUI-3.0.19660 - tes	st.	Bio (Energ)	/ metero			
Submittals	ONICON E-4300 Logger Utility	Software - Versi	on V2 90				
Ordering Information	System-10-BACnet IP - Pilling	file					
Install Kit Instructions	System-10-LON or System-30-						
Company Brochures	Tridium (Niegere Breducte)	AB Eile for Susta	m 10 L ON				
CAD/REVIT Files	muluin (Niagara Products) .37	Eloo	tromagnotic	Elow Moto			
Manuals	Diagnostic-GUI-3.0.19660 - tes	t	tromagnetic	Tiow Mete	5		

- 3. Go to your downloads folder and unzip the file
- 4. Open the Zip folder and Run the Diagnostic GUI

뤻 diagnosticgui-setup.3.0.19660.28617

		D: .: 010 3 0 40550 1									-	
	Extract	Diagnostic-GUI-3.0.19000.zip								-	U	^_
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← → × ↑ 👫 > This	s PC > OS (C:) > Users > lojedaarteaga	> Downloads > Diagnostic	GUI-3.0.19660.zip						✓ [™] Sea	rch Diagnostic-GUI-3.0.19660.zip	,	ρ
<u>^</u>	Name	Туре	Compressed size	Password Size		Ratio	Date modified					
> 🛪 Quick access	😼 diagnosticgui-setup.3.0.19660.2861	Windows Installer Package	20,373 KB	No	20,933 KB	3%	10/30/2023 5:26 PM					
> 🌰 OneDrive - TASI	software_versions.txt	Text Document	1 KB	No	1 KB	18%	10/30/2023 5:35 PM					
🛩 💻 This PC												
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> SwinkEAgent											1000	
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1												

5. For Windowns 11 users a "Windows protected your PC" screen might show up. Please click "More info", then click "Run anyway".

Windows protected your PC	× Windows protected your PC
Microsoft Defender SmartScreen prevented an unrecognized app from starting. Running this app might put your PC at risk.	Microsoft Defender SmartScreen prevented an unrecognized app from starting. Running this app might put your PC at risk. App: diagnosticgui-setup.3.0.19655.21367.msi Publisher: Unknown publisher
	×
Don't run	Run anyway Don't run

- 6. Install the program on your PC by clicking next and following the prompts.
- 7. Once the program is installed search for the "ONICON Diagnostic GUI" App from the Windows start menu and open it.



SECTION 2.0: CONNECTING THE METER TO THE APP

- 1. Power up the device with a 24V power supply (20 28 VDC, 10W or 20 28 VAC, 60 Hz, 10 VA) using the wires of the attached 10 ft or 25 ft cable. Red is (+) supply voltage, black is (-) common.
- 2. Open the top cover and connect using a Micro-USB A or B to USB 2.0 cable.



3. If you get this warning below, please try a new USB to Micro-A or B cable and verify the cable type.



4. With the ONICON Diagnostic GUI Open, First load the attributes to the device by clicking the Pencil and then selecting the attribute database file.

ONICON								- o ×
 Meser Atsibutes Database \\DNE-V-S-FILOS\Usera\\cjedaar Select the Attribute Database	waga\My Documenta\Diagnostic_OUNFT-3x60_Attri Io Load	buteDatabase.xlax.enc					×	
i 🗧 -> i zi 🕂 📙 > This PC	> Documents > Diagnostic_GUI			v Ö	Search Diagnostic_GUI		ρ	
Organize - New folder							0	
Apps Apps Apps Apps Apps Apps Apps Apps	nn " Communitation Ung Ung Th' All Andread Statistics All and Th' All All Andread Statistics All and The All All Andread Statistics All and Statistics All All All All All All All All All Al	Date modified 12/12/2023 http://date. 12/22/2023 http://date. 10/12/2023 http://date. 10/12/2023 http://date. 02/22/2023 http://date. 02/22/22/22 http://date. 02/22/22/22 http://date. 02/22/22/22 http://date. 02/22/22 http://date. 02/22/22 http://date. 02/22/22 http://date. 02/22/22 http://date. 02/22/22 http://date. 02/22/22 http://date. 02/22/22 http://date. 02/22/22 http://date. 02/22	Type File folder File folder Wenhank capture file Wenhank capture file Wenhank capture file		Select a file to previe	Ψ.		
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File name	PT-1c00_AttributeOatabaseciliscenc			Ŭ	Encrypted Attribute Do	tabase f Cancel		

5. Click the select button and then select the USB COM port where the meter is connected amd click on the OK button to connect.



