The viper family is an M-COTS, low profile, fully compliant base plate cooled ACDC power supply with a fully regulated output of up to 600W.

Designed for harsh military applications, the units are available with a wide 85 to 264V AC input, 50 to 400Hz with true electronic PFC, and considerable immunity to surges and transients presented by poor mains supplies and diesel generators.

Integral EMC filtering to MIL-STD 461 and surge protection to MIL-STD 461F, CE102 & EN55022 Level B and surge protection to harsh EN61000 specifications make it an excellent choice for 'fit and forget' applications.

- Wide AC input range; 85V to 264V AC

- 50 to 400Hz input frequency

- True electronic PFC >0.99

- Fully regulated output power over the full input range

- Efficiency up to 85% (typical)

- Fully conduction cooled

- 3 year warranty

- Temperature signal for system monitoring

- Over temperature shut down at 110C with automatic restart

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Part Number Characteristics; 50W to 300W

Part Number	Output Power	Input Voltage Range	Output Voltage	Output Load regulation	Max Output Current	Output Ripple & Noise pk-pk	Current Limit Set Point	Efficiency (Typical at full load)
VIPER50M-PFC-S5	50W	85 – 264V AC	5V DC	0.15%	10A	80mV	110%-140%	81%
VIPER50M-PFC-S12	50W	85 – 264V AC	12V DC	0.15%	4.2A	120mV	110%-140%	84%
VIPER50M-PFC-S24	50W	85 – 264V AC	24V DC	0.15%	2.1A	120mV	110%-140%	86%
VIPER150M-PFC-S12	150W	85 – 264V AC	12V DC	0.2%	12.5A	275mV	110%-140%	86%
VIPER150M-PFC-S24	150W	85 – 264V AC	24V DC	0.2%	6.25A	135mV	110%-140%	86%
VIPER150M-PFC-S36	150W	85 – 264V AC	36V DC	0.2%	4.17A	100mV	110%-140%	86%
VIPER150M-PFC-S48	150W	85 – 264V AC	48V DC	0.2%	3.13A	113mV	110%-140%	86.3%
VIPER300M-PFC-S12	300W	85 – 264V AC	12V DC	0.2%	28.8A	280mV	110%-140%	89%
VIPER300M-PFC-S24	300W	85 – 264V AC	24V DC	0.2%	14.4A	494mV	110%-140%	88%
VIPER300M-PFC-S36	300W	85 – 264V AC	36V DC	0.2%	8.33A	280mV	110%-140%	86.9%

Part Number Characteristics; 600W

Part Number	Output Power	Input Voltage Range	Output Voltage	Output Load regulation	Max Output Current	Output Ripple & Noise pk-pk	Current Limit Set Point	Efficiency (Typical at full load)
VIPER600M-PFC-S12	600W	85 – 264V AC	12V DC	0.2%	50A	320mV	110%-140%	89%
VIPER600M-PFC-S24	600W	85 – 264V AC	24V DC	0.2%	25A	100mV	110%-140%	87.8%
VIPER600M-PFC-S28	600W	85 – 264V AC	28V DC	0.2%	21.43A	120mV	110%-140%	87.8%
VIPER600M-PFC-S36	600W	85 – 264V AC	36V DC	0.2%	16.67A	250mV	110%-140%	88.6%
VIPER600M-PFC-S48	600W	85 – 264V AC	48V DC	0.2%	12.5A	100mV	110%-140%	88.5%

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Part Number Configuration

VIPER 300 M - PFC - S 28 - M

Output Power:
50 = 50W
150 = 150W
300 = 300W
600 = 600W

Operating Temp:
M = -46C to +100C
X = -55C to +100C

Ruggedisation:
M = Military

Output Voltage:
5 = 5V DC
12 = 12V DC
24 = 24V DC
28 = 28VDC
36 = 36V DC
48 = 48V DC

