



CE Report

UK

RoHS



EN62368-1

BS EN62368-1

FEATURES

- Universal 80 - 277VAC or 110 - 390VDC Input voltage
- Accepts AC or DC input (dual-use of same terminal)
- Operating ambient temperature range: -40°C to +70°C
- High efficiency up to 94%
- Active PFC, PF ≥ 0.98
- Remote sense compensation, remote ON/OFF function
- 150% peak load output for 1 second
- Provide 5V/2A Standby Output
- Output short circuit, over-current, over-voltage, over-temperature protection
- Operating altitude up to 5000m
- Safety according to IEC/UL62368, IEC/EN/UL60601, GB4943

LMF750-20Bxx series is one of Mornsun's enclosed AC-DC switching power supply. It features universal AC input and at the same time accepts DC input voltage, cost-effective, high efficiency, high reliability and double or reinforced insulation. These converters offer excellent EMC performance and meet IEC/EN/UL62368, IEC/EN/UL60601, GB4943 standards.

Selection Guide

Certification	Part No.	Output Power (W)*	Nominal Output Voltage and Current (Vo/Io)*	Output Voltage Adjustable Range (V)	Efficiency at 230VAC (%) Typ.	Max. Capacitive Load (μF)	Remote Sense Compensation (mV)	Standby (Vo/Io)*
EN	LMF750-20B12	750	12V/62.5A	11.4 - 12.6	92	50000	500	5V/2A
	LMF750-20B15		15V/50A	14.2 - 15.8				
	LMF750-20B24		24V /31.3A	22.8 - 25.2	94			
	LMF750-20B27		27V /27.8A	25.6 - 28.4				
	LMF750-20B48		48V/15.7A	45.6 - 50.4				

Note: 1. *Under any conditions, the total power of the product should not exceed the 750W rated power, and the output current cannot exceed the rated output current;

2. *Standby power: provide 5V/2A independent output, it is recommended to use with the main circuit.

Input Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Voltage Range	Rated input (Certified voltage)		100	--	240	VAC
	AC input		80	--	277	
	DC input		110	--	390	VDC
Input Voltage Frequency	Rated input (Certified voltage)		50	--	60	Hz
	AC input		47	--	63	
Input Current	Rated input (Certified voltage)		--	--	10	A
	115VAC		--	--	8	
	230VAC		--	--	4	
	Cold start		--	--	20	
Inrush Current	115VAC		--	--	40	--
	230VAC		--	--	40	
Power Factor	115VAC		--	0.98	--	--
	230VAC		--	0.98	--	
Hot Plug			Unavailable			

Output Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy	Full load range	12V/15V/24V/27V/48V	--	±1	--	%

		5V Standby	--	±2	--	
Line Regulation	Rated load	12V/15V/24V/27V/48V	--	±0.5	--	
		5V Standby	--	±1	--	
Load Regulation	0% - 100% load	12V/15V/24V/27V/48V	--	±0.5	--	
		5V Standby	--	±1	--	
Minimum Load			0	--	--	A
Stand-by Power Consumption	Room temperature, 230VAC, RC+/RC- add +5V signal		--	--	1.5	W
Ripple & Noise*	20MHz bandwidth (peak-peak value)	12V/15V/24V/27V/48V	--	--	150	mV
		5V Standby	--	--	100	
Temperature Coefficient			--	±0.03	--	%/°C
Hold-up Time	115VAC/230VAC, rated load		--	16	--	ms
Short Circuit Protection	Recovery time <10s after the short circuit disappear.		Hiccup mode, constant current works 1s, turn off 10s, continuous, self-recover			
Over-current Protection	230VAC, rated load	Normal temperature, high temperature	110% - 200% Io, hiccup, self-recover			
		Low temperature	≥110% full load after derating, hiccup, self-recover			
Over-voltage Protection	12V		≤16.5VDC (Hiccup, self-recover)			
	15V		≤20.5VDC (Hiccup, self-recover)			
	24V		≤32VDC (Hiccup, self-recover)			
	27V		≤36VDC (Hiccup, self-recover)			
	48V		<60VDC (Hiccup, self-recover)			
Over-temperature Protection			Output voltage turn off, self-recover after the temperature drops			

Note: *The "Tip and barrel method" is used for ripple and noise test, output parallel 47uF electrolytic capacitor and 0.1uF ceramic capacitor, please refer to Enclosed Switching Power Supply Application Notes for specific information.

General Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Isolation Test	Input - ⊕	Electric strength test for 1min., leakage current <10mA	2000	--	--	VAC
	Input - output		4000	--	--	
	Output - ⊕		1500	--	--	
Insulation Resistance	Input - ⊕	Ambient temperature: 25 ± 5°C Relative humidity: < 95%RH, no condensation Test voltage: 500VDC	100	--	--	MΩ
	Input - output			--	--	
	Output - ⊕			--	--	
Isolation level	Input - output		2 x MOPP			
	Input - ⊕		1 x MOPP			
	Output - ⊕		1 x MOPP			
Operating Temperature		-40	--	70	°C	
Storage Temperature		-40	--	85		
Storage Humidity	Non-condensing		10	--	95	%RH
Operating Humidity			20	--	95	
Power Derating	Operating temperature derating	+50°C to +70°C	2.5	--	--	%/°C
	Input voltage derating	80VAC-85VAC	2.0	--	--	%VAC
		85VAC-100VAC	1.33	--	--	
Leakage Current	240VAC, 60Hz	Touch current	<0.1mA			
		Earth leakage current	<0.5mA			
Safety Standards			EN62368-1, BS EN62368-1 (Report) Design refer to IEC/UL62368-1, GB4943.1, IEC/EN/UL60601-1			
Safety Class			CLASS I			
MTBF	MIL-HDBK-217F@25°C		≥720,000 h			
Warranty	Ambient temperature: <50°C		5 years			

Environmental Characteristics

Item	Operating Conditions	Standard
High and Low Temperature Working	+70°C, -40°C	GB2423.1, IEC60068-2-1
Sinusoidal Vibration	10 - 500Hz, 2g, three directions of X, Y, Z axis	GB2423.10, IEC60068-2-6
Low Temperature Storage	-40°C	GB2423.1, IEC60068-2-1
High Temperature Storage	+85°C	GB2423.2, IEC60068-2-2
High Temperature Aging	+50°C	GB2423.2, IEC60068-2-2
Normal Temperature Aging	+25°C	GB2423.1, IEC60068-2-1
Temperature Shock	-40°C to +85°C	GB2423.22, IEC60068-2-14
Temperature Cycle	-25°C to +70°C	GB2423.22, IEC60068-2-14
Hot and Humid	+85°C, 85%RH	GB2423.50, IEC60068-2-67
Packaging Drop	1m, one corner, three edges and six sides	GB2423.8, IEC68-2-32

General Specifications

Case Material	Metal (AL5052, SGCC)
Dimensions	187.50mm x 127.00mm x 40.50mm
Weight	950g (Typ.)
Cooling Method	Forced air convection

Electromagnetic Compatibility (EMC)

Emissions	CE (Input port)	CISPR32 EN55032 150K - 30MHz	CLASS B
	RE	CISPR32 EN55032 30MHz - 1GHz	CLASS B
	Harmonic current	IEC/EN61000-3-2	CLASS A and CLASS D
Immunity	ESD	IEC/EN61000-4-2 Contact ±8KV/Air ±15KV	perf. Criteria A
	RS	IEC/EN61000-4-3 10V/m	
	EFT (Input port)	IEC/EN61000-4-4 ±4KV	
	Surge (Input port)	IEC/EN61000-4-5 line to line ±2KV/line to ground ±4KV	
	MS	IEC/EN61000-4-8 30A/m	
	CS	IEC/EN61000-4-6 0.15 - 80MHz 20Vr.m.s	
	Voltage dips, short interruptions and voltage variations immunity	IEC/EN61000-4-11 0%,70%	perf. Criteria B

