Data Sheet
LoPAC™ Family
PFC Mini, PFC Micro, PFC MicroS
Power Factor Corrected, AC-DC Switchers

Family Features
- Near unity power factor
- EN61000-3-2 harmonic current compliance
- Low profile package
- Output power to 1,500W
- Up to 6 user specifiable outputs
- Universal AC input
- Power density up to 11W/in^3
- Integral cooling fans
- New “Autosense” feature
- Safety agency approvals: UL, CUL, TÜV, VDE, CE Marked



PFC Mini
12.20" x 6.00" x 1.75"
309,9 x 152,4 x 44,5 mm
Up to 1,500W
1 to 6 Outputs

Overview
The PFC MicroS, PFC Micro and PFC Mini are members of the new low profile, high-density LoPAC series of power factor corrected AC-DC power supplies. Available as a one, two or three slot package, respectively, each LoPAC slot can be configured with standard Vicor DC-DC converter modules enabling up to six user specifiable isolated outputs in a package only 1.75" (44.5mm) high with a power density of 11W/in^3.

For maximum versatility and flexibility, the LoPAC can be configured with Vicor 1st Generation VI-26x (full brick), VI-J6x (half brick) or 2nd Generation V375 Series full, half and quarter brick modules. These modules cover the entire range of outputs from 1 to 100Vdc and 25 to 600 Watts. We will factory configure the optimum solution based on your exact requirements.

All units comply with FCC Class A and certain configurations meet FCC & EN55022 Class B for conducted EMI. Harmonic current limits per EN61000-3-2 and Surge Immunity per IEC61000-4-5 Level 3, in addition to a wide variety of safety agency approvals, further enhance the LoPAC flexibility.



PFC Micro
10.40" x 5.06" x 1.86"
264,1 x 128,5 x 47,3 mm
Up to 800W
1 to 6 Outputs



PFC MicroS
7.95" x 5.06" x 1.86"
201,9 x 128,5 x 47,3 mm
Up to 600W
1 to 3 Outputs

DC Output Selections

The versatility of the LoPAC series is due, in large part, to the wide array of Vicor modules available to be configured into the different package formats. Slots can be populated with 1st or 2nd Generation modules in full, half or quarter brick sizes. Vicor's full VI-26x, VI-J6x and V375 standard product matrices are available to choose from. In addition, the full range of non-standard voltages and powers from 1 to 100Vdc and 10 to 600W is also available for inclusion. The table below is just a sampling of some of the most popular standard outputs that can be configured into LoPAC slots.

Output Voltage	Available Power (W) per Package Size						
	Maxi			Mini			Micro
	2nd Gen	1st Gen		2nd Gen	1st Gen		2nd Gen
2Vdc	160	80	60	100	40	30	50
3.3Vdc	264	132	99	150	66	50	75
5Vdc	400	200	150	200	100	75	100
12Vdc	600	200	150	300	100	75	150
15Vdc	600	200	150	300	100	75	150
24Vdc	600	200	150	300	100	75	150
28Vdc	600	200	150	300	100	75	150
48Vdc	600	200	150	300	100	75	150

LoPAC Slot Configurations

The DC-DC converter modules are used to populate each LoPAC converter slot. Each slot can be configured in different ways depending on module sizes and power limitations. The following table summarizes the available slot configurations for each of the three LoPAC packages.

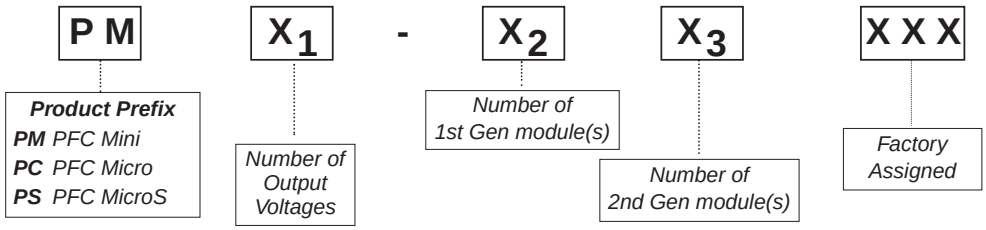
Model Type	# Slots	Maximum Output Power			Modules per Slot
		Total		per Slot	
		@ 230Vac	@ 115Vac		
PFC Mini	3	1,500W	800W	500W	1 Maxi or 2 Minis
PFC Micro	2	800W	500W	600W	1 Maxi or 2 Minis or 3 Micros
PFC MicroS	1	600W	500W	600W	1 Maxi or 2 Minis or 3 Micros

Autosense Feature*

This is a new feature implemented in all converter slots in the LoPAC family. If remote sense connections are not needed or are inadvertently not made, no local sense connections are necessary. Simply connect the output(s) to the load and the converter(s) will automatically operate in the local sense mode. If remote sense connections are made, the unit will operate in remote sense mode.