SECTION 3.0: PROGRAMMING/INFORMATIONAL TABS

The various diagnostic information and configuration options available with the GUI are separated into different section called tabs. Each tab has a different purpose. For example, the "Pipe Selection" tab allows the user to set the pipe size and material that the meter's output is configured for. The "Live Raw Data" tab allows the user to see the voltage of the electrodes as well as the output signals. Each tab and the information available within each tab are discussed in the following sections.

3.1 CONNECT TAB

←	ONICON					
Connect	Meter Attributes Database	uments\Diagnostic GUI\ET-3x00 AttributeDatab	ese xisx enc			
Lineut/Output	Communication Port					
🕥 Live Raw data	Communication Device Class ASF example (C	0M0)				
Alarms	Detect Select Disconnect				5 s 🛧 Write 5 s	Generate PDF Tag
Events						Restore Factory Config
Device Help						Save Diagnostic Data
Firmware	MAC 10 25			Davies Tips FT_3400		
	Serial Number FL4321			Mean Type Energy Meter		
	Model Name JEDI_4			Sensor Type Large Pipe		
	FT_3400 Version: 01.02.03			4.5		
	Bootloader Version 04.05.06			Material Ductile fron Lined		
	Manufacturing Date 11/25/2023	Celevation Date 9/16/2023	Field Config Date 9/14/2023	Meter Tog Boiler room		
	C Logs					
						Connected

The Meter Connect tab provides general information about the meter such as its serial number, manufactured/calibrated date, meter type, as well as the date it was manufactured, calibrated, and field configured.

MAC ID 32		
Seriel Number 001170869		
Model Name FT-3400-100-1D41		
FT_3400 Version: 01.00.22		
Bootloader Version		
Manufacturing Date 11/9/2023	Calibration Date 1/1/2000	Field Config Date 11/9/2023

3.1.1 MAC ID

Specific identification number of the meter that makes it unique.

3.1.2 Serial Number (Read Only)

The serial number of the meter is a unique identifier. When contacting ONICON for support or additional questions regarding a meter, please be ready to provide this serial number. If your meter shipped calibrated to a specific pipe size and output range, ONICON can retrieve this original calibration data with the help of the serial number.

3.1.3 Model Name (Read Only)

Model Name provides the specific built model number of the connected meter. Refer to the catalog sheet for more information about each number on the meter model codification.

3.1.4 FT-3400 Version (Read Only)

A firmware version refers to a specific release or iteration of software that is embedded within a hardware device. Firmware serves as the operating system for the device and is responsible for controlling its functions and operations. It is typcially stored in non-volatile memory and is designed to be permanent, allowing the device to retain it functionality even after power cycles or reboots. ONICON often updates firmware versions to introduce new features, fix bugs, enhance performance, or address security vulnerabilities.

3.1.5 Bootloader Version

The bootloader version refers to the specific release or iteration of the bootloader software installed on a device. It is responsible for initializing the device while maintaining the device's state and ensuring the necessary components are loaded correctly. It acts as a bridge between the hardware and software, allowing the device to boot into the operating system.

3.1.6 Manufacturing Date

The date that the meter was manufactured at ONICON. This date may not match the calibration date if the meter has been returned to ONICON for recalibration service after the original manufacture date.

3.1.7 Calibration Date

The date that the meter was last calibrated at ONICON. This date may not match the manufacture date if the meter has been returned to ONICON for recalibration service after the original manufacture date.

3.1.8 Field Config Date

After saving or writing a configuration on any of the tabs. The Config Date will be changed to note the latest date the meter was reconfigured.

Device Type FT_3400	
Meter Type Flow Meter	
Sensor Type Large Pipe	
Body Size 16.0	
Material Carbon Steel	
Meter Tag CHW	

3.1.9 Device Type

This GUI can interact with multiple ONICON products such as FT-4600, SYS-1000, FT-3400, and FT-3500. Device type indicates the meter attribute database file that was loaded into the GUI. See steps on section 2 for more information about the attribute database file.

3.1.10 Meter Type

The meter type indicates if it is an Energy Meter or Flow Meter.

3.1.11 Sensor Type

Sensor type options are small pipe and large pipe. It will limit the pipe size configuration to 3-72" for large pipe and 1.25-2.5" for small pipe.

3.1.12 Body Size

Body size refers to the pipe size the meter is currently configured.

3.1.13 Material

Material refers to the pipe material the meter is currently configured. For example, Carbon Steel, Copper, etc.

