

# Beckhoff电源产品 | 三个产品系列

BECKHOFF

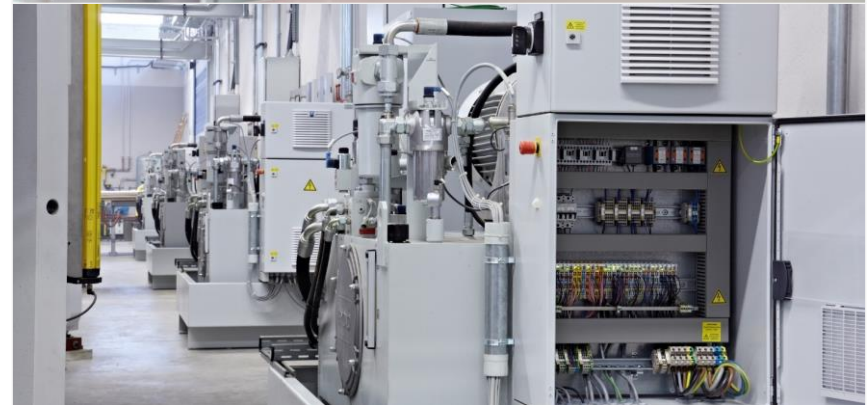
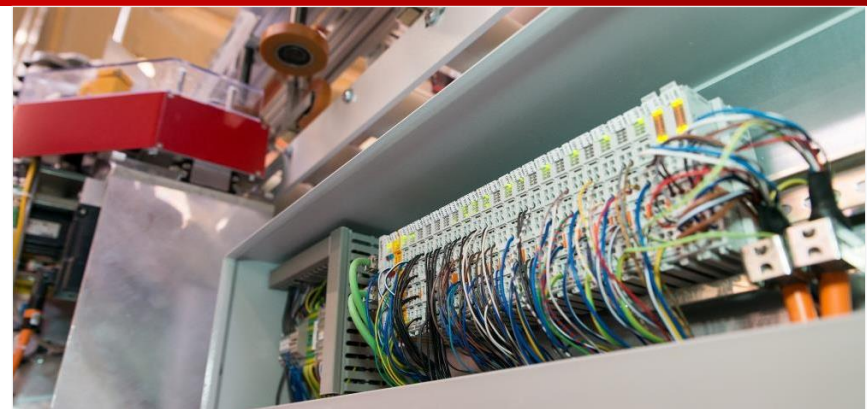
PS1000 针对小型应用



PS2000 针对标准应用



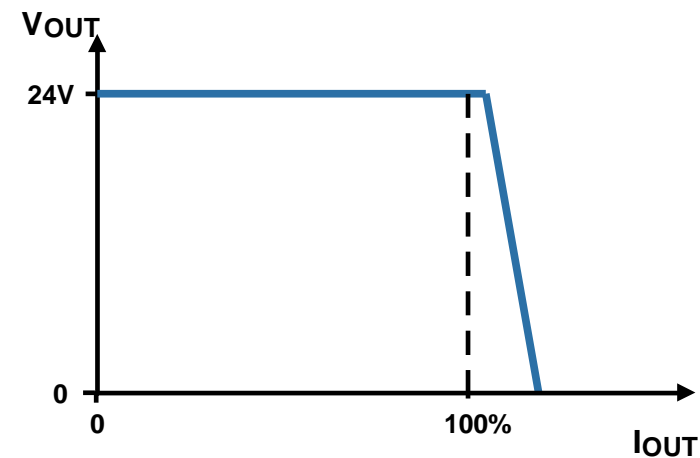
PS3000 针对高要求应用



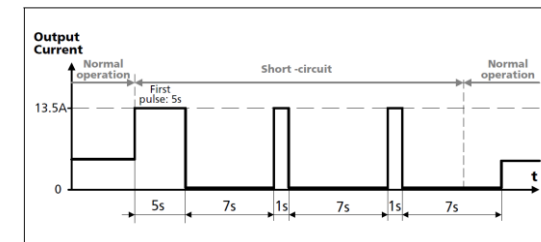
- 单相, 24 V DC
- 2.5 A; 3.8 A; 5 A; 10 A; 20 A
- 效率可达95.3 %
- 带Hiccup的UI曲线
- 有源浪涌电流限制
- 大输入范围
- DC OK指示灯/继电器触点



### UI-curve



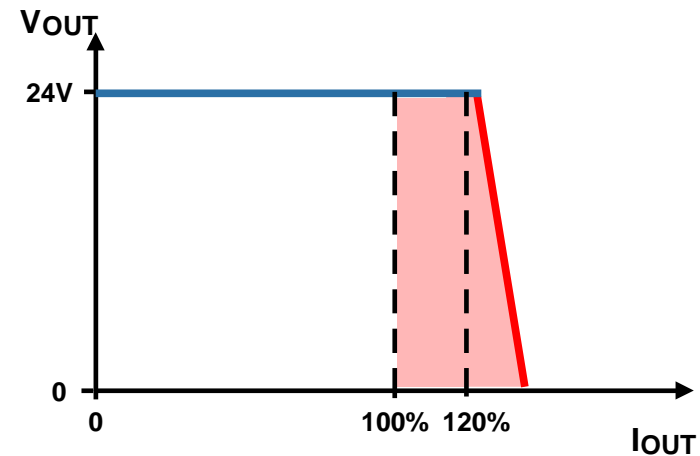
### Hiccup (short circuit)



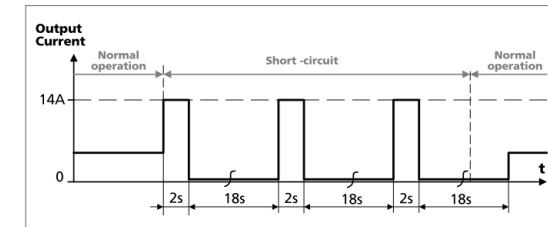
- 1-3 相, 24/48 V DC
- 5 A; 10 A; 20 A
- 效率可达96.3 %
- 20 %额外功率, 长时间运行
- 保险丝跳闸
- 紧凑型封装
- 带有余量和Hiccup的UI曲线
- 有源浪涌电流限制
- 大输入范围
- DC OK指示灯/继电器触点



