IECS

电梯人时代
a new era for "Smart Elevator"

IECS:开启电梯人时代
客户价值"芯"提升

IECS: Opening a new era for "Smart Elevator"
Creating more customer value

SHENYANG BLUELIGHT 沈阳蓝光 SHENYANG BLUELIGHT

沈阳蓝光自动化技术有限公司
ShenYang Bluelight Automatic Technology Co.,Ltd.

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沈阳蓝光 SHENYANG BLUELIGHT | IECS

IECS, Another Revolution
Brought By Shenyang Bluelight!
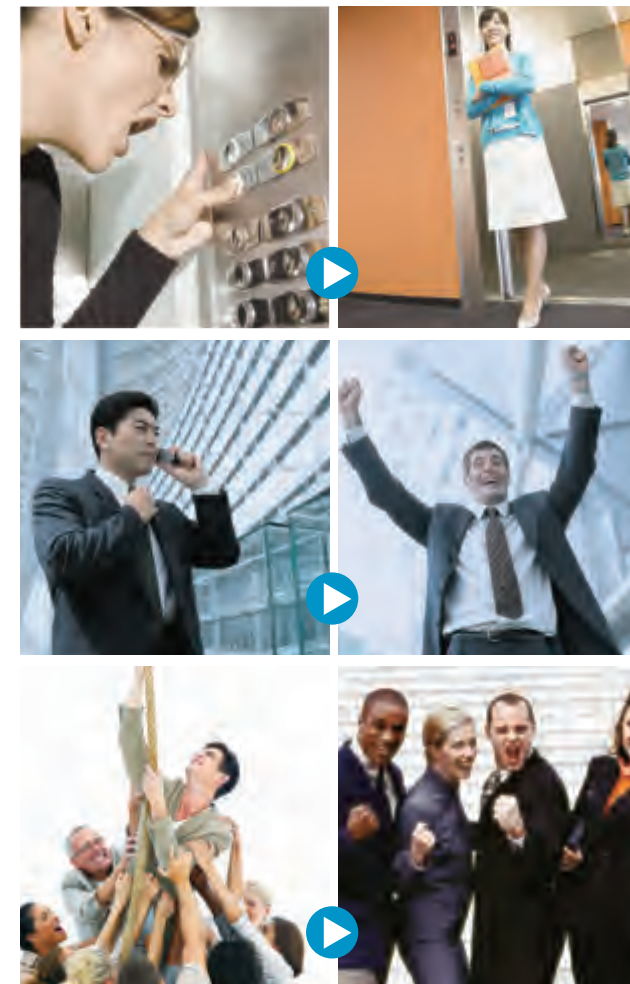
IECS，沈阳蓝光
带给中国电梯的又一次变革！

沈阳蓝光 · 创新引领者

沈阳蓝光集团于 1989 年成立于辽宁沈阳，是国内仅有的拥有完全知识产权的电梯控制——驱动——曳引——监控整体化解决方案提供商。对电梯行业的一贯专注，强大的创新能力确保了蓝光自成立以来一直处在高速发展中国电梯行业的技术最前沿。

"用我们的努力，创造客户的价值"是我们的经营理念，"卓越创新，决胜未来"是我们的发展战略。蓝光人在 20 多年电梯行业经验积淀及对未来电梯行业前沿趋势深刻理解的基础上，沈阳蓝光推出了电梯界第一款真正智能的电梯核心系统—IECS（Intelligent Elevator Core System），IECS 将再一次引领电梯控制技术的新风潮。

Shenyang Bluelight · Innovation leader

Shenyang Bluelight Group was established in 1989 and located in Shenyang city, Liaoning province. it is the only supplier that can provide complete solutions from elevator control, drive, traction to elevator monitoring. Continuous concentration on elevator industry and strong innovation capability ensure Bluelight in front of China's fast developing elevator industry all the time.

"Our diligence making you prestigious" is our business philosophy, "Excellent and innovative, winning the future" is our development strategy. is our development strategy. More than two decades of experience in elevator industry and having deep understanding of the future trend in elevator development, Shenyang Bluelight launches the first and genuine state of the art smart elevator Core System IECS; IECS will once again lead the new wave of the elevator control technology.

