

**COVER STORY**

## MTA Global Presence

# Efficiency and Energy Saving in Production

ENG/CN



**TECH NEWS**

## Developing New Compact Fuses



# MTA CHINESE WEBSITE ON LINE MTA 中文网站上线

# EDITORIAL

## 序

2015 was a particularly fruitful year as regards MTA's growth, due both to the opening of new locations and the renewal and enlargement of existing ones. Started back in 1995, the project has led to the launch of, first, the Brazilian site and then the one in Poland, which was followed by the Slovakia, United States and India sites. Over the last couple of years MTA has undergone a strong international drive that has led to further expanding its global activities. This is testified by the new sites in China and Mexico and the opening a second office in the United States. In the meantime the project has moved onto its second phase: this consists in extending the production of plastics for electromechanical control units to other sites, in addition to the historic Codogno plant. In fact, in Slovakia, higher volumes of plastic components are being molded and over the next few years similar departments will be opened in other locations. At the same time, MTA has continued to believe in Italy, where large investments have been made in the Codogno plant to renovate the existing spaces and to open a research center with cutting-edge laboratories. There is also the new plant in Rolo, opened a year ago, where the entire electronics production of our company continues to be focused.

Even the MTA product range is continuously expanding as well as the automotive customers, and those from other sectors, who entrust our R&D office with the development of even more efficient products.

2015 是 MTA 成长过程中硕果累累的一年；这一年，MTA 不仅拓展了新的市场领域，而且更新和扩展了现有产品。该项目最早可追溯到 1995 年，首次实施是在巴西，然后是波兰，接着是斯洛伐克、美国和印度。过去几年里，MTA 经历了强劲的国际化作业，进一步扩大了其全球化市场活动。MTA 相继在中国、墨西哥新开分部，并在美国境内成立第二家办事处，这些都很好地印证了这一点。同时，该项目已进行到第二阶段：除曾经的科多尼奥工厂外，还将把机电控制单元的塑料部件生产扩展到其他工厂。事实上，大型塑料组件的组装工作正在斯洛伐克进行；而接下来几年，类似的部门会在其他地点陆续建成。与此同时，MTA 将继续扩大在意大利的设施规模，斥巨资翻新科多尼奥工厂的现有厂房并为其打造配有尖端实验室的研究中心。一年之前，我们还在罗洛新建厂区，进一步增强了我公司全系列电子产品的生产能力。

MTA 不断扩大自身产品范围，力求通过研发创新为汽车和其他行业的客户带来更加高效的产品。

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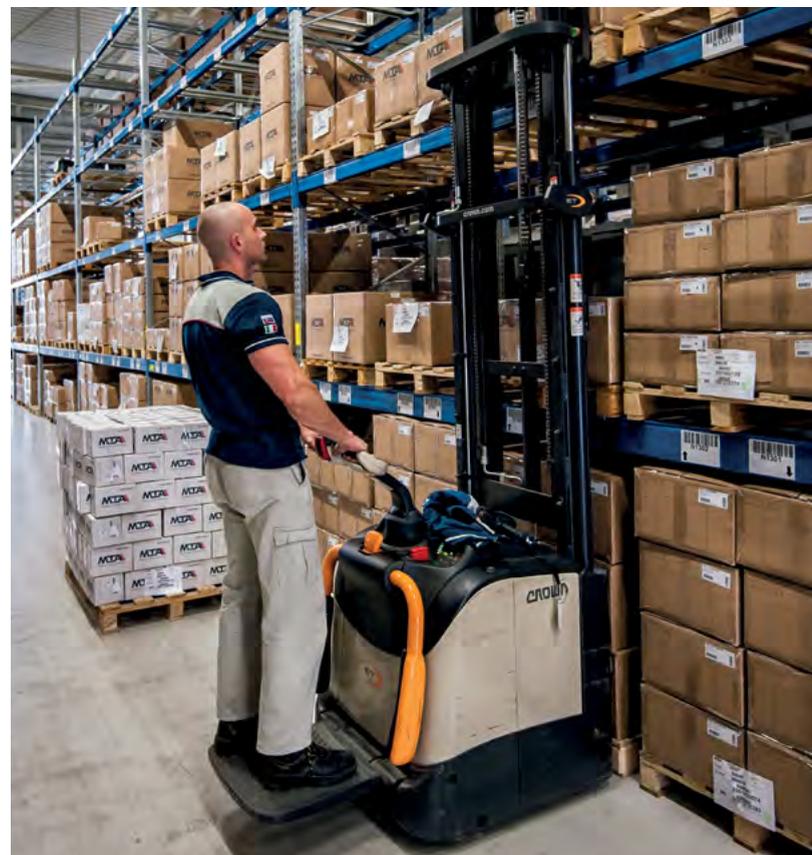
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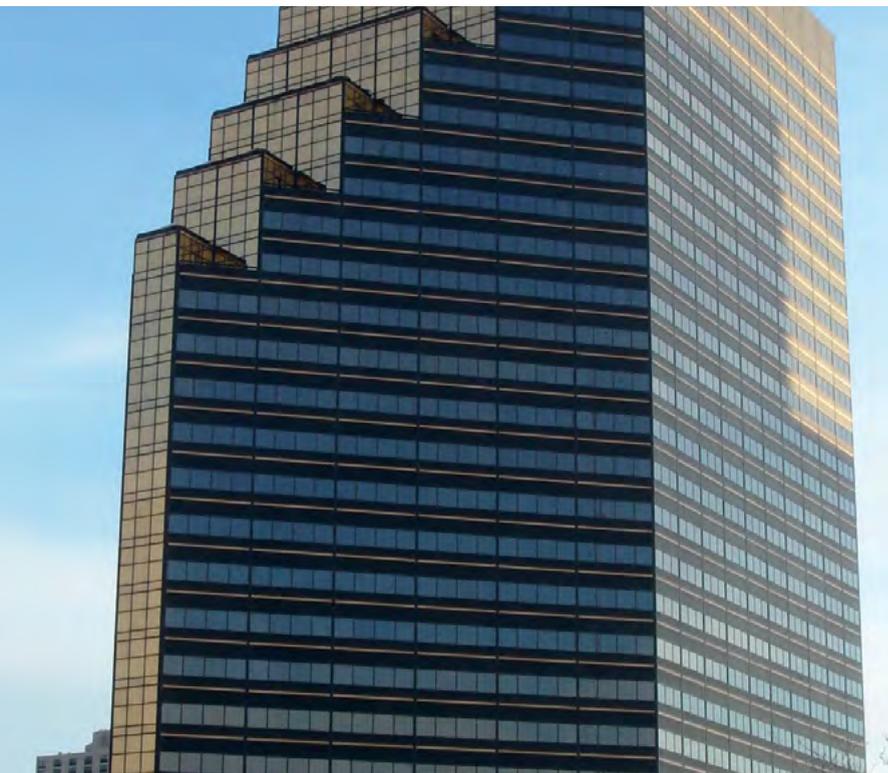


# MTA, an increasingly global presence

MTA, 向全球市场高歌猛进

USA

MEXICO



## MTA USA, new Office in Detroit

Present in the United States since 2007 and located in the Chicago metropolitan area, MTA USA consists of a technical sales office and a warehouse that has been serving local manufacturers since 2008 mainly in the agricultural machinery and truck sectors. The growing collaboration with the "Big Three" has required the opening of a second office in 2015 in Detroit. The technical expertise of the engineers and their proximity to the customer will be a definite advantage for both parties.

