# AccuSine PCS+ Active Harmonic Filter
# AccuSine PFV+ Electronic VAR Control
# Firmware Upgrade

## 02/2020

# Safety Information

## Important information

**Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service or maintain it. The following special messages may appear throughout this bulletin or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.**

The addition of either symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

**⚠ DANGER**

**DANGER** indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

**⚠ WARNING**

**WARNING** indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

**⚠ CAUTION**

**CAUTION** indicates a hazardous situation which, if not avoided, **could result in** minor or moderate injury.

***NOTICE***

**NOTICE** is used to address practices not related to physical injury.

## Please note

Electrical equipment should be installed, operated, serviced and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction, installation, and operation of electrical equipment and has received safety training to recognize and avoid the hazards involved.

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Electrical equipment should be installed, operated, serviced and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

As standards, specifications and designs change from time to time, please ask for confirmation of the information given in this publication.

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# Chapter 1 Safety Precautions

Installation, wiring, testing and service must be performed in accordance with all local and national electrical codes.

**⚠ DANGER**

**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E in the USA, CSA Z462, or applicable local standards.
- This equipment must be installed and serviced only by qualified electrical personnel.
- Do not exceed the device's ratings for maximum limits.
- Ground equipment using the ground connecting point provided before turning on any power supplying this device.
- Turn off all power supplying this device and the equipment in which it is installed before working on the device or equipment.
- After removing power, wait for 15 minutes to allow the capacitors to discharge prior to opening the doors or removing covers.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace all devices, doors, and covers before turning on power to this equipment.
- Carefully inspect the interior for tools left behind before closing and sealing the door.
- Verify the rating of the neutral conductor for each unit in the system is greater than the neutral current limit setting.

**Failure to follow these instructions will result in death or serious injury.**

**Cybersecurity Safety Notice**

**⚠ WARNING**

**POTENTIAL COMPROMISE OF SYSTEM AVAILABILITY, INTEGRITY, AND CONFIDENTIALITY**

- Change default passwords to help prevent unauthorized access to device settings and information.
- Disable unused ports/services and default accounts, where possible, to minimize pathways for malicious attacks.
- Place networked devices behind multiple layers of cyber defenses (such as firewalls, network segmentation, and network intrusion detection and protection).
- Use cyber security best practices (for example: least privilege, separation of duties) to help prevent unauthorized exposure, loss, modification of data and logs, interruption of services, or unintended operation.

**Failure to follow these instructions can result in death, serious injury, or equipment damage.**

# Chapter 2 Introduction

## Document Scope

The aim of this document is to provide the users, installers, and the maintenance personnel with the firmware upgrade procedure needed to maintain the AccuSine PCS+ and PFV+.

Read the instructions carefully and become familiar with the device before executing this procedure.

## Overview

This procedure is required to correct the issue of the clock which is not displaying the year correctly. This is a noncritical issue which has no impact on the performance of the AccuSine PCS+ / PFV+.

**NOTE**: The active filter system must be shutdown to complete this upgrade procedure. If the active filter system is critical to the operation, perform this procedure during the scheduled preventative maintenance when the loads being corrected are shutdown.

The parameter settings that are applied during the commissioning of the unit and any other specific parameter changes will be retained during this procedure except for the ADMIN password. The ADMIN password will be changed. If the unit is setup with a Static IP address for Modbus communication by TCP/IP, the Static IP address will be lost. Refer to “Appendix A: Obtain Static IP Address” on page 29 and “Appendix B: Enter Static IP Address” on page 33 procedure to retrieve and to enter the static IP address which are described in the appendixes of this document.

## Pre-requisites

- Computer with internet access.
- USB A and USB B cable of length ≥ 2 m.

- USB flash drive with capacity > 50 MB and < 4 GB.
- The flash drive should be formatted before starting the procedure and ensure that the data on the flash drive should be saved in a safe location before completing the procedure.
- Active Filter Update Tool file.
- HMI Update file for AccuSine PCS+ and PFV+ with version HMI_001.006.004 file.
- AccuSine PCS+ and PFV+ firmware update procedure document.
- Non-contact voltage detector or digital voltmeter (required only for IP31 and IP54 models).

# Chapter 3 Firmware Update

## Install Active Filter Update Program

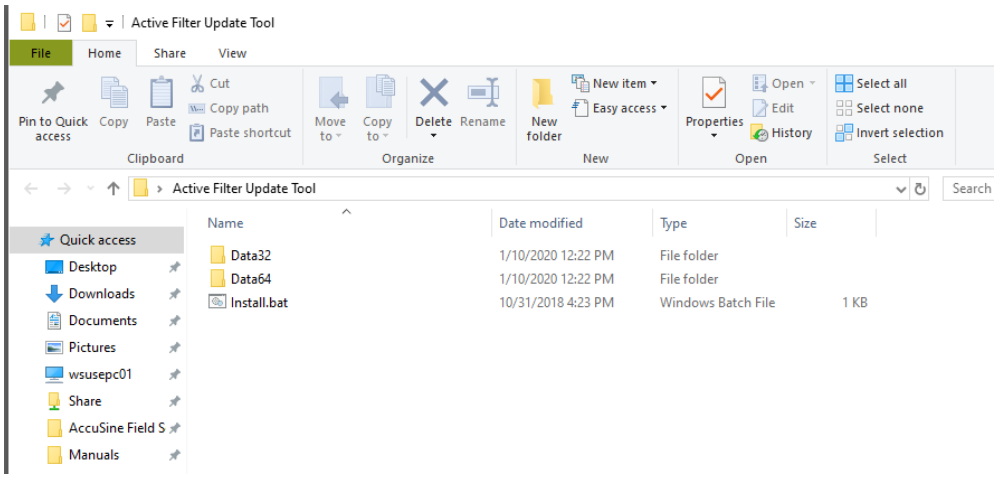
### Pre-requisite

Verify that the computer has internet access. If the internet access is not available, contact the local Schneider Electric representative for an alternate means to obtain the files.

