RAYNEN 睿能科技

股票代码：603933



SMART 系列
刺绣机电控系统

Intelligent Multi-head Embroidery Control System



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睿能科技主要从事工业自动化控制产品的研发、生产，销售业务和半导体产品分销业务，工业自动化业务聚焦控制与驱动技术的研发创新，以领先技术为装备制造企业提供智能化产品与定制化解决方案，深度服务于纺织设备、缝制设备、机床加工、包装印刷、机器人、精密制造、矿山、冶金、环保、化工、新能源、电力、市政工程等领域，助力生产设备效能提升及数字化智能化升级。

睿能科技以“让工业更智能”为使命，践行“真诚协作、结果导向、追求卓越、成就客户”的核心价值观，通过持续技术创新与场景化解决方案的开发，致力成为世界一流的工业自动化产品和解决方案供应商，为客户提供高适配性行业解决方案，实现客户与企业价值共赢，持续赋能全球智能制造升级。

RAYNEN
COMPANY INTRODUCTION

Raynen Technology primarily engages in the R&D, production, and sales of industrial automation control products, as well as the distribution of semiconductor products. In industrial automation, it focuses on R&D innovation in control and drive technologies, providing leading intelligent products and customized solutions for equipment manufacturers. The company is committed to serving a wide range of industries, including textile machinery, sewing equipment, machine tool processing, packaging and printing, robotics, precision manufacturing, mining, metallurgy, environmental protection, chemical engineering, new energy, electric power, and municipal engineering, aiding in the enhancement of equipment efficiency and the advancement of digital and intelligent upgrades.

With the mission to “make industry smarter”, Raynen Technology adheres to the core values of “sincere collaboration, results-oriented approach, pursuit of excellence, and customer success.” Through constant technological innovation and development of scenario-based solutions, the company strives to become a world-class provider of industrial automation products and solutions, offering highly adaptable industry solutions to achieve a win-win situation for both customers and the enterprise, thereby continually driving upgrades of the global intelligent manufacturing.

Smart 系列刺绣机电控系统
Smart Series Intelligent Multi-head Embroidery Control System

S500书本式
S500 Book-style



书本式设计，灵活配置，可适配经典款机箱，美观大气。

Featuring a book-style design and multi-configurations. It can be adapted to classic chassis cabinet, presenting good-looking appearance.

S600一体式
S600 All-in-one



集成主轴、X/Y绣框伺服控制，减少外部连线，安装简单方便。

Integrated Main shaft and X/Y servo driver, minimize external cabling while enabling streamlined installation.



全新设计
NEW DESIGN

01 双CPU架构：软件稳定可靠
Dual-CPU Topology Architecture: Stable and Reliable Software

采用双CPU拓扑结构，绣作控制与界面操作及花样处理分离，多任务并行，保证软件稳定可靠。

Decoupling embroidery control from interface operations and pattern processing，enables parallel multi-tasking execution, thereby ensuring software stability and reliability.

02 算力升级：四核引擎，效率翻倍
Computing Power Upgrade: Quad-core Engine, Doubled Efficiency

澎湃算力：搭载A53四核2.0GHz处理器与DDR4高速内存，超大花样秒级加载，复杂指令零延迟响应。
多屏互联：主屏+副屏双屏极速联动，支持远程多机群控，提升管理效率。
AI双擎：MPU+NPU双擎智能处理器，结合智能诊断算法，故障预测，大幅提升良品率。

Exclusive Patent: An exclusive patented gantry synchronization servo control algorithm is employed to achieve highly precise multi-axis synchronization, with reduced noise, smoother operations and neater stitching.
Multi-Screen Interconnection: Ultra-fast dual-display coordination between primary and secondary screens enables remote multi-machine group control to improve management efficiency.
AI Dual Engines: MPU+NPU dual-engine smart processors with intelligent diagnostic algorithms for fault prediction significantly improve the yield rate.

03 全新视觉体验：17寸超清交互，预览更轻松
All-New Visual Experience: 17-inch Ultra HD Interaction, Easier Previews

17寸工业大屏：1280*1024超清分辨率，细节更清晰，预览更轻松。
多主题UI：支持多种UI风格，适配不同场景与操作习惯。

17-inch Industrial Screen: 1280*1024 ultra high definition resolution for clearer details and easier previews.
Multiple Theme UI: Support various UI styles to accommodate different scenarios and operation habits.