### UI-curve



### Hiccup (short circuit)



# Beckhoff电源产品 | PS2000 带EtherCAT接口的电源

BECKHOFF

- 2 x RJ45, EtherCAT in/out
- 输入电压
  - $U_{rms}$ ,  $U_{max}$ ,  $U_{min}$
- 瞬态检测
  - 浪涌脉冲
  - $U_{peak}$
- 输出电流
  - $I_{out}$ ,  $I_{max}$
- 输出电压
  - $U_{out}$ ,  $U_{max}$ , DC-OK
- 温度监控
  - $temp_{current}$ ,  $temp_{max}$ ,  $temp_{min}$



EtherCAT®

# Beckhoff电源产品 | PS2000 带EtherCAT接口的电源

BECKHOFF

- 可调警告级别
  - 过流输出
  - 过压输出
  - 过温
  - DC-OK 检测功能
- 可通过EtherCAT切换输出
- PS2001-2410-1001
  - 输出 24V/10A
- PS2001-2420-1001
  - 输出 24V/20A
- PS2001-4810-1001
  - 输出 48V/10A

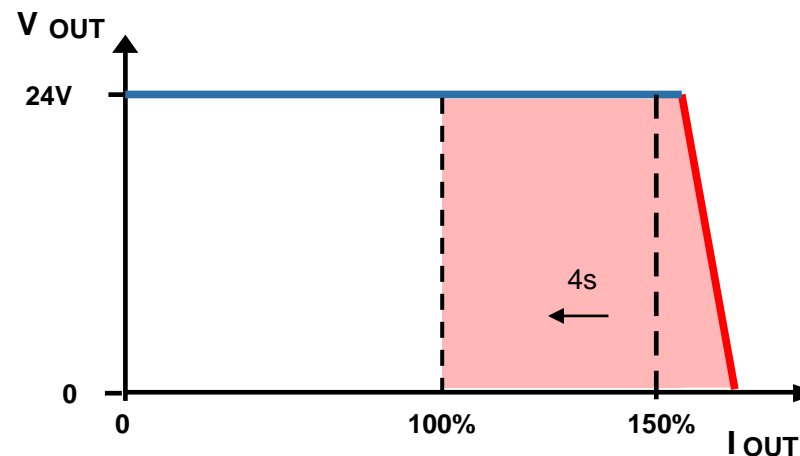


EtherCAT®

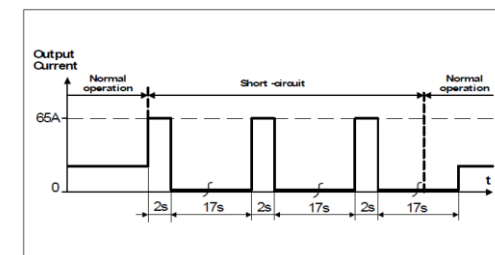
- 1-3 相, 24/48 V DC
- 10 A; 20 A; 40 A
- 效率可达95.4 %
- 50 %额外功率, 持续4 s
- 保险丝跳闸
- 紧凑型封装
- 带有余量的UI曲线(3相)
- 有源浪涌电流限制
- 大输入范围
- DC OK, 过载 LED, 继电器输出
- 关断触点(960W产品)



### UI-curve



### Hiccup (short circuit) (1-phase Variants)



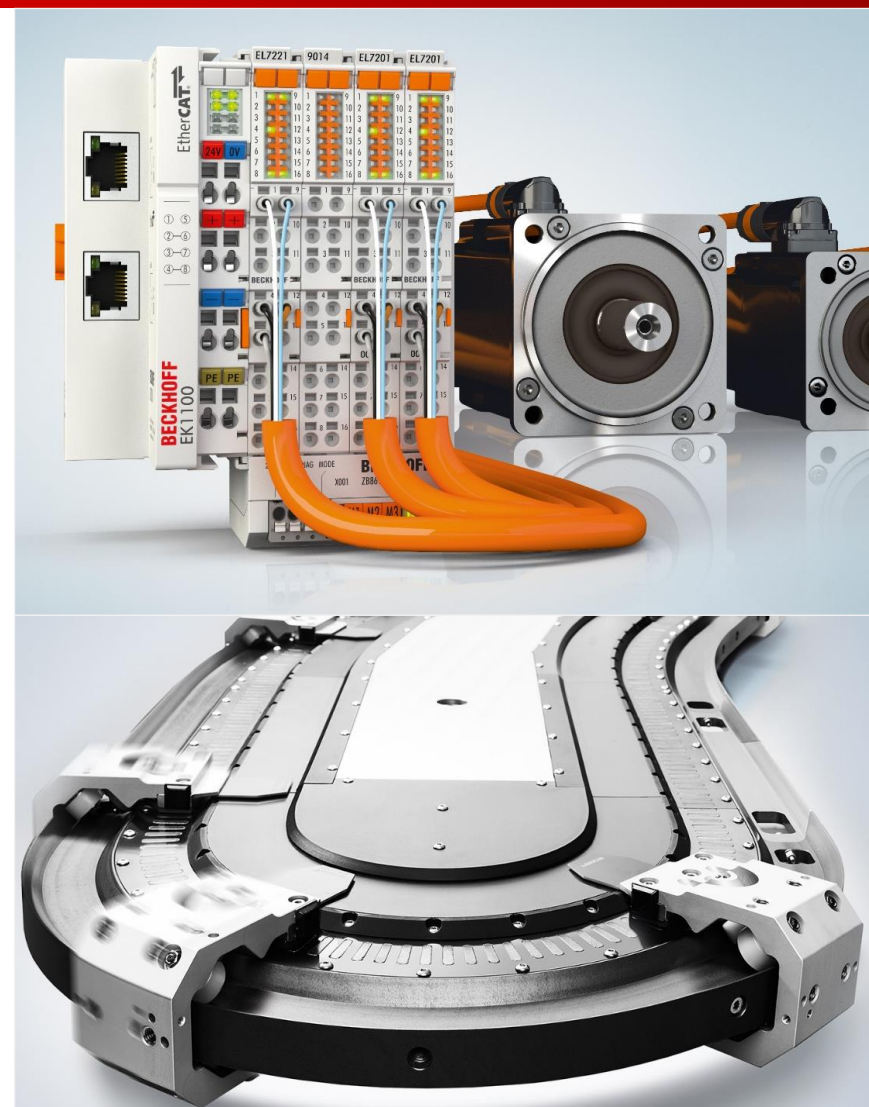
## 应用

- 紧凑型驱动产品
- XTS
- 其它48 V负载

## 48 V Power Supplies

- 单相 10 A 480 W PS2000
- 三相 10 A 480 W PS3000
- 单相 20 A 960 W PS3000
- 三相 20 A 960 W PS3000