### 美国 底特律新分部

MTA USA 于 2007 年在美国芝加哥大都市区建成，它拥有一个技术销售办事处和一个仓库，从 2008 年开始为当地制造商提供服务，服务范围主要包括农用机械和卡车。随着与美国三大汽车公司的合作不断加深，第二个办事处于 2015 年在底特律落成。我们的工程师具备精湛的专业技术水平，而且能够为顾客提供近距离服务，助力实现双赢。

## MTA Mexico, new Plant

Mexico has now become the seventh country in the world as for number of vehicles produced (over 3 million units). Its proximity to the United States, the low labor costs and a series of free trade agreements that promote its exports, have caused investments by all major global brands in Mexico to increase and continue to relocate new production facilities there. At the beginning of 2015, MTA also started producing in the Central American country where, in an area within the Parque Tecnológico Innovación of Queretaro, power distribution units and electromechanical products are assembled. Over a period of approximately 2 years, the production sector is expected to expand and a plastic molding department will be opened.

### 墨西哥 MTA 新分部

目前，墨西哥已成为世界上第七大汽车生产国（年产量超过 300 万台）。其地理位置毗邻美国，劳动力成本低廉，再加上签订有一系列自由贸易协定并鼓励出口，所以各大国际品牌都越来越多地选择加大在墨西哥的投资，并不断将新的生产工厂迁移至此。2015 年初，MTA 开始将业务扩展至美洲中部国家，在克雷塔罗的 Parque 科技创新园内进行配电装置和机电产品的组装。大约未来两年内，MTA 还将扩展产品部门，并成立注塑部门。

## 👉 SLOVAKIA



### Slovakia, plastic molding starts

Founded in 2004, MTA Slovakia is the foreign branch of the group that has had the most significant expansion both in terms of area and people. Today, after the major expansion that has just been completed, MTA Slovakia is equipped with a modern plastic molding department that, in the space of two years, when it is fully operational, will have a total of 20 presses ranging from 220t to 300t. This plant, which now employs more than 300 people and is ISO/TS 16949, ISO 14001 and OHSAS 18001 certified, has certain characteristics that have allowed us, over the years, to win large orders from our major customers contributing to its significant growth.

### 斯洛伐克 注塑业务启动

MTA 斯洛伐克分部成立于 2004 年，是目前为止集团内扩展面积最大、人数最多的国外分部。该分部最近刚刚完成一次大规模扩建，新建立的现代注塑部门将在两年后开始全面运营，预计将配备 20 台压缩机，总载荷将达到 220 吨至 300 吨。该工厂目前拥有超过 300 名员工，并已获得 ISO/TS 16949、ISO 14001 和 OHSAS 18001 认证；未来，其独特的优势将会帮助我们主要从客户手中获得大量订单，使工厂蓬勃发展。

## 👉 CHINA



### China, assembly of Electromechanical Components starts

October 2014: MTA opens a sales office in China; exactly 12 months later, production starts. MTA Automotive Parts (Shanghai) Co. Ltd. is located in the Jinshan industrial district, easily accessible from Pudong International Airport and well connected to the South Shanghai railway station. The production area is located within the modern Shanghai Liando U valley industrial park and its main activity is the assembly of electromechanical control units. The opening of a molding department is also planned for this location.

### 中国 机电部件装配业务正式起航

2014 年 10 月，MTA 在中国开设了销售办事处；12 个月后工厂投产。爱沃提汽车零部件(上海)有限公司位于金山工业园区，交通便利，方便去往浦东国际机场和上海南站。生产区位于上海联东 U 谷产业园，主要进行机电控制单元的装配。同时，在该地区还计划建立一个模具部门。



# Save Energy

## A plan to improve energy efficiency

### 节约能源，从我做起 能效提升计划

Paying attention to the environment and to energy consumption has always been part of MTA's DNA, as is evident from the new plant in Rolo (RE) designed with energy efficiency in mind. This is also why the company, having already complied with legislative decree 102/2014 that requires large companies to carry out an energy audit of their activities, has decided to go beyond the requirements of the legislation.

MTA has in fact not limited itself to simply taking a snapshot of the energy consumption profile of the company and to identifying critical points and energy saving opportunities, but has decided to implement several measures to improve its energy efficiency. To do this, a thorough business plan has been prepared with the support of Sacee, a consulting firm specialized in energy audits.

Various areas of intervention have been identified in the Codogno plant, which has been expanded over the years around the facility dedicated to Production, to which the other departments that now exist were joined over time, such as the molding department, the stamping department or the office building. These enlargements occurred at different times resulting in there being different degrees of efficiency in the various structures.

Paying attention to the environment and to energy consumption has always been part of MTA's DNA

关注环境和能源消耗的意识已经扎根于 MTA 员工的基因中

关注环境和能源消耗的意识已经扎根于 MTA 员工的基因中，罗洛新工厂的设计充分考虑能源效率就是很好的佐证。根据 102/2014 法令，大型企业需对其活动进行能源审计，而公司决定在内部采用比法令要求更加严格的标准。事实上，MTA 不仅仅是简单地审核公司的能源消费状况，确定关键点和节能机会，还决定采取若干措施来改善能源效率。为了实现该目标，MTA 在专业

能源审计顾问公司 Sacee 的支持下制订了周密的业务计划。

科多尼奥工厂围绕生产设备在不同时间段多次扩产；并随后扩展了现有部门，比如模具部门、冲压部门和办公楼。这些不同时间段的扩张，使各机构有不同级别的能源效率。中心区域在建成之时就配备了地热系统，这在当时是比较先进的。而现在可以通过一些改造作业加以改进，以满足现行的标准要求。MTA 将进行的首要任务是着眼于该地热系统，采用更为现代高效的系统替代现有热泵。（该计划是采用更为现代高效的系统替代现有热泵）

另一个有很大改进空间的地方是模具部门：实际上，MTA 50% 的能耗发生于此，因为压缩机耗能很高。目前，MTA 正在进行深入分析以明确节能方案，用更现代高效的设备取代部分老旧设备，以制定出一个在未来经济可行的方案，同时尝试回收压缩机所排放废热，用来加热仓库。

可能的方案有许多种，这些方案也与整个公司都息息相关：提高能源利用效率

The central area was equipped with a geothermal system when it was built and was therefore cutting-edge for its time and it can now be improved with some renovation works to bring it in line with the standards that are now requested. One of the first tasks that MTA will carry out will be dedicated precisely to this geothermal system and calls for the replacement of the existing heat pumps with more modern and efficient systems (the plan is to replace the existing heat pumps with more modern and efficient systems).

