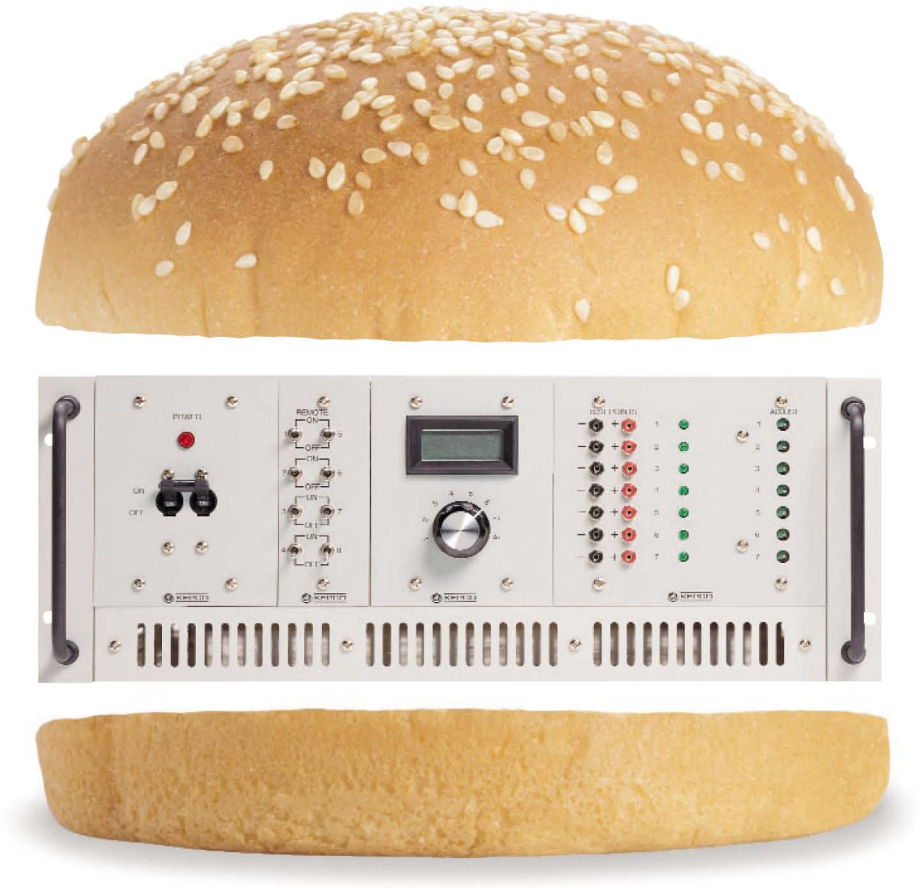
THE KEPCO POWER ASSEMBLY PROGRAM

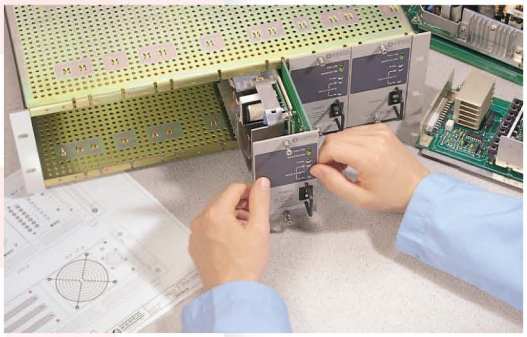


And you thought only burgers were made-to-order.

KEPCO
POWER
ASSEMBLY
PROGRAM

The Program

Kepco's power assembly program allows you to specify custom-configured arrays of volt-ampere combinations in rack mount housings of various sizes from 1U to 5U height racks and custom enclosures. Kepco's variety of single and multi-output power modules offers you a selection of output voltages from a nominal 3.3 volts to a nominal 60 volts. Power levels range from 50 watts to 3000 watts. For higher voltage we can easily connect modules in series and can parallel them for you to increase current capability or provide redundancy. You can select from switch-mode modules for fixed or trimmable outputs, or linear series-pass modules for analog-programmable applications. Digitally programmable (IEEE 488.2, LAN, RS 232, RS 485, I^2C, USB) plug-in power supplies are available for test applications.



