



WirelessHART® Toxic & Combustible Gas Detector

P/N: TCD50H1A



475 Handheld Communicator Configuration Instructions

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United Electric Controls provides these handheld communicator configuration instructions for use with the UE Vanguard *Wireless***HART** toxic & combustible gas detector solely.

Consult the manual from the manufacturer of the handheld communicator for warnings and additional instructions for use.

Instructions for operating the UE Vanguard *Wireless***HART** toxic & combustible gas detector can be found at www.ueonline.com/vanguard

United Electric Controls Co.
180 Dexter Avenue
Watertown, MA
02472, USA
Telephone: +1 617 926-1000
Fax: +1 617 926-2568
Email: TechSales@UEonline.com
Web: www.UEonline.com



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1.0 GENERAL

1.1 Device Normal Operation Overview

Under normal operation, the four variables (Table 1) are communicated via *WirelessHART* 7.2 communication protocol every 8 seconds by default, using burst message 0. The update rate is programmable from 1 second up to 3600 seconds*. Up to three burst messages (0-2) can be configured using the device description (DD). The burst message transmits a chosen HART command to publish data. HART commands that can be burst include: 1, 2, 3, 9, 33, and 48 (Table 2). The default configuration uses command 9.

Device Variable	Process Variable	Units	Accessibility
Primary Variable (PV)	Gas Concentration	ppm or %LEL	Read
Secondary Variable (SV)**	Temperature	Degrees C	Read
Tertiary Variable (TV)	Days Since Calibration	Days	Read
Quaternary Variable (QV)	Battery Voltage	Volts	Read

Table 1

Command	Description
1	Read Primary Variable
2	Read Loop Current and Percentage Range
3	Read Dynamic Variables and Loop Current
9	Read Device Variables with Status
33	Read Device Variables
48	Read Additional Device Status

Table 2

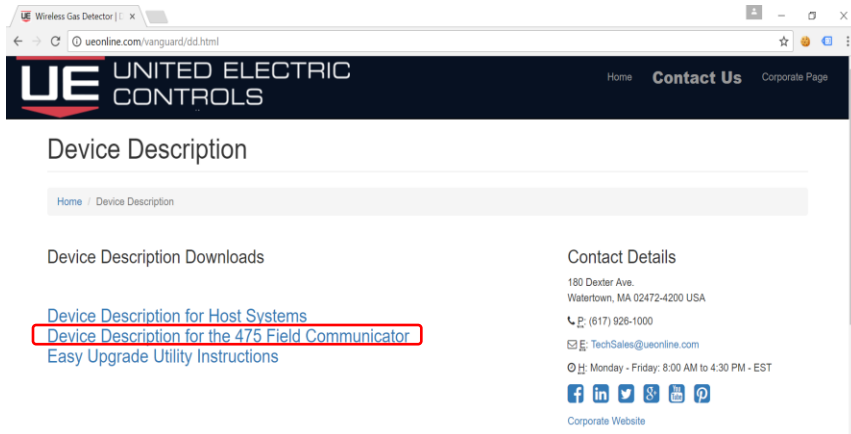
*Recommended minimum is 8 seconds..

**Not available on Methane (CH₄) sensor.

2.0 DEVICE DESCRIPTION (DD)

2.1 DD Download

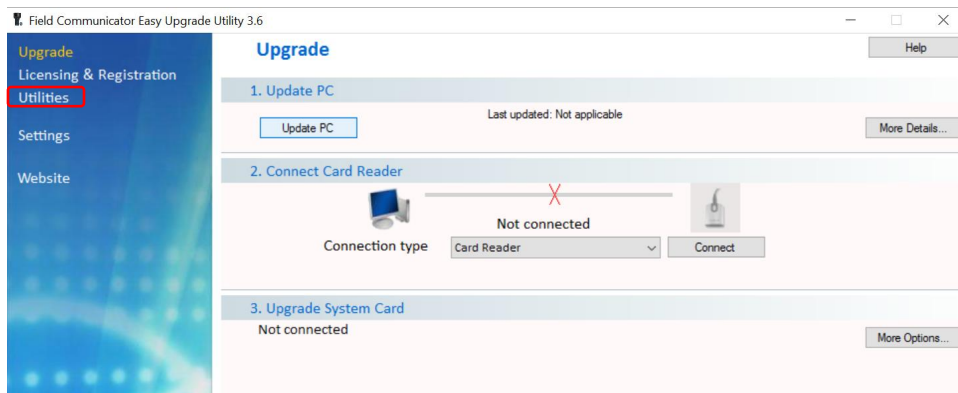
Download the latest Vanguard DD for the 475 Field Communicator at www.ueonline.com/vanguard under the WirelessHART/HART Protocol resources section.



