



## Description

The International Power "open frame series" are a high reliability line of regulated open frame linear DC power supplies designed to operate over the wide range of AC power sources found worldwide. This feature simplifies your inventory and service consideration by allowing the use of one standard power supply regardless of destination.

These models are designed to meet many domestic and international regulatory agency requirements. If you plan to distribute your products worldwide, obtaining necessary agency approvals can be greatly simplified by specifying the International Power "open frame series."

## Features

- VDE Transformer Construction
- 100/120/220/230-240 VAC Input
- OVP on 5 Volt Outputs
- $\pm .05\%$  Regulation
- Remote Sense on most Outputs
- Industry Standard Case Size
- Full Rated to 50 Degrees C
- Foldback/Current Limit
- Very Low Output Ripple
- Inherently low Conducted & Radiated noise levels
- Two Hour Burn-in
- Two Year Warranty
- UL Recognized for US & Canada File #E133338
- TUV Rheinland Licensed
- CE Marked
- Chassis notched for AC Input
- AC Input accepts .110 x .032 Fast-on or Solder Connection. Not available on F Case Models
- DC Output 6-32 Screw Terminals Optional

## Specifications

### AC Input:

100/120/220/240 VAC +10%, -13%. 47-63 Hz.  
Tolerance for 230 VAC operation is +15%, -10%.  
Derate output current 10% for 50 Hz operation.  
See chassis A.C. connection table for jumper and line fusing requirements.

### DC Output:

See Voltage/Current Rating Charts.  
Adjustment range  $\pm 5\%$  minimum.  
Voltage nonadjustable on "3 terminal regulator" outputs of models IHAD12 and IHAD15.

### Line Regulation:

$\pm .05\%$  for a 10% line change.  
Exceptions:  $\pm .01\%$  for F case models  
 $\pm 1\%$  for IHAD12 and IHAD15  
 $\pm 0.5\%$  for all other outputs using "3 terminal regulators.

### Load Regulation:

$\pm .05\%$  for a 50% load change.  
Exceptions:  $\pm .02\%$  for F case models  
 $\pm 1\%$  for IHAD12 and IHAD15  
 $\pm 0.5\%$  for all other outputs using "3 terminal regulators.

### Output Ripple:

5 Volt to 28 Volt units: 5mV pk-pk maximum  
48 Volt to 155 Volt units: .02% pk-pk maximum  
200 Volt & 250 Volt units: .05% pk-pk maximum  
3 Terminal Regulator units: 0.2% pk-pk maximum

### Transient Response:

Less than 50  $\mu$ sec for a 50% load change.

### Short Circuit and Overload Protection:

Automatic current limit/foldback

### Overvoltage Protection:

Provided on 5V outputs where indicated. Set at 6.2V  $\pm 0.4$ V.  
Other outputs use optional overvoltage protectors IOVP12 and IOVP24.

### Remote Sensing:

See Voltage/Current Rating Charts. Provided on outputs where indicated.

### Stability:

$\pm 0.3\%$  for 24 hours after 1 hr. warm-up.

### Temperature Ratings:

#### Operating:

0 °C to 50 °C full rated, derated linearly to 40% at 70 °C.  
(Recommend forced air at 200 W, 50 CFM required at 250W)

#### Storage:

-40 °C to 85 °C.

### Temperature Coefficient:

.01%/°C typical, .03%/°C maximum.

### Efficiency (typical):

5V outputs: . . . . . 45%  
12V and 15V outputs: . . . . . 55%  
24V through 250V outputs: . . . . . 60%

### Master/Slave Operation:

Provided on F case models only. For parallel operation of up to 6 units.

### Vibration:

Random vibration from 10 Hz to 2 KHz, 6.15 grms (3 axis).

### Shock:

Operating 20G peak acceleration.

### EMI/RFI:

These linear power supplies have inherently low conducted and radiated noise levels. For most system applications they will meet the requirements of (FCC) 47CFR15J and EN55022.

### Safety Agency Certifications:

UL: 1950, Third Edition  
CUL: CAN/CSA C22.2 No. 950-95, IEC950  
TUV Rheinland: EN 60950: 1992 + A1 + A2 + A3 + A4 + A11  
CE Mark: LVD 73/23/EEC

### Leakage Current & Dielectric Withstand:

Leakage current is less than 50uA. Field terminal to terminal spacing is 5.25 mm with 9.0 mm creepage to other metal. Dielectric withstand voltages are 3750 VAC input to chassis, 3750 VAC input to output and 750 VDC output to chassis. UL tested at 4242 VDC input to output, 2121 VDC input to dead metal.



