AC/DC 750W Fire Control Enclosed Switching Power Supply

LMF750-12B36XF-XX Series

MORNSUN®

RoHS

3 years Warranty

FEATURES

- 180 - 264VAC or 254 - 370VDC Input voltage
- The active/standby switch over is seamless
- Operating ambient temperature range: -20℃ to +55℃
- Active PFC
- High I/O isolation test voltage up to 3000VAC
- Output short-circuit, over-current, over–voltage, over-temperature protection
- Input 380VAC over-voltage Protection
- Force start (system emergency start connector)
- Accurate battery management system
- Battery Reverse Polarity Protection
- Prevent Battery Voltage Backward
- Battery Performance Detection
- With UART/RS-485 communication interface device
- Reverse alarm and close alarm connector
- PWM fan

LMF750-12B36XF-XX series power supply products with PFC fire protection is a 36V emergency lighting centralized power supply, which is safe and reliable, with good EMC performance and meet the standards of GB17945. The product is used in a centralized control system with centralized power supply for lamps in emergency lighting and evacuation indication systems.

Selection Guide

Certification	Part No.*	Output Power (W)*	Nominal Output Voltage and Current (Vo/Io)		Battery Circuit Voltage and Current (Vo/Io)	Output Voltage Adjustable Range (V)	Efficiency at 230VAC (%) Typ.*	Max. Capacitive Load (μF)	
			Vo1/Io1	Vo2/Io2				Vo1	Vo2
/	LMF750-12B36XF-UART	750W	36V/16.7A	5.0V/3.0A	41.5V/3.0A (Floating charge)	34.2 -37.8	93	20000	3000
	LMF750-12B36XF-485								

Note: 1.*"-UART" and "-485" version means the communication way is UART and RS485 respectively.
2.*Total power (750W) includes charging power. The charging voltage is provided by the charging winding. The charging power increases as the battery voltage increases. Floating charge voltage : 41.5±1.1V. The power reaches the maximum before floating charging.
3.*When testing full load efficiency, the fan should use an external power supply, which means fan losses are not included in the input power.

Input Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Input Voltage Range	AC input		180	--	264	VAC
	DC input		254	--	370	VDC
Input Voltage Frequency			47	--	63	Hz
Input Current	230VAC		--	--	5.0	A
Inrush Current	230VAC	Cold start	--	80	--	
Power Factor	230VAC	Full load	0.95	--	--	--
Leakage Current	240VAC	Contact leakage current	<0.5mA			
		Ground leakage current	--			
Hot Plug			Unavailable			

Output Specifications*

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Output Voltage Accuracy *	Full load range	36V	--	±2	--	%
		5V	--	±5	--	

Line Regulation	Rated load	36V	--	±0.5	--	
		5V	--	±1	--	
Load Regulation	0% - 100% load	36V	--	±2	--	
		5V	--	±5	--	
Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	36V	--	--	200	mV
		5V	--	--	150	
Temperature Coefficient			--	±0.03	--	%/℃
Minimum Load			0	--	--	%
Hold-up Time	230VAC		10	--	--	ms
Stand-by Power Consumption			--	--	6	W
Short Circuit Protection	Recovery time <5s after the short circuit disappear		Constant current protection, continuous, self-recover			
Over-current Protection			>105% Io, Constant current protection, self-recover			
Over-voltage Protection	36V		≤46.8VDC (Output voltage turn off, re-power on for recover)			
Over-temperature Protection			Over-temperature shut down, self-recover			

Note: 1.*Output Voltage Accuracy：include specification error, line Regulation and load Regulation.
2.*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.
3.*All index testing methods in this datasheet are based on our company corporate standards.

Battery Management System

Item	Operating conditions	Min.	Typ.	Max.	Unit
Constant Current Charge	Full load range	0	3.0	3.5	A
Floating Charge Voltage		40.4	41.5	42.6	V
Battery Under Voltage		27.2	28	28.8	
Mandatory Emergency Backup Voltage*		25	26	27	
Input Under-voltage Protection	1.Input under-voltage protection to start (Input voltage from high to low) 2.Switch the primary power supply to the battery power supply	155	165	175	VAC
	1.Input under-voltage protection to release (Input voltage from low to high) 2.Switch the battery power supply to the primary power supply	160	170	180	
Input Over-voltage Protection	1.Input over-voltage protection to start (Input voltage from low to high) 2.Switch the primary power supply to the battery power supply	270	285	300	
	1.Input under-voltage protection to start (Input voltage from high to low) 2.Switch the battery power supply to the primary power supply	265	280	295	

Note: 1.* The mandatory emergency backup voltage can be adjusted according to customer requirements.