→ 应对反向电动势稳定可靠





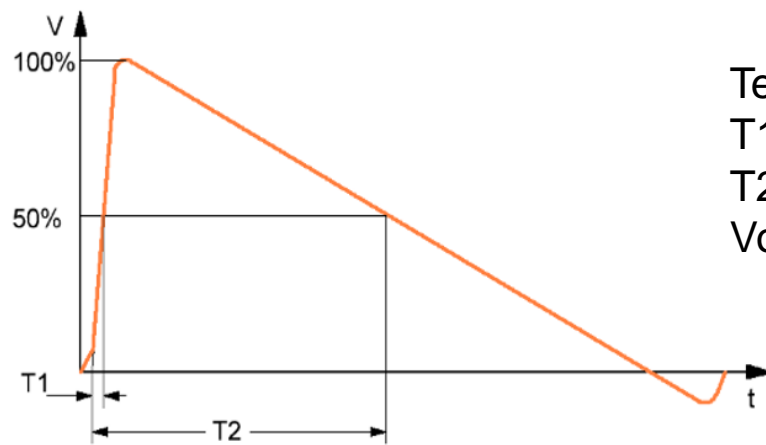


## 强应对瞬态过压能力

如:

- 浪涌脉冲

Surge Impulse IEC61000-4-5



Test pulse  
T1=1.2 $\mu$ s  
T2=50 $\mu$ s  
Voltages up to 2.5/4kV

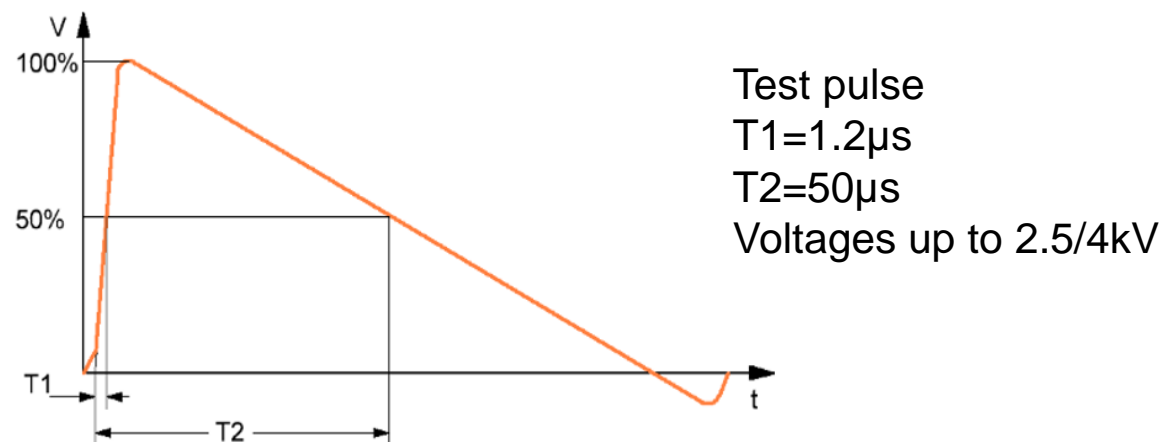
## 强应对瞬态过压能力

如:

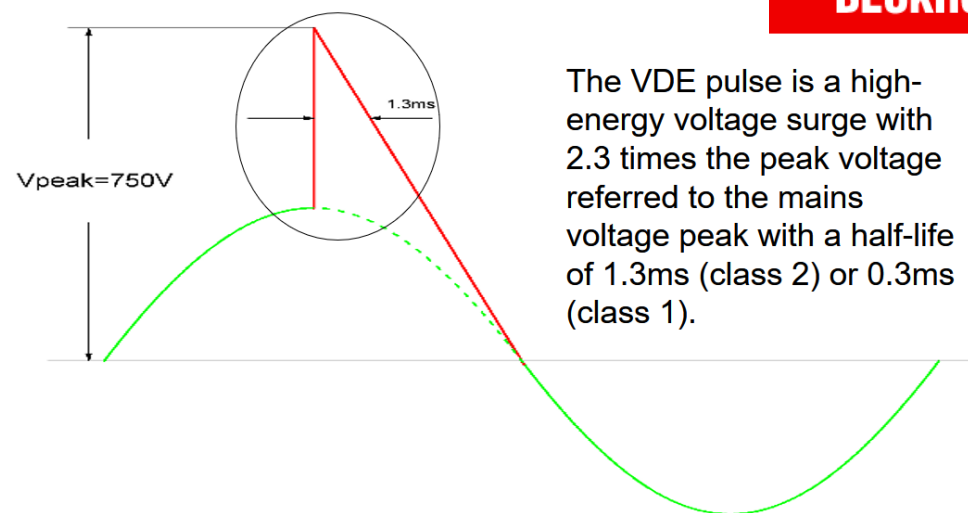
- 浪涌脉冲
- VDE0160脉冲

- 瞬态期间依旧可以保持稳定输出。

### Surge Impulse IEC61000-4-5

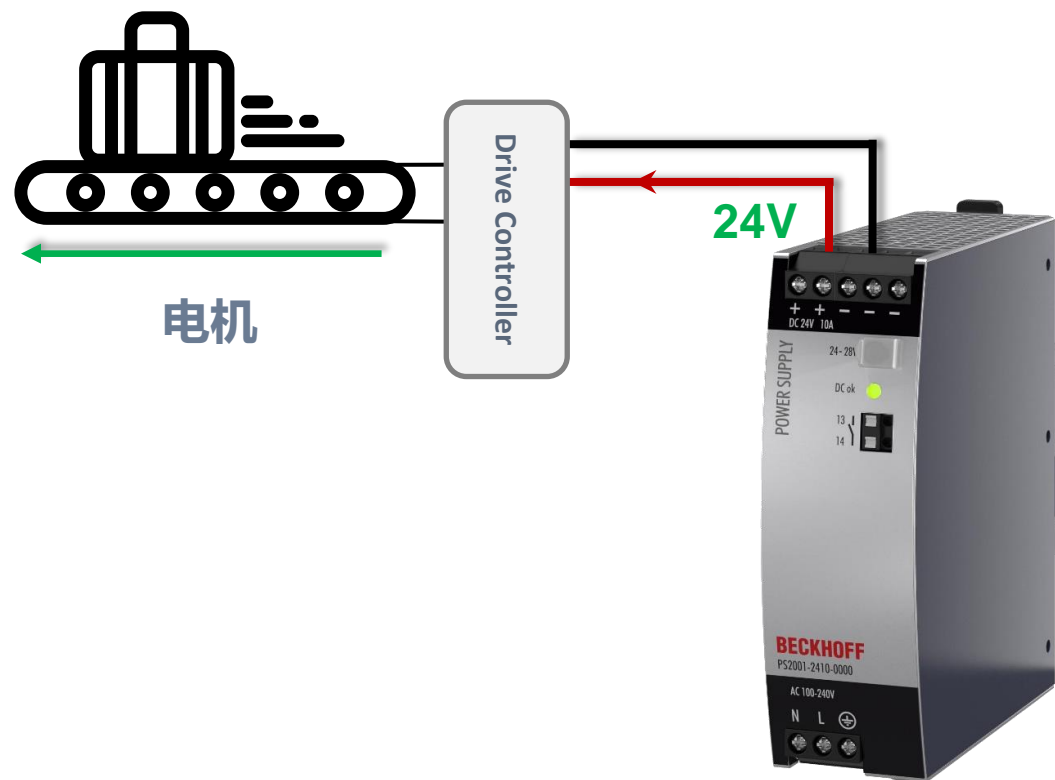


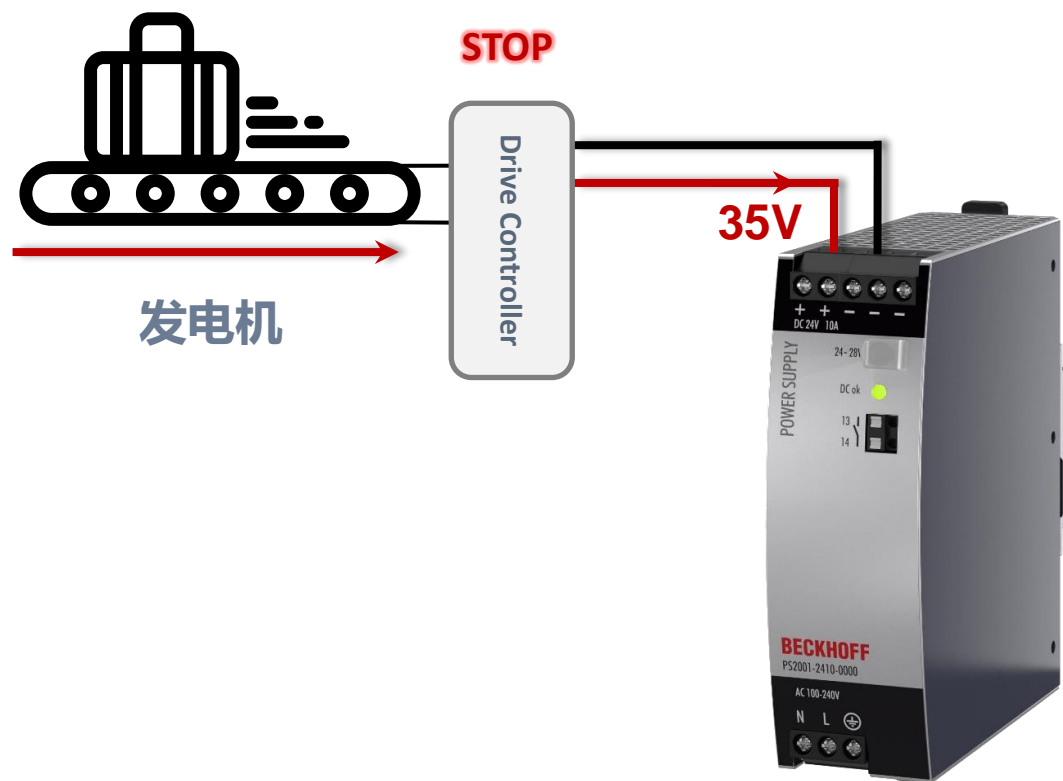
### VDE0160 pulse



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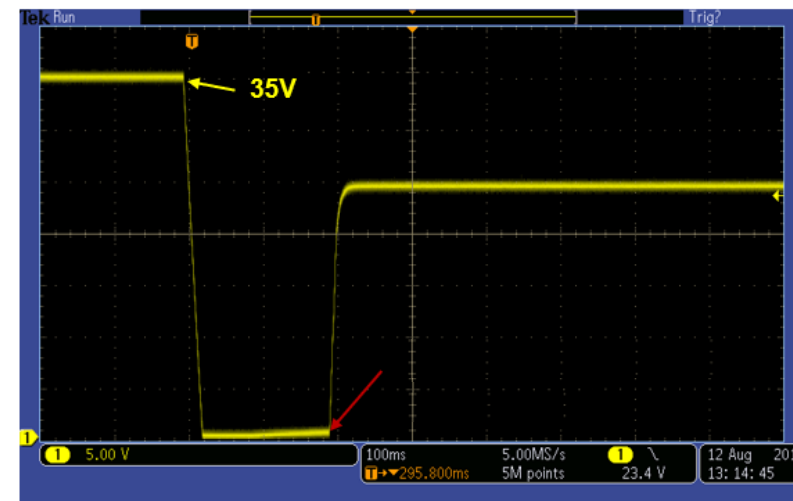
The VDE pulse is a high-energy voltage surge with 2.3 times the peak voltage referred to the mains voltage peak with a half-life of 1.3ms (class 2) or 0.3ms (class 1).





