Enclosed Model ("F" Suffix)

Size: 8.84in x 4.49in x 1.61in
(224.5mm x 114mm x 41mm)

Enclosed with Fan ("E" Suffix)

Size: 7.80in x 4.49in x 1.61in
(198mm x 114mm x 41mm)

OPTIONS

- Package Type
  - Enclosed
  - Enclosed with Fan

FEATURES

- Universal Input Voltage of 90-264VAC
- High Efficiency
- Active PFC Function
- Operating Altitude 5000M
- Standby 5V@1A with Fan (Both Models) and @0.4A without Fan ("E" Models)
- 3 Year Warranty
- "E" Models offer 650W with Natural Convection, 800W with Conduction Cooling, and 1300W with 40CFM Forced Air
- I/O Isolation 4250VAC
- Over Power, Over Voltage, Over Temperature, and Short Circuit Protection
- Over Voltage Category OVC III
- Safety Approvals to UL/IEC/EN 62368-1

DESCRIPTION

The PSAFR1300 series of AC/DC ITE switching power supplies offers up to 1300 watts of output power in an enclosed package. This series consists of single output models with an input voltage range of 90-264VAC. Each model in this series has over power, over voltage, over temperature and short circuit protection, high efficiency, and active PFC function. This series has safety approvals to UL/IEC/EN 62368-1.

MODEL SELECTION TABLE

Enclosed Models

Model Number	Input Voltage Range	Output Voltage	Max. Output Current		Ripple & Noise[1]	Max. Output Power[2]		Maximum Capacitive Load	Efficiency
			@115VAC	@230VAC		@115VAC	@230VAC		
PSAFR1300-12SF	90-264VAC	12V	83.4A	91.6A	160mV	1000W	1100W	7000uF	90.5%
PSAFR1300-24SF		24V	54.1A	54.1A	1% Vout	1300W	1300W	3500uF	92.5%
PSAFR1300-48SF		48V	27.1A	27.1A	1% Vout	1300W	1300W	1750uF	93%

MODEL SELECTION TABLE

Enclosed Models with Fan

Model Number	Input Voltage Range[1]	Output Voltage	Max. Output Current						Ripple & Noise[1]	Max. Output Power[2]						Maximum Capacitive Load	Efficiency
			40CFM Fan		Conduction Cooling		Natural Convection			40CFM Fan		Conduction Cooling[3]		Natural Convection			
			115 VAC	230 VAC	115 VAC	230 VAC	115 VAC	230 VAC		115 VAC	230 VAC	115 VAC	230 VAC	115 VAC	230 VAC		
PSAFR1300-12SE	90-264VAC	12V	83.4A	91.6A	54.1A	58.3A	41.6A	45.8A	160mV	1000W	1100W	650W	700W	500W	550W	7000uF	90.5%
PSAFR1300-24SE		24V	54.1A	54.1A	29.1A	33.3A	14.5A	16.6A	1% Vout	1300W	1300W	700W	800W	500W	650W	3500uF	91%
PSAFR1300-48SE		48V	41.6A	45.8A	20.8A	27.1A	10.4A	13.5A	1% Vout	1300W	1300W	700W	800W	500W	650W	1750uF	92%

SPECIFICATIONS

All specifications are based on 25°C After Warm-Up Time, Normal Input Voltage, and Full Load unless otherwise noted.
We reserve the right to change specifications based on technological advances.