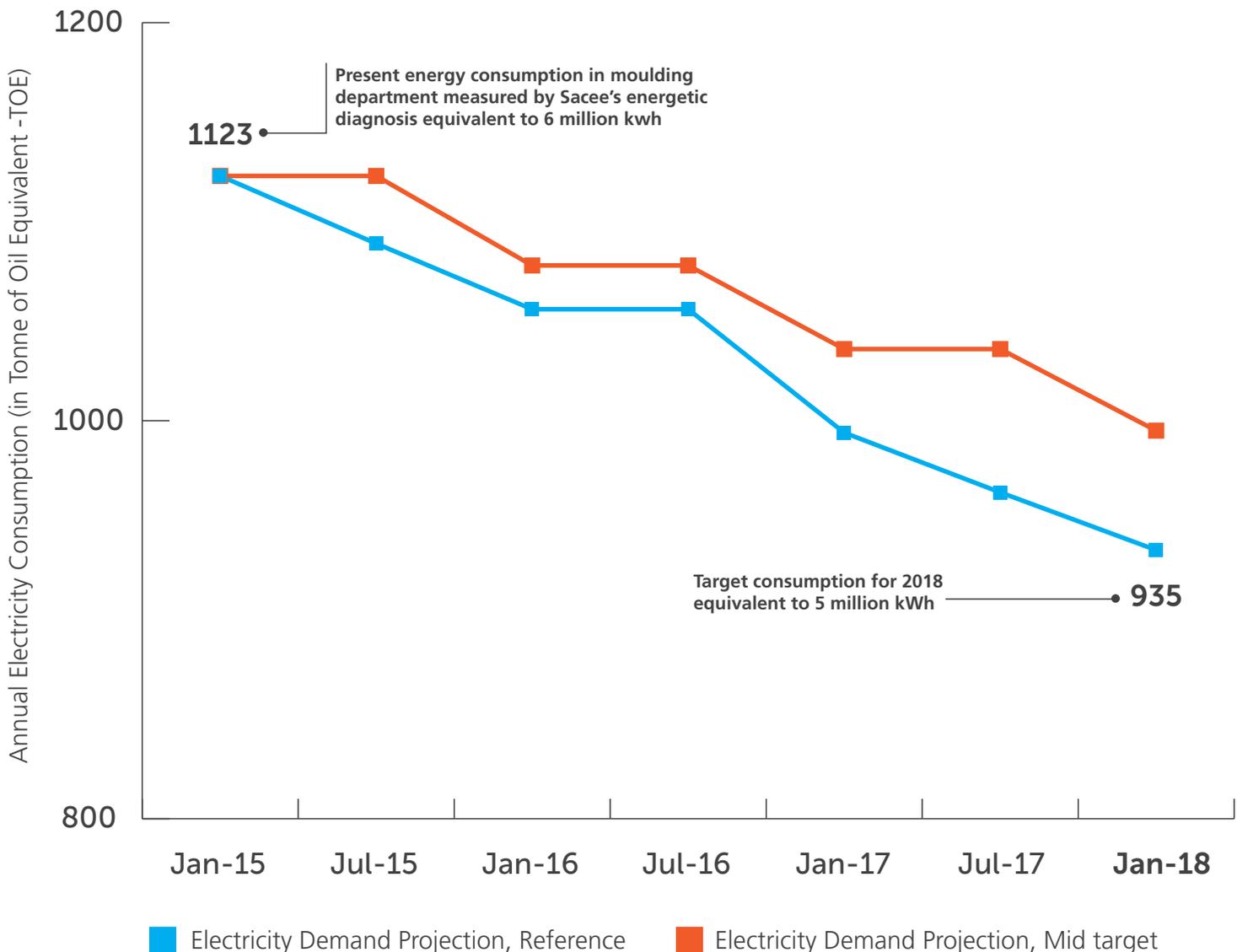
Another department in which there are wide margins for improvement is the plastic moulding department: here, in fact, is where 50% of MTA's energy consumption is used because the presses are particularly energy intensive. An in-depth analysis is currently under way to understand what would be the energy saving solution if some of these machines, the oldest ones, were replaced with more modern and efficient models in order to develop an economic plan to be implemented in the near future, taking into consideration also the possibility of recovering the heat emitted by the presses and using it to heat the warehouse.

There are numerous possibilities and they concern the entire company: upgrading the energy efficiency must be tackled step by step, year after year. MTA has already started along this path thanks to the attention to energy consumption that has always made it stand out. In the next few issues of the Journal we will keep you updated on the actions taken and the results achieved.

必须循序渐进，持之以恒。MTA 已经着手沿此方向出发，对能源消耗一如既往的关注会使节能水平更加出色。在接下来的几期期刊中，我们会持续跟踪所采取的行动和取得的成果。



### Primary Consumption Target in Moulding Department





# Alfa Romeo Giulia. An Italian Product conquering the world

阿尔法罗密欧 Giulia 意大利产品征服世界



June 24, 2015: on the 105th anniversary of the foundation of A.L.F.A. (Anonima Lombarda Fabbrica Automobili) in the renovated Arese museum and in front of the world's media the new Alfa Romeo Giulia was unveiled. A momentous change in the paradigm of the brand that presented not only a new model but a real manifesto, which concentrates within itself the past, present and future of one of the most shining examples of car excellence in the world. The car, which embodies the main Italian stylistic features, is characterized by innovative engines, by cutting-edge technological solutions and by the return to the rear-wheel drive (a four-wheel drive version will also be available), as a tribute to the brand's origins. For the Alfa Romeo Giulia our company provides all the power distribution systems and the circuit breakers. The electrical and electronic content (heated seats, 8-way stereo, various electronic security systems, etc.) of this car require root nodes dedicated to the distribution of power and the protection of the electrical circuits, all produced by MTA. Let's see in detail what has been developed for all the Alfa Romeo Giulia versions in the various sections of the car.

**In the engine compartment** we installed the **FRB** distribution unit and two modular fuse/relay holders, integrated into the front cable, as well as a

2015年6月24日，在A.L.F.A. (Anonima Lombarda Fabbrica Automobili, 伦巴第汽车制造厂) 成立105周年之际，新车型阿尔法罗密欧 Giulia 在焕然一新 的 Arese 展览馆中向全世界媒体亮相。新品牌的重大变化不仅仅是一个新的标志，更是一份真诚的宣言，它浓缩了品牌的过去、现在以及未来，是世界卓越汽车品牌的杰出代表。整车充满鲜明的意大利风格，革命性的新式引擎和尖端技术解决方案为其赋予了新的特质，而经典后轮驱动（四轮驱动车型也已问世）则是一曲对品牌起源的颂歌。我公司为阿尔法罗密欧 Giulia 提供了所有配电系统和断路器。汽车的电子和电气部分（加热座椅、8通道立体声音响和各种电子安全系统等）需要源节点来完成电力分配和电路保护，这些部件均由 MTA 供货。让我们来细细品味，MTA 在阿尔法罗密欧 Giulia 汽车的不同部分中都进行了哪些开发。

我们在**发动机室**中安装了 **FRB** 配电装置和两个模块化熔断器/继电器座（集成到前部电缆中），以及**多路配电**节点，这些都是为阿尔法罗密欧 Giulia 专门设计的。此节点能够容纳两种 MidiVal 型熔断器，并可分配来自行李厢（电池安装于此）的动力；同时还配备紧急起动机插头（跳线跨接起动），而且采用独立门设计，便于使用。通过特制塑料支撑设计来优化发动机室内 FRB 和模块的布置，同时确保实现最佳保护。

在**行李厢**中，我们的技术人员布置了 **FRB-RB** 配电单元以及**额外的熔断器盒/**



**multiway power distribution node**, especially designed for the Alfa Romeo Giulia. This node is able to accommodate two MidiVal type fuses and distribute power that comes from the trunk, where the battery is located, and comes with an emergency starter plug (jump start) that is easily accessible thanks to a separate door on the main cover. To correctly position the FRB and the modules in the engine compartment specific plastic supports have been designed that can optimize the layout and ensure an optimal degree of protection.

