

产品特点 Features

- 超薄小体积，机壳面宽仅为25mm
- 全球电压宽范围输入：85~264Vac/120~370Vdc
- 输入交直流两用
- 可安装在 TS-35/7.5 或 15 DIN 导轨上
- 关键元器件采用国内外知名品牌
- 不锈钢和铝合金制成的外壳能适用于更恶劣的环境
- 宽范围的工作环境温度：-40°C~+70°C
- 电源散热方式：自然冷却
- 高效率，全系列Eff最高可达91%
- 输入与输出间的隔离电压高达4000Vac
- 可承受300Vac输入浪涌电压5S
- 满足5000m海拔应用
- 过电压等级Ⅲ
- 输出过载保护、过压保护、短路保护
- 安全性能和电磁兼容符合国际和中国的最新标准
- 3年质保
- 尺寸：25*75*78.5mm
- Ultra thin and small volume, the width of the casing surface is only 25mm
- Universal range of input voltage: 85~264Vac/120~370Vdc
- Suitable for both AC and DC input
- Can be installed on TS-35/7.5 or 15 DIN rails
- Famous brand components for key parts
- Stainless steel & aluminum alloy enclosure suitable for more critical environments
- Wide range of operating temperature: -40°C~+70°C
- Cooling method: convection
- High efficiency, with a maximum Eff of 91% across the entire series
- Isolation voltage from input to output up to 4000Vac
- Withstand 300Vac surge input for 5 seconds
- Operating altitude up to 5000m
- Overvoltage level III
- Protections: overload/ over voltage/ short circuit
- Meet the latest international and Chinese safety & EMC standards
- 3 years warranty
- Dimension: 25*75*78.5mm

产品介绍 Product Introduction

HF60W-EDR系列产品是衡孚为客户提供的高性价比、小尺寸、高可靠的标准导轨安装方式的金属机壳型电源。该系列电源支持交直流两用，具有85~264Vac全球电压宽范围输入、-40~+70°C (+50°C@满载) 宽广的工作温度范围、高海拔适应能力、高效能，高可靠性以及安全隔离等显著优势。具备超薄小体积（机壳面宽仅为25mm），且拥有完善的保护功能和符合全面的安全规范。在各种恶劣的环境中为工业设备提供高稳定度、高抗干扰，能够有效适配感性和容性负载。其电磁兼容性及安全性能符合EN55032，EN55035，IEC/EN61000-3-2，IEC/EN61000-3-3，IEC/EN61000-4-2，3，4，5，6，8，11，IEC/EN61000-6-2，4，GB/T9254.1，GB17625.1，IEC/EN61558-1，IEC/EN61558-2-16，IEC/EN62368-1，GB4943.1等国际和中国的最新标准。常规输出电压可提供12V /24V /28V /36V /48V等多种配置以满足不同需求。如有特殊要求，请联系销售人员进行定制。

The HF60W-EDR series products are metal shell power supplies provided by Hengfu for customers with high cost-effectiveness, small size, and high reliability standard rail installation. This series of power supplies supports both AC and DC input, with a wide range of global voltage input from 85~264Vac, a wide operating temperature range of -40~+70°C (+50°C @ full load), high-altitude adaptability, high efficiency, high reliability, and safety isolation. It has an ultra-thin and small volume (the width of the casing surface is only 25mm), as well as complete protection function and compliance with comprehensive safety regulations. Provide high stability, high anti-interference, and effective adaptability to inductive and capacitive loads for industrial equipment in various harsh environments. And its electromagnetic compatibility



60W单路输出EDR系列开关电源

60W Single Output EDR Series Power Supply

HF60W-EDR-**

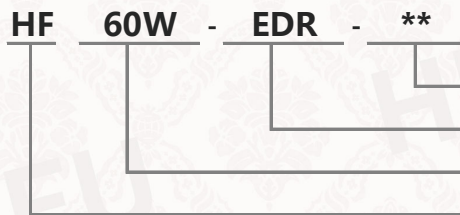
and safety performance comply with the latest international and Chinese standards include EN55032, EN55035, IEC/EN61000-3-2, IEC/EN61000-3-3, IEC/EN61000-4-2, 3, 4, 5, 6, 8, 11, IEC/EN61000-6-2, 4, GB/T9254.1, GB17625.1, IEC/EN61558-1, IEC/EN61558-2-16, IEC/EN62368-1, GB4943.1, etc. Normal output voltage such as 12V /24V /28V /36V /48V is available, and other special requirements can be customized upon request.