IECS 的客户价值

1. 国产的常规电梯控制系统已经发展到了一个相当的高度，性能优越且稳定，充分满足电梯厂的需要。

2. 随着国家出台的电梯行业安全标准不断提高，如何保证电梯安全性，解困时限已成为电梯厂最关注的两个方面，

目前业界应对的一般方法：1. 增加维保检验力度，频次；2. 国家强制监管 缺点：企业投入大，但效率低。

在不增加任何电梯厂成本的情况下，IECS 提供了技术手段让 **"电梯有人值守""故障可预测"** 由空想成为现实，完美地解决了困扰电梯厂的两大难题。IECS，让您的电梯充满智慧，为您的电梯提供高附加值及具有无与伦比的竞争优势，助力"中国电梯梦"

1. Nowadays, the conventional elevator control systems had been developed to a mature and relatively high level, fully meeting the requirement of elevator manufactures by superior and stable performance.

2. As the national elevator industry safety standards continuously improve, how to ensure the elevator safety and the time limit for releasing lift passengers have already become the most concerned two aspects in the elevator industry.

The general solutions are: 1. Increase the frequency and strength of maintenance inspection; 2. National mandatory regulatory. Having these solutions, the shortcomings are large enterprise investment with low efficiency.

Without additional cost to the elevator factories, IECS provides technical means to realize **"elevators are being monitored at 24 hours a day" and "predictable breakdown before it happens"**, perfectly solves these two problems for elevator factories.

IECS DEFINITION
AND CUSTOMER VALUE
IECS 的定义及客户价值

IECS(Intelligent Elevator Core System) 智能电梯核心系统是蓝光人对未来智能电梯的解读和诠释，该系统在保障电梯运行安全，电梯调试及故障诊断排查，手机远程监控等多方面都做出了大量的实用创新，并且首次提出并实现了 **电梯体检** 的理念，安装该系统将真正使电梯会听，会说，会思考，"嵌入" IECS 系统，从本质上使电梯真正具备了部分人的思维，让电梯做到 **"电梯的安全隐患可预测，电梯的故障隐患可预测，电梯乘客安全可保障"**。

IECS is Shenyang Bluelight's interpretation for future smart elevator. The system supports various practicable and innovative functions to guarantee safe elevator operation including elevator debugging, elevator fault diagnosis & troubleshooting and mobile remote monitoring. It is the first time in elevator industry to advocate the philosophy of "health examination" in a product. The system will unprecedentedly enable an elevator to listen, to speak, and to think, **it essentially possesses the behaviour of human being's thinking, hence to achieve predictable elevator safety risk, predictable breakdown and ensuring passenger's safe use.**

IECS, MAKE ELEVATOR
SMART LIKE HUMANS
IECS 让电梯像人一样聪明

核心设计理念是

要作为电梯的"大脑"对防止安全与故障的发生承担起更多的责任。
只要是能够感知，允许电气解决的问题，都要在核心系统的设计中予以考虑；
满足电梯的使用者已知或未知的全部需求，打造出"不伤人，不困人，故障早发现，好维修"的具有人性化使用价值电梯产品。

The Core Design Concept

Being the "brain" of an elevator, IECS will take extra responsibilities for preventing the safety and failure issues, to solve all problems which are detectable and solvable by electrical system; satisfying all known and unknown potential needs of elevator users. IECS helps you to achieve the humanized elevator with "safe, comfort, smart and good maintenance" features.

IECS 系统使电梯拥有了部分思考，表达问题的能力

● IECS 利用电梯运行时收到的系统反馈信息，主动思考和解决电梯整机的"安全及故障的预测与处理"问题，使电梯初步具备了像人一样的思考及处理安全 / 故障等方面问题的能力。

● IECS 系统借助"智能终端"将电梯的表达延伸到人的身边，表达的方式有两种；
  1. 发生事故时，故障信息第一时间通知到维修人员，实时完成电梯监控的任务，并提供实用的故障处理方法。带病运行时，"事故隐患"通过手机第一时间通知到维保人员，厂家，物业公司，相关人员可随时了解电梯的隐患部位、严重程度及解决方案。
  2. 使人置身于机房 24 小时"值班"几乎成为现实。

IECS endows the elevator possesses the capability of thinking and expressing the problems

Acquiring the feedback information of an elevator operation, IECS takes the initiative to analyze and solve the elevator's issues which related to "safety, fault prediction and treatment"; it endows the elevator to be humanlike capability of thinking and dealing with safety and fault issues.

