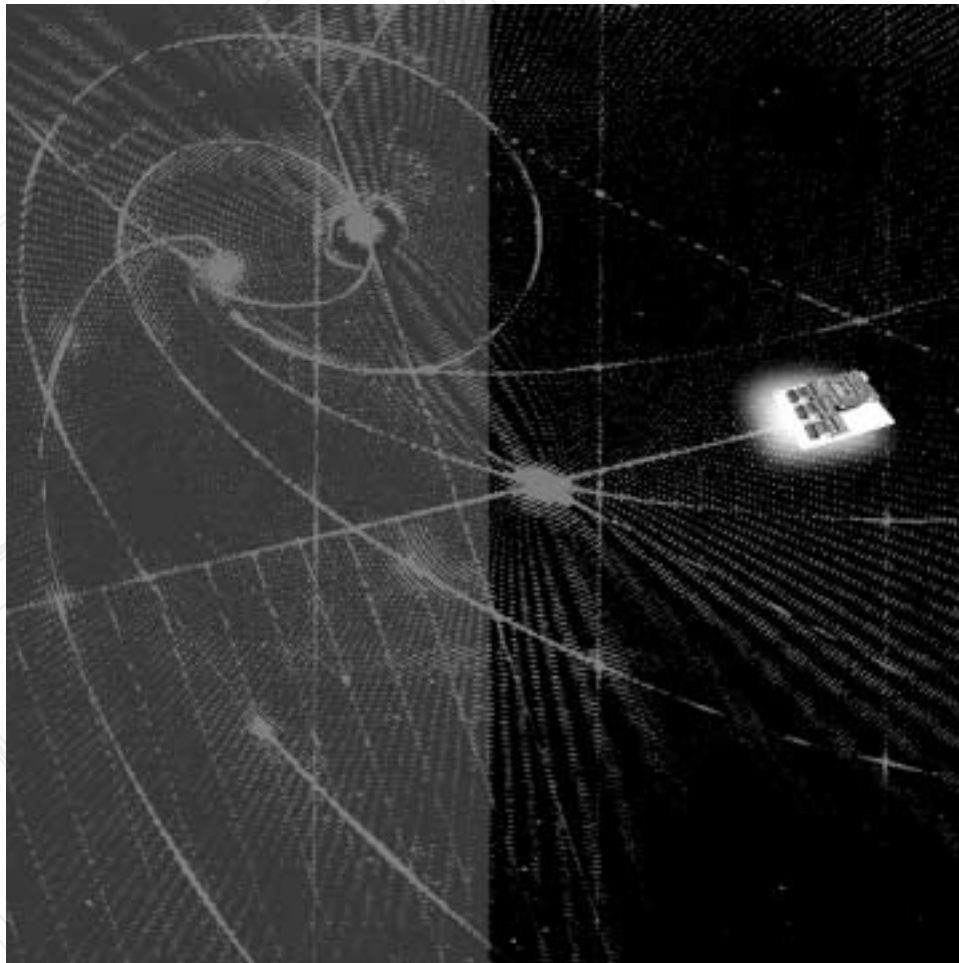


PRELIMINARY DATA

VIPAC™

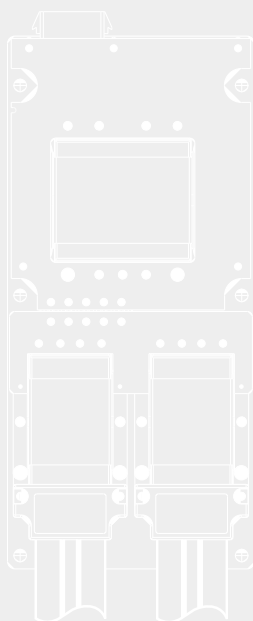
POWER SYSTEMS



2nd Generation Components

Contents

1. Product Overview
2. Chassis Selection
3. Specifications:
 - 48Vdc
 - 115/230Vac Autoranging
5. Mechanical Outline Drawings
6. Accessory Products



Vicor's *VIPAC™* is a new type of power system leveraging the latest advances in DC-DC converter technology and modular front-ends. *VIPAC* combines application specific power processing units (PPU), a choice of chassis styles and remotely located hold-up capacitors (in AC input versions) to provide fast, flexible and highly reliable power solutions for a range of demanding applications.

