



ComPAC™

DC-DC Switchers

50 to 600 Watts

1-3 Outputs

Features

- Inputs: 24, 48 and 300 Vdc
- Any Output: 1 to 95 Vdc
- High Surge Withstand: Bellcore, British Telecom BTR 2511, IEC-801-5
- EMI/RFI Specifications: Bellcore TR-TSY-000513, British Telecom BTR 2511 FCC/VDE Level "A"
- UL, CSA, TÜV, VDE, BABT
- 80-90% Efficiency
- Up to 10 Watts/Cubic Inch
- Reverse Polarity Protected
- Master Disable
- Overvoltage Shutdown
- "1 Up": 50-200 Watts (single) 8.6" x 2.5" x 0.99"
- "2 Up": 100-400 Watts (single, dual) 8.6" x 4.9" x 0.99"
- "3 Up": 150-600 Watts (single, dual, triple) 8.6" x 7.3" x 0.99"
- CE Marked

Product Highlights

ComPAC meets Bellcore, British Telecom and IEC specifications for transient protection; Bellcore, British Telecom and FCC/VDE specifications for EMI/RFI; and benefits from the proven field performance, high efficiency and inherently high reliability of our VI-200 component-level power converters. With input voltage ranges optimized for industrial and telecommunication applications, ComPAC extended input overvoltage capability, input reverse polarity protection, undervoltage lockout and master disable. In a package just .99" in height, ComPAC delivers up to 600 watts from one, two or three outputs of 1 to 95 Vdc.

ComPAC Configuration Chart

Single Outputs:	VI-LC	□ □ - □ □	50-200W	8.6" x 2.5" x 0.99"
	VI-MC	□ □ - □ □	100-400W	8.6" x 4.9" x 0.99"
	VI-NC	□ □ - □ □	300-600W	8.6" x 7.3" x 0.99"
Dual Outputs:	VI-PC	□ □ □ - □ □ □	100-400W	8.6" x 4.9" x 0.99"
	VI-QC	□ □ □ - □ □ □	150-600W	8.6" x 7.3" x 0.99"
Triple Outputs:	VI-RC	□ □ □ □ - □ □ □ □	150-600W	8.6" x 7.3" x 0.99"

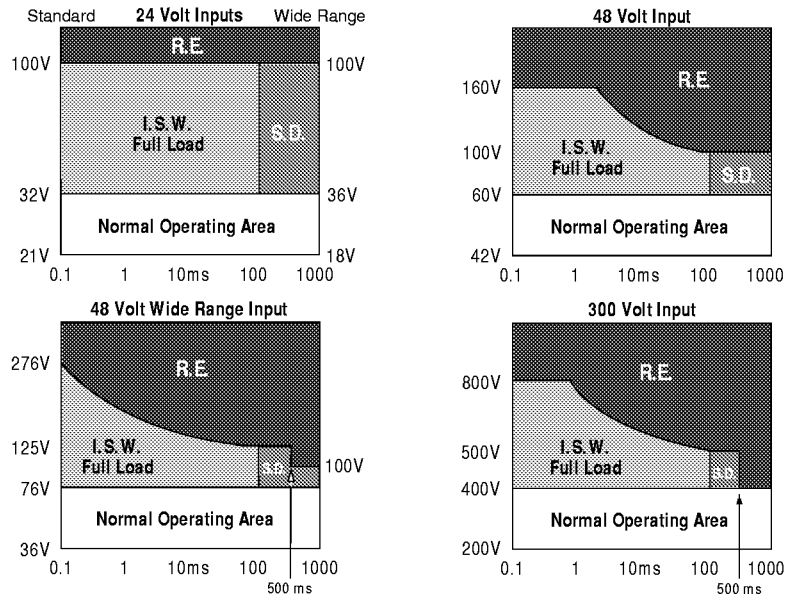
□ Input Voltage		□ Output Voltage		□ Product Grade	
Nominal	Range	Z = 2V	2 = 15V	E = -10°C to +85°C	
1 = 24V	21 - 32V(1)	Y = 3.3V	3 = 24V	C = -25°C to +85°C	
W = 24V	18 - 36V(1)	0 = 5V	L = 28V	I = -40°C to +85°C	
3 = 48V	42 - 60V(2)	M = 10V	4 = 48V	M = -55°C to +85°C	
N = 48V	36 - 76V(2)	1 = 12V			
6 = 300V	200 - 400V(2)	1 to 95V, consult factory.			