IECS extends the expression skills of the elevator to reach the maintenance personnel by means of "intelligent terminal" in two ways: 1. When elevator breakdown occurs, the fault information can be immediately sent to maintenance personnel, hence to achieve real-time monitoring tasks, and IECS will provide practical methods of solving the breakdown. 2. When an elevator has shown abnormality during operation, the potential risk information will be immediately sent to maintenance personnel, elevator company and property owner via cellular phone,; relevant personnel can know the hidden trouble, severity and solution of elevator at any time, hence to realize "24 hours machine room standby".

IECS 系统使电梯拥有自我监测及处理（或协助处理）问题的能力。

主动体检模式

可有效检测绝大多数的电梯安全及故障隐患，并输出（远 / 近程）体检报告，可有效防止电梯的"带病运行"。

被动（运行）检测模式

电梯在运行期间，IECS 系统自行对可能造成"剪切事故，中途停梯"等事故的起因进行全面检测。

安全运行模式

在检测到电梯可能发生事关乘客安全的事故信息后，正在运行的电梯自动转入"安全运行"模式，从而确保乘客的 100% 的安全。

IECS endows the elevator being capable of self-diagnostic and self-treatment when troubles encountered.

Active health examination mode
Effectively detecting the majority safety and potential breakdown of elevator, and then output (far/near distance) medical report, this feature can effectively prevent the elevator to run with abnormality.

Passive health examination mode
While elevator is running, IECS spontaneously conducts a comprehensive self-inspection on the root cause of cut-off incident, midway breakdown and etc.
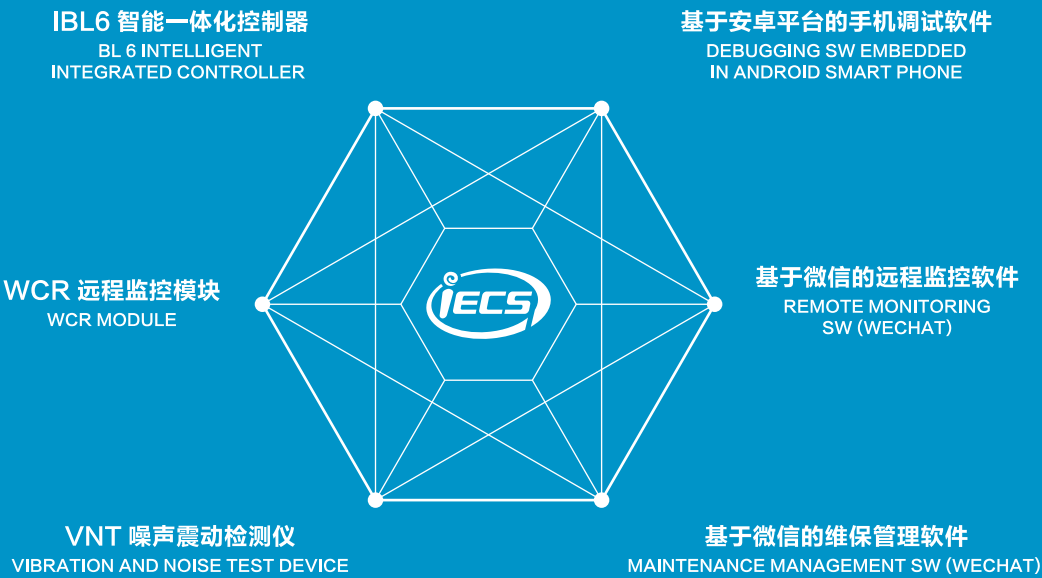
Safe running mode
While there is potential man-trap risk information is detected, the IECS will automatically switch the running elevator to "safe running mode", hence to ensure 100% safety of the passengers.