Kepco power modules have either selectable115-230 volt inputs or wide range (85-264 volt)inputs. Models with d-c inputs (85V-420V d-c) are also available.

KEPCO POWER ASSEMBLY PROGRAM

You can specify the combinations you need, up to 8 or more outputs per assembly. Select front panel components: meters, LEDs, test points, trimmers, etc. Select rear panel components: a-c or d-c input connections and barrier strips for the d-c output. We can mark the terminals as you require and custom screen and paint the panels if you wish.

Kepco's power assemblies are a good solution to the need for multiple output power suppliesin industrial test applications.

Easy

We do all the work and deliver a fully tested, warranted product under a single part number, ready to slip into your system . . . hassle free. We're fast, too. Try us.

Send us as much detail as you can about your requirements or scan the QR code to access our online form. If there are special restrictions on size, environmental conditions, connectors, displays or sequencing...let us know. Our professional engineering staff will recommend a suitable combination of power modules, accessories, front and rear panel options, and will prepare for your consideration a CAD outline drawing showing how we plan to mount the power modules and how your front and rear panels will appear.

If there are equally effective alternate solutions, we will call to discuss these options. To help you decide, we can draft up separate proposal drawings for you to choose between. It is an interactive process until you are satisfied that you have your optimum solution.

Our plug-in modules offer a do-it-yourself option for many requirements. If we think this approach suitable, we will propose an appropriate selection which you can plug in on-site.This has the advantage of being easily modified as your requirements change. Kepco can also provide preconfigured plug-in rack assemblies

Repeatable

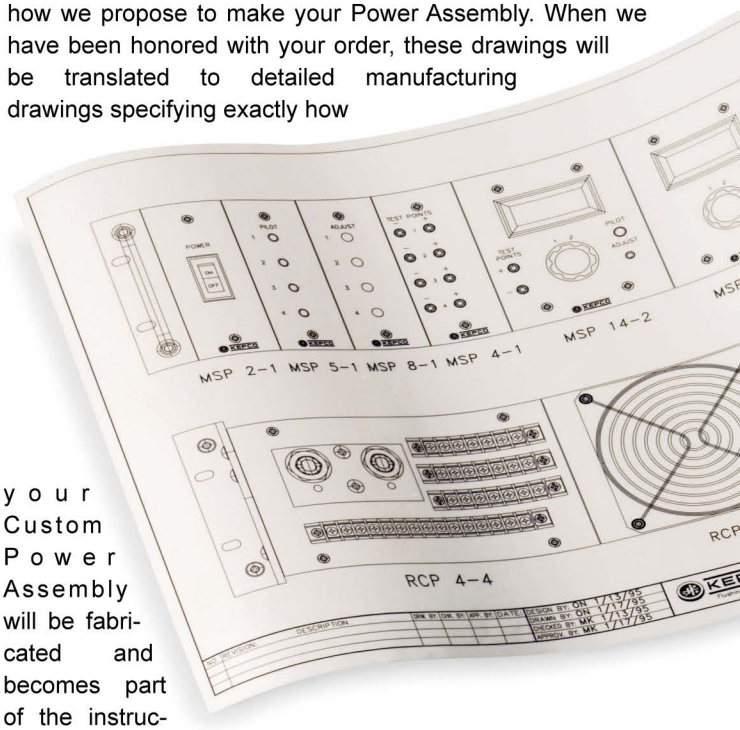
No matter how many, or how few you order, all Kepco Power Assemblies are documented in full so we can easily reproduce your assembly at any time. Order one to use as a prototype. Order your production quantities now or later, whenever you are ready. Our CAD drawings can easily be recalled and printed allowing Kepco to reproduce your Power Assembly exactly, in any quantity.