*Applies to converter slots utilizing Maxi or Mini size converters.

Part Numbering



Performance Specifications

The following are typical performance specifications at room ambient temperature, nominal line voltage (115/230Vac) and 75% load on all outputs, unless specified otherwise. For detail specifications, consult the Design Guide for the LoPAC configuration of interest. This is available from any sales office (see Back Cover) or our web site (vicorpower.com).

INPUT CHARACTERISTICS

Parameter	PFC Mini	PFC Micro	PFC MicroS	Units	Notes
AC Input					
Voltage		85-264		Vac	
Frequency		47-500		Hz	
DC Input	100-380	100-300		Vdc	
Line Regulation		0.4		%	From low line to high line
Inrush Current					
@ 115Vac	30	5		A rms	
@ 230Vac	60	10		A rms	
Ride Through Time		>20		ms	
@ load	1,200	500		W	
Conducted EMI/RFI	FCC Class A	FCC Class A			PFC Mini with 1st Gen units
	EN55022 Class A	EN55022 Class A *(consult factory)*			meets FCC & EN Class B
Power Factor		>0.98			>75% load
Harmonic Current Limits		EN61000-3-2/A14			Class A
Surge Immunity		IEC61000-4-5			Level 3 Performance Criteria B
Dielectric Withstand					
Primary to Chassis GND		2,121		Vdc	
Primary to Secondary		4,242		Vdc	
Secondary to Chassis GND		750		Vdc	

OUTPUT CHARACTERISTICS

Parameter	PFC Mini	PFC Micro	PFC MicroS	Units	Notes
Setpoint Accuracy		0.5		%	of Vnom
Load Regulation		0.05		%	10% to full load
		0.2		%	No load to full load
Temperature Regulation		0.005		%/°C	-20° to +65°C
Long Term Drift		0.02		%/khr	
Output Ripple & Noise					
≤10Vout		100		mV	20 MHz bandwidth
>10Vout		1.0		% Vout	20 MHz bandwidth
Voltage Trim Range					
1st Gen Slots		50-110		% Vout	±10% on 10-15 Vout
2nd Gen Slots		10-110		% Vout	Preload may be required
Remote Sense Compensation		0.5		Vdc	Autosense (See page 2)
OVP Set Point		125		% Vout	Not available on 1st Gen Minis
Current Limit		115		% Imax	Auto recovery

