

# PEL & FEL Series of Low-power and Ultra-low Voltage Programmable

## Why Choose the PEL Series?

For years the test and measurement industry was in need of a portable, general-purpose dc electronic load. The available load solutions were either rackmount or multi-channel mainframe-based. The form factor aside, trim pots were the standard calibration method. Users in the Test and Measurement Industry demanded a load bank solution that was compact and portable, embedded with GPIB/RS-232, capable of bench-top closed-case calibration, offered dynamic operability such as profile simulation and could easily be calibrated on a bench without removing the cover.

AMREL's PEL Series of "Low-power" dc Electronic eLoads, designed for your daily testing needs, offers affordable value, dynamic pulse shaping, auto-sequencing, embedded GPIB/RS-232 and closed-case calibration in a portable rackmount-ready package.

## Why Choose the FEL Series?

Traditional load bank solutions were limited by the minimum compliance voltage of internal power dissipating components and the lack of high-current handling capability. The markets for power electronics/components, emerging fuel cell applications and energy storage sources (batteries, ultra capacitors and others) were demanding a dc electronic load solution that was compact enough for simple portability with a voltage/current performance that allowed low-voltage operation at currents exceeding the standard current ratings.

AMREL's FEL Series of "Low-voltage" dc Electronic eLoads offer affordable, compact rackmount-ready programmable loads for high-current dissipation at ultra-low compliance voltage. High current ratings go up to 200Adc.

## Markets and Applications:

- Fuel Cells
  - Single Cell and Short Stack Fuel Cell Characterization, Break-in and Testing Applications
  - Gstat Impedance Measurement (EIS & AC Modulation)
  - Polarization Curve Data Capture (CV & CC Control)
  - Durability
  - Lifetime Tests
  - Performance/Design Characterization
- Battery Testing
  - Dynamic Profiling
  - Battery Characterization
  - Charge/Discharge and Lifetime/Cycle Tests
- Power Electronics Testing
  - dc-dc Converters
  - ac-dc Power Supplies
  - Switching Power Supplies
  - POL (Point of Load)
- Power Electronic Components Testing
- Battery Chargers & Load Profile Simulation
- Laboratories, Universities and R&D
- Defense/Aerospace/Avionics/Industrial ATE and Integrated Test Systems
- Portable Applications

### PEL SELECTOR GUIDE

PEL XXX - YY - ZZZ  
XXX - POWER | YY - VOLTAGE | ZZZ - CURRENT

Series	Model #	Power (W)	Voltage (Vdc)	Current (Adc)	VMIN at IMAX	Size (Height, Width)
PEL	PEL60-60-10	60W	60	10	1V	4U, 1/4Rack
PEL	PEL150-60-30	150W	60	30	1V	4U, 1/4Rack
PEL	PEL150-60-60	150W	60	60	1V	4U, 1/4Rack
PEL	PEL300-60-60	300W	60	60	1V	4U, 1/4Rack
PEL	PEL300-60-120	300W	60	120	1V	4U, 1/4Rack
PEL	PEL300-120-60	300W	120	60	1V	4U, 1/4Rack
PEL	PEL600-120-120	600W	120	120	1V	4U, 1/4Rack
PEL	PEL600-300-120	600W	300	120	1V	4U, 1/4Rack
PEL	PEL600-600-60	600W	600	60	1V	4U, 1/4Rack
Custom-tailored Ranges Available		Voltage Range: 10Vdc ~ 600Vdc Rating Current Range: 1Adc ~ 100Adc Rating Power Range: 60W ~ 800W Rating				

### FEL SELECTOR GUIDE

FEL XXX - YY - ZZZ  
XXX - POWER | YY - VOLTAGE | ZZZ - CURRENT

Series	Model #	Power (W)	Voltage (Vdc)	Current (Adc)	Current (Adc @ 0.4Vdc)	Size (Height, Width)
FEL	FEL60-1	60W	10	50	50	4U, 1/4rack
FEL	FEL60-2	60W	20	50	50	4U, 1/4rack
FEL	FEL150-1	150W	10	100	75	4U, 1/4rack
FEL	FEL150-2	150W	20	100	75	4U, 1/4rack
FEL	FEL300-1	300W	10	200	100	4U, 1/4rack
FEL	FEL300-2	300W	20	200	100	4U, 1/4rack
Custom-tailored Ranges Available		Voltage Range: 10Vdc ~ 800Vdc Rating Current Range: 1Adc ~ 100Adc Rating Power Range: 60W ~ 800W Rating				

