IFE
International AC Front End
500 Watts

Features
- Autoranging 115/230 Vac input
- Two, low profile, chassis mount versions
- 500 Watts
- Meets EN55022-B
- Meets EN61000-3-2 harmonic current limits
- Rugged coldplate construction

Product Overview

The International Front End (IFE) is an enclosed chassis mount, AC Front End which may be used with VIPAC Arrays, MegaModules or any of Vicor's 300V input DC-DC converters to create a complete, low profile, high density, AC-DC power supply.

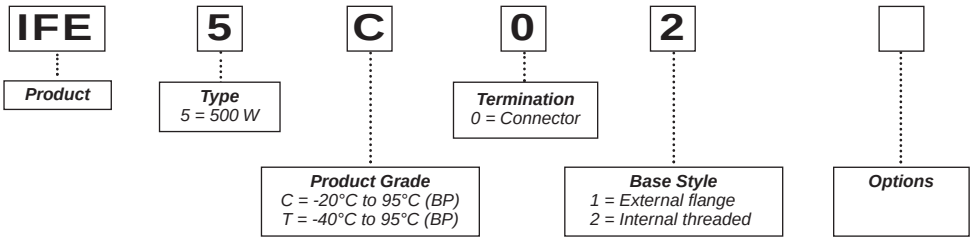
The IFE operates from worldwide AC mains and includes autoranging line rectification, integral EMI filtering, hold-up capacitors, harmonic current attenuation and transient suppression. The IFE incorporates Vicor's passive harmonic current attenuation technology and FARM modules to deliver 500 Watts while meeting EN61000-3-2 limits. All internal heat producing components are coupled to the chassis for optimal thermal transfer. Two rugged, coldplate packages are available — one with threaded inserts and the other with thru hole flanges — which may be mounted directly to a cabinet wall or an existing heat sink for high temperature operation.

The International Front Ends (IFE) provide an off-the-shelf solution for many custom and standard power supply requirements where space constraints and time to market are critical.

Absolute Maximum Ratings

Parameter	Rating	Unit	Notes
L to N voltage	264	Vrms	Continuous
+Out to –Out voltage	400	Vdc	
B OK to –Out voltage	16	Vdc	
EN to –Out voltage	16	Vdc	
Mounting torque	15 (1.7)	in-lbs (N-m)	6 M4 x 0.7
Operating temperature	95	°C	Chassis/BP
Storage temperature	125	°C	Ambient

Part Numbering



ELECTRICAL CHARACTERISTICS

Electrical characteristics apply over the full operating range of input voltage, output load (resistive) and baseplate temperature, unless otherwise specified.

INPUT SPECIFICATIONS

Parameter	Min	Typ	Max	Unit	Notes
Operating input voltage	90	115	132	Vac	Autoranging (doubler mode)
Operating input voltage	180	230	264	Vac	Autoranging (bridge mode)
AC line frequency	47		63	Hz	
Power factor	0.68	0.72			230 Vac input
Efficiency	94	96		%	Full load
Input current					
115 Vac input		9	9.5	Arms	500 W output
230 Vac input		4.5	4.75	Arms	500 W output
Inrush current					
115 Vac input		15		A pk	
230 Vac input		30		A pk	

OUTPUT SPECIFICATIONS

Parameter	Min	Typ	Max	Unit	Notes
Output voltage		250	375	Vdc	
Output power		500	550	Watts	90-132 / 180-264 Vac input
Hold-up time					
90 Vac Input		23		ms	500 W output
115 Vac Input		58		ms	500 W output
90 Vac Input		93		ms	500 W output with 2460 µF external hold-up capacitor
115 Vac Input		229		ms	500 W output with 2460 µF external hold-up capacitor
Power fail warning time		6.5		ms	115 Vac input, 500 W output
Power fail warning time		25		ms	115 Vac input, 500 W output with 2460 µF external hold-up capacitor

SAFETY SPECIFICATIONS

Parameter	Min	Typ	Max	Unit	Notes
Safety approvals (pending)		cTÜVus, CE Marked			CE marked according to the Low Voltage Directive 72/23/EEC amendment 93/68/EEC
Isolation voltage (in to out)		none			
Isolation voltage (I/O to chassis)	2121			Vdc	
Leakage current		**TBD**			264 Vac input, 50Hz

