

PowerGuard 115-VAC 400 Hz Frequency Converter

Advanced Technology for
Continuous and Dependable
Energy Solutions





PowerGuard

115 VAC 400 Hz Frequency Converter

Developed by TEDEG Engineering, the PowerGuard Military 115 VAC 400 Hz Converter is designed to provide the reliable energy conversion needed in modern defense and industrial applications. With its innovative features and superior performance compared to both domestic and international competitors, this system stands out by meeting military standards and delivering energy efficiency and durability—capable of handling even the toughest operational conditions.

PowerGuard accepts 3-phase 360–440 VAC at 50–60 Hz as input and can convert it to a variable 115 VAC–220 VAC, 60–400 Hz output voltage. Having successfully passed MIL-STD-810G and MIL-STD-461G tests, the system has proven its durability under demanding environmental conditions. An optional power distribution unit can be attached to the output, enabling intelligent, controlled energy distribution to different systems according to customer needs.

Advanced Features

1. Dynamic Voltage and Frequency Conversion

- Input: 3-phase, 360–440 VAC, 50–60 Hz
- Output: Variable 115 VAC–220 VAC, 60–400 Hz
- Connection Options:
 - Star (Wye) Connection: 115 VAC (line-to-neutral), 400 Hz
 - Delta Connection: 115 VAC (line-to-line), 400 Hz

2. Compliance with Military Standards

- MIL-STD-1399B: Technical standard compliance
- MIL-STD-810G: Durability
- MIL-STD-416: Magnetic resilience
- MIL-STD-704F & MIL-STD-1399-300B: Output voltage and frequency requirements

3. Advanced Protection Mechanisms

- Phase sequence protection
- Overload, short-circuit, and over-temperature protection
- Standby-state monitoring and control of voltage/frequency fluctuations

4. Integrated Testing and Monitoring

- Real-time monitoring of input and output parameters
- RS-422 protocol for remote control and data monitoring
- Streamlined for full functional testing and maintenance

5. Physical and Environmental Durability

- Operating Temperature: –30°C to +55°C
- Dust, vibration, humidity, and shock resistance in compliance with MIL-STD-810G
- Capable of operating under reduced atmospheric pressure up to 3000 meters altitude

Application Areas

• Defense Industry

- Military Weapon Systems: Ensures continuous operation for radar and weapon systems through precise power conversion.
- Air Platforms: Supplies power for aircraft and helicopters.
- Land Platforms: Provides reliable energy for armored vehicles and mobile operations.
- Naval Platforms: Used in communication, sonar, and control systems for ships and submarines.

• Industrial Applications

- Test & Calibration Laboratories: Delivers stable power for devices requiring high-precision energy.
- Production Lines: Utilized where precise and high-quality power conversion is essential.
- Heavy Industry & Automation: Serves as a power source for large industrial motors and control systems.

• Critical Systems

- Hospitals and Healthcare Centers: Enables uninterrupted operation of critical medical devices.
- Data Centers: Meets continuous power demands for servers and storage units.
- Emergency Management: Acts as a portable energy source in disaster scenarios.

• Mobile & Portable Power Solutions

- Field Operations: Offers fast and efficient energy conversion for mobile deployments.
- Military Camps: Provides power for forward posts and temporary military bases.
- Special Military Motors: Powers engines widely used in defense and aviation sectors.
- High-Power Devices: Suitable for critical missions requiring large amounts of energy.

Feature	Details
Input Voltage and Frequency	3-phase, 360-440 VAC, 50-60 Hz
Output Voltage and Frequency	Variable 115 VAC to 220 VAC, 60 to 400 Hz
Connection Types	Wye (Star): 115 volts AC (line-to-neutral), 400 hertz
	- Delta connection: 115 volts AC (line-to-line), 400 hertz
Efficiency	That's 85%
Output Power Factor	- Star connection: Minimum 0.85
	- Triangle connection: Minimum 0.80
Total Harmonic Distortion (THD)	Output total harmonic distortion: Below five percent
Frequency Modulation	Maximum frequency of 4Hz
Voltage Modulation	Maximum 2.5 Vrms
Response Time	- Time to reach steady-state values: 200 ms -
	Shutdown time: 100–170 ms (for over-/undervoltage)
Protection Mechanisms	Phase sequence, overload, short circuit, and over-temperature protection
Operating Temperature	-30°C to +50°C