2.2 DD Download using Easy Upgrade Utility

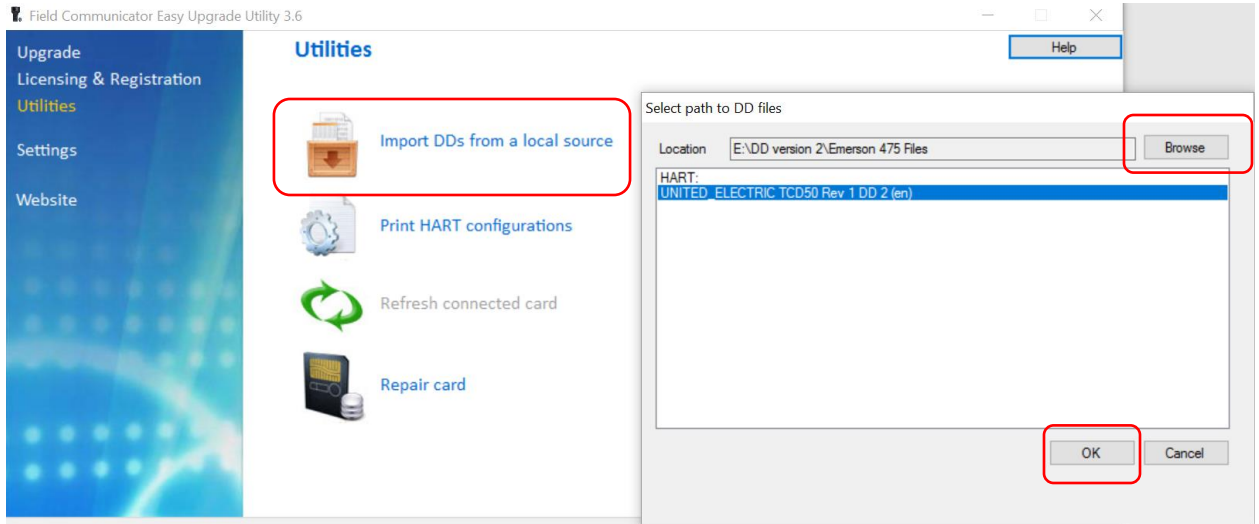
If using an Emerson 475 Field Communicator[†], use the Field Communicator *Easy Upgrade*[†] utility to facilitate the download of the UE Vanguard DD to the handheld.

1. Download the Vanguard DD to a computer per **2.1 DD Download** and save the DD in an accessible location.
2. Launch the Field Communicator Easy Upgrade utility on the computer and click on 'Utilities' on the left panel, shown on the screen below.

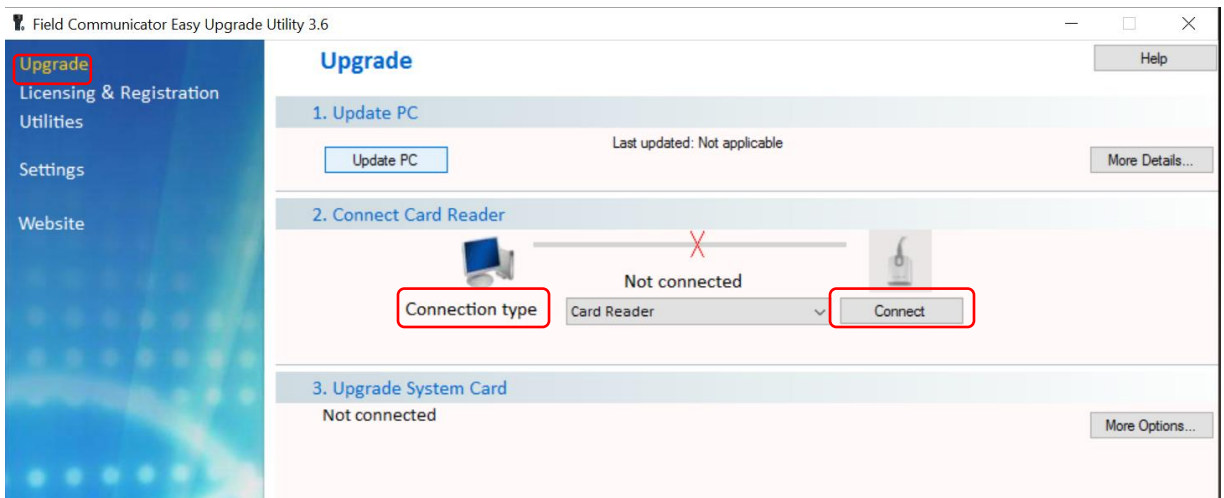


[†]475 Field Communicator and *Easy Upgrade* are products of Emerson Process Management.

