

INSTRUCTION MANUAL
OMNI

Invertron[®]

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1. INTRODUCTION AND SPECIFICATIONS

1.1 INTRODUCTION

This instruction manual contains information on the installation and operation of the OMNI (Output Matching Network Impedance) impedance network.

1.2 GENERAL DESCRIPTION

The OMNI impedance network adds inductive and resistive impedance to certain California Instruments power sources. This additional impedance brings the combined system impedance up to the levels required of the power source for IEC 555-3 (flicker) testing.

1.3 SPECIFICATIONS

Input

Line Voltage (user configurable)	115 VAC \pm 10% or 230 VAC \pm 10%
Line Current	0.25 amps at 115 VAC input 0.13 amps at 230 VAC input
Line Frequency	47 to 63 Hz
Fuse Rating	0.50 amp, slow acting, at 115 VAC input 0.25 amp, slow acting, at 230 VAC input

Output

OMNI Type	1-6	3-6	1-16	3-16	1-18	3-18
Phases	1	3	1	3	1	3
Current max, rms	6	6	16	16	18.5	18.5

NOTE: To prevent damage to the OMNI unit, the bypass circuit breaker must be in the Bypass position when power source is operated on low output voltage range or if currents in excess of OMNI ratings will be drawn.

Output (continued)

Impedance $\pm 10\%$	(in combination with power source output impedance)
Phase	0.24 ohms + j 0.15 ohms at 50 Hz
Neutral	0.16 ohms + j 0.10 ohms at 50 Hz

Controls/Indicators

ON/OFF switch (illuminated)

Bypass switch

Output Active Lamps (one per phase)

Mechanical

Dimensions, OMNI-1-6, OMNI-1-16, and OMNI-1-18
3.5"H x 19"W x 22"D
89mmH x 480mmW x 560mmD

Dimensions, OMNI-3-6, OMNI-3-16, and OMNI-3-18
5.25"H x 19"W x 22"D
130mmH x 480mmW x 560mmD

Weight, OMNI-1-6 and OMNI-1-16
26 lbs (12 kg)

Weight, OMNI-1-18
31 lbs (14 kg)

Weight, OMNI-3-6 and OMNI-3-16
34 lbs (15 kg)

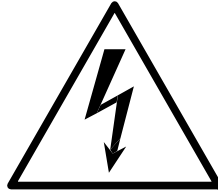
Weight, OMNI-3-18
42 lbs (19 kg)

Connectors

Input AC IEC 320

Impedance Network
Input and Output Kulka 9-85 series

Chassis Slide General Devices C300S-118-U/B308 BKT



CAUTION

Voltages up to 540 VAC are available in certain sections of this product. This equipment uses potentially lethal voltages.



DEATH

On contact may result if personnel fail to observe safety precautions. Do not touch electronic circuits when power is applied.

2. INSTALLATION AND ACCEPTANCE

2.1 UNPACKING

Inspect the unit for any possible shipping damage immediately upon receipt. If damage is evident, notify the carrier. Do not return an instrument to the factory without prior approval. Do not destroy the packing container until the unit has been inspected for damage in shipment.

2.2 POWER REQUIREMENTS

The OMNI uses either 115 or 230 VAC to power the cooling fan. The user may select the desired input voltage using the small range selector card within the IEC input module. The selector card may be removed from the input module by removing the line cord, sliding the plastic window to the left, and extracting the card.

Note that attempting to operate the OMNI from an input range that does not match the actual AC power voltage may cause permanent damage to the unit.

The selector card is marked 100/220 on one side and 120/240 on the opposite side. OMNI may be operated from a 115 volt line by selecting either the 100 or the 120 volt range. It may be operated from 230 volts by selecting either the 220 or the 240 volt range.

The selected range is the one that is marked on the upper left side of the selector card as the card is slid into the IEC 320 module.

2.3 MECHANICAL INSTALLATION

The OMNI has been designed for rack mounting in a standard 19 inch rack. The unit should be supported from the bottom with a shelf-track or supported from the sides with optional rack slides.

The cooling fan at the rear of the unit must be free of any obstructions that would interfere with the flow of air. A 2.5 inch clearance should be maintained between the rear of the unit and the rear panel of the mounting cabinet. Also, the air intake holes on the sides of the power chassis must not be obstructed.

2.4 OUTPUT WIRING

The OMNI impedance network is wired in series with the output of specified California Instruments power sources or power source systems. The OMNI terminal block marked SOURCE should be wired to the output of the power source/system. The terminal block marked LOAD is wired to the user's load (unit under test, UUT). Refer to the figures in this section for examples of proper connections.

Refer to the power source manual to determine the appropriate wire gauge needed for the output wiring.