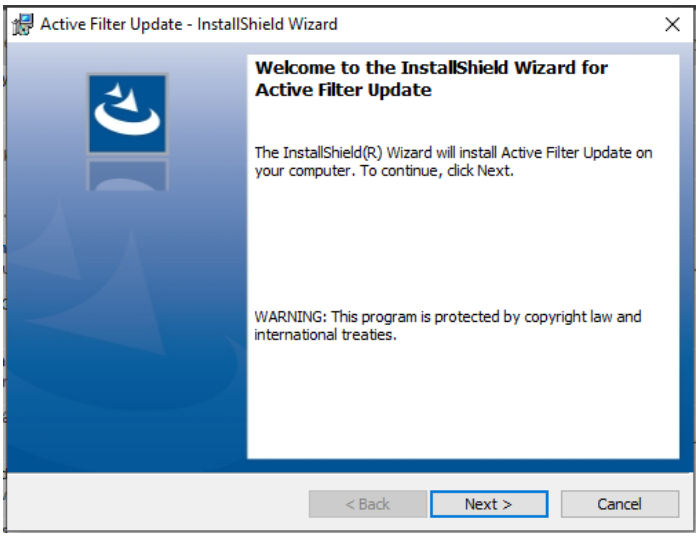
### Installation Procedure

Follow the below steps to install the Active Filter Update the program on your computer:

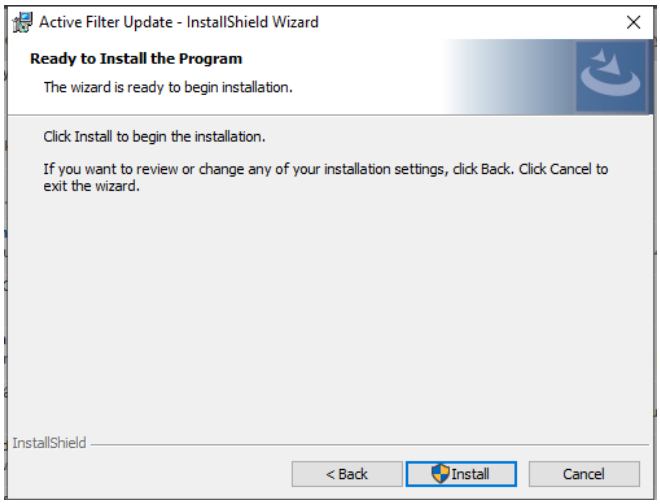
1. Open Active Filter Update Tool folder.
2. Double-click on the Install.bat file.



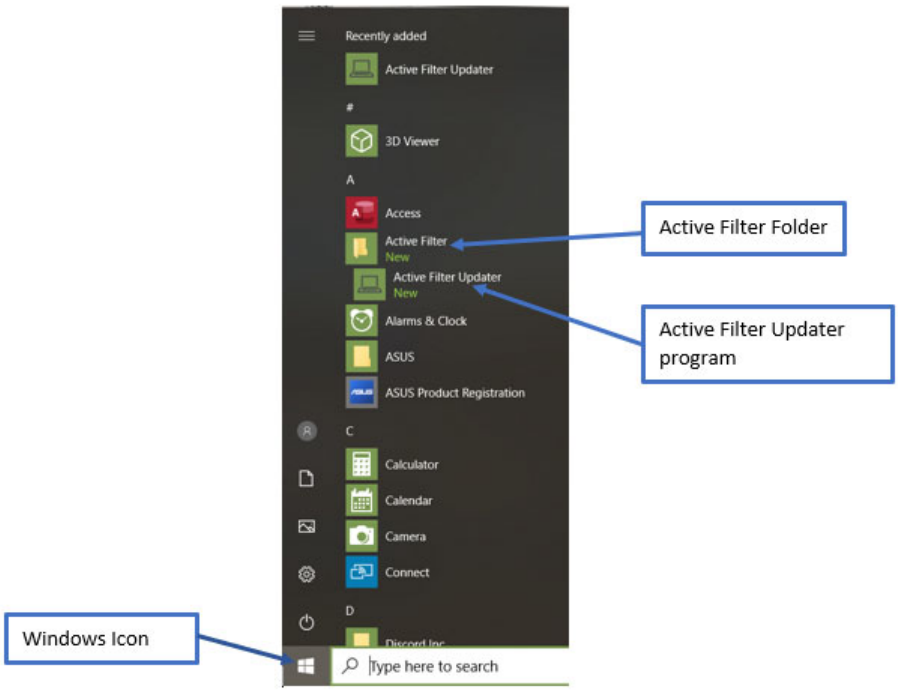

3. Select Next.



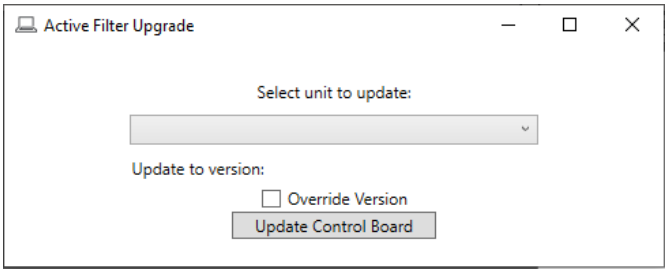
4. Select Install to start the installation.




5. Confirm if you want to allow the program to make changes to the device. Select Yes.
6. Click the Windows icon and ensure that the Active Filter Update program is present in the application list.
7. Open the new Active Filter Updater program.



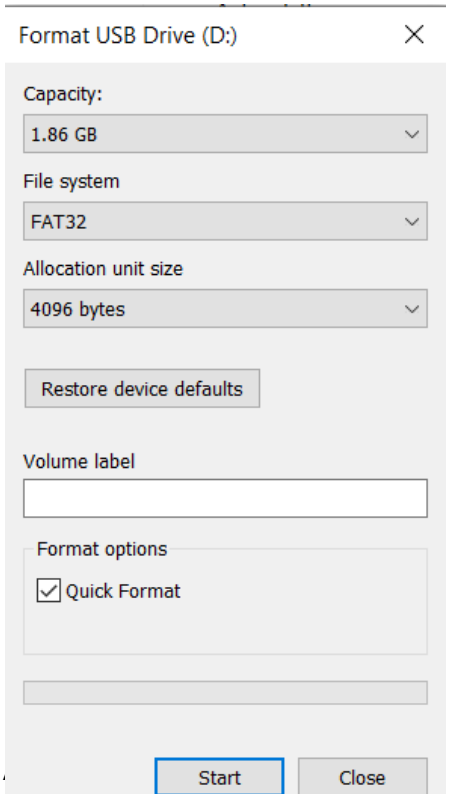
Select unit to update drop-down will be blank until the computer is connected to a unit by the USB cable.

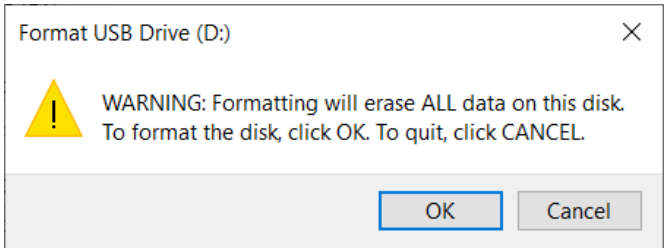



## Load HMI Update Program onto USB Flash Drive

Follow the below steps to load the HMI Update program onto the USB flash drive:

