

# HARMONICGUARD<sup>®</sup> *ACTIVE*

## HarmonicGuard<sup>®</sup> Series Bus-Applied Active Harmonic Filter Quick Start Unit Software Setup



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<b>Revision</b>	<b>Description</b>	<b>Date</b>
A	Release	10/29/13
B	Update Screens	10/16/14



# HGA Quick Start Unit Software Setup

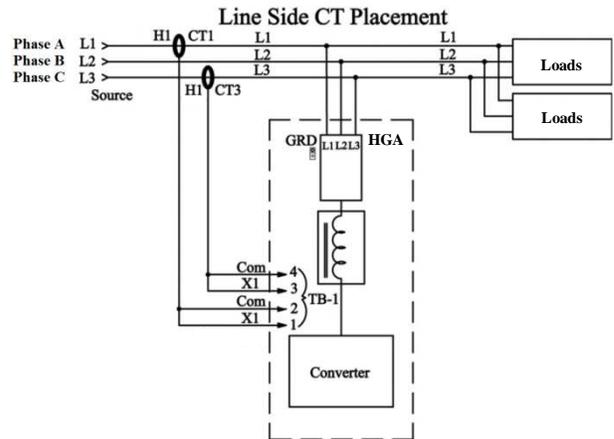
<p><b>NOTE: Full User Manual</b></p> <p>For the full user manual and other supporting documentation please go to:</p> <p><a href="http://www.transcoil.com">http://www.transcoil.com</a></p>	 <p><a href="http://www.transcoil.com">http://www.transcoil.com</a></p>
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<p><b>Warning</b></p> 	<p>Be sure to read, understand, and follow all safety instructions.</p>
<p><b>Warning</b></p> 	<p>Only qualified electricians should carry out all electrical installation and maintenance work on the HarmonicGuard Active (HGA) filter.</p>
<p><b>Warning</b></p> 	<p>All wiring must be in accordance with the National Electrical Code (NEC) and/or any other codes that apply to the installation site.</p>
<p><b>Warning</b></p> 	<p>Disconnect all power before working on the equipment. Do not attempt any work on a powered HGA filter.</p>
<p><b>Warning</b></p> 	<p>The HGA filter, drive, motor, and other connected equipment must be properly grounded.</p>
<p><b>Warning</b></p> 	<p>The HGA filter may receive power from two or more sources. Three-phase power is connected to the main input terminals of the HGA filter. All of these sources of power must be disconnected before working on the HGA filter.</p>
<p><b>Warning</b></p> 	<p>After switching off the power, always allow 5 minutes for the capacitors in the HGA filter and in the drive to discharge before working on the HGA filter, the drive, the motor, or the connecting wiring. It is good practice to check with a voltmeter to make sure that all sources of power have been disconnected and that all capacitors have discharged before beginning work.</p>

### 1) Verify unit external connections

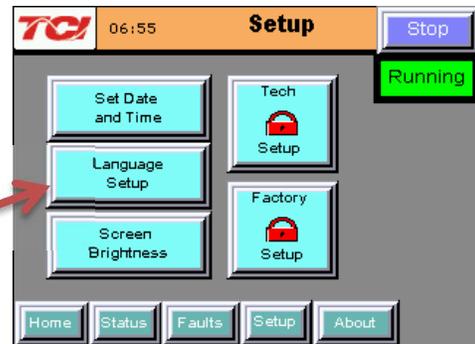
- Phase A, B, C power connection, with positive A-B-C phase rotation expected
- CT H1 Terminal is pointing toward the source
- CT feedback on phases A & C to TB-1
- Leave CT shorting bars in place on TB-1
- With the HGA circuit breaker open, energize the source to the HGA
- Close the HGA circuit breaker
- Fans and HMI should come on in < 5 seconds
- HMI will start on Home screen
- Load(s) have an integral 5% line reactance or equivalent dc bus choke

