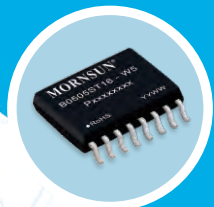


Medical Power Supply

One-stop Solutions of Power Supplies

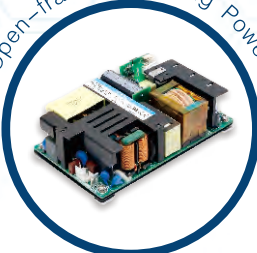


AC/DC Enclosed Switching Power Supplies



DC/DC Converters

AC/DC Open-frame Switching Power Supplies





Headquarters in Guangzhou



R&D Center in Guangzhou



Manufacturing Center in Huaihua

- Established: 1998
- Employees: 3,000+
- Certifications: ISO9001, IATF16949, ISO14001, ISO45001
- Company scale: Guangzhou headquarters, 4 subsidiaries, 6 R&D centers



Strong R&D Capability

1,400+ IPRs & patents, 650+ R&D engineers



Fast Delivery

34+ SMT production lines, 80,000+ m² factory area



Professional Support

T+4 hours quick response from FAE team

CONTENT










- About MORNSUN & Content ----- 01
- One-stop solutions of power supplies for medical ----- 02-03
- Application cases of medical power supplies ----- 04-06
- 30-120W high power density LO-MU series ----- 07
- 120-550W high power density LOF series ----- 08
- 500-1000W high reliability and high power LMF series ----- 09
- 10-20W compact size and high efficiency LD-R2 series ----- 09
- 15-25W compact size and high efficiency LH-MU series ----- 09
- Medical DC/DC converters ----- 10

Power Supply Solutions for Medical Devices





The trend in medical devices is to make them smaller, more lightweight, more efficient, more reliable, and competitively priced. All without compromising on quality and with strong compliance with the safety standards for medical equipment based on the specific application.

With 24 years in the power supply industry, MORNSUN does not only understand the special demands and changing standards involved in the medical device industry, and the challenges associated with powering medical devices, but it can also provide a series of power supplies for these specific applications. Its broad portfolio includes compact and high power density AC/DC switching power supplies and DC/DC converters covering from 1 watt to 1000 watts. They can offer very low leakage current with high isolation voltage up to 5,000VAC, meets IEC/EN60601-1, ANSI/AAMI ES60601-1, CAN/CSA-C22.2 No.60601-1 safety standards (2 x MOPP) and are UL/IEC/EN/BS EN 62368 certified. These features make them the ideal solutions for medical and healthcare applications.

One-stop Solutions of Power Supplies

Auxiliary Devices	 Oxygenator	 Disinfectant	 Microscope
Diagnostic Devices	 Endoscope	 Medical image	 PCR detection
Therapy Devices	 Dentistry	 Syringe pump	 Rehabilitation therapy

1-1000W Medical Power Supplies

-  Low leakage current
-  Medical safety approved (2 x MOPP)
-  High isolation voltage
-  Faster delivery



LO-MU Series



LOF Series



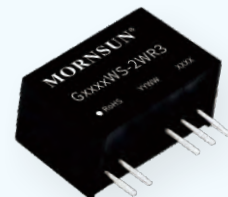
LMF Series



LD-R2 Series



LH-MU Series



DC/DC Converters

Medical Monitor

“

Problems: Conventional products can't meet the requirement of patient leakage current of less than $10\ \mu\text{A}$, and in the monitoring environment of hospital wards, the noise generated by fans and equipment will affect the patient's mood.

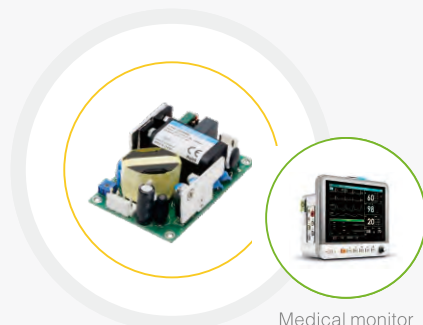
”



Solution

To achieve leakage current $\leq 10\ \mu\text{A}$, and low noise in the monitoring environment of the hospital ward, please refer to:

- LO45-20BxxMU with leakage current $< 75\ \mu\text{A}$, GxxxxS-2WR3 with leakage current $< 2\ \mu\text{A}$;
- LO/LOF series are fanless and adopt an audio oscillation absorption circuit; the noise is less than 25dB with a special process for the transformer.



LO45-20BxxMU

Medical monitor

Ultra-low leakage current

Low noise

Low power consumption

Fluorescence Quantitative PCR Instrument, Gene Sequencer

“

Problems: In vitro diagnostic equipment involves a variety of loads, such as electric gas valves, liquid valves, etc., and there are dynamic loads and the phenomenon that loads interfere with each other.