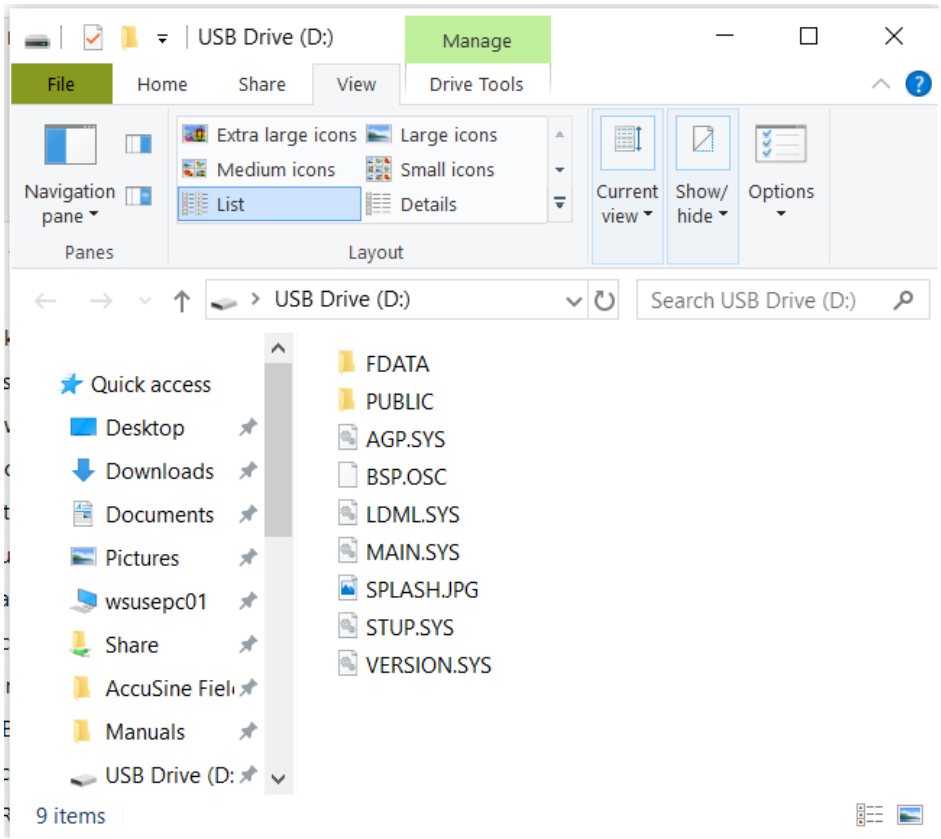
1. Ensure that the HMI file is the correct file for the unit being updated with the file name HMI_001.006.004. This HMI file applies for the models AccuSine PCS+ or PFV+.
2. Unzip the extension file .zip, which will be easy to find the location of the file on the computer.
3. Insert the USB flash drive in to a USB port of the computer.
4. Right-click the USB drive letter in the File Manager program.
5. Click Format.
6. In File system, select FAT32.
7. Select Quick Format under Format options.
8. Press Start.






9. Select OK.
10. Open the USB drive directory from File Manager.
11. Place all the files contained in the HMI update folder to the USB flash drive.

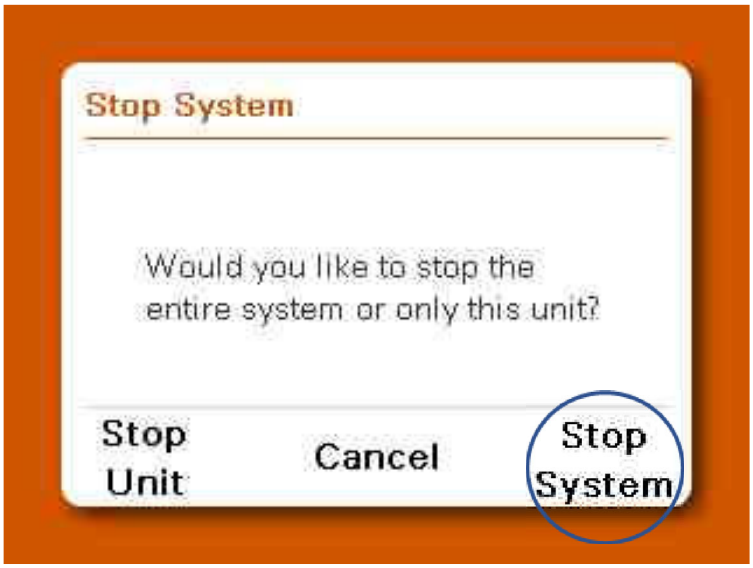
The file must be saved under the flash drive root directory. The below figure shows the folders in the USB flash drive,



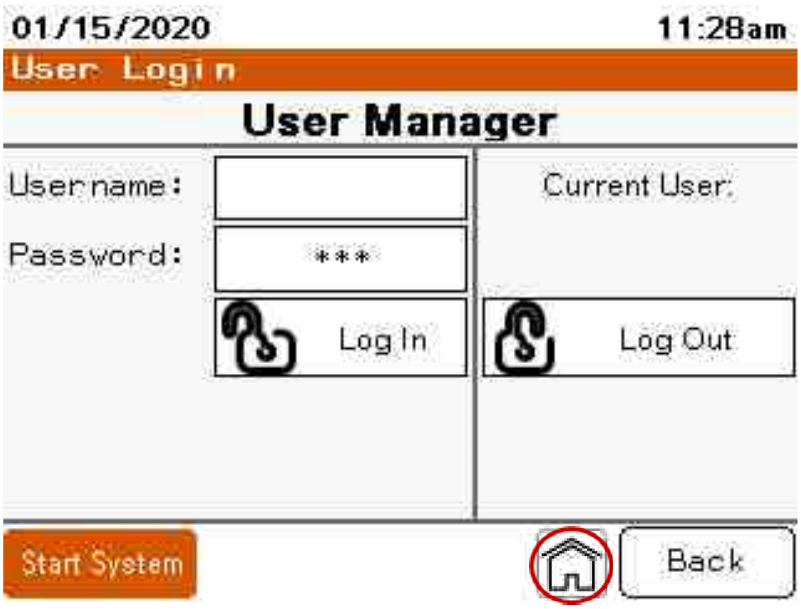
# Enable Service Port

1. Press Stop System icon if there is a running sine wave displayed on the bottom left of the HMI screen. The icon should display the state Start System.

