

# TSIModbus2BufferDownload DRIVER NEW FOR FMS 5.3.0 PORTABLE CONFIGURATION AND DOWNLOAD

TECHNICAL BULLETIN TCC-136 (US)  
(11/17/2016) REVISION B

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## Intent

The purpose of this document is to detail the setup and use of the new FMS TSI Modbus2BufferDownload (Portable Buffer Download) driver introduced in FMS 5.3.0.

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## Overview

The TSI Modbus2BufferDownload driver is used to configure and download data from TSI Portable instruments. Only instruments that use TSI Modbus map version 2.0 and have newly released firmware version 3.0 installed are supported.

The Portable instruments are only connected to FMS to be configured or to have their data downloaded. They are disconnected from FMS during the collection of data.

Configuration consists of setting many instrument parameters (i.e., Recipes, Zones and Locations).

Downloaded data is stored in FMS Sample Points created for these Units, and specifically named based upon the Zone and Location names.

Environmental conditions can also be stored if available, and if a specific Sample Point is created for them.

A buffer download can be initiated from the FMS Client PC or from a designated download location using a switch connected to an FMS analog or digital input.

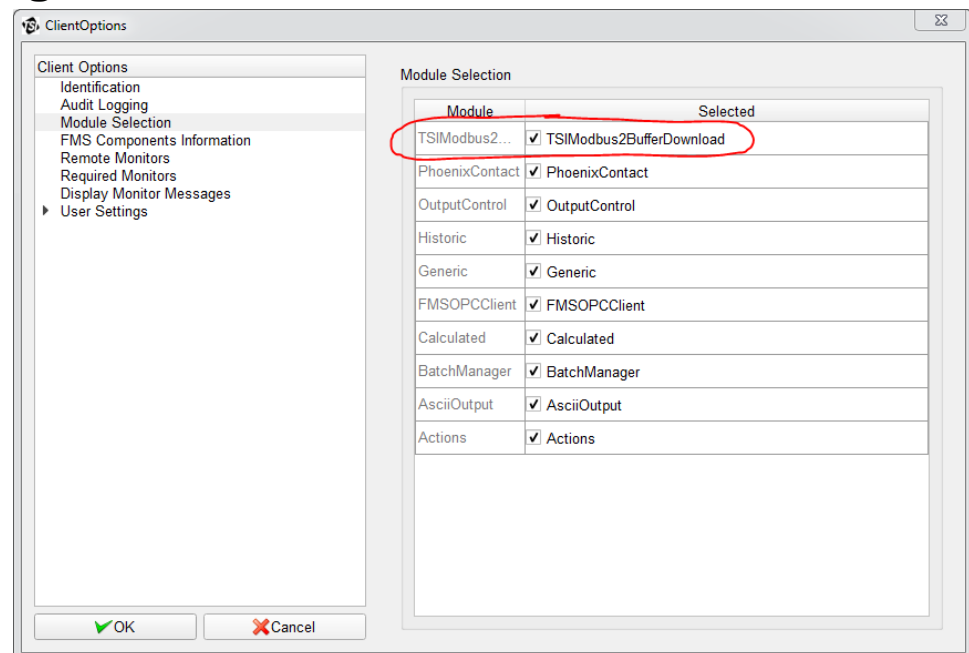
The TSI Modbus2BufferDownload driver has been fully tested using PostgreSQL database.

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## Setup and Configuration

Setup and configuration is the same for both Pharmaceutical and Semiconductor (Standard) mode.

By default, the TSI Modbus2BufferDownload driver module is disabled. If the TSI Modbus2BufferDownload driver is not selectable in the driver drop-down menu of a Unit configuration, make sure the TSI Modbus2BufferDownload module is checked under **Client Options** → **Module Selection**.



## Create a Configuration

1. Start by creating Communications to the instrument as with any other Portable instrument. Even though this instrument will not be connected to FMS most of the time, it will still need the Communication channel when it is.

### Note

It is possible to configure multiple units of the same model such as 9510-02 with the *same* IP address. Multiple instruments with the same IP Address, Zone /Location /Recipe configuration can all be used to monitor the facility at all configured locations.