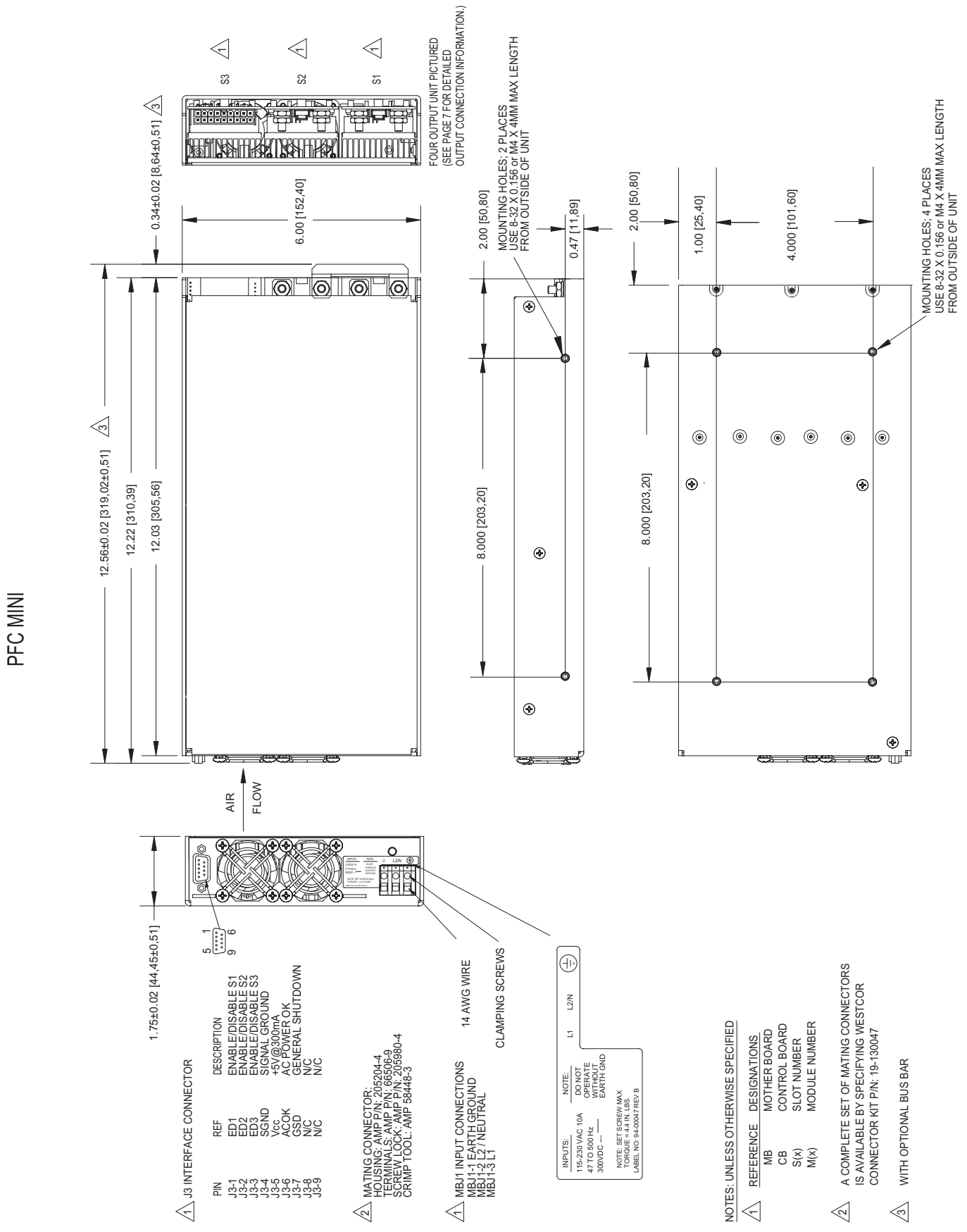
ENVIRONMENTAL CHARACTERISTICS

Parameter	PFC Mini	PFC Micro	PFC MicroS	Units	Notes
Storage Temperature		-40 to +85		°C	
Operating Temperature					
Full Rated Power		-20 to +45		°C	
50% Rated Power		-20 to +65		°C	
Safety Approvals		UL, CUL, TÜV, VDE, CE Marked			