□□ Output Power/Current		□□ Output Power/Current		□□ Output Power/Current	
V_{OUT} ≥ 5V	V_{OUT} < 5V	V_{OUT} ≥ 5V	V_{OUT} < 5V	V_{OUT} ≥ 5V	V_{OUT} < 5V
Y = 50W	10A	W = 100W	20A	S = 300W	60A
X = 75W	15A	V = 150W	30A	P = 450W	90A
W = 100W	20A	U = 200W	40A	M = 600W	120A
V = 150W	30A	S = 300W	60A		
U = 200W	40A	Q = 400W	80A		

Max. Output For	5V Outputs	> 5V Outputs	< 5V Outputs
(1)	150W	150W	30A
(2)	200W	200W	40A

Long Term Safe Operating Area Curves

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



I.S.W.: Input Surge Withstand (no disruption of performance). R.E.: Ratings Exceeded. S.D.: Shut Down

ComPAC Specifications

(typical at $T_{BP} = 25^{\circ}\text{C}$, nominal line and 75% load, unless otherwise specified)

PARAMETER	E-Grade			C-, I-, M-Grade			Brownout*	Transient**	UNITS	NOTES
	MIN	TYP	MAX	MIN	TYP	MAX				
Input Characteristics										
24V (21-32V)	21	24	32	21	24	32	18	36	Vdc	
24V Wide (18-36V)	18	24	36	18	24	36	n/a	n/a	Vdc	
48V (42-60V)	42	48	60	42	48	60	36	72	Vdc	
48V Wide (36-76V)	36	48	76	36	48	76	n/a	n/a	Vdc	
300V (200-400V)	200	300	400	200	300	400	170	425	Vdc	
Input surge withstand	Up to 200 mS, $Z_S = .5\Omega$, no interruption of performance, see: Long Term Safe Operating Area Curves)									
Transient specification	24V and 48V Bellcore, British Telecom BTR 2511 300V, IEC 61000-4-5 Level 3									
EMI/RFI	24V and 48V Bellcore TR-TSY-000513, Issue 2, Rev. 1 British Telecom BTR 2511, Iss. 2 300V FCC Pt. 15 Sub. J, Class "A" VDE 0871 Class "A"									
No load power dissipation ³	1.35		2	1.35		2			Watts	
Master disable input current ³ (Absolute max., 20 mA)			4			4			mA	Sink or source into disable optocoupler
Input current logic disable ³		7	10		7	10			mA	Current drawn from source when disabled
Reverse polarity protection										No damage to unit with ext. fuse
Output Characteristics (applies to each output individually)										
Setpoint 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 10%
Output temperature drift		0.02			0.01	0.02			$^{\circ}\text{C}$	Over rated temperature
Long term drift		0.02			0.02				%/1K hours	
Output ripple - pp:										
2V, 3.3V			150 mV		60 mV	100 mV				20 MHz bandwidth
5V			5%		2%	3%				20 MHz bandwidth
12-48V			3%		0.75%	1.5%				20 MHz bandwidth
Output voltage trimming ¹	50%		110%	50%		110%				
Total remote sense compensation	0.5			0.5					Volts	0.25V max. neg. leg
OVP set point		125%		115%	125%	135%			V_{NOM}	Recycle power
Current limit	105%		135%	105%		125%			I_{NOM}	Automatic restart
Short circuit current ²	20%		140%	20%		130%			I_{NOM}	
Isolation Characteristics										
Isolation										
Input to output	=====			4,242	=====				Vdc	
Output to case	=====			707	=====				Vdc	
Input to case	=====			2,121	=====				Vdc	
Thermal Characteristics										
Efficiency	78-88%			80-90%						
Shutdown temperature	90	95	105	90	95	105			$^{\circ}\text{C}$	Cool and recycle power to restart
Operating temperature — case	85			85					$^{\circ}\text{C}$	See Thermal Considerations
Mechanical Specifications										
Weight ³	19.2 (544)			19.2 (544)			Ounces (Grams)			
Fusing Information										
	24V	48V	300V							
1 Up, 200W	10A	7A	2A							
2 Up, 400W	20A	15A	4A							
3 Up, 600W	35A	25A	6A							

* Brownout 75% of rated load.

** Transient voltage for one second.

¹12V and 15V outputs, standard trim range $\pm 10\%$. Consult factory for wider trim range.

²Output voltages of 5 volts or less incorporate foldback current limiting, outputs of 12 volts and above incorporate straight line limiting.