3.1.14 Meter Tag (Writable)

Enter meter tag name. The current tag can be found hanging on the meter.

3.1.14.1 Generate a meter tag



This function will create an electronic copy of the Flow Meter Configuration and save it to the drive. When the "Print to PDF" button is selected, a new "Save Dialog" window will be opened. Select the location and change the file name as needed.

3.1.14.2 Restore Factory Default



If the new configuration is no longer trusted. The restore factor config button helps to reconfigure the meter to the original setting of the meter.

3.1.14.3 Save Diagnostic Data

Save Diagnostic Data

"Save Diagnostic Data" button is used for downloading a file for the ONICON support team to analyze and troubleshoot any source of noise or configuration issue that might be on the meter.

3.2 PIPE CONFIGURATION TAB

	ONICON						
冠 Connect	Bow and Energy Heasurement —						
<mark>),</mark> Pipe	Standard				Max Stack Height		
👯 Input/Output	Ductile Iron Lined				Meter Length 24		
l Alarms	Carbon Steel_Schedule 40S				Remaining Stem Length 1.55		
💼 Events					Gauge Length		
Device Help	Custom Pipe ID (in)						
📑 Firmware	Custom Pipe OD (in)						
	Name of Person configuring:						
		Write	Pipe Config to Meter				
			Velocity Table Version:	L1342		Act Height	
	Velocity Table selected:		Pipe Config Version:	L1.43.1			
				Send new tables to Meter	l		
	C Logs						Connected

The pipe selection tab provides the means to modify the pipe size and material of the FT-3400. The accuracy of the volumetric output, whether it is volume rate (Hz, mA or V) or volume total (scaled pulse), is dependent on an accurate pipe ID being programmed in the meter.

3.2.1 Pipe Changes

Standard	•
Carbon Steel	
Carbon Steel_Schedule 40	
16.0	
Custom Pipe ID (in)	
Custom Pipe OD (in)	
Write Pipe Config to Meter	

Two options are available for pipe configuration.

3.2.1.1 Standard:

Allow the selection of material, schedule, and size of the most common pipes. For example, Copper, Carbon Steel, PVC, PPR, Ductile Iron, and its schedules from 3" to 72".

3.2.1.2 Custom:

Allow the selection of a specific ID/OD for custom pipe after the type of wall is selected between the following options:

Conductive Magnetic Semi Rough Walled pipe is any metallic pipe with an inner material texture that is not smooth providing roughness and more friction for the fluid. For example, pipes with similar properties like <u>carbon steel</u> pipes.

Conductive Non-Magnetic Smooth Walled pipe is any metallic pipe with an inner material texture that is not completely smooth providing some degree of roughness for the fluid. For example, pipes with similar properties like <u>carbon</u> pipes.

Nonconductive Nonmagnetic Rough Walled pipes have a surface texture that is not smooth, and they are made from materials that do not conduct electricity or exhibit magnetic properties. For example, pipes with similar properties like <u>concrete or concrete lined</u> pipes.

Nonconductive Nonmagnetic Smooth Walled pipes have a smooth surface texture, and they are made from materials that do not conduct electricity or exhibit magnetic properties. For example, pipes with similar properties like <u>PVC, PPR, or other plastic pipes</u>.

Custom	
NonConductive NonMagnetic Smooth Walled	
Custom Pipe ID (in)	
Custom Pipe OD (in)	
Write Pipe Config to Meter	

The password to write a new pipe configuration is 1234.

Click the User icon located at the left bottom corner to enter the password.



3.2.2 Installation Changes Based on Pipe Configuration

3.2.2.1 Max Stack Height

The allowable distance from the surface of the pipe to the threaded connection of the meter.

3.2.2.2 Meter Length

This length refers to the distance from the bottom of the sensor to the bottom of the enclosure.

3.2.2.3 Remaining Stem Length

This length is a calculated value of how much insertable length a meter has left, based on the calculated Gauge Length (proper insertion depth). The remaining stem is a function of the meter length, the pipe ID and OD, and the type of installation kit.

3.2.2.4 Gauge Length

The software will automatically recalculate the new gauge length after a new pipe configuration is made. Note: Please take the gauge attached to the meter and match the size with the size provided by the software.



3.2.3 Flow Meter Table Version:

The meter will change its table version based on the pipe configuration use.