2.5 EXTERNAL SENSE WIRING

The external sense wires of the power source must be connected at the output of the power source and NOT at the output of the OMNI or at the load. If the external sense wires were connected at the load or the OMNI output, the power source error amplifier would lower the effective OMNI impedance making the system unsuitable for IEC 555-3 flicker testing.

Refer to the figures in this section for examples of proper external sense connections.

Figure 2-1 Example Connections With OMNI 1-6

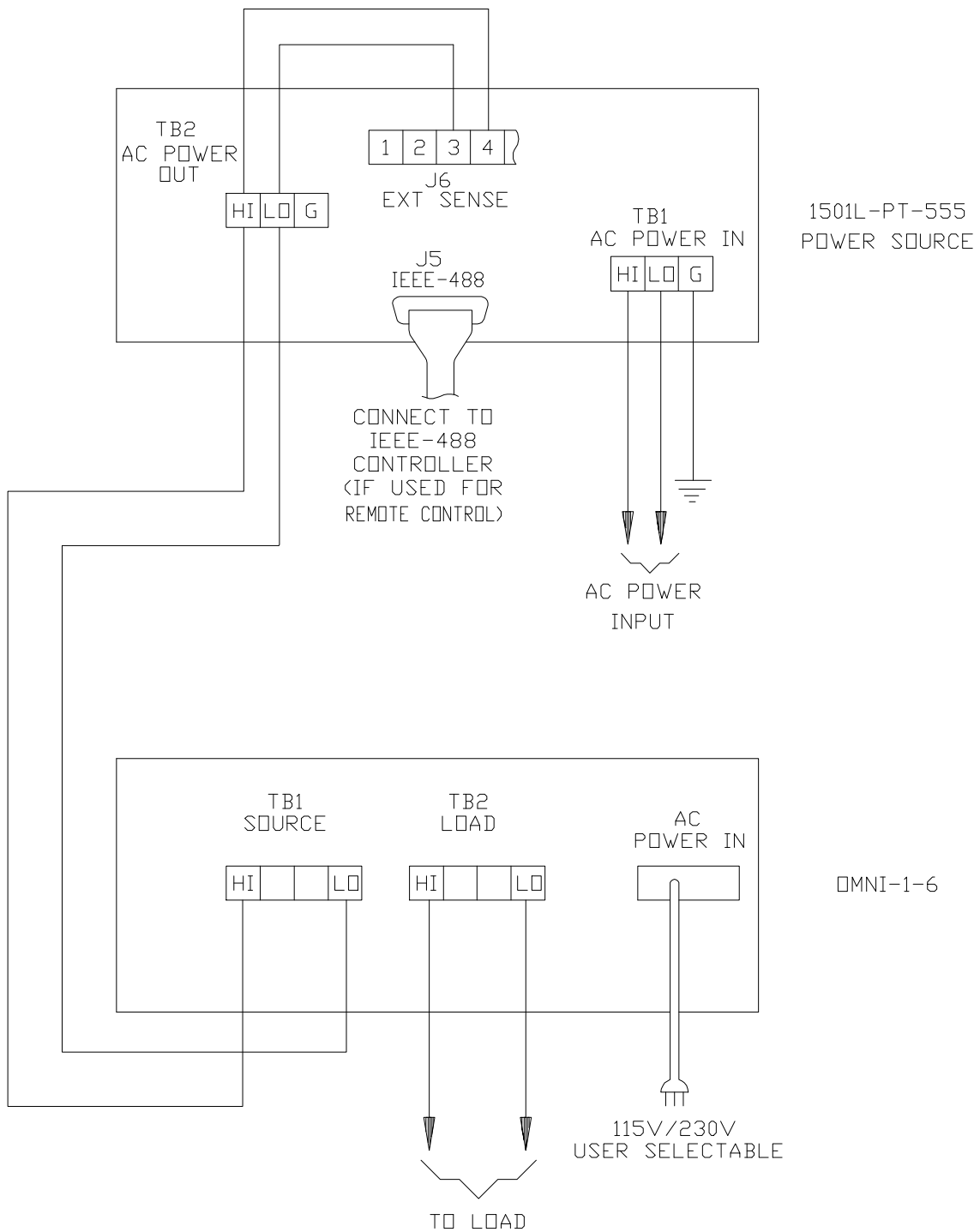


