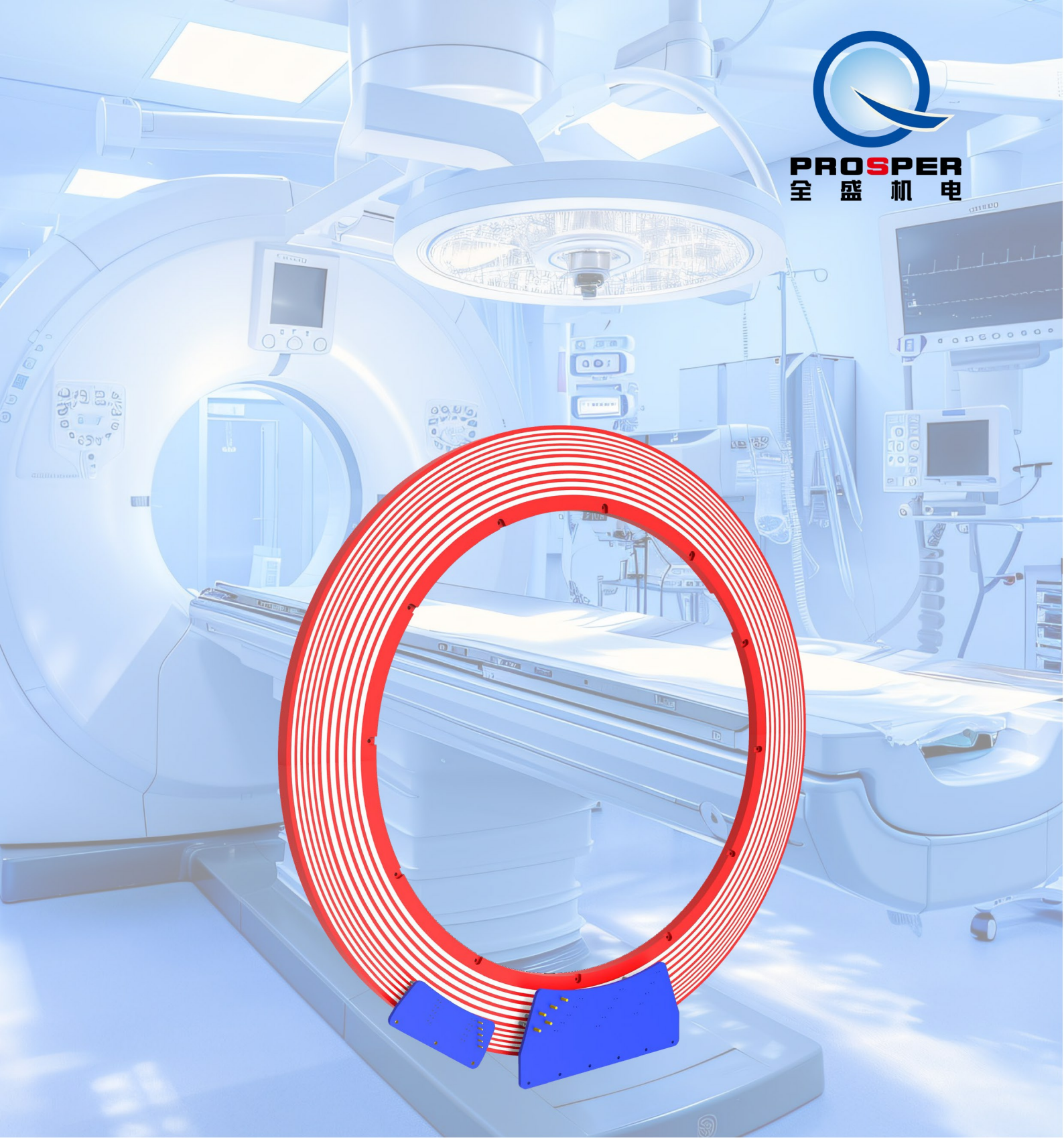
PROSPER
全 盛 机 电



CT 滑环手册

Slip Ring for Computed Tomography

杭州全盛机电科技有限公司

Hangzhou Prosper Mechanical & Electrical Technology Co.，Ltd

企业简介Company Overview

从 2003 年成立伊始，全盛机电着手研究通讯和传输技术，经过多年积累掌握了电容耦合高速无线通讯、光信号通讯、贵金属通讯、电流传输、介质传输（气 / 液）、力矩传输等核心技术，是高端医疗设备、自动化设备等领域内领先的 360 度旋转解决方案提供商。

Since its establishment in 2003, Prosper Group has been researching communication and transmission technologies. Over the years of development, the company has mastered core technologies, including capacitive coupling high-speed wireless communication, optical signal communication, precious metal communication, current transmission, medium transmission (gas/liquid), and torque transmission. It has become a leading provider of 360-degree rotational solutions in advanced medical and automation equipment fields.



