



50 to 600 Watts; 1 to 3 outputs

Features

- RoHS Compliant (VE versions)
- Inputs 24, 48, and 300 Vdc
- Any output: 1 to 95 Vdc
- Meets EN55022 Class A conducted emissions (See Notes)
- cULus, cTUVus (60950-1)
- CE marked (LVD)
- 80 – 90% efficiency
- Up to 10 W/cubic inch
- Master disable
- Overvoltage shutdown

Product Highlights

ComPAC delivers up to 600 W from one, two, or three outputs in a package just 0.99" (25,2 mm) in height with the field proven performance, high efficiency and high reliability inherent in Vicor's component level power converters. ComPAC meets conducted emissions of EN55022 Class A. ComPAC is offered with input voltage ranges optimized for industrial and telecommunication applications and provides extended input overvoltage capability, undervoltage lockout, and master disable.

Packaging Options

Conduction Cooled Models Available Add "-CC" to the end of the part number.

(Consult factory for details.)

Extended heat sink available add "-H1" to end of part number.

ComPAC Configuration Chart

Substitute VE- for VI- for RoHS compliant versions			
Configuration	Output Power	# of Modules	Dimensions
Single Output			
VI-LC 	50 – 200 W	1	8.6" x 2.5" x 0.99" (218,4 x 63,5 x 25,2 mm)
VI-MC 	100 – 400 W	2	8.6" x 4.9" x 0.99" (218,4 x 124,5 x 25,2 mm)
VI-NC 	300 – 600 W	3	8.6" x 7.3" x 0.99" (218,4 x 185,4 x 25,2 mm)
Dual Output			
VI-PC 	100 – 400 W	2	8.6" x 4.9" x 0.99" (218,4 x 124,5 x 25,2 mm)
VI-QC 	150 – 600 W	3	8.6" x 7.3" x 0.99" (218,4 x 185,4 x 25,2 mm)
Triple Output			
VI-RC 	150 – 600 W	3	8.6" x 7.3" x 0.99" (218,4 x 185,4 x 25,2 mm)

• Input Voltage

Nominal	Input Range Full Power	Maximum Power ^a	Low Line 75% Max. Power	Transient ^b
1 = 24 V	21 – 32 V	(1)	18	36
W = 24 V	18 – 36 V	(1)	n/a	n/a
3 = 48 V	42 – 60 V	(2)	41	72
N = 48 V	36 – 76 V	(2)	n/a	n/a
6 = 300 V	200 – 400 V	(2)	188	425
^a Max. Output Per Module				
(1)	5 V Outputs	>5 V Outputs	<5 V Outputs	
(2)	150 W	150 W	30 A	
	200 W	200 W	40 A	

^b Transient voltage for one second

• Product Grade Temps. °C

Grade	Operating	Storage
E =	-10 to +85	-20 to +100
C =	-25 to +85	-40 to +100
I =	-40 to +85	-55 to +100
M =	-55 to +85	-65 to +100

Temperatures apply to product case.

• Output Power/Current

V _{OUT} ≥ 5 V	V _{OUT} < 5 V
W = 100 W	W = 20 A
V = 150 W	V = 30 A
U = 200 W	U = 40 A
S = 300 W	S = 60 A
Q = 400 W	Q = 80 A

• Output Voltage

Z = 2 V	2 = 15 V
Y = 3.3 V	N = 18.5 V
O = 5 V	3 = 24 V
X = 5.2 V	L = 28 V
W = 5.5 V	J = 36 V
V = 5.8 V	K = 40 V
T = 6.5 V	4 = 48 V
R = 7.5 V	H = 52 V
M = 10 V	F = 72 V
1 = 12 V	D = 85 V
P = 13.8 V	B = 95 V

• Output Power/Current

V _{OUT} ≥ 5 V	V _{OUT} < 5 V
Y = 50 W	Y = 10 A
X = 75 W	X = 15 A
W = 100 W	W = 20 A
V = 150 W	V = 30 A
U = 200 W	U = 40 A

• Output Power/Current

V _{OUT} ≥ 5 V	V _{OUT} < 5 V
S = 300 W	S = 60 A
P = 450 W	P = 90 A
M = 600 W	M = 120 A

COMPAC SPECIFICATIONS

(typical at $T_{BP} = 25^{\circ}\text{C}$, nominal line and 75% load, unless otherwise specified, V_{NOM} is factory set output voltage and I_{NOM} is maximum rated output current.)