## PEL Key Features and Benefits:

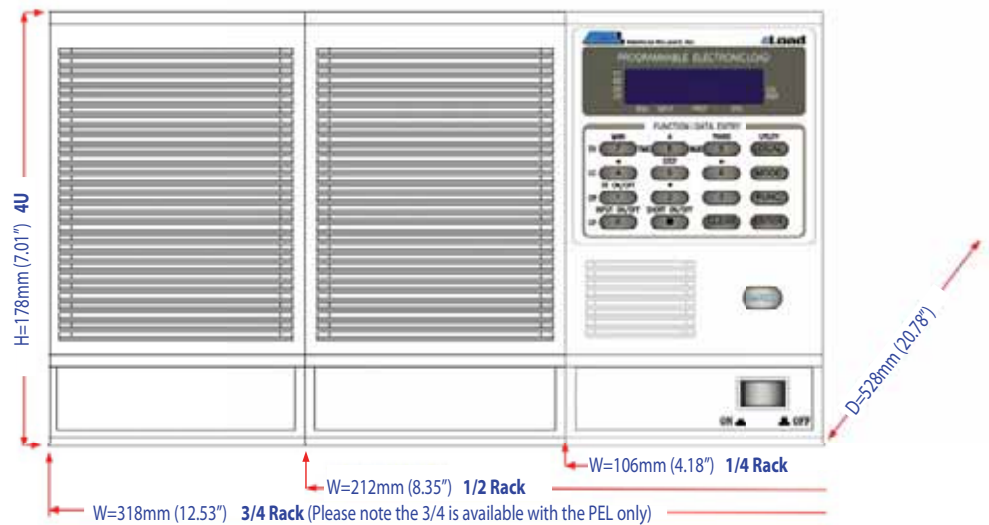
- **Broadest Model Selection:** 60W, 150W, 300W, 600W or Custom-tailored Power Ratings
- **Exclusive Voltage Models:** Standard 60V, 120V, 300V, 600V & Custom-tailored Voltage Ratings
- **Ideal for Unique Test Applications:** Custom-tailored Ratings & Features Available
- **Low-voltage Operation:** Up to 120Adc at 1Vdc and Operable Down to 0.1Vdc

## FEL Key Features and Benefits:

- **Broadest Model Selection:** 60W, 150W, 300W or Custom-tailored Power Ratings
- **Exclusive Voltage Models:** Standard 10V, 20V and Custom-tailored Voltage Ratings
- **Ideal for Unique Test Applications:** Custom-tailored Ratings & Features Available
- **Ultra Low-voltage Operation:** Up to 200Adc at 0.8Vdc and Operable Down to 0.1Vdc



## Dimensions

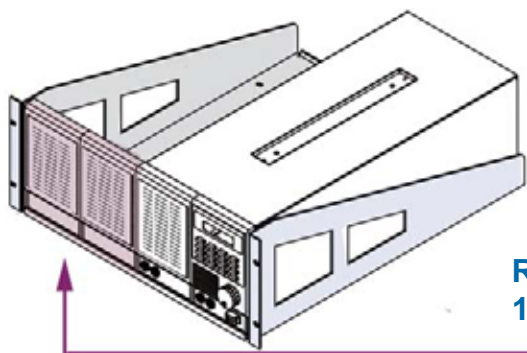


## PEL & FEL SPECIFICATIONS

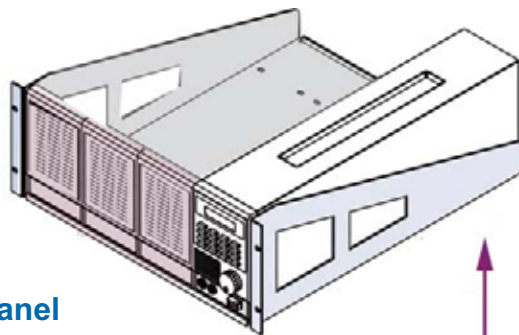
CV MODE SPECIFICATIONS	
CVL RANGE	0 ~ 100% of Vmax
ACCURACY	0.2% of Value ± 0.1% of Rating
RESOLUTION	1/3600 of Rated Voltage
CV TRANSIENT TIME	1ms ~ 270ms for 0Vdc to Vmax
CR and CP MODE SPECIFICATIONS	
Please reference website datasheet for details	
GENERAL SPECIFICATIONS	
REMOTE INTERFACES	RS-232 & GPIB
CC MODE ANALOG PROGRAMMING	0 ~ 10Vdc corresponds to 0 ~ Imax
ACCURACY	Mode Accuracy ± 0.1% of Rating
VMON ACCURACY	0.10% of RDG ± 0.1% of Rating
IMON ACCURACY	0.10% of RDG ± 0.1% of Rating
AC INPUT	115/230Vac   50/60Hz
OPERATING TEMPERATURE	5°C ~ 40°C