”



Solution

To improve the reliability of equipment and meet the increase and expansion of loads, you can choose:

- LMF1000-20Bxx, realizes 3+1 parallel redundancy and current sharing function, meets 2 x MOPP standards and medical certification;
- 30-50W DC/DC converters, effective for interference isolation.



Anti-interference

3+1 parallel redundancy

Current sharing

Oxygenator

Problems: It is often used in hospitals, plateaus, and high-altitude areas, and requires high stability.



Solution

- LD10-23BxxR2-M meets 5,000 m altitude requirements and 2 x MOPP safety level, which can ensure the reliability and safety of products in plateau and high altitude environments;
- It has the advantages of compact size and low power consumption, which enable portable and miniaturized equipment.



5,000 m altitude

2xMOPP

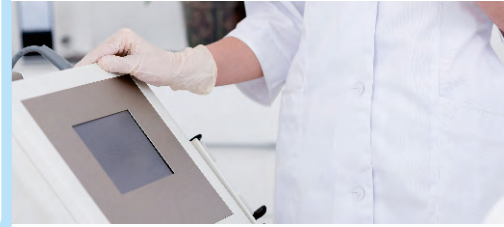
Compact size



Beauty Apparatus



Problems: Beauty apparatus are often damaged due to quality problems, or medical accidents are caused because the technical parameters of the products are not satisfied.



Solution

To cope with various types of beauty instruments on the market, you can choose our star products:

- The full range of LOF series are EN60601 medical certified with high reliability, and have the advantages of compact size, high power density, fanless, and low noise.



LOF550-20Bxx

Beauty apparatus



High reliability



Medical certified



High power density

30-120W Compact Size and High Power Density LO-MU Series



1.7W/cm ultra-high power density



2 x MOPP safety class



0.1mA ultra-low leakage current



Product Parameters

Product Series	Power (W)	Nominal Output Voltage	Safety Parameters	EMC Performance	Safety Standards	Dimensions	
LO30-20BxxMU	30	3,3,5,12,15 19,24,36,48	Input – output: 4kVAC	RS: 10V/m EFT: ±2kV Surge: Line to line ±2kV CS: 10Vr.m.s		76.2 x 50.8 x 24	
LO45-20BxxMU	45	3,3,5,12,15 24,30,36,48	Input – output: 4kVAC Input – shell: 2.5kVAC Output – shell: 2.5kVAC Leakage current: ≤75 μA	CE: CLASS B RE: CLASS B ESD: Contact ±8KV/Air ±15KV	RS: 20V/m EFT: ±2kV Surge: Line to line ±2kV CS: 20Vr.m.s	UL/IEC/EN62368-1, ES/IEC/EN60601-1, CAN/CSA-C22.2 No.60601-1-14, EN60601-1-2 Edition 4, EN60335-1, EN61558-1, GB4943.1	76.2 x 50.8 x 26.5
LO65-20BxxMU	65	3,3,5,12,15 24,36,48	Input – output: 4kVAC Input – PE: 2kVAC Output-PE: 1.5kVAC Input – output: 2 x MOPP Input – PE: 1 x MOPP Output – PE: 1 x MOPP Leakage current: ≤100 μA			76.2 x 50.8 x 26.5	
LO120-20BxxMU	120 (10CFM) 84 (Air cooling)	12,15,24,27, 36,48,54	Input – output: 4kVAC Input – PE: 2kVAC Output-PE: 1.5kVAC Input – output: 2 x MOPP Input – PE: 1 x MOPP Output – PE: 1 x MOPP Leakage current: ≤100 μA	RS: 10V/m EFT: ±2kV Surge: Line to line ±2kV/ line to ground ±4kV CS: 10Vr.m.s		101.6 x 50.8 x 32	

* Series with shell: suffix with *-C*.