	<p><b>Warning</b></p> <p>Hazardous voltages are present when unit is energized</p>
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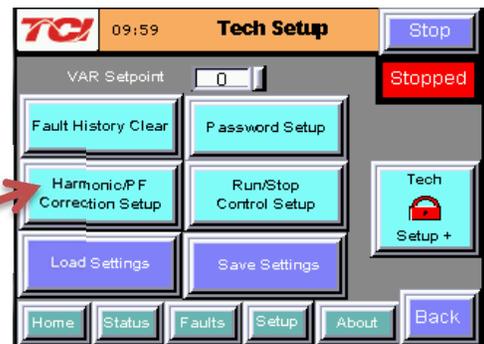
### NOTE: Language Selection

- The active filter supports several languages including English, French and Spanish
- Press “Setup” to navigate to Setup screen and press the “Language Setup” button.
- Select language setting from the language setup pop-up screen.

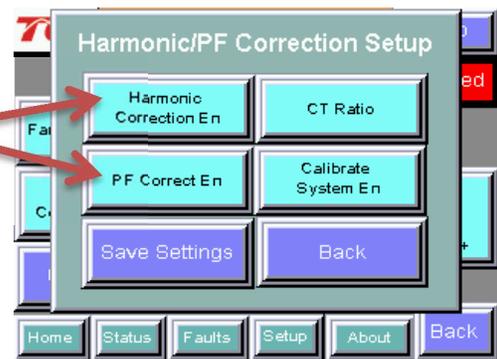


### 2) Converter check – 1

- Press “Setup” to navigate to Setup screen
- Next select “Tech Setup” and enter the password:  
**08252014**
- Select the “Next” button from the splash screen
- First select “Harmonic/PF Correction Setup.”



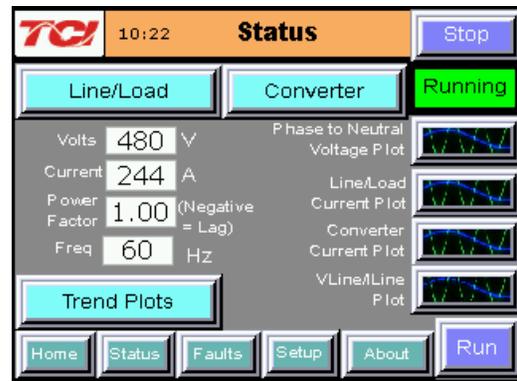
- On this pop-up screen ensure “PF Correct En” and “Harmonic Correction En” buttons are OFF (Blue). If buttons are GREEN press them to toggle off.
- Select the “Next” button from the pop-up screen





#### 4) Status screen check

- Press "Status" to navigate to Status screen
- Compare "Volts" to expected line voltage
- Compare "Freq" to expected line frequency
- "Current" expected to be zero if unit is not running and CT inputs are shorted



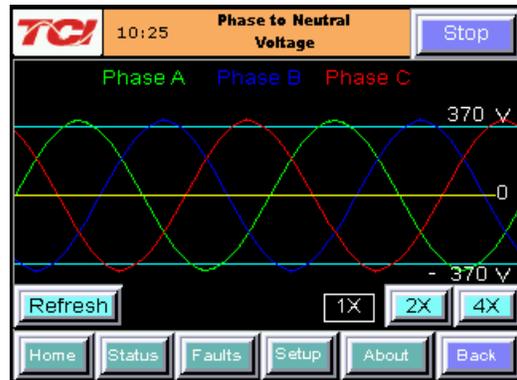
#### 5) Phase rotation check

- Press "Phase to Neutral Voltage Plot" button
- Check that the current peaks follow the following sequence from left to right: Phase A (Green), Phase B (Blue), Phase C (Red)
- Equipment is phase rotation sensitive, if phase rotation is incorrect, power down unit and rewire to adjust phase rotation by swapping two incoming phase connections

#### Warning

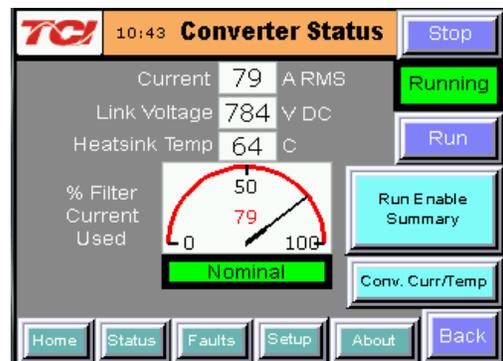


Improper operation will occur if input voltage phase rotation is incorrect.