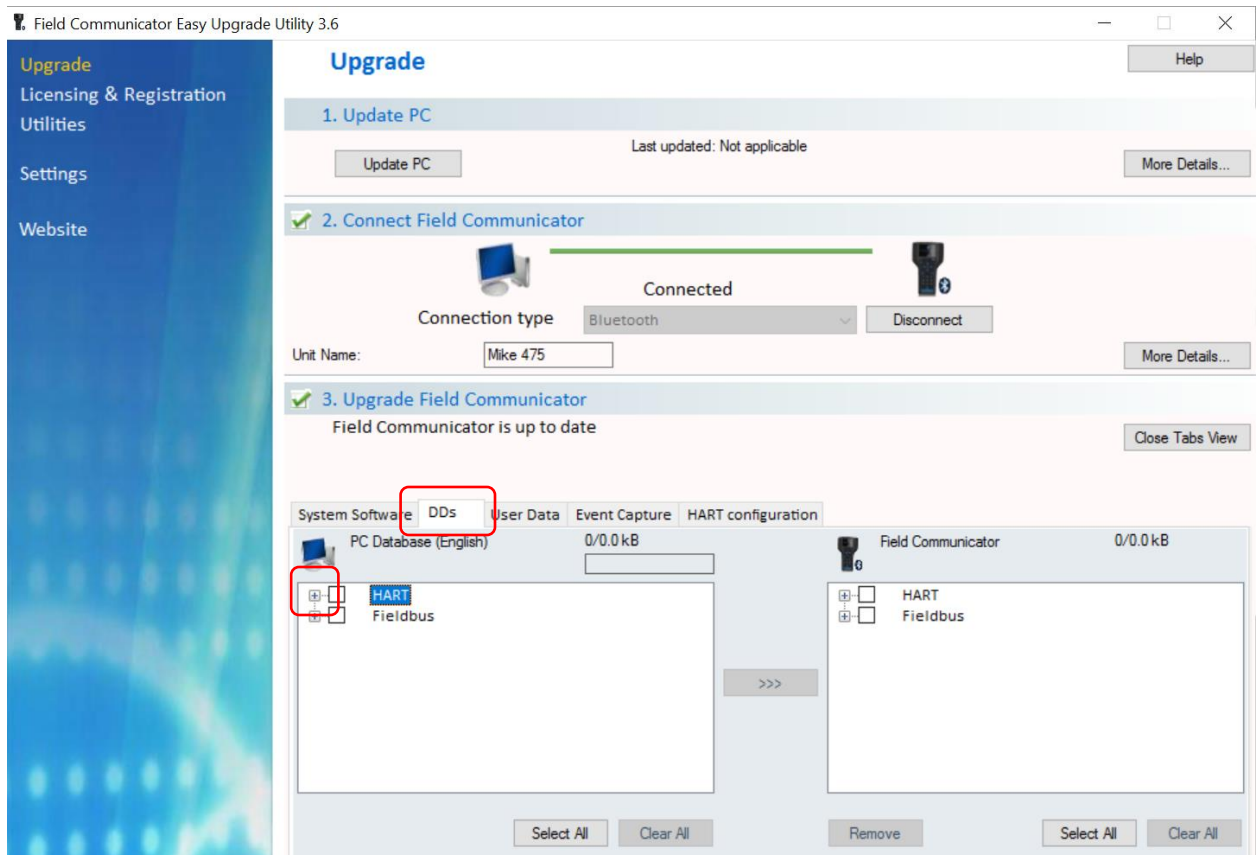
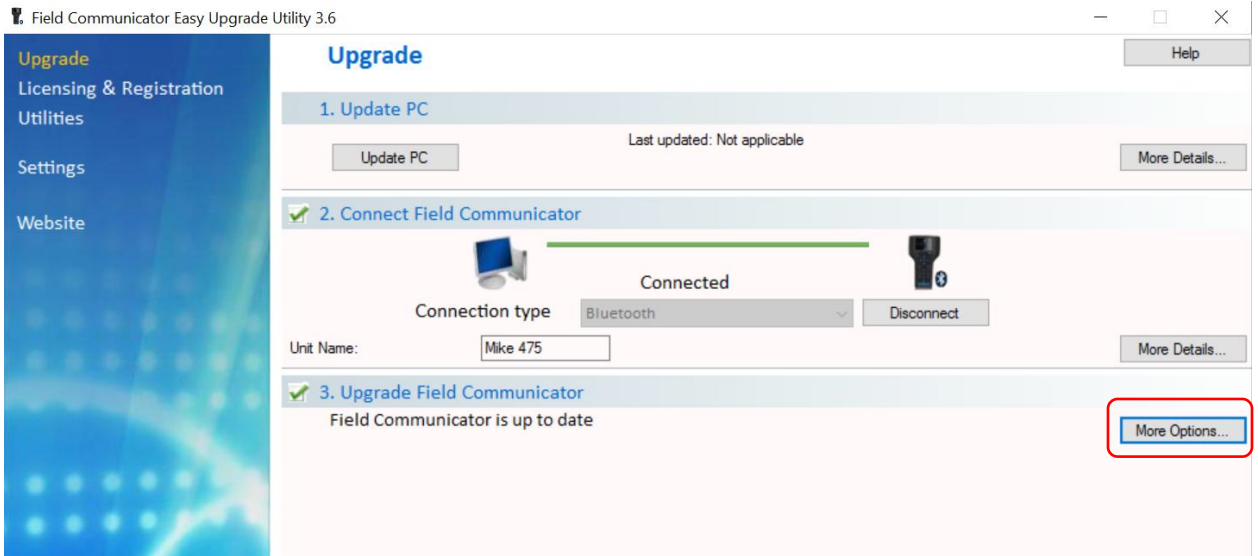
3. Click on 'Import DDs from a local source'
4. On the pop up window, click 'Browse' to select the folder containing the saved Vanguard DD for the 475 Field Communicator.
5. Select 'UNITED_ELECTRIC TCD50 Rev 1 DD 2' and click 'OK' to proceed.



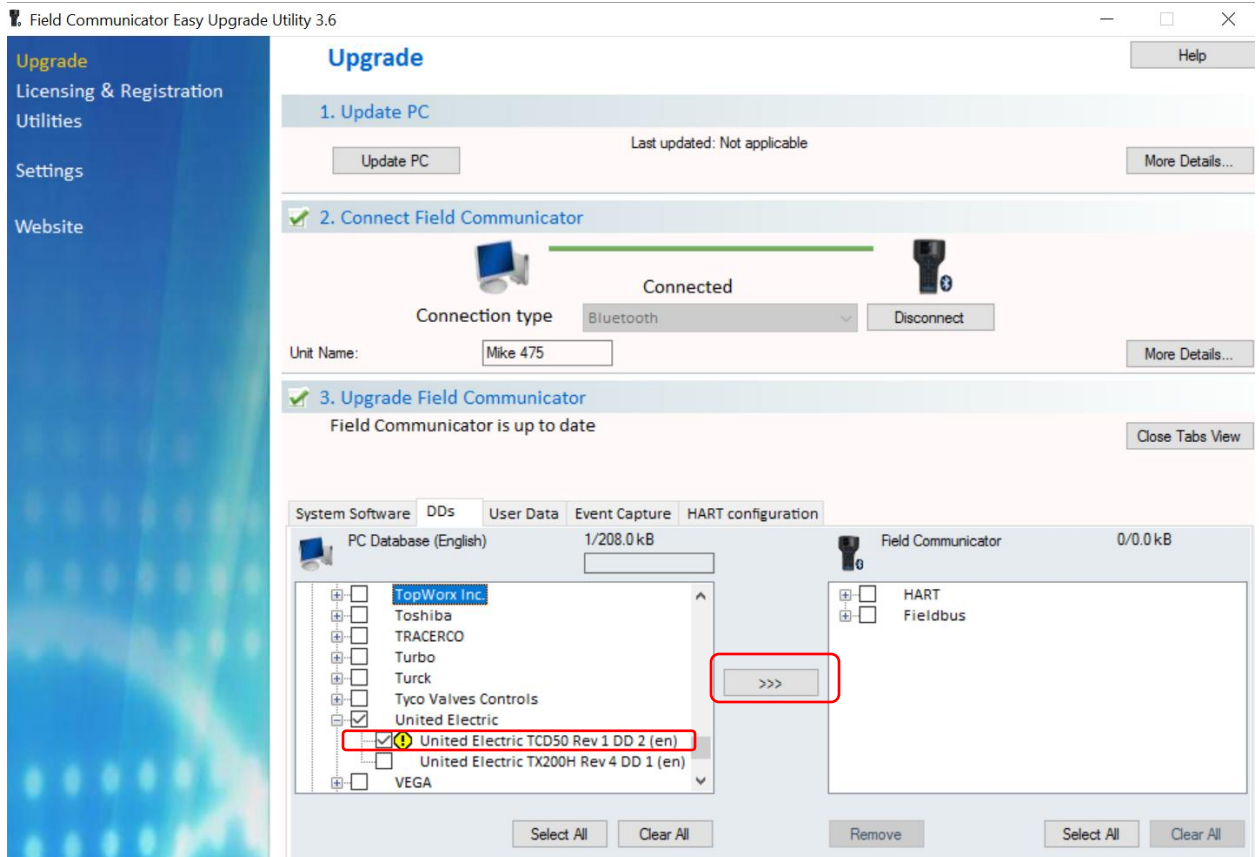
6. Return to the home interface by clicking on 'Upgrade' on the left panel.
7. Select 'Connection Type' before clicking 'Connect'. *Note: To connect by card reader, remove the SD card from the 475 Field Communicator and insert the SD card into the card reader attached to the computer.*