Figure 2-2 Example Connections With OMNI 1-16

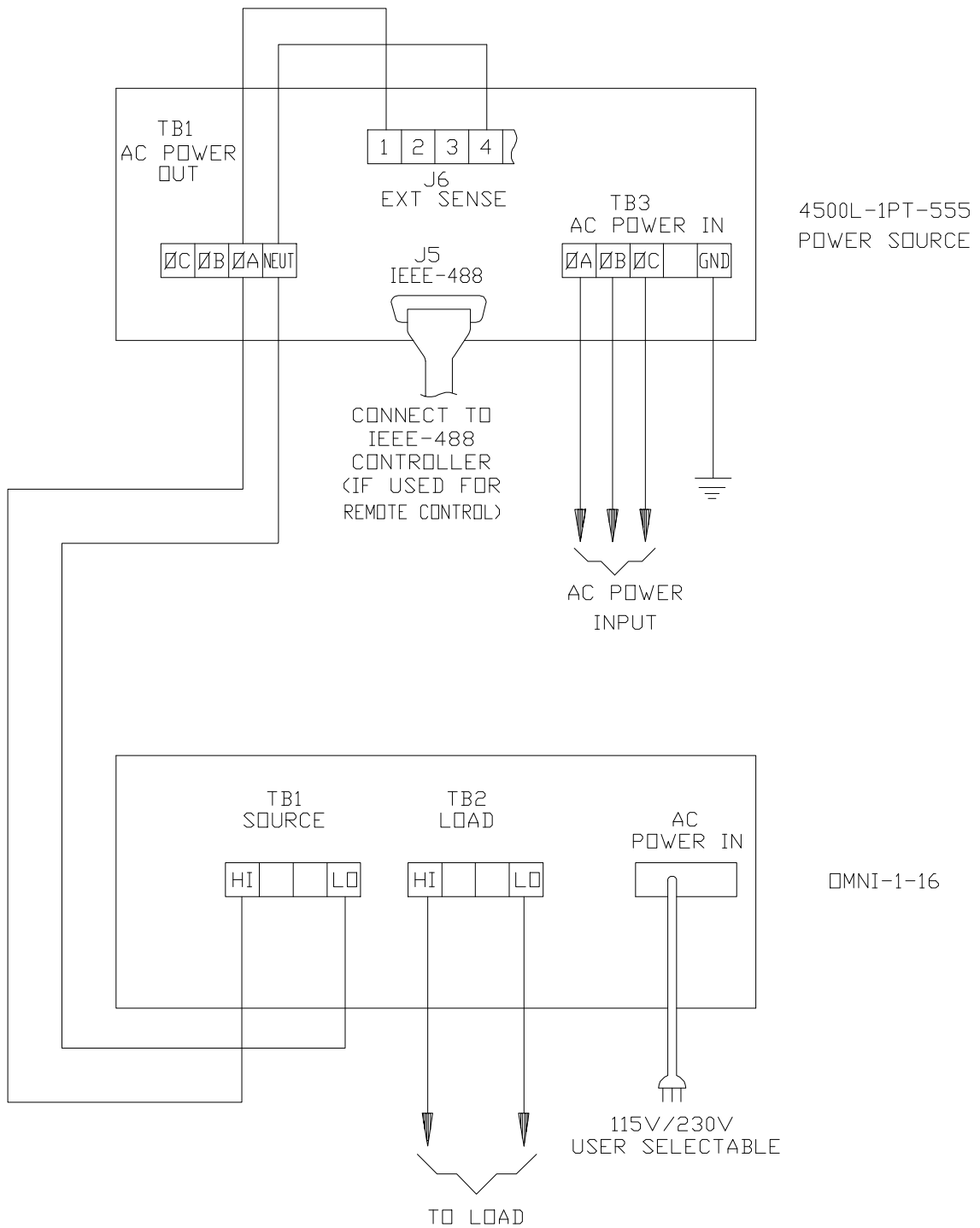


Figure 2-3 Example Connections With OMNI 3-6

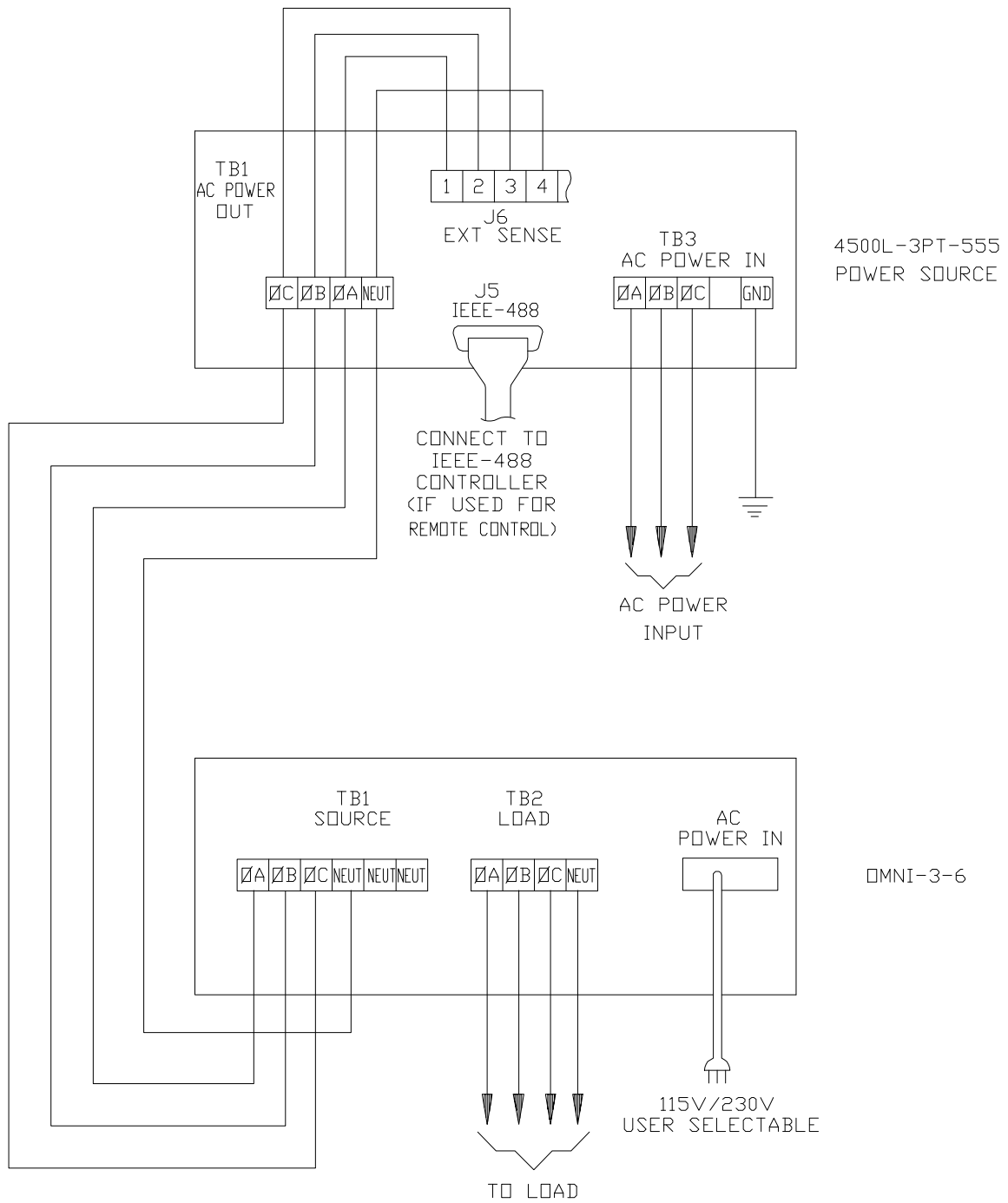