应用领域 Diverse Application

广泛应用于工业控制、自动化机械、农业机械、激光设备、仪器仪表、光伏储能、充电桩、通信设备、医疗器材、智能家居、安防系统、轨道交通、电力电气、LED灯饰等领域。

It can be widely used in various fields such as industrial control, automation machinery, agricultural machinery, laser equipment, instruments and apparatuses, photovoltaic energy, charging station, telecom equipment, medical equipment, smart home, security system, rail transportation, electric power, LED lighting.

型号编码 Model Definition



- 输出电压 Output voltage
- 系列名称 Series name
- 系列功率 Series wattage
- 衡孚缩写 Abbreviation of company name Hengfu

电气规格 Electrical Specifications

| 型号 Model No. | 额定输出电压 DC Voltage | 额定输出电流 Rated Current | 输出电流范围 Current Range | 额定功率 Rated Power | 纹波与噪声 ⁴ Ripple & Noise | 效率 (Typ.) Efficiency |
|-----------------|----------------------|-------------------------|-------------------------|---------------------|--------------------------------------|-------------------------|
| HF60W-EDR-12 | 12V | 5.0A | 0~5A | 60W | ≤150mVp-p | 88.0% |
| HF60W-EDR-24 | 24V | 2.5A | 0~2.5A | 60W | ≤150mVp-p | 89.0% |
| HF60W-EDR-48 | 48V | 1.25A | 0~1.25A | 60W | ≤180mVp-p | 91.0% |
| HF60W-EDR-54 | 54V | 1.13A | 0~1.13A | 61.02W | ≤180mVp-p | 91.0% |

| 输入电气特性 Input Electrical Characteristics ¹ | | 参数 & 测试条件 Parameters & Test Conditions |
|--|-----------------------|--|
| 额定输入电压 | Rated input voltage | 100-240Vac (140-340Vdc) |
| 输入电压范围 | Input voltage range | 85~264Vac (120~370Vdc) |
| 额定输入频率 | Rated input frequency | 50/60Hz |
| 输入频率范围 | Input frequency range | 47~63Hz |
| 输入电流 | Input current | <1.5A/115Vac; <0.9A/230Vac; |
| 输入启动冲击电流 | Input inrush current | <45A/230Vac, 冷启动 cold start |
| 输入漏电流 | Input leakage current | <0.35mA/240Vac |

| 输出电气特性 Output Electrical Characteristics ¹ | | 12V | 24V | 48V | 54V |
|---|------------------------------|--------------------------------|--------|--------|--------|
| 输出电压调节范围 | Output voltage adjust range | 11-14V | 23-29V | 47-53V | 53-59V |
| 电网调整率 ² | Line regulation ² | ±0.5% | | | |
| 负载调整率 ³ | Load regulation ³ | ±0.5% | | | |
| 输出电压精度 | Output voltage tolerance | ±1% | | | |
| 待机功耗 | Standby power consumption | ≤0.5W/230Vac | | | |
| 启动时间 | Set up time | ≤1500ms/115Vac; ≤1000ms/230Vac | | | |
| 上升时间 | Rise time | <50ms/115Vac; <50ms/230Vac | | | |
| 保持时间 | Hold up time | ≥10ms/115Vac; ≥40ms/230Vac | | | |