SPECIFICATION	TEST CONDITIONS	Min	Typ	Max	Unit
INPUT SPECIFICATIONS					
Input Voltage Range[2]		90		264	VAC
Input Frequency		47		63	Hz
Inrush Current	@115VAC, <2ms, Cold Start			70	A
	@230VAC, <2ms, Cold Start			105	
Leakage Current	264VAC, Touch Current			0.75	mA
Input Current	@115VAC, Full Load			14	A
	@230VAC, Full Load			7	
Leakage Current	@264VAC (Touch Current)			1.5	mA
Power Factor	@230VAC, Full Load	0.9			
OUTPUT SPECIFICATIONS					
Output Voltage		See Table			
Voltage Accuracy			±2		%
Line Regulation	100~264VAC		±1		%
Load Regulation	10-100%		±1		%
Voltage Adjustment Range			±5		% Output Voltage
Max. Output Power		See Table			
Max. Output Current		See Table			
Maximum Capacitive Load		See Table			
Ripple & Noise[1]	10-100% Typ.	See Table			
Hold-Up Time	@115VAC, measured at 90% Vout	3			ms
Temperature Coefficient	0~50°C		±0.03		%/ºC
	Other		±0.06		
PROTECTION					
Short Circuit Protection	Protection Level 1 (nominal)	Continuous, Auto Recovery			
	Protection Level 2 (Instantaneous High Current)	Latch			
Over Power Protection		Automatic Recovery			
Over Voltage Protection		Automatic Recovery			
Over Temperature Protection		Automatic Recovery			
ENVIRONMENTAL SPECIFICATIONS					
Operating Temperature	With Derating	-30		+70	ºC
Storage Temperature		-30		+85	ºC
Altitude During Operation	OVC II		5000		m
	OVC III		2000		
Humidity				95	% RH
Vibration	10~500Hz, 2G 10min/1cycle, 60 min. each along X, Y, Z axes	IEC60068-2-6			
Shock		IEC60068-2-27			
MTBF	@25ºC, MIL-HDBK-217F	100,000			Hours
GENERAL SPECIFICATIONS					
Efficiency	@230VAC	See Table			
Isolation[5]	Input-Output	4250VAC or 6000VDC			
	Input-PE	2850VAC or 4000VDC			
	Output-PE	1500VAC or 2121VDC			
5V Standby	Tolerance ±10% — With Fan (All Models)	5V@1A			
	Tolerance ±10% — Without Fan (“E” Models)	5V@0.4A			
DC OK Signal (Power Good)	Turn ON	3.7		5.7	V
	Turn OFF	0		1	
Remote Control	+RC/-RC	Power ON= Open, Power OFF=Short			
PHYSICAL SPECIFICATIONS					
Weight	“F” Models	3.20lbs (1450g)			
	“E” Models	2.98lbs (1350g)			
Dimensions (L x W x H)	Tolerance ±0.5mm — “F” Models	8.84in x 4.49in x 1.61in (224.5mm x 114mm x 41mm)			
	Tolerance ±0.5mm — “E” Models	7.80in x 4.49in x 1.61in (198mm x 114mm x 41mm)			
Cooling Method	“E” Models	Natural Convection/Conduction Cooling/40CFM Fan			

SPECIFICATIONS

All specifications are based on 25°C After Warm-Up Time, Normal Input Voltage, and Full Load unless otherwise noted.
We reserve the right to change specifications based on technological advances.

SPECIFICATION	TEST CONDITIONS			Min	Typ	Max	Unit
SAFETY CHARACTERISTICS							
Safety Approvals							UL/IEC/EN 62368-1[6]
EMC	Conducted EMI[7]		EN55032				Class B
	Radiated EMI[7]		EN55032				Class B
EMS	EN55035						
	ESD	IEC 61000-4-2	Air ±15KV, Contact ±8KV				A
	RS	IEC 61000-4-3	3V/m				A
	EFT/B	IEC 61000-4-4	±4KV				A
	Surge	IEC 61000-4-5	±4KV (L/N-PE)				A
	CS	IEC 61000-4-6	3Vrms				A
	PFMF	IEC 61000-4-8	1A/m				A
	Dips	IEC 61000-4-11	70% 500ms				A
	Interruptions	IEC 61000-4-11	<5% 5000ms				B

NOTES

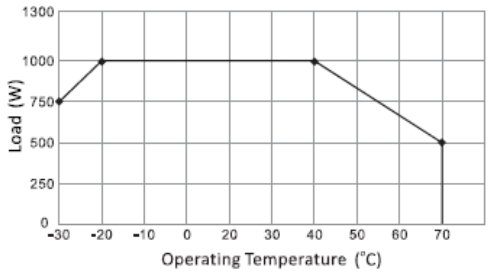
1. Ripple & Noise are measured at 20MHz of bandwidth by using a 6” twisted pair-wire terminated with a 0.1uF & 47uF parallel capacitor.
2. Check derating curve for more details.
3. Size of the suggested aluminum plate is shown below. The aluminum plate must have an even and smooth surface (or coated with thermal grease) for optimizing thermal performance. This series must be firmly mounted at the center of the aluminum plate. 650mm x 650mm x 3.0mm
4. Due to varying customer application conditions, the product is tested for maximum operating temperature under full load only. For other regulatory requirements, please contact factory.
5. It is strongly recommended to conduct this test with DC voltage. If customer wishes to test with AC voltage, please disconnect all Y-capacitors from supply.
6. This product is Listed to applicable standards and requirements by UL.
7. For optimal EMI performance, the power supply should be mounted to a grounded aluminum plate (650 x 650 x 3mm) with electrical contact to the four PCB mounting holes. To comply with safety standards, this plate must be grounded.