PFC:
PFC =true
electronic PFC

No of Outputs:
S = Single
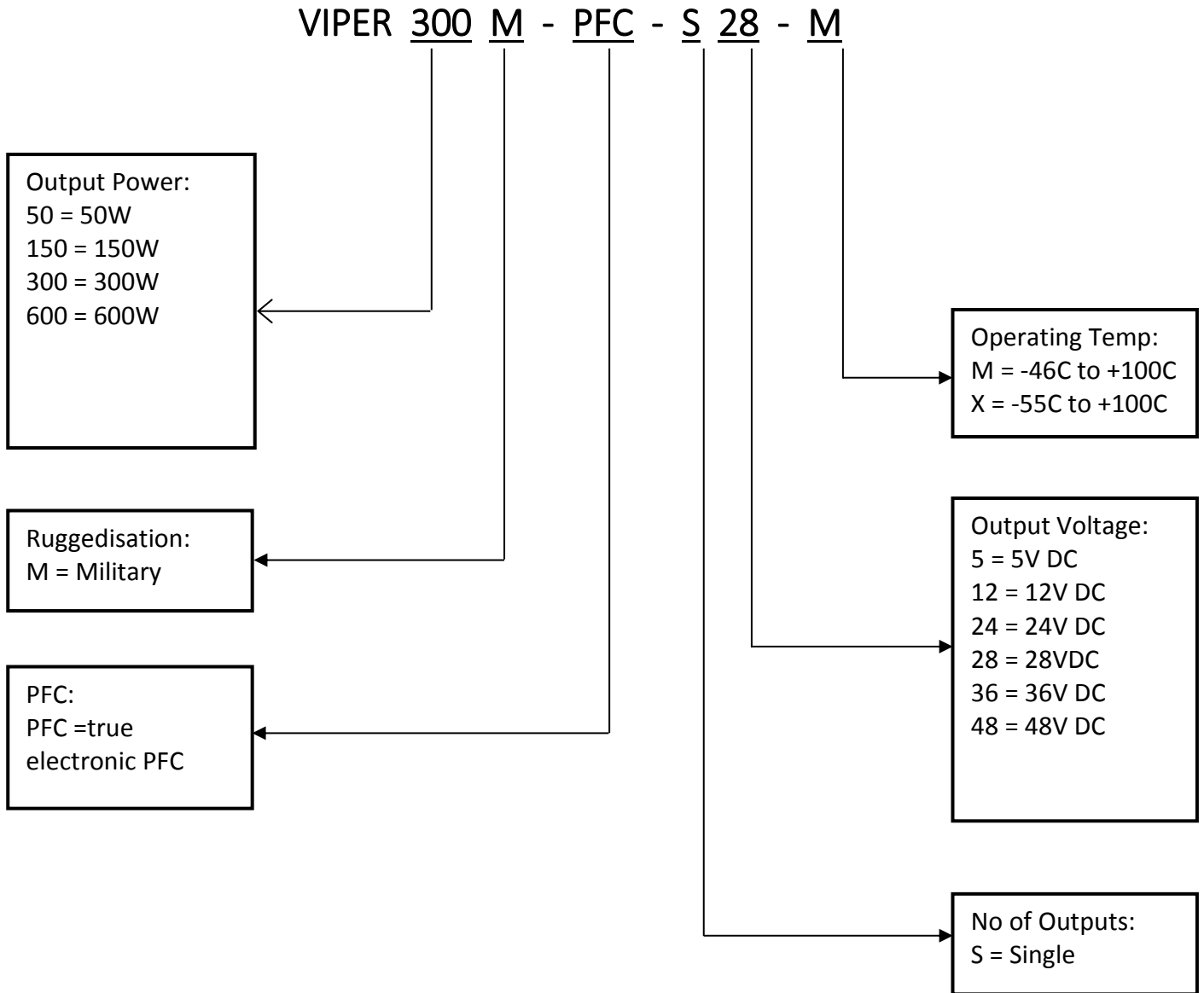
All output voltages can be factory adjusted to your specific required voltage. Please contact your sales advisor for more information.