| | | |
|--------|----------------------------|--|
| 输出过载保护 | Output overload protection | 105 ~ 150% 打嗝模式 (异常条件移除后可自动恢复) Hiccup mode, auto recovery after fault is removed |
| 输出过压保护 | Over voltage protection | 16-19V 30-34V 56-65V 60-70V 打嗝模式 (异常条件移除后可自动恢复) Hiccup mode, auto recovery after fault is removed |
| 输出短路保护 | Short circuit protection | 打嗝模式 (异常条件移除后可自动恢复) Hiccup mode, auto recovery after fault is removed |

| ■ 工作环境 Working Conditions | | 参数 & 测试条件 Parameters & Test Conditions ¹ |
|---------------------------|---------------------------------|---|
| 工作温度 | Operating temperature | -40°C ~ +70°C (参考减额曲线图 refer to derating curve) |
| 储存温度 | Storage temperature | -40°C ~ +85°C |
| 工作湿度 | Operating humidity | 20% ~ 90%RH, 无凝露 non-condensing |
| 储存湿度 | Storage humidity | 10% ~ 95%RH, 无凝露 non-condensing |
| 温度漂移系数 | Temperature coefficient | ±0.03% |
| 工作海拔 ⁵ | Operating altitude ⁵ | ≤5000m |
| 冷却方式 | Cooling method | 自然冷却 convection |
| 冲击实验 | Impact test | 半正弦波, 加速度20G, 持续时间11ms, 沿X,Y,Z 轴各进行3次冲击 Half sine wave, acceleration 20G, duration 11ms, 3 cycles each along X,Y,Z axes |
| 振动实验 | Vibration test | 正弦波, 振动频率10~500Hz, 加速度5G, 每个扫频循环10min, 沿X,Y,Z 轴各进行6个扫频循环 Sine wave, vibration frequency 10-500Hz, acceleration 5G, 10min/cycle, 6 cycles each along X,Y,Z axes |

| ■ 安规和电磁兼容 (Safety & EMC) ⁷ | | 参数 & 测试条件 Parameters & Test Conditions ¹ |
|---------------------------------------|--------------------------------|--|
| 安全标准 | Safety standards | 符合 meet IEC/EN61558-1/-2-16, IEC/EN62368-1, GB 4943.1 |
| 电磁兼容标准 | EMC standards | 符合 meet EN55032 Class A, EN55035, IEC/EN61000-3-2, IEC/EN61000-3-3, IEC/EN61000-4-2, 3, 4, 5, 6, 8, 11, IEC/EN61000-6-2, 4, GB/T9254.1, GB17625.1 |
| 过电压等级 | Over voltage category | OVC III (IEC/EN61558-1, 工作海拔 operating altitude ≤2000m); OVC III (IEC/EN61558-2-16, 工作海拔 operating altitude ≤2000m); OVC II (IEC/EN62368-1, GB4943.1, 工作海拔 operating altitude ≤5000m); |
| 绝缘强度 (输入-输出) | Withstand voltage (I/P-O/P) | 4.0KVac/1min |
| 绝缘强度 (输入-地) | Withstand voltage (I/P-FG) | 2.0KVac/1min |
| 绝缘强度 (输出-地) | Withstand voltage (O/P-FG) | 1.5KVac/1min |
| 绝缘电阻 (输入-输出) | Isolation resistance (I/P-O/P) | > 100MΩ (测试条件 test condition: 500Vdc) |
| 绝缘电阻 (输入-地) | Isolation resistance (I/P-FG) | > 100MΩ (测试条件 test condition: 500Vdc) |
| 绝缘电阻 (输出-地) | Isolation resistance (O/P-FG) | > 100MΩ (测试条件 test condition: 500Vdc) |
| 认证 | Approval | CB CE |

| ■ 外观特性 Appearance Characteristics | | 参数 Parameters |
|-----------------------------------|---------------------|--|
| 安装方式 | Installation method | 导轨型 DIN Rail type |
| 外壳材质 | Enclosure material | 不锈钢与铝合金制成的外壳 Stainless steel & aluminum alloy enclosure |
| 外形尺寸 | Dimension | 25*75*78.5mm |