Figure 2-4 Example Connections With OMNI 3-16

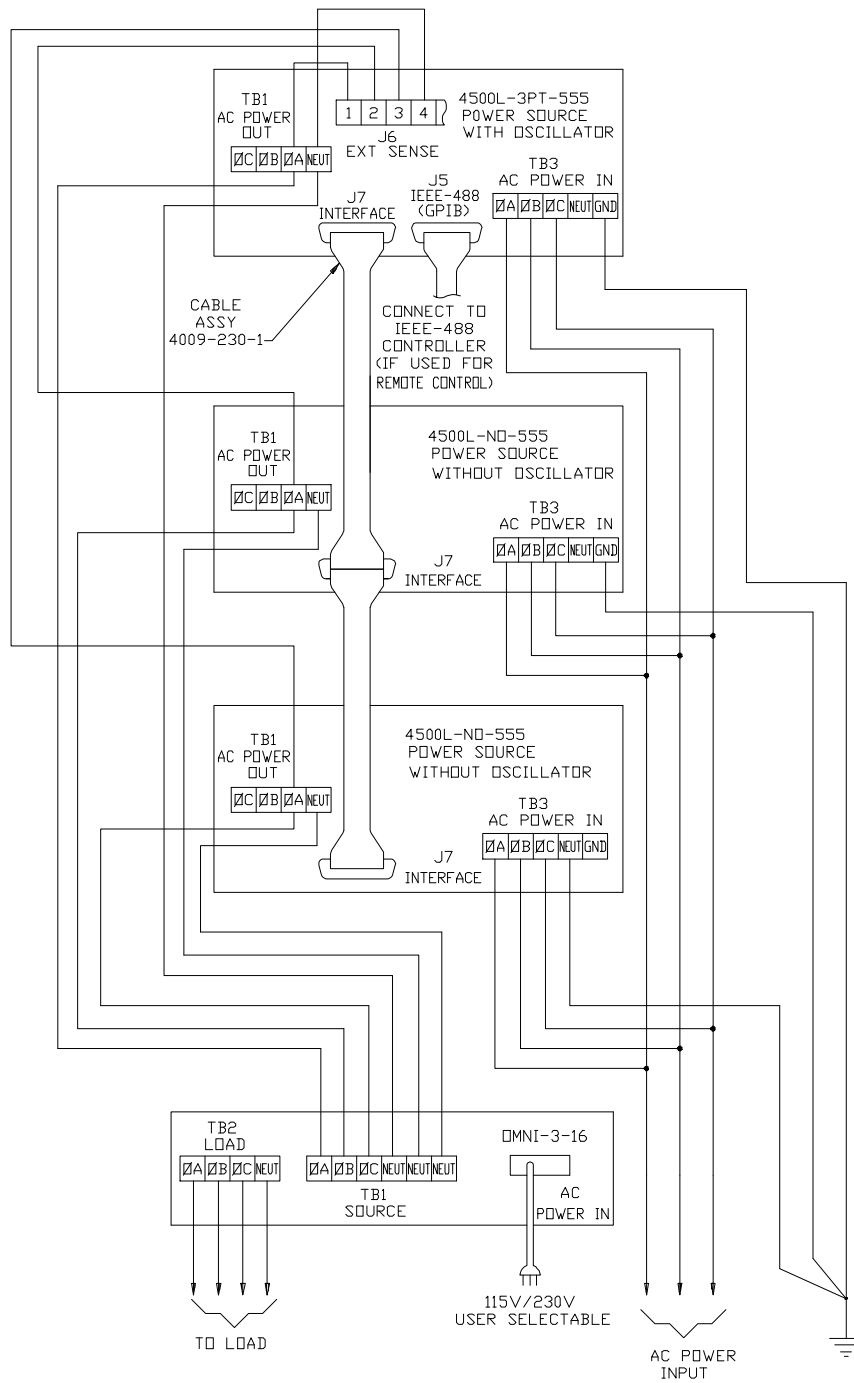


Figure 2-5 Example Connection With OMNI 1-18

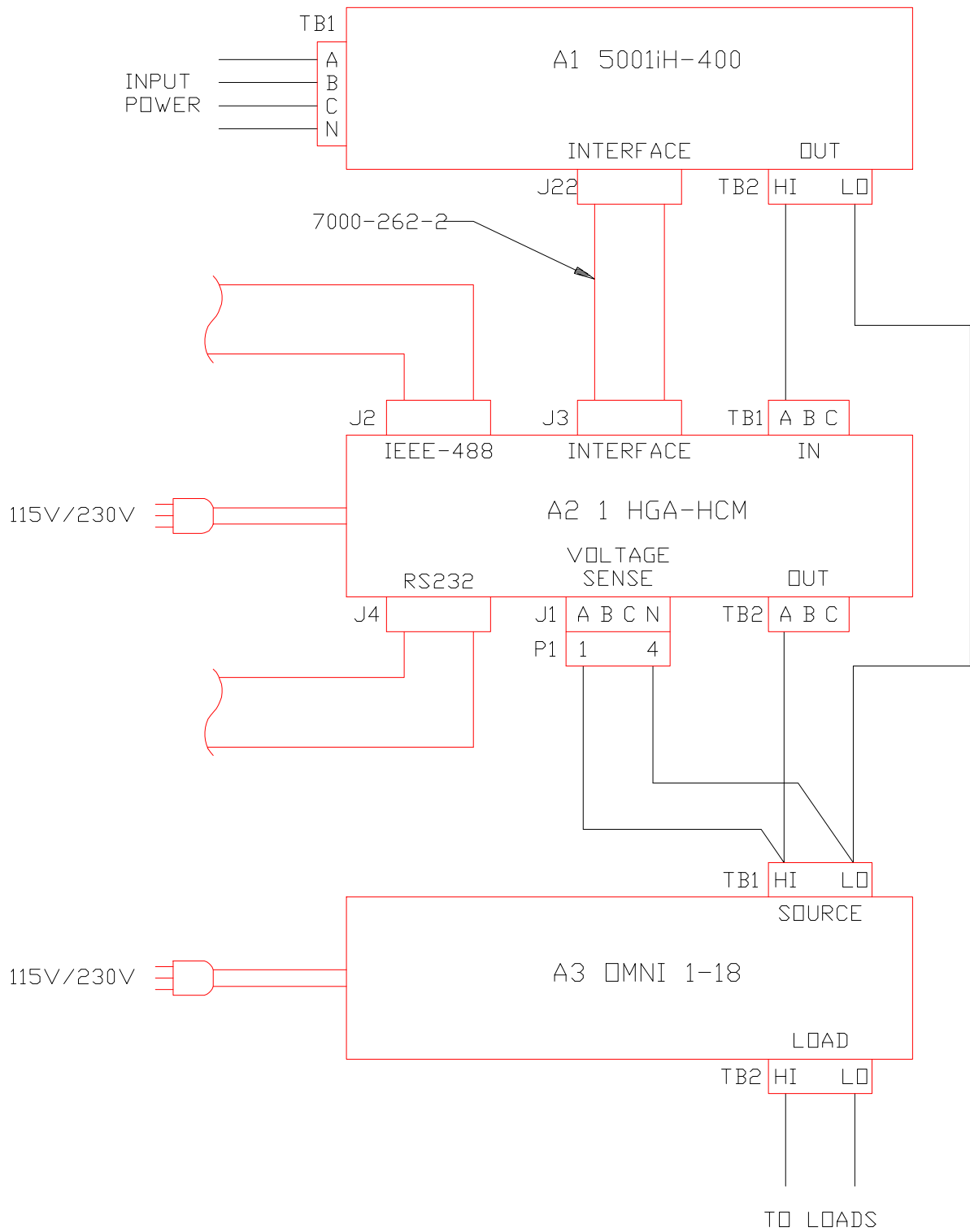


Figure 2-6 Example Connection With OMNI 3-18