**In the luggage compartment** our technical department has positioned the **FRB-RB distribution** unit, as well as an **additional fuse box/relay holder**. In the case of these units, as before, we have developed a specific plastic frame that makes installation easier, paying particular attention to the layout of the wiring at the back. Still in the luggage compartment, where the Giulia has its battery installed, MTA has provided a sophisticated control unit solution mounted directly on the battery to protect the primary users, the **CBA**. To attach the CBA to the positive battery terminal, the engineers have opted to use the lever clamp in place of the traditional screw-down clamp. This is the first application on which the sophisticated quick-action clamp has been used.

**继电器固定装置**。之前在这些装置上，我们开发了一个特制塑料框架，使安装更容易，而且特别注意了后部的线路布局。由于 Giulia 的电池安装在行李厢中，所以 MTA 为其提供了直接安装在电池上的控制装置——**CBA**，从而保护主要用户的人身安全。为了关联 CBA 与电池正极，工程师用杠杆夹代替了传统的螺杆夹。这是我们首次应用复杂速动夹钳。

# Electronics Division. New Developments

## 电子设备部门 最新进展

The priorities for the car of the future are changing. While before they were design and performance, today the required features are multimedia technologies and connectivity within the passenger compartment. Infotainment will therefore be the key parameter when choosing which car to purchase. The evolution of MTA's Human Machine Interface Systems focuses on two areas: **Link Motion's** Linux In-Vehicle Infotainment platform, and the Android Automotive platform, both integrated with Autosar to manage specific features; these have also been optimized for latest generation multi-core systems.

The first area is based on the collaboration with **Link Motion**: MTA brings not only a contribution to development within the consortium, but is presented as the only company that produces a device that is entirely designed and validated internally. As a result of this, MTA is able to offer customers a complete in-vehicle system with state-of-the-art performance that manages, even simultaneously, infotainment and instrument cluster functions with just a single piece of a computing unit.

The user interface is created through the Rightware Kanzi HMI tool, which allows rapid design and implementation of visually stunning UIs (user interface) with both 2D and 3D graphics.

The Android platform, on the other hand, is proposed to customers given the standard features (such as graphical interfaces) that this system includes, facilitating the development of apps by the customer himself.

In the HMI systems safety functions are also increasingly requested in keeping with the ISO 26262 and ISO 25119 norms; for this MTA has designed some solutions that can also guarantee the compliance of applications with display.

人们对未来汽车的关心重点正在发生变化。此前，人们看重设计和性能；而现在，大家需要的是在客厢中实现多媒体功能和网络连接。因此，顾客在选购车辆时会把关注重点放在资讯娱乐系统上。MTA 人机接口系统的演进表现为两方面：**Link Motion** 的 Linux 车载资讯娱乐系统和安卓汽车平台；此二者结合 Autosar 技术以管理特定功能，而且均已经过最新一代多核系统的优化。第一个方面基于与 **Link Motion** 的合作：MTA 不仅为业界贡献开发实力，而且还是唯一一家所生产设备全部采用自主设计并进行内部验证的公司。MTA 能够为客户提供完整的车载系统与先进的性能管理能力，仅凭一个计算单元即可同时管理娱乐系统和组合仪表等功能。

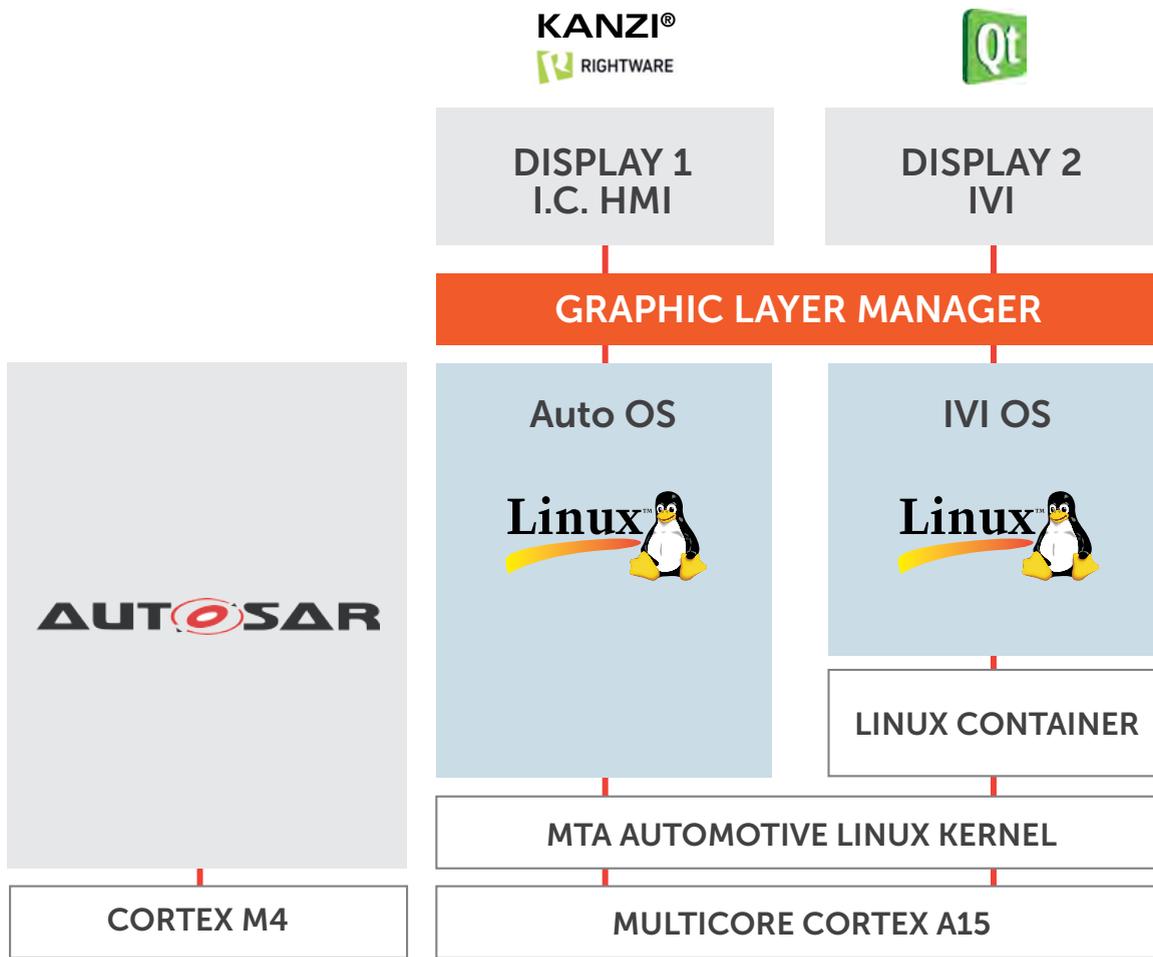
用户界面通过 Rightware Kanzi HMI 工具创建，可使用 2D 和 3D 图形快速设计实现极具视觉冲击力的 UI（用户界面）。