		Velocity Table Version:	L1.34.2	
Velocity Table selected:	1	Pipe Config Version:	L1.43.1	
			Send new tables to Meter	

3.2.4 Loading a New Table Version

1. Click on the Diagnostic Login Icon on the bottom left corner and enter password "1234".

~	ONICON						×
Connect	Meter Attributes Ostabase \\ONI-V-S-FILD3\Users\lojedaarteaga\My Doc	cumenta\Diagnostic_GUI\FT-3x00_AttributeDatab	ase.xlax.enc				
Input/Output	Communication Port Communication Device Class ASF example (C	COMO)					
👽 Live Raw data	Detect Select Disconnect						Generate PDF Tag
Alarms							Restore Factory Config
Events Device Help							Save Diagnostic Data
E Firmware					Device Type FT_3400		
	Serial Number FL4321				Meter Type Energy Meter		
	Model Name JEDL_4			DiagnosticGUI Login			
	FT_3400 Version: 01.02.03			Password			075-06875
	Bootloader Version 04.05.06						
	Manufacturing Date 11/25/2023	Calibration Date 9/16/2023	Field Config Date 9/14/2023				
	C Logs						
Version: 3.0.19569.28517 CC							Connected

Send new tables to Me

2. Go to the "pipe configuration" page

and select the button "send new table to meter"

ONICON O Pipe 6 Meter Lengt 👯 Inpu Ductile Iron Lined 😨 ι Rema 💼 Events 😰 Dev Pipe ID (in) 📒 Fin Custom Pipe OD (in) ite Pipe Config to Me Gauge L Send new tables to Me E FACTORY

3. Select and load the new table file provided by the factory. BedochyTablesPipeConfig_22_L10.8_L10.0_20231018_102707.csv



4. Confirm table version is load in "pipe configuration" page

←						- o x
Connect Pipe Imput/Output Live Raw data Alarms Events Device Help Firmware	Standard Ductile Iron Lined Carbon Steel_Schedule 405 30 0 Custom Pipe ID (in) Custom Pipe ID (in) Custom Pipe 0D (in) Name of Person configuring:			Max Stack Hnight 6 Meter Longth 24 Remaining Stem Length 1.55 Gauge Longth 1.56		
	Velocity Table selected:	Write Pipe Config to Met Velocity Table Ver 1 Pipe Config Venic	eer L1342 m L1343 Send new tables to Meter		Meter Longth Saxis meth Gauge Length	
Version: 3.0.19660.28617 C	Check For Viodate					Connected

3.3 INPUT/OUTPUT CONFIGURATION TAB

÷	ONICON	
Connect	Analog Out Max Value	Digital Output 1 Configuration NotUsed
+ Input/Output	Analog Output Configuration Flow	Pulse Duration Sfms On 1 Sec Total
👽 Live Raw data	Use Alarm levels on Analog Output	Scale 1
Alarms	Analog Output Range	Digital Output 2 Configuration
🔁 Events	4 20 mA and 0 10 V Analog Output Damping Option	Pulse Duration
Device Help	Fest *	
E Firmware	GPM *	10 Dividal Oxford 3 Configuration
	GALLONS	Volume
	Max Frequency Output (Hz) 500	Pulse Duration 100ms On 1 Sec Total
		- Cosla
	Max How at Max Frequency (GPM) 1000	10
	Main Look all Main Frequency (conta) 1004 all Main Frequency (conta) Meter Factor (PPG) 30	10 Write Configuration to Meter
	Mai tow at Mai Frequency (urf M) 100 Meter Factor (PPG) 30 Note: If using an ONICON display or BTU meter: Making changes to the Mai Fore at Mai Frequency or the Maintum Frequency Output will also result in a change in the MeterFactor (PPG) Meter Factor (PPG) - Frequency - 60 / Fore at Mair Freq in GPM)	10 Write Configuration to Meter
E FACTORY	Mai to all Mais regulates (UPM) To Mere Factor (PPG) 3 Note: If using an ONICOM display or BTU meter: Making advange to the Mais Toward Mais Trequency or the Maison on Frequency Output will also neult in a change in the MeterFactor (PPG) Meter Factor (PPG) - Frequency + 60 / Forw all Mais Trequency or dy the Maison on the MeterFactor (PPG) Meter Factor (PPG) - Frequency + 60 / Forw all Mais Trequency or dy the Maison on the MeterFactor (PPG) ¹ Loga	10 Write Configuration to Meter

- **3.3.1** Analog Out Max Value: Refer to the Full-Scale Flow Rate of the meter.
- **3.3.2** Analog Output Configuration: Limited as Flow only for the FT-3400

3.3.3 Use Alarm Level on Analog Output: Activate the 2mA on 4-20mA, 1V on 2-10V or 0.5V on 1-5V to alert the user if there are any errors with the meter or flow alarms.