ELECTRICAL CHARACTERISTICS, continued

ELECTROMAGNETIC COMPATIBILITY

Parameter	Min	Typ	Max	Unit	Notes
Harmonic currents		EN61000-3-2			See Fig. 1
Voltage fluctuations and flicker		EN61000-3-3			Test in process
Electrical fast transient/burst		EN61000-4-4			Test in process
Input surge withstand		EN61000-4-5			Test in process
RF line conducted immunity		EN61000-4-6			Test in process
Voltage dips and interrupts		EN61000-4-11			Test in process
Conducted emissions		EN55022, Level B			See Fig. 2

CONTROL SPECIFICATIONS

Parameter	Min	Typ	Max	Unit	Notes
Enable					
Low state current			50	mA	Bus normal
Low state resistance			15	ohms	To negative output
High state voltage		15		Vdc	150k internal pull up to 16 Vdc
Enable threshold	235	240		Vdc	Output bus voltage
Disable threshold	185			Vdc	Output bus voltage
Bus OK					
Low state current			50	mA	Bus normal
Low state resistance			15	ohms	To negative output
High state voltage		15		Vdc	150k internal pull up to 16 Vdc
B OK true threshold	235	240	245	Vdc	Output bus voltage
B OK false threshold	200	205	210	Vdc	Output bus voltage

GENERAL SPECIFICATIONS

Parameter	Min	Typ	Max	Unit	Notes
MTBF					
Coldplate and Cover material		aluminum			
Weight		1.13 (2.5)		kg (lbs.)	
Package size		**L x W x H**			
Internal threaded (IFE5xx2)		240 x 100 x 26.25 (9.45" x 3.93" x 1.12")mm (in)			
Thru hole flange (IFE5xx1)		260 x 100 x 26.25 (10.24" x 3.93" x 1.12")mm (in)			
Mounting					
Internal Threaded		M4 x 0.7			6 locations max. 12mm max penetration, torque 15 in. lbs. (1.7Nm)
Flange clearance hole		M4 or #8			4 locations
Storage Temperature					
C, T-Grade	-40		125	°C	
Operating Temperature					
C-Grade	-20		95	°C	
T-Grade	-40		95	°C	