Your documentation includes a systems manual with all of the CAD drawings showing the arrangement of the front and rear panels and a top view drawing showing the position of all the individual power modules. The individual instruction manuals for each power module are also included.

KEPCO POWER ASSEMBLY PROGRAM

Professional
CAD Drawings & CAD Models

This is a sample of the documentation you'll get with our quotation. Computer-generated CAD drawings detail exactly how we propose to make your Power Assembly. When we have been honored with your order, these drawings will be translated to detailed manufacturing drawings specifying exactly how your Custom Power Assembly will be fabricated and becomes part of the instruction manual you receive when we ship. Need a 3D CAD file? Just ask. We will be using previously finished power modules that have already been tested and have been in boxes on our warehouse shelves. The finished Power Assembly will be tested as a whole and is shipped with a five year warranty regardless of the individualpower module's warranty.



Flexible

Because Kepco stocks nearly all of the individual power modules in depth, we can easily respond to urgent needs. We have created and stock a variety of front and rear panels in multiples of 1/8th of a standard 19″ x 3U rack. Eight of these panels or combinations of larger panels adding up to 8/8 may be combined to provide you with a nice selection of input switching, metering, pilots, trimmers and test points.The standard 3U high panels can be mounted in a 4U or 5U rack with a vent opening completing the balance of the space. Other panel sizes can be fabricated on a custom basis. Do you need a special connector?Supply it to us, or tell us what you need and we'll install it as you wish. Do you want to install your own equipment in the rack? Provide us with drawings of how the holes are to be punched and we will do your sheet metal, install the power modules, test them and deliver the assembly to you for finishing. Alternatively, you may supply Kepco with your own housing for us to do the power module installations. We're flexible, Talk to us. See how we can work with you to deliver professional, documented, warranted Custom-made Power Assemblies.

A typical 100 watt single voltage bolt-down power module, Series RTW

Our service includes installation of the power units you've selected (or we recommend) into one of our rack housings; professionally harnessing them to the front panel meter and control panels, and to the rear input/output panels and testing the completed assembly.

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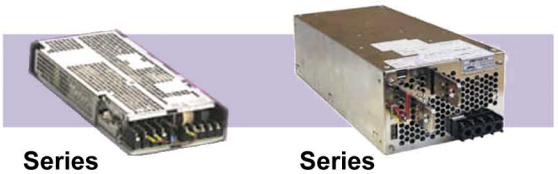
The Products

PLUG-IN HOT SWAP ASSEMBLIES

Kepco will select suitable modules from the whole of our standard catalog line. Our website details the specs on all of the available modules. Generally we select power supplies from among our RTW, HSM, RKE, HWS, AE, AK or AEK products, for bolt-down assemblies, and our JQE, PAT and PTR modules for analog-programmable requirements. If your requirements demand, we'll recommend other appropriate modules.



Series RTW 50–300W

Series HWS 300W–1500W (300–600W Zero Up)

TYPICAL OFF-THE-SHELF BOLT-DOWN POWER MODULES

Series AE 800–3000W

Series HSM 1000–1500W

Series AEK 3000W

Table of Voltage and Power Available from Standard Kepco Bolt-Down PowerModules.

Nominal Voltage	50W	100W	150W	300W	450W	650W	800W	1000W	1500W	3000W
3.3V	x	x	x	x				x		
5V	x	x	x	x		x		x		
12V	x	x	x	x	x	x	x	x	x	x
15V	x	x	x	x	x	x	x	x	x	x
24V	x	x	x	x	x	x	x	x	x	x
28V	x	x	x	x	x	x	x	x	x	x
36V						x	x		x	x
48V	x	x	x	x	x	x	x	x	x	x
60V									x	x
125V								x	x	x
150V										x
200V										x
250V										x
300V										x
400V										x

Kepco's plug-in 200 watt, IEEE488.2 controllable modules, Series MST

USER-CONFIGURABLE PLUG COMPATIBLE, TPS COMPATIBLE PROGRAMMABLE POWER ASSEMBLIES

Does your requirement involve programmable power? Kepco's MST group are plug-in 200 watt power modules that mount in a 4U (7"high) housing called RA 55. This accommodates up to nine power modules. MST have a wide range a-c input: (85-264V a-c) with power factor correction (PFC).They are available with outputs from 0-6V to 0-325V, programmable.