120-550W Compact Size and High Power Density LOF Series

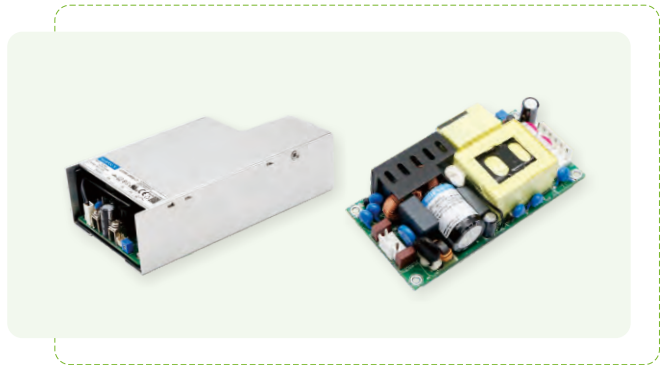
P_{FC}

Active PFC

2xMOPP

2 x MOPP safety class

Support 3+1 parallel redundancy, current sharing



Product Parameters

Product Series	Power (W)	Nominal Output Voltage	Safety Parameters	EMC Performance	Safety Standards	Dimensions
LOF120-20Bxx*	120	12,15,19,24,27,36,48,54	Input - output: 4kVAC Input - shell: 1.5kVAC Output - shell: 1.5kVAC Input - output: 2 x MOPP Input - PE: 1 x MOPP Output - PE: 1 x MOPP Leakage current: ≤0.1mA	CE: CLASS B RE: CLASS B (Category I) ESD: Contact ±8kV/Air ±15kV RS: 10V/m EFT: ±2kV (LOF120/450/550) EFT: ±4kV (LOF225/350)	EN/IEC/UL62368-1, IEC/EN/ES60601-1, EN60335-1, IEC/EN61558-1, GB4943.1, CAN/CSA-C22.2 No.60601-1:14, En60601-1-2 Edition 4	76.2 x 50.8 x 24
LOF225-20Bxx*	225 (13CFM) 140 (Air cooling)	12,15,18,19,24,27,36,48,54	Input - output: 4kVAC Input - shell: 2kVAC Output - shell: 1.5kVAC Input - output: 2 x MOPP Input - PE: 1 x MOPP Output - PE: 1 x MOPP Leakage current: ≤0.1mA (LOF350) Leakage current: <0.5mA (LOF450/550)	Surge: line to line ±2kV/ line to ground ±4kV CS: 10Vr.m.s	EN/ES60601-1, IEC/EN62368-1, EN60335-1, GB4943.1	103.4 x 62 x 37
LOF350-20Bxx*	350.4 (20.5CFM) 200.1 (Air cooling)					130 x 86 x 35
LOF450-20Bxx*	450 (25CFM) 250 (Air cooling)					130 x 86 x 43
LOF550-20Bxx*	550.8 (25CFM) 321.6 (Air cooling)					130 x 86 x 43

LOF750-20Bxx is to be launched, please consult our sales for details.

* Series with shell: suffix with *-C*; series with a built-in fan: suffix with *-CF*

500-1000W High Reliability and High Power LMF Series



Product Parameters

Product Series	Power (W)	Input Voltage	Output Voltage	Safety Parameters	EMC Performance	Safety Standards	Dimensions
LMF500-20Bxx	500	80-264VAC 110-370VDC	12,15,24,27, 36,48,54	Input - output: 4kVAC Input - PE: 2kVAC Output - PE: 2kVAC Leakage current: < 0.1mA	CE: CLASS B RE: CLASS B ESD: Contact $\pm 8kV$ / Air $\pm 15kV$ RS: 10V/m EFT: $\pm 4kV$ (LMF500/600) EFT: $\pm 2kV$ (LMF1000) Surge: Line to line $\pm 2kV$ /line to ground $\pm 4kV$ CS: 10Vr.m.s	EN/IEC/UL/BS EN 62368-1, IEC/EN60601-1, EN60335-1, GB4943.1, EN61558-1, EN61558-2-16, IS13252 (Part1)*	203.1x101.6x40.6
LMF600-20Bxx	600	80-277VAC 110-390VDC	12,15,24, 27,36,48	Input - output: 4kVAC Input - PE: 1.5kVAC Output - PE: 1.5kVAC Leakage current: < 0.1mA			101.6x203.1x40.6
LMF1000-20Bxx	1000	90-264VAC 120-370VDC	12,15,24,27, 36,48,54	Input - output: 4kVAC Input - PE: 2kVAC Output - PE: 1.5kVAC Input - output: 2 x MOPP Input - PE: 1 x MOPP Output - PE: 1 x MOPP Leakage current: < 0.5mA			190x127x40.5

LMF1500-20Bxx is to be launched, please consult our sales for details.

10-25W Compact Size and High Efficiency LD-R2 / LH-MU Series



Product Parameters

Product Series	LD10-23BxxR2-M	LD15-23BxxR2(-M)	LD20-23BxxR2	LH15-20BxxMU	LH25-20BxxMU
Power (W)	10	15	20	15	25
Input Voltage Range	85-305VAC/100-430VDC			85-264VAC/100-370VDC	
Nominal Output Voltage	3.3,5,9,12,15,24			5,12,15,18,24	
Safety Parameters	Input - output: 4kVAC; Leakage current: 0.1mA RMS Max.			Input - output: 4kVAC; Leakage current: 0.1mA RMS typ.	
EMC Performance	CE: CLASS B*; RE: CLASS B*; ESD: Contact $\pm 8kV$ *(LD10-M, LD15); ESD: Contact $\pm 6kV$ /Air $\pm 8kV$ *(LD15-M, LD20, LH15, LH25); Surge: Line To Line $\pm 2kV$ *(LD10-M, LD15-M, LH15, LH25); Surge: Line To Line $\pm 2kV$ /line to ground $\pm 4kV$ *(LD15, LD20); RS: 10V/m ; EFT: $\pm 4kV$ * ; CS: 10Vr.m.s				
Safety Standards	IEC/UL/EN62368-1, EN61558-1, EN60335-1 IEC/EN60601-1/ANSI/AAMI ES60601-1			IEC60601-1, EN60601-1, ANSI/AAMI ES60601-1, CAN/CSA-C22.2, NO. 60601-1	
Dimensions	47.6x26.8x23.5	52.4x27.2x24		62x45x22.5	70x48x23.5