General Specifications

Item		Operating Conditions	Min.	Typ.	Max.	Unit
Isolation Test	Input - output	Electric strength test for 1min., leakage current <10mA	3000	--	--	VAC
	Input - ⏚		1500	--	--	
	Output - ⏚		500	--	--	
Insulation Resistance	Input - ⏚	The environment temperature is Ta=25℃; Relative humidity Test voltage at 500VDC	100	--	--	MΩ
	Input - output		100	--	--	
	Output - ⏚		100	--	--	
Operating Temperature			-20	--	+55	℃
Storage Temperature			-40	--	+85	
Storage Humidity		Non-condensing	10	--	95	%RH
Operating Humidity			20	--	90	

Power Derating	Operating temperature derating	Forced air convection (750w)	+20℃ to +55℃	0	--	--	%/℃
	Input voltage derating	180VAC - 264VAC		0	--	--	%/VAC
Safety Standard				Design refer to GB17945			
Safety Certification				Design refer to GB17945			
Safety Class				CLASS I			
MTBF	MIL-HDBK-217F@25℃			>200,000 h			

Mechanical Specifications

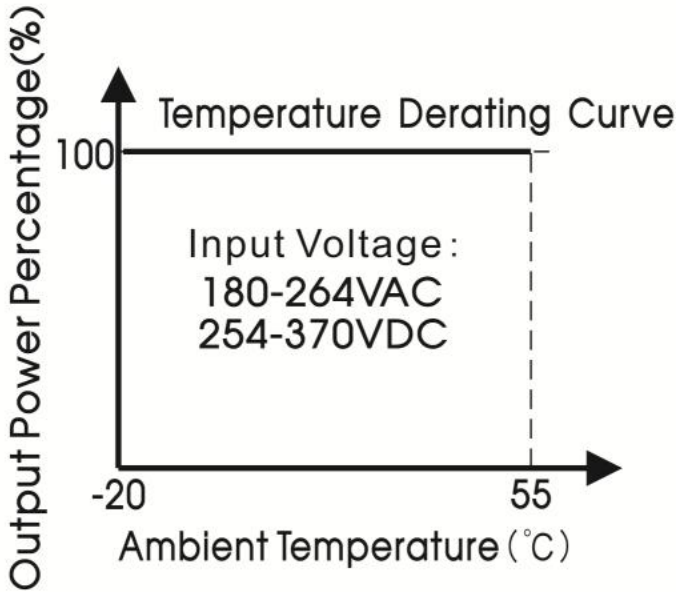
Case Material	Enclosed
Dimensions	261 x 136 x 45mm
Weight	1550g (Typ.)
Cooling Method	Forced air convection
Notes: *Please refer to the product characteristic curve for cooling method and power derating.	

Electromagnetic Compatibility (EMC)

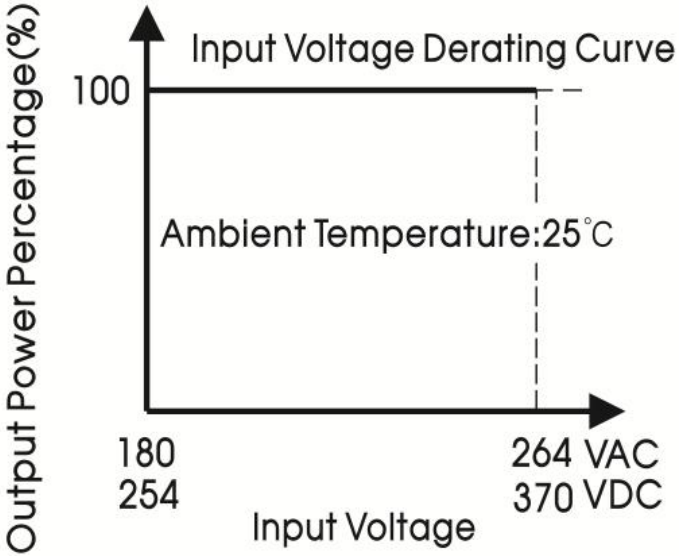
Emissions(EMI)	CE	CISPR32/EN55032	CLASS A	
	RE	CISPR32/EN55032	CLASS A	
	Harmonic current	IEC/EN61000-3-2	CLASS A	
Immunity(EMS)	ESD	IEC/EN61000-4-2	Contact ±6KV/Air ±8KV	Perf. Criteria A
	RS	IEC/EN61000-4-3	10V/m	perf. Criteria A
	EFT	IEC/EN61000-4-4	AC power cord ±2KV Other lines ±1KV	perf. Criteria A
	Surge	IEC/EN61000-4-5	AC power cord ±1KV AC power cord to ground ±2KV Other lines to ground ±1KV	perf. Criteria A
	CS	IEC/EN61000-4-6	10 Vr.m.s	perf. Criteria A
	Voltage dips, short interruptions and voltage variations immunity	1.Fall to the 40% 20mS 2.Fall to the 0% 10mS		perf. Criteria A
	Transient test of power supply	Power on 9s, power off 1s, 6 times per minute, a total of 500 times.		perf. Criteria A

