

PowerGuard Outdoor 115 VAC 60–400 Hz Military AC–AC Frequency Converter

Superior Technology for Uninterrupted
and Reliable Energy Solutions

Product Code: PWRGRD1154003899





PowerGuard

115 VAC 60 Hz - 400 Hz Frekans Çevirici

The PowerGuard 115 VAC 60/400 Hz Military Frequency Converter combines three critical capabilities required by modern defense platforms in a single compact system:

Frequency conversion (50 Hz ↔ 60 Hz / 400 Hz), isolated AC-AC power conversion, and intelligent power distribution unit (PDU).

The system converts 360–450 VAC, 50/60 Hz input voltage to 115 VAC 60 Hz and 115 VAC 400 Hz output formats required by military equipment with high stability and low harmonic distortion. Thanks to its built-in intelligent power distribution architecture, a total of 7 independent outputs are automatically managed and switched according to the load condition.

The device features a dual OLED display system serving as an information and error screen, separate color-coded physical On/Off buttons for each output, an Ethernet-based web server interface, and desktop GUI software, offering both local and remote control capabilities. The operator can monitor the voltage, current, and frequency values of all inputs and outputs in real time, remotely control outputs, and access system error logs.

Designed to meet MIL-STD-810F environmental standards and MIL-STD-461E EMI/EMC compliance, the system offers high reliability in challenging field conditions. PowerGuard is optimized to provide uninterrupted power management in mission-critical environments such as land, air, and sea platforms, forward outposts, field airfields, and mobile command and control systems.

Application Areas: Defense and Aerospace

- Reliable power supply solutions for forward outposts and mobile military camps.
- 400 Hz avionics test and power supply systems at Sahara airports.
- Vehicle-mounted power systems integrated into marine, air, and land platforms.
- Mobile command and control vehicles and container systems

Critical Infrastructure Systems

- Uninterrupted power solutions for hospitals and health centers.
- Data centers and critical IT infrastructures
- Emergency and disaster management systems

Mobile and Portable Power Solutions

- **Field operations and temporary deployment systems**
- Mission-critical applications requiring portable power.

Advanced Features

Dual Frequency Conversion

- Generating 60 Hz and 400 Hz output from a single system.
- A common power platform for avionics and ground systems.

Smart Power Delivery Unit (PDU)

- A total of 7 isolated outlets.
- Automatic switching based on load condition.
- Independent On/Off control for each outlet.

Ethernet Web Server and Desktop GUI

- Web-based remote access via browser
- Advanced control and monitoring via desktop software.
- Ability to remotely control all system functions.

Real-time V/A/Hz monitoring.

- For all entrances and exits:
 - Voltage (V)
 - Current (A)
 - Frequency (Hz)
- Instant error and alarm notifications.

Dual OLED Display Interface

- Separate Information Screen and Error Screen
- Operator-friendly menu structure
- Color-coded physical control buttons for each output.

Static Double Conversion Technology

- IGBT-based high-frequency PWM
- Clean, isolated, and stable power output.
- High power quality for critical loads.

Designed to withstand harsh outdoor conditions.