MECHANICAL CHARACTERISTICS

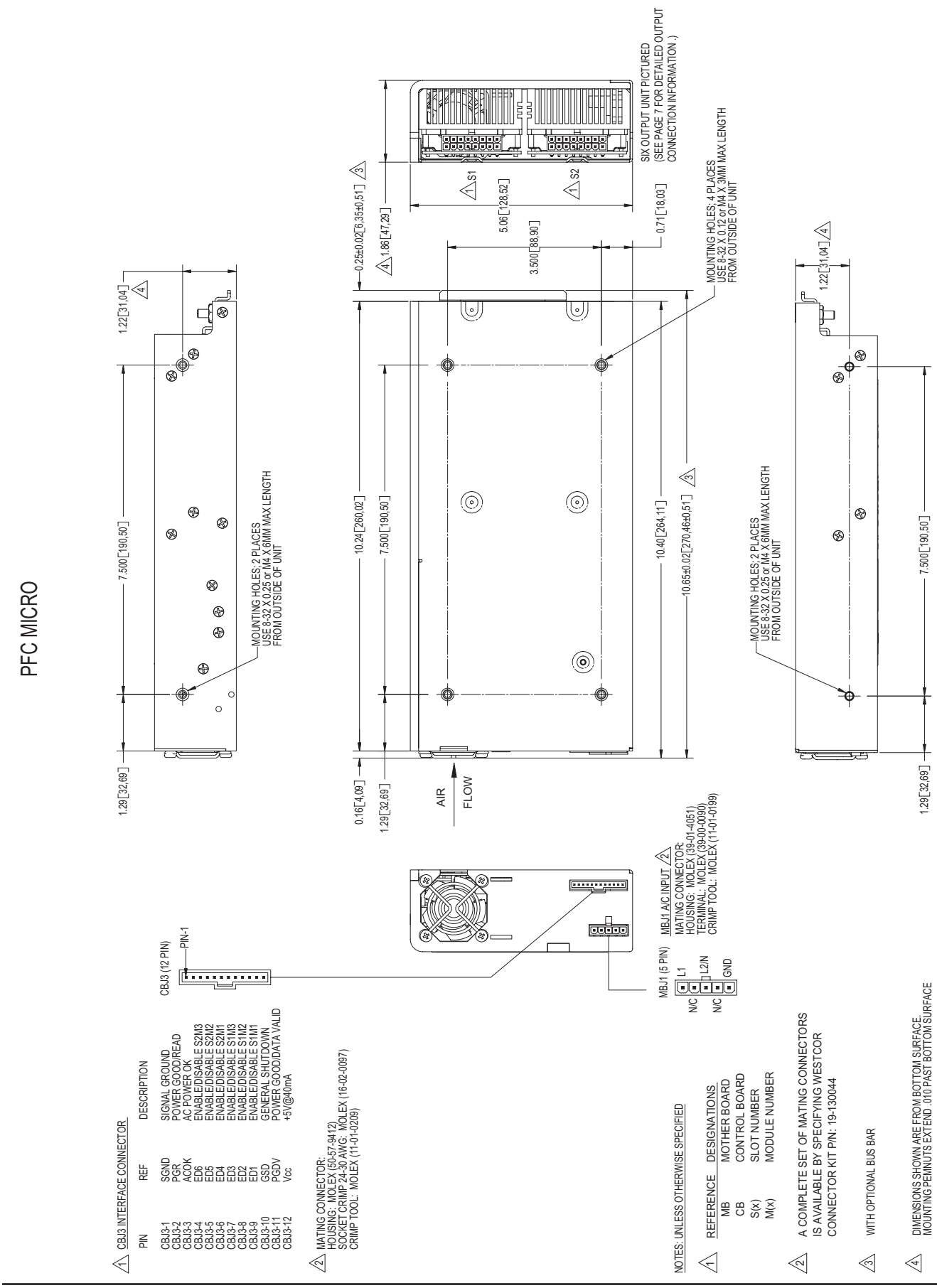
Parameter	PFC Mini	PFC Micro	PFC MicroS	Units	Notes
Weight	5.5	5.2	3.1	lbs	
	2,5	2,4	1,4	kg	
Overall Dimensions	12.20 x 6.00 x 1.75	10.40 x 5.06 x 1.86	7.95 x 5.06 x 1.86	in	L x W x H
	309,9 x 152,4 x 44,5	264,1 x 128,5 x 47,3	201,9 x 128,5 x 47,3	mm	

Mechanical Drawing, PFC Mini



Set your site on VICOR at www.vicorpower.com

Mechanical Drawing, PFC Micro



CBJ3 INTERFACE CONNECTOR

PIN	REF	DESCRIPTION
CBJ3-1	SGND	SIGNAL GROUND
CBJ3-2	PGR	POWER GOOD/READ
CBJ3-3	ACOK	AC POWER OK
CBJ3-4	ED6	ENABLE/DISABLE S2M3
CBJ3-5	ED5	ENABLE/DISABLE S2M2
CBJ3-6	ED4	ENABLE/DISABLE S2M1
CBJ3-7	ED3	ENABLE/DISABLE S1M3
CBJ3-8	ED2	ENABLE/DISABLE S1M2
CBJ3-9	ED1	ENABLE/DISABLE S1M1
CBJ3-10	GSD	GENERAL SHUTDOWN
CBJ3-11	PGDV	POWER GOOD/DATA VALID
CBJ3-12	Vcc	+5V@40mA

2. MATING CONNECTOR:
HOUSING: MOLEX (50-57-9412)
SOCKET CRIMP 24-30 AWG: MOLEX (16-02-0097)
CRIMP TOOL: MOLEX (11-01-0209)