20 多年精密导电滑环生产经验

Over 20 years of experience in precision conductive slip ring manufacturing.

国家专精特新“小巨人”企业

National-level Specialized, Refined, Distinctive, and Innovative “Little Giant” Enterprise

CT 滑环领域取得多项突破

Achieved multiple breakthroughs in CT slip ring technology

拥有 100 多项发明专利

Holds more than 100 patents











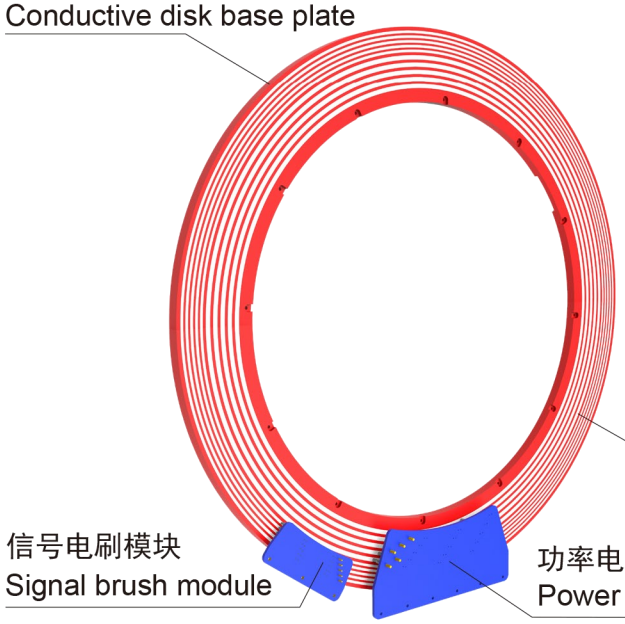








产品规格 Product Specifications



高转速功率传输系统
低功耗、长寿命
High speed power transmission system. Low power consumption, long lifespan.

110010
100110
001111

高速数据传输系统稳定、无误码、低电磁干扰
Stable high speed data transmission , zero error rate, and low EMI



国内首家采用贵金属纤维端面束刷技术

The first company in china to use precious metal multi-fiber brush technology for end interface

产品亮点 Product Highlights：

• 高速传输能力，确保数据 / 信号在高速旋转环境中稳定传输

High-speed transmission capability ensures stable data/signal transfer in high-speed rotational conditions.

• 长寿命设计，采用先进材料与工艺，提升耐磨性和耐用性

Long-lifespan design is achieved through advanced materials and techniques, enhancing wear resistance and durability.

• 低噪音运行，优化结构设计，减少运行时的噪音和振动

Optimize the structure design to reduce the noise and vibration during operation.

• 易于安装与维护，简化客户操作流程

Easy installation and maintenance, simplifying user operation.

核心优势 Key Advantages：

• 导电环采用黄铜或紫铜镀银，独立知识产权的电镀技术

Conducting rings are made of silver-plated brass or copper using proprietary electroplating technology.

• 电刷采用端面贵金属纤维束刷技术，单丝细如毛发（全盛机电专利技术）

Unique precious metal multi-fiber brush technology for end interface. The single fiber brush is as thin as a hair.

• 独有的稳定电刷压力技术

Exclusive stable pressure technology design between brushes and rings, ensuring consistent and reliable contact.Stable brush pressure ensures consistent and reliable contact.

• 金属粉末极少（只有复合电刷的 1/6）

1/6 wear metal powder compared with carbon brushes.

• 数万个接触点，束刷运动时，内部刷丝具有弹性，接触稳定可靠

There are tens of thousands of contact points when the brush module moves. The internal brushes have elasticity, ensuring consistent and reliable contact.