CAUTION: Double pole, neutral fusing. Disconnect mains before servicing.

**Due to advances in technology, specifications subject to change without notice.*

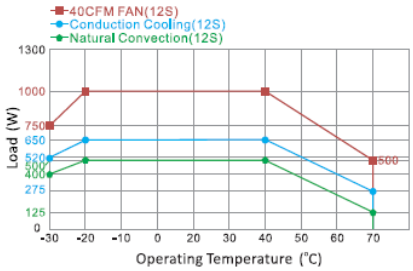
DERATING CURVES

PSAFR1300-12SF at 115-197Vin
Derating Output Load vs. Operating Temperature



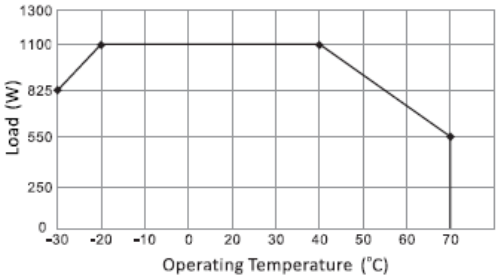
If input voltage is lower than 115VAC, please refer to the output derating vs input voltage curve for details

PSAFR1300-12SE at 115-197Vin
Derating Output Load vs. Operating Temperature

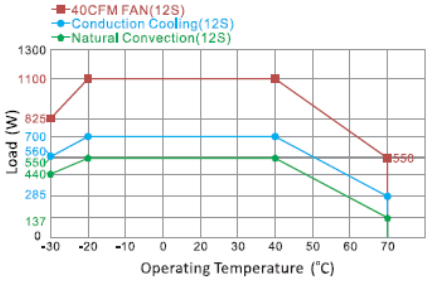


If input voltage is lower than 115VAC, please refer to the output derating vs input voltage curve for details

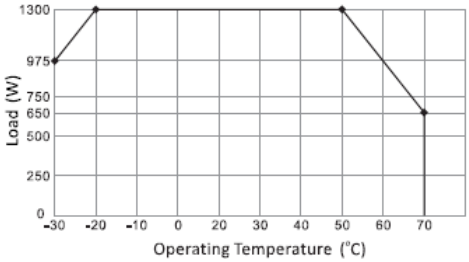
PSAFR1300-12SF at 198-264Vin
Derating Output Load vs. Operating Temperature



PSAFR1300-12SE at 198-264Vin
Derating Output Load vs. Operating Temperature

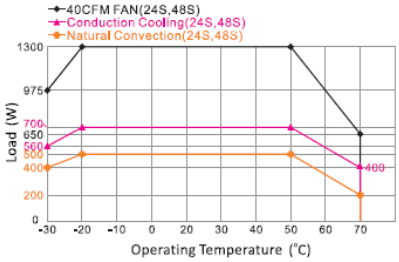


PSAFR1300-24SF, PSAFR1300-48SF
Derating Output Load vs. Operating Temperature



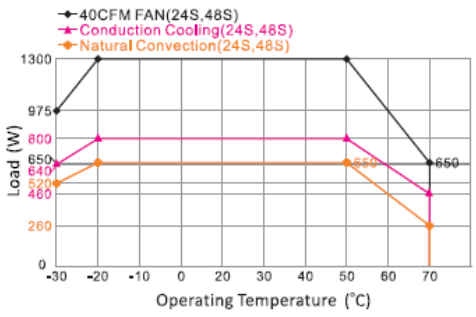
If input voltage is lower than 115VAC, please refer to the output derating vs input voltage curve for details.

PSAFR1300-24SE, PSAFR1300-48SE at 115-197Vin
Derating Output Load vs. Operating Temperature

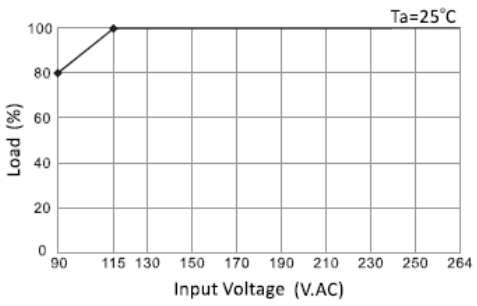


If input voltage is lower than 115VAC, please refer to the output derating vs input voltage curve for details.