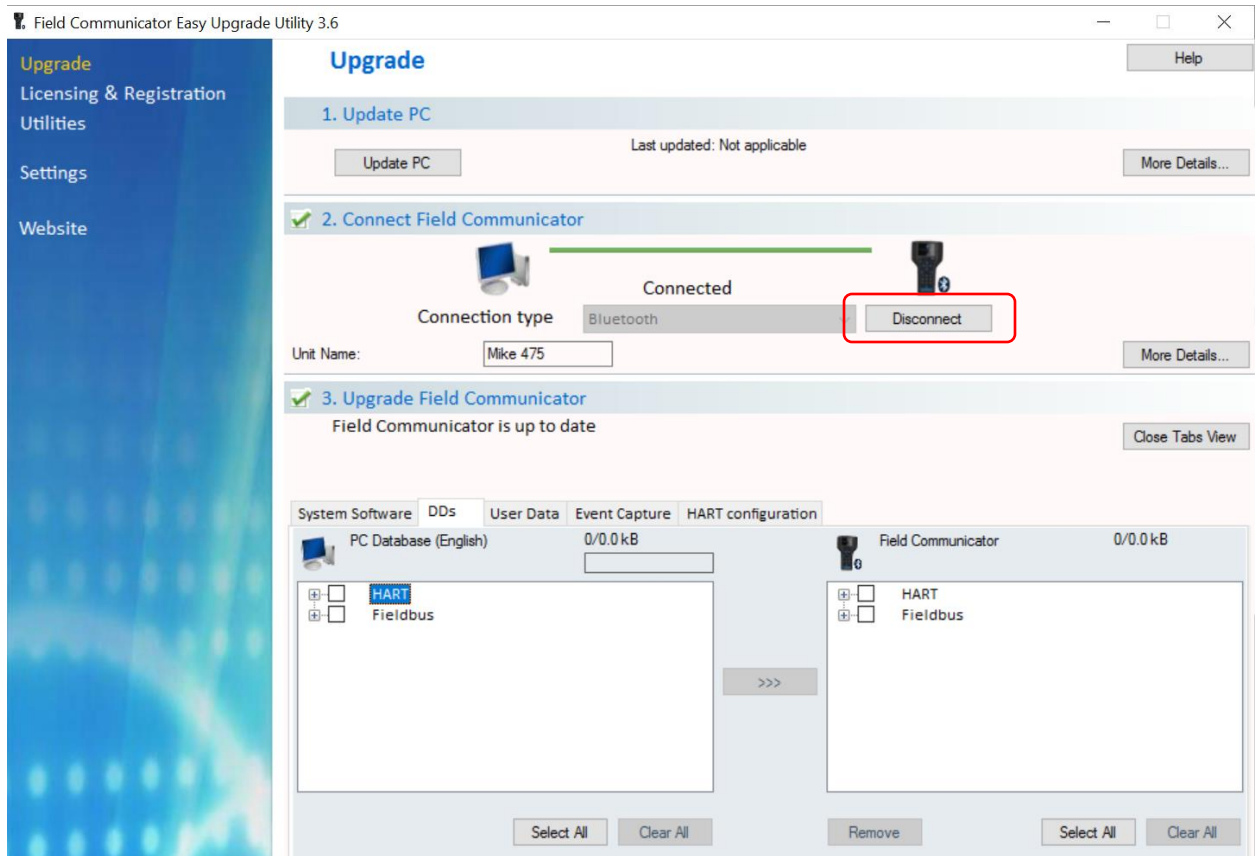
8. Click on 'More Options', and then click on the DD tab. Expand the HART option by clicking on the '+' beside it.



9. Locate 'United Electric' as shown below and check the option with TCD50 Rev 1 DD 2.
10. If the message 'Check an Untrusted Package' appears , click 'YES'.
11. Click on the '>>>' arrow button to transfer the TCD 50 DD onto the SD card. There will be acknowledgement to indicate when the download is complete.