• 5 年或 5000 万转更换和清洁

Replacement and maintenance are required only every 5 years or 50 million revolutions.

电气性能参数 Electrical Performance Parameters

性能参数 Performance Parameters：

- 工作电压 Operating Voltage：≤ 1200V
- 工作电流 Operating Current：≤ 400A
- 工作转速 Operating Speed ：≤ 300rpm
- 静态接触电阻：≤ 5mΩ

  Static Contact Resistance：≤ 5mΩ
- 动态电阻 Dynamic Resistance：≤ 5mΩ@20rpm
- 噪声 Noise：≤ 65dB

可靠性 Reliability：

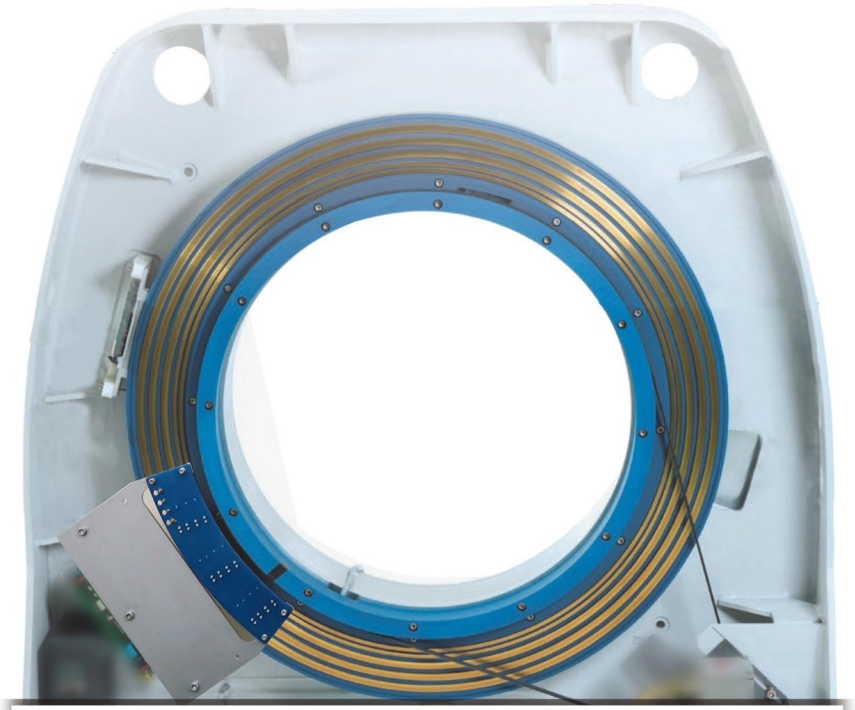
- 电刷寿命：不低于 5000 万转

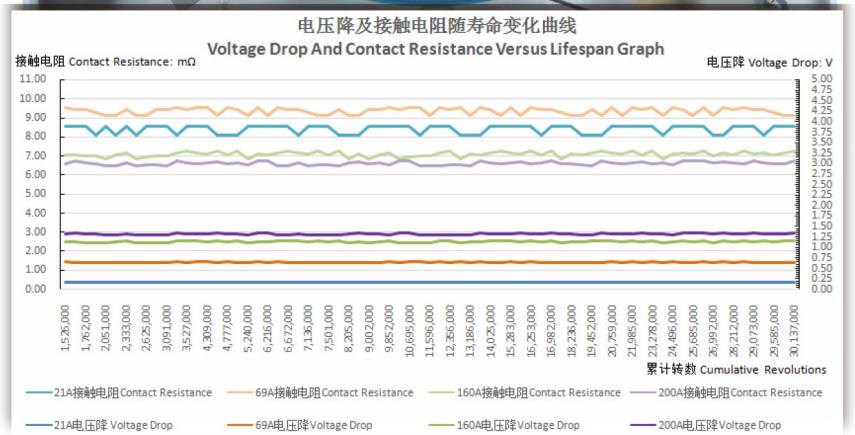
  Brush lifespan：≥ 50 million revolutions
- 盘体寿命：不低于 1 亿转