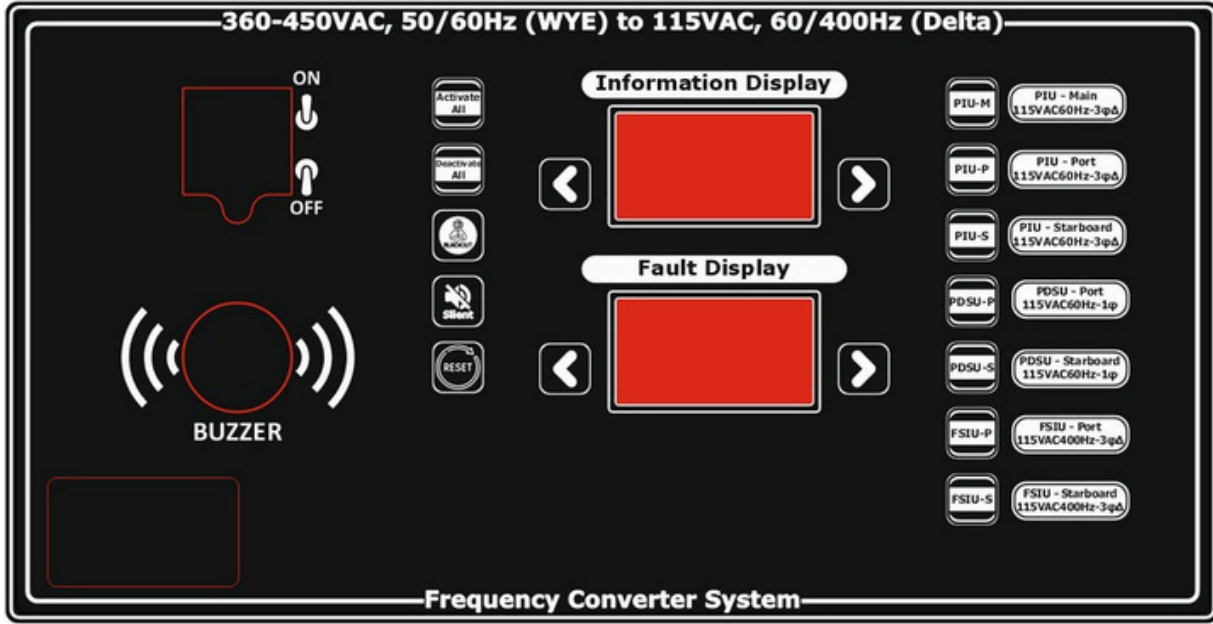
- Reliable operation in challenging environmental conditions such as rain, dust, humidity, and vibration.
- Continuous operation in a wide temperature range of -32°C to +55°C.
- Environmental resistance in accordance with MIL-STD-810F standard.

Military Standard Compliance

- MIL-STD-810F (Environmental resistance)
- MIL-STD-461E (EMI/EMC)
- MIL-STD-1399B (Ship power systems)

Feature	Details
Input Voltage and Frequency	Input Voltage: 360-440 VAC 50 Hz
Output Voltage, Frequency, Capacitance, and Interface	<ul style="list-style-type: none"> • KN2: 115 VAC - 60 Hz 3 phases, 2 kVA • KN3: 115 VAC - 60 Hz 3 phases, 1.2 kVA • KN4: 115 VAC - 60 Hz 3 phases, 1.2 kVA • KN5: 115 VAC - 60 Hz 2 phases, 0.5 kVA • KN6: 115 VAC - 60 Hz 2 phases, 0.5 kVA • KN7: 115 VAC 3 phase, 4 kVA, 400 Hz • KN8: 115 VAC 3 phases, 4 kVA, 400 Hz • KN9: Communication Ethernet - RS422
Overload	12 kVA @ 0.8 PF continuous: 125% for 5 minutes, 200% for 5 seconds, 250% for 1 second
Productivity	That's %85
Frequency Modulation	Maximum 1 Hz
Voltage Modulation	Maximum 2.5 Vrms
Working System	Static, Double Conversion - Microprocessor Controlled
Working Technique	High-frequency PWM with IGBT
Exit Isolation	High voltage isolation with isolated output transformer.
Protection Mechanisms	Phase sequence, overload, short circuit, and over-temperature protection.
Operating Temperature	-32°C to +55°C
Heat Protection	IGBT Heat Sink and Output Transformer Thermal Protection
Work Environment	Indoor and Outdoor Environment
Electrical Interface	MIL-DTL-38999 Military Connector
Working Altitude	3000 metre
Weight	270+- 5 Kg
Durability Standards	- MIL-STG-1399B
	- MIL-STD-810F
	- MIL-STD-416E