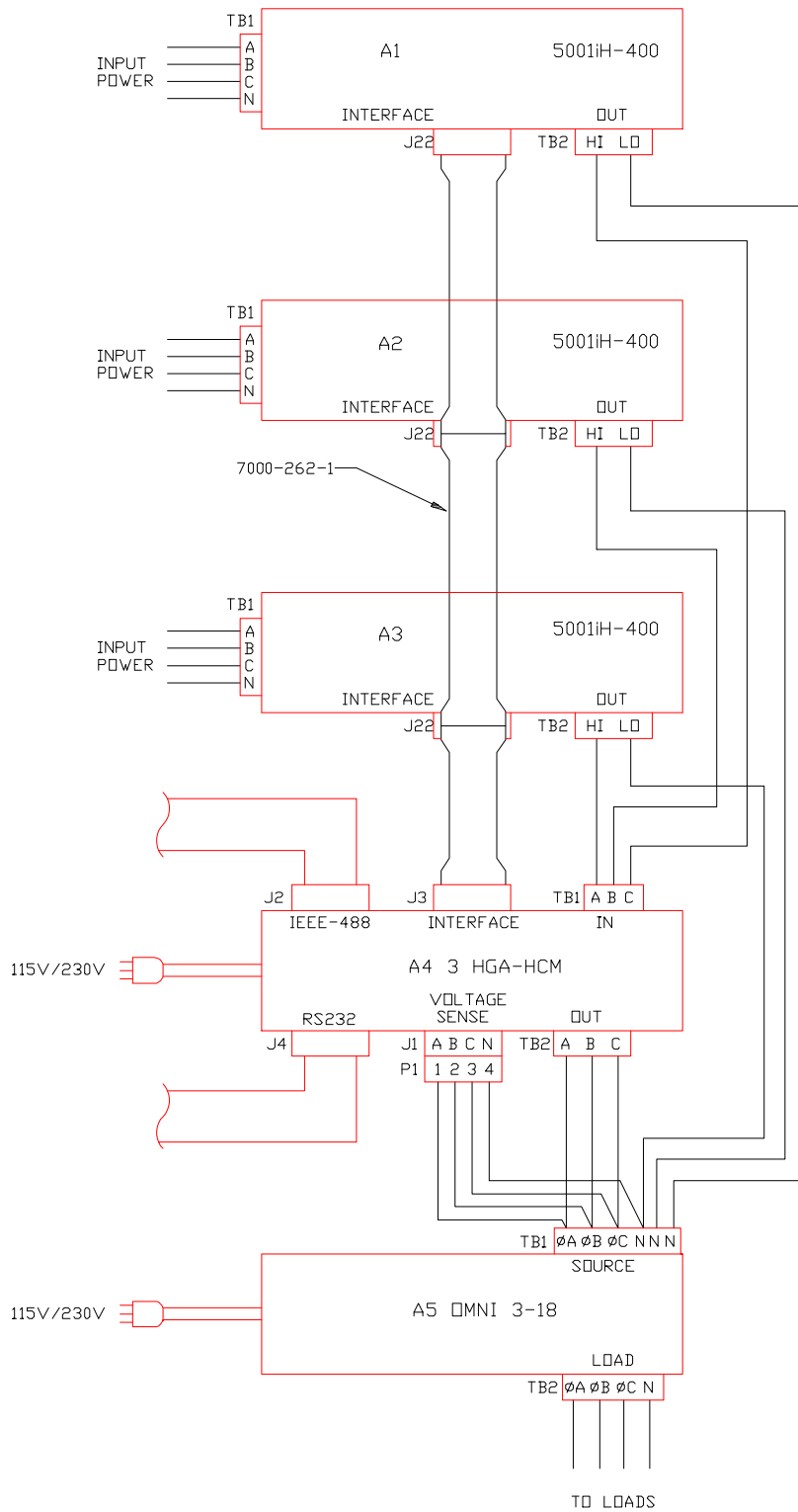


Figure 2-7 Example Connections With OMNI 1-18

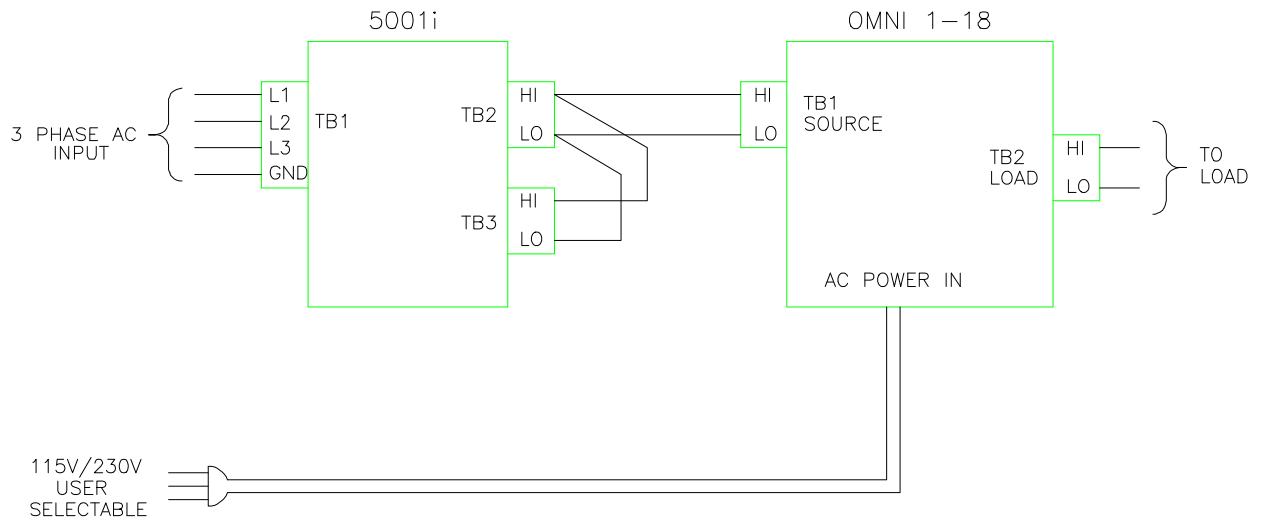
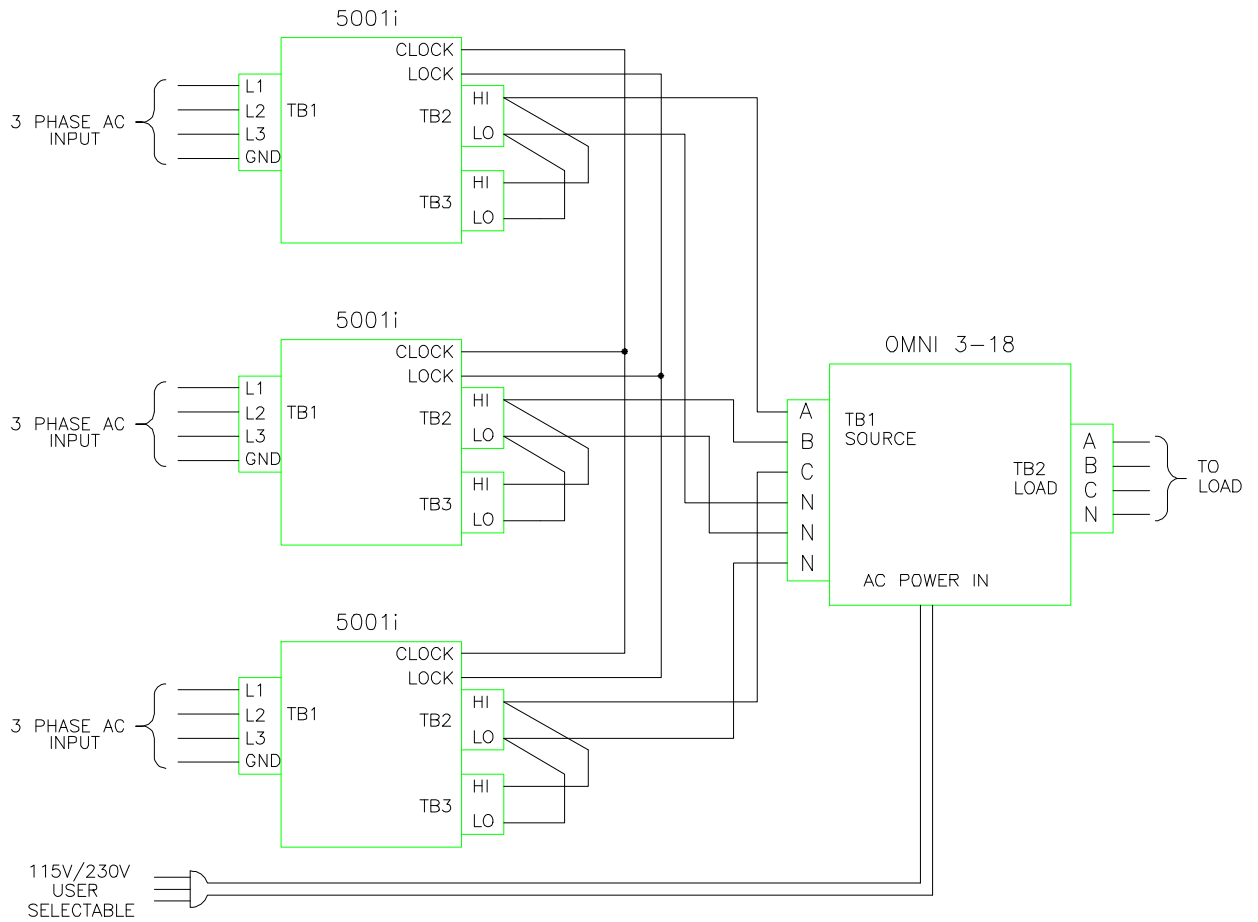