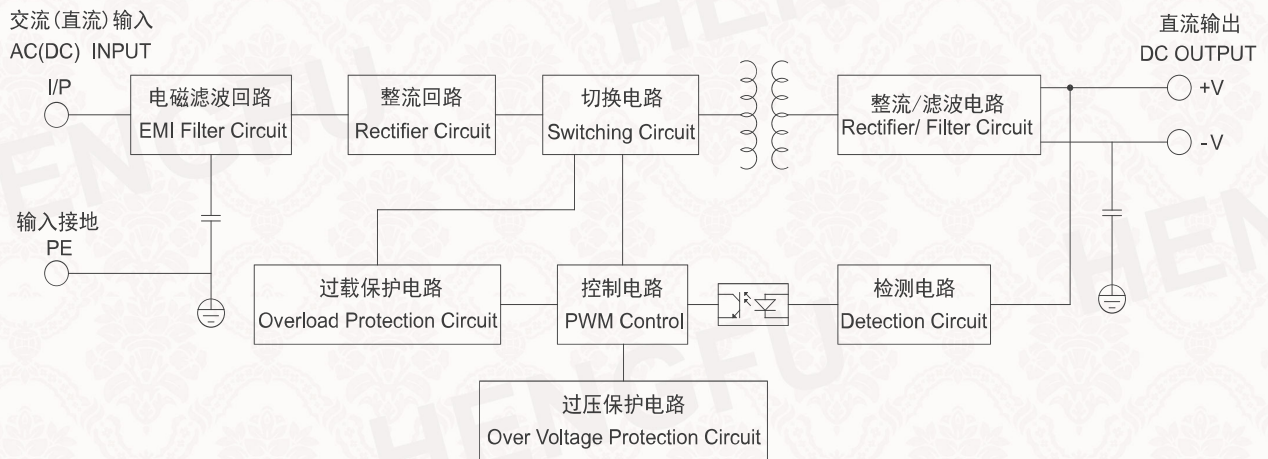
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60W Single Output EDR Series Power Supply

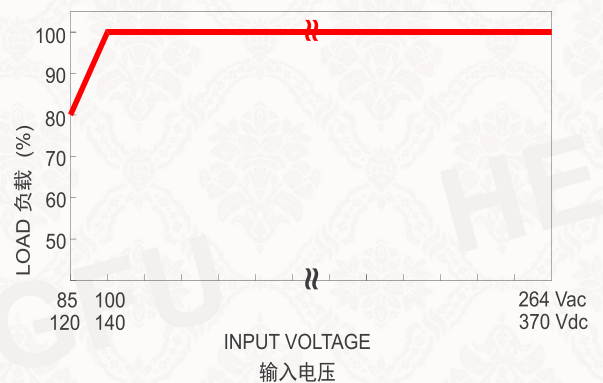
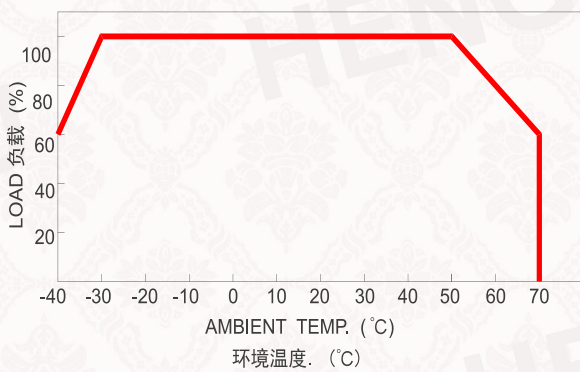
HF60W-EDR-**

| | | |
|-----------|---------------------------------------|-----------------------------------|
| 输入和输出接线端子 | Input & output terminal block | Input: 5.0mm-3P; Output: 5.0mm-2P |
| 端子适用线径 | Applicable wire diameter for terminal | 26-14AWG |
| 端子螺丝/扭矩 | Terminal screw/ torque | M3/0.5N·m |
| 重量 | Weight | 0.16kg |
| 最小包装量 | Packing (MPQ) | 90pcs, 16.4kg/CTN |