MST are fitted with circuits for current sharing so that they can be used for N+1 redundancy combinations.

The table at the left shows the available models.

Control signals to the MST are distributed via a serial bus based on IEEE-1118. There are a number of instruments available from Kepco which will interface to an IEEE 488.2 bus, a VXI controller or directly to your PC or Mac. Resolution is 12 bits and either voltage or current may be controlled.

One such interface is MST 488-27, a plug-in interface to the GPIB (IEEE488.2) that can be mounted into one slot of the RA 55 housing to provide you with a single GPIB connector through which you can address all eight remaining slots and two more full racks as well. A total of 27 MSTs can be addressed from a single GPIB connector.

Assemble then yourself or get a preconfigured plug-and-play solution. Also available as drop-in replacements for legacy supplies (HP 66000, HP N6700, Elgar VXP 3000).

IEEE-488.2 Programmable Plug-in Power Modules SERIES MST

Voltage	Current
0-6V	0-20A
0-15V	0-12A
0-25V	0-8A
0-36V	0-5A
0-55V	0-3.5A
0-75V	0-2.5A
0-100V	0-2A
0-150V	0-1.2A
0-200V	0-1A
0-325V	0-0.6A

KEPCO POWER ASSEMBLY PROGRAM

USER-CONFIGURABLE
MULTIPLE-OUTPUTPOWERASSEMBLIES
3~8 Units,50W/Module to1500W/Module

Series HSP 1000W and 1500W plug-in modules for multi-output or N+1 redundancy

Does your requirement include a hot-swap N+1 fault tolerant assembly? We have configured two special groups of plug-in modules called HSF and HSP especially for this kind of application.

High power N+1 redundancy is available from Kepco's HSP group.These modules plug in for hot swap applications. A selection of their housings are described below. Up to three (3) 1000W or 1500W (same size) modules are accommodated in a 3U panel height, either wired for independent operation, or in parallel for redundancy. These kilowatt or kilowatt and a half plug-ins have a built-in current-share circuit and “OR-ing”diodes. The 1000W models operate from a-c mains of 90-277V a-c. The 1500W models require 180-277V a-c. All models meet the harmonic current limits of EN 6100-3-2 by having a PFC (Power Factor Correction) circuit built in.

Series HSF 50–150W plug-in modules in a 1U rack size

HSP modules plug into a rack housing called RA 60 for hot swap, N+1 redundancy. Use RA 62 for two slots wired in parallel and one independent slot. Use RA 63 for three independent plug-in slots. If you wish to mount them without the plug-in feature, hard wired to your load, choose RA 58. Also available for wall mounting.

HSF are available in 50, 100, 150, 300, 600 and 1500 watt power levels. 50, 100 and 150W models are also available in a 1U high rack configuration. They are mounted on a slide that glides into keyed slots in a special set of housings:

Series HSF 50-150W plug-in modules for multi-output or N+1 redundancy

The table below shows the models available in Kepco's HSP and HSF groups.

Hot Swap N+1 Plug-in Power Modules

Nominal Voltage	50W	100W	150W	300W	600W	1000W	1500W
3.3V	HSF	HSF	HSF	HSF	HSF	HSP	
5V	HSF	HSF	HSF	HSF	HSF	HSP	
12V	HSF	HSF	HSF	HSF	HSF	HSP	HSF
15V	HSF	HSF	HSF	HSF	HSF	HSP	HSF
24V	HSF	HSF	HSF	HSF	HSF	HSP	HSF/HSP
28V	HSF	HSF	HSF	HSF	HSF	HSP	HSF/HSP
48V	HSF	HSF	HSF	HSF	HSF	HSP	HSF/HSP
60V							HSF