NOTES: UNLESS OTHERWISE SPECIFIED

1. REFERENCE DESIGNATIONS

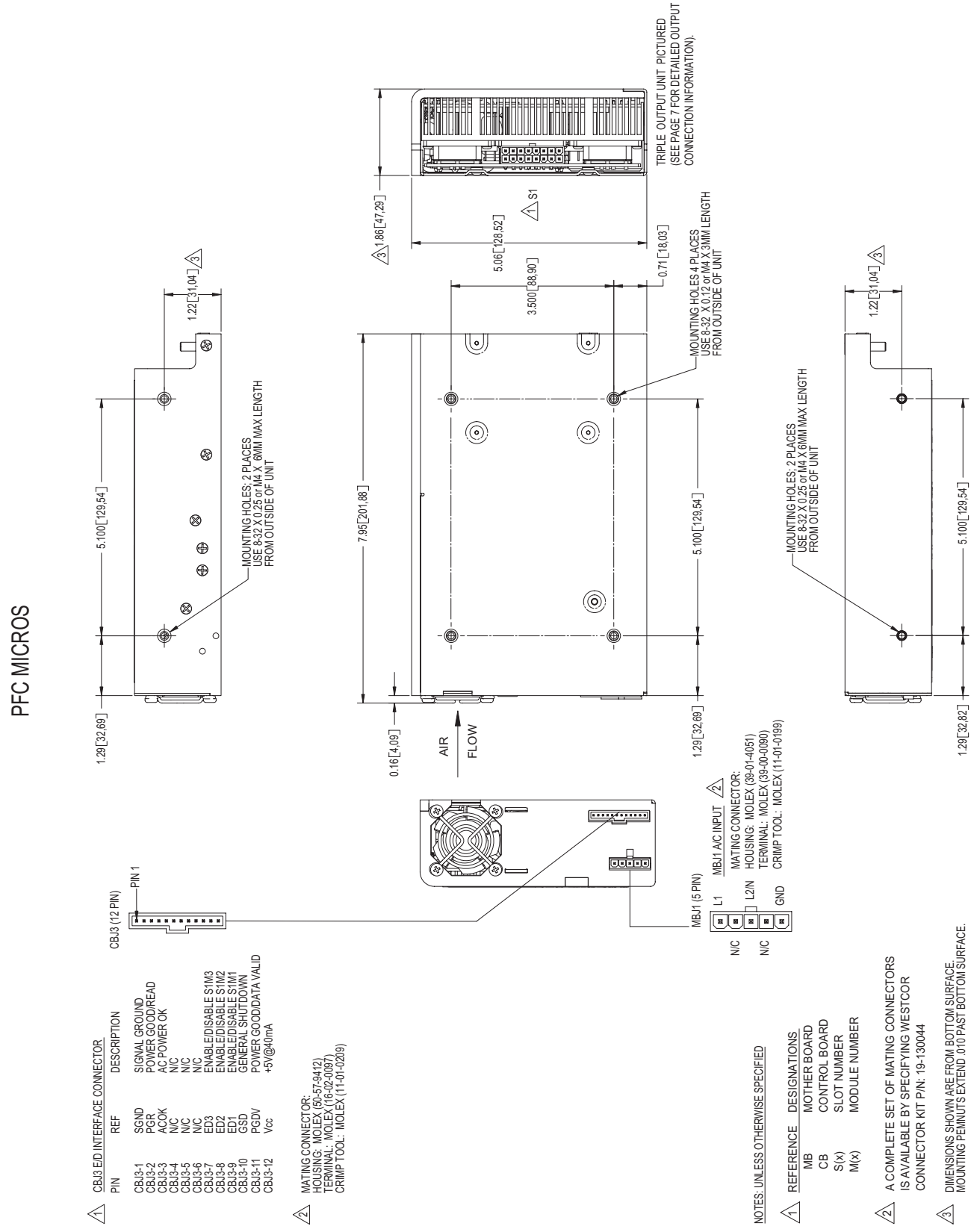
MB	MOTHER BOARD
CB	CONTROL BOARD
S(x)	SLOT NUMBER
M(x)	MODULE NUMBER

2. A COMPLETE SET OF MATING CONNECTORS IS AVAILABLE BY SPECIFYING WESTCOR CONNECTOR KIT P/N: 19-130044

3. WITH OPTIONAL BUS BAR

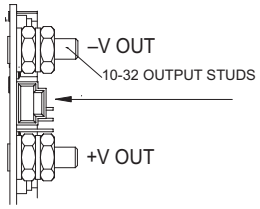
4. DIMENSIONS SHOWN ARE FROM BOTTOM SURFACE
MOUNTING PEMNUTS EXTEND .010 PAST BOTTOM SURFACE

Mechanical Drawing, PFC MicroS



Output Connections for the PFC Mini, PFC Micro and PFC MicroS

A. SINGLE OUTPUT SLOT (1 Maxi)
PFC Mini, PFC Micro and PFC MicroS



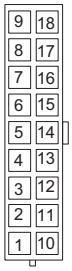
SxJ2 REMOTE SENSE/TRIM PIN CONNECTOR

3	– REMOTE SENSE
2	+ REMOTE SENSE
1	TRIM

MATING CONNECTOR:
HOUSING: MOLEX (50-57-9403)
TERMINAL FEM CRIMP 24-30 AWG: MOLEX (16-02-0103)
USE CRIMP TOOL: MOLEX (11-01-0208)