  Disk lifespan：≥ 100 million revolutions
- 安全标准：GB9706. 1-2007

  Safety standard：GB9706.1-2007
- 产品标准：T/ZZB Q062-2002

  Product standard：T/ZZB Q062-2002





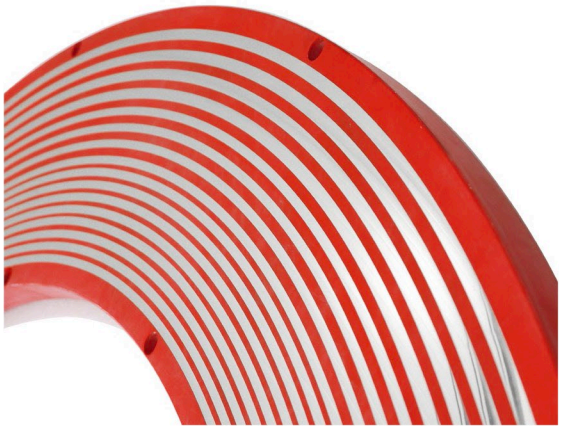
导电盘性能参数 Conductive Disk Performance Parameters

性能参数 Performance Parameters：

- 内径 Inner diameter：≥ 700mm
- 外径 Outer diameter：无限制 Unlimited
- 绝缘材质：模塑料或者环氧树脂
  Insulation material：Moulding compound or epoxy resin
- 导电环材质：铜或者铜合金
  Conducting ring material：Copper or copper alloy
- 接触材料：铜或者镀银
  Contact material：Copper or silver plating
- 接触面粗糙度
  Contact surface roughness：≤ Ra0. 4
- 轴向跳动 Axial runout：≤ 0. 1mm
- 径向跳动 Radial runout：≤ 0. 1mm

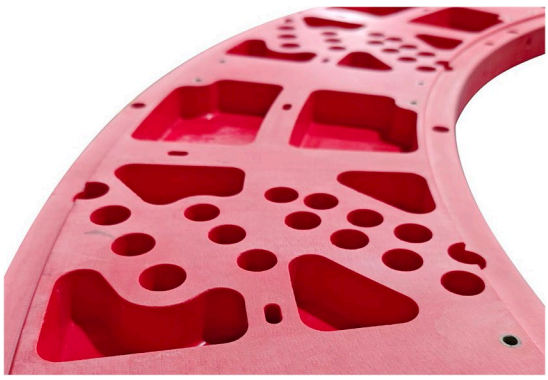
核心优势 Key Advantages：

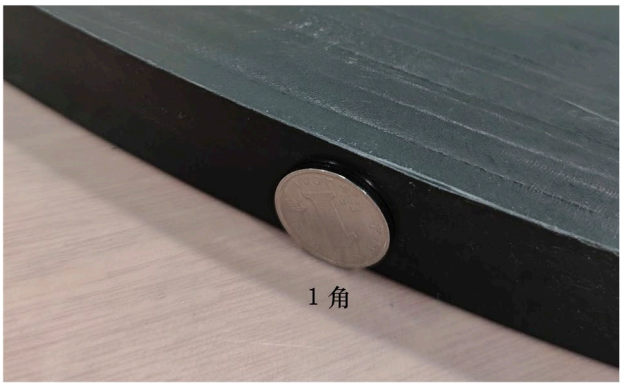
- 最新材料，分体模压成型，尺寸稳定
  Uses the latest materials with segmented molding for dimensional stability.
- 精细化自动抛光技术，零件寿命更长
  Advanced automatic polishing technology increases component lifespan.
- 动平衡处理，工作时噪音更小
  Dynamic balancing treatment reduces operational noise.
- 厚度更薄，重量更轻
  Lightweight and thinner design.





接触面粗糙度 Contact surface Roughness





轻量化设计 Lightweight Design

无线模块 Wireless Module

非接触式信号与数据传输
Non-contact Signal And Data Transmission

电容耦合非接触式无线传输

Capacitive coupling non-contact wireless transmission.

- 无磨损、免维护、长寿命

  Wear-free, maintenance-free, and long lifespan.

- 非接触式信号与数据传输速率达到 5Gbps

  Non-contact signal and data transmission rates up to 5Gbps.