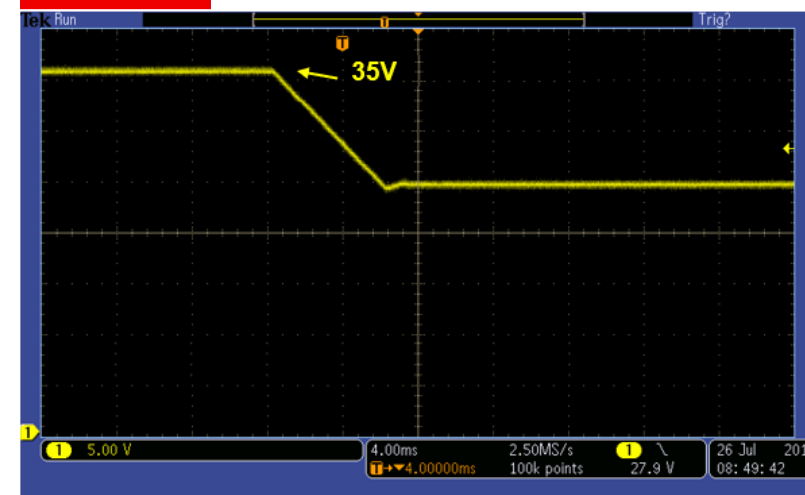
输出不会中断

### “友商表现”

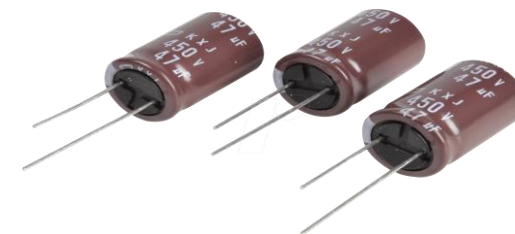
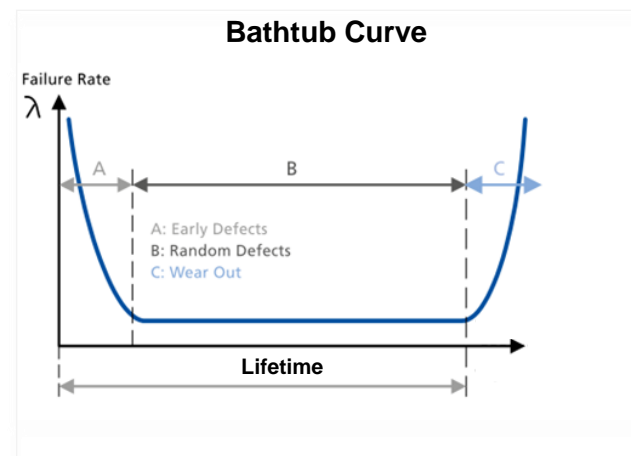
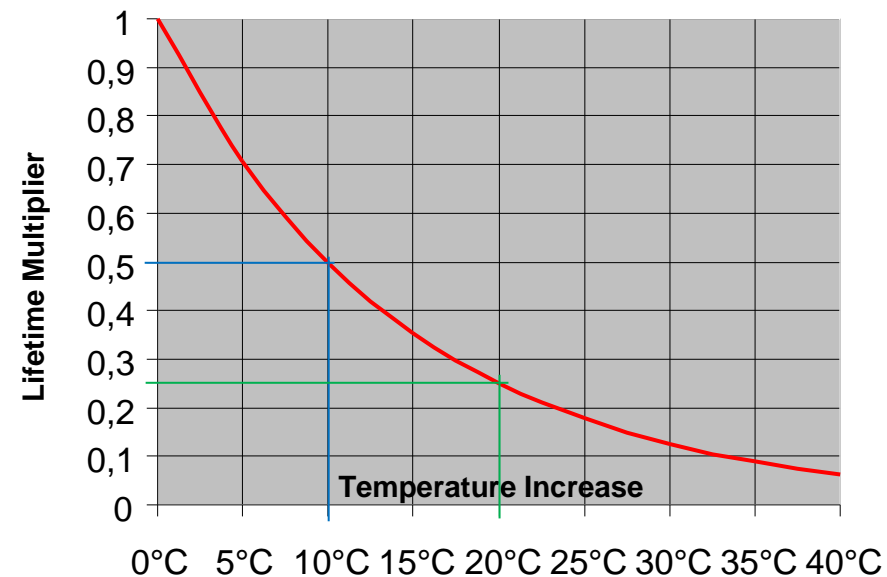


BECKHOFF

PS1021-2405-0000

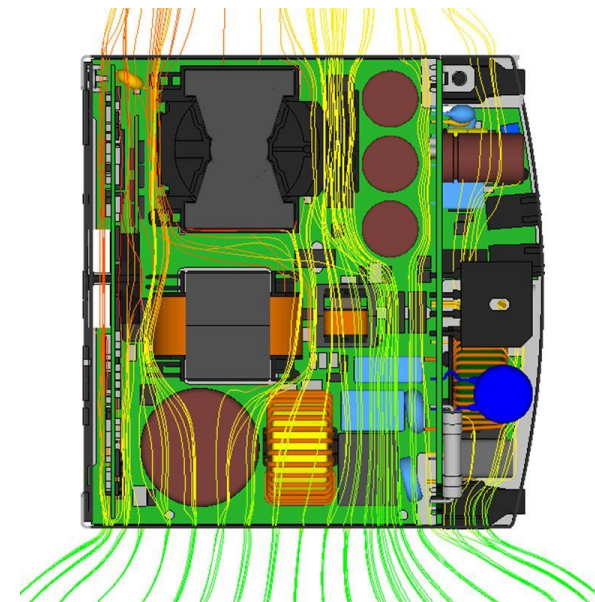


- 高温会急剧缩短寿命
- 温度每升高10°C, 寿命缩短一半!
- 老化测试 (基于IEC 60749-23 )