■ INPUT SPECIFICATIONS

Parameter	E-Grade			C-, I-, M-Grade			Unit	Test Conditions
	Min	Typ	Max	Min	Typ	Max		
24 V	21	24	32	21	24	32	Vdc	See Fusing Information on Page 3
24 V Wide	18	24	36	18	24	36	Vdc	
48 V	42	48	60	42	48	60	Vdc	
48 V Wide	36	48	76	36	48	76	Vdc	
300 V	200	300	400	200	300	400	Vdc	
No load power dissipation ^a	1.35		2	1.35		2	Watts	
Master disable input current ^a (Absolute max., 20 mA)	4			4			mA	Sink or source to disable optocoupler (See Section 18 ComPAC Technical Description in VI-200/VI-J00 Applications Manual)
Quiescent Input current logic disable ^a		7	10		7	10	mA	Current drawn from source when disabled

^a For MC, PC series, multiply value by 2; for NC, QC, RC series, multiply value by 3.

■ OUTPUT SPECIFICATIONS (Applies to each output individually)

Parameter	E-Grade			C-, I-, M-Grade			Units	Test Conditions
	Min	Typ	Max	Min	Typ	Max		
Set point accuracy		1%	2%		0.5%	1%	V_{NOM}	
Load / line regulation			0.5%		0.05%	0.2%	V_{NOM}	LL to HL, 10% to full load
Load / line regulation			1%		0.2%	0.5%	V_{NOM}	LL to HL, no load to full load
Output temperature drift		0.02			0.01	0.02	$^{\circ}\text{C}$	Over rated temperature range
Long term drift		0.02			0.02		%/1 k hrs.	
Output ripple								
2 V, 3.3 V			150		60	100	mVp-p	20 MHz bandwidth
5 V			250		100	150	mVp-p	20 MHz bandwidth
10 – 48 V			3%		0.75%	1.5%	V_{NOM} -p	20 MHz bandwidth
Output voltage trimming ^a	50%		110%	50%		110%	V_{NOM}	
Total remote sense compensation ^a	0.5			0.5			Volts	0.25 V maximum allowable drop in –Out lead
OVP set point		125%		115%	125%	135%	V_{NOM}	Recycle power to restart
Current limit	105%		135%	105%		125%	I_{NOM}	Automatic restart
Short circuit current ^b	20%		140%	20%		130%	I_{NOM}	

^a 10 V, 12 V and 15 V outputs, trim range $\pm 10\%$. Consult factory for wider trim range.

^b Output voltages of 5 V or less incorporate foldback current limiting, outputs greater than 5 V incorporate straight line current limiting.

CONFIGURABLE SPECIFICATIONS (Cont.)**■ THERMAL CHARACTERISTICS**

Parameter	E-Grade			C-, I-, M-Grade			Units	Test Conditions
	Min	Typ	Max	Min	Typ	Max		
Efficiency		78 – 88%			80 – 90%			for 5 V outputs and higher
Shut down temp. — case ^a	90	95	105	90	95	105	°C	Cool and recycle power to restart
Operating temp. — case			85			85	°C	See Thermal Curves

^a Shut down temperature threshold is above maximum operating temperature. For over temperature protection, external means of disable should be employed below maximum operating temperature.

■ ISOLATION CHARACTERISTICS

Parameter	E-Grade			C-, I-, M-Grade			Unit	Test Conditions
	Min	Typ	Max	Min	Typ	Max		
Isolation								
Input to output	4,242			4,242			Vdc	
Output to case	707			707			Vdc	
Input to case	2,121			2,121			Vdc	

■ MECHANICAL SPECIFICATIONS

Parameter	E-Grade			C-, I-, M-Grade			Units	Test Conditions
	Min	Typ	Max	Min	Typ	Max		
Weight ^a	19.2			19.2			Ounces	
	544			544			Grams	

^a For MC, PC series, multiply value by 2; for NC, QC, RC series, multiply value by 3.

■ FUSING INFORMATION

Input Voltage	24 V	48 V	300 V
LC series (200 W)	10 A	7 A	2 A
MC, PC series (400 W)	20 A	15 A	4 A
NC, QC, RC series (600 W)	35 A	25 A	6 A

CONFIGURABLE SPECIFICATIONS (Cont.)**■ AGENCY APPROVALS**

Safety Standards	Markings	Notes
ANSI / ISA 12.12.01 - 2012, C22.2 No. 213-M1987 UL / CSA / EN / IEC 60950-1	cURus cURus, cTÜVus, CE Marked	Low Voltage Directive and RoHS Recast Directive as applicable.

■ EMI/EMC Characteristics (Performed on selected samples representative of the ComPac product family.)