3.3.4 Analog Output Range: Select between 4-20mA and 2-10V or 4-20mA and 1-5V

3.3.5 Analog Output Damping Options: Selection between Fast, Medium, and Slow respond to the instantaneous analog out.

3.3.6 Flow Rates Units: Options are GPM, CF/S, L/S, L/Min, CM/H, FT3/S, or M3/S

3.3.7 Volume Units: Options are Gallons, Liters, Cubic Meters

3.3.8 Max Frequency Output (Hz): Typical signal used to connect to ONICON peripheral. Max allowed input is 500hz.

3.3.9 Max Flow at Max Frequency: This parameter sets the value for the flow at the max frequency scale. Which is then used on the Meter Factor.

3.3.10 Meter Factor: Calculated value of Max Freq x 60 / Max flow at Max Freq. This value is entered in any of the ONICON peripherals.

3.3.11 Pulse Duration: 50ms on 1 Seconds Total, 100ms on 1 Seconds Total, 500ms on 2 Seconds total, or 1000ms on 3 Seconds Total.

The parameter configures the pulse duration or the time that the relay output of the meter is in a closed state, when the scaled pulse output occurs. There are four settings available:

"50 ms or 1 s total" - When a scaled pulse occurs, the duration on the relay closure will be 50ms. A scaled pulse cannot occur more than once per second (1 Hz).

"100 ms on 1 s total" - When a scaled pulse occurs, the duration on the relay closure will be 100ms. A scaled pulse cannot occur more than once per second (1 Hz).

"500 ms on 2 s total" - When a scaled pulse occurs, the duration on the relay closure wil be 500ms. A scaled pulse cannot occur more than once per 3 seconds (1/3 Hz).

"1000 ms on 3 s total" - When a scaled pulse occurs, the duration on the relay closure will be 1000ms (1 second). A scaled pulse cannot occur more than once per 3 seconds (1/3 Hz).

The pulse volume along with the pulse duration determine when the meter will enter a "pulse overrun" alarm. A pulse overrun occurs when the meter is attempting to provide a scaled pulse faster than the duration allows. Please follow the on-screen instructions for determining if your pulse scaling and duration settings could cause a pulse overrun.

3.3.12 Digital Output Configuration: Options are Volume Forward, Volume Reverse, Alarm, Mode Status, Warning.

3.3.13 Scale Pulse Output: If the digital output configuration is selected as volume, volume forward or reverse, then scale pulse output options are 1, 10, 100, 1000, 10K, 100K, 1M

Write Configuration to Meter

Click Write Configuration to Meter after all needed changes to the input/output of the meter are made to save the new configuation in the meter.

3.4 LIVE RAW DATA TAB

The LIVE RAW DATA tab displays real-time data related to meter's operation. The velocity, output levels, and equivalent flow rate are based on pipe size configuration. The information on this tab is used to diagnose a signal or configuration is not functioning properly without having to measure an output signal level on the meter's wires with a multimeter. Click "start polling" to see live data.

÷		-
🔂 Connect		Digital Output 1 Status
🔍 Pipe		
Input/Output	Base Flow Rate (GPM)	Digital Output 2 Status
👽 Live Raw data	2.2508 Base Velocity (ft/s)	0 Divisi Ordenet 2 Statue
Alarma	1.100000	
Alarms		Analog Out (mA)
Events		12.00
Device Help	Flow Electrode 0	Analog Out (V)
E Firmware	Juso4 Flow Electrode 1	5.00 Frequency Out (Hz)
	0.0967	2.232582
	Start Polling	
_		
5 FACTORY	[2] Logs	
rsion: 3.0.19660.28617 C c		Connected

3.4.1 Base Flow Rate (GPM)

This value shows the flow rate in gallons per minute. This is for the flow rate of the meter based on the pipe ID programmed in the "Pipe Selection" tab.

3.4.2 Base Velocity (ft/s)

Shows the flow velocity, in feet per second from the average electrodes and it is equivalent to based on the pipe ID configured in the Pipe Selection tab. This velocity is not correct for the pipe area the turbine meter acquires from being inserted in the pipe.