In this event care must be taken to ensure only one unit is connected to FMS (the network) for configuration or buffer download at any moment in time.

Communications:169.254.141.61

TCP Port

Name 169.254.141.61

Packet Driver Modbus RTU

IP Address 169.254.141.61

Port Number 502

Notes

Enabled

OK Cancel

2. Next create a new TSIModbus2BufferDownload Unit
  - a. Select **TSIModbus2BufferDownload** from the Driver drop-down list on the General tab.

Unit:PBD\_Unit\_9350

General Driver

Unit Name PBD\_Unit\_9350

Driver TSIModbus2BufferDownload

Recipe Default

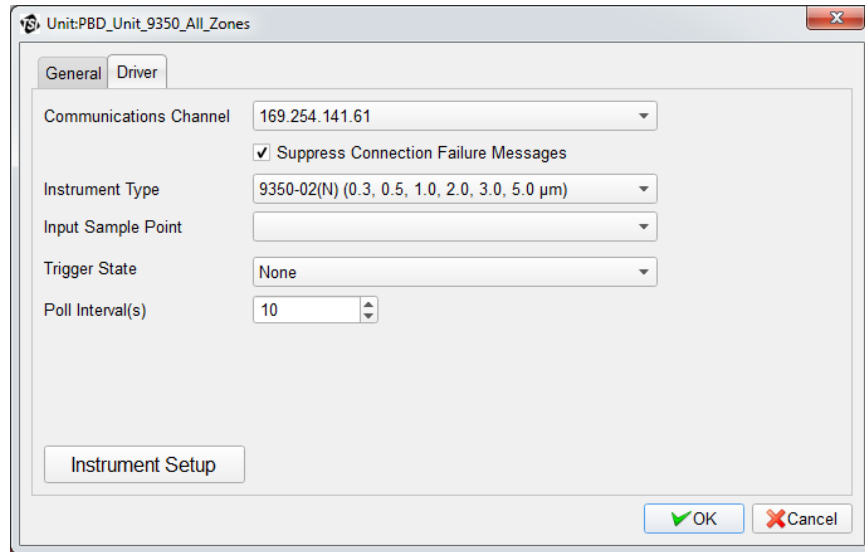
Calibration Alarm Enabled 1/1/2000

Enabled

OK Cancel

- b. Select the **OK** button to close the dialog.

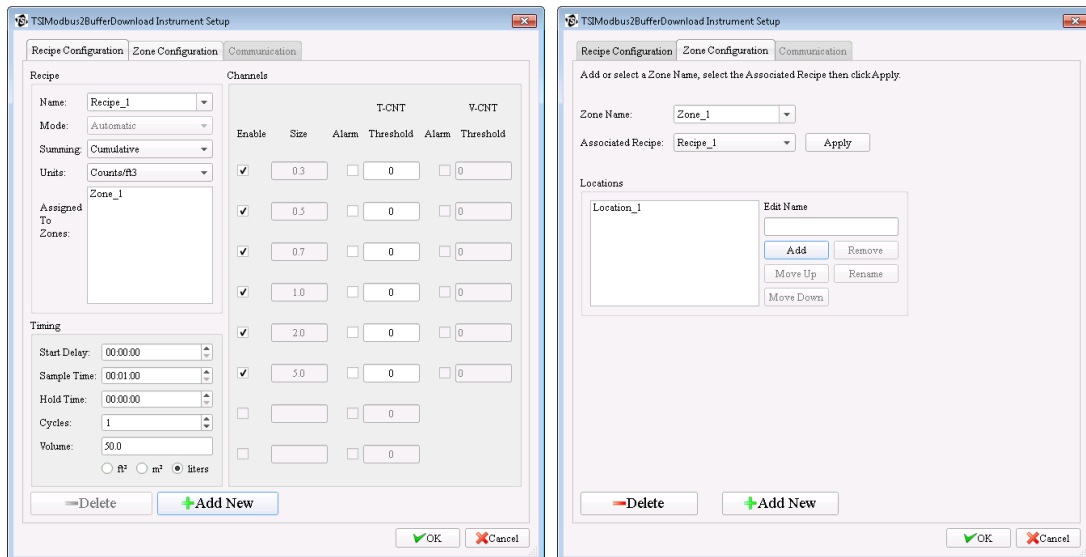
- c. Re-open the Unit properties window and navigate to the Driver tab.
- d. Select the Communications Channel created above.
- e. Select the correct information of the instrument from the Instrument Type drop-down list.



