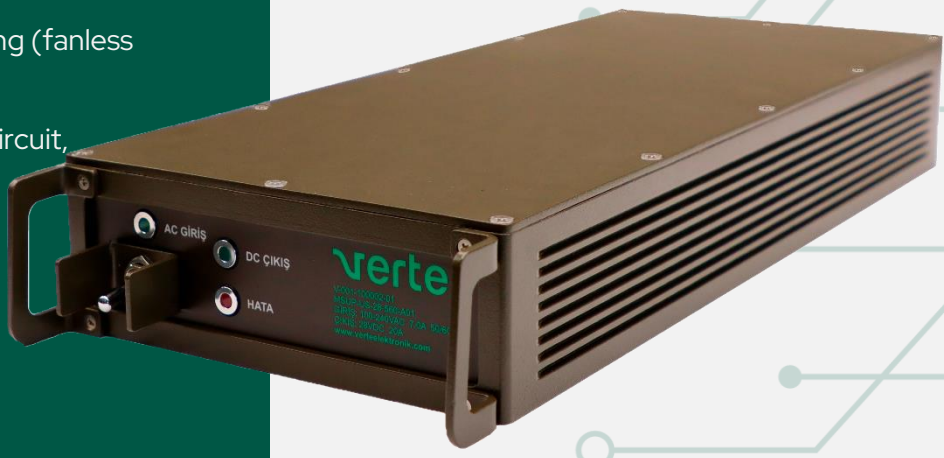
MILITARY POWER SUPPLY

MSUP-1PH-28-560-A01

The "MSUP-1PH-28-560-A01" is a 560 W military power supply with input voltage of 85-265 VAC, 47-63 Hz and output voltage of 28 VDC in accordance with the harshest environmental conditions and superior performance targets.

- **AC Input:** 85-265 VAC, 47-63 Hz
- **Output:** 28 VDC 20 A
- **Power:** 560 W
- **Operating temperature:** -40 °C to 71 °C with full power
- **Cooling Method:** Conduction cooling (fanless design)
- **Protections:** Over Current, Short Circuit, High-Temp , Low- Temp protections



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Built to meet stringent military standards, this AC-DC converter guarantees reliable power delivery under extreme conditions. It operates efficiently across a wide input voltage range (90-264VAC) accommodating various power grids with ease. Its high efficiency, exceeding 95%, ensures minimal energy loss, translating into prolonged operational life. The converter's robust design includes comprehensive protection mechanisms against over-voltage, over-current, over-temperature, and short-circuits, safeguarding both the device and connected equipment.

Designed to withstand the rigors of military and industrial use, this converter performs flawlessly in diverse climatic conditions. It withstands up to 90% non-condensing humidity, ensuring stable operation in humid environments. The device is also tested to MIL-STD-810G standards for vibration and shock resistance, making it suitable for use in mobile military vehicles and other dynamic applications. Its compliance with MIL-STD-461 standards for electromagnetic interference and compatibility ensures it operates harmoniously with other electronic equipment without causing or being affected by EMI.

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Product Overview

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1. PRODUCT OVERVIEW

The "MSUP-1PH-28-560-A01" designed for advanced military applications, this high-performance AC-DC converter provides reliable and continuous power even in harsh outdoor environments. With its sealed design and fanless cooling features, this device stands out by providing 560W of power at 28V, making it an ideal solution for critical military operations. Manufactured to the highest quality and durability standards, it is suitable for a wide range of military and industrial applications.

1.1. FEATURES

- AC Input: 85-265 VAC, 47-63 Hz
- Output: 28 VDC 20 A
- Power: 560 W
- Operating temperature between -40 °C to 71 °C with full power
- Conduction cooling without fan
- Over Current, Short Circuit, High-Temp , Low- Temp protections

Technical Specifications

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2. TECHNICAL SPECIFICATIONS

2.1. ELECTRICAL SPECIFICATIONS

Table 1: Input Electrical Specification

PARAMETER	VALUE	UNIT
Input Voltage	85-265	VAC
Input Frequency	47-63	Hz
Input Current	7	A
Power Factor (full load)	>0.95	
Efficiency (full load)	95%	

Table 2: Output Electrical Specification

PARAMETER	VALUE	UNIT
Output Voltage	28	VDC
Rated Output Power	560	W
Output Current	20	A
Output Voltage Ripple	200	mV_{p-p}
Line Regulation	±0.5%	
Load Regulation	±0.5%	
Hold Up Time	15	ms