CC MODE SPECIFICATIONS	
CCL RANGE	0 ~ 10% of Imax
CCM RANGE	0 ~ 100% of Imax
ACCURACY	0.2% of Value ± 0.1% of Rating
RESOLUTION	1/3600 of Rated Current
PEL CC TRANSIENT TIME	27ms ~ 0.100ms for 0Adc to Imax
FEL CC TRANSIENT TIME	54ms ~ 0.200ms for 0Adc to Imax
PROTECTION	
OVER POWER PROTECTION (OPP)	110% * Pmax
RESOLUTION	1/4000 of Rated Power
ACCURACY	1% of Setting ± 0.5% of Rating
OVER VOLTAGE PROTECTION (OVP)	110% * Vmax
OVP RESOLUTION	1/4000 of Rated Voltage
OVP ACCURACY	0.20% of Setting ± 0.25% of Rating
OVER CURRENT PROTECTION (OCP)	110% * Imax
OCP RESOLUTION	1/4000 of Rated Current
OCP ACCURACY	0.20% of Setting ± 0.25% of Rating

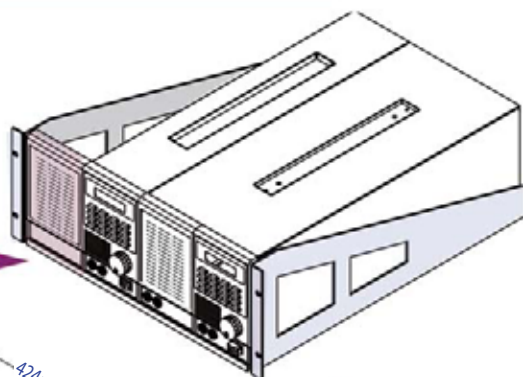
# PEL & FEL Series of Rackmount



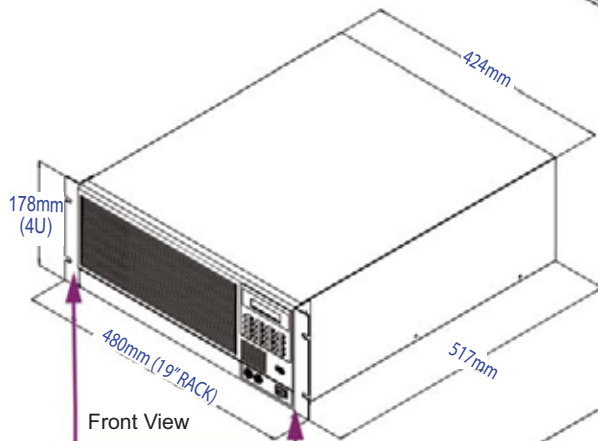
**RMP-02A**  
1/2 Rack Filler Panel



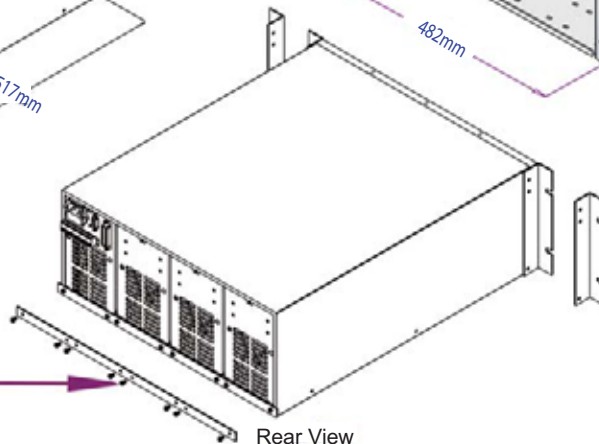
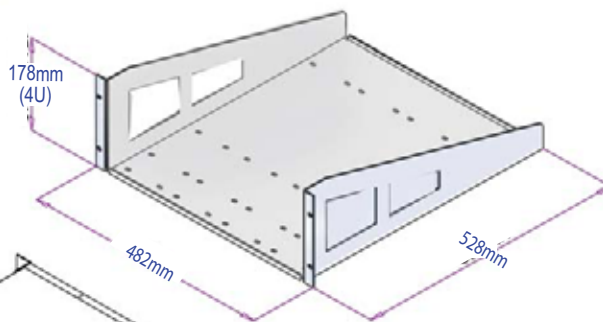
**RMP-03A**  
3/4 Rack Filler Panel



**RMP-01A**  
1/4 Rack Filler Panel



**\*\*RMP-04 Full Rack Rear Mount**



**\*RM-03 19" Rackmount Shelf**

Rear View

\*Please note that when assembled the shelf adds approximately 5mm to the 4U height.