## 如何获取较高的预期寿命？

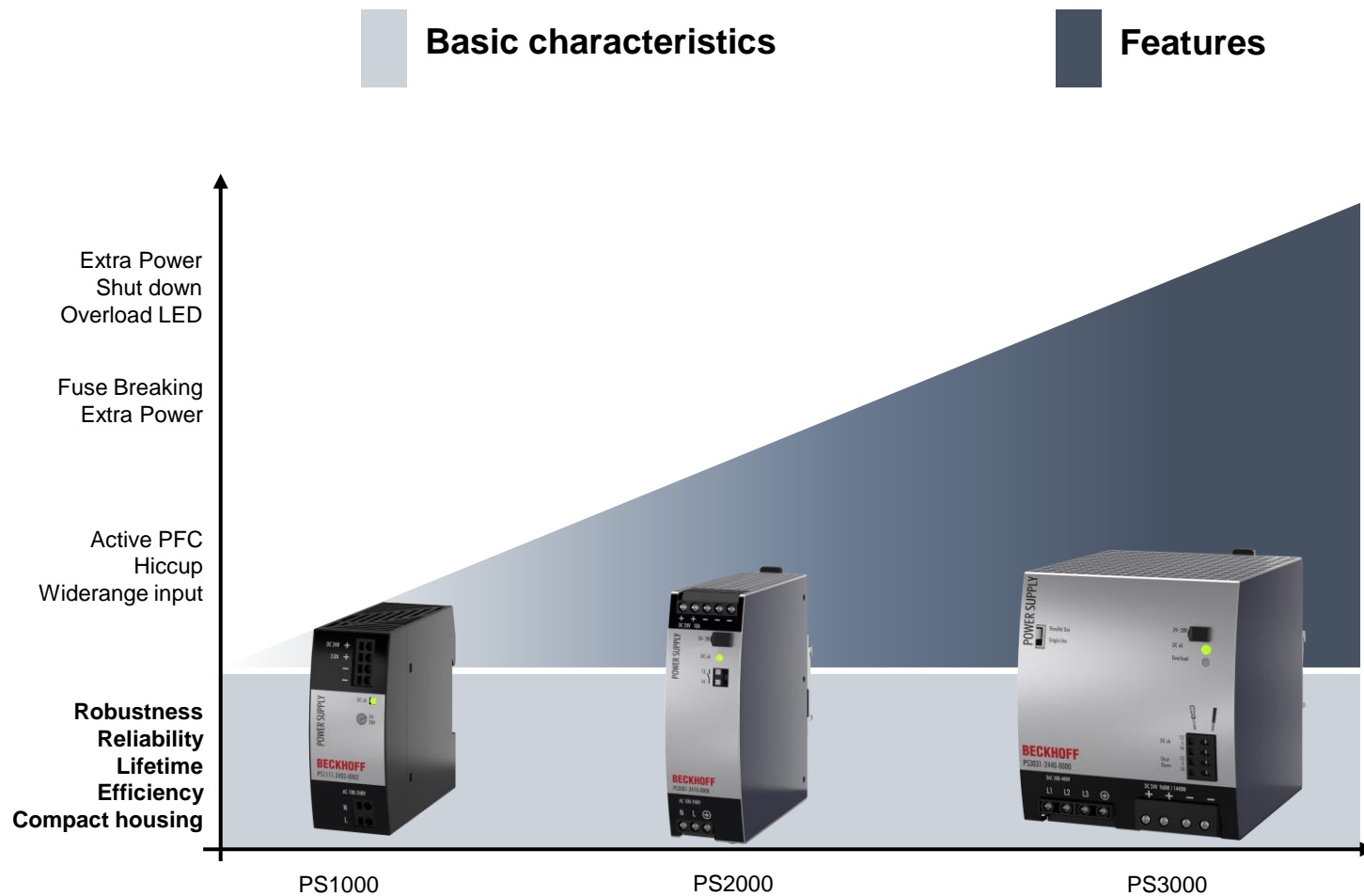
1. 高效率 = 低发热量
2. 有效去除预热
3. 确保足够的对流通通过
4. 尽可能将电容安装在低温度区域
5. 100%老化测试



