

# DN500M-28T | DC-DC Buck-Boost Converter

500W Tactical DC-DC Buck-Boost Converter

MODEL: DN500M-28T | CATEGORY: DC-DC | RATED POWER: 500W | FORM: Vehicle Integration

## PRODUCT OVERVIEW



### Key Product Features

- Wide 36–24Vdc input range, optimized for 28V vehicle systems
- Regulated 24Vdc output for stable operation
- 500W continuous output power
- High efficiency up to 96%
- Withstands 100V input transient spikes
- Full protection: OVP, UVP, OCP, SCP, reverse polarity
- Featured 1+1 parallel active current sharing operation at full load.
- IP67 fully sealed enclosure for harsh environments
- LED indicator for fault and overload status

## PRODUCT DESCRIPTION

The DN500M-28T is a rugged, high-efficiency 500W DC-DC buck converter designed to convert 28Vdc vehicle power to a stable 24Vdc output. Engineered for demanding mobile and tactical environments, it delivers reliable performance under extreme electrical and environmental conditions. With support for 100V transient protection, active current sharing, and a fully sealed IP67 enclosure, the unit is ideal for mission-critical systems requiring dependable, high-performance DC power conversion.

## SAFETY & COMPLIANCE



- Compliant with MIL-STD-461G for electromagnetic emissions and susceptibility
- Designed to meet MIL-STD-810G environmental standards for shock and vibration
- Supports MIL-STD-419 grounding, bonding, and shielding requirements
- Designed in accordance with MIL-STD-1275A vehicle electrical power characteristics

## Applications

- 📁 Military and tactical vehicles
- 📁 SWAT and specialized enforcement vehicles
- 📁 Border protection and reconnaissance systems
- 📁 Mobile communications systems
- 📁 Rugged and off-road vehicle platforms
- 📁 Emergency response vehicles (ambulance, fire apparatus)

# ELECTRICAL SPECIFICATIONS

## Input Specifications

Parameter	Conditions	Input	Comment
Nominal Input Voltage	Full Temperature range	28 Vdc	Nominal
Input Voltage Range	Full Temperature range	36-24Vdc	Min.-Max.
Under/Over Voltage Lock-Out		20 / 38 Vdc	Typical
Recovery Over Voltage Lock-Out		36 Vdc	Typical
Input Current		50 A	Maximum
Line and Load Regulation	Input Wire	1%	Maximum
Protection	Reverse Polarity	-30V	Maximum
Protection	Voltage Transitional Spikes	100V	Maximum
No Load Input Current	Nominal With No load	180 mA	Maximum
Compliance with MIL-STD 461G	CE101, CE102, CS101, CS106 / RE101, RE102, Sub-Section 7		

## Output Specifications

Parameter	Conditions	Output	Comment
Voltage		24 Vdc	Regulated
Output Power		500 W	Nominal
Ripple output voltage	Nominal full load	50 mVpp	Typical 20MHz BWL
Efficiency	With no Line Loss	94%, 96%	@ 11V, 14V
Line and load regulation	Output Wire	1.50%	Maximum
Protection	Over Current	120%	Auto Recovery
Protection	Short	Shutdown	Auto Recovery
LED Indicator	Short/Overload	Blue Illumination	Chassis Mounted
1 + 1 Single Line Current Share	±2.5 Maximum Load	20A Max Per Unit	40A Max. Total
Current share control line	1 foot max.		SMA Connector

For quotes and customization requests, contact Digital Power sales at (877) 634-0982 or sales@digipwr.com.

# ELECTRICAL SPECIFICATIONS

## Environmental & Mechanical

Parameter	Conditions	Value	Comment
Operating Temperature	Min. to Max.	-40°C – 80°C	Baseplate
Storage Temperature	Min. to Max.	-40°C – 85°C	Storage
Galvanic Isolation	Input/Output to Case	500 Vdc	Typical
MIL-STD-810G (Vibration)	MIL-STD 810 Vehicle		Method 514.5
MIL-STD-419 (Grounding)	Grounding, Shielding		
MIL-STD-810G (Shock)	40g's 15–23msec		Methods 516.5
Humidity		10% – 90% RH	
Altitude		10,000 ft.	
Cooling	Free Convection		Baseplate
MTBF	BELCOR 332, issue 6 @ +30°C	300,000 hours	
Enclosure	EP 140		IP67
Input wire	VW-1 Stud M8, M4	10 AWG	400 mm
Output wire	VW-1 Stud M8, M4	12 AWG	400 mm
Coating	Black Powder Coated		
Weight		2.164 lb. (982 gr)	
Dimensions (L x W x H)		5.71 × 4.13 × 1.40 in.	(146 × 105 × 36 mm)

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# PRODUCT OVERVIEW

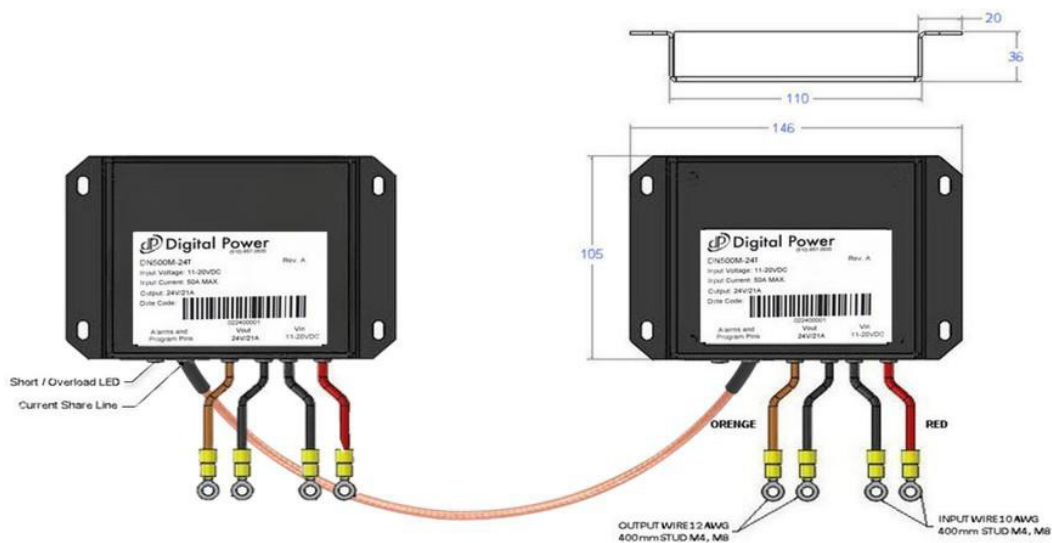
## Military Relevant Standards

Parameter	Value
MIL-STD	Electromagnetic Emission Environments Test Methods
MIL-STD-461G	
MIL-STD-810	Grounding, Bonding, Shielding
MIL-STD-419	Vehicle Electrical Characteristics (Input limited to 20Vdc with 100V maximum input transients)
MIL-STD-1275A	

## Emission and Susceptibility

Parameter	Value
Emission and Susceptibility	
CE-101	Conducted Emission 30Hz to 15KHz
CE-102	Conducted Emission up to 10MHz
CS-101	Conducted Susceptibility 30Hz to 150KHz
CS-106	Conducted Susceptibility Transients, Power Leads
RE-101	Radiated Emission Magnetic Field, 30Hz to 100KHz
RE-102	Radiated Emission Electrical Field, 10KHz to 18GHz
RE-102 Signal Corps Sub-Section 7	Radiated Emission Electrical Field, 20MHz to 100MHz

## DN500M-28T Outline Drawing



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