2. If the unit is part of a parallel system, two or more units operating together, press Stop System.

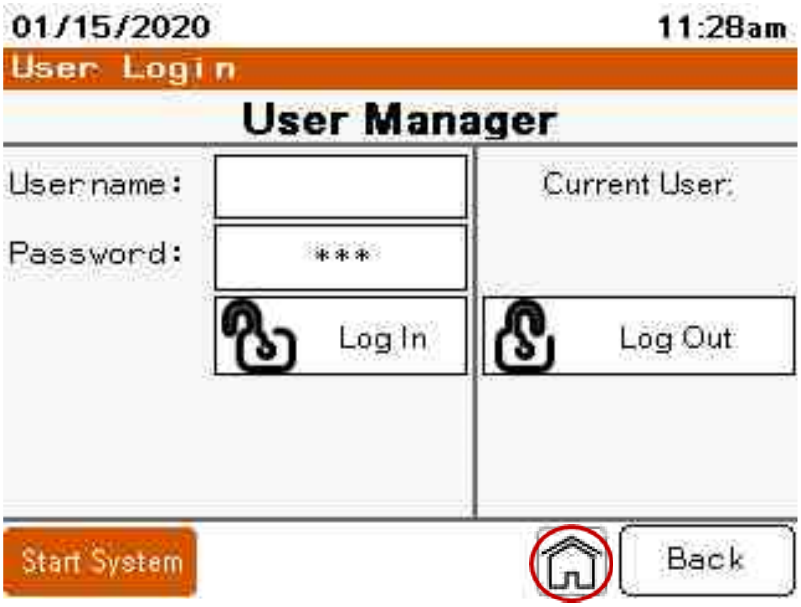


3. Select Login on the unit settings screen.



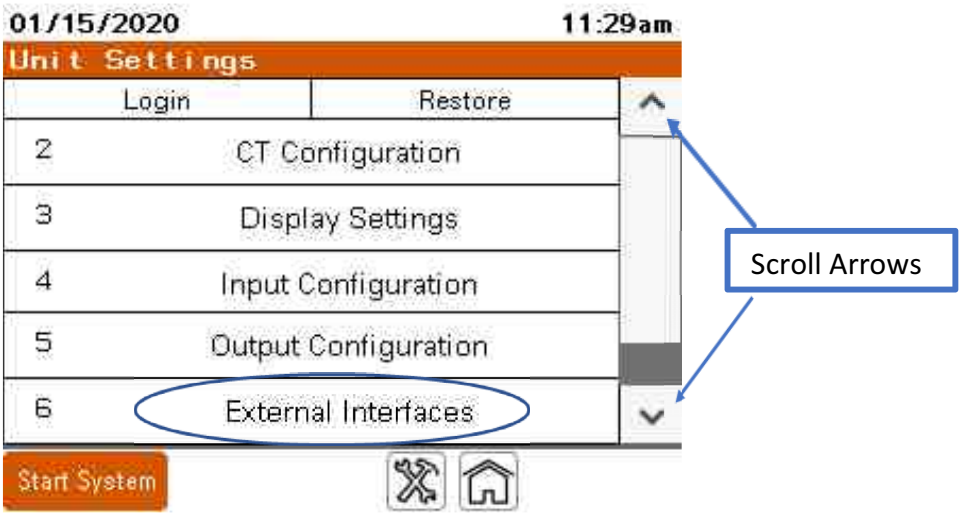

4. Enter the user name and password and press Log In.
   User name: ADMIN
   Password: ADMIN

   The User Login screen will display Current user: ADMIN.
5. Press the Home icon at the bottom right of the screen to go back to the Home screen.

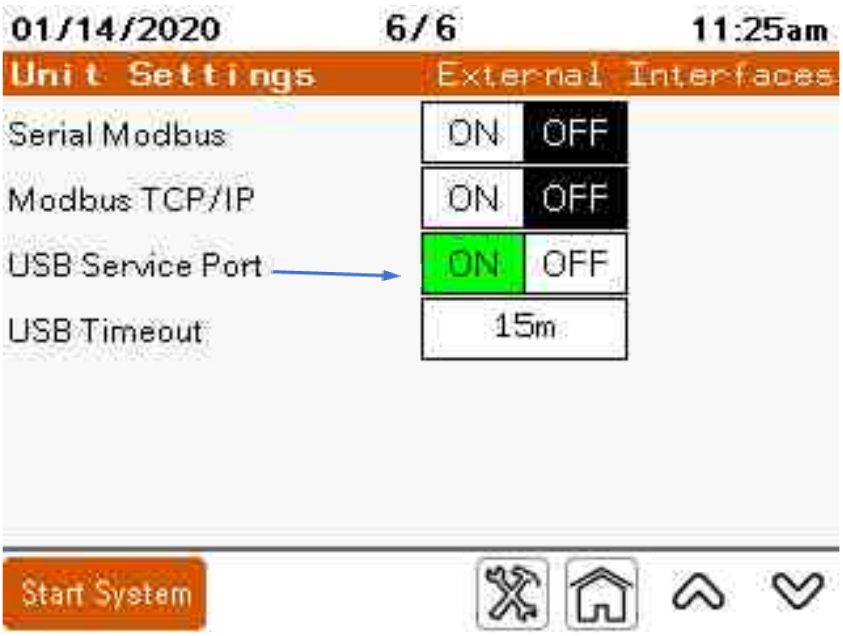


6. Press Unit Settings icon on the Home screen.

7. In the Unit Settings screen, scroll to the bottom of the screen and select 6 External Interfaces.



8. Turn ON USB Service Port.




If the Modbus TCP/IP is already ON with a green background, refer to “Appendix A: Obtain Static IP Address” on page 29 before proceeding.

9. Plug the end of the USB A cable into the laptop with the Active Filter Upgrade program installed.

**NOTE**: The USB cable from the computer must be connected to the Service Port within 15 minutes of the USB Service Port that is being turned ON. If this is not accomplished within 15 minutes, it is required to login to the unit again as ADMIN and to turn ON the USB Service Port again.

# Connect USB Cable to the Service Port

## AccuSine PCS+/PFV+ IP20-Wall Mount unit

Plug the end of the USB B cable into the service port on the bottom front of the AccuSine PCS+ /PFV+ IP20-wall mount unit.

**AccuSine PCSP/PFVP IP20-Wall Mount unit**

AccuSine PCS+/PFV+ IP20-Wall Mount unit has the USB service port access from the front panel. It is not necessary to de-energize the unit while connecting. Continue with “Update Control Board Firmware” on page 23 section of this document.

## AccuSine+ Enclosed Units IP31 and IP54 Units

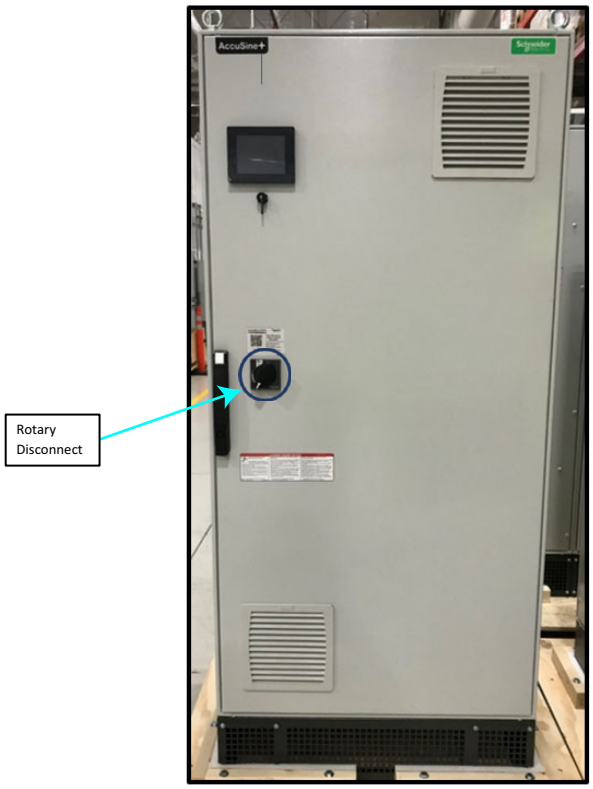
**⚠ DANGER**

**HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH**

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E in the USA, CSA Z462, or applicable local standards.
- This equipment must be installed and serviced only by qualified electrical personnel.
- Do not exceed the device's ratings for maximum limits.