B. DUAL OUTPUT SLOT FOR THE
PFC MICRO 18 Pin Housing (2 Minis)*

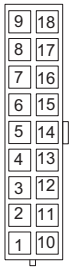
SxJ1 (18 PIN OUTPUT, REMOTE SENSE AND TRIM PIN CONNECTOR)



PIN	DESCRIPTION	PIN	DESCRIPTION
1	+ V OUT M2	10	+ V OUT M2
2	– V OUT M2	11	+ V OUT M2
3	– V OUT M2	12	– V OUT M2
4	+ SENSE M2	13	+ SENSE M1
5	– SENSE M2	14	TRIM M2
6	TRIM M1	15	– SENSE M1
7	+ V OUT M1	16	+ V OUT M1
8	+ V OUT M1	17	– V OUT M1
9	– V OUT M1	18	– V OUT M1

DUAL OUTPUT SLOT FOR THE
PFC MINI 18 Pin Housing

SxJ1 (18 PIN OUTPUT, REMOTE SENSE AND TRIM PIN CONNECTOR)



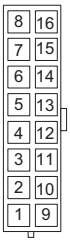
PIN	DESCRIPTION	PIN	DESCRIPTION
1	+ V OUT M1	10	+ V OUT M1
2	– V OUT M1	11	+ V OUT M1
3	– V OUT M1	12	– V OUT M1
4	+ SENSE M1	13	+ SENSE M2
5	– SENSE M1	14	TRIM M1
6	TRIM M2	15	– SENSE M2
7	+ V OUT M2	16	+ V OUT M2
8	+ V OUT M2	17	– V OUT M2
9	– V OUT M2	18	– V OUT M2

*PFC MicroS dual output slot configuration uses the type A stud connection for both outputs. 3-pin connector designators are S1J1 and S1J2.

MATING CONNECTOR:
18 PIN HOUSING: MOLEX (39-01-2180)
TERMINAL FEM CRIMP 18-24 AWG: MOLEX (39-00-0039)
USE CRIMP TOOL: MOLEX (11-01-0197)

C. TRIPLE OUTPUT SLOT (3 Micros)
PFC Micro and PFC MicroS

SxJ1 (16 PIN OUTPUT, REMOTE SENSE AND TRIM PIN CONNECTOR)



PIN	DESCRIPTION	PIN	DESCRIPTION
1	+V OUT M3	9	+V OUT M3
2	–V OUT M3	10	–V OUT M3
3	TRIM M3	11	N/C
4	+V OUT M2	12	+V OUT M2
5	–V OUT M2	13	–V OUT M2
6	TRIM M2	14	TRIM M1
7	+V OUT M1	15	+V OUT M1
8	–V OUT M1	16	–V OUT M1

MATING CONNECTOR:
16 PIN HOUSING: MOLEX (39-01-2160)
TERMINAL FEM CRIMP 18-24 AWG: MOLEX (39-00-0039)
USE CRIMP TOOL: MOLEX (11-01-0197)

The following accessories are available for the LoPAC units:

Connector Kits

A complete set of mating hardware for all combinations of input & output connections

PFC Mini	19-130047
PFC Micro & PFC MicroS	19-130044

Current Share Boards

Used for current sharing between identical LoPAC Models for increased output power or redundancy

LoPACs with 1st Gen Modules	CSB01
LoPACs with 2nd Gen Modules	CSB02

Vicor's comprehensive line of power solutions includes modular, high density DC-DC converters and accessory components, configurable power supplies, and custom power systems.

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Specifications are subject to change without notice.

The latest data is available on the Vicor web site at vicorpower.com.

Westcor, a division of Vicor, designs and builds fan cooled, configurable power supplies incorporating Vicor's high density DC-DC converters and accessory components. Westcor's product line includes:

- **PFC Mini**
- **PFC Micro**
- **PFC MicroS**
- **Autoranging MegaPAC**
- **Mini MegaPAC**
- **PFC MegaPAC**
- **PFC MegaPAC (High Power)**
- **PFC MegaPAC-EL (Low Noise)**
- **3 Phase/4kW MegaPAC**
- **3 Phase/4kW MegaPAC-EL (Low Noise)**
- **ConverterPACs**

See Design Guides for detailed information about all Westcor products. They can be downloaded in PDF format from the website.

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vicorpower.com