The PPU is the core element of the system and may be specified for operation from 48Vdc or 115/230Vac. The PPU incorporates Vicor's FIAM or FARM modular front end to provide transient protection, EMI filtering and autoranging functions as appropriate. The WEB based *VIPAC Design Center* enables designers to configure the PPU with up to three independently regulated outputs with power levels from 50 to 500 Watts and (depending on configuration) as much as 900 Watts total output power. Vicor's 2nd Generation DC-DC converters, in industry standard, quarter, half and full brick packages are used to deliver output voltages from 2 to 48Vdc. Additionally, the outputs may be trimmed to provide operating voltages as low as 500mV.

The PPU is comprised of:

- AC or DC input, FIAM, FARM modular front end
- Vicor's 2nd Generation, high density DC-DC converters
- Interface board
- Cold plate or finned chassis options
- Intelligent communications port
- Choice of 3 output termination styles

The *VIPAC* is offered in several chassis configurations facilitating its use in a variety of applications using either conduction, convection or forced convection cooling. The low profile, conduction cooled version may be mounted to an existing cabinet wall, heatpipe or user supplied heatsink. The 0.5" or 1" finned versions, available in longitudinal or transverse configurations, are ideal for use in free or forced convection environments. The use of standard chassis footprints allows different input voltage configurations of the *VIPAC* to be used interchangeably depending on system and market requirements.

*VIPAC*s partitioned power architecture can use remotely located capacitors to facilitate packaging and placement options not previously available. The low profile PPU can be placed closer to the load or attached to cabinet walls while the capacitors may be integrated into the host system away from heat sources for improved reliability. System hold-up / ride-thru requirements can also be tailored for specific applications via different value capacitors. The hold up capacitors may be obtained from Vicor as a prepackaged hold-up box (HUB).

VIPAC is a new class of flexible, high-density power solutions.

Chassis Selection

PRELIMINARY DATA

(115/230Vac version shown with optional LugMate)

Style	Overall Height
Cold Plate	0.75"
1/2" Heat Sink	1.25"
1" Heat Sink	1.75"



2 MICRO

- 3.15" x 6.8"
- Single or Dual Outputs
- 50-300 Watts
- Up to 50 Amps



1 MINI

- 3.15" x 6.8"
- Single Output
- 100-250 Watts
- Up to 50 Amps



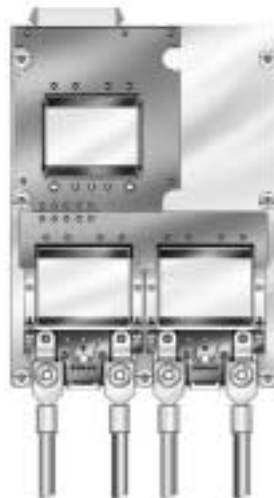
1 MAXI

- 3.15" x 9.15"
- Single Output
- 160-500 Watts
- Up to 80 Amps



3 MICRO

- 4.96" x 6.8"
- Single, Dual or Triple Outputs
- 50-450 Watts
- Up to 75 Amps



2 MINI

- 4.96" x 6.8"
- Single or Dual Outputs
- 100-500 Watts
- Up to 100 Amps



2 MAXI

- 4.96" x 9.15"
- Single or Dual Outputs
- 160-900 Watts
- Up to 160 Amps

General Specifications

PRELIMINARY DATA

48 Vdc Input

Parameter	Min	Typ	Max	Unit	Remarks
Input voltage	36	48	75	Vdc	Continuous
Inrush current			5.0	A pk	
Transient immunity					
Telcordia GR-499-CORE, Section 13-2			200	V	1µsec duration
ETS 300 386-1 Class 2 (1994)			200	V	5.0µsec rise time, 50µsec duration surge
			250	V	1-100nsec
EMI—conducted emissions					(Compliance testing in process)
Telcordia GR-1089-Core		Issue 2			
EN55022		Class B			
Reverse polarity protection					Internally fused

115/230 Autoranging Input

Parameter	Min	Typ	Max	Unit	Notes
Operating input voltage	90		132	Vac	Autoranging doubler mode
	180		264	Vac	Autoranging bridge mode
Input undervoltage			90	Vac	No damage
AC line frequency	47		63	Hz	C - Grade
	47		440	Hz	T - Grade
Power factor		0.60			Typical line
Inrush current			60	Amps	264Vac peak line, cold start
Input surge withstand					2kV–50 µs common mode
EN61000-4-5					1kV–50 µs differential mode
EMI					(Compliance testing in process)
EN55022	Level B				
Holdup capacitance	1,800		3,300	µF	
Leakage current			TBD	mA	264Vac

