



# **OPERATING MANUAL**

for

**TYPE HP48-230**

**ISSUE 5**

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## INTRODUCTION

The load bank HP48-230 is designed for and battery or power supply discharge testing.

The mains input socket and switch, voltage and current test sockets and load control switches are contained on the top panel.

Start and stop push buttons select a full rated load contactor which isolates the total load selected.

The unit comprises of pre-set, high powered resistor channels of various ratings, with each individual channel selectable via manual switches.

The load bank is force cooled by a mains powered fans.

Heavy duty studs are provided underneath the load bank, for cable connection to the battery or power supply or equipment under test.

The unit comes complete with carrying handles and swivel castors for easy movement.

## SAFETY CONSIDERATIONS

1. The equipment is designed for use in a clean, dry, indoor environment and should only be operated by competent electrical engineers who are completely familiar with the operation and specification of the load bank.
2. Heavy duty lifting handles are provided on each side of the load bank and provides assistance when wheeling the load bank.
3. As with any electrical equipment the load bank should not be used in close proximity to recently charged batteries where a build up of explosive gases may have occurred.
4. Operators must ensure that interconnecting cables are correctly rated to carry the required load current and adequately insulated to prevent the possibility of electric shock when operating at high voltages.
5. When connecting the load bank to a battery or power supply, both cable connections should be made at the load bank terminal's first. Connection to the battery or power supply terminals should always be last.
6. When in use the load bank should be cordon off using safety barriers.
7. The load bank should only be operated in an area with adequate ventilation.
8. Care should be taken as to the exhaust air outlet that may be hot.
9. Do not smoke in the proximity of batteries.
10. Operators working with batteries should not wear rings, jewellery or metal watch straps.
11. Only insulated tools should be used when working on battery or power supply connections.
12. Refer to UPS or the battery or power supply manufacturers operating instructions for additional safety precautions.
13. Ensure all personnel are familiar with the location of the nearest safety kit and eye wash facility.
14. During operation the load bank should not be covered or positioned to restrict air flow
15. Caution Metal surfaces will be hot during operation

## CONNECTION PROCEDURE

- A. Ensure the battery or power supply to be tested is compatible with the load bank operating voltage.
- B. Do not attempt to operate the load bank above the maximum operating voltage.
- C. Check the battery or power supply is isolated before connecting to the load bank.
- D. Check all load bank switches are in the off position.
- E. Ensure the interconnecting cable is adequately rated and correctly insulated to prevent any possibility of electric shock.
- F. Connect the mains lead (provided) into the panel mounted socket.
- G. Always connect the interconnecting cable at the load bank terminals before connecting to the battery or power supply.
- H. Ensure the interconnecting cable connections are secure.

## OPERATING INSTRUCTIONS

Operators should read the SAFETY CONSIDERATIONS and CONNECTION PROCEDURE before carrying out the following operating instructions

- 1. Ensure all switches are in the OFF position.
- 2. Turn on the mains switch to operate the fan.
- 3. The contactor is energised from the black start button.
- 4. Switch on the required current channels to obtain the correct discharge current. Refer to usage tables (page 4) for full details of current load channels.
- 5. Do not exceed the maximum rating of the load bank.
- 6. The load bank can be used to perform a constant current battery or power supply discharge test by manual selection of the load channels during the test.
- 7. All current channels must be switched off at the end of a test.
- 8. Disconnect the load bank from the battery or power supply by pressing the Red button to de-energise the contactor.
- 9. Also at the end of a test the mains supply switch should be left on for a few minutes until the resistors have cooled.
- 10. Ensure the battery or power supply is isolated before removing the interconnecting cables from the load bank.
- 11. Always disconnect the cables at the battery or power supply terminal's first.

**SPECIFICATION**

Nominal voltage 48V DC  
 Maximum power rating 13.5kw  
 Maximum operating voltage 52V DC  
 Maximum load 278A

Auxiliary fuse rating Mains fuse 6.3 amps ( panel mounted )  
 Output Fuse 2 x 160A  
 Size 760mm long x 440mm wide x 660mm high  
 Weight 48 KGs

**HP48-230 usage tables**

Channel	Approx ohms	Amps @ 52V	Amps @ 48V	Amps @ 43V	Amps @ 30V	Amps @ 27V	Amps @ 24V	Amps @ 21V
<b>1</b>	6	8.7A	8.0A	7.2A	5.0A	4.5A	4.0A	3.5A
<b>2</b>	1.5	35A	32A	29A	20A	18A	16A	14A
<b>3</b>	1.4	37A	34A	31A	21A	19A	17A	15A
<b>4</b>	1.4	37A	34A	31A	21A	19A	17A	15A
<b>5</b>	1.4	37A	34A	31A	21A	19A	17A	15A
<b>6</b>	2.5	21A	19A	17A	12A	11A	10A	8A
<b>7</b>	2.7	19A	18A	16A	11A	10A	9A	8A
<b>8</b>	1.4	37A	34A	31A	21A	19A	17A	15A
<b>9</b>	1.4	37A	34A	31A	21A	19A	17A	15A
<b>10</b>	15	3.5A	3.2A	2.9A	2.0A	1.8A	1.6A	1.4A
<b>11</b>	15	3.5A	3.2A	2.9A	2.0A	1.8A	1.6A	1.4A
<b>12</b>	30	1.7A	1.6A	1.4A	1.0A	0.9A	0.8A	0.7A
<b>TOTAL</b>		278A	256A	230A	160A	144A	128A	112A

## MAINTENANCE PROCEDURES

The load bank should not require any special maintenance, however as with any electrical equipment periodic checks should be carried out to ensure the equipment is in a safe and satisfactory condition.

The following periodic checks are recommended;

- 1) Check the inlet and outlet grills are free from obstruction.
- 2) Check the controls and terminal are undamaged.
- 3) Check the fan rotates freely without obstruction.
- 4) Check internal wiring for loose connections or damage.

## FAULT FINDING PROCEDURES

The following fault finding procedure is intended to identify simple operational errors and has been categorised into two possible problem areas as follows;

### FAN COOLING NOT OPERATIONAL

- Check the power source is available.
- Check the interconnecting cable connections.
- Check the mains switch is in the correct ON position.
- Check the fan motor operates.
- Check the mains fuse.
- Check for air blockage.
- Check fan blades are secure to motor shaft.

### LOAD BANK DOES NOT PROVIDE SUFFICIENT LOAD CURRENT

- Check the power source is at the required voltage.
- Check the required current channels have been selected.
- Compare the current values with the specification table.
- Check the internal fuse.
- Identify individual current channels for reduced output.

Any faults not corrected by carrying out the above procedures may require the internal wiring or components of the load bank to be inspected for damage.

**Note: Isolate the load bank from any power source before removing any covers.**

**Testing the load bank with the covers removed is not recommended as high voltages can be present on power resistors or terminals.**

**Repair or replacement should be carried out by the manufacturer.**