Table 3: Protections

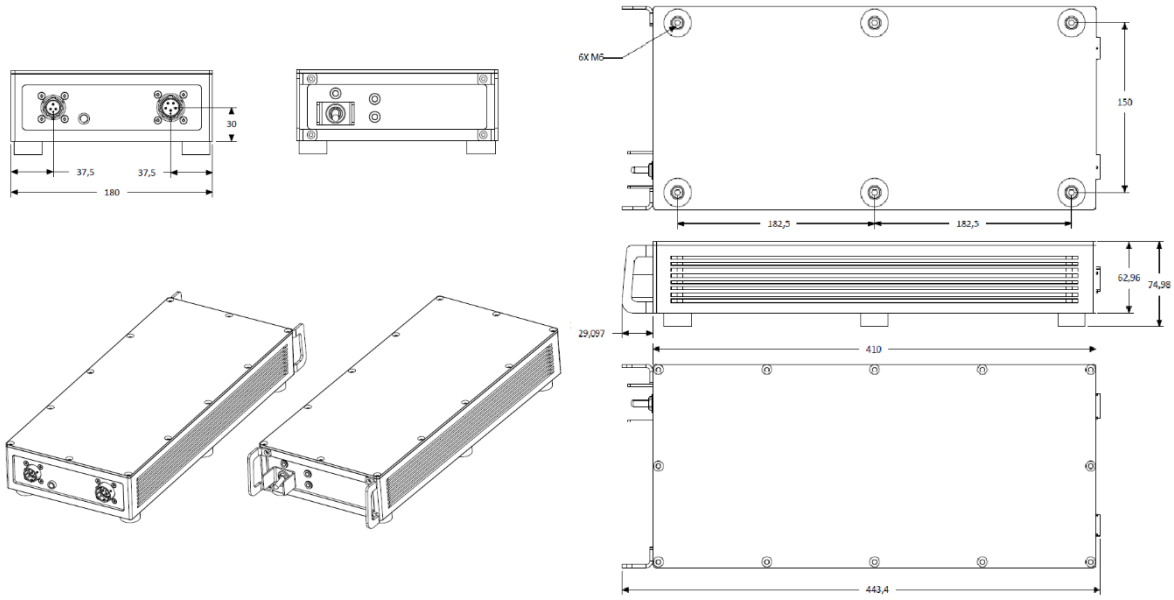
PROTECTIONS	
Over Current	105 ~ 125% Constant current limiting, recovers automatically after fault condition is removed
Short Circuit	Constant current limiting, recovers automatically after fault condition is removed
High Temperature	Shut down output voltage, re-power on to recover

2.2. ENVIROMENTAL SPECIFICATIONS

Table 4: Enviromental Specification

Description	Procedure
Operation Temperature	For -40°C/70°C MIL-STD-810F, Method 501.4 and 502.4
Storage Temperature	For -40°C/85°C MIL-STD-810F, Method 501.4 and 502.4
Humidity	MIL-STD-810F, Method 507.4
Vibration	MIL-STD-810F, Method 514.6, Procedure I, Category 20, Table 514.5 C-VII, Figure 514.5 C-3
Shock	MIL-STD-810F, Method 516.5, Procedure I, Shock, 20g 11 ms
Operating Altitude	3000 meters
EMI & EMC	CE102, CS101, CS114, CS115, CS116, RE102, RS103 (MIL-STD 461F)

2.3. MECHANICAL SPECIFICATIONS



*The dimensions specified in the image are in mm.

Figure 1: Mechanical Dimensions

Table 5: Mechanical Specification

PARAMETER	VALUE	UNIT
Cooling	Conduction	
Connection Interface	Metric Elements	
Width	180	mm
Height	74.98	mm
Length	443.4	mm
Weight	7	kg
Colour	RAL 6014 TOZ-TEXTURE-MAT	

Warnings and Indicators

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3. WARNINGS AND INDICATORS

3.1. PANEL CONTROLS AND INDICATOR

Figure 2: Front Panel

There is a switch on the front panel to control the unit and 3 LEDs to monitor its status.

3.1.1. ON/OFF SWITCH

When the switch is in the down position the unit is off, when it is moved to the up position it starts to supply requlated 28VDC to the output.

3.1.2. INPUT STATUS LED

When the unit is switched on, it lights up green as long as there is power at the KN1 (AC Input) connector, and goes off when there is no power.

3.1.3. OUTPUT STATUS LED

It lights up green as long as there is power at the unit's KN2 (DC Output) connector, and goes off when there is no power.

3.1.4. FAULT STATUS LED

When the switch is in the on position and there is power at the input of the Unit but no power at the output, the Fault LED lights up red, otherwise it goes out.

3.2. CONNECTORS

Figure 3: Connector Interface

The unit has two connectors for power input and power output, 'KN1' and 'KN2'. Part numbers and pin information are given below.

3.2.1. AC INPUT CONNECTOR

The part number for the power input connector used in the unit is '62GB-12E12-03PN'

The part number of the mating connector is '62GB-16F12-03SN'.

Table 6: KN1 Pinout

PIN NO	SIGNAL NAME
A	Phase
B	Neutral
C	Earth

3.2.2. DC OUTPUT CONNECTOR

The part number for the power output connector used in the unit is '62GB-12E14-04PN'

The part number for the mating connector is '62GB-16F14-04SN'.

Table 7: KN2 Pinout

PIN NO	SIGNAL NAME
A	28V
B	28V
C	28V_RTN
D	28V_RTN