THE CRYSTALLIZATION OF
TECHNOLOGY AND INTELLIGENCE
科技与智慧的结晶

产品软硬件构成 System software and hardware configuration

IBL6 智能一体化控制器
BL 6 INTELLIGENT
INTEGRATED CONTROLLER

基于安卓平台的手机调试软件
DEBUGGING SW EMBEDDED
IN ANDROID SMART PHONE

WCR 远程监控模块
WCR MODULE

基于微信的远程监控软件
REMOTE MONITORING
SW (WECHAT)

VNT 噪声震动检测仪
VIBRATION AND NOISE TEST DEVICE

基于微信的维保管理软件
MAINTENANCE MANAGEMENT SW (WECHAT)

功能表 Function list

产品型号	功能名称		系统构成				
			iBL6	智能终端（pad, 手机）	云端服务器	WCR	门区安全保护板
iBL6–UO40xx/ UO20xx–SW–B （基本版）	基本	电梯逻辑控制 / 变频驱动功能	√	/	/		
	安全	电梯轿厢异常移动保护功能					√
		* 抱闸力自动检测功能					
		* 曳引绳滑动检测功能					
		电梯控制柜防火功能					
	自适应	* 环境温升自适应运行功能					
		* 电梯电源压降自适应功能					/
	绑定	电气部件维保绑定功能					
	远程调试，故障诊断及处理	* 电梯体检功能		电梯助手软件	IECS 系统软件		
		* 智能终端异地指导功能					
		* 电梯智能调试功能					
		* 故障分析专家系统					
		* 电梯调试工具包					
iBL6–UO40xx/ UO20xx–SW–N （网络版）	监控	基本版功能 + 远程（手机）监控				√	√ / /

SAFE **AND RELIABLE**
安全可靠

电梯轿厢异常移动保护功能

一旦制动器失效，电梯将失控甚至发生高速冲顶等严重的、危及人身安全的事故，IECS 的"电梯轿厢异常移动保护功能"可在这类事故发生时，有效确保乘梯人安全。

停车下闸后，如果监测到轿厢滑动现象时，在"安全电路"的保护下系统将恢复力矩输出，进入安全运行状态（低速蠕动，开门放人）。

Protection in case of abnormal car movement

If brakes are failure, the elevator might lose control and overshoot to the headroom with high speed, hence causes severe incident. IECS will be protecting the abnormal movement of car and effectively ensuring the safety of passengers.

When the car is detected abnormal sliding with brakes opened, the system will enable the safety circuit operation to restore the output torque and enter the safe running operation (with low–speed creeping to door zone, door opened and release passengers)

事故发生时的保护
Protection During Breakdown

电梯控制柜防火功能

IECS 的"电梯控制柜防火功能"将实时监测制动电阻 / 变压器的温升情况，检测到高温发生时自动进入应急的安全运行模式，保证乘客撤离后切断电源以防止引起火灾。

Fire Prevention on Elevator Control Cabinet

ECS real–time monitors the rise of temperature on braking resistors and transformer. Once it detects overheating, the system will automatically enter emergency safe running mode to evacuate the passengers, and then cut off the power to prevent fire accidents.

手机功能界面

智能预测故障防止困人事故
Intelligent failure prediction to prevent entrapment accidents

AUTO-SENSING FUNCTIONS

自适应运行功能

环境温升自适应运行功能

实时检测控制柜温升情况，将在检出过温问题后，提前转入安全运行模式，并给出明确的警示，防止停梯困人事故。

电梯电源压降自适应功能

将在检测出电梯运行过程中输入电压下降超限时，进入安全运行模式并防止事故的发生，防止停梯困人事故。

Auto-sensing Operation on Temperature Rise

IECS real-time monitors the rise of temperature on elevator control cabinet, once it detects overheating, the system will automatically enter emergency safe running mode to evacuate the passengers, and output warning sign, to prevent entrapment.

Auto-sensing to Elevator's Under Voltage

When under voltage is detected during elevator operation, the system will automatically enter emergency safe running mode to evacuate the passengers, and output warning sign, to prevent entrapment.

◀ 手机功能界面

抱闸力自动检测功能

制动器磨损失效前，首先表现为抱闸力矩不足，对此维修人员一般是无法做定量检验的，"抱闸力检测功能"可主动定期测试抱闸力，并通过提示故障及禁止电梯运行等方式，防止更严重的事故发生。

曳引绳滑动检测功能

实时监测（评价）检测滑动数据并且根据需要自动进入应急减速的安全运行模式，使电梯不会因此发生事故。

Auto Detection of Brake Force

The insufficient of brake force is normally due to the gradually wear of brake liners, owing to this the maintenance personnel generally cannot do the quantitative test.The system periodically (at specified time or day) detects the brake force of an elevator's brake. If the brake force does not meet the national standard, the system will take preventive measures depending on its degree of inconformity, for example, stopping the system.