PERFORMANCE CHARACTERISTICS

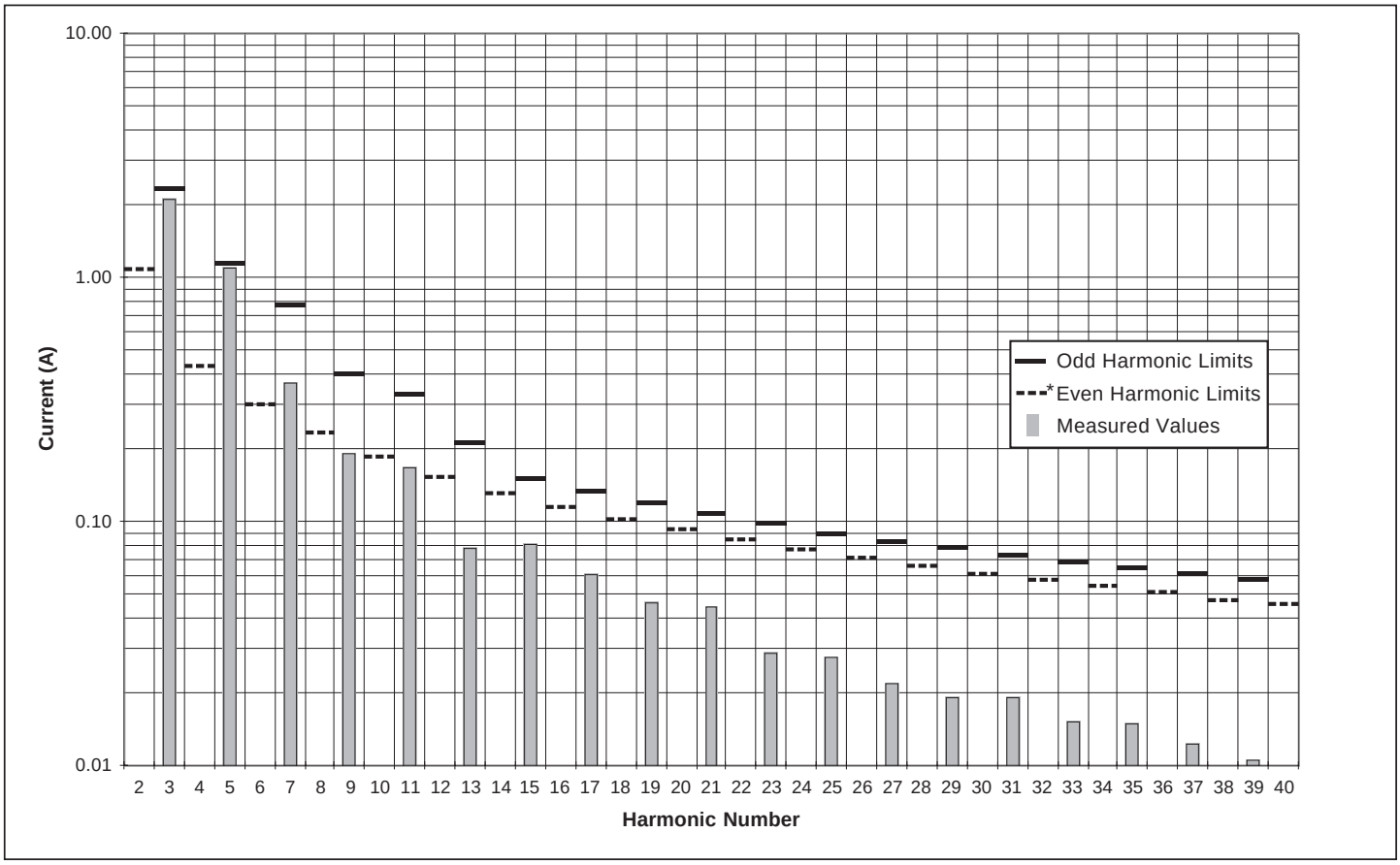


Figure 1 *— Measured harmonic current at 230 Vac, 50 Hz, 550 W vs. EN spec limits*