Product Characteristic Curve

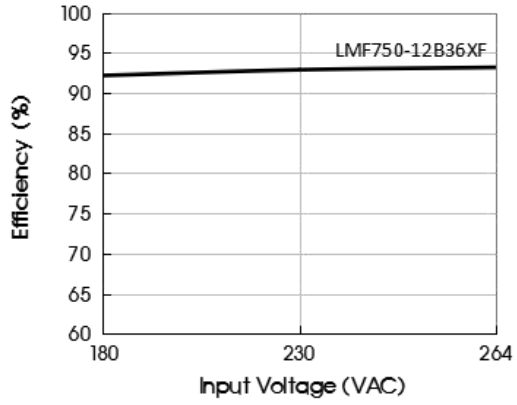
LMF750-12B36XF-UART/485
Derating
(full load 750W with 20.5CFM)



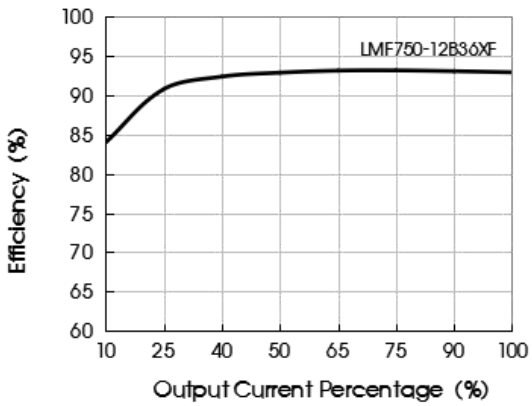
LMF750-12B36XF-UART/485
Derating



Efficiency Vs Input Voltage (Full Load)



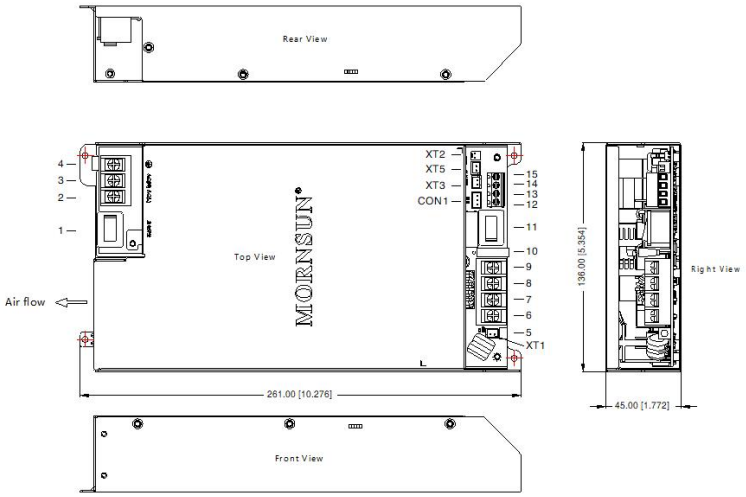
Efficiency Vs Output Load (Vin=230VAC)

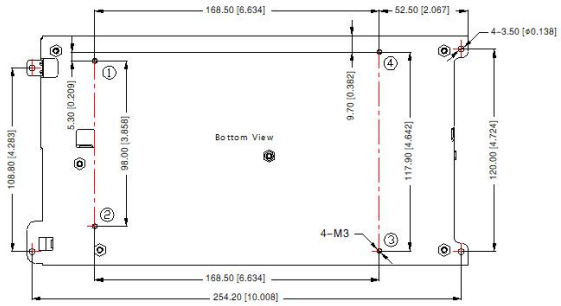


Note: 1.*product operating at -20℃ - +50℃ without derating.