04 存储跃升：16亿针花样容量
Storage Leap: 1.6 Billion Stitch Pattern Capacity

16亿针花样存储容量，单文件支持5000万针+ 5000次换色，无需分段，轻松应对超大型刺绣项目。

The 1.6 billion stitch pattern storage capacity allows single files of 50 million stitches + 5,000 color changes without segmentation, making ultra-large scale stitchwork effortless.

05 精准绣控：0.01mm高精绣作
Precision Stitch Control: 0.01mm High-precision Stitching

DSM高精度花样：0.01mm精度控制，针迹零接缝，确保复杂渐变针迹平滑无痕。
智能检索系统：花样，参数搜索一键直达，色序高亮标记，定位空走秒级响应，提升工作效率。
高精度磁编底检：提升断线检测准确率，精准测算面线用量，减少耗材浪费。

DSM High-precision Patterns: With 0.01mm precision control, seamless stitching is achieved, ensuring production of smooth and flawless patterns in case of complex gradient stitching.
Smart Search System: One-click search for patterns and parameters, color sequence highlighting, and second-level response to empty runs contribute to higher work efficiency.
High-precision Magnetic Bottom Detection: More accurate thread break detection makes it possible to precisely calculate thread consumption, thereby reducing material waste.

06 场景互联：全协议设备物联中枢
Scene Interconnection: All-protocol IoT Central Hub

多元联网：LAN/WiFi/4G/NFC四维互联，轻松实现设备联网。
智造升级：支持实时传输花样数据、MES系统对接，生产数据自动生成BI报表。

Multi-dimensional Networking: LAN/WiFi/4G/NFC four-dimensional interconnection for easy networking.
Smart Manufacturing Upgrade: Support real-time transmission of pattern data, MES system integration, and automatic generation of BI reports for production data.

RA3N-E刺绣机专用伺服系统
RA3N-E Dedicated Servo System for Embroidery Machines



驱动分时算法
Driven Time-sharing Algorithm

创新的驱动分时算法，智能动态调整节能模式，有效降低整体能耗。
The innovative driven time-sharing algorithm can intelligently and dynamically adjust the energy-saving mode, effectively reducing the overall energy consumption.

通用伺服技术
General Purpose Servo Technology

采用通用伺服ARM+FPGA平台。
Based on a universal servo ARM+FPGA platform.

内置运动控制算法
Built-in Motion Control Algorithm

内置高性能运动控制算法，针对刺绣机负载特性和控制特点，进行系统调优。
Built-in high-performance motion control algorithms and system optimization based on the load characteristics and control requirements of embroidery machines.

自动增益功能
Auto-tuning Function

自动增益功能，根据绣作花型，自动调整伺服增益，实现绣作效率和品质的最佳平衡。
Automatic gain function automatically adjusts servo gain according to embroidery patterns to achieve the optimal balance between efficiency and quality.

毛巾绣H轴温控技术
H-axis Temperature Control Technology for Towel Embroidery

对H轴温升起到有效控制，保证了伺服在长时间运行下的稳定性和可靠性。
Effectively controlling the temperature rise of the H-axis ensures the stability and reliability of the servo during long-term operation.

绝对值编码器
Absolute Value Encoder

在更有效地处理不同尺寸和形状的刺绣设计的同时，能够保障单个超大花样不跑位，灵活适用于不同刺绣需求，提升刺绣品质。
While more effectively handling embroidery designs of different sizes and shapes, it can ensure that a single oversized pattern does not run out of place, flexibly adapt to different embroidery needs, and improve embroidery quality.

同步技术
Synchronization Technique

采用独家专利龙门同步伺服控制算法，满足多轴高精度同步要求，噪音降低，操作更顺畅，针脚更美观。
Utilizing proprietary gantry-synchronization servo control algorithms with patented technology, the system achieves high-precision multi-axis coordination, delivering quieter operation, smoother motion, and enhanced stitch consistency.

振动抑制功能
Vibration Suppression Function

通过采用低频抑制功能，可以减少振动对机械的影响，延长其使用寿命，减少维护和修复的成本。
By adopting low-frequency suppression function, the impact of vibration on machinery can be reduced, its service life can be extended, and the cost of maintenance and repair can be reduced.

智能防夹设计
Intelligent Anti-pinch Design

移框智能防夹设计，安全有保障。
Intelligent anti-pinch design for frame movement, ensuring safety and security.