Feature	Details
Durability Standards	- MIL-STG-1399B
	- MIL-STD-810G
	- MIL-STD-416G
Monitoring & Control	- CIT (In-Device Examination)
	- CIT (Built-in Test) - OLED screen, remote monitoring and control via RS-422 protocol
Physical Durability	Dust, vibration, moisture, rainfall, and shock resistance
Operating Altitude	3000 metre
Weight	210+- 5 Kg

Desktop Remote Control & Monitoring Ethernet Software

TEDEG FREKANS CONVERTOR MONİTÖR V1.0

Bağlantı Ayarları

İp Adresi: 192.168.127.254

Port Numarası: 4001

Bağlan

KONTROL BİLGİLERİ SORGU CEVABI

Voltaj Seçimi

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İnvertör Çalıştır

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Hata Resetle

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Çıkış Aç/Kapat

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Sessiz Modu Al

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AC/AC GİRİŞ VE ÇIKIŞ BİLGİSİ

L1 Giriş Akımı
L2 Giriş Akımı
L3 Giriş Akımı
Giriş Frekansı
L1-L2 Giriş Gerilimi
L2-L3 Giriş Gerilimi
L3-L1 Giriş Gerilimi
L1 Çıkış Akımı
L2 Çıkış Akımı
L3 Çıkış Akımı
Çıkış Frekansı
L1-L2 Çıkış Gerilim Bilgisi
L2-L3 Çıkış Gerilim Bilgisi
L3-L1 Çıkış Gerilim Bilgisi

Çevirici Çalışma Durumu

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Çevirici Çıkış Durumu

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HATA VE UYARI MESAJI - 1

<input type="checkbox"/>	400 Hz L1 Too High Voltage
<input type="checkbox"/>	400 Hz L2 Too High Voltage
<input type="checkbox"/>	400 Hz L3 Too High Voltage
<input type="checkbox"/>	400 Hz L1 High Voltage
<input type="checkbox"/>	400 Hz L2 High Voltage
<input type="checkbox"/>	400 Hz L3 High Voltage
<input type="checkbox"/>	400 Hz L1 Too Low Voltage
<input type="checkbox"/>	400 Hz L2 Too Low Voltage
<input type="checkbox"/>	400 Hz L3 Too Low Voltage
<input type="checkbox"/>	400 Hz L1 Low Voltage
<input type="checkbox"/>	400 Hz L2 Low Voltage
<input type="checkbox"/>	400 Hz L3 Low Voltage
<input type="checkbox"/>	400 Hz L1 Too High Current
<input type="checkbox"/>	400 Hz L2 Too High Current
<input type="checkbox"/>	400 Hz L3 Too High Current
<input type="checkbox"/>	400 Hz L1 High Current
<input type="checkbox"/>	400 Hz L2 High Current
<input type="checkbox"/>	400 Hz L3 High Current

HATA VE UYARI MESAJI - 2

<input type="checkbox"/>	400 Hz Too High Freq
<input type="checkbox"/>	400 Hz Too Low Freq
<input type="checkbox"/>	400 Hz High Freq
<input type="checkbox"/>	400 Hz Low Freq
<input type="checkbox"/>	400 Hz Unbalanced Load
<input type="checkbox"/>	Heat Sink Temp Error
<input type="checkbox"/>	Cabin Temp Error
<input type="checkbox"/>	Emergency
<input type="checkbox"/>	Electric Panel Open
<input type="checkbox"/>	400 Hz Main Board Error
<input type="checkbox"/>	400 Hz Communication Error
<input type="checkbox"/>	Silence Mod
<input type="checkbox"/>	400 Hz Ac Input Low
<input type="checkbox"/>	Çıkış 115V Sigorta Arızası
<input type="checkbox"/>	Çıkış 200V Sigorta Arızası
<input type="checkbox"/>	Çıkış 115V Kontaktör Arızası
<input type="checkbox"/>	Çıkış 200V Kontaktör Arızası
<input type="checkbox"/>	Çıkış Kesildi

YAZILIM BİLGİSİ

Yazılım Versiyon

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KONTROL BİLGİLERİ MESAJI

Voltaj Seçimi:	Değişiklik Yok
İnvertör Çalıştır:	Değişiklik Yok
Hata Resetle:	Değişiklik yok
Çıkış Aç/Kapat:	Değişiklik yok
Sessiz Modu Al:	Değişiklik yok

Uygula

Çihaz Bağlı Durumu: Başarısız