Environmental

Parameter	Min	Typ	Max	Unit	Notes
Dielectric withstand					
Input to chassis	1,500/2,121			Vrms/Vdc	
Input to output	3,000/4,242			Vrms/Vdc	
Output to chassis	500/707			Vrms/Vdc	Dependant upon output termination style
Operating temperature - ambient					
C-grade	-20		65	°C	Max. chassis temperature, 95°C
T-grade	-40		65	°C	
Shock					
GR 6063, NEBS, Zone 4					
Vibration					
GR 6063, NEBS, Zone 4					
Humidity	5		95	%	Non-condensing
Safety approvals					Pending
UL 1950, CSA 22.2 No. 950,					
TÜV, VDE, EN60950, CE Marked					

Interface Control Specifications

Type	Master Enable	Output Enable/Disable	Output Sequencing	Output Status	Bus OK	Bus Voltage	VIPAC S/N	E-Off
Local	✓				✓			
Remote	✓	✓	✓	✓	✓	✓	✓	✓

Output Specifications - General Per Output

at 25°C, nominal line and nominal load, per module unless otherwise specified

Parameter	Min	Typ	Max	Unit	Notes
Output voltage setpoint			±1%	Vout nom	Nom. input; full load, 25°C
Line regulation		±0.02	±0.2	%	Low line to high line; full load
Temperature regulation		±0.002	±0.005	%/°C	Over operating temp. range
Over Temperature Shutdown		115		°C	
Power sharing accuracy		±2	±5	%	10% to 100% of full load
Programming Range	10		110	%	Of nominal output voltage. For trimming below 90% of nom. a minimum load of 10% of maximum rated power may be required
Current limit		115		% lout max.	Output voltage 95% of nominal
Short circuit current		115		% lout max.	Output voltage <250mV

Output Voltage Related Specifications

at 25°C, nominal line and nominal load, per module unless otherwise specified

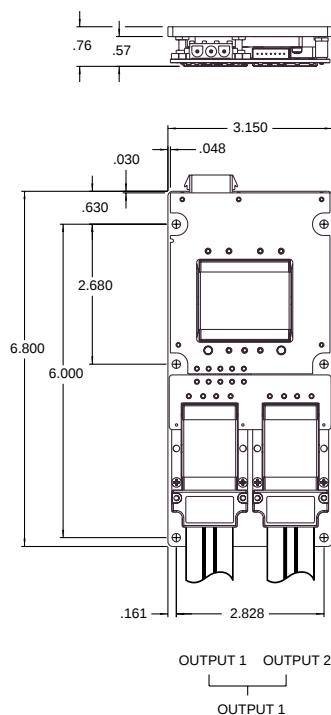
Micro												
Parameter	1.8V ¹	2V	2.5V ²	3.3V	5V	12V	15V	24V	28V	48V	Unit	Notes
Efficiency (typ)	71.6	72	77.3	78	82	86	87	87	87.5	88.5	%	
Ripple & noise, p-p (typ)	73	85	63	75	70	170	120	150	110	60	mV	Full load; 20MHz BW
Output power (max)	45	50	57	75	100	150	150	150	150	150	Watts	95°C Chassis
Output OVP setpoint (nom.)	2.8	2.8	4.3	4.3	6.3	14.3	17.8	28.1	32.7	55.7	Volts	Recycle input voltage to restart (1 min. off)
Dissipation, standby (typ.)	3.3	3.3	3.0	3.0	3.3	3.5	4.0	4.0	2.6	2.9	Watts	No load
Load regulation (max.)	0.5	0.5	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.2	±%Vout	No Load to full load
Mini												
Parameter	1.8V ¹	2V	2.5V ²	3.3V	5V	12V	15V	24V	28V	48V	Unit	Notes
Efficiency (typ)	70.9	73	76.2	79	83	86	87.5	88.5	88.5	89.5	%	
Ripple & noise, p-p (typ)	95	85	64	60	80	160	115	125	65	80	mV	Full load; 20MHz BW
Output power (max)	90	100	114	150	200	250	250	250	250	250	Watts	95°C Chassis
Output OVP setpoint (nom.)	2.8	2.8	4.3	4.3	6.3	14.3	17.8	28.1	32.7	55.7	Volts	Recycle input voltage to restart (1 min. off)
Dissipation, standby (typ.)	4.3	4.3	3.5	3.5	3.3	4.4	5.3	5.0	4.5	3.9	Watts	No load
Load regulation (max.)	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	±%Vout	No Load to full load
Maxi												
Parameter	1.8V ¹	2V	2.5V ²	3.3V	5V	12V	15V	24V	28V	48V	Unit	Notes
Efficiency (typ)	73.7	74	76.6	80.2	83	85.7	87	88	88.5	89.5	%	
Ripple & noise, p-p (typ)	72	75	60	65	50	100	75	75	50	50	mV	Full load; 20MHz BW
Output power (max)	144	160	200	264	400	500	500	500	500	500	Watts	95°C Chassis
Output OVP setpoint (nom.)	2.8	2.8	4.3	4.3	6.3	14.3	17.8	28.1	32.7	55.7	Volts	Recycle input voltage to restart (1 min. off)
Dissipation, standby (typ.)	5.0	5.0	6.8	6.8	7.3	6.8	6.6	5.5	7.0	7.6	Watts	No load
Load regulation (max.)	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	±%Vout	No Load to full load