*Measured values of even harmonics are below 0.01 A

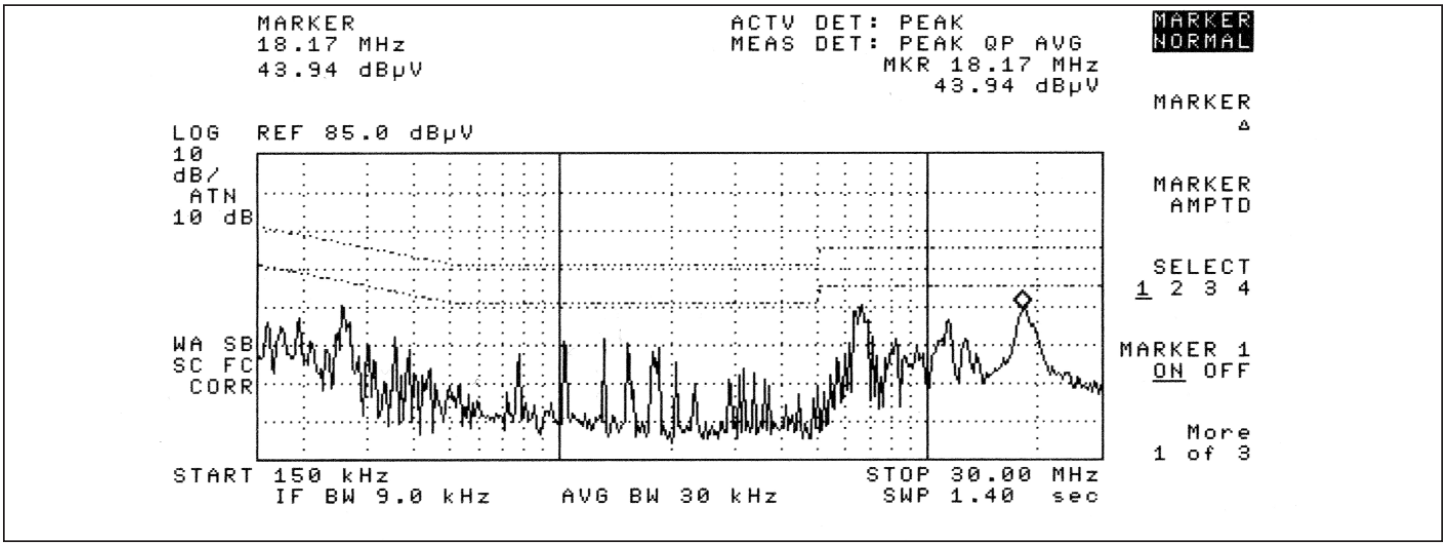


Figure 2*—Conducted line noise, EN55022-B*

Connection Diagram

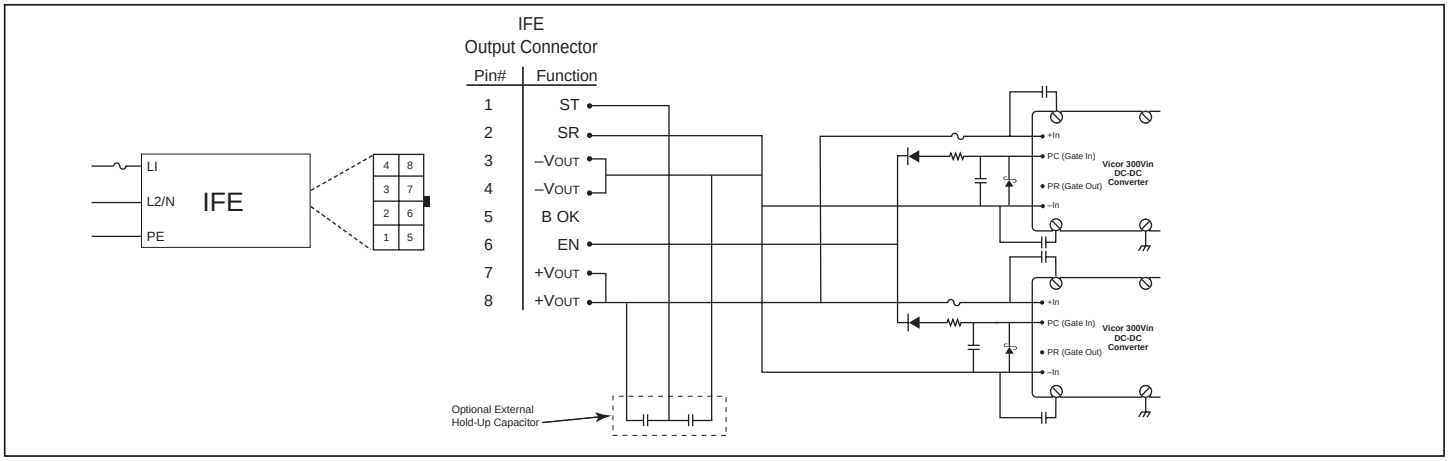