另一方面，Android 平台则在为客户提供标准功能（比如图形界面）的同时，还允许客户自行开发应用程序。

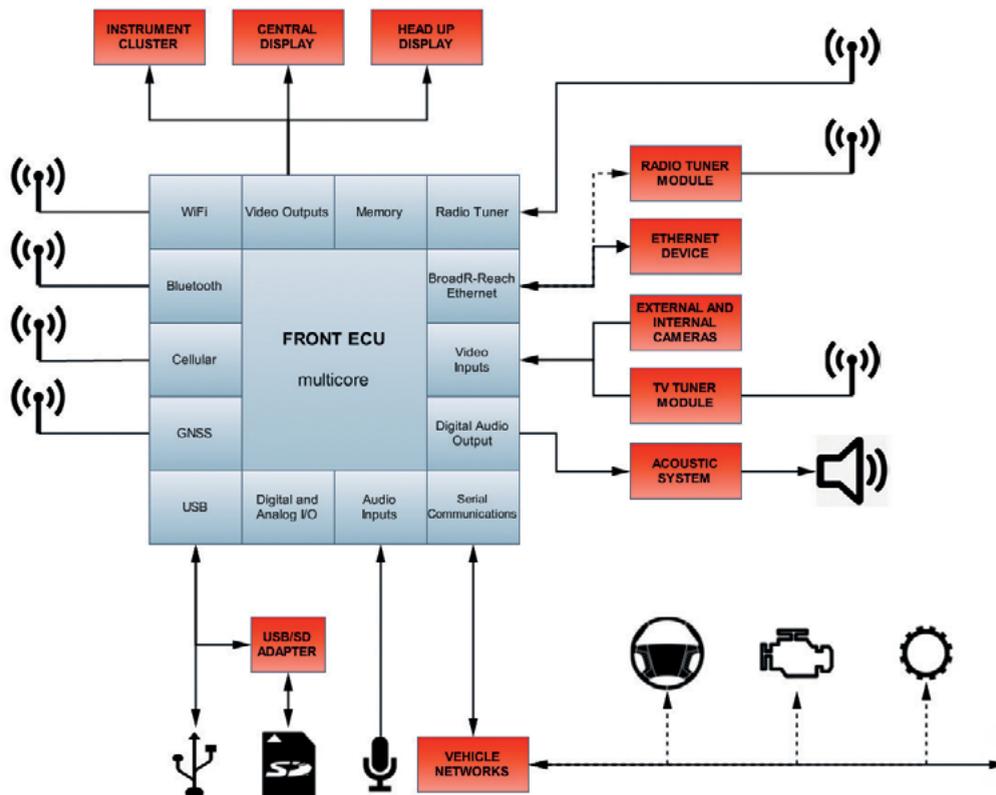
为符合 ISO 26262 和 ISO 25119 标准，HMI 系统的安全功能也需要不断改进；为此，MTA 设计了一些可以保证应用程序灵活性的解决方案。



# SOFTWARE ARCHITECTURE



# IVI - FRONT ECU ARCHITECTURE



# MTA STUDIO

## The "Tailor-Made" Software for Instrument Panels

为仪表盘量身定制的软件

To meet the requirements of versatility and ease of customization that many clients look for in their instrument panels, MTA has recently developed a specific software tool, called MTA Studio, which allows you to program these instruments based on your needs.

MTA Studio, in fact, allows you to configure the clusters but also to program their logic functions using C, LADDER and FBD. For the graphical HMI, however, the interface is WhatYouSeelsWhatYouGet, which allows the user to see how the graphics will appear at the end while creating the software. The software available to the client also contains a real-time debugger, and a set of libraries, with different functions that can be used depending on the application requirements.

MTA Studio, for now, can be used to configure the 4 instrument panels already available in the catalogue: Quik, Quik Plus, Revo Plus and Spot. These instrument panels, in addition to responding to the above requirements, have elegant and modern lines and were designed especially by a design studio. The first panel that MTA has developed is the **Quik**. A small instrument panel, 230x120 mm, the Quik is characterized by 1 LCD display segment in the centre; 2 analogue gauges with hand indicator, arranged in a mirror-like configuration;

许多客户都在寻找可满足多功能需求且易于定制的仪表面板。MTA 最近开发出一款名为 MTA Studio 的特制软件工具，用户可以使用这一工具根据需求对仪表进行编程。

实际上，MTA Studio 让用户不仅能够对组合仪表进行配置，还可以采用C语言，LADDER和FBD等方式对他们的逻辑进行编程。梯形图和功能块图等方式对他们的逻辑功能进行编程。对于图形化的 HMI，界面采用“所见即所得”模式，即用户在创建软件时，能够在终端上看到图像的显示情况。用户可获取的软件还包括实时调试器和数据库，可根据应用需求来使用不同的功能。

现在，MTA Studio 可用于配置产品目录中的 4 种仪表面板：Quik, Quik Plus, Revo Plus 和 Spot。这些仪表面板除了能够满足上述需求外，还采用专业设计工作室的外观设计，线条优雅且具有现代感。

MTA 开发的第一个面板就是 **Quik**。它是一款 230x120 mm 的小型仪表面板。Quik 的特点在于中央装有 1 个分段式 LCD 显示屏；配有 2 个呈镜面对置的带指针的模拟量表盘；显示屏上方有 LED 条形指示器；23 个 LED 控制灯；1 个实时显示时钟；1 个蜂鸣器；1 根带可配置终端的 CAN 总线；多达 23 路可配置数字量输入；2 路模拟量输入；2 路频率输入和 1 路 500 mA 电流输出。仪表面板外层采用 PMMA 玻璃。Quik 仪表面板能够在 12 V 或者 24 V 电压下运行；其固定系统有两种可行选择：带前端框架或者不带。





1 indicator with LED bar located above the display; 23 LED control lights; 1 real timer-clock; 1 buzzer; 1 CAN line with configurable terminal; up to 23 configurable digital inputs; 2 analogue inputs; 2 frequency inputs and 1 500mA output. The glass of the instrument panel is made from PMMA. Quik can operate at either 12V or 24V and the fixing system provides two possible options, with or without front frame.

For the sake of even greater customization, MTA has created **Quik Plus**, where the LCD segment and the LED bar are replaced by an LCD dot matrix (128x128 pixels).

The **Revo Plus** is quite a small instrument panel (140x305 mm) and can hold up to 4 analogue instruments; a Colour Display TFT 4.3" at the centre; 4 side buttons to scroll through the various menus; 28 LED control lights that can be expanded up to 34 if the customer requests it; 1 buzzer; 2 CAN lines; up to 37 configurable digital inputs; 7 analogue inputs and 4 frequency inputs. Protected by a PMMA glass, this instrument panel can operate at either 12V or 24V.

The round shape and the very small size of the **Spot**, which has a diameter of only 108.5 mm, make this instrument panel particularly suitable for small vehicles, or for those means of transport that need a large front visibility, such as tractors for orchards, lawn mowers or sweepers. It is composed of an LCD dot matrix (160x56 pixels); 8 digital inputs with pull down and 8 with pull up; 2 analogue inputs; 1 CAN line and 1 500mA output.