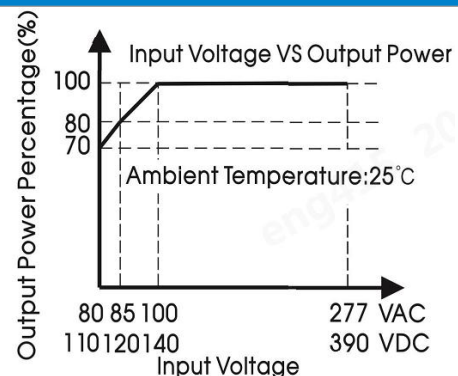
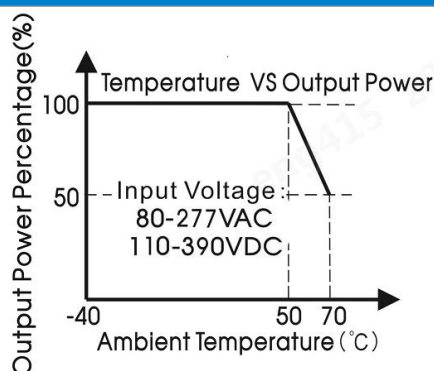
Note: *perf. Criteria:

A: The equipment shall continue to operate as intended without operator intervention;

B: After the test, the equipment shall continue to operate as intended without operator intervention;

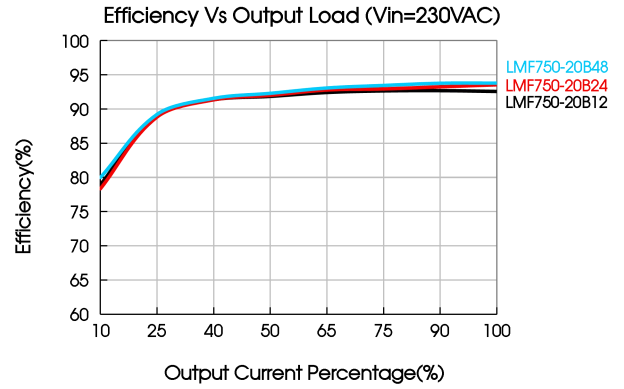
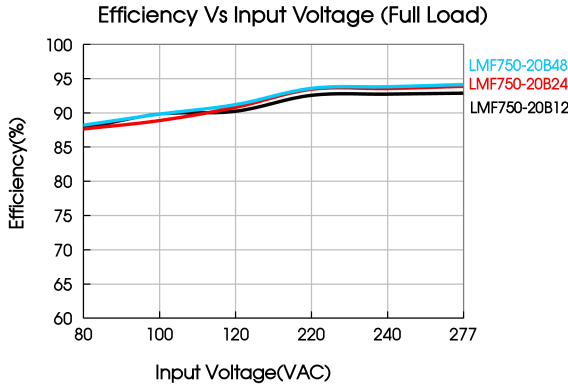
C: Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions.

Product Characteristic Curve



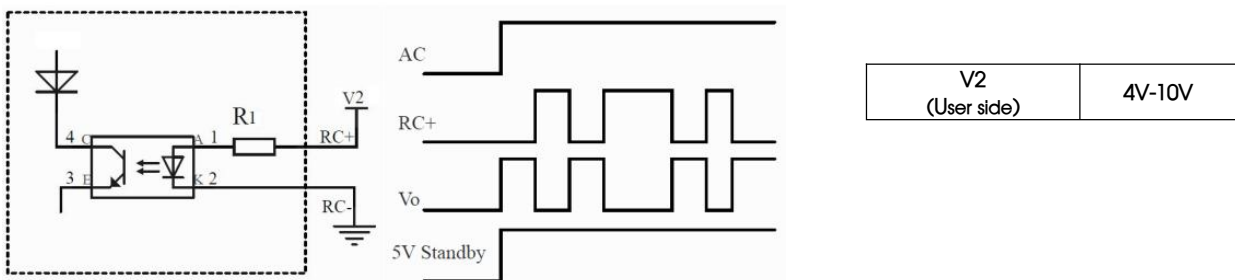
Note: 1. With an AC input voltage between 80 -100VAC and a DC input between 110-140VDC the output power must be derated as per the temperature derating curves;