# 独特卖点

# BECKHOFF

- 高效率
- 高可靠性
- 长寿命
- 紧凑型封装
- 强大抵抗外部影响能力

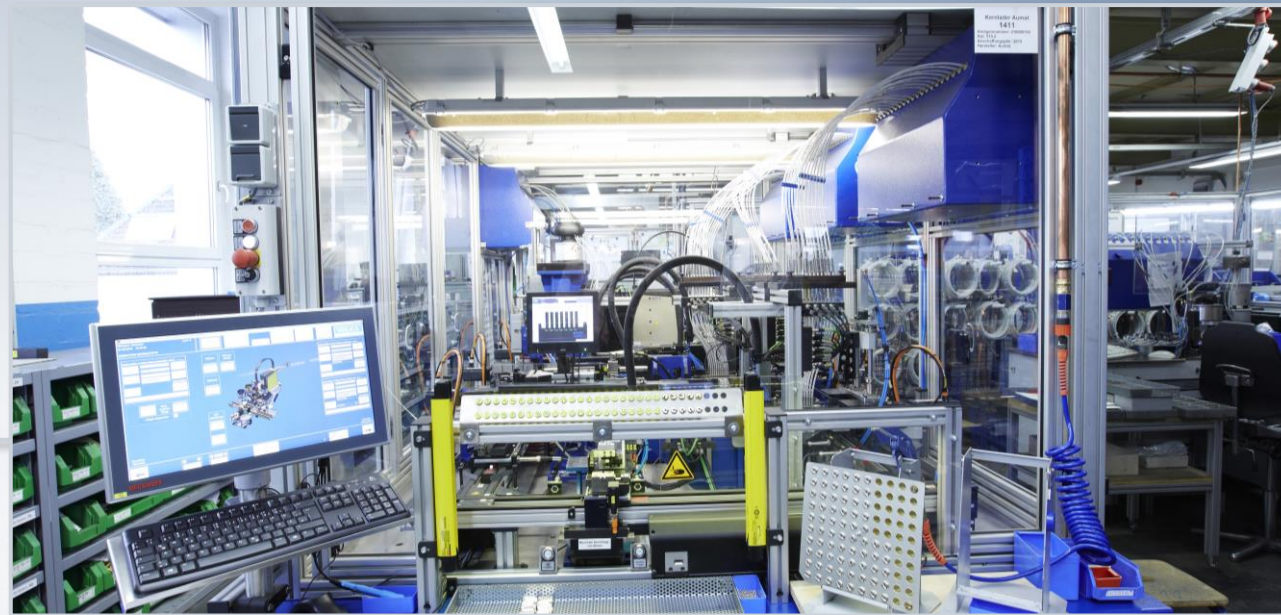






# 附加模块 缓冲 / 冗余模块

BECKHOFF



## 电源



### 缓冲模块

- 输入电压跌落
- 输入电压干扰
- 峰值负载



### UPS

- 设备安全关机
- 紧急电源



### 冗余模块



# 电源解决方案 缓冲模块

BECKHOFF

- 免维护电解电容
- 高能量密度
- 温度可达+70°C

## PS9011-2420-0001

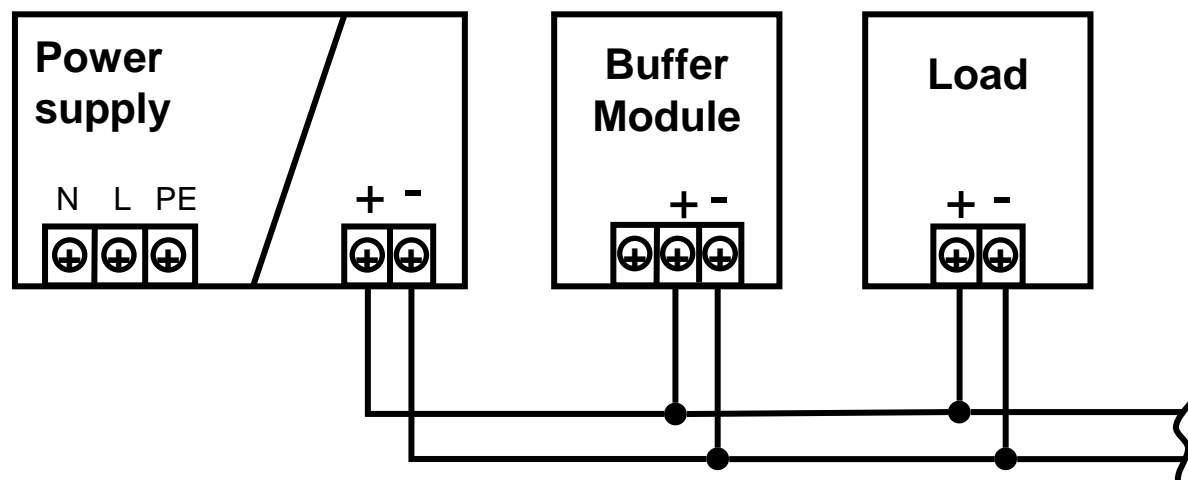
– 24 V DC, 20 A, 200 ms

## PS9011-2440-0000

– 24 V DC, 40 A, 160 ms

## PS9031-4820-0001

– 48 V DC, 20 A, 100 ms



# 电源解决方案 冗余模块

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- 针对N+1或者1+1的系统
- 基于MOS-FET技术, 低损耗
- 组合单元(12-28V, 24-56V)
- 紧凑型峰值

## PS9401-2420-0000

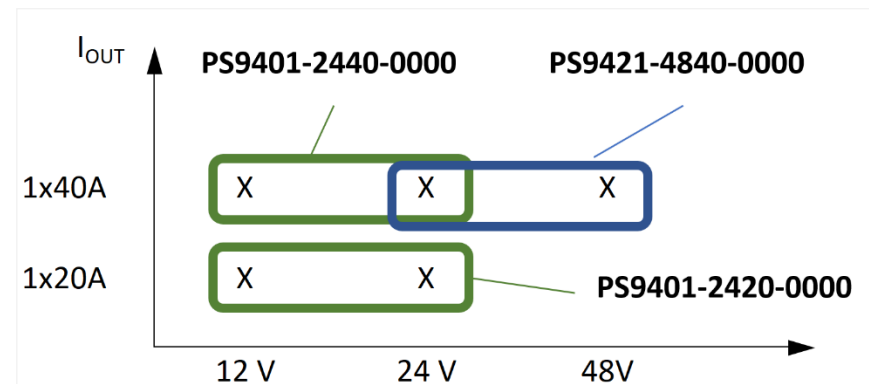
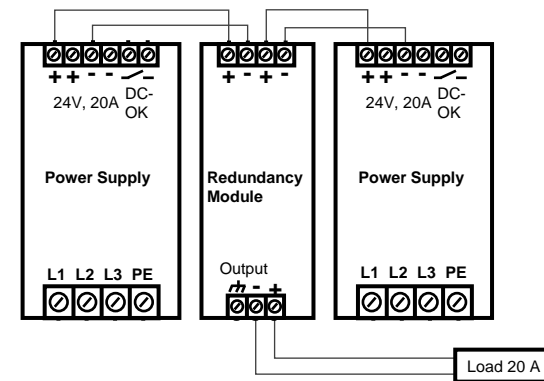
– 12-28 V DC,  $I_{out}$ : 20 A