#### 6) Converter recheck

- Follow steps in 2) to once again ensure "PF Correct En" "Harmonic Correction En" and "Auto Start En" buttons are OFF (Blue). If GREEN press to toggle OFF
  - Next select "Status" to navigate to Status screen
  - Select "Converter" in top right corner
- 
- Once on "Converter Status" screen select "Run" to start unit operation



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## 7) Remove CT shorting bars

- Press “Stop” to turn off unit
- Disconnect power from cabinet
- Turn off the built in door breaker AND
- Turn off the upstream feeder breaker
- Open the cabinet door and remove shorting bars from CTs connected to TB-1

<b>Warning</b> 	Lethal voltages may be present. Wait 5 minutes for DC bus voltage to drop to safe levels.
<b>Warning</b> 	Check for voltage in cabinet with a DMM before working inside cabinet.

## 8) Current polarity #1

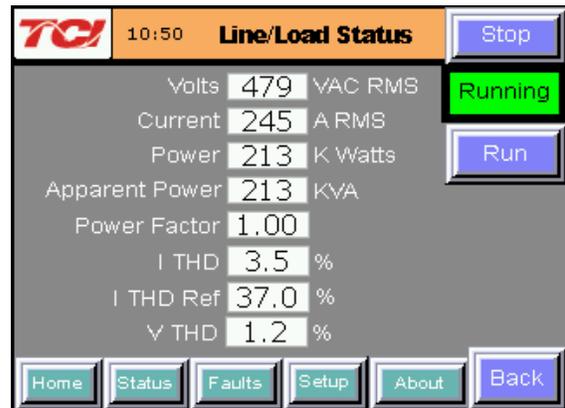
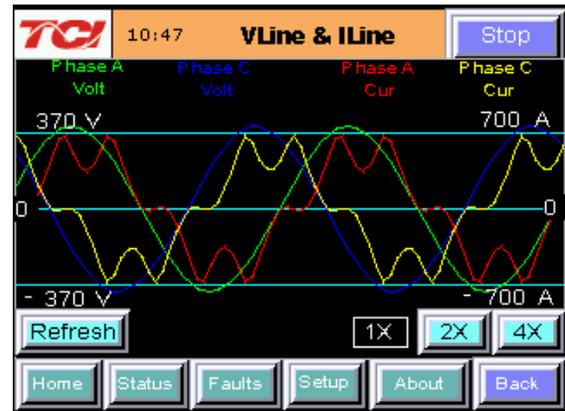
- Power up unit
- From Home screen press “Run” to turn on unit
- Press “Status” to navigate to Status screen
- Select “Vline/Iline” screen
- Note: Lightly loaded conditions (less than 20% CT rating) will not have enough current to show up on Iline plot
- Check that Phase A to Neutral voltage peak lines up with Phase A current (use zoom if necessary)
- Check that Phase C to Neutral voltage peak lines up with Phase C current
- Power system down and check CT installation location and orientation if Phase A plots differ significantly from Phase C plots