### Notes

- TSI recommends you also select the Suppress Connection Failure Messages at this time. Left unchecked, TCP Communication Errors are regularly generated for this Unit when not connected to FMS.
- The 9110 and 9510-BD are currently not supported at this time.

- f. Click on the **Instrument Setup** button to edit the configuration.
- g. A dialog will appear that contains many of the instrument's Recipe, Zone and Location settings needed to setup a Portable Buffer Download instrument.



- h. Fill out all the settings following the on-screen instructions.
- i. Ensure you have desired Zones assigned to Recipes, and Locations assigned to Zones before clicking the OK button. You can return to this screen to check and change the settings.

## Notes

- For the Zone Configuration tab, TSI strongly recommends following the on-screen instructions. First add or select a Name item, rename it, if desired, and then select its Associated item. After both are correct, only then click the Apply button to complete the setup.

3. Next, create a new TSIModbus2BufferDownload Sample Point and select the TSIModbus2BufferDownload Unit in the Unit drop-down list created in the previous steps.
4. The Sample Point name **MUST** be the Zone name and Location name separated by an underscore character “\_” (*ZoneName\_LocationName*).
  - For the ambient temperature the Sample Point name is *ZoneName\_LocationName\_T*.
  - For the ambient humidity the Sample Point name is *ZoneName\_LocationName\_H*.
  - For the ambient air velocity the Sample Point name is *ZoneName\_LocationName\_V*.

## Notes

- The Sample Point name length maximum of 32 characters must still be adhered to so plan your Zone and Location names with this in mind.
- Sample Point names are case specific. They must match the Zone and Location names on the instrument.

The screenshot shows a dialog box titled "Sample Point: Zone\_9350\_Location\_9350". It has tabs for "General", "SPC", "Recipe", "Alarms", and "Driver". The "General" tab is active. The fields are as follows:

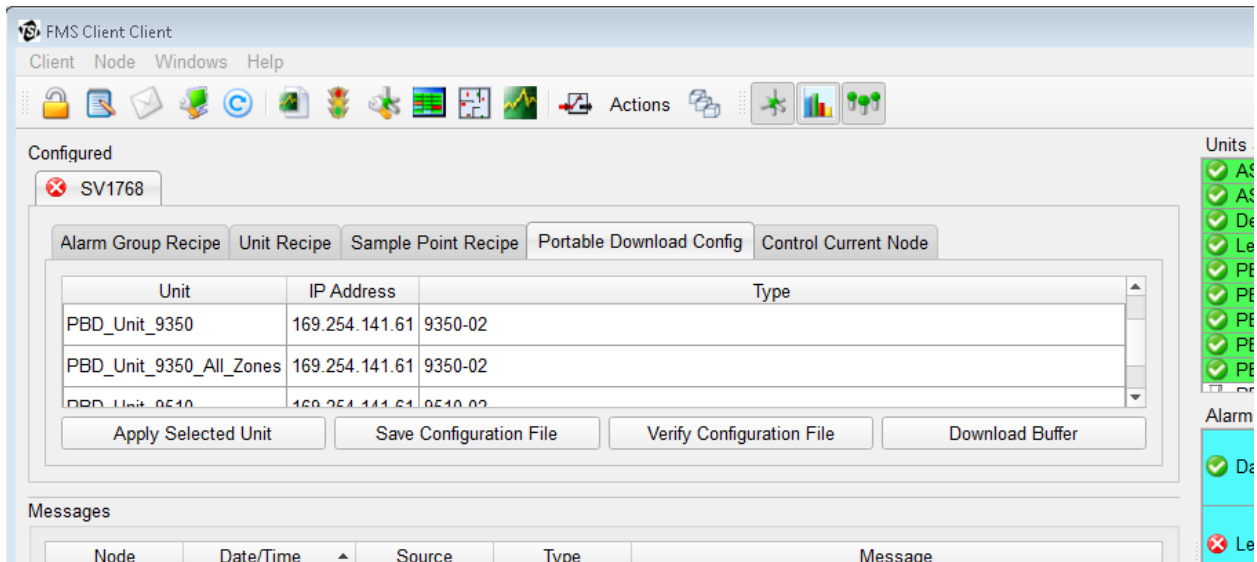
Sample Point Name	Zone_9350_Location_9350
Unit	PBD_Unit_9350
Data Type	CountsPerF13
Input Index	
Display Units	C/cuft
Decimal Places	2
Recipe	Default
Comments	
Additional Comments	