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



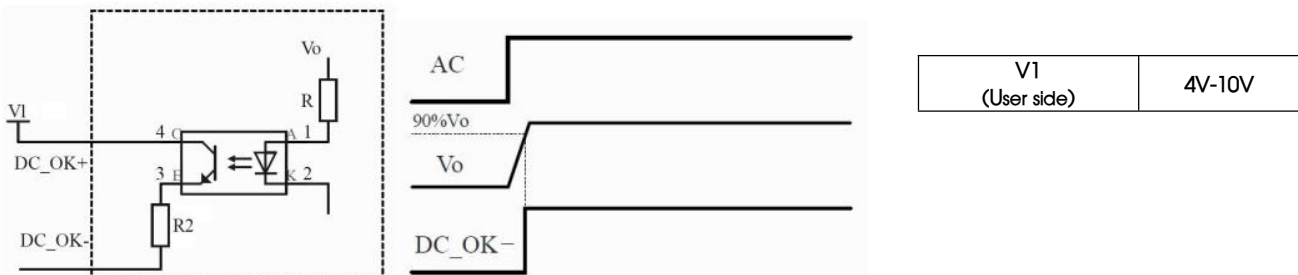
Typical Application

1. Remote ON/OFF



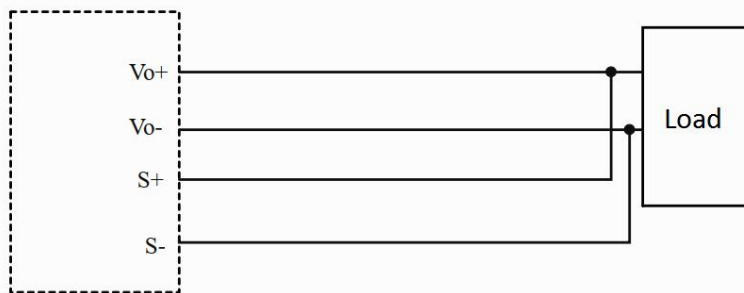
Note: 1. When the product is working normally, apply voltage (5-15V) to RC+ and RC- to trigger the remote ON/OFF function, and the output voltage will be off. Withdraw the voltage, the output voltage will be re-established;
 2. 5V standby power supply is not controlled by remote ON/OFF function.

2. DC_OK




Note: 1. When the output voltage of the product reaches 90% of the rated value, DC_OK+ will be connected to DC_OK- ;
 2. It is recommended that users apply a certain voltage between DC_OK+ and DC_OK- to detect the signal.

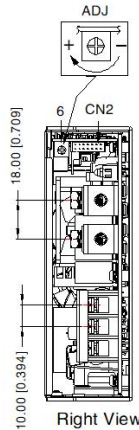
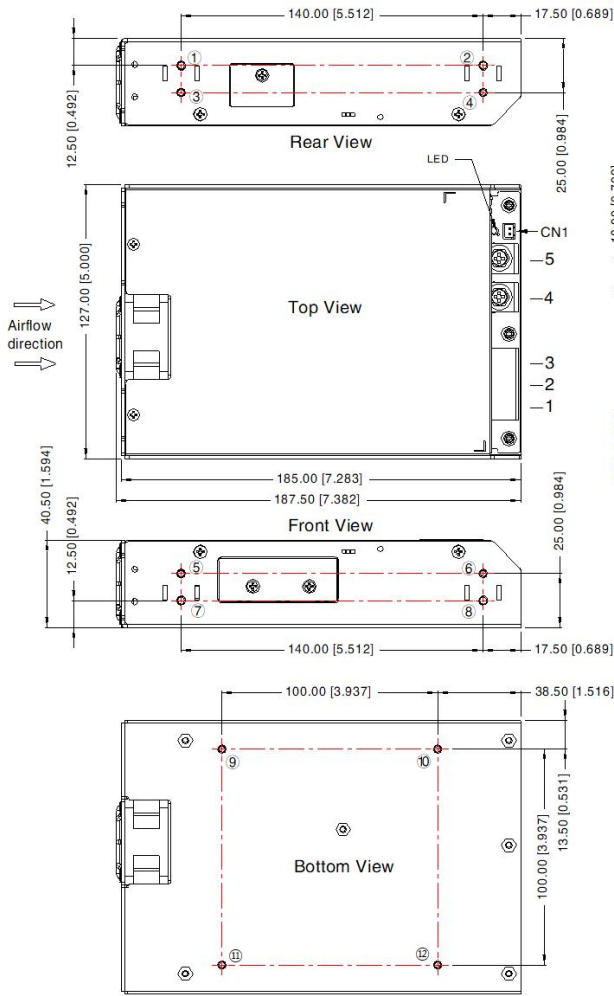
3. Remote Sense Compensation