为提高用户定制化水平，MTA 开发出了 **Quik Plus**，用 LCD 点阵显示器（128x128 点）代替了之前的分段式 LCD 和 LCD 条。

**Revo Plus** 是一款外形十分小巧的仪表面板（140x305 mm），最多可容纳 4 个模拟量仪表；中央装有一个 4.3 英寸 TFT 彩色显示屏；侧面有 4 个用来滚动不同菜单的侧边按钮；配有 28 组 LED 控制灯，如果用户需要则可扩展至 34 组；1 个蜂鸣器；2 路 CAN 总线；多达 37 路可配置数字量输入；7 路模拟量输入和 4 路频率输入。外层采用 PMMA 玻璃提供防护，可在 12 V 或 24 V 电压下运行。

**Spot** 是一款小型的圆形仪表面板，其直径仅为 108.5 mm，特别适合小型车辆，或者前部需要很大可视范围的运输车辆，例如果园拖拉机、割草机或清扫机等。其配置包括一个 LCD 点阵显示屏（160x56 点）；8 路带下拉和 8 路带上拉的数字量输入；2 路模拟量输入；1 路 CAN 总线和 1 路 500 mA 电流输出。





# MegaCompact Fuse. The “Compact” range expands

MegaCompact 熔断器“紧凑型”系列产品又添新丁

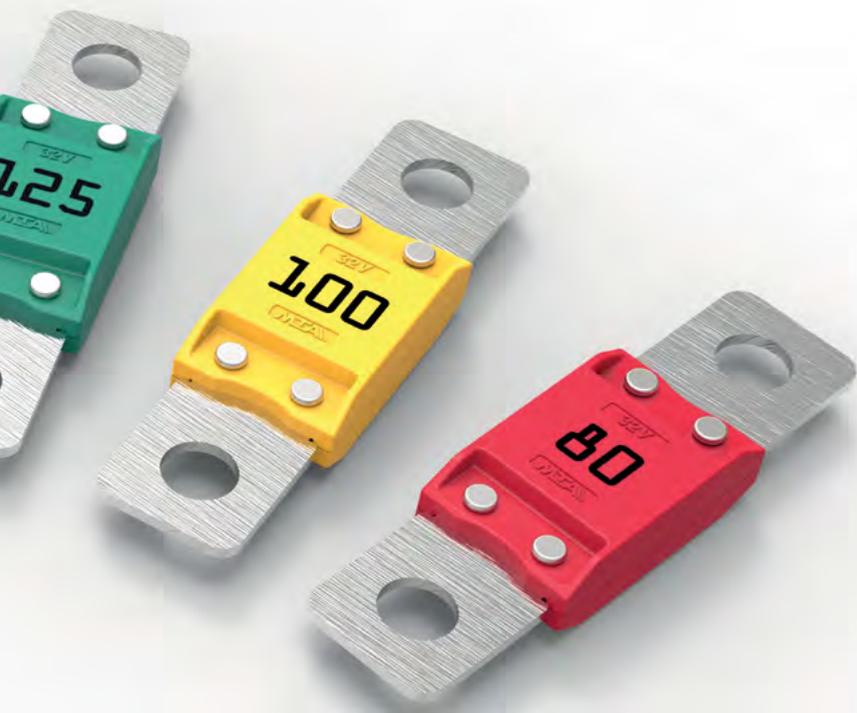
To meet the latest demands of a market that requires smaller and lighter fuses than in the past, MTA has recently added a new family of compact fuses to its range: the MegaCompact. Developed in a range between 80 A and 250 A this fuse meets the operational times currently regulated by the ISO standard for the existing Mega Fuses.

Thanks to the base reduced to 42 mm and the M6 hole, the new product offered by MTA cannot be confused with other families currently on the market. If compared to SF51 fuses, the MegaCompact, which is proposed as an alternative to these up to 250 A, allows for a reduction in area and volume of about 30%. Simulations of real-world applications in fuse box have shown how we can obtain a considerable decrease in the raw materials used, the size and the total weight of the finished product. As an example of the possibilities offered by the new range, we propose a linear comparison between the new

为满足市场对更小更轻的熔断器的需求，MTA 最近推出了新的紧凑型产品：MegaCompact 系列。其工作范围在 80 A 到 250 A 之间，工作时间可满足 ISO 标准中对现有 Mega 熔断器的规定。

由于基座宽度缩减至 42 mm 并采用 M6 螺丝孔，MTA 提供的这一新产品不会与当前市场上的其他系列产品相混淆。MegaCompact 可作为工作电流高达 250 A 的 SF51 熔断器的替代产品，而且相比之下，前者的占用面积和体积要比后者小 30% 左右。通过对配电单元内的真实应用进行仿真模拟，可以了解到我们是怎样在原材料用量、成品尺寸和总重量等方面进行可观缩减的。以该系列新产品为例，我们对新的 MegaCompact 熔断器和现有的 Mega 熔断器进行了线性比较，结果表明，新款熔断器在电源母排中的用铜量减少了 37%，占用面积减小了 30%。

由于所使用的技术日趋成熟与标准化，MTA 提出了在两端均带有热敏变色条的电流辨识技术；这项技术可以让熔断器在安装阶段变得容易识别，避免在通



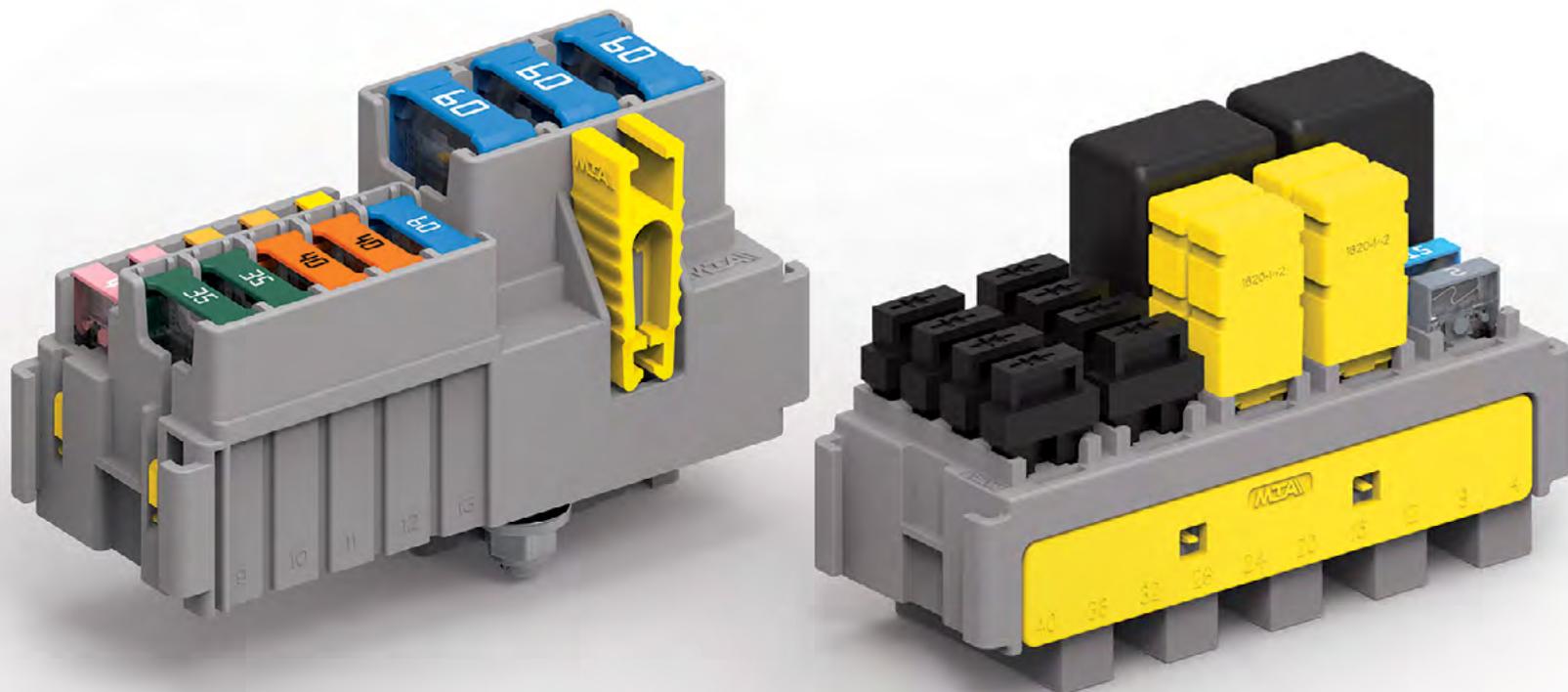
MegaCompact fuses and current Mega fuses that shows that about 37% less copper is used in the power bus bars and there is a 30% reduction in the total area. Thanks to the use of more and more standardized and established technologies, MTA proposes an amperage identification with thermal transfer ribbon on both sides that, in addition to allowing the fuses to be easily recognized during the assembly phase, avoids false alarms when they are read by the cameras. MTA has once again proposed a product whose characteristics, described above, ensure that it is unique on the market.