At the bottom, there are two checkboxes: "Calculate MKT" (unchecked) and "Use logarithmic graph scales" (unchecked). At the bottom right, there are "OK" and "Cancel" buttons.

5. Other Sample Point settings are as normal for a Portable instrument.

## Send a Configuration

Now that you have a configuration created for a Unit you can navigate to the Control window to send it to an instrument.



A new tab (Portable Download Config) has been added to allow several new functions to be performed.

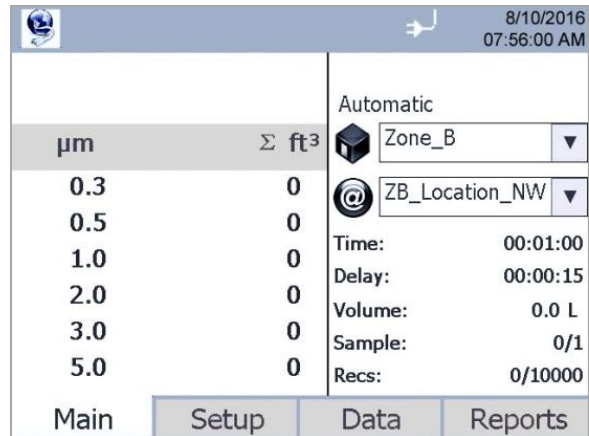
### Apply Selected Unit

Select this to send the configuration of the selected Unit directly to the instrument via Ethernet. The instrument must be connected to FMS.

**Notes**

- The Ethernet address of the instrument **MUST** be manually programmed into the instrument. FMS does not program the Ethernet address at this time.
- Configuring a Unit via Ethernet takes a long time (> 5 minutes) as any existing configuration is deleted before the new configuration is applied. Also, the instrument data is cleared and the instrument time is updated during this function.

Operator interaction on the instrument is disabled during a configuration.



## Save Configuration File

This is primarily meant to be saved on a USB thumb drive which can then be used to configure a Portable instrument without further use of FMS. It is also possible to save the configuration of the selected Unit as a file in any selected folder.