■ 方框图 Block Diagram



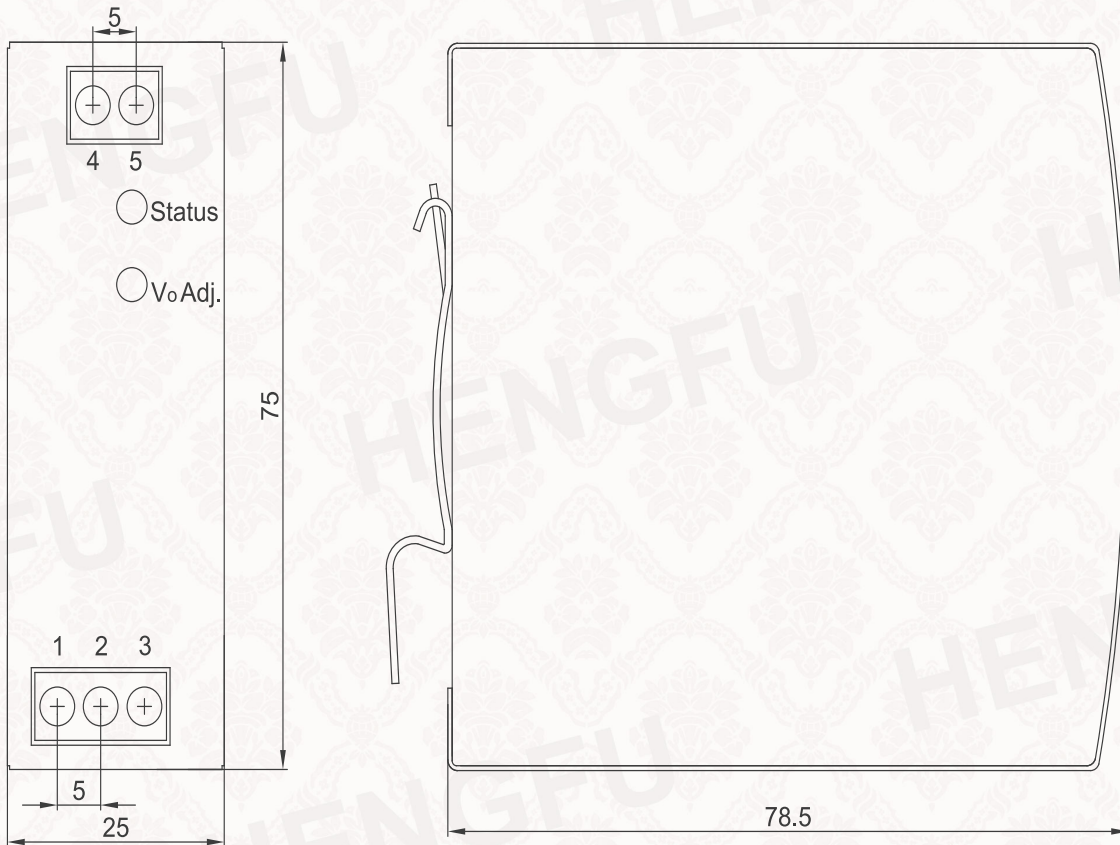
■ 减额曲线图 Derating Curve



温度: -40度60% $-30 + 50\text{度} 100\text{度} 70\text{度} 60\text{度}$

85V/80% 100V/100% 264V/100% (宽电压+DC输入)

■ 安装图纸 Drawing



接线端子排布 Terminal Pin No. Assignment

| 位号 No. | 功能 Function | 引脚定义 | Pin Definition |
|---------|----------------|---------------------------|---|
| 1 | AC(L) DC(+) | 输入AC(L)接线端口 输入DC正极接线端口 | AC Input terminal for live line DC Input terminal for positive pole |
| 2 | AC(N) DC(-) | 输入AC(N)接线端口 输入DC负极接线端口 | AC Input terminal for neutral line DC Input terminal for negative pole |
| 3 | PE | 输入接地端口 (与外壳相通) | Protective earth (enclosure is linked to ground) |
| 4 | +Vo | 输出正极接线端口 | DC output terminal for positive pole |
| 5 | -Vo | 输出负极接线端口 | DC output terminal for negative pole |
| Status | Status | 绿色指示灯点亮表示电源工作状态正常 | Green LED light on indicates the power supply is in normal operation |
| Vo Adj. | Vo Adj. | 输出电压微调电位器 | Trimmer for output voltage adjustment |

