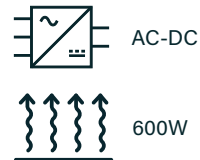
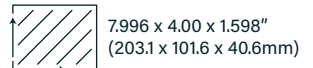


## LMF600-20B SERIES



DIMENSIONS:



80 - 277VAC

-40 to 70°C  
OPERATION

4000VAC  
ISOLATION

EN55032 LEVEL B

5V / 1A STANDBY

VOLTAGE ADJUST

### Part numbers

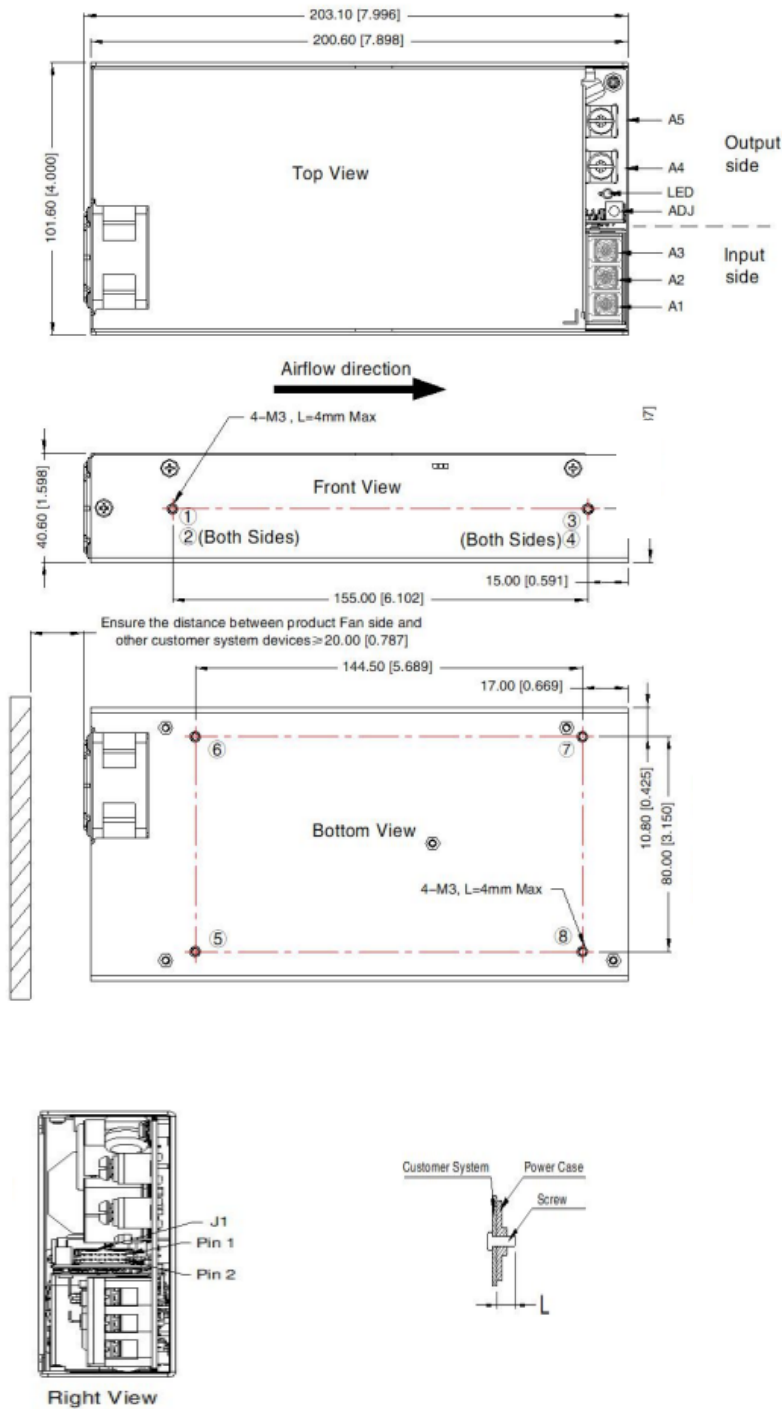
LMF	600	-	20B	12
Series	Power (W)		Input voltage	Output voltage
			80-277VAC	12 = 12VDC 15 = 15VDC 24 = 24VDC 27 = 27VDC 36 = 36VDC 48 = 48VDC

### Key specifications

Input range	Safety certification	Features	Efficiency	Environmental performance
80-277VAC	IEC/UL/EN 62368-1	Remote on/off Remote sense DC OK 5V/1A standby Built in fan Voltage adjust	92-94%	Operational: -40 to 70°C

## LMF600-20B SERIES

### Mechanical



Connector	Pin/Function
1	PE
2	AC(L)
3	AC(N)
4	+VO
5	-VO

### Notes

1. All dimensions shown in mm [Inch]
2. General tolerance  $\pm 1.00$  [ $\pm 0.039$ ]
3. Wire range: 22-14AWG
4. Connector lightening torque: M4, 1.2N-m
5. Pos 1-8 L=4mm