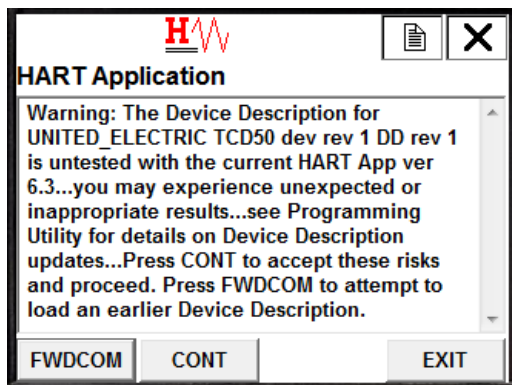
12. Click 'Disconnect'.
13. If using a card reader, reinstall the SD card back into the 475 Field Communicator. The handheld will now recognize the UE Vanguard.



2.3 DD HART Registration Note

HART Registration of Vanguard DD is pending. When achieved, the DD can be downloaded at www.fieldcommgroup.org.

Since the current Vanguard DD is not registered, the following may come up when the Vanguard is connected to the handheld communicator.



This is a standard warning for any unregistered DD and should not effect Vanguard operation or data reporting.

Press the 'CONT' button to proceed with set-up.

2.4 DD Download using AMS System or HART Host System

1. Copy the DD files into the following /HCF directory on your machine:
/HCF/DD/LIBRARY/006049/XXXX

Note: Where XXXX is the device type code, this would be E308 for the Vanguard TCD50.

2. The AMS program should recognize and load the DD for the transmitter with a connected device.

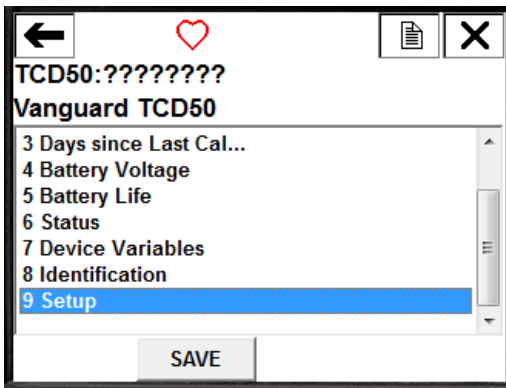
3.0 Configuring Network Parameters

The Vanguard device has to be programmed in order to join the WirelessHART network. 2 parameters have to be inputted, namely the Network ID and the Join Key. The Network ID is , the Join Key.

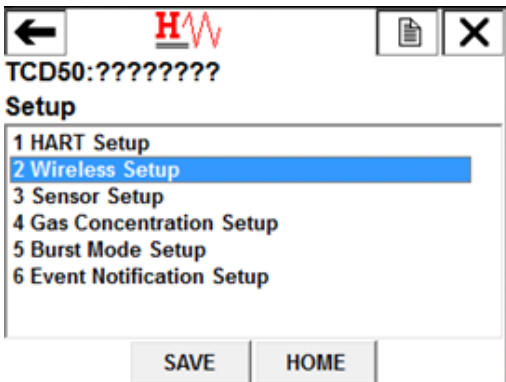
3.1 Network ID

1. Scroll down and select 'Setup' on the Field Communicator. Press the right arrow

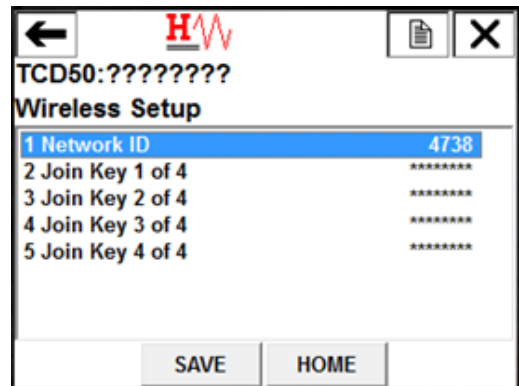
▶ to proceed.



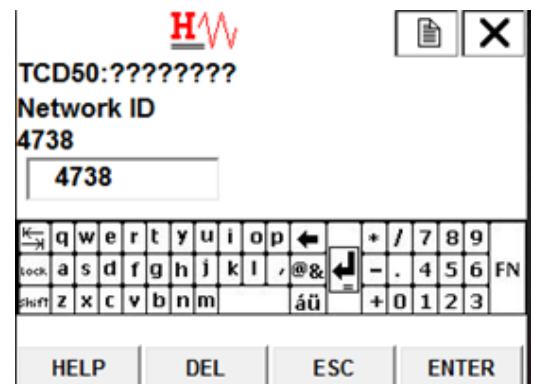
2. Select 'Wireless Setup'. Press the right arrow ▶ to proceed.



3. Select Network ID. Press the right arrow ▶ to input Network ID.




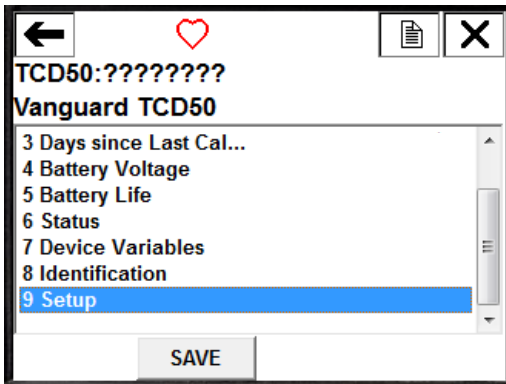
4. Input Network ID and tap 'ENTER'.




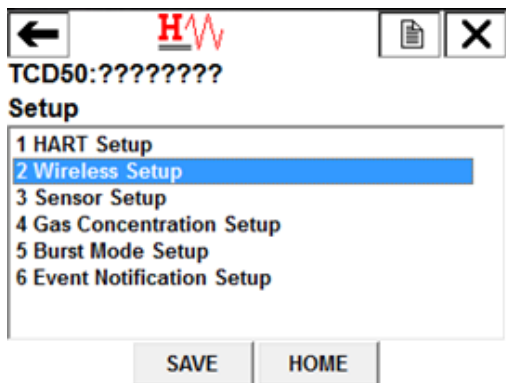
5. Network ID is saved into the Vanguard.