- 非接触式信号与数据传输误码率达到 10^{-12}

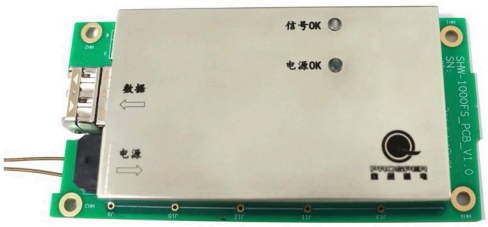
  Non-contact signal and data transmission error rate as low as 10^{-12}.

- 高兼容性（低发射电平，高抗噪能力）

  High compatibility (low emission level, high noise resistance capability of EMC).

- 双芯片串联技术，可根据客户需求定制

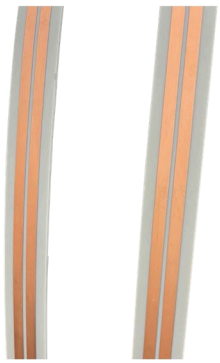
  Dual-chip serial technology, customizable to client requirements.



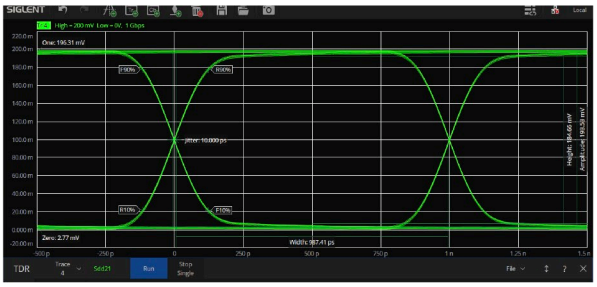
接收模块 Receiving Module



发射模块 Transmitting Module

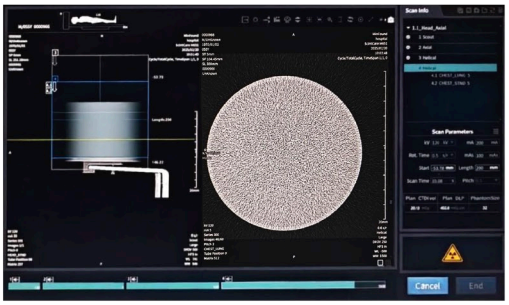


天线 Antenna



眼图显示性能优秀

Superior Performance Verified Through Eye Diagram





长时间接收信号测试丢包率为 0

The Packet Loss Is 0 For The Long Time Signal Testing

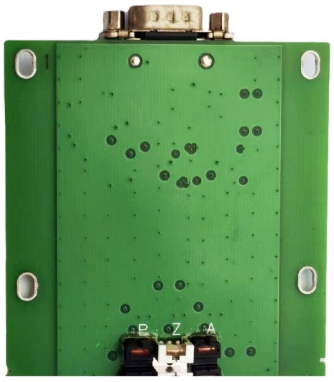
编码器 / 光栅尺 Encoder / Grating Scale

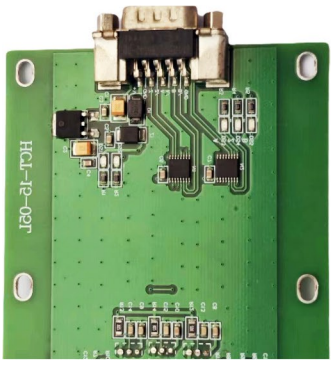
- 光栅材质 Grating material：SS304
- 信号类型：TTL 或者 HTL

  Signal type：TTL or HTL
- 编码器类型：增量式

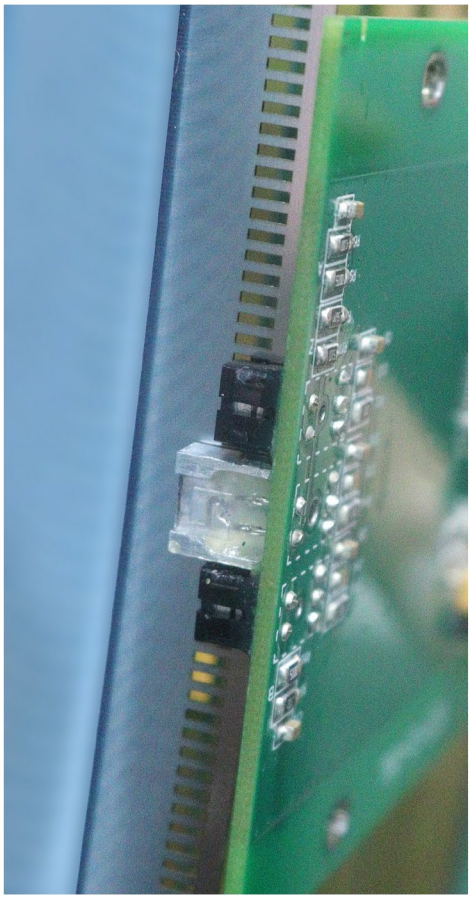
  Encoder type：Incremental encoder
- 圆周定位精度：≤ 0. 1°