睿能让工业更智能

Raynen Makes Industry Smarter

福建睿能科技股份有限公司
FUJIAN RAYNEN TECHNOLOGY CO., LTD.

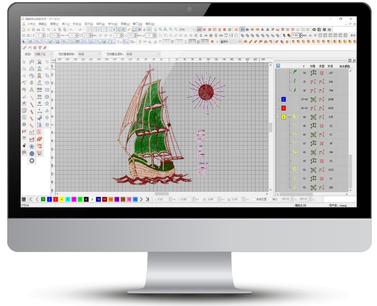
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睿能EDS刺绣制版软件
EDS EMBROIDERY PATTERN-DESIGN SYSTEM



睿能EDS
刺绣制版软件

睿能EDS刺绣制版软件支持平绣、简易毛巾绣、绳绣、盘带绣、贴布绣、激光绣、钻孔绣、烫钻绣、亮片珠子绣等，不仅满足了市场上多样化的刺绣需求，更为刺绣企业带来了无限的创新可能。

RAYNEN EDS
Embroidery Pattern-design System

The Raynen EDS embroidery plate making software supports flat embroidery, simple towel embroidery, rope embroidery, ribbon embroidery, patch embroidery, laser embroidery, drilling embroidery, hot diamond embroidery, sequin bead embroidery, etc. It not only meets the diverse embroidery needs in the market, but also brings infinite innovation possibilities to embroidery enterprises.



产品功能列表
PRODUCT FEATURES LIST

功能 Features	Smart 系列刺绣机电控系统 Smart series intelligent multi-head embroidery control system
LCD尺寸 LCD size	17寸（分辨率1280*1024） 17'(Resolution1280*1024)
操作方式 Operationmethod	触摸屏 Touch screen
UI风格 UI style	平板风格 Tablet style
主处理器 Main processor	4核 2.0GHz，600%性能提升 4-core 2.0GHz, 600% performance improvement
内存 Memory	DDR4
网络 Network	有线/4G/WIFI/NFC Wired/4G/WIFI/NFC
电压范围 Voltage range	180~265VAC
高速双屏 High-speed dual screen	√
最高转速 Maximum speed	1500RPM
花样容量 Design capacity	16亿针 1.6 billion stitches
最小针距 Minimum stitch precision	0.01mm (DSM)
针码范围 Stitch range	0.1mm~12.7mm
单个花样最大针数 Single pattern max stitches	5000万 50million stitches
DMS 高精度 0.01 DMS (Data management system) high precision 0.01	√
花样/参数搜索 Pattern/parameter search	√
换色次数（次） Color-change times	5000
换色方式 Color change method	针位集成式闭环步进 Stepping closed-loop motor with needle Sensor 交流电机+万能针位编码 AC motor + Needle sensor
剪线功能 Trimming function	电磁铁/开环步进/闭环步进/交流电机 Electromagnet / Step-motor/Stepping Closed-loop motor/ AC motor

机头跳跃控制 Head jump control	电磁铁/电机 Electromagnet/motor
组合刺绣 Combination embroidery	√
断检功能 TB detection function	光轮/磁编数字断检 Digital break detection
独立压脚功能 Independent presser foot function	√
自动喷油功能 Automatic oiling function	√
自动换底线功能 Automatic bobbin-change function	√
智慧网络管理 Intelligence network management	√
金片功能 Sequins function	单金片、叠片、多金片 Single, overlap, multiple
锁式毛巾功能 Lock-stitch looping function	√
简易绳绣功能 Easy-cording function	√
激光绣功能 Laser function	√
散珠绣功能 Beads embroidery	单珠、双珠、多珠 Single, overlap, multiple
热切割功能 Thermal cuting function	√
盘带绣功能 Taping embroidery	√
链式、毛巾功能 Chain-stitch/looping function	√
链式缠绕功能 Chainwinding function	√
植绒绣功能 Embroidery craftsmanship	√
支持语言 Supporting languages	中文、英文、阿拉伯、土耳其、西班牙、俄罗斯、葡萄牙、法语、泰语、荷兰语、德语、意大利、波兰语、波斯语、韩语、日语、印度语、越南语、罗马尼亚语、希伯来语、乌克兰语 Chinese, English, Arabic, Turkish, Spanish, Russian, Portuguese, French, Thai, Dutch, German, Italian, Polish, Persian, Korean, Japanese, Vietnamese, Romania, Romania, Hebrew, Ukrainian.



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