### Weight

1000g

## LMF600-20B SERIES

### Models & Ratings

Model Number	Output power	Output voltage	Output voltage adjustable range	Output current	Efficiency <sup>(1)</sup>	Capacitive load
LMF600-20B12	600W	12V	11.8-12.6V	50A	92%	6000uF
LMF600-20B15	600W	15V	14.7-15.8V	40A	92%	6000uF
LMF600-20B24	600W	24V	23.5-25.2V	25A	94%	4000uF
LMF600-20B27	600W	27V	26.4-28.4V	22.3A	94%	4000uF
LMF600-20B36	600W	36V	35.3-37.8V	16.7A	94%	2400uF
LMF600-20B48	600W	48V	47-50.4V	12.6A	94%	1600uF

1. Typical at 100% load 230VAC

### Input

Parameter	Min	Typical	Max	Unit	Notes/Conditions
Input voltage	80		277	VAC	See page 5 for derating curve, 110-390VDC
Input frequency	47		63	Hz	
Input current (rms)			7.5	A	115VAC
			3.5		230VAC
Inrush current		40		A	115/230VAC cold start at 25°C
Power factor	0.95		0.98		Full load. 0.98 at 115VAC and 0.95 230VAC EN61000-23-2 Class A and D compliant
Leakage current			0.1	mA	

### Output

Parameter	Min	Typical	Max	Unit	Notes/Conditions
Output voltage	12		48	VDC	See Models & Ratings table
Set point accuracy		±1		%	±2 for 5V standby
Line regulation		±0.3		%	At rated load, ±0.5 for 5V standby
Load regulation		±0.5		%	0-100% load 230VAC, ±2 for 5V standby
Ripple & noise	150	200	300	mVpp	20 MHz bandwidth, 47uF, 0.1uF cap 150mV for 12/15V, 200mV for 24/27V, 300mV for others
Hold up time	15			mS	230VAC

## LMF600-20B SERIES

### Protections

Parameter	Min	Typical	Max	Unit	Notes/Conditions
Overload	110		160	%	Trip and restart
Short circuit					Trip and restart. Automatic recovery <3sec
Overvoltage		12V model - 16V 15V model - 20V 24V model - 32V 27V model - 35V 36V model - 47V 48V model - 60V		VDC	Max figures. Hiccup

### Controls/Functions

Parameter	Min	Typical	Max	Unit	Notes/Conditions
Remote on/off	0		10	%	0-0.8VDC ON PS_ON high 4-10VDC OFF PS_ON low
5V standby		0.5		W	230VAC
Remote sense					Connect at load or leave disconnected
Voltage adjust		±5		%	

### Safety

Parameter	Min	Typical	Max	Unit	Notes/Conditions
Safety standards	IEC/UL/EN 62368-1				CE & CCC
Isolation: Input to output	4000			VAC	
Isolation: Input to ground	1500			VAC	1500VAC from output to ground
Insulation resistance	50			MΩ	500VDC, 25°C <95% RH

### EMC: Immunity

	Standard	Test level	Criteria	Notes/Conditions
ESD	EN61000-4-2	4	A	±8kV contact, ±15kV air
Radiated	EN61000-4-3	3	A	10V/m
EFT	EN61000-4-4	4	A	±4kV
Surges	EN61000-4-5		A	Line to line ±2kV, common ±4kV
Conducted	EN61000-4-6	3	A	10Vrms
Voltage dips & interruptions	EN61000-4-11	0% 70%	B	

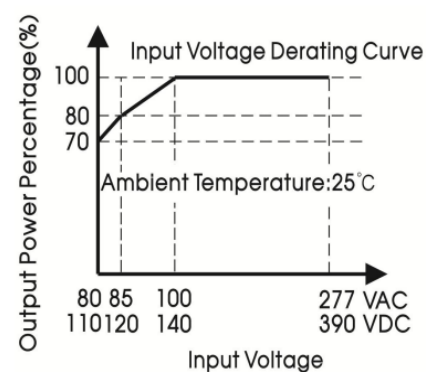
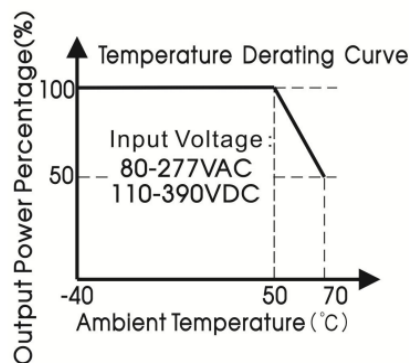
## LMF600-20B SERIES

### EMC: Emissions

	Standard	Test level	Criteria	Notes/Conditions
Conducted	EN55032	B		
Radiated	EN55032	B		
Harmonic current	EN61000-3-2			Class A and D
Voltage flicker	EN61000-3-3			Compliant