过摄像头读取时产生错误报警。  
MTA 已再次推出了具备上述特征的产品，以确保其在市场上独一无二的地位。

If compared to the MegaFuse, the MegaCompact allows for a reduction in area and volume of about 30%. Simulations of real-world applications in fuse box have shown how we can obtain a considerable decrease in the raw materials used, the size and the total weight of the finished product.

相较 MegaFuse 来说，MegaCompact 可以使面积和体积缩小约 30%。通过仿真实际使用的保险丝盒可知，我们如何能够极大减少原材料的使用以及成品的尺寸和总重。





# Modular Units: the range expands to 14 different solutions

## 模块单元：产品系列扩展至 14 种不同解决方案

MTA has added two new modules to the existing range, bringing the total number of modular solutions up to 14. These can house fuses, relays, diodes, circuit breakers and “footprint” micro relays. Robust and compact solutions, they can ensure maximum performance in total safety, and they are all equipped with a secondary lock that guarantees very fast and error-free assembly on the vehicle production line. From the large selection, it is definitely worth mentioning the new very compact module, with bus bar, which can accommodate 5 Mini fuses, 5 MaxiCompact fuses and 3 M8Compact fuses. These last two families of fuses are from the MTA compact range and are our company's response to the increasingly frequent requests from our customers, who demand smaller, lighter fuse boxes with cables with small sections. The MaxiCompact range (between 25A and 60A) is therefore offered as a substitute for Maxi and J-Case fuses with a 63% reduction in size compared to the Maxi and 40% compared to J-Case. The M8Compact range has been designed for higher currents, between 30A and 80A, and combines the typical performance of the Maxi fuses, of which the M8Compact is an alternative, at high currents with a 46% reduction of the space occupied. In the other module, recently industrialized, 20 MiniVal or 20 Circuit Breakers, 20 Diodes and 6 Micro 280 Footprint Relays can be housed.

MTA 在现有模块系列的基础上新增 2 种模块，使模块解决方案的总数增加到 14 种。这些模块可以封装熔断器、继电器、二极管、断路器和“封装式”微型继电器。该解决方案稳健紧凑，在总体保证安全的前提下确保达到最佳性能；所有模块均配备副锁，以保证快速无误地在汽车生产线上进行装配。在种类繁多的系列产品中，值得一提的是带有母排的最新款紧凑模块。它能够容纳 5 个 Mini 熔断器、5 个 MaxiCompact 熔断器和 3 个 M8Compact 熔断器。后两款熔断器产品属于 MTA 的紧凑型系列；客户需要更小更轻的带线缆的小型熔断器盒，所以，我公司针对日益增多的用户需求开发了上述产品。应运而生的 MaxiCompact 系列 (20A - 60A) 是 Maxi 和 J-Case 熔断器的替代产品，其大小相比于 Maxi 减小了 63%，相比于 J-Case 减小了 40%。M8Compact 系列产品专为 60 A 到 80 A 的高电流应用设计，并融合了传统 Maxi 熔断器的优越性能；M8Compact 是一款适用于高电流应用的替代产品，其占用空间缩小了 46%。在最近经过工业化的其他模块中，可封装 20 个 MiniVal 或 20 个断路器、20 个二极管以及 6 个 Micro 280 封装继电器。

# Water Proof Modules. The family grows

## 防水模块 产品系列扩充新成员

MTA has always paid particular attention to the modular aspect of the fuse and relay holders, which it produces in different varieties and assortments so that everyone can find the right product for their needs. To further increase the applications, MTA has introduced a range of modules with IP67 protection, which can protect the electrical components from water, mud and dirt and, therefore, are also suitable for off-road and heavy duty applications. The WP range today consists of 4 modules, all of which can be combined together thanks to the fastening system with 4 anchors and can offer customers different possibilities for housing fuses and relays.

MTA 一直致力于熔断器和继电器座的模块化，并推出了各种不同种类的产品，以便所有用户都能根据需求找到合适的产品。为了进一步扩大其应用范围，MTA 推出了一系列 IP67 防护等级的模块，能够保护电气元件免受水、泥土和灰尘的损害；因此，也适用于越野和重载应用。目前的 WP 系列包含 4 个模块，可借助 4 锚点固定系统全部组合在一起，并能够提供多种熔断器和继电器安装方式供客户选择。