HSF Rack Combinations

RACK ADAPTER MODEL	RACK MODELS ACCOMMODATED		
	POWER (WATTS)	WIDTH (# OF MODULES)	HEIGHT
RA 19-1U	50/100/150	1 TO 4	1U
RA 19-6B	150	1 TO 6	3U
RA 19-8B	50/100/150	1 TO 8	3U
RA 19-4C	300/600/1500	1 TO 4	3U

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The Products

PLUG-IN HOT SWAP ASSEMBLIES

The front panel of each HSF contains an on-off switch, a "V d-c on" light, and a “master light.” A recessed trimmer allows precise voltage settings and a pair of test points allow you to connect an external meter to calibrate the setting.

HSF have a wide range a-c input accepting any voltage from 95-264 volts a-c, 50-60 Hz. The input EMI filter is to FCC and VDE 0871 class B.

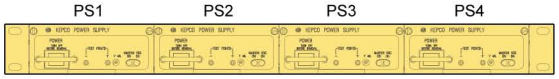
The RA 19-(X)B series of housings can be provided with other input and output connectors on a custom basis. Please give us a call to discuss your requirements.

The rear of these 3U rack housings are designed for both flexibility and maximum redundancy. Euro-style terminal blocks accept a-c input wiring and d-c output wiring. Two a-c input blocks are provided so that power can be redundantly provided from separate branch circuits. The d-c outputs can combine like units for N+1 redundancy (the "OR-ing" diodes are built into each individual HSF power module).

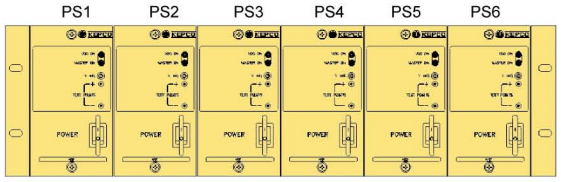
Connectors are provided for error sensing, current sharing and form C status contacts. The HSF power modules have forced current sharing for parallel operation.

Alternatively, the individual plug-in HSF can be used separately to custom make a multi-output assembly with the added feature of being easily field configurable. Filler panels are available to cover unused slots.

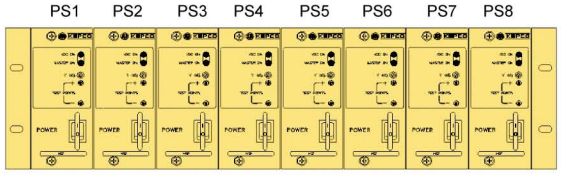
RA 19-1U Rack Adapter with (4) 50W, 100W or 150W HSF Installed



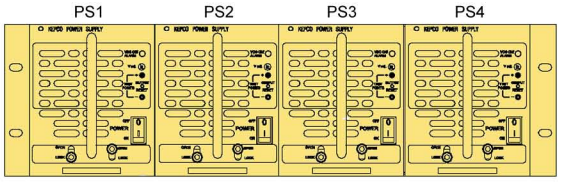
RA 19-6B Rack Adapter with (6) 150W HSF Installed



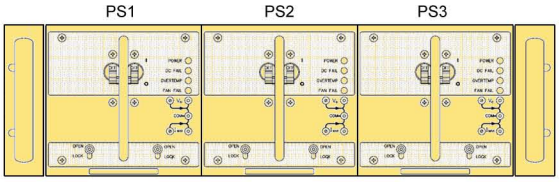
RA 19-8B Rack Adapter with (8) 50W, 100W or 150W HSF Installed



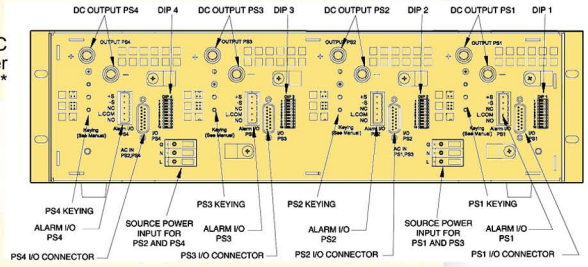
RA 19-4C Rack Adapter with (4) 300W, 600W or 1500W HSF Installed