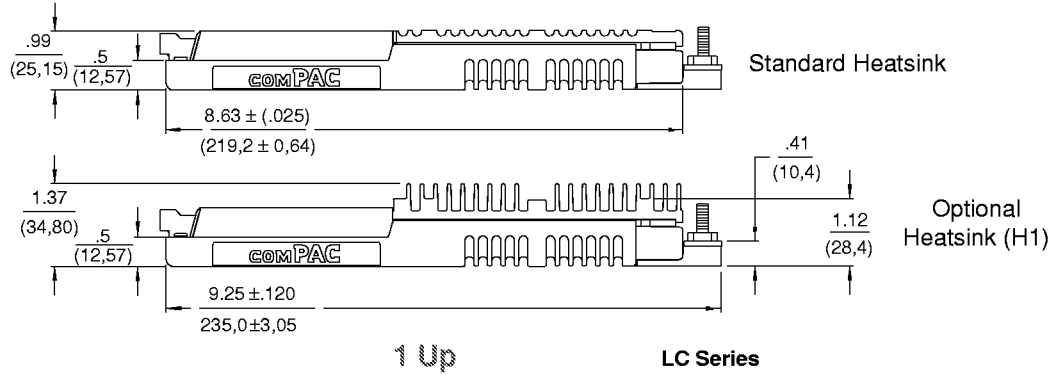
³MC and PC = X2.

Mechanical Drawings

INPUTS	
1	Ground
2	-Input
3	+Input
4	Disable-
5	Disable+

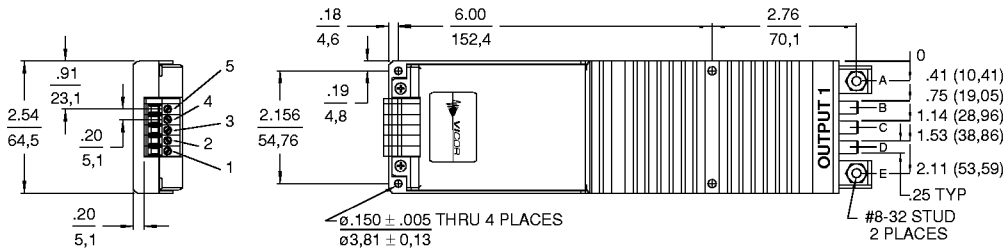
OUTPUTS	
A	+Output
B	+Sense
C	Trim
D	-Sense
E	-Output