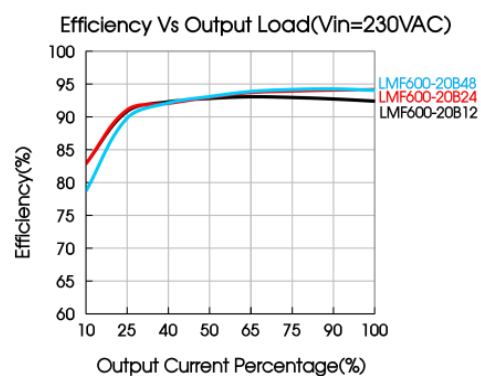
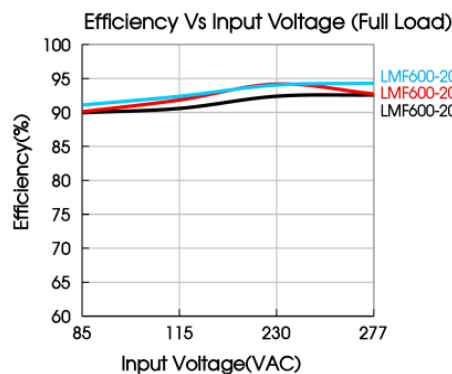
### Environmental

Parameter	Min	Typical	Max	Unit	Notes/Conditions
Operating temperature	-40		70	°C	See derating curve.
Storage temperature	-40		85	°C	
Cooling					Convection cooled
Temperature coefficient			0.05	%/°C	
Humidity	20		95	% RH	Non condensing. Storage 10-95% RH storage
Operating altitude			5000	M	5°C/1000m derating above 2000m
MTBF	300			kHrs	As per MIL-HDBK-217F rated load @25°C



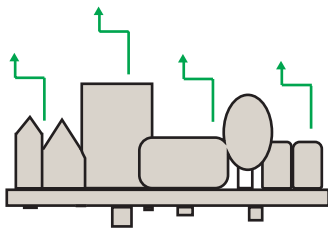
Note: 1. With an AC input voltage between 80-100VAC and a DC input between 110-140VDC the output power must be derated as per the temperature derating curves;

2. This product is suitable for applications using forced air cooling; for applications in closed environment please consult Mornsun FAE.



### Installation Advice

#### EMC

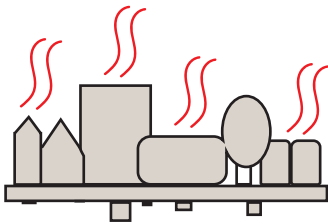


Conducted and radiated emissions compliance is a common application consideration. It is important to remember that even when using a properly filtered PSU, an application may still not achieve compliance if it is not designed to minimise emissions. That being said, there are a number of things that can be done to optimise EMC performance either as best practice, or if you are struggling for compliance:

- 1)** Connect all marked EMI ground points to earth. Often these are combined with the safety earth point (in class I installations), but on some power supplies there may be additional earth tags or mounting points.
- 2)** Minimise the length of input/output wiring where possible and try to maintain max distance of the conductors from the PSU, to prevent noise pick up. Avoid bundling input and output cables together. A common component to avoid placing wiring near is the PFC inductor in power factor corrected power supplies.
- 3)** Apply additional filtering before the PSU input (ensure consideration of which frequencies there are issues with before selecting a filter).
- 4)** When using an open frame PSU, mount the supply on a metal plate and connect EMI mounting points.
- 5)** In multi circuit systems, decouple the circuits locally.
- 6)** Ferrites added between the PSU and system input connector and/or the DC output cables can help in reducing radiated noise issues in systems. If seen, issues are commonly in the 30-150MHz area.

For more detailed assistance, if you still have any concerns with compliance, please get in contact with our Engineering department who are on hand to assist with any queries.

#### Thermal



Thermal management is an important consideration when thinking about equipment service life. Electrolytic capacitors within the PSU wear with time and are typically the first end-of-life failure. Keeping the operation temperature of key components within the PSU, such as the electrolytic capacitors, as low as possible is paramount. As a general rule, for every 10°C drop in the operating temperature of the electrolytic capacitors you double their lifetime, and thus the lifetime of the power supply. When looking at thermal performance it is helpful to test under a worst-case set of conditions, to ensure component temperatures are in an acceptable range for the required service life. Then consider the impact of operational time, load and temperature profile to estimate a more realistic lifetime for your PSU.

Also, many Fidus power supplies offer a Peak Power rating to provide for customers with pulsing loads. When using a peak power capability customers must consider:

- 1)** Peak duration rating: the maximum length of time the peak can be drawn for
- 2)** Duty cycle: the frequency with which the peak can be drawn. (e.g. 10% duty cycle, 1 second on:9 seconds off)
- 3)** Average power value: datasheets will state the maximum average power acceptable with peak power PSUs. If any of these elements are exceeded the supply may overheat, with performance and lifetime suffering as a result.