**Failure to follow these instructions will result in death, serious injury or equipment damage.**

1. Verify that the computer with Active Filter Update program installed is near to the unit and ready to be connected with the unit through the USB cable.
2. Turn OFF the Rotary Disconnect Switch.



**NOTE**: Once the Rotary Disconnect Switch is in the OFF position, the USB cable from the computer to the service terminal connection needs to be accomplished prior to the 24 Vdc LED goes OFF.

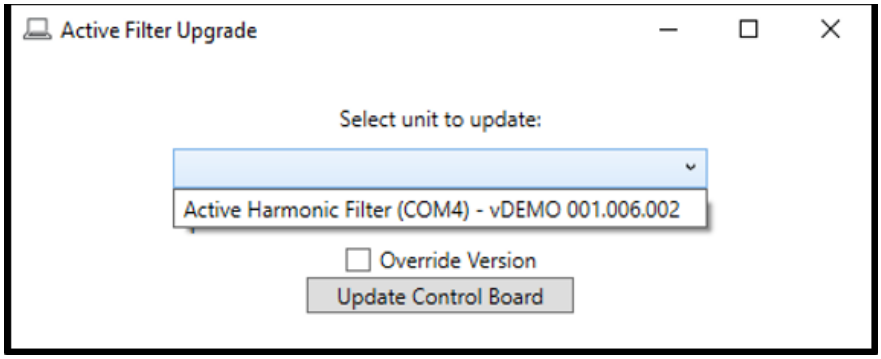
- Units connected at 400 volts or > 24 Vdc, the LED goes OFF in approximately 5 minutes.
- Units connected at 208 volts or > 24 Vdc, the LED goes OFF in approximately 30 seconds.

3. Check that there is no voltage supply on the load side of the circuit breaker by using non-contact voltage detector or by using digital voltmeter.

**NOTE**: For units connected to 208 - 240 Vac, it is recommended to use a non-contact voltage detector.

4. Plug the end of the USB B cable into the service port on the bottom front of the unit.

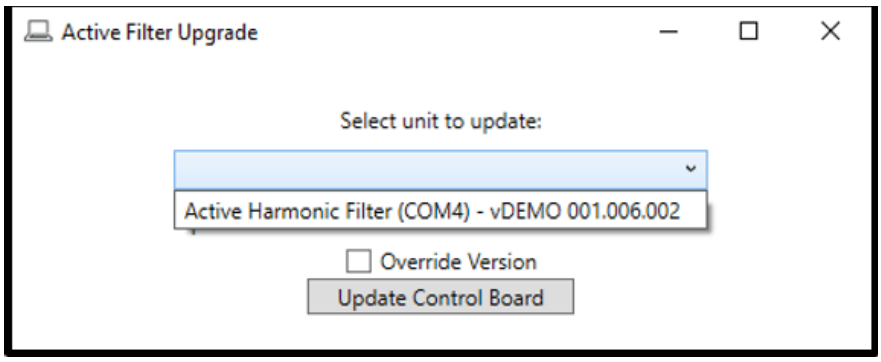
5. The Active Filter Upgrade program should display the active filter and a COM number should be assigned by the operating system of the computer.



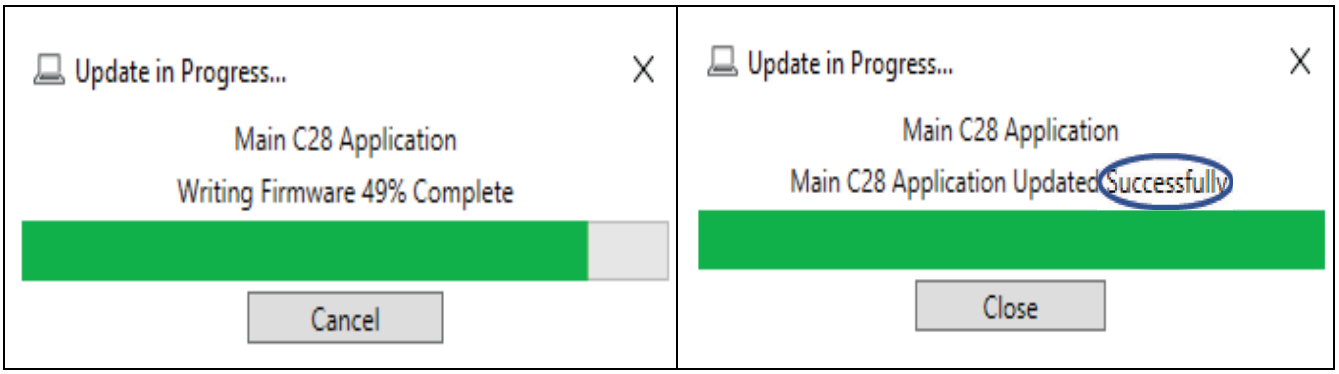

The Select unit to update field does not display the Active Filter, as the time duration between de-energizing the unit and plugging in the USB cable has exceeded the maximum limit. If the 24 Vdc LED turns off prior to connecting the USB cable, the USB cable has to be unplugged. Close the door of the unit, energize the unit, and repeat the procedure.

# Update Control Board Firmware

1. Select Active Harmonic Filter from the drop-down list in the Active Filter Upgrade screen.




2. Press Update Control Board button. After the process is completed, a message will be displayed stating that the application is successfully updated.
3. Click Close.




**NOTE**: Follow the below steps if the process fails to update:

a. Unplug the computer from the service port.
b. De-energize the unit.
c. Wait for the 24 Vdc LED to turn off.
d. Close the door, re-energize the unit for the enclosed units.
e. Repeat the procedure described in the section “Enable Service Port” on page 15.

4. Unplug the USB cable from the service port.
5. Close the door of enclosed units IP31 and IP54 units.
6. Energize the unit if it is in de-energize state.

After closing, the HMI displays a warning message that control board initialization is in progress. This message disappears once the control board has been initialized.