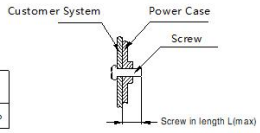
Dimensions and Recommended Layout

THIRD ANGLE PROJECTION





Position	Screw Spec.	Screw in length L(max)	Recommended torque
①－④	M3	3mm	0.4N・m±10%



XT1 (Force on)

Pin-Out		Customer Connector
Pin	Mark	Connector: XHS2.5-2Y (KANGDAO) or equivalent Terminal: XH2.5-TE (KANGDAO) or equivalent
1	Force on	
2	V-	

CON1(UART/RS485)

Pin-Out		Customer Connector
Pin	Mark	Connector: XHS2.5-3Y (KANGDAO) or equivalent Terminal: XH2.5-TE (KANGDAO) or equivalent
1	TX	
2	V-	
3	RX	

XT3 (Battery temperature sense)

Pin-Out		Customer Connector
Pin	Mark	Connector: XHS2.5-2Y (KANGDAO) or equivalent Terminal: XH2.5-TE (KANGDAO) or equivalent
1	V-	
2	Battery temperature sense	

XT5 (Turn off buzzer)

Pin-Out		Customer Connector
Pin	Mark	Connector: XHS2.5-2Y (KANGDAO) or equivalent Terminal: XH2.5-TE (KANGDAO) or equivalent
1	V-	
2	Turn off buzzer	

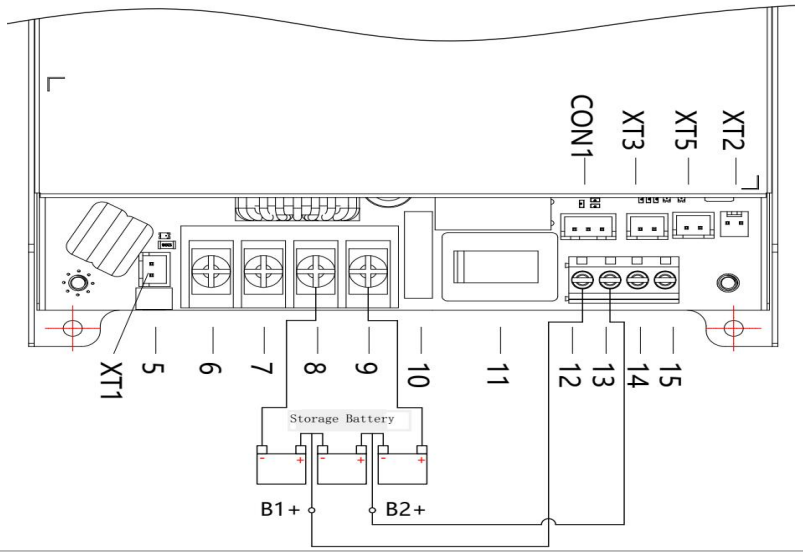
XT2 (BUZZER)

Pin-Out		Customer Connector
Pin	Mark	Housing: TKP 2502 or equivalent Contact: TKP 8811 or equivalent
1	V-	
2	BUZZER	

Pin-Out	
Pin	Mark
1	Main power switch
2	AC(L)
3	AC(N)
4	⏚
5	ADJ Output adjustable resistor
6	V- Main output
7	V+ Main output
8	Battery negative
9	Battery positive
10	Standby fuse
11	Standby switch
12	B1+
13	B2+
14	5v-
15	5v+

Note:
Unit: mm[inch]
Pin2, 3, 4 wire range: 22-12AWG
Pin2, 3, 4 Terminal recommended torque: M3.5, 0.8N・m±10%
Pin6, 7, 8, 9 wire range: 22-12AWG
Pin6, 7, 8, 9 Terminal recommended torque: M3.5, 0.8N・m±10%
Pin12, 13, 14, 15 wire range: 30-12AWG
Pin12, 13, 14, 15 Terminal recommended torque: 0.4N・m±10%
General tolerances: ±1.00[±0.039]

LMF750-12B36XF-V0



Note:
1.Pay attention to the polarity of output terminals when connecting cables. Connect the positive terminal of the battery to terminal 9. The negative terminal needs to be connected to terminal 8. Connect the sampling cable between the two batteries. Connect B1+ to 12, B2+ to 13. The wiring mode is shown in the figure.
2.When the switch is on, the positive terminal of the battery string connects to the battery charging loop. And vice versa.
3.Force star connector is XT1. Press the terminal to switch the battery circuit to the main power supply.

Note:

1. For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220256 ;
2. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25℃, humidity<75%RH with nominal input voltage and rated output load;
3. All index testing methods in this datasheet are based on our company corporate standards;
4. In order to improve the efficiency, there will be audible noise generated when work at light load, but it does not affect product performance and reliability;
5. We can provide product customization service, please contact our technicians directly for specific information;
6. Products are related to laws and regulations: see "Features" and "EMC";
7. The out case needs to be connected to PE (⏚) of system when the terminal equipment in operating;
8. CAUTION: Double pole, neutral fusing. Disconnect mains before servicing."/"ATTENTION: Double pôle/fusible sur le neutre. Débrancher lalimentation avant lentretien;
9. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;
10. 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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