

# ISOLATED RACKMOUNT DC-DC CONVERTERS

## INSTALLATION / OPERATION



This DC-DC converter is designed for use in communication sites which require precise voltage regulation, low noise and high efficiency. It is engineered for outstanding reliability in continuous duty applications where high ambient temperatures may be encountered.

The unit accepts a wide input range at 24 or 48 VDC nominal and provides a pure, regulated 12, 24 or 48 VDC output @ 400 watts. (See Specifications Table at right.) Output voltage is adjustable by means of a potentiometer on the front panel. The input and output are 100% isolated, allowing use of negative or floating ground equipment with positive, negative or floating ground systems.

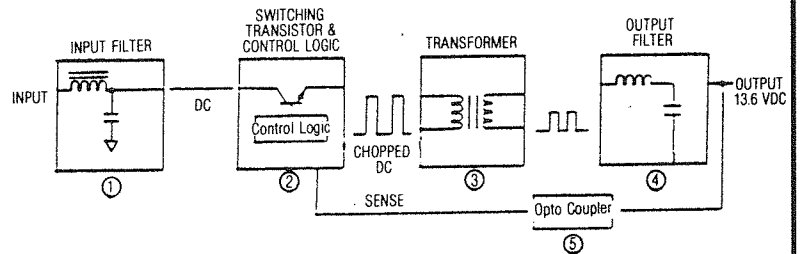
The solid state circuitry is conservatively designed. Power components are selected to withstand up to 200% of normal operating power. The case is designed for optimal cooling in a low profile rack configuration and components are protected against overload by a current limiting circuit design and an automatically resetting thermal switch.

### FEATURES

- Wide input range: 20-30 VDC or 40-60 VDC (depending on model)
- Volt and amp meters
- 100% input-output-chassis isolation for positive, negative or floating ground applications
- Adaptable to 19" or 23" racks, center or flush mount
- Highly regulated, low ripple output
- Output voltage adjustable ( $\pm 5\%$ )
- Current limited

### THEORY OF OPERATION

#### HIGHLY REGULATED, LOW RIPPLE, ISOLATED DC CONVERTER



1. FILTER INPUT FROM REFLECTED SWITCHING
2. REGULATE BY VARYING "ON" TIME
3. STEP UP / DOWN AND ISOLATE
4. FILTER TO PURE DC
5. SENSE AND ISOLATE

### SPECIFICATIONS TABLE

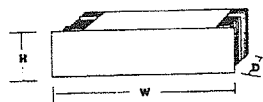
MODEL	INPUT		OUTPUT			WEIGHT	
	VOLTAGE (VDC)	*MAX AMPERAGE	VOLTAGE (VDC)	ADJUST RANGE REF.	AMP. CONT.	LBS.	KG.
48-12-30 RM	40-60	12	13.6	D	30	10	4.6
48-24-15 RM	40-60	12	27.2	E	15	10	4.6
24-48-8 RM	20-30	26	54.4	F	8	10	4.6

\* @ full load and minimum input voltage

### OUTPUT VOLTAGE ADJUSTMENT RANGE REF:

D = 12.6 - 14.5 VDC E = 25.2 - 29.0 VDC F = 50.4 - 58.0 VDC

### CASE SIZE



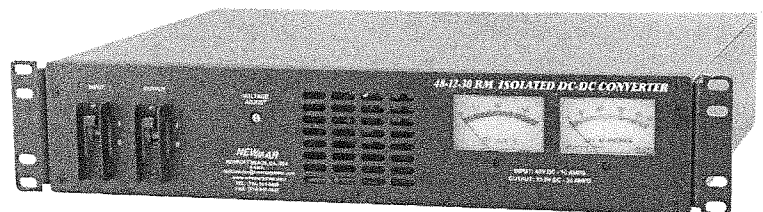
### DIMENSIONS

(INCHES)

H = 3.5 W = 19 or 23 D = 14

(CENTIMETERS)

H = 8.9 W = 48 or 54 D = 35.6



## INSTALLATION

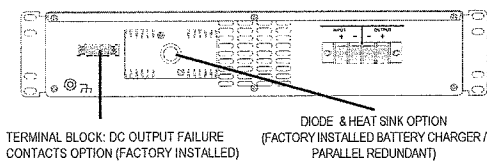
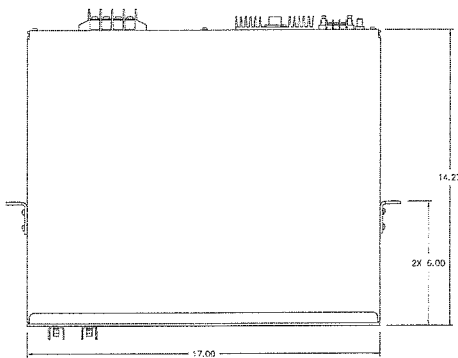
The rackmount DC converter is provided with two sets of rack adapter tabs. The smaller set is used if the unit is installed in a standard 19" rack. The larger set will adapt the unit for 23" rack installation. These tabs may be attached to the converter to provide for either center or flush mounting. (See MECHANICAL ILLUSTRATION)

These converters are forced air cooled front to rear. Do not block front and rear panels or converter over-heating can occur.