## PS9401-2440-0000

– 12-28 V DC,  $I_{out}$ : 40 A

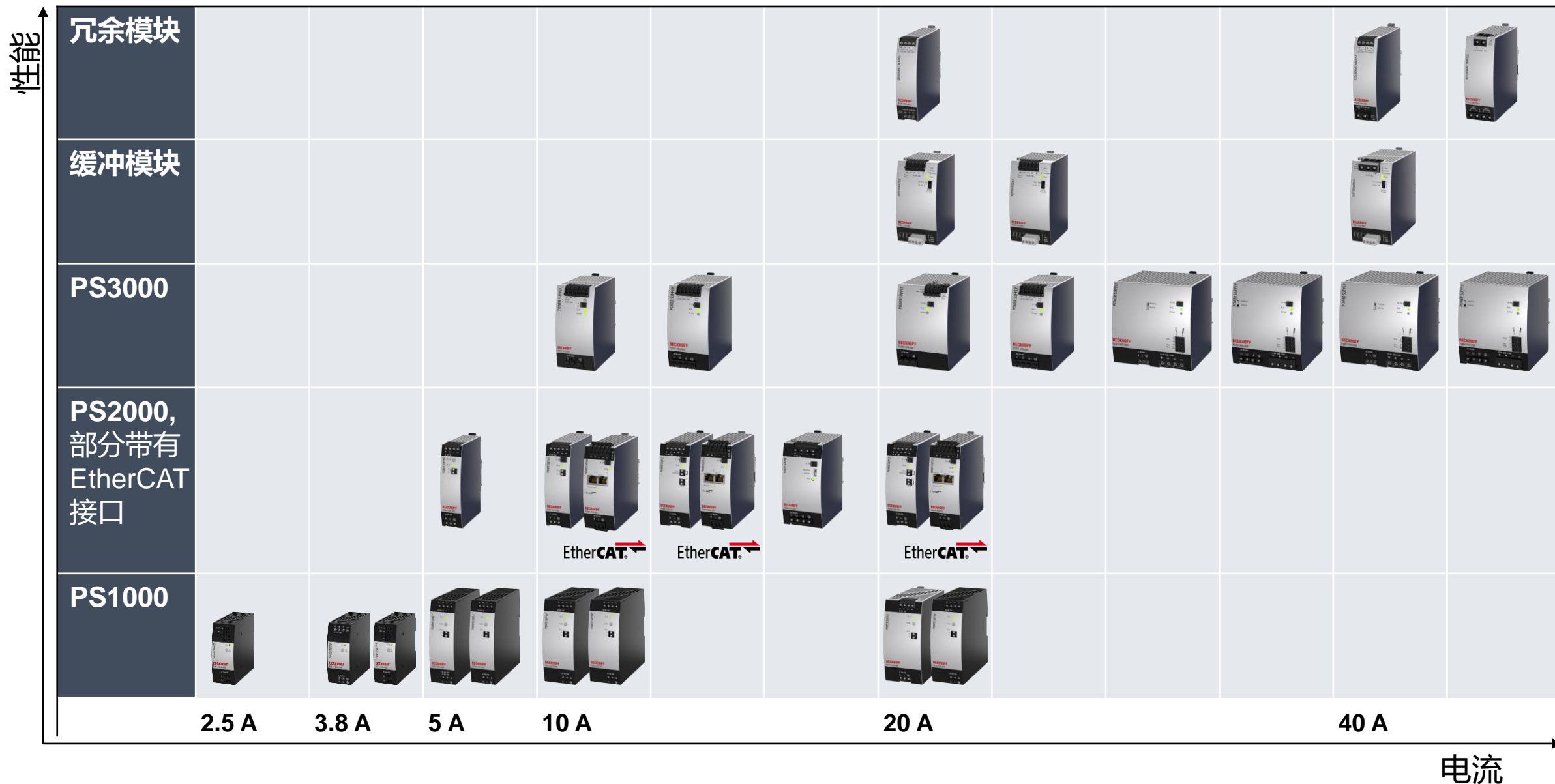
## PS9421-4840-0000

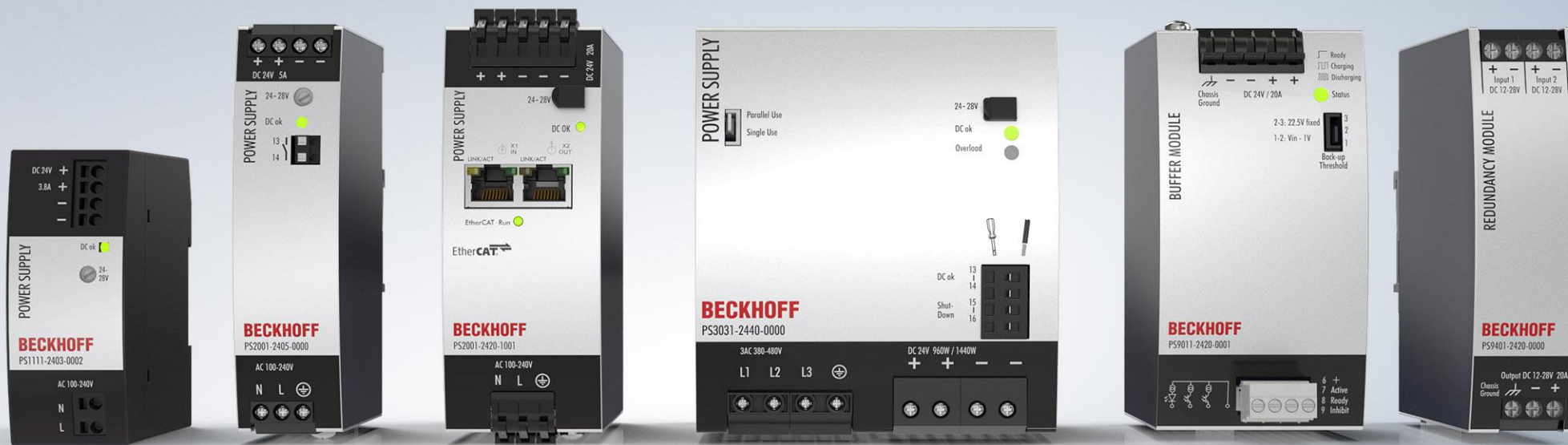
– 24-56 V DC,  $I_{out}$ : 40 A



# 电源解决方案 总览

BECKHOFF





标准电源

带有EtherCAT接口电源

缓冲模块

冗余模块