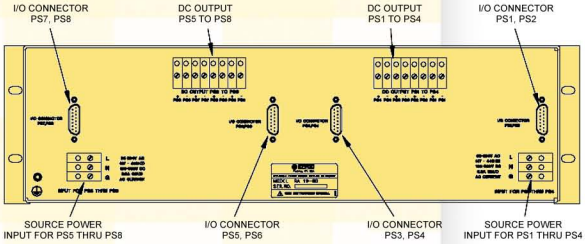
RA 60 Rack Adapter with (3) 1000W or 1500W HSP Installed



RA 19-4C Rack Adapter Rear Panel *



RA 19-8B Rack Adapter Rear Panel *



* This is the standard rear panel configuration. Other connector options are available (e.g. IEC. inlet connector). Please consult the factory.

RA 19-8B and RA 19-4C Rack Adapter Rear Panels

The I/O Connector functions for HSF are brought out as follows:

1- Error sense (+S, -S) for each position.

2- Output voltage (+V, -V) for each position to permit wiring for local sense.

3- Current share bus (1) connection brought out for each pair of modules. (Each pair internally connected using DIP switches on the back-plane for RA 19-6B, -7B and -8B, or on the rear panel for RA 19-4C and RA 19-1U.)

4- Output status alarm contacts (Form C) for each position.

KEPCO POWER ASSEMBLY PROGRAM

The Parts

FOR BOLT-DOWN ASSEMBLIES

Kepco offers a selection of front panel options for the bolt-down power assemblies. They are configured in multiples of 1/8-widths in a 3U (5.25") height. A total of 8/8 such panels fully populate a Power Assembly's front panel.

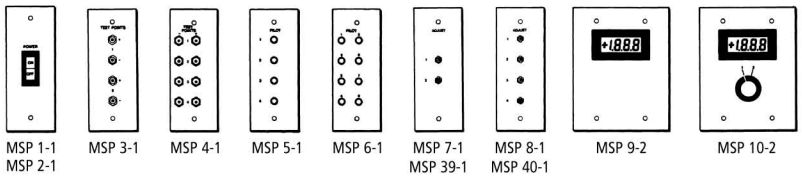
The illustrations show our selection of on-off switches and circuit breakers, meters, LEDs, trimmer controls, test points for monitoring, etc. Filler panels are available in all widths to complete your assembly.

The rear panel parts include a-c and d-c input connectors, a variety of d-c output terminal blocks, vent panels and fans. These, too, are arranged in multiples of 1/8th panel width and should total 8/8. Blank fillers are available in all sizes.

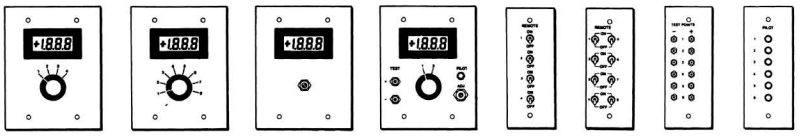
We have an array of precision current sensing resistors that we will wire as you request to provide current monitoring functions for the bolt-down assemblies. These are 50W and 100W low drift resistors in small ohmic ratings.

We can provide relays, diodes, chassis mounting slides and other special-purpose components as you require. Your paint? Custome panels? No problem, just ask. If you don't see what you need here, call.