# Triple and Quad Output, Linear

Model	Output 1	Output 2	Output 3	Case Size
IHTAA-16W	5V @ 2A	12-15V @ 0.4A	-12-15V @ 0.4A or -5 @ 0.4A	AA
	Overvoltage Protection Provided (output 1)			
IHBAA-40W	5V @ 3A	12V @ 1A or 15V @ 0.8A	-12V @ 1A or -15V @ .08A or -5V @ 0.4A	BAA
	Overvoltage Protection Provided (output 1), Remote Sense Provided (all outputs)			
IHCAA-60W	5V @ 6A	12V @ 1A or 15V @ 0.8A	-12-15V @ 1A or -5V @ 0.4A	D
	Overvoltage Protection Provided (output 1), Remote Sense Provided (output 1)			
IHCBB-75W	5V @ 6A	12V @ 1.7A or 15V @ 1.5A	-12V @ 1.7A or -15V @ 1.5A or -5 @ 0.7A	CBB
	Overvoltage Protection Provided (output 1), Remote Sense Provided (all outputs)			
IHBCC-512	5V @ 3A	12V @ 3.4A or 15V @ 3A	-12V @ 3.4A or -15V @ 3A	CC
	Overvoltage Protection Provided (output 1), Remote Sense Provided (all outputs)			
IHBCC-524	5V @ 3A	18-20V @ 1.8 or 24V @ 2.4A	-18-20V @ 1.8 or -24V @ 2.4A	CC
	Overvoltage Protection Provided (output 1), Remote Sense Provided (all outputs)			
ICP131	5V @ 8A	12V @ 1.7A or 15V @ 1.5A	-12V @ 3.4A or -15V @ 3A or -5 @ 0.7A	131
	Overvoltage Protection Provided (output 1), Remote Sense Provided (all outputs)			
IHDBB-105W	5V @ 12A	12V @ 1.7A or 15V @ 1.5A	-12V @ 1.7A or -15V @ 1.5A or -5 @ 0.7A	DBB
	Overvoltage Protection Provided (output 1), Remote Sense Provided (all outputs)			
IHDCC-150W	5V @ 12A	12V @ 3.4A or 15V @ 3A	-12V @ 3.4A or -15V @ 3A	DCC
	Overvoltage Protection Provided (output 1), Remote Sense Provided (all outputs)			
ICP162	5V @ 3A	-5V @ 0.6A	24V @ 5A / 6A PK	131
	Overvoltage Protection Provided (outputs 1 & 2), Remote Sense Provided (outputs 1 & 3)			
ICP384	5V @ 9A	-5V @ 1.2A or -12V @ 1.2A	24V @ 2A / 8A PK	131
	Overvoltage Protection Provided (output1), Remote Sense Provided (outputs 1 & 3)			

Model	Output 1	Output 2	Output 3	Output 4	Case Size
ICP503	5V @ 6A	12 V @ 1.2A	-12V @ 0.8A	24V @ 2.5A / 4A PK	131
	Overvoltage Protection Provided (output1)				

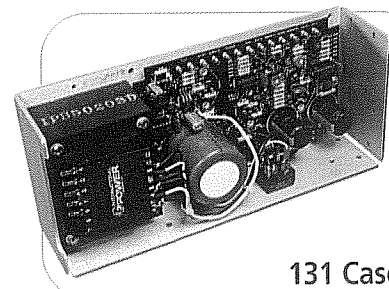
## Overvoltage Protectors

Model	Case Size	OVP Modules Required
SINGLE OUTPUT	B,C,N,D, E,F	IOVP-12 IOVP-24
DUAL OUTPUT	AA,B,BB, CC, E,DD	IOVP-12 protects both outputs. OVP built-in on 5V outputs. IOVP-24 protects both outputs.
TRIPLE & QUAD OUTPUT	AA,BAA,D, CBB,131 DBB	IOVP-12 protects both outputs OVP built-in on main 5V outputs.

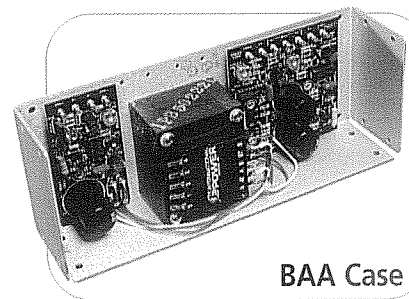
Note: IOVP-12 & IOVP-24: Adj. Range 6.5V to 35V

### IAR5-0.6/OVP, -5 V Sub-Regulator Module

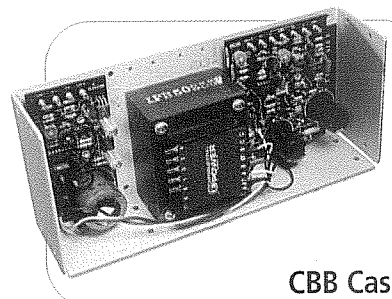
The IAR5-0.6/OVP will provide a -5 VDC regulated output @0.6 amps when connected to any filtered -7 to -30 DC source.



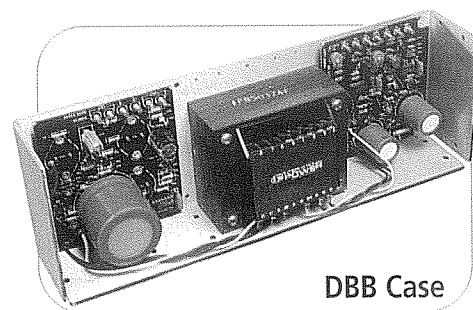
131 Case



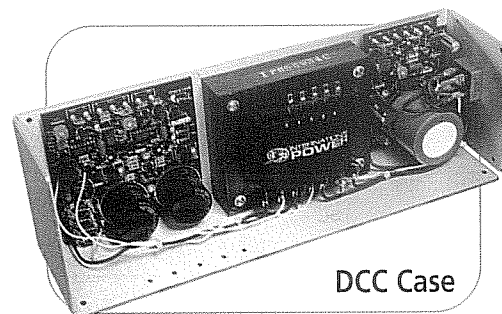
BAA Case



CBB Case



DBB Case



DCC Case