Parameter	Notes
Conducted Emissions EN 55022, class A	3 Module configurations may require additional filter components under certain line and load conditions to comply with EN55022 class A.
ESD IEC 61000-4-2 level 4	Top, Bottom and Sides

THERMAL CURVES

■ FREE AIR □ 50 LFM ◆ 100 LFM ◇ 250 LFM ▲ 500 LFM △ 750 LFM ● 1000 LFM

2 V to 7.5 V Output, Standard heat sink



10 V to 95 V Output, Standard heat sink



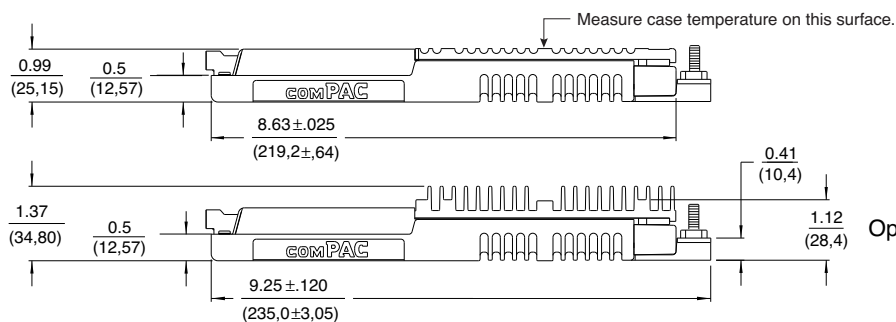
2 V to 7.5 V Output , H1 heat sink



10 V to 95 V Output, H1 heat sink



INPUTS	
1	Ground
2	-Input
3	+Input
4	Disable-
5	Disable+
OUTPUTS	
A	+Output
B	+Sense
C	Trim
D	-Sense
E	-Output



Optional heat sink (H1)

0.18 (4.6)

6.00 (152.4)

2.76 (70.1)

0.91 (23.1)

2.54 (64.5)

0.20 (5.1)

0.20 (5.1)

0.19 (4.8)

2.156 (54.76)

0.150 ± .005 THRU 4 PLACES

Ø3.81 ± 0.13

1000

5-PIN

OUTPUT 1

0

.41 (10.41)

.75 (19.05)

1.14 (28.96)

1.53 (38.86)

2.11 (53.59)

.25 TYP

#8-32 STUD 2 PLACES

[illegible]

Technical drawing of the 1000 Series PCB showing three views: front, top, and side. The front view shows a rectangular board with dimensions 7.380 (187,45) by 4.96 (126,0). The top view shows a larger rectangular board with dimensions 6.00 (152,4) by 7.00 (177,8). The side view shows the board's profile with dimensions 0.18 (4,6) and 0.19 (4,8). The drawing includes various callouts for components, dimensions, and tolerances.

Front View Dimensions:

- Overall width: 7.380 (187,45)
- Overall height: 4.96 (126,0)
- Top section height: 4.42 (112,3)
- Bottom section height: 0.20 (5,1)
- Component callouts: 1, 2, 3, 4, 5

Top View Dimensions:

- Overall width: 6.00 (152,4)
- Overall height: 7.00 (177,8)
- Top section width: 0.18 (4,6)
- Top section height: 0.19 (4,8)
- Bottom section width: 2.288 (58,12)
- Bottom section height: 2.420 (61,47)
- Bottom section width: 2.420 (61,47)
- Bottom section height: 0.150 ± .005 THRU 6 PLACES (ø3,81 ± 0,13)
- Component callouts: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

Side View Dimensions:

- Overall width: 7.00 (177,8)
- Overall height: 0.18 (4,6)
- Top section height: 0.19 (4,8)
- Bottom section height: 2.288 (58,12)
- Bottom section width: 2.420 (61,47)
- Bottom section height: 0.150 ± .005 THRU 6 PLACES (ø3,81 ± 0,13)
- Component callouts: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

Component Callouts:

- 1, 2, 3, 4, 5: Front view component callouts.
- 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100: Top view component callouts.
- 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100: Side view component callouts.

Dimensions and Tolerances:

- 0.18 (4,6)
- 0.19 (4,8)
- 2.288 (58,12)
- 2.420 (61,47)
- 0.150 ± .005 THRU 6 PLACES (ø3,81 ± 0,13)
- 6.00 (152,4)
- 7.00 (177,8)
- 4.96 (126,0)
- 4.42 (112,3)
- 0.20 (5,1)
- 7.380 (187,45)
- 2.76 (70,1)
- 0.25 TYP

Component Callouts:

- 1, 2, 3, 4, 5
- 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
- 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

LONG TERM SAFE OPERATING AREA CURVES

(1% duty cycle max., $Z_s = .5$, for short duration transient capability refer to specifications)



I.S.W.: Input surge withstand, no degradation of performance. **R.E.:** Ratings Exceeded **S.D.:** Shutdown

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