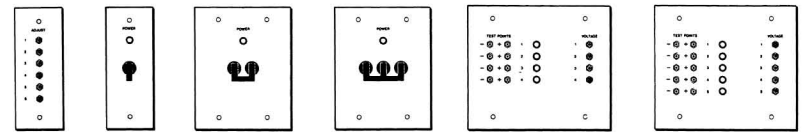
Front Panel Components



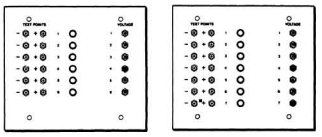
MSP 1-1
MSP 2-1
MSP 3-1
MSP 4-1
MSP 5-1
MSP 6-1
MSP 7-1
MSP 39-1
MSP 8-1
MSP 40-1
MSP 9-2
MSP 10-2



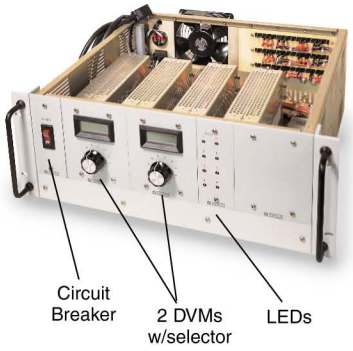
MSP 11-2
MSP 12-2
MSP 13-2
MSP 14-2
MSP 17-1
MSP 18-1
MSP 19-1
MSP 20-1



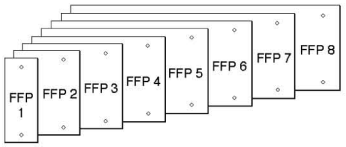
MSP 21-1
MSP 41-1
MSP 22-1
MSP 33-1
MSP 34-1
MSP 23-2
MSP 35-2
MSP 36-2
MSP 37-2
MSP 38-2
MSP 24-3
MSP 25-3



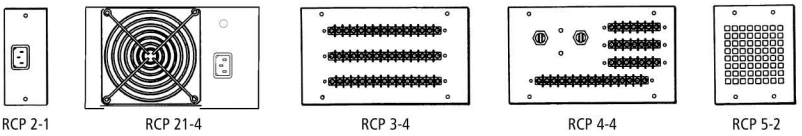
MSP 26-3
MSP 27-3



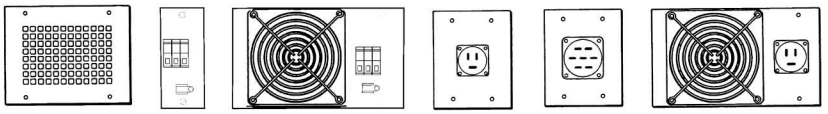
Front Filler Panels



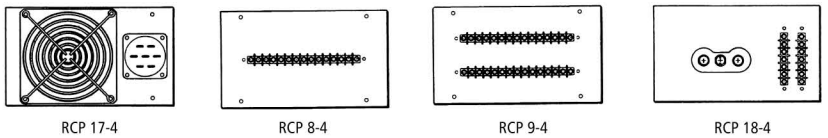
Rear Panel Components



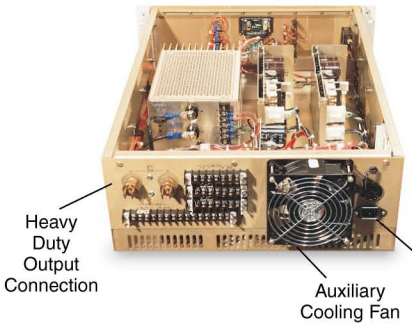
RCP 2-1
RCP 21-4
RCP 3-4
RCP 4-4
RCP 5-2



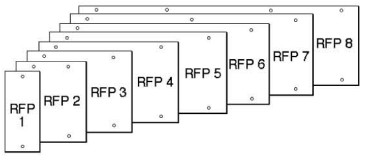
RCP 5-3
RCP 19-1
RCP 20-4
RCP 10-2
RCP 11-2
RCP 12-2
RCP 13-2
RCP 14-4
RCP 15-4
RCP 16-4



RCP 17-4
RCP 8-4
RCP 9-4
RCP 18-4



Rear Filler Panels



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KEPCO POWER ASSEMBLY PROGRAM

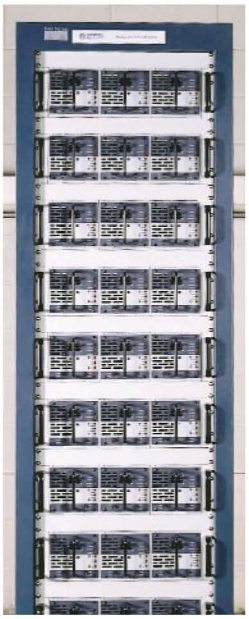
The Proof

These are just some of the Custom Power Assemblies that Kepco has supplied recently to a variety of customers. Some are partial assemblies which are finished by mounting their own equipment, some used unique customer-specified connectors, some are bolt-down assemblies finished on our production floor and some are assembled in the field by just plugging in modules. We are continuously making new and different Power Assemblies.