# Power Distribution Unit ...IP is better

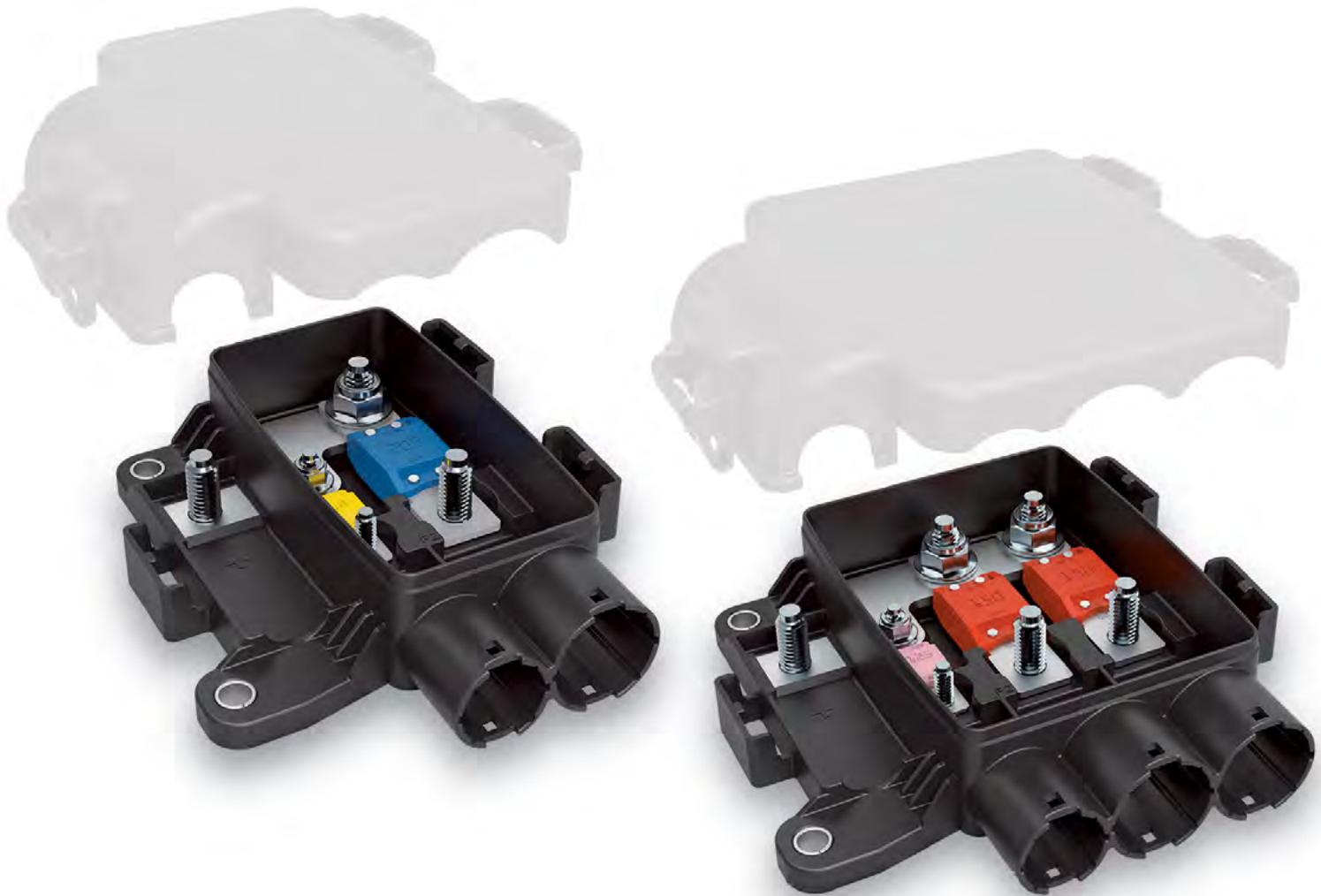
## 配电装置...防水和防尘更佳

Compact, versatile, 2- or 3-way, with the IP6K9K protection degree (dust-tight and resistant to high-pressure washing and steam).

These are the main features of the new PDUs that our company offers to various markets, ranging from car applications to trucks, buses and tractors. They can also be attached either directly onto the battery or on the engine wiring harness, thanks to their ability to withstand temperatures of up to 120 °C. Production has already started for several clients globally and is concentrated in the new department of our branch in Slovakia, but it will soon begin in our new site in China too.

结构紧凑，功能多样，配备 2 或者 3 通道，达到 IP6K9K 防护等级（防尘、抗高压清洗和蒸汽）。

我公司推出的新款 PDU 具备以上几大主要特点，并面向多种市场供应，适用于从汽车到卡车、公共汽车和拖拉机等各类应用。由于能够耐受 120 °C 的高温，新款 PDU 可以直接连接到电池或者发动机线束上。这款产品现已开始向全球范围内的多家客户提供，其生产业务目前主要集中在我们斯洛伐克分公司的新部门，并有望在不久之后在中国的新工厂中开展。



# The intelligent battery terminal

## 智能电池终端

With expertise acquired over several years of development and production, MTA is now known by the major OEMs for the mechanical technology of its battery terminals. Today our company has taken a decisive step forward in this kind of product, creating an "intelligent" battery terminal with integrated sensor that can measure the current, voltage and temperature of the battery and constantly monitor its state of charge.

For the algorithm development of the state of charge, MTA has taken advantage of the collaboration with a German research center and a manufacturer of batteries. The joint work has allowed an algorithm with a precision of +/- 5% to be developed, which will then also be able to monitor the health of the battery. This will allow the driver to be alerted when the battery is at risk, with an alert signal directly on the car's dashboard.



多年来，MTA 在开发和生产过程中积累了丰富的专业经验，其电池终端具备优越的机械性能，因此被各大 OEM 厂商所熟知。今天，我公司在此类产品上迈出了决定性的一步：我们全新打造出了一款“智能”电池终端，这种产品安装有集成传感器，可以测量电池的电流、电压和温度，并持续监测电池的充电状态。

为开发用于确定充电状态的算法，MTA 与德国的一家研究中心和另一电池制造商开展合作，共同研究。通过联合开发，算法的精度提升到 +/- 5% 以内，而且还可以用于监视电池的健康状态。当电池处于危险状态时，警示信号会直接显示在汽车的仪表盘上，向驾驶员示警。

# A new relay ...the problem solver

## 新款继电器强力问世...排忧解难，助力成功

The recent development of an innovative product, that is the solid state relay, is gathering a lot of interest from OEMs. This "electronic" relay embodies several characteristics that solve some of the limitations of the electromechanical ones.

The noise issue that is typical of traditional coil relays is in fact eliminated and the component offers the possibility to manage some functions by modulating the output in PWM. Incorporated within the new relay are protections such as those against over-voltage and reverse battery polarity, and diagnostic functions are included. It can therefore also act as a fuse, since it can disconnect itself in the case of the anomalies mentioned above. The new relay will be available in 3 different versions, with nominal currents of 10A, 25A and 40A respectively. At the same time, it is reliable over time (an unlimited number of implementations), has much faster implementation times and is also characterized by a reduced size and weight (-30%) compared to other products on the market. Last, but not least, it is compatible with the traditional relay port control units, thus making it possible to substitute the more traditional electromechanical relays without any problems.



最近，一项创新研究成果引起了众多 OEM 厂商的极大兴趣，那就是固态继电器。这种“电子”继电器具备多种优秀特点，能够摆脱机电式继电器的一些局限条件。传统的线圈继电器在工作时一般都会产生噪音，而固态继电器则完全解决了这一问题。而且，通过对 PWM 的输出进行调制，固态继电器可进行一定程度的功能管理。新继电器中集成了一些保护功能，例如过压、电池反接，而且还具备故障诊断能力。一旦发生上述异常，新款继电器会自动断开连接，因此也可以作为电路熔断器使用。新继电器将有 3 种型号面市，其标称电流分别是 10 A、25 A 和 40 A。此外，其性能高度可靠，支持长期使用（安装使用次数无限制），并且安装更快。相较于市场上的其他产品，其尺寸更为紧凑小巧，而且重量更轻（-30%）。最后还有一点也非常重要，那就是这款继电器能够兼容传统的继电器端口控制单元，因此它可以直接替代传统的机电式继电器，不会产生任何兼容问题。



# MTA Slovakia

Equipped with a modern plastic molding department, this plant is ISO/TS 16949, ISO 14001 and OHSAS 18001 certified and employs more than 300 people.