Note: 1. The left side represents the internal schematic diagram of the product, the right side represents the customer system;
 2. Twisted pair wires are needed for S+/S-;
 3. If the Pin14 terminal function is used for long-term matching, please glue to secure it.

Dimensions and Recommended Layout

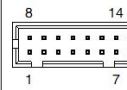
THIRD ANGLE PROJECTION 



Pin-Out	
Pin	Mark
1	AC(L)
2	AC(N)
3	
4	-Vo
5	+Vo
6	ADJ Output adjustable resistor

CN1	Pin-Out	
	Pin	Mark
	1	5VSB_RTN
	2	+5VSB
Customer Connector	Connector: JST XHP-2 or equivalent Terminal: JST SXH-001T-P0.6 or equivalent	

Position	Screw Spec.	L(max)	Torque(max)	Customer System	Power Case
①-②	M4	4mm	0.9N·m		
⑦-⑧					
③-⑥	M3	4mm	0.4N·m		
⑨-⑫	M3	3mm	0.4N·m		

CN2	Pin-Out				Customer Connector
	Pin	Mark	Pin	Mark	
	1	-S	8	+S	Connector: JST PHDR-14VS or equivalent Terminal: JST SPHD-002T-P0.5 or equivalent
	2	NC	9	NC	
	3	DC_OK-	10	DC_OK+	
	4	+5VSB	11	5VSB_RTN	
	5	RC+	12	RC-	
	6	+5VSB	13	+5VSB	
	7	5VSB_RTN	14	5VSB_RTN	

Note:

Unit: mm[inch]

Input pin1,2,3 wire range: 18-14AWG

Input connector tightening torque: M4, Max 0.9N.m

Output pin4,5 wire range: 12V/15V: 8-6AWG


24V/27V: 12-8AWG

48V: 16-8AWG

Output connector tightening torque: M5, Max 1.6N.m

General tolerances: $\pm 1.00[\pm 0.039]$

Note:

- For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220628;
- Unless otherwise specified, parameters in this datasheet were measured under the conditions of $T_a=25^\circ\text{C}$, humidity <75% RH with nominal input voltage and rated output load;
- The room temperature derating of $5^\circ\text{C}/1000\text{m}$ is needed for operating altitude greater than 2000m;
- All index testing methods in this datasheet are based on our company corporate standards;
- In order to improve the efficiency at high input voltage, there will be audible noise generated, but it does not affect product performance and reliability;
- We can provide product customization service, please contact our technicians directly for specific information;
- Products are related to laws and regulations: see "Features" and "EMC";
- The out case needs to be connected to PE () of system when the terminal equipment in operating;
- The output voltage can be adjusted by the ADJ, clockwise to increase;
- Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;
- The power supply is considered a component which will be installed into a terminal equipment. All EMC tests should be confirmed with the final equipment. Please consult our FAE for EMC test operation instructions.

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