<b>Warning</b> 	Open circuit CT outputs can result in high voltages and damage to equipment.
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<b>Warning</b> 	Wiring the CT incorrectly can lead to improper operation, which includes unit operating in limit and/or contributing to rather than correcting harmonics.
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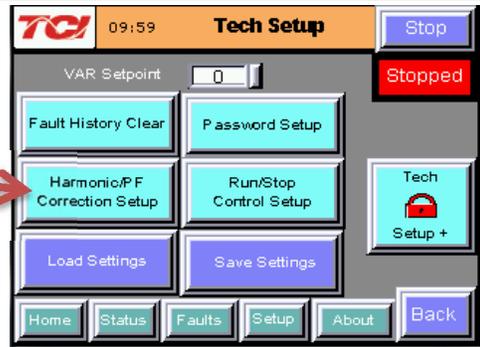
## 9) Current polarity #2

- Navigate to Status screen
- Navigate to Line/Load status
- Verify that “Volts,” “Current,” “Power,” “I THD,” and “V THD” match expected values for the power system
- If they do not, verify CTs are correctly installed

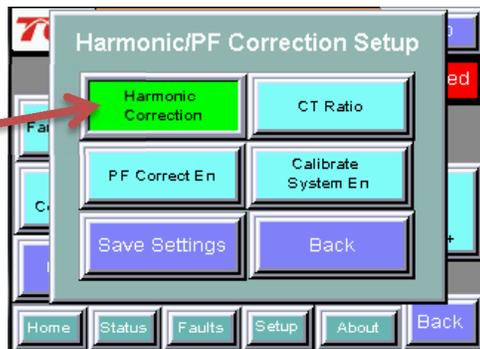


### 10) Final setup

- Press "Setup" to navigate to Setup screen
- Next select "Tech Setup" and enter your password  
**08252014**
- Select the "Next" button from the pop-up screen
- First select "Harmonic/PF Correction Setup."



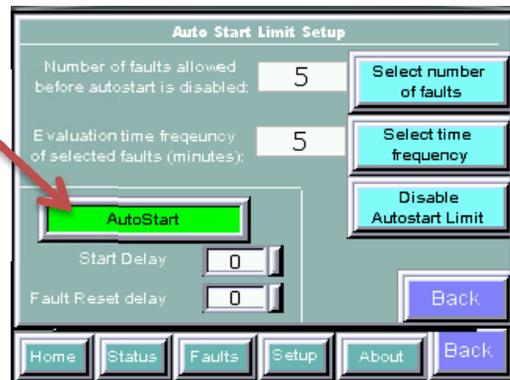
- On this pop-up screen select "Harmonic Correction En" button and ensure the button is ON (Green).
- NOTE: If unit is sized with sufficient capacity to provide power factor correction, press "PF Correct En" and ensure the button is ON (green).



- Next select "Run/Stop Control Setup" from "Tech Setup" screen
- Then select "Auto Start Setup"



- On this pop-up screen select the "Auto Start En" button and ensure the button is ON (Green).



<p><b>Warning</b></p> 	<p>When Auto Start is enabled unit may operate without operator input.</p>
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- Navigate to "Tech Setup" screen
- Press "Save Settings" to save settings and restart converter
- Allow the unit turn on automatically (about 30s)

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## 11) Final check

- Navigate to the Status screen
- Navigate to Line/Load status
- Note the corrected voltage, current, power and THD

The screenshot displays the 'Line/Load Status' screen from the TCI interface. The top bar shows the TCI logo, the time 11:46, and the title 'Line/Load Status'. A 'Stop' button is in the top right corner. The main area lists several electrical parameters with their values and units: Volts (480 VAC RMS), Current (247 A RMS), Power (205 K Watts), Apparent Power (205 KVA), Power Factor (1.00), I THD (3.4 %), I THD Ref (37.1 %), and V THD (1.2 %). A green 'Running' indicator is visible on the right side, and a 'Run' button is below it. At the bottom, there is a navigation bar with buttons for Home, Status, Faults, Setup, About, and Back.

Parameter	Value	Unit
Volts	480	VAC RMS
Current	247	A RMS
Power	205	K Watts
Apparent Power	205	KVA
Power Factor	1.00	
I THD	3.4	%
I THD Ref	37.1	%
V THD	1.2	%



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