Detection of Traction Rope Sliding

The system detects (evaluates) the offset position of an elevator's operation in real time. If the detected value is beyond normal range, the elevator will reduce its speed and enter safe running mode to stop at the nearest floor for preventing accident.

手机功能界面 ▶

AUTO-SENSING FUNCTIONS

REMOTE TESTING AND FAULT DIAGNOSIS

远程调试故障诊断及处理

电梯智能调试功能

在"智能调试模式"下，电梯可适应现场情况自动寻优调整相关的系统运行参数，保证电梯始终运行在最佳状态下，降低调试维护难度及成本。

智能终端异地指导功能

"智能终端远程调试"软件可有效指导"疑难问题"的解决，降低对现场调试人员的技能要求，降低调试维护电梯的成本。

电梯调试工具包

提供更专业的检测、分析工具，提高调试、解决问题的效率，包含：电梯数据记录仪、软件示波器、端子信号逻辑分析仪。

◀ 手机功能界面

REMOTE TESTING AND FAULT DIAGNOSIS

Remote Guidance through Remote Terminals

The "Remote Guidance" software endows the troubleshooting solution, hence to reduce on-site commissioning of skill requirements, reduce costs, debugging and maintenance of the elevator.

Intelligent Elevator Debugging

In the intelligent debugging mode, the system optimizes the running parameters to ensure the elevator is running in the best performance, and to reduce the difficulty and cost of commissioning and maintenance.

Elevator Debugging Toolkit

Provide many professional inspection and analyzing tools to improve the efficiency of debugging and solving issues; the toolkit includes: Elevator data recorder, Software oscilloscope and Terminal signal logic analyzer.

电梯体检功能

"电梯体检模式"可对以下检测项目进行检测，并出具针对安全、安装质量及运行质量等方面的体检报告：

1、抱闸力检测　　　　　2、平衡系数评估
3、导轨安装质量检测　　4、平衡链偏差检测
5、井道开关缺失及位置检测　6、运行质量评估

Elevator Health Examination

The built−in Health Examination provides examination and evaluation of the following areas, and exports a health examination report to evaluate the elevator's operating state in terms of three aspects (safety, installation quality, and quality of operation).

1. Brake force detection 2. Balancing coefficient evaluation 3. Guide rail installation quality inspection 4. Compensating chain deviation inspection 5. Reasonability evaluation of switch position in the well 6. Operation quality evaluation
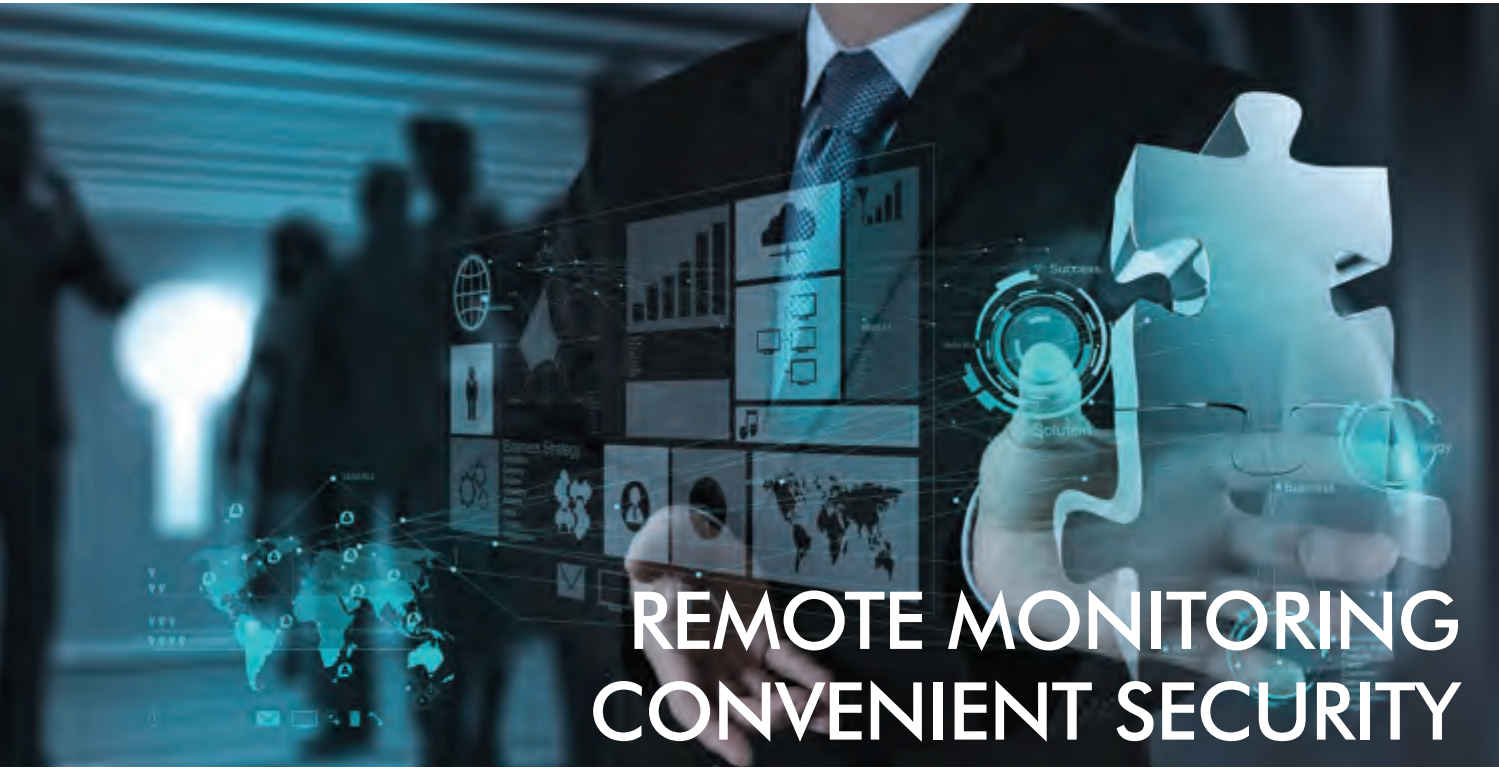
手机功能界面