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Environmental Specifications

Shock:	DO-160G Shock ±6g, 11ms in any direction
	BS EN60068-2-27 15g shock 11ms ½ sine
Vibration:	DO-160G Section 8 Procedure 8.7.2 Test Level C1
Operating Humidity:	DO-160G Section 6 category B; 90%
Operating Temperature:	-46C to +100C Standard
	-55C to +100C Option X
Storage Temperature:	-55C to +125C Standard
	-65C to +125C option X
Operating Altitude:	+51,000ft
	-1,500ft
Over-temperature Shutdown:	+110C, automatic restart at 95C
Cooling:	Conduction cooled through base plate
RoHS:	Directive 2002-95-EC
WEEE:	Directive 2002-96-EC
REACH:	EU-1907-2006
HAZMAT compliant	
Design Lifetime:	Units are designed for minimum 15 years' service life, and the unit does not contain any components that require periodic maintenance

EMC

Safety Approvals:	EN60950-1:2006
Emissions:	MIL-STD 461F
	DEF-STAN 59-411 with additional filter
ESD Immunity:	EN61000-4-2, Level 3
Radiated Immunity:	EN61000-4-3, 10V/m, Level 3 Performance criteria A
Surge:	EN61000-4-5, Installation class 3, Performance criteria A
Conducted Immunity:	EN61000-4-6, 10V RMS, Performance criteria A

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Standard Signals and Indicators

Global Disable – Turns off the main output

Regulated Output Disable – Turns off the main regulated output, reference output 0V

Remote Sense – to compensate for output voltage drops in cables (compensation up to 0.5V across the leads

Global PSU OK – Floating open collector: Closed = PSU OK, Open = PSU FAIL

Global AC OK – Floating open collector: Closed = AC OK, Open = AC FAIL

Base plate Temperature Signal – Provides an accurate voltage proportional to the internal PSU temperature. This signal can be used to warn of potential over temperature situation that may be the result of a system cooling failure, vastly improving the up-time of a system.

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Connections & Pinouts

CN1 Main Input

Mating half Anderson Power Pole connector x3

1327 G5	(Green Housing – Earth)
1327 G8	(Blue Housing – Neutral)
1327 G21	(Brown Housing – Live)
1335 G1	(High Power (45A) Vertical Mount Contact)

CN2 Main Output Connector

Pair of M4 studs for connecting + & - Output

CN3 Output Signals Connector

PCB (B10B-PHDSS) mating half is PHDR-10VS housing, crimps SPHD-001T-P0.5

1 AC OK – (emitter of an opto isolator 20mA max) Short = AC OK

2 Remote sense negative (trim 0.5V max) – (not fitted on chassis type A)

3 AC OK + (collector of an opto isolator 20mA max) Short = AC OK

4 Remote sense positive (trim 0.5V max)

5 DC OK - (emitter of an opto isolator 20mA max) Short = DC OK

6 DC OK + (collector of an opto isolator 20mA max) Short = DC OK

7 n/c

8 Base plate temperature signal (23 deg C = 580mV),
   referenced to the output 0V VO = (+6.25 mV/°C × T °C) + 424 mV

Temperature (T)	Typical VO
+125°C	+1205 mV
+100°C	+1049 mV
+25°C	+580 mV
0°C	+424 mV
-25°C	+268 mV
-40°C	+174 mV

9 Output disable (+) (5v applied across this pin and pin 10 disables the regulated output)

10 Output disable – (used in conjunction with pin 9)
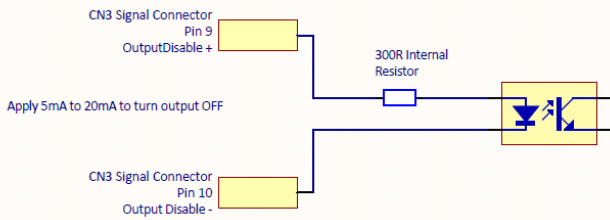
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Application Notes for Signals