Figure 2-8 Example Connections With OMNI 3-18



3. OPERATION

3.1 GENERAL

The OMNI impedance network adds resistive and inductive impedance to the output of selected California Instruments power sources/systems to provide power source impedance levels specified for IEC 555-3 flicker testing. The impedance that OMNI adds may be shunted by a bypass switch on the OMNI front panel for normal (low impedance) power source operation.

3.2 FRONT PANEL CONTROLS/INDICATORS

3.2.1 Power Switch

An illuminated power switch turns the cooling fan on or off. The fan must always be switched on when using OMNI.

3.2.2 Output Indicator Lamps

Neon indicator lamps glow when the programmed test voltage is above approximately 75 VAC.

3.2.3 Bypass Circuit Breaker

NOTE: *To prevent damage to the OMNI unit , the bypass circuit breaker must be in the Bypass position when power source is operated on low output voltage range or if currents in excess of OMNI ratings will be drawn.*

A circuit breaker is provided to short out the OMNI impedance so that the power source may be used with its normal low output impedance or whenever the load current will be in excess of the OMNI maximum current rating.

With the breaker in the BYPASS position the OMNI impedance is shorted out. With the breaker in the FLICKER position the OMNI impedance is added to the power source output impedance.

The breaker should be in the BYPASS position when low power source output impedance is required or desirable. This is the case for most tests other than IEC 555-3 flicker tests. The breaker should also be in the BYPASS position when the power source is operated on the low voltage output range. The low voltage output range can deliver currents well in excess of the OMNI maximum current rating.

Although the bypass device is referred to as a circuit breaker, it has no overcurrent tripping capability and only functions as a multiple-pole shorting switch.

ONE YEAR WARRANTY

CALIFORNIA INSTRUMENTS CORPORATION warrants each instrument manufactured by them to be free from defects in material and workmanship for a period of one year from the date of shipment to the original purchaser. Excepted from this warranty are fuses, and batteries which carry the warranty of their original manufacturer where applicable. CALIFORNIA INSTRUMENTS will service, replace, or adjust any defective part or parts, free of charge, when the instrument is returned freight prepaid, and when examination reveals that the fault has not occurred because of misuse, abnormal conditions of operation, user modification, or attempted user repair. Equipment repaired beyond the effective date of warranty or when abnormal usage has occurred will be charged at applicable rates. CALIFORNIA INSTRUMENTS will submit an estimate for such charges before commencing repair, if so requested.

PROCEDURE FOR SERVICE

If a fault develops, notify CALIFORNIA INSTRUMENTS or its local representative, giving full details of the difficulty, including the model number and serial number. On receipt of this information, service information or a Return Material Authorization (RMA) number will be given. Add RMA number to shipping label. Pack instrument carefully to prevent transportation damage, affix label to shipping container, and ship freight prepaid to the factory. CALIFORNIA INSTRUMENTS shall not be responsible for repair of damage due to improper handling or packing. Instruments returned without RMA No. or freight collect will be refused. Instruments repaired under Warranty will be returned by prepaid surface freight. Instruments repaired outside the Warranty period will be returned freight collect, F.O.B. CALIFORNIA INSTRUMENTS, San Diego, CA. If requested, an estimate of repair charges will be made before work begins on repairs not covered by the Warranty.

DAMAGE IN TRANSIT

The instrument should be tested when it is received. If it fails to operate properly, or is damaged in any way, a claim should be filed immediately with the carrier. A full report of the damage should be obtained by the claim agent, and a copy of this report should be forwarded to us. CALIFORNIA INSTRUMENTS will prepare an estimate of repair cost and repair the instrument when authorized by the claim agent. Please include model number and serial number when referring to the instrument.