3.2 Join Key


1. Scroll down and select 'Setup' on the Field Communicator. Press the right arrow  to proceed.

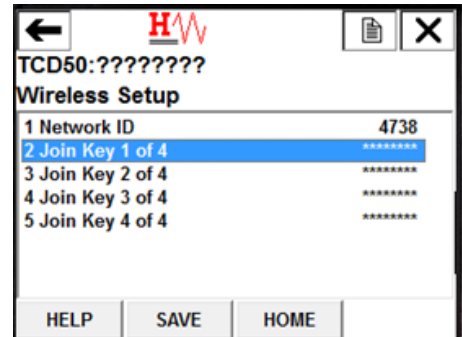


2. Select 'Wireless Setup'. Press the right arrow  to proceed.

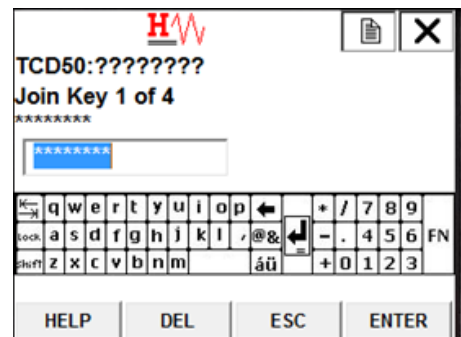


3. Ensure correct Network ID is displayed on the Field Communicator screen.

4. Select 'Join Key 1 of 4'. Press the right arrow  to input segment 1 of the Join Key.

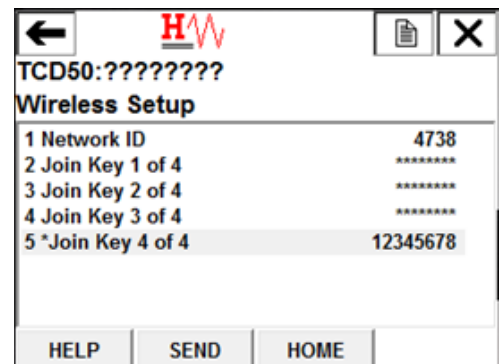


5. Input the 8 character Join Key and tap 'ENTER'.



6. Repeat steps 4 and 5 for the rest of the segments for the Join Key.

7. Tap 'SEND' to save Join Key into the Vanguard.



4.0 Configuring Gas Concentration

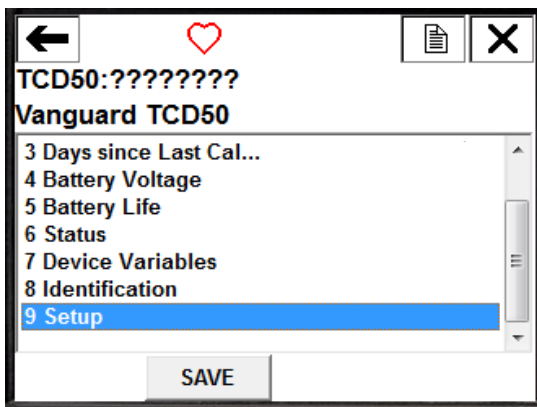
The Vanguard device has a default gas concentration setting of 50 (ppm or LEL). The setting is adjustable in value from 25 to 50 (integer value only).

Note: This setting has to match the calibration gas concentration for accurate calibration.

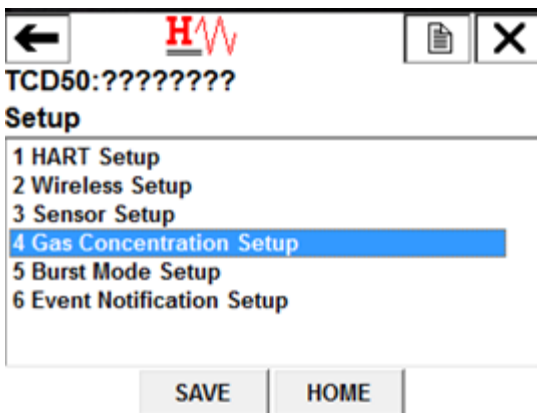
Changing the Gas Concentration Calibration Value

1. Scroll down and select 'Setup' on the Field Communicator. Press the right arrow

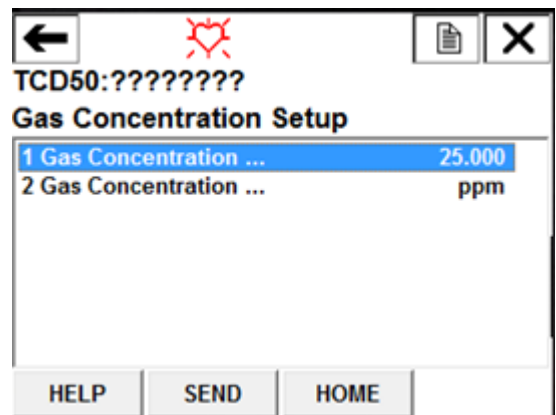
▶ to proceed.



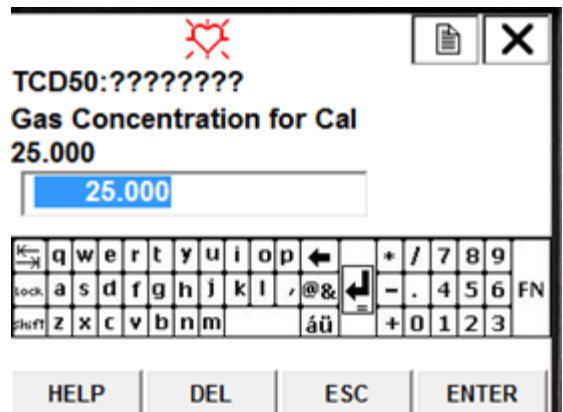
2. Select 'Gas Concentration Setup'. Press the right arrow ▶ to proceed.