3.4.3 Flow Electrode 0 (V)

Shows the voltage reading from the left side sensor. (meter positioned parallel to the flow direction)

3.4.4 Flow Electrode 1 (V)

Shows the voltage reading from the right side sensor. (meter positioned parallel to the flow direction)

3.4.5 Digital Output 1 Status

The screen shows a number 1 every time the contact closes and a number 0 when the contact is open.

3.4.6 Digital Output 2 Status

The screen shows a number 1 every time the contact closes and a number 0 when the contact is open.

3.4.7 Digital Output 3 Status

The screen shows a number 1 every time the contact closes and a number 0 when the contact is open.

3.4.8 Analog Out (mA)

This is the current output available on the meter's blue and brown wires.

3.4.9 Analog Out (V)

This is the voltage output available on the meter's white and brown wires.

3.4.10 Frequency Out (Hz)

This is the scaled frequency output available on the meter's green and yellow wires.

3.5 ALARMS, ERRORS & WARNINGS TAB

This tab provides comprehensive information about specific warnings, alarms, or errors. Refer to the table below for their meanings. This additional resource will help you gain a deeper understanding of any issues and guide you in taking the appropriate actions to maintain the meter's functionality and accuracy. Please note that prompt attention to alarms, errors, and warnings is essential to ensure the reliable and accurate operation of the FT-3400 meter.



3.5.1 List of Error

ERRORS							
STATUS	POTENTIAL ISSUE	POSSIBLE SOLUTIONS					
Error Elec 1 Bad DC Offset	Possible electrode 1 disconnected	 Power off the unit Carefully remove the electronic and check electrode wires are connected as per the image below. Power on the unit and the error should disappear. Contact ONICON if the error is still present. RMA Needed. 					
Error Elec 2 Bad DC Offset	Possible electrode 2 disconnected	 Power off the unit Carefully remove the electronic and check electrode wires are connected as per the image below. Power on the unit and the error should disappear. Contact ONICON if the error is still present. RMA Needed. 					
Error Elec 1/2 Diff Outrange	Possible electrode 1 or 2 disconnected	 Power off the unit Carefully remove the electronic and check electrode wires are connected as per the image below. Power on the unit and the error should disappear. Contact ONICON if the error is still present. RMA Needed. 					
Error Coil Fail	No measurement from the Coil	 Open the enclosure and check the DS1 LED light is ON. If the DS1 LED light is off, power off the unit and carefully remove the electronics and check coil wires are connected as per the image on page 29. Power on the unit and error should disappear. Contact ONICON if the error is still present. RMA needed 					
Error Cfg Corrupt	Incorrect voltage to velocity table loaded	Contact ONICON. RMA needed					
Error Empty Pipe Init Fail	Empty Pipe was unable to initialize due to disconnected electrode 1	 Power off the unit Carefully remove the electronic and check electrode wires are connected as per the image below. Power on the unit and the error should disappear. Contact ONICON if the error is still present. RMA Needed. 					



3.5.2 List of Alarms

ALARMS								
STATUS	POTENTIAL ISSUE	POSSIBLE SOLUTIONS						
Alarm High Flow	The actual flow is greater than the volumetric flow rate at 20 ft/s	Nonideal flow rate condition. Contact ONICON if a short high flow rate test is needed.						
Alarm AOUT High Flow	Flow is higher than the Analog Output Full Scale	 Confirm the analog output full scale is equal to or greater than the design max flow of the system. Use the PC App to adjust the full scale of the meter 						
Alarm Frequency High Flow	Flow is higher than the Max Frequency	 Confirm the maximum frequency and flow at max frequency is equal to or greater than the design max flow of the system. Use the PC App to adjust the maximum frequency output and flow at max frequency. 						
Alarm Reverse Flow	The flow meter orientation does not match the flow direction	Check the orientation of the meter and flow direction arrow.Rotate the meter to match the flow direction.						
Alarm Empty Pipe	The pipe is not full or the meter is grounded	Confirm the pipe is full of water and the meter is properly ground according to section 3.5.						
Alarm Warm-Up Delay	The alarm is only present for the first 3 minutes or less after the meter is powered up. Meter electronics are initializing.	 If 3 min have passed, power cycle the unit and wait 3 more min for the alarm to clear off. Contact ONICON if the alarm is still present. RMA needed. 						
Alarm Pulse 1 Overrun		• Confirm the flow rate data and pipe diameter data on the tag attached to the meter corresponds with the actual flow and actual						
Alarm Pulse 2 Overrun	This alarm is present whenever the volume flow rate causes the incremental volume total to accumulate at a rate that is too fast.	 pipe diameter. Any mismatch between the calibrated and actual flow rates or the calibrated and actual pipe 						
Alarm Pulse 3 Overrun		 diameter will cause this alarm message to appear. Contact ONICON for assistance in correcting this condition. 						