Figure 3*—Connection diagram using IFE with Vicor 300 Vin DC-DC converter(s)*

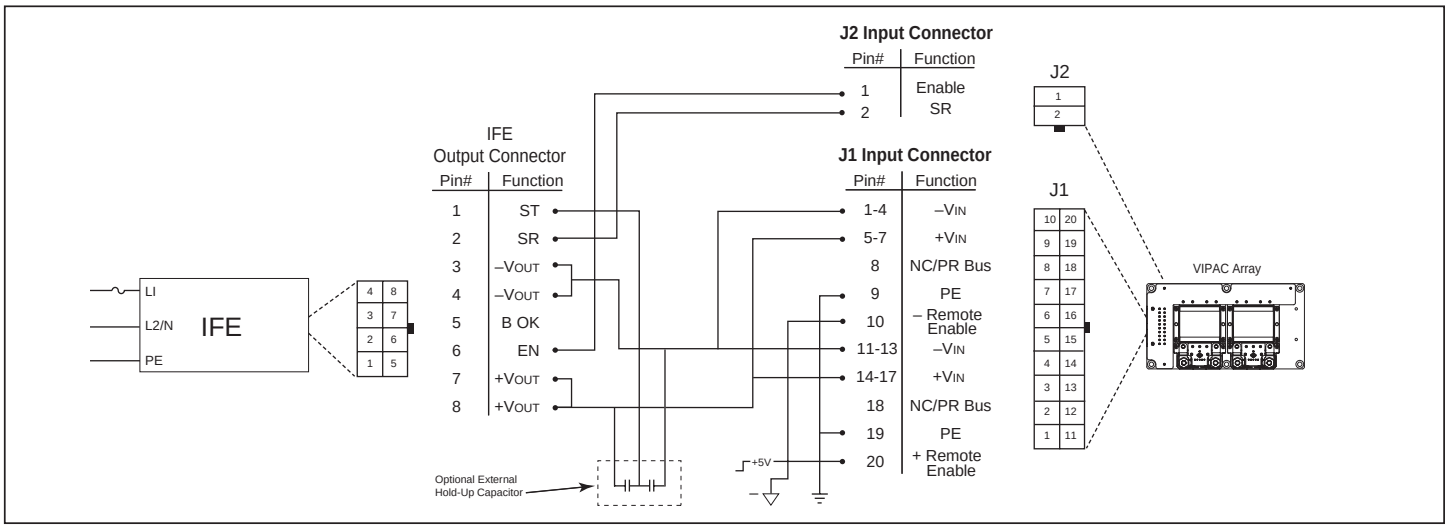
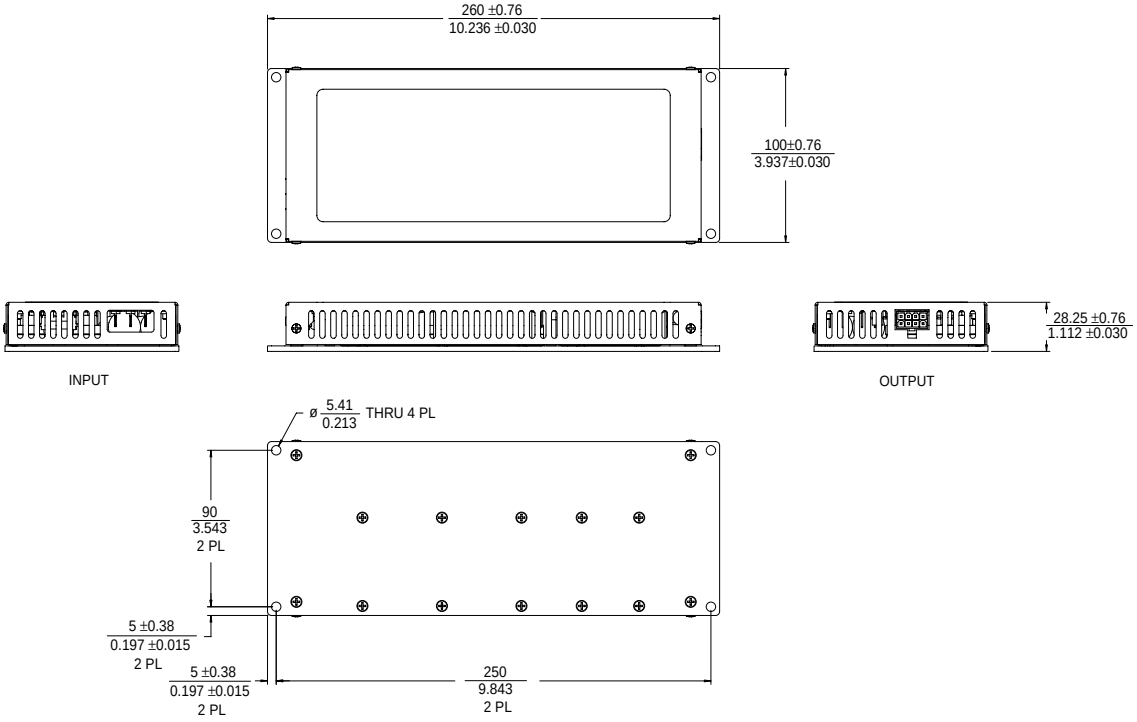