PSAFR1300-24SE, PSAFR1300-48SE at 198-264Vin
Derating Output Load vs. Operating Temperature

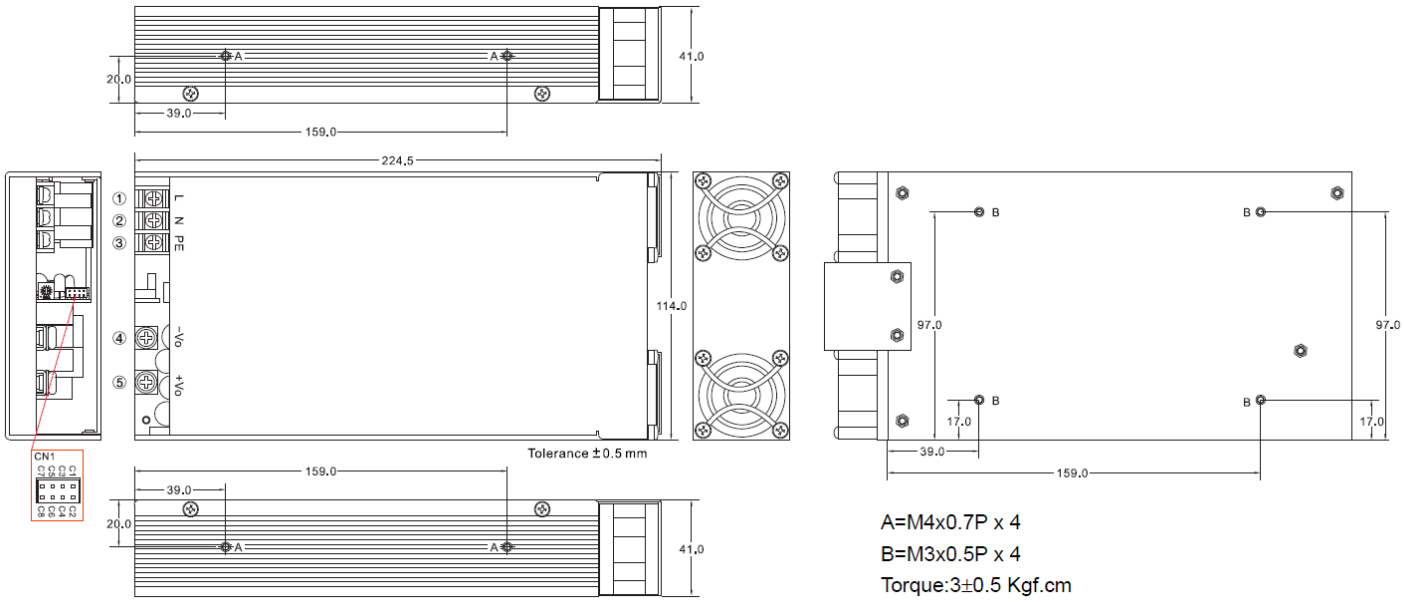


Derating Load vs. Input Voltage



MECHANICAL DRAWINGS

Enclosed Model (“F” Suffix)

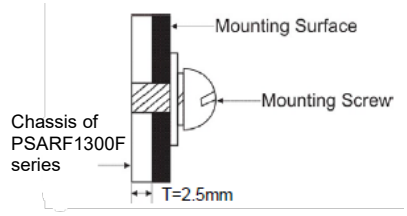


Pin#	Single	Terminal
1	AC IN (L)	DINKLE DT-49-B01W-03
2	AC IN (N)	
3, A, B	PE	
4	-DC OUT	M5 Pan HD Screw in 2 Positions Torque to 8 lbs-in (90-cNm) max.
5	+DC OUT	