3.5.3 List of Warnings

WARNINGS						
STATUS	POTENTIAL ISSUE	POSSIBLE SOLUTIONS				
Warn Reverse Flow	Not an actual issue present. The warning is present as a message whe flow is going in the opposite direction for bidirectional meters.					
Warn Low Flow	Flow is below low flow cut-off in FPS	The meter cut-off is 0.1 ft/sec. Increased flow and warning will clear.				
Warn AOUT Low Flow	Flow is below 5% of analog output full-scale	Increased flow and warning will clear.				
Warn AOUT High Flow Flow is between 95% to 1009 analog output full scale		Decrease flow and warning will clear.				
Warn Freq. High FlowFlow is between 95% to 100% o the maximum frequency output		Decrease flow and warning will clear.				
Warn Flow Sample Overrun 1						
Warn Flow Sample Overrun 2	Sampling not optimal					
Warn Flow Sample Transient E						
Warn Flow Sample Near Full						

3.6 DEVICE HELP (WIRING AND TERMINAL BOARD TAB)

This tab provides all connections to the attached 10 ft or 25 ft cable. The most common causes of electronic failures are mis-wired connections during installation. When adding additional cable, record and carefully document any substitution of wire colors. An additional cable may be purchased from ONICON that will allow you to maintain the existing color coding. All electrical connections to the FT-3400 must be made through the 10 ft or 25 ft cable provided with the meter. Special care is required to ensure that the FT-3400 is connected to earth through the green/yellow earth wire. This connection is required to prevent random electrical noise from interfering with the operation of the meter.

CAUTION

Only qualified personnel should attempt to make electrical connections to the FT-3400. Failure to properly connect the FT-3400 power, signal, or earth connections to the FT-3400. Failure to properly connect the FT-3400 power, signal, or earth connections may reslt in damage to the FT-3400 and/or to associated peripheral equipment.



3.7 UPDATING FIRMWARE

1. The "Connect" page

should show the current FW version of the meter and the meter information.

	ONICON				- o ×
o ,	Meter Attributes Database \\ONI-V-S-FIL03\Users\lojedøarteaga\My Documents\Di	agnostic_GUI\FT-3x00_Attri	buteDatabase.xlsx.enc		
+++	Communication Port COM12: USB Serial Device (COM12)				
O	Detect Select Disconnect			↓ <u>Read 5 s</u> ↑ <u>Write 5 s</u>	Generate PDF Tag
1	Mode Device				Restore Factory Config
e n					Save Diagnostic Data
*	MAC D		Device Type FT 3400		
	Serial Number		Meter Type		
	LS-0000 Model Name		Flow Meter		
	FT-3500		Large Pipe		首會語語
	FT_3400 Version: 01.00.12		Body Size 8.0		
			Matarial Copper		
	Manufacturing Date Calibration Date 1/1/2000 1/1/2000	Field Config Date 1/1/2000	Meter Tag Name ATag		
	2				
Version: 3.	Logs 0.19655.21367 C Check For Update				Connected

2. Go to the "Firmware" page by clicking this icon

5

on the left side of the screen

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Q Pipe	Tool, user on his instance path 1/SNUY-SFL2031ber/Japobartagy/Mg Documents/Biognostic, SRI/bootloade/EX), Attribute/Jatabase Jass.een							
tinput/Output	togenet (mores ht/ACCOR Engineering Schware), and shark/hogeneming/illemone Frances Beary/v1.10.0/Jemone, FreeRTOS bis.emorgsted.hes							
👽 Live Raw data	Exact unit communication port Communication Device Class ASF example (COMR) \$ s							
! Alarms	Mec 10 25				•			
Device Help	Verder (5 ONICON			Detect USB BootLonder	Main Board *			
Firmware	Device type FT.3400			COM Hardware Valid				
	BootLoader version 01 C2 03			Initialize Communications BootLoader Mode Detected				
	View Log	COM Ports	Reset Meter	Read Device Configuration				
				Load Encrypted Firmware Initialize Encrypted Burn				
				Process Firmware Packets				
				Verity Firmware Signature				
				Firmware Update Complete				
					•			
	🖄 Logs							
Number 10 1966 19617 (CLC					Connected			

3. Next load the bootloader information by clicking the top pencil and then selecting the appropriate bootloader attribute file