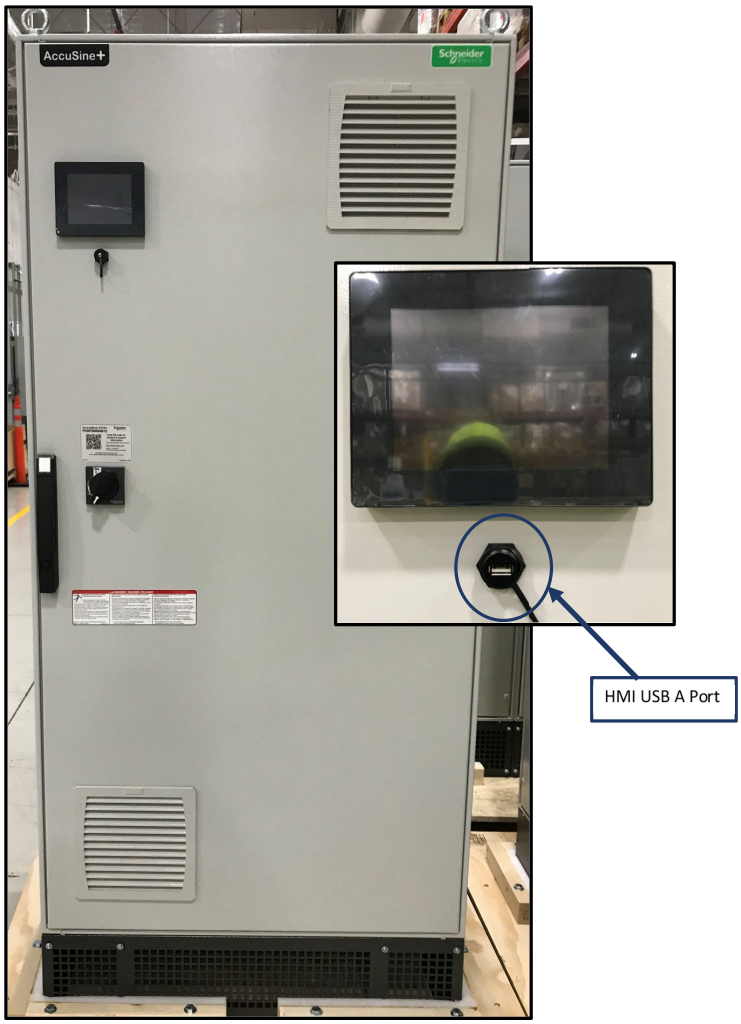
The HMI will display firmware version mismatch, until the HMI is updated.

In Parallel systems, the HMI displays a warning message stating "Parallel System Version Mismatch". This is normal until all units in the system have been updated. Once all units are successfully updated, this message will disappear.

## Update Human Machine Interface

1. Insert the flash drive into the USB A port of the HMI.

**Wall Mount HMI USB A location**



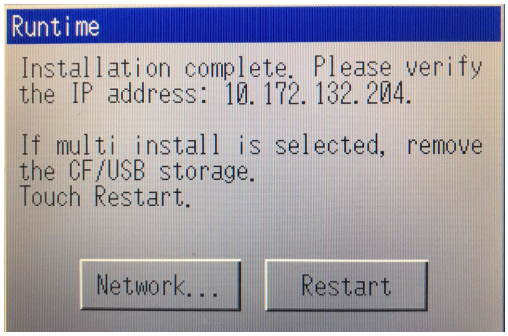

**Enclosed Unit HMI USB A Location**

The HMI displays a message to confirm if you want to install the software.

2. Press Yes.

   The HMI will re-boot and install the software.

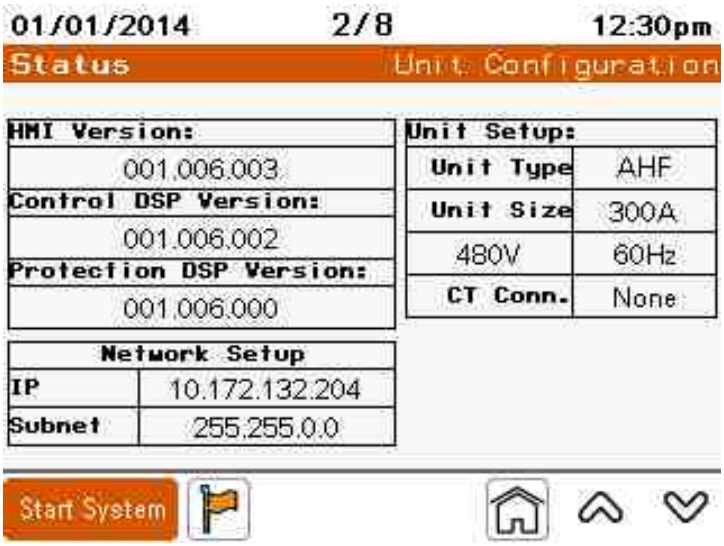
   At the end of the process, the HMI screen will display the options - Network and Restart.



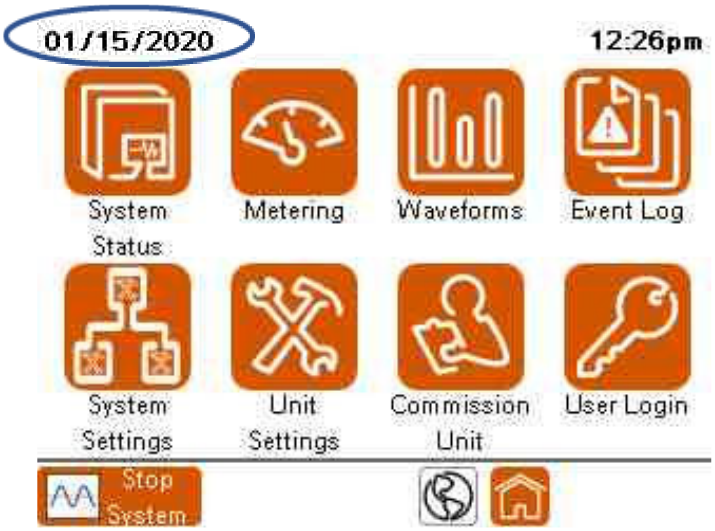

3. Remove the USB flash drive.
4. Press Restart.

# Verify Updates

1. Goto System Status --> Unit Configuration and verify that the update was completed.
2. Verify that the HMI version matches with the version installed.
3. Verify that the Control DSP version matches with the version installed.



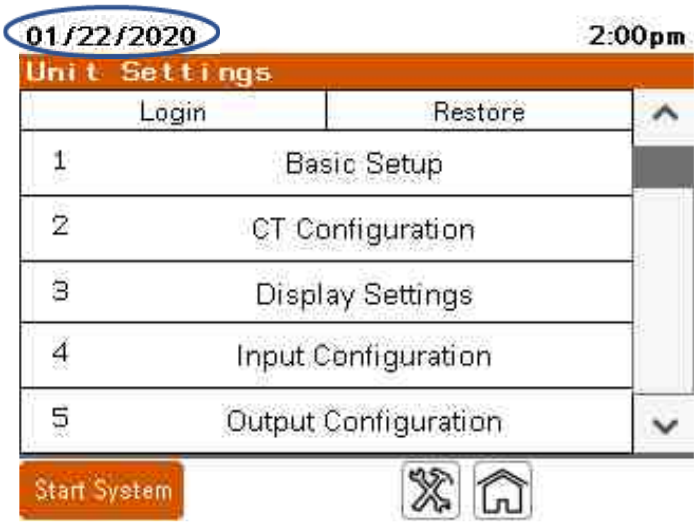

4. Verify that the date and time are correctly displayed on the Home screen.




If the date and time is incorrect, follow the below steps:

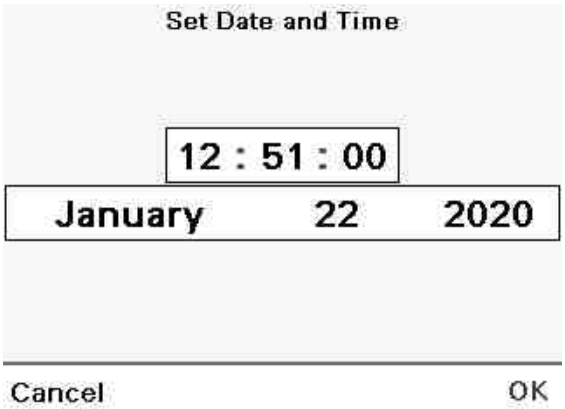
a. Goto Unit Settings page

b. Press on the date at the top left corner of the HMI screen




Set Date and Time screen is displayed.

c. Set the date and time values by pressing on hours, minutes, month, date, and year on the screen.




After updating the unit, the ADMIN password will be set to the new default password. The new default password is 3w7ADMN. This password will be case dependent, to login to the HMI (Human Machine Interface), goto the new version of the user manual.

If a Static IP address is used for Modbus communication, verify that the unit is communicating with the facility Modbus system. Refer to “Appendix B: Enter Static IP Address” on page 33.

5. If there is single unit, click start system on the Home page screen.
6. When the unit is part of the parallel system, update the remaining units by using same procedure and when all units in parallel system are updated, click start system.
7. Except the TCP/IP static IP address, all customization and commissioning settings which are required for the unit are kept after the update.

# Troubleshooting

| Problem | Solution |
|---|---|
| After inserting the USB flash drive into the HMI USB A port, the HMI does not display the updated screen. | Verify that all the files for the HMI update are under the root directory of the flash drive. These files cannot be contained in any folders. |
| Missing screens or unexpected events are displayed after updating the HMI. | Reinsert the flash drive containing the HMI updated files and update the HMI again. |

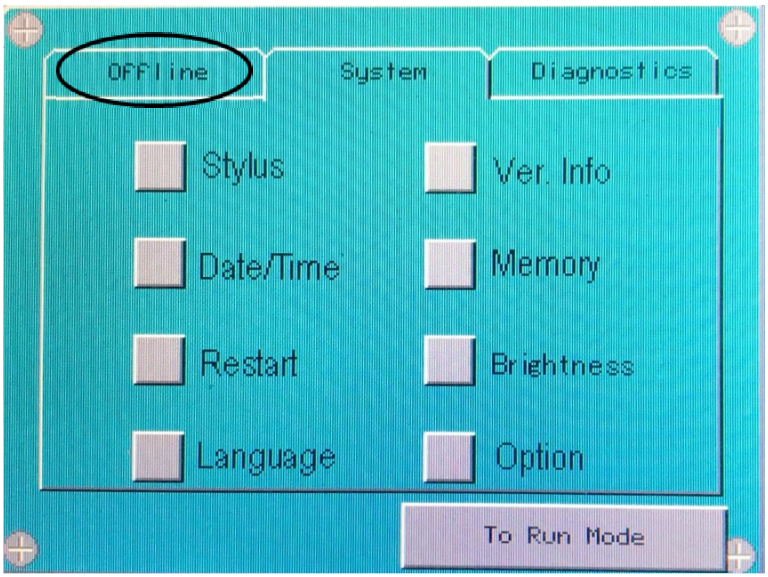
# Chapter 4 Appendices

## Appendix A: Obtain Static IP Address

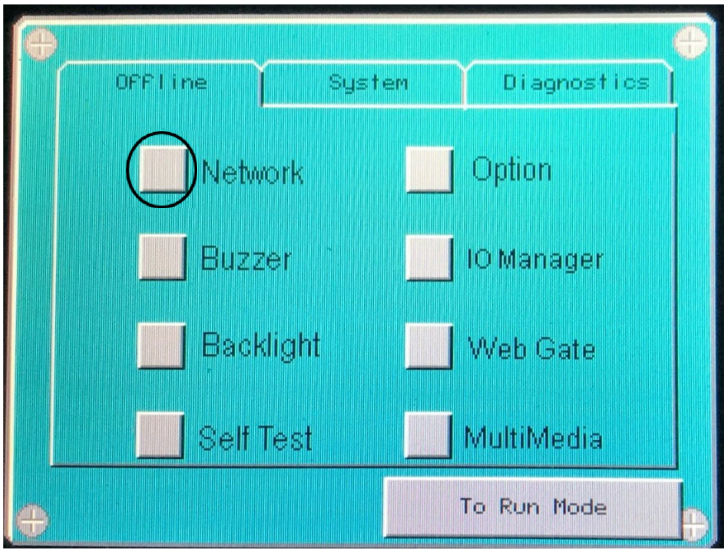
If a unit is setup to communicate through Modbus TCP/IP by a Static IP address, perform the following procedures.

**NOTE**: This procedure is not applicable if Modbus is not used or if DHCP IP address is used.

1. Press Unit Settings.
2. Press Display Settings.
3. Press Advanced HMI Settings.
4. Press the Offline tab.




5. Select Network.




A dialogue box is displayed with the message "Working with offline Settings will stop the user application and runtime. Continue?”

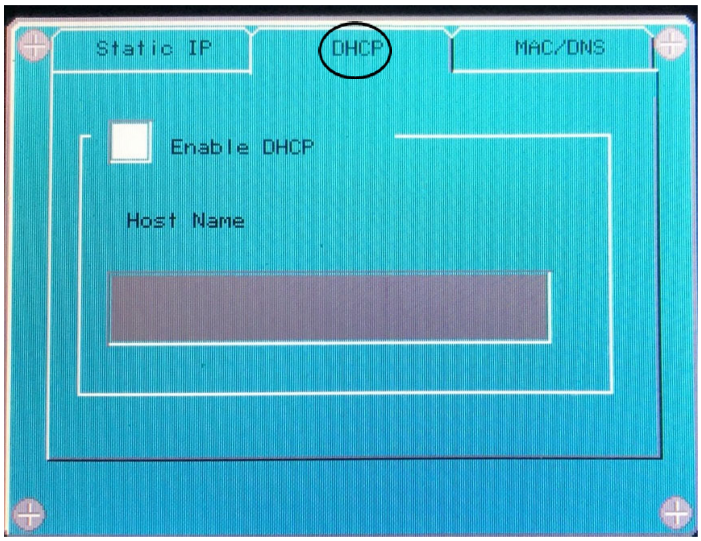
6. Press OK.

   The HMI will restart.