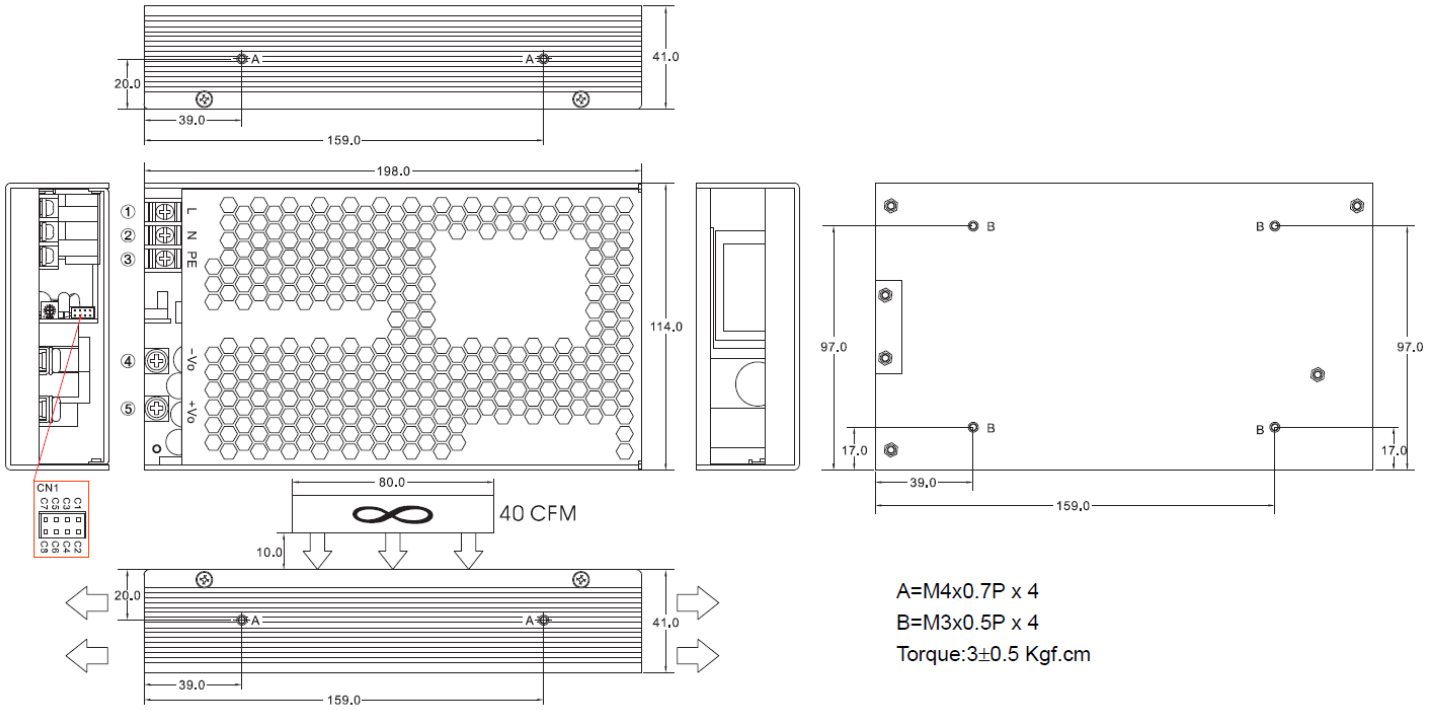
Connector Pin (CN1)

Brands		Cherng Weei		JST	
Pin#	Single	Mating Housing	Terminal	Mating Housing	Terminal
C1	+S	PHD-H20-2X4P	PHD-T20	PHDR-08VS	SPHD-001T-P0.5
C2	-S				
C3	NC				
C4	-5VSB				
C5	GND/-RC				
C6	+RC				
C7	PG				
C8	+5VSB				

Assembly Instructions
*U Case T=2.5mm
Customer is advised to screw into threads no more than 2.5 mm



Enclosed with Fan Models (“E” Suffix)

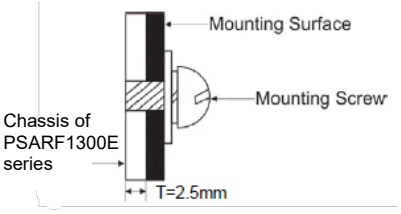


Pin#	Single	Terminal
1	AC IN (L)	DINKLE DT-49-B01W-03
2	AC IN (N)	
3, A, B	PE	
4	-DC OUT	M5 Pan HD Screw in 2 Positions Torque to 8 lbs-in (90-cNm) max.
5	+DC OUT	

Connector Pin (CN1)

Brands		Cherng Weei		JST	
Pin#	Single	Mating Housing	Terminal	Mating Housing	Terminal
C1	+S	PHD-H20-2X4P	PHD-T20	PHDR-08VS	SPHD-001T-P0.5
C2	-S				
C3	NC				
C4	-5VSB				
C5	GND/-RC				
C6	+RC				
C7	PG				
C8	+5VSB				