Control Unit Interface



Desktop Remote Control and Monitoring Ethernet Software

TEDEG FREKANS CONVERTOR MONİTÖR V1.0

Bağlantı Ayarları

İp Adresi: 192.168.127.254
Port Numarası: 4001
Bağlan

YAZILIM BİLGİSİ

Yazılım Versiyon
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KONTROL BİLGİLERİ MESAJI

Voltaj Seçimi:	Değişiklik Yok
Invertör Çalıştır:	Değişiklik Yok
Hata Resetle:	Değişiklik yok
Çıkış Aç/Kapat:	Değişiklik yok
Sessiz Modu At:	Değişiklik yok

Uygula

KONTROL BİLGİLERİ SORGU CEVABI

Voltaj Seçimi
.....

Invertör Çalıştır
.....

Hata Resetle
.....

Çıkış Aç/Kapat
.....

Sessiz Modu At
.....

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

Çihaz Bağlantı Durumu: Başarısız

Mechanical and Electrical Interface

Konnektör Etiketi	Güç Giriş KN1	
CA3102E22-22PB		KN1
A	12 AWG	L1
B	12 AWG	L2
C	12 AWG	L3
D	12 AWG	PE

Konnektör Etiketi	Güç Çıkışı KN2 115 VAC-60 Hz (Üçgen)	
D38999/24WD55N		KN2
A	16 AWG	L1
B	16 AWG	L2
C	16 AWG	L3
D	16 AWG	PE

Konnektör Etiketi	Güç Çıkışı KN3 115 VAC-60 Hz (Üçgen)	
D38999/24WD55A		KN3
A	16 AWG	L1
B	16 AWG	L2
C	16 AWG	L3
D	16 AWG	PE
E	16 AWG	Spare

Konnektör Etiketi	Güç Çıkışı KN4 115 VAC-60 Hz (Üçgen)	
D38999/24WD55B		KN4
A	16 AWG	L1
B	16 AWG	L2
C	16 AWG	L3
D	16 AWG	PE
E	16 AWG	Spare

Konnektör Etiketi	Güç Çıkışı KN5 115 VAC-60 Hz (Üçgen)	
D38999/24WC45N		KN5
A	16 AWG	L
B	16 AWG	N
C	16 AWG	PE
D	16 AWG	Spare

Konnektör Etiketi	Güç Çıkışı KN6 115 VAC-60 Hz (Üçgen)	
D38999/24WC45A		KN6
A	16 AWG	L
B	16 AWG	N
C	16 AWG	PE
D	16 AWG	Spare

Konnektör Etiketi	Güç Çıkışı KN7 115 VAC-400 Hz (Üçgen)	
D38999/24WE65N		KN7
A	12 AWG	L1
B	12 AWG	L2
C	12 AWG	L3
D	12 AWG	PE
E	12 AWG	Spare
F	12 AWG	Spare

Konnektör Etiketi	Güç Çıkışı KN8 115 VAC-400 Hz (Üçgen)	
D38999/24WE65A		KN8
A	12 AWG	L1
B	12 AWG	L2
C	12 AWG	L3
D	12 AWG	PE
E	12 AWG	Spare
F	12 AWG	Spare

Tanımlar	Haberleşme KN9	
D38999/24WC35PN		KN9
1	22 AWG	ETH_TX+
2	22 AWG	ETH_TX-
3	22 AWG	ETH_RX+
4	22 AWG	ETH_BI_D3+
5	22 AWG	ETH_BI_D3-
6	22 AWG	ETH_RX-
7	22 AWG	ETH_BI_D4+
8	22 AWG	ETH_BI_D4-
9	22 AWG	RS422RX+
10	22 AWG	RS422RX-
11	22 AWG	RS422TX+
12	22 AWG	RS422TX-
13	22 AWG	RS422TX-
14	22 AWG	Spare
15	22 AWG	Spare
16-22	22 AWG	Spare