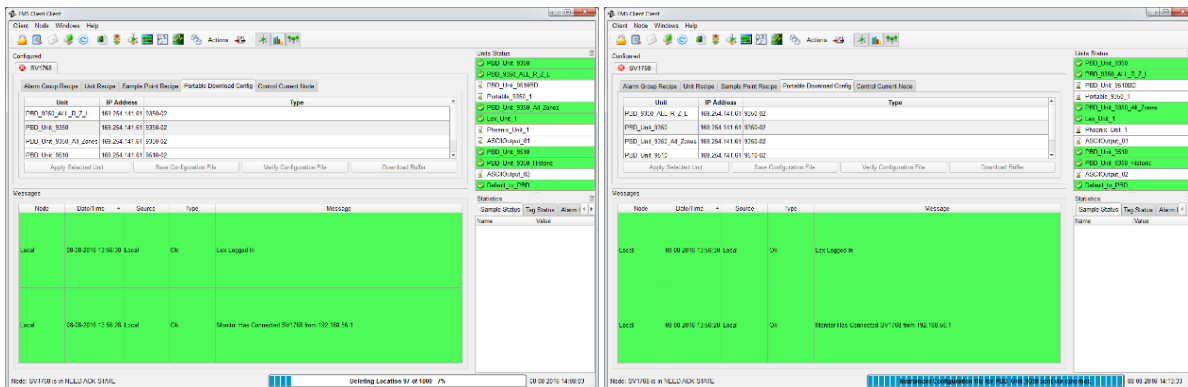
### Notes

- All other files in the folder selected will be deleted by this function. This does not include sub folders. There **MUST** be only one configuration file on the thumb drive when it is connected to the Portable instrument.
- The name and contents of this file should not be altered so that the instrument can find and apply the configuration.
- This file can be used on multiple instruments with the same model number. The firmware checks to make sure the configuration is applicable for that model.

## Verify Configuration File

Select this to verify the selected file has not been modified outside of FMS. If someone attempts to use an altered file to configure a Portable instrument, the instrument itself will tell them it has been tampered with and will not allow the configuration to continue.

All of the above functions will show progress using a progress bar that appears on the Status bar of the Client view. Any informational or error messages are also shown in this progress bar.



### Notes

- All of the buttons on the Portable Download Config tab are disabled during the execution of these functions.
- The progress bar will stay on screen for one minute after the function has completed. Any error messages will be stored in the Alarm log. Other messages are stored in the Audit and Event logs.
- The Ethernet address of the instrument **MUST** be manually programmed into the instrument. FMS does not program the Ethernet address at this time.

# Portable Buffer Download

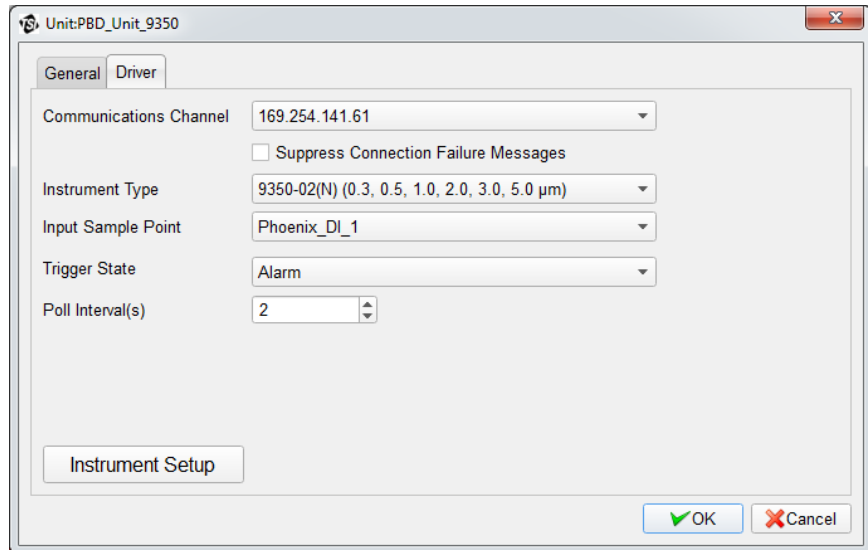
## Initiate a Portable Buffer Download

Once data has been collected on the Portable by the end user, it must be transferred to FMS. There are two ways to initiate a Portable Buffer Download. First is via a Sample Point Trigger (a physical switch) for those who *do not* have access to the FMS Client user interface. Second is a button on the FMS Control window for those who *do* have access to the FMS Client user interface.

### Sample Point Trigger

The Sample Point Trigger is setup in the Unit Configuration window.

1. Select a Sample Point from the Input Sample Point drop down list.
2. Select a Trigger State.
3. Specify a Poll Interval(s).