Output Disable

CN3 Signal Connector
Pin 9
OutputDisable +

Apply 5mA to 20mA to turn output OFF

300R Internal
Resistor

CN3 Signal Connector
Pin 10
Output Disable -

Apply a potential to the input pins in excess of 5mA to turn unit off
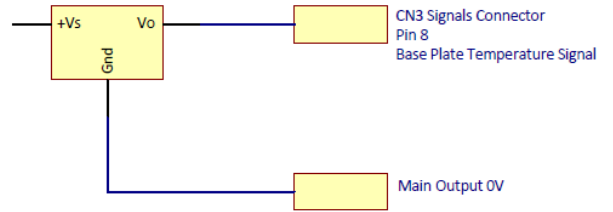
Example 1
5V supply

Target I = 10mA
R=300R
I=(Vsupply-2V) / 300
I=0.01A or 10mA

In this example the internal 300 ohms resistor is adequate and 5V can be applied straight to the disable pins

Example 2
28V supply

Target I = 10mA

R = (V supply - 2V) / 10mA
R = (28 - 2) / 10mA
R = 2,600 ohms
R = 2K6R - 300R = 2,300R

An external current limit resistor of 2K3 in series with a 28V rail

Temperature output

+Vs   Vo
Gnd

CN3 Signals Connector
Pin 8
Base Plate Temperature Signal

Main Output 0V

This signal is referenced to the Zero Volt output.

A current of < 1mA can be driven from this device

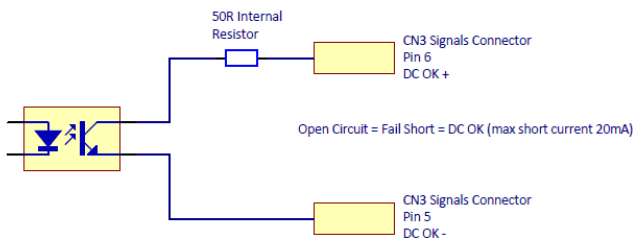The Formula to calculate temperature is

$T = (VO - 424mV) / 6.25mV$

Example 1
Where VO = 580mV

$T = (580 - 424) / 6.25$
$T = 25C$

Example 2
Where VO = 1049mV

$T = (1049 - 424) / 6.25$
$T = 100C$

DC OK

50R Internal
Resistor

CN3 Signals Connector
Pin 6
DC OK +

Open Circuit = Fail Short = DC OK (max short current 20mA)

CN3 Signals Connector
Pin 5
DC OK -

Both these pins are isolated so can pe tied to any rail to achieve a signal

50R Internal
Resistor

CN3 Signals Connector
Pin 6
DC OK +

VS+

CN3 Signals Connector
Pin 5
DC OK -

2   1   "R"   VS-
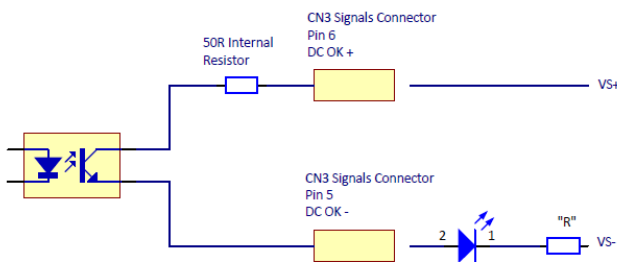
The above circuit shows how an LED can be driven from the DC OK signal

Example
VS+ is 12V, VS- is 0V
LED current is 20mA, LED voltage is 2V
"R" = (12-2) / 20mA
"R" = 10 / 0.02
R = 500 ohms
Placing a 500 ohm resistor in series with a 20mA LED will provide a DC OK

LED ON = DC OK   OFF = DC Fail

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