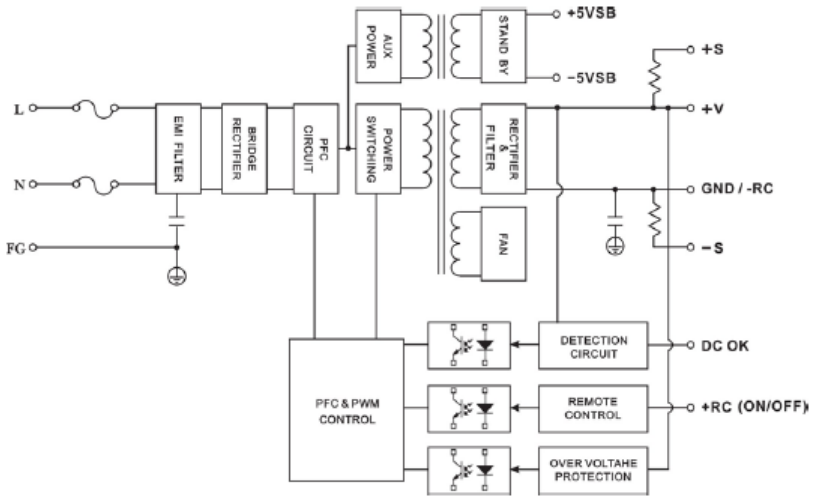
Assembly Instructions
U Case T=2.5mm
Customer is advised to screw into threads no more than 2.5 mm



FUNCTION DESCRIPTION OF CN1

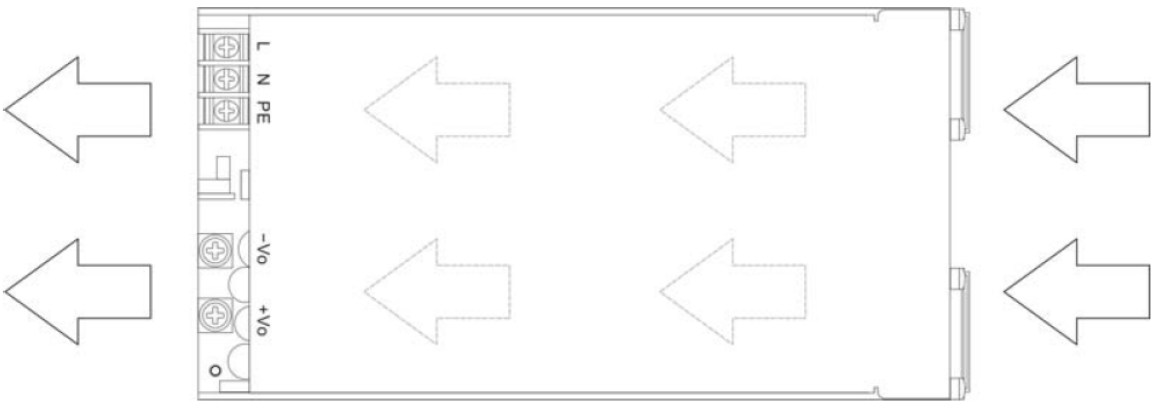
Pin No.	Function	Description
C1	+S	Remote Sensing (+)
C2	-S	Remote Sensing (-)
C3	NC	
C4	-5VSB	This pin connects to the negative terminal (-V)
C5	GND/-RC	This pin connects to the negative terminal (-V). Return for DC-OK signal output.
C6	+RC	Turns the output on and off by electrical or dry contact between pin C5 (GND/-RC). Short: Power OFF, Open: Power ON
C7	+PG	DC-OK Signal is a DC output (DC-OK)
C8	+5VSB	Stand by voltage output ground 4.4~5.5V, referenced to pin C4 or C5 (GND). The maximum load current is 1A.

BLOCK DIAGRAM



AIRFLOW DIRECTION

"F" Models



COMPANY INFORMATION

Wall Industries, Inc. has created custom and modified units for over 50 years. Our in-house research and development engineers will provide a solution that exceeds your performance requirements on-time and on budget. Our ISO9001: 2015 certification is just one example of our commitment to producing a high quality, well-documented product for our customers.

Our past projects demonstrate our commitment to you, our customer. Wall Industries, Inc. has a reputation for working closely with its customers to ensure each solution meets or exceeds form, fit and function requirements. We will continue to provide ongoing support for your project above and beyond the design and production phases. Give us a call today to discuss your future projects.

Contact **Wall Industries** for further information:

Phone: ☎(603)778-2300
Toll Free: ☎(888)597-9255
Fax: ☎(603)778-9797
E-mail: sales@wallindustries.com
Web: www.wallindustries.com
Address: 37 Industrial Drive
Exeter, NH 03833