EXCLUSIVE ELEVATOR
MEDICAL SCHEME

独家电梯体检方案

故障分析专家系统

在 20 多年电梯调试经验库积累和人工智能技术基础上，依据采集到的系统内部状态信息，分析得出产生故障的原因，为维修人员提供准确的解决方案。

Fault Analysis Expert System

Base on over 20 years elevator debugging experience database and Artificial Intelligence Technology, IECS will acquires an elevator's state infor−mation in case of fault, Processes and analyzes the information on the server, Then displays the analysis result with fault symptom, and provides specialized maintenance guidance.

REMOTE MONITORING CONVENIENT SECURITY

远程监控 · 方便安全

远程手机监控功能

借助于智能终端及计算机后台软件，建立了 IECS 的"异地表达"功能，异地表达的含义不仅限于"监控"。

※ 对电梯进行电脑 / 手机的远程监控

※ 故障发生后，第一时间通知维保人员进行维修

※ 建立电梯曾经发生故障的档案，方便查阅参考

※ 对电梯上的维保行为进行有效监控

Mobile (Cell Phone) Remote Monitoring

By means of software embedded in smart terminal and computer, IECS has not only limited to monitoring, but it helps elevator to achieve "long distance expression" function.

※ Smart cell phones are used to remotely monitor elevators.

※ When a fault occurs, the fault will be notified to the maintenance personnel at the first time.

※ The system also archives historical faults for further

※ supervise the maintenance work in the elevator.

电梯监控界面（单 个 / 多 个）

ADVANCED DESIGN CONCEPT TO ENSURE THE SAFE OPERATION OF THE SYSTEM

NORMALIZATION, HIGH EFFICIENCY

规范，高效

维保相关

维保管理人员可实时监督完成情况
维保过程取证，维保质量有保证，
每日任务提醒，地图精确定位电梯，维保更及时
维保流程可定制

Maintenance

Real time monitoring the status of maintenance tasks.
Obtaining evidences of key maintenance process ensure high performance for every task.
Daily task reminding and map accurate positioning ensure the maintenance timeliness.
Customizable maintenance process.

手机查看维护过程和百度定位

电气部件维保绑定功能

可将每台电梯的主控板、呼梯板、轿厢板绑定(限制其非授权元件的更换 / 使用)，
为电梯厂维保体系的有效建立提供了技术保障。

Binding of Elevator Parts Maintenance

After an elevator is commissioned, the system utilizes the "One-Key-Lock" function to
lock the calling panel, operating panel, and control panel to avoid any unauthorized parts
exchange by third party maintenance team.