Figure 4*—Connection diagram using IFE with ViPAC Array*

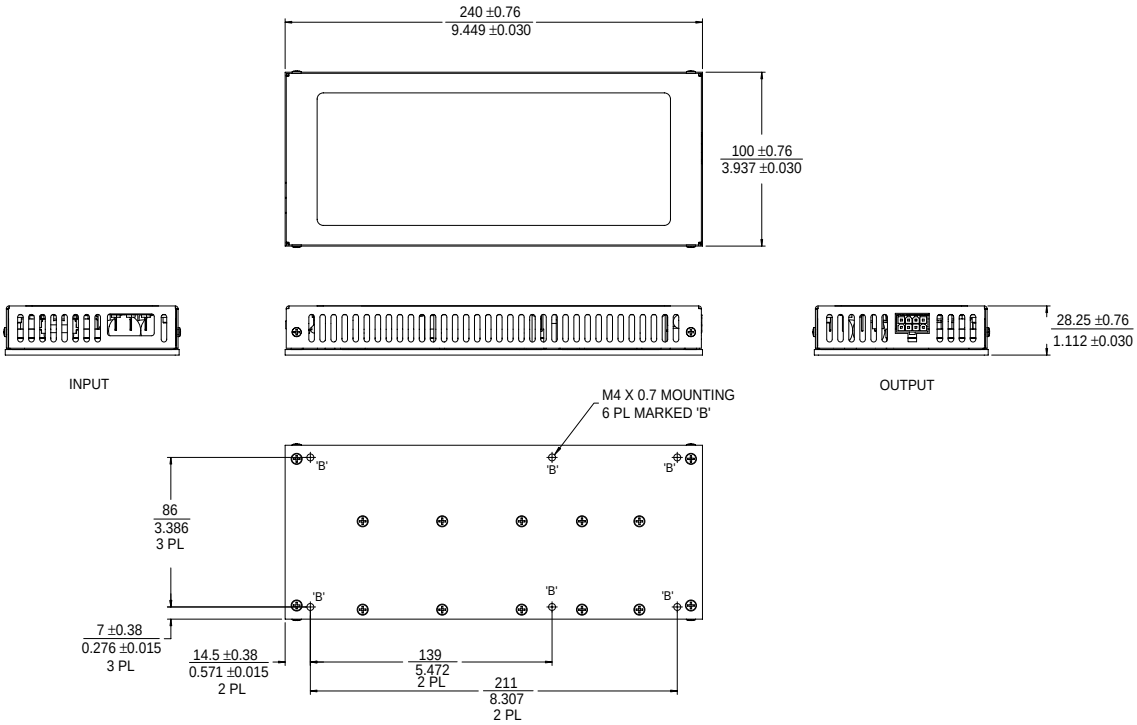
Function	Description	Mating Connector	
		Vicor P/N	Mfg. P/N
IFE Input fuse	5 x 20 mm, 10A fast acting		Wickman Series 194
IFE Input Connector	0.25" male Faston	0.25" insulated receptacle	
IFE Output Connector	8 position AMP Duac		
	Housing	25056	AMP P/N 794657-8
	Pins	24796	AMP P/N1-106529-2
	Kit (Pins & Housing)	25073	
VIPAC Array Input Connector J1	20 position AMP Duac		
	Housing	24795	AMP P/N 2-794657-0
	Pins	24796	AMP P/N 1-106529-0
	Kit (Pins & Housing)	24828	
VIPAC Array Input Connector J2			
	Housing	27866	Molex 39-01-2025
	Pins	27867	Molex 39-00-0039
	Kit (Pins & Housing)	27881	

MECHANICAL DRAWINGS

OUTLINE DRAWING IFE5xx1



OUTLINE DRAWING IFE5xx2



Vicor's comprehensive line of power solutions includes high density AC-DC and DC-DC modules and accessory components, fully configurable AC-DC and DC-DC power supplies, and complete custom power systems.

Specifications are subject to change without notice.

VICOR

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for Your Power System

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