3. Select option 1 to set gas concentration for calibration. Press the right arrow ▶




4. Input desired value and tap 'ENTER'.

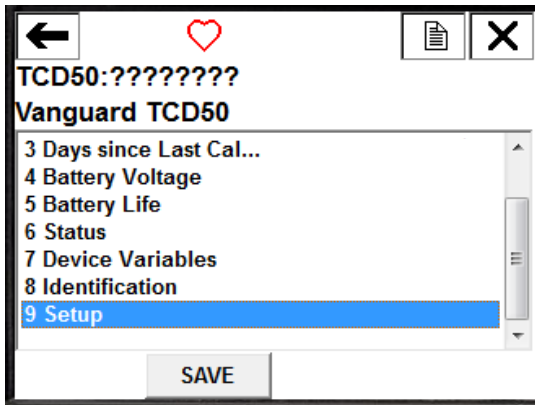



5. Desired gas concentration value is saved into the Vanguard device.

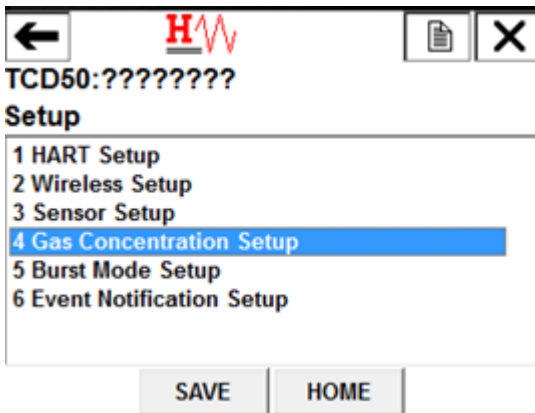
Gas Concentration Configuration


Changing the Gas Concentration Units of Measurement

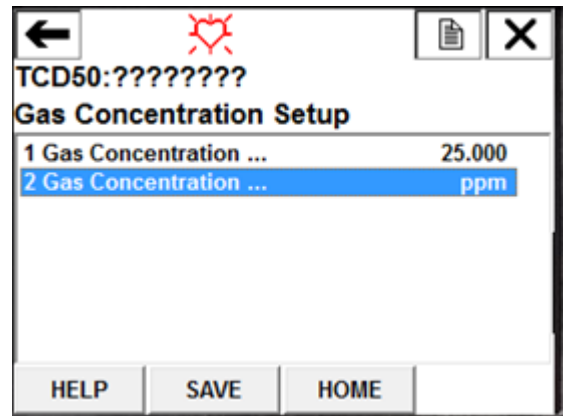
1. Scroll down and select 'Setup' on the Field Communicator. Press the right arrow  to proceed.



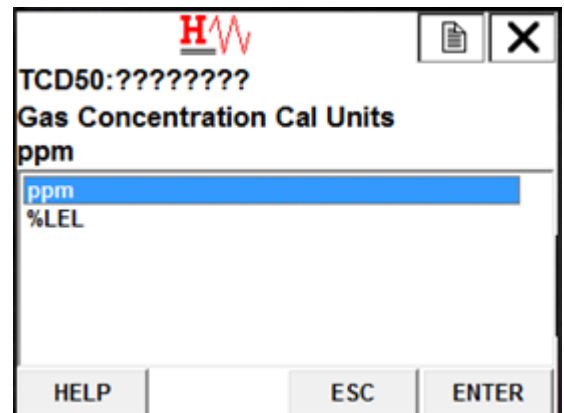
2. Select 'Gas Concentration Setup'. Press the right arrow  to proceed.



3. Select option 2 to set units of measurement for calibration gas concentration. Press the right arrow  to proceed.




4. Select desired unit and tap 'ENTER'.

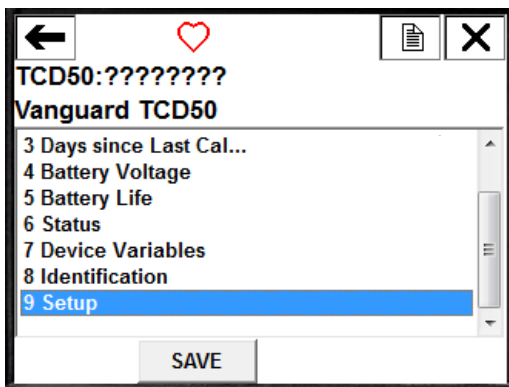



5. Desired units of measurement is saved into the Vanguard device.

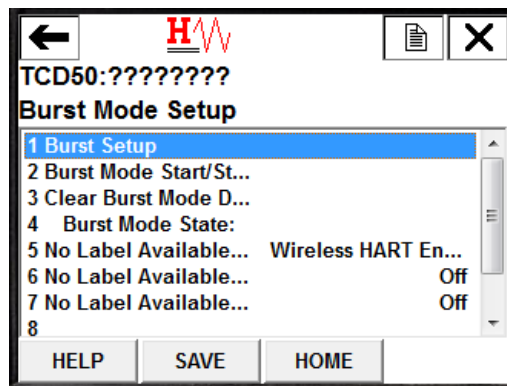
5.0 Configuring Burst Rate


Burst mode is a communication mode in Vanguard that sends data at regular intervals and from Vanguard to the host. The default burst rate is 8 seconds. If you accept the default settings from the factory, **Command 9** will transmit **ppm or %LEL concentration, ambient temperature, time since last calibration, and battery voltage data**.