All Models



1 Up

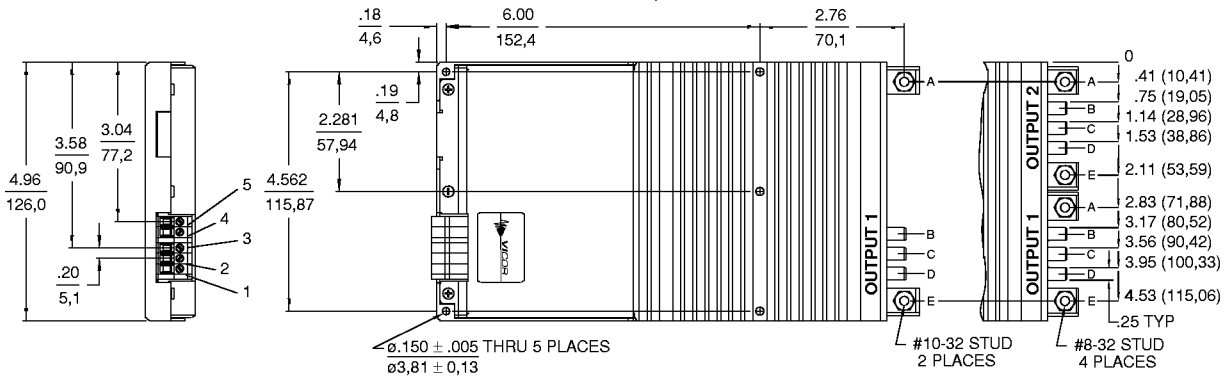
LC Series



2 Up

MC Series

PC Series

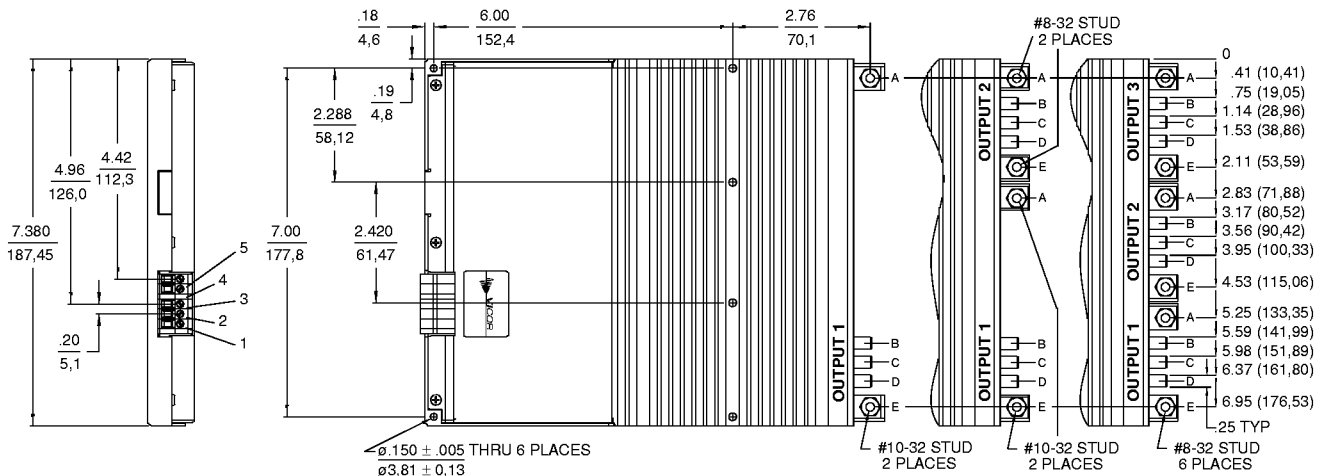


3 Up

NC Series

QC Series

RC Series



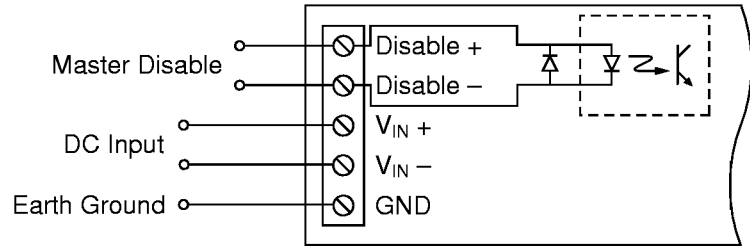
Compatible Products

ComPAC Disable Circuit

VI-200

DC-DC Converters 50 to 200 Watts

- Up to 50 Watts/Cubic Inch
- UL, CSA, TÜV, VDE, BABT, BSI, AUSTEL
- 80-90% Efficiency
- Size: 4.6" x 2.4" x 0.5"
(116,8 x 61,0 x 12,7)
- Remote Sense and Current Limit
- OVP, Thermal Shutdown
- MTBF >30 Million Hours Demonstrated
- CE Marked



ComPAC Thermal Considerations

The VI-200 family of rugged, single output, fully integrated DC-DC converters feature very small size, high efficiency, low cost, high reliability and modular expandability. Based on a unique, patented "zero-current-switching" circuit topology, VI-200s provide a competitive advantage to power system designers valuing small size and high product functional density.

Thermal Impedance — Case-to-Air (°C/Watt)						
	Standard Units			With Optional Heatsink (add suffix -H1)		
	1-Up	2-Up	3-Up	1-Up	2-Up	3-Up
Free Air (Horiz.)	3.6	1.7	1.4	2.1	1.3	1.0
Forced Convection Through Heatsink Fins						
50 LFM	2.7	1.4	1.3	1.5	1.1	0.9
100 LFM	2.3	1.3	1.1	1.2	0.9	0.7
250 LFM	1.6	1.0	0.8	0.7	0.5	0.4
500 LFM	1.2	0.7	0.6	0.4	0.3	0.3
750 LFM	0.9	0.5	0.5	0.3	0.2	0.2
1000 LFM	0.8	0.4	0.4	0.2	0.2	0.2

VI-IAM

Input Attenuator Modules

- Inputs: 24, 48 and 300 Vdc
- Output Power: Up to 500 Watts
- 97% Efficiency
- Size: 2.28" x 2.4" x 0.5"
(57,9 x 61,0 x 12,7)
- Transient Protection:
Bellcore, British Telecom, IEC
- EMI/RFI: Bellcore, British Telecom,
FCC/VDE
- UL, CSA, TÜV, VDE, BABT
- CE Marked

- Thermal impedance, chassis-to-air, is provided for 1 up, 2 up and 3 up ComPAC package configurations as a function of air flow.
- Case temperature = total power dissipated x thermal impedance + ambient temperature.
- Watts dissipated per output = output power ÷ efficiency – output power.

The VI-IAM is an accessory product that provides EMI/RFI filtering and transient protection. Several Vicor converters may be operated from the output of one IAM, and arrays of IAMs and converters may be paralleled for expansion. The IAM also provides output overcurrent limiting by foldback with latched shutdown in the event of long duration output overcurrent or short circuit.

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