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Q, Pipe	$\leftrightarrow \rightarrow \neg \uparrow \square \rightarrow$ This	PC > Documents > Diagnostic_GUI			v õ	Search Diagnostic_GUI			
Input/Output	Organize 👻 New folder					lii • □ (2		🖌 🕤 👘
👽 Live Raw dat	Apps ^	Name	Date modified	Туре					×
Alarms	Attachments	Communications	12/13/2023 10:15 AM	File folder					
🛅 Events	Documents	Logs	12/21/2023 3:46 PM	File folder				Detect USB Bootl owler	
Device Help	Microsoft learns	FT-3x00. AttributeDatabase.xlsx.enc	10/16/2023 4:43 PM	Wireshark capture file				Initialize Attribute Database	Main Board *
Eirmware	SYS-1000	System 1000_BTUMeter_AttributeDatabase.xlsx.e	9/27/2023 1:56 PM	Wireshark capture file				COM Hardware Valid	
	Video IDEA							Initialize Communications	
	This PC							BootLoader Mode Detected	
	3D Objects							Read Device Configuration	
	Desktop					Select a file to preview.		Load Encrypted Firmware	
	Documents							Initialize Encrypted Burn Decense December Burlinte	
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	File nar	ne: FT-3x00. AttributeDatabase.xlsx.enc			~	Encrypted Attribute Database fi			
						Open Cancel	i .		
						Concer	4		
~									•
E FACTORY	🖸 Loga								~
Version: 3.0.19663.20617 (Connected

4. Next load the firmware, the ".encrypted.hex" file by clicking the second pencil 🕜 from the top and then select your file

Select the	E Encrypted Firmware File to load			×	×	- o ×
	↑ 🧧 « ONICON Engineering → Software → LandsharkPro	ramming > Remora Firmware Binary > v1.12.0	v Ö Search v1.12	م ٥		
Q, Pic Organize +	Newfolder			III • 🗆 🔞		
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EACTORY	C) tope				_	•

- 5. PLEASE STOP FOR A MINUTE AND READ STEPS 5-8. If you do this incorrectly you will have to restart the software and start from step 1 again. You have 40 seconds to do the next steps once you click "reset meter". Once you are familiar with the next set of instructions, please proceed.
- 6. Reset the meter using the "Reset Meter" button Reset Meter
- 7. Press x to disconnect and then go again to the "firmware" section to load the new firmware



8. Click the "firmware" **1** page on the left. Then press the "connect" button **1** and then the "play" button **1** to update the firmware.

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	BOOTLGADER_SAME70			COM Hardware Valid		
				BootLoader Mode Detected		
	View Lon	COM Ports	Recet Mater	Read Device Configuration		
	Then boy	Controla	No Set Mater	Loed Encrypted Firmware		
				🔵 Initialize Encrypted Burn		
				Process Firmware Packets		
				Verify Firmware Signature		
				Firmware Update Complete		
					0	
E FACTORY	C Loga				~	
					Connected	

9. All the statuses should be green after the firmware is loaded properly.

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Device Help	MeD * Write 5 ×					
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	Bool, seder wenion 19 82 22		Initialize Communications Dott ouder Mode Detecte			
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			Verity Firmware Signature			
			Firmware Update Complete			
				•		
	2 Logo			~		
Version: 3.0.19960.20017 (3.0				Connected		

10. Unplug the USB from the PC and disconnect the meter from the App.

←	NUCCON Nurthing header				>	
Uve Raw data	New Yor Isona Tankawa WDNH YS F3.03 Wood Natrogal My Occurrent's Diagnostic, (2019FT (2000), AttributeDatabase .nlsx.eec					
l Alarms	Communication Part COM17: USB Serial Device (COM17)					
🛅 Events	Det I Select Disconnect ↓ Pred S = ↑ W					Generate PDF Tag
Device Help						
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	Model Name EX Burketer Honizet Co 20 22 2					
		Bootstader Vinicia 02.02.22		Maserial No Material Selected		
	Manufacturing Date 0/0/2000		Field Coefig Date 0/10/2000			
ACTORY	🖄 logs					

- 11. Plug the USB back and connect the meter one more time to the PC app. (refer to step 5 c methods) "how to connect to the app" section if help is needed on this step.
- 12. After the meter is connected, confirm the new firmware is shown on the "connect" page

÷	ONICON				- o ×			
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FACTORY	[2] Long							
Version: 30.1860.28517 @4	heck for Undate					Connected		

13. Now you can shut down the program and safely remove the USB.