A handle guard is provided to prevent accidentally bumping the circuit breakers to the "on" or "off" position. *Note: The handle guard will not prevent the circuit breaker from tripping properly in an over-current situation.*

## MECHANICAL ILLUSTRATION

TOP VIEW



REAR VIEW

## WIRING

All wiring should be terminated with ring lug connectors. Lugs are provided for nominal wire gauges. Refer to the SPECIFICATIONS TABLE on the reverse of this page to determine input and output amperage, then use the table below to determine proper wire size:

Wire Size Table

	10'	20'
6-10 amps	14 AWG	12 AWG
11-20 amps	12 AWG	10 AWG
21-36 amps	8 AWG	6 AWG

Input and output, positive and negative terminals are designated directly above the terminal block on the rear panel. Remove the terminal block cover and verify the correct polarity before attaching the input and output wires.

## OPERATION AND TROUBLESHOOTING

The voltmeter on the front panel will indicate output voltage when the input circuit breaker is in the 'ON' position and DC power is available at the output terminal. If the meter does not indicate output voltage, check the output circuit breaker on the front of the unit, confirm it is in the "ON" position.

A tripped output circuit breaker will usually indicate an overload, short or reverse polarity connection to the output. If this occurs, turn the converter off, remove the overload or short and check for correct polarity to the load.

If the input breaker is tripped this may be the result of a voltage spike or line transient. Reset the breaker.

Repeated tripping of the output circuit breaker or the input circuit breaker, where both source and load have been checked out as satisfactory, probably indicates a shorted component within the converter. Return the unit to the factory or have a qualified technician perform the needed repairs.

The converter is equipped with a fast-acting current limit circuit to protect the unit against overloads and shorts on the output. This circuit will automatically drop output voltage to protect internal components. Current limiting is indicated by a low output voltage when the power switch is in the "ON" position. Reduce or disconnect the load if this should occur. The output voltage will then return to normal.

Output voltage can be adjusted using the trim pot which is accessible through the front panel. See the SPECIFICATIONS TABLE on the reverse for output voltage adjustment range.



### USA Mailing Address:

P.O. Box 1306 • Newport Beach, CA 92663  
(714) 751-0488 • FAX (714) 957-1621  
E-mail: techservice@newmarpower.com

### USA Shipping Address:

2911 W. Garry Ave. • Santa Ana, CA 92704

[www.newmarpower.com](http://www.newmarpower.com)

## PERFORMANCE SPECIFICATIONS:

**Regulation:** 1% line/load  
**Ripple:** 1/2% peak-peak max.\*  
**Idle Current:** 48V In: <100mA  
24V In: 300mA  
**Efficiency:** 87% typical @ 50% load  
**Operation Temperature:** -20° C to 50° C;  
**Thermal overload shutdown @ 80° C**  
heat sink temp (automatic reset @ 55° C H.S. temp)  
**Isolation:** 250 volts input-output chassis

\*Peak to peak ripple monitoring equipment shall have a 60 MHz frequency response. Output ripple is measured across a .1 mfd. ceramic or mylar capacitor connected directly to the output terminals of converter without using probe ground clip (use ground collar on probe pressed against capacitor lead).

## PROTECTION FEATURES:

- Input and Output circuit breakers.
- Current limited/short circuit proof.
- Automatic thermal shutdown and recovery
- Reverse polarity input protection.

## OPTIONS:

- Operation as battery charger † or parallel redundant operation. (Heat sink mounted diode installed in series with the output). Contact factory for details.
- DC output failure contacts (form C)

† Note: Current protection recommended on charging leads.

## MECHANICAL DETAILS:

- Powder coated aluminum front panel, vinyl coated aluminum case.
- Mounting brackets provided for 19" or 23" rackmount, center (6" from front) or front.
- Easy access terminal blocks on back of unit, with protective cover.
- Front panel switch guards provided.
- Output voltage adjustment potentiometer recessed in front panel.