■ 备注 Notes

- 除特殊说明外，上述所有参数的测试条件都在室温=25℃，湿度 < 75%RH，输入230Vac和额定负载时测得。
Unless specially mentioned, all above parameters are measured at ambient temperature 25℃, humidity < 75%RH, 230Vac input and rated load.
- 电网调整率是在额定负载条件下从低电网到高电网的输出电压变化率。
Line regulation is the output voltage change rate from low line to high line at rated load.
- 负载调整率是负载电流从额定负载的10%到100%变化时的输出电压变化率。
Load regulation is the output voltage change rate from 10% to 100% rated load.
- 纹波和噪声的检测是用20MHz带宽示波器，从被测电源的端口连接一根长30cm的20AWG (0.5mm²) 屏蔽双绞线，且在绞线末端并接上0.1uF高频电容和47uF电解电容后测得。
Ripple & noise are measured by an oscilloscope at 20MHz of bandwidth, using a 30cm 20AWG (0.5mm²) twisted pair-wire connected to the power supply, terminated with a 0.1uF high-frequency & 47uF electrolytic parallel capacitor.
- 当工作海拔高于2000米时，工作温度须调降5℃/1000米。
The ambient temperature derating of 5℃/1000m is needed for operating altitude greater than 2000m.
- 设备长时间工作在 20W 以上时，建议安装在DIN rail上的电源至少保留顶部 20mm、底部 20mm、左右各 5mm 的间隙。如邻近的设备是热源 (例如另一个电源)，则将此间隙增大至15mm。
When the equipment operates continuously at a power level exceeding 20W, it is recommended to leave a gap of at least 20mm at the top, 20mm at the bottom, and 5mm on both left and right side for the power supply installed on the DIN rail. If the adjacent device is a heat source (such as another power supply), increase the left and right side gap to 15mm.
- 开关电源被视为用户整机的一个部件，整机是否符合EMC指令还需重新测试并验证。
The power supply is regarded as a component which will be installed into the final equipment. The final equipment must be re-confirmed that it still meets EMC directives.
- 开关电源作为用户设备的部件，用户在选择开关电源时须注意，应选择符合设备应用场景和标准的开关电源。如在中国境内对于有3C强制认证要求的应用，应选择有3C认证的开关电源；当在其他国家和地区使用时，也应根据当地的法律法规要求，选择符合相应法律法规标准认证的开关电源。若用户不了解如何选择，可告知我们其设备应用场景和要求，我们可协助用户进行选型。
As switching power is a component of an equipment or device, during their applications, the final users should select a proper model in according with the real application's circumstances and criteria. For instance, in Chinese Mainland for the applications which have compulsory request on CCC approval, the final users have to select CCC certified models. On the other hands, for the applications in other countries or regions, the final users have to select a proper safety certified model which complies with both the local laws and industrial regulations. When users have confusions or have no idea in model selection, you are welcome to send your inquiry. We will recommend you the matching models based on your specified requests and application fields.
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For installation, usage instructions and after-sales policies of the product, please scan the QR code below "Product Instruction Manual and Service Commitment" to learn more details.
- 如需了解更多信息，请浏览衡孚官网 www.hengfuchina.com。
For more information, please visit www.hengfu.com.

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WeChat Official Account



天猫旗舰店
Tmall Flagship Store



京东旗舰店
JD Flagship Store



官方抖音号
Official Tiktok Account



产品使用说明及服务承诺
Product Instruction Manual
and Service Commitment