7. After the HMI is restarted, press the DHCP tab and ensure that the DHCP check box is not selected.

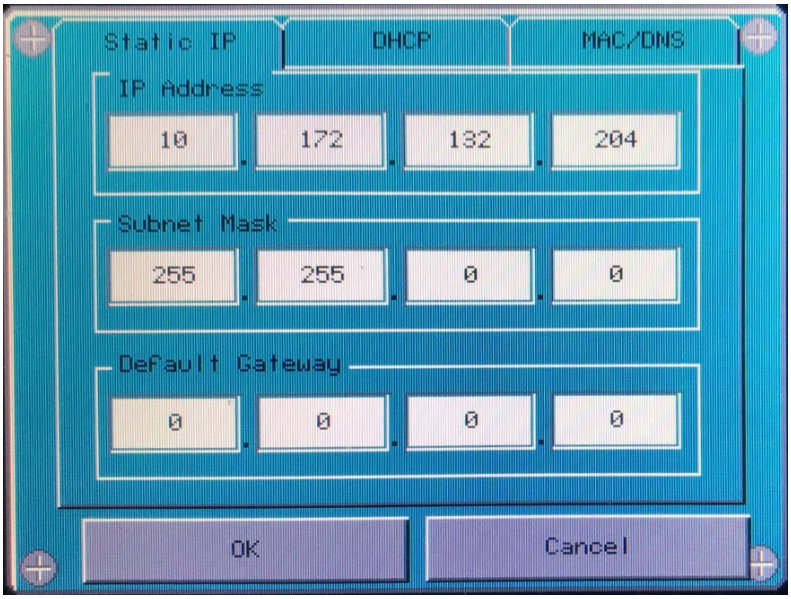
**NOTE**: Do not perform this procedure, if DHCP tab is not selected.

- If Enable DHCP is selected, goto Static IP tab, press Cancel and then press To Run Mode. The HMI reboots and returns to the Home screen.
- If Enable DHCP is not selected, then continue with this procedure.




8. Press Static IP tab.

9. Record the values in the IP Address, Subnet Mask, and Default gateway. These values are required for the unit to communicate through Modbus TCP/IP with a Static IP address.



10. Press OK.

    A dialog box is displayed with the message “The target is not connected to the network. Reboot the target for settings to take effect.”

11. Press Yes.

12. Press To Run Mode.

    A dialog box is displayed with the message “Shut down and restart to enable settings. Restart Now?”

13. Press OK.

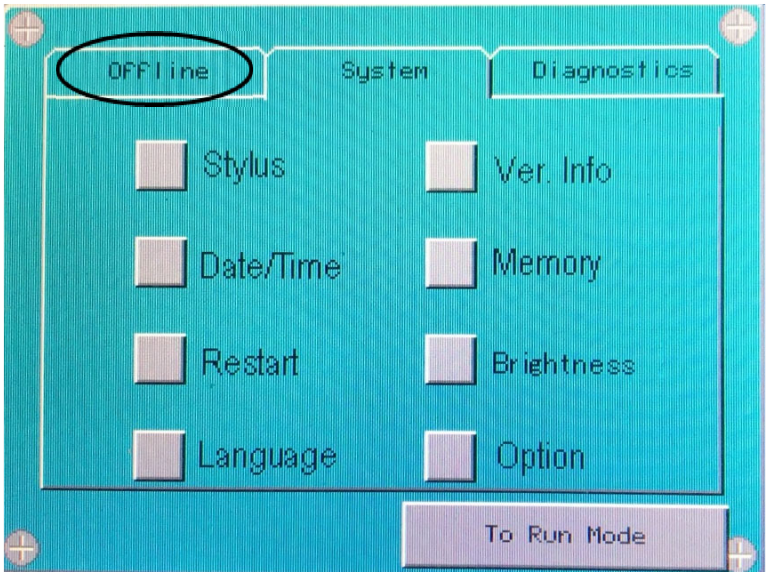
    The HMI will restart at the Home screen.

14. Log in again with user name and password as ADMIN.

# Appendix B: Enter Static IP Address

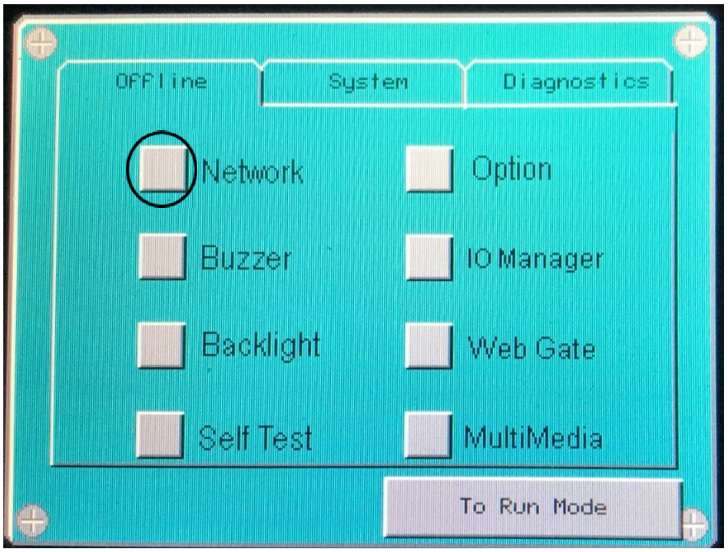
Perform the following procedures to set up the Modbus TCP/IP Static IP address:

1. Press Unit Settings.
2. Press Display Settings.
3. Press Advanced HMI Settings.
4. Press the Offline tab.

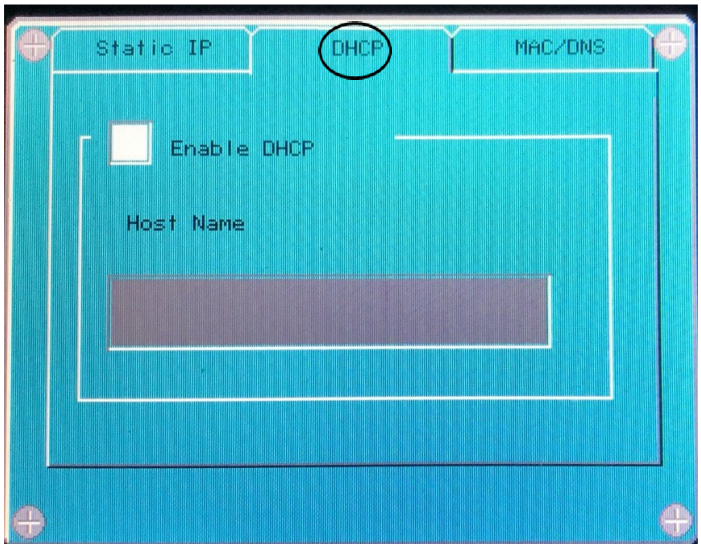



5. Select Network.

   The HMI will restart for entering network settings.



6. After the HMI is restarted, press the DHCP tab and ensure that the Enable DHCP check box is not selected.
   **NOTE**: The DHCP must be disabled to enter a Static IP address.




7. Press Static IP tab.
8. Enter IP address, Subnet Mask, and Default gateway values which were recorded earlier in the procedure.
9. Press OK.
10. Press to run mode.

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