### Note

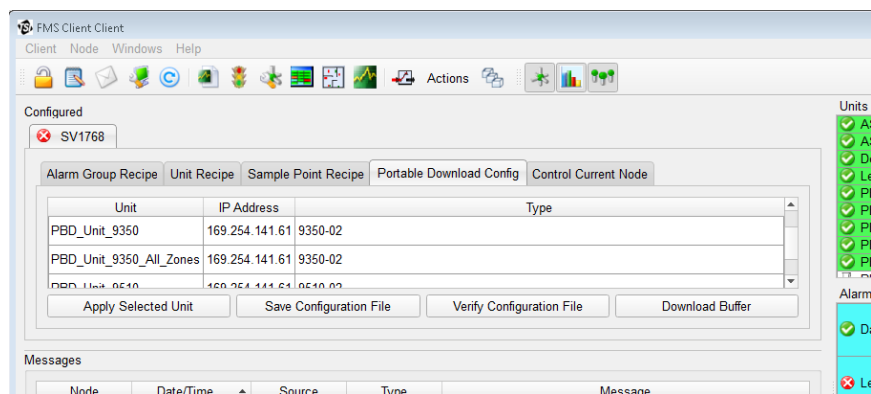
This feature was designed to use a Digital Input connected to a button that will be collocated with an Ethernet cable in a location away from the FMS Client PC. Thereby allowing you to initiate the buffer download without Client interaction. Any button connected in this way will have to be depressed for some time before FMS will detect it and initiate the buffer download. The amount of time the button must be depressed is the Poll Interval of the Digital Input Sample Point plus the Poll Interval of the Portable Unit (default is 10 seconds) described here. See helpful hints at the end of this technical bulletin for alternate approaches.

### Download Buffer Button

The Download Buffer button on the Control window will also initiate a buffer download of the selected Unit.

### Note

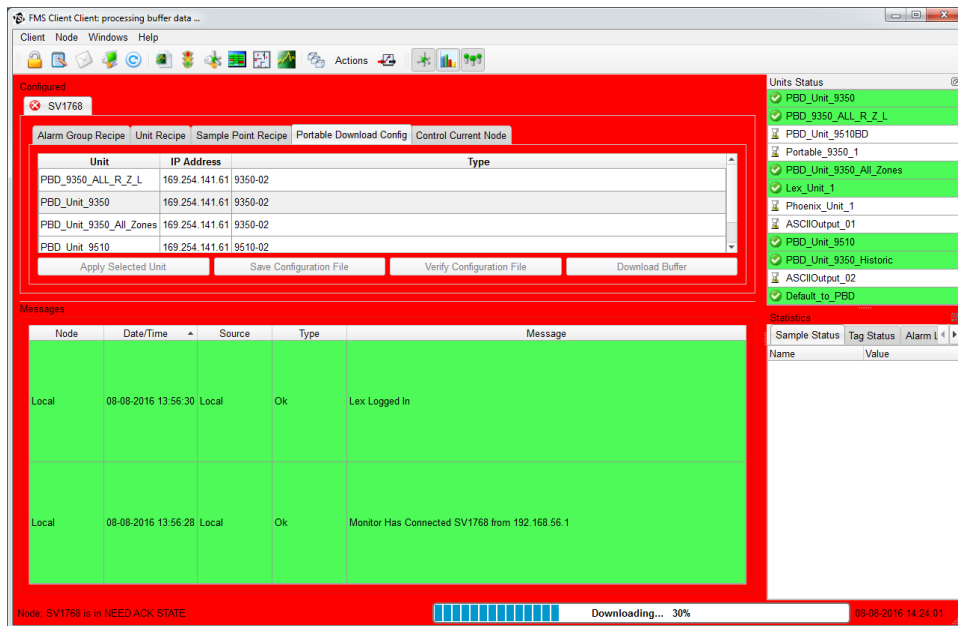
The instrument must be connected to FMS.



Progress of a buffer download will be shown on the Client and on the instrument GUI.