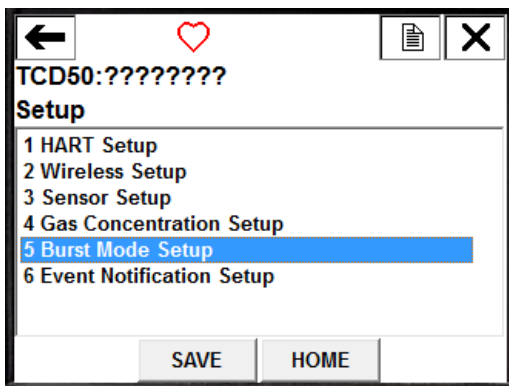
1. Scroll down and select 'Setup' on the Field Communicator. Press the right arrow  to proceed.



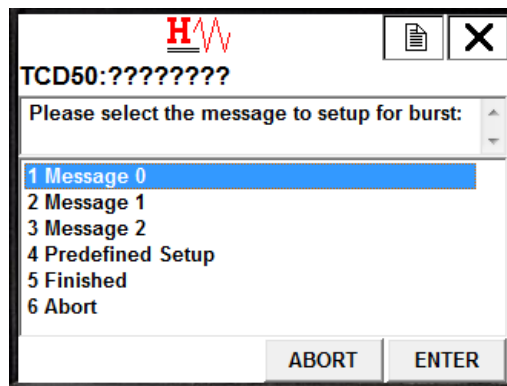
3. Select 'Burst Setup' and press the right arrow  to proceed.



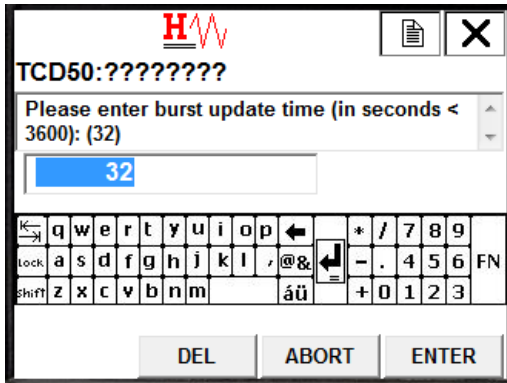
2. Select 'Burst Mode Setup' and press the right arrow  to proceed.



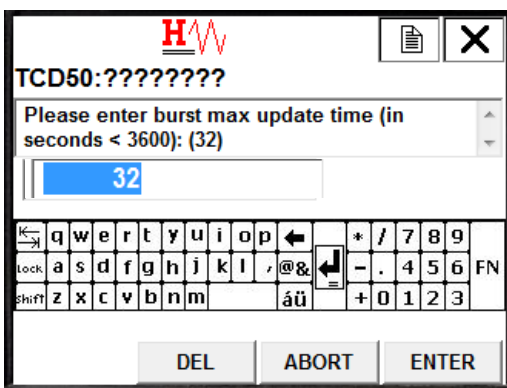
4. Select 'Message 0' and tap 'ENTER' to proceed.



5. Input the desired burst update time (e.g. 32s seconds). The factory default is 8 seconds. This update is adjustable between 1* and 3600 seconds.

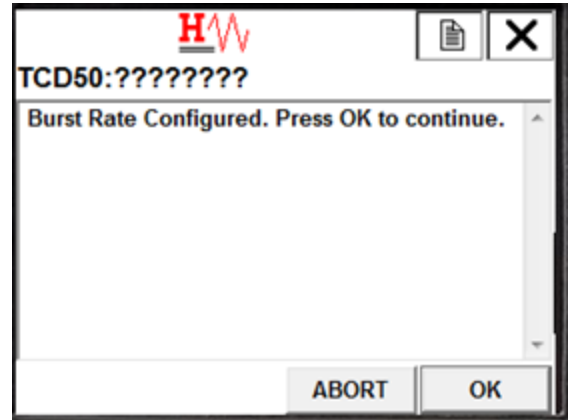


6. Tap 'ENTER' to proceed.
7. Input the desired burst maximum update time only if using the Burst Trigger function. Otherwise, input desired burst update time from Step 5 above.

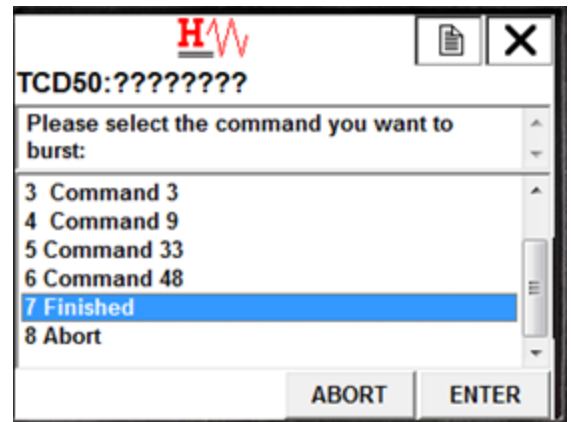


8. Tap 'ENTER' to proceed.

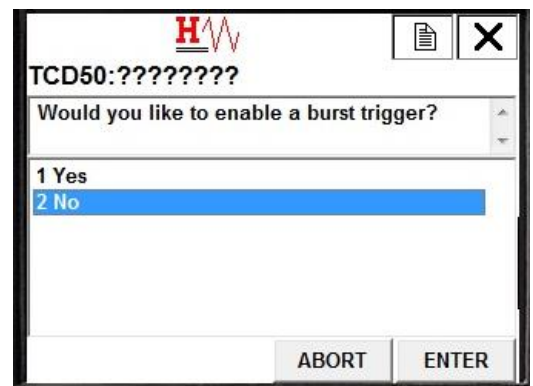
9. Tap 'OK' to proceed.



10. Select 'Finished' and tap 'ENTER'.



11. Select 'No' and tap 'ENTER'. Desired burst rate will be saved into the Vanguard device.



*Recommended minimum is 8 seconds.