¹ Nominal 2V output trimmed to 1.8V by adding external 9,000 ohm resistor from the SC Pin to -S (-Out Pin for Micros)² Nominal 3.3V output trimmed to 2.5V by adding external 3,125 ohm resistor from the SC Pin to -S (-Out Pin for Micros)

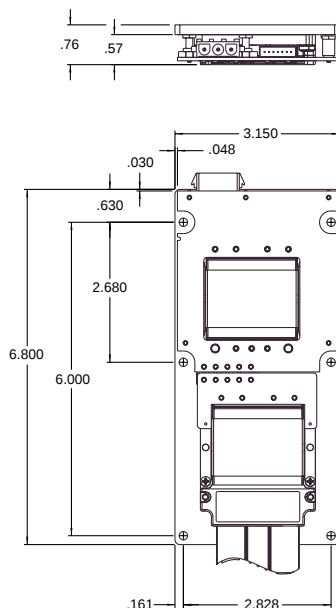
48Vdc Input and 115/230Vac Autoranging Input

(48Vdc input shown with optional CableMate)

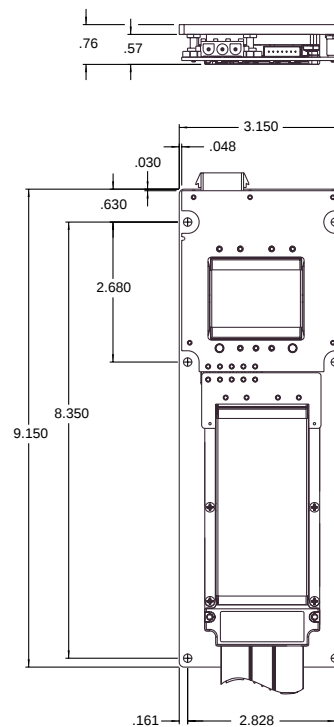
2 MICRO



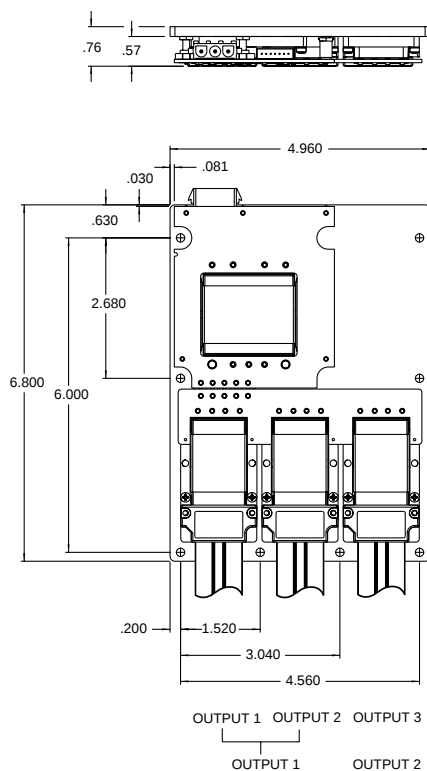
1 MINI



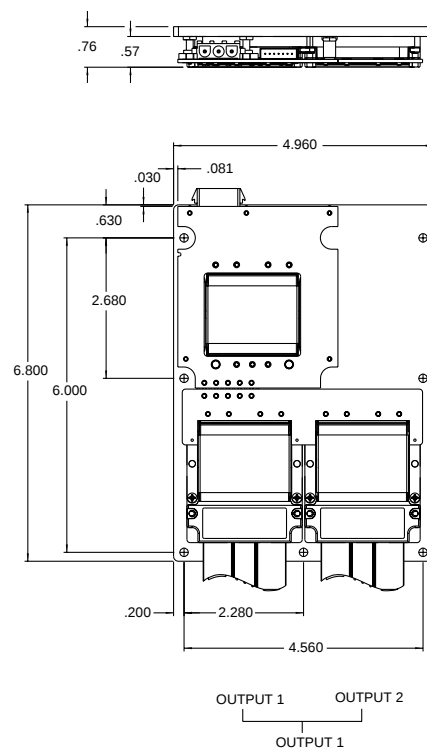
1 MAXI



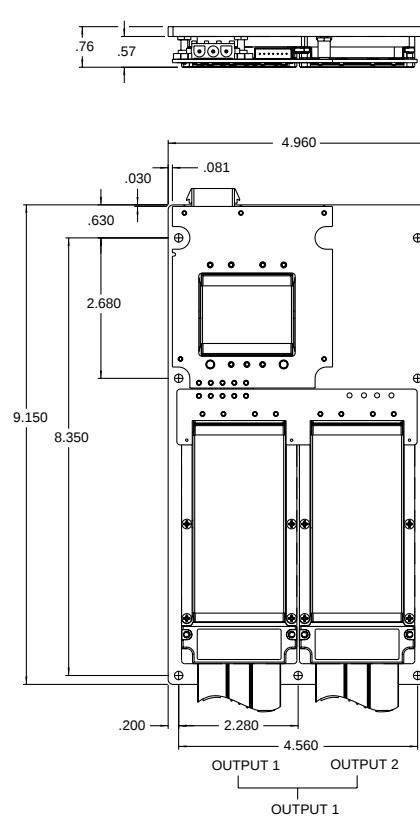
3 MICRO



2 MINI



2 MAXI

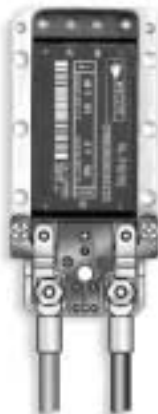


Output Terminations

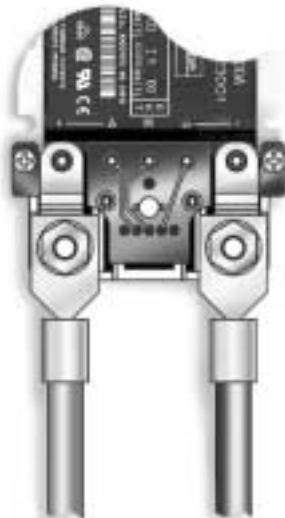
LugMate

Installed at the factory

MICRO



MINI and MAXI



CableMate

Part numbers determined by cable length and free end termination. Consult factory.

MICRO



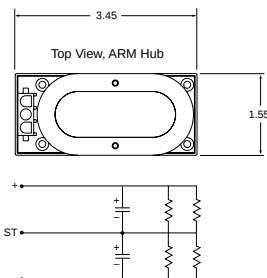
MINI and MAXI



Mating Connectors

Part Number	Description
23485	115/230 Autoranging Input VIPAC use with HUB 820-s, 1200-s or 1800-s Contains: HUB connector kit 21393 AC — Input connector kit 22499 I/O — Interface connector kit 22988
23486	115/230 Autoranging Input VIPAC use with HUB 2200-s, 2700-s or 3300-s Contains: HUB connector kit 21394 AC — Input connector kit 22499 I/O — Interface connector kit 22988
23487	48Vdc Input VIPAC use with all 48Vdc input VIPAC Contains: DC — Input connector kit 21394 I/O — Interface connector kit 22988
23488	Mini/Maxi LugMate connector kit Contains: control connector 16385 Lugs qty. 2
23489	Micro LugMate connector kit Contains: Lugs qty. 2

Holdup Box (HUB)



For use with 115/230Vac input VIPAC

Description*	Height (Inches ±.06")	Part Number
820µF	1.55	HUB820-S
1200µF	1.75	HUB1200-S
1800µF	2.14	HUB1800-S
2200µF	2.85	HUB2200-S
2700µF	3.52	HUB2700-S
3300µF	3.52	HUB3300-S

* Each HUB contains two (2) capacitors of the value shown.

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COMPONENT SOLUTIONS FOR YOUR POWER SYSTEM