



## How to contact us:

### You already have a Mitsubishi Electric contact?

Then please consult your local contact.  
Your request will be forwarded to the Business Unit in question.

### For more information:

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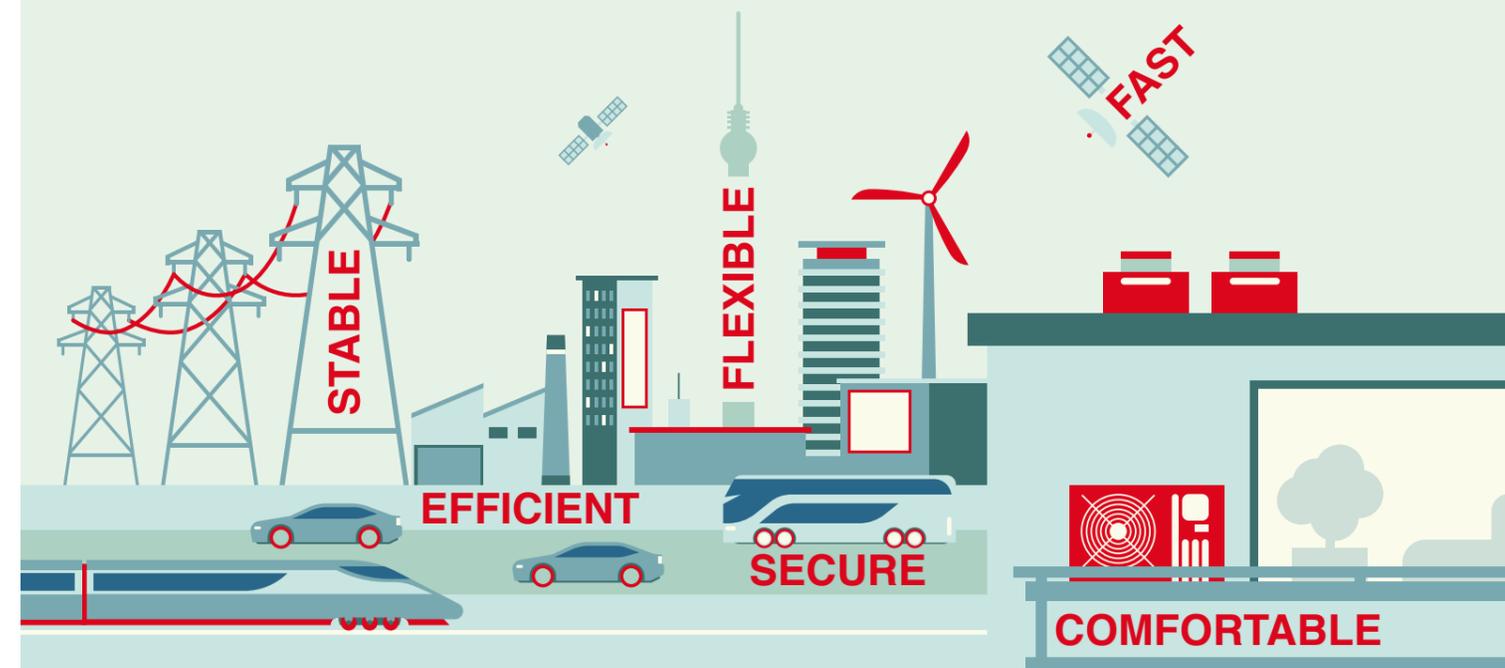


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## The World of Mitsubishi Electric

# Solutions for your business.



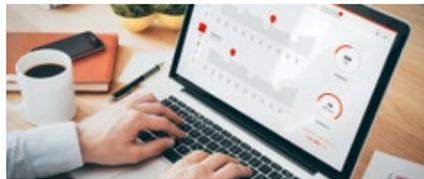
We use our own technologies for our new sustainable office building.



The new headquarters of the German Branch is the best success story for the integration of Mitsubishi Electric products.



We guarantee maximum energy efficiency in our building by using simultaneous heating and cooling with heat recovery. With our City Multi VRF-R2 system, energy consumption can be reduced by up to 40 % and investment costs up to 25 % when compared with chilled water systems.



Our MAPS system ensures that the whole building is completely monitored, e.g. data concerning energy consumption, the use of printing materials or the relationship between the outside temperature and cooling/heating.



We use the Ecodan system to supply the underfloor heating. The air-to-water heat pump system gains its energy from the outside air and adjusts its output precisely to temperature requirements.



Lower energy consumption, maximum reliability and a sophisticated high-quality design are the key requirements when it comes to elevators. This is precisely why we rely on our own technically advanced NEXIEZ-MRL elevators.



The contact sensors in the Mitsubishi Electric fire and smoke alarm systems detect faults with smoke dampers. They contribute to enhanced safety and significantly reduce the need for costly high-maintenance fire protection.



The compact contactors have a modular energy-saving design and can easily be expanded for fast and safe switching operations. Installation on DIN rails and standardized terminal covers are both user-friendly and cost-effective.

## Key Facts

### Our Building

- New Mitsubishi Electric German Branch on a 9,000 m<sup>2</sup> plot in Ratingen
- Construction began in March 2014
- Relocation in November 2015
- 16,000 m<sup>2</sup> of office space for up to 750 employees over five and a half floors
- Offices and meeting rooms, as well as training and technology centres
- Underground parking for 500 cars
- Highly insulated building shell and thermally glazed windows to meet the statutory requirements of the German Renewable Energy-saving Regulation (EnEV)

### Our Technology

- Air-to-air and air-to-water heat pumps supply the building with 2 MW of heating and 2 MW of cooling. Up to three-quarters of the energy is generated from the ambient air.
- City Multi air-to-air heat pumps with VRF-R2 technology simultaneously heat and cool the office space. Integrated heat recovery delivers up to 40 % energy savings.
- The training wing is air conditioned by a Hybrid (HVRF) R2 system. In this area refrigerant and water are both used to convey energy.
- Mr. Slim air-to-air heat pumps supply centralized ventilation units for heating or cooling. Patented Zubadan technology ensures full heating capacity at temperatures as low as -15 °C.
- Ecodan air-to-water heat pumps produce heat for the underfloor heating system in the foyer. Inverter technology allows the output to be adjusted precisely to meet demand.
- 50 Jet Towel hand dryers are used in the washrooms.
- Just under 20 km of bus cables, 6,800 m of remote control cables and 21 km of refrigerant pipes with diameters from 6 to 28 mm have been laid.
- 40 iQ-F controllers have been installed.
- MAPS integration tool: MAPS life-cycle software tool (Mitsubishi