Visit our web site (www.kepcopower.com) for updated images of our work.

Kepco also does custom rack and stack assemblies using our large variety of instrument-grade power supplies 50W~1000W.

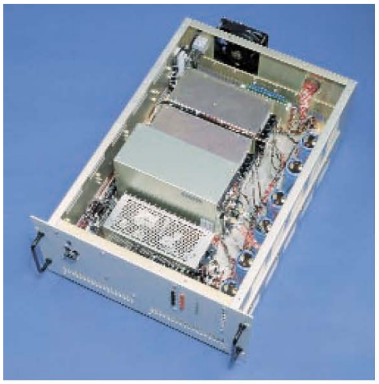
This is one of two assemblies we made for a major aerospace manufacturer. It is comprised of two linear power modules (PAT and PTR) and two 100W switch-mode modules (RTW). A third-party high voltage unit is also installed together with splitters to derive multiple HV outputs. A remote control circuit sequences the outputs on and off.

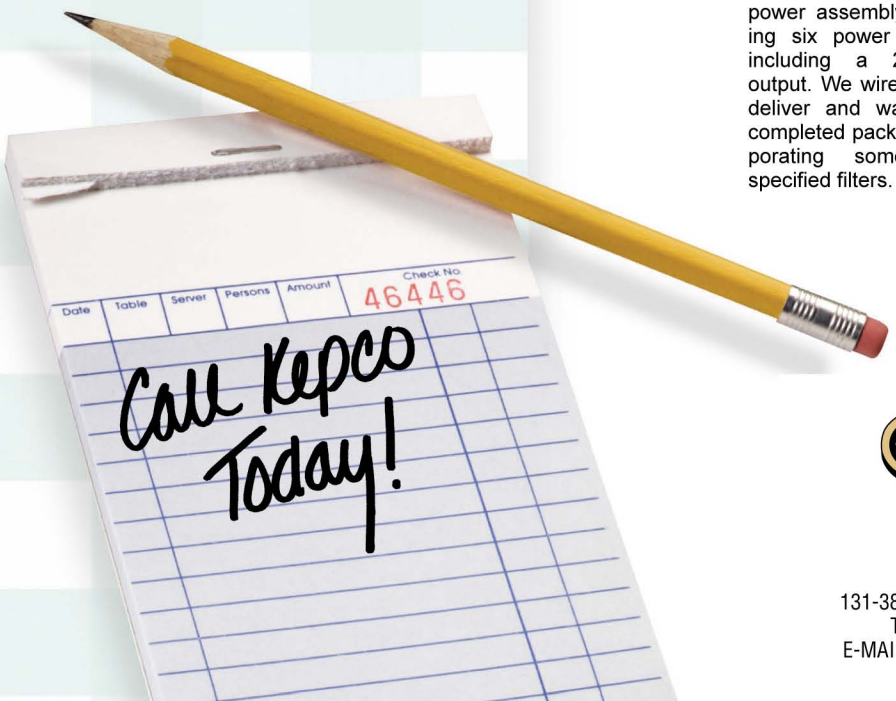


On the left shows the front view of a 45kW rack assembly containing 1500W HSP plug-in models. On the right is the rear view.

A company producing analytical systems buys this compact 1U high assembly containing two low-profile RTW power modules.

An aerospace customer uses this large Kepco power assembly containing six power modules, including a 28V 26A output. We wire, test and deliver and warrant the completed package incorporating some user-specified filters.





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