  Circular positioning accuracy：≤0.1°





编码器 Encoder



光栅尺 Grating Scale

研发实力 R&D Capabilities



全盛拥有专业的科研设计队伍，拥有深厚的理论基础，基于我们对天线、电容耦合、高速电路、无线传输、物理接触传输、材料特性的知识积累，设计出更长寿命的滑环。

Prosper Group has a professional research and design team with a strong theoretical foundation. Leveraging our expertise in antennas, capacitive coupling, high-speed circuits, wireless transmission, physical contact transmission, and material properties, we design slip rings with longer lifespans.

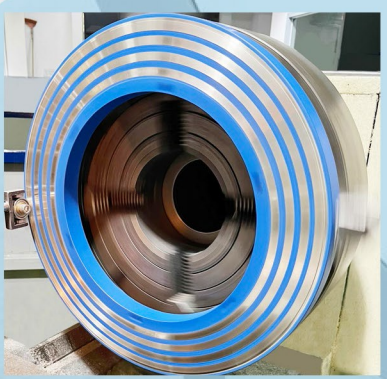
检测系统 Testing Systems

公司投入巨资引进国内外先进的检测设备，并由实战经验丰富的制造专家全线跟踪，全面体现国际水准。完善的技术手段，一流的检测设备，优秀的人才，为顾客制造一流的产品。

Our manufacturing and testing processes follow international standards. Significant investment has been made to introduce advanced testing equipment. Experienced manufacturing experts oversee the entire production process. With advanced technical methods, top-tier testing equipment, and excellent talent, we deliver first-class products to our customers.



定制服务 Customized Solutions



针对客户的实际需求，在产品平台的基础上，做深度设计定制，满足客户使用需求。

Based on the customers' actual applications, we provide in-depth customized designs built on the product platform to meet their specific usage requirements.

质量管理体系 Quality Control Systems



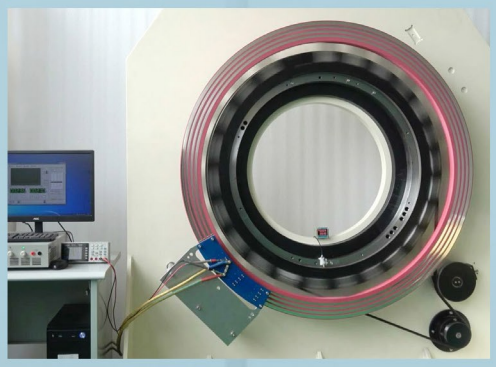
全盛拥有完善的质量管理体系，IQC、IPQC、OQC控制严密，大量使用程控自动化测试设备、确保高效率和高质量。

Prosper Group has a complete quality management system with strict IQC, IPQC and OQC controls. We widely use program-controled automated testing equipment to ensure high efficiency and quality.

全面检测 Comprehensive Testing

通过对平台产品 7*24 小时的寿命和性能测试，验证数学模型推导的理论寿命。

Products undergo continuous 7*24 lifespan and performance testing, validating theoretical lifespan predictions through mathematical models.



应用场景 Application Scenarios



我们拥有大型塑件浇铸技术，可按照客户需求制作各种直径的导电盘。自行设计制作的 CT 滑环专用束刷电刷，产品性能优异寿命长。装机后得到客户的高度评价。

Our patented large-scale plastic casting technology enables us to produce conductive disks of various diameters according to customer needs. The self-designed and manufactured CT slip ring brush module has excellent performance and long lifespans. The innovation is highly recognized by our customers.

2025年第二版
2025 REV 02

扫一扫进官网
Scan the QR Code to
Our Official Website

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全 盛 机 电

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