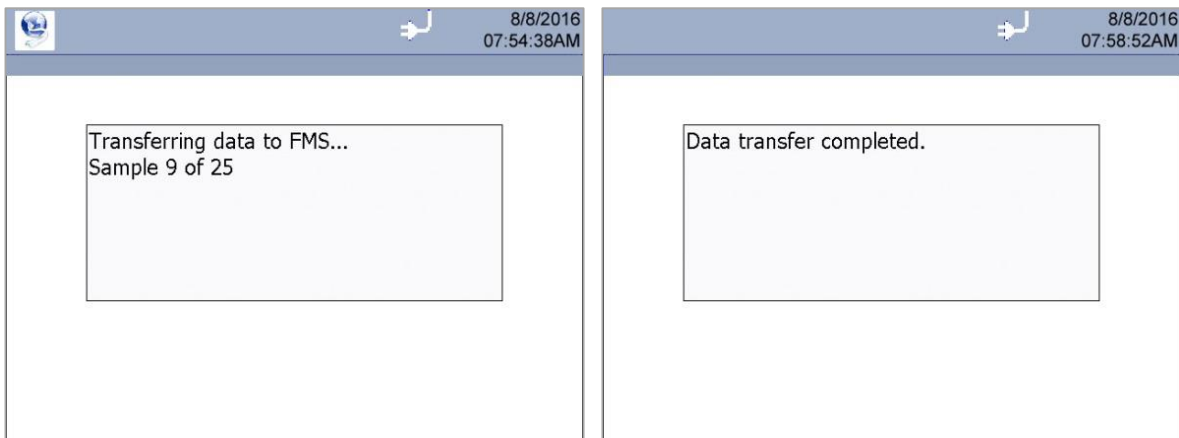
1. A buffer download will show some progress using a progress bar that appears on the Status bar of the Client view. Any informational or error messages are also shown in this progress bar. The Client's background color will also turn red during a buffer download in keeping with existing behavior of FMS.



**Note**

The progress bar will stay on screen for one minute after the function has completed. Any error messages will be stored in the Alarm log. Other messages are stored in the Audit and Event logs.

2. The instrument GUI will also show the progress of the buffer download in a new screen. When the download is complete the GUI will return to the last screen shown.



3. The last screen will disappear a few seconds after appearing and the instrument will return to normal operations.
4. Operator interaction is disabled during a buffer download.

**Note**

At the end of a successful buffer download all the data will be deleted from the instrument.

5. The data downloaded from the instrument will be stored in specifically named Sample Points as described [above](#). If a Sample Point cannot be found for a data record downloaded an alert will be shown on the FMS Client and the data on the instrument will **NOT** be deleted.
6. The Instrument time is updated by FMS during data download

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## Helpful Hints and Known Issues

### Helpful Hints

#### Button Types for Initiating a Buffer Download

If you select a normally open-style push button, you must hold the button closed until FMS has detected the Digital Input transition, and then until the Portable Buffer Download driver picks up the state change of the Digital Input Sample Point. You will see that a buffer download has started on the instrument GUI.

If you select a latched (light-switch-style) button, you could flip or press the switch to the on position and walk away from the instrument. Once the buffer download is complete, the Portable Buffer Download driver will not allow another buffer download to occur until the Digital Input Sample Point state changes away from the trigger state.

#### Initiating Configuration from the Instrument GUI

If you chose to save your configuration to a USB thumb drive and then update the configuration of an instrument using that USB thumb drive, then:

1. **Do not** add any more files to the USB thumb drive. The instrument is looking for a specific type of filename that is created by FMS. If other files have similar names, operation will be unreliable.
2. To initiate the configuration press the power button one time. The instrument will prompt you to continue with the configuration. The instrument will also show some progress of the configuration.
3. Operator interaction is disabled during configuration.



## Known Issues

1. **Do not** use the Zone/Location option *None/Unknown* on the instrument to log data.
2. It is possible to run concurrent buffer downloads or a configuration and buffer download to different instruments with different IP addresses. However, both functions use the same progress bar and the messages will be intermingled, so this is not recommended.
3. If you choose not to use FMS to configure your instruments and do it manually, you must remember that the Zone and Location names still need to adhere to FMS Sample Point naming requirements detailed in this technical bulletin.

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<b>USA</b>	<b>Tel:</b> +1 800 874 2811	<b>India</b>	<b>Tel:</b> +91 80 67877200
<b>UK</b>	<b>Tel:</b> +44 149 4 459200	<b>China</b>	<b>Tel:</b> +86 10 8219 7688
<b>France</b>	<b>Tel:</b> +33 1 41 19 21 99	<b>Singapore</b>	<b>Tel:</b> +65 6595 6388
<b>Germany</b>	<b>Tel:</b> +49 241 523030		