* It is fulfilled by the recommended peripheral circuit, please refer to the datasheet for details.



Medical DC/DC Converters



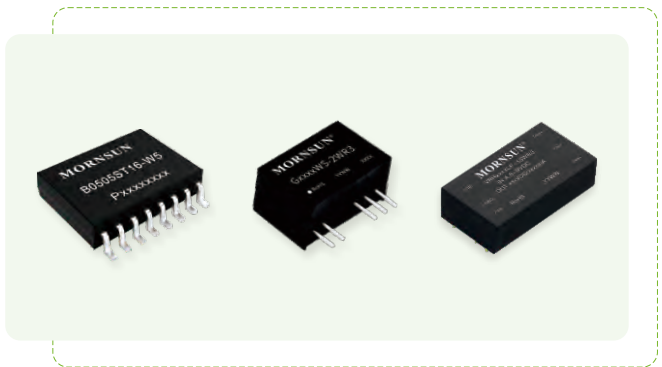
5,000VAC isolation voltage



2 x MOPP safety class



Ultra-low leakage current 2 μ A



Product Parameters

Product Series	Power (W)	Input Voltage Range	Nominal Output Voltage	Safety Parameters	EMC Performance	Safety Standards	Dimensions
B0505ST16-W5	0.5	4.5-5.5	3.3,3.7,5,5.4	Input - output: 5000VAC	CE: CLASS B* RE: CLASS B* ESD: Air \pm 8kV/Contact \pm 6kV	IEC/UL/EN62368, EN60601-1, ANSI/AAMI ES60601-1	10.3 x 10.3 x 2.5
G/H_S-1WR3 G/H_WS-1WR3	1	10.8-13.2 13.5-16.5	\pm 5, \pm 9, \pm 12, \pm 15, 3.3,5,9,12, 15,24	Input - output: 5000VAC 6000VDC Leakage current: 2 μ A(Max.)	CE: CLASS B* RE: CLASS B* ESD: Air \pm 15kV/Contact \pm 8kV	EN60101-1, ANSI/AAMI ES60601-1 IEC62368	19.5 x 9.8 x 12.5
G/H_S-2WR3 G/H_WS-2WR3	2	21.6-26.4					
VRH_P-3WR3 URH_P-3WR3	3	4.5-5 (VRH) 9-36 (URH)	5,12,15,24	Input - output: 4400VAC Leakage current: 4 μ A(Typ.) 5 μ A(Max.)	CE: CLASS B* RE: CLASS B* ESD: Contact \pm 6kV (U/VRH_P-3WR3) Air \pm 15kV/Contact \pm 8kV (U/VRH_LP-15WR3) (URH_LP-20WR3)	EN60601-1*	31.6 x 20.3 x 10.2
VRH_LP-15WR3 URH_LP-15WR3	15				RS: 10V/m EFT: \pm 2kV* Surge: Line to line \pm 2kV* CS: 10Vr.m.s		
URH_LP-20WR3	20	9-36 (URH24) 18-75 (URH48)	3.3,5,12,15,24	Input - output: 5000VAC Leakage current: 5 μ A(Max.)			51.5 x 26.5 x 12
URH24xxP-6WR3 URH48xxP-6WR3	6	9-36 (URH24) 18-75 (URH48)	5,6,9,12, 18,15,24	Input - output: 6000VDC	CE: CLASS B* ESD: Contact \pm 6kV EFT: \pm 2kV Surge: Line to line \pm 2kV* CS: 3Vr.m.s	EN60601-1: 2006+A1: 2013	31.6 x 20.3 x 10.2
High voltage output HO1 series		HO1-P(N)1201-0.6B、HO1-P(N)1251H-0.5C HO1-P(N)302-0.5C/F、HO1-P(N)502LD-0.4C			A variety of output voltages from 0- \pm 5000V are available, providing output adjustable function Output voltage with high stability, low ripple, low time coefficient and temperature coefficient, with multiple protection functions.		

* It is fulfilled by the recommended peripheral circuit, please refer to the datasheet for details.



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