



# Reduce THD from Solar. Improve Power Quality.

**Tune® reduces total harmonic distortion by more than 30% on hot phase wires and more than 45% on the neutral line.**

With anecdotal reports of 10 to 15% savings from numerous installations in solar homes, Tune® jumped at the chance to get some hard data from a client's off-the-grid solar home in rural South Carolina.

Powering 7,500 square feet of home, garages, workshops, and more is a Firefly Solar-designed system of 36 panels and four Tesla batteries. Using a sophisticated Power Sight 5000 Meter from Summit Technologies, data was collected with and without Tune® devices connected. As evident in the data below, Tune® dramatically reduced TDH and improved power quality.

## Power Sight 5000 Data Captured November 2022\*

MEASUREMENT	WITHOUT TUNE®	WITH TUNE®	CHANGE	
Phase 1 THD	16.0%	10.8%	-32.81%	✓
Phase 2 THD	13.0%	9.0%	-30.77%	✓
Neutral THD	11.0%	6.0%	-45.45%	✓
Phase 1 Power Factor	.98	.99	1.02%	✓
Phase 2 Power Factor	.97	.99	2.06%	✓
Phase 1 True Power	3.729k	4.259k	14.21%	✓
Phase 2 True Power	5.573k	6.910k	24.00%	✓



# 30%<sup>+</sup>

**REDUCTION**  
IN TOTAL HARMONIC DISTORTION



tune<sup>™</sup>  
electrical filter

Install in Parallel  
on Neutral Bus ONLY

Frequency 50/60 Hz  
Max Voltage 600 V AC  
Max Ambient 40°C  
Temp Range 0 to 150°F

t7 MODEL  
EMI  
Facility  
Filter

SERIAL # 1885

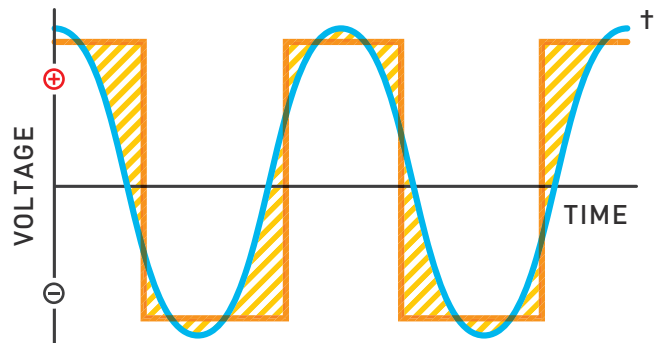
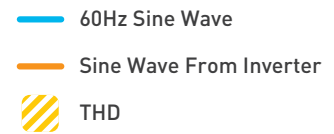
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# THD is Inherent in Solar Power.

Total Harmonic Distortion (THD) is any distortion on a sine wave.\* In electrical systems, this is any frequency other than the 60Hz fundamental frequency.

**Solar systems create significant distortion because they depend on inverters.**

When inverters turn the DC (direct current) coming from the solar panels into useful AC (alternating current), they cannot produce the 60Hz frequency perfectly. The difference between the sine wave produced by the inverter and the 60Hz sine wave is the THD. While some inverters are better, none will produce a perfect 60Hz sine wave today.†



## What's So Bad About THD?

According to Gokce Capital, "When total harmonic distortion increases beyond a certain point, a host of issues can occur, including **overheating of the equipment connected to it, disruption, and higher electric bills.**"\*

### Increased Energy Costs

Unfortunately, harmonic distortion is inversely proportional to the power factor. Electrical systems with a high power factor are efficient. **A system with high harmonic distortion is equally inefficient.** This inefficiency wastes energy and increases energy costs.\*

### Damaging to Electrical Equipment

High harmonic distortion creates excessive heat that shortens the life of electronics and appliances. Especially in sensitive electrical equipment, distortion can cause malfunctions and even catastrophic failures.\*

### Learn More About THD

Check out this information post by Gokce Capital:

### Total Harmonic Distortion: 11 Things (2022) You Need to Know.

<https://gokcecapital.com/total-harmonic-distortion/>



Save energy + Save electronics + Save resources = Save money

\*Gokce Capital. Total Harmonic Distortion: 11 Things (2022) You Need to Know. gokcecapital.com. Retrieved November 29, 2022, from <https://gokcecapital.com/total-harmonic-distortion/>  
†Solar Solution. [2021, July 19]. Inverter Efficiency and THD: Total Harmonic Distortion [Video]. YouTube. <https://www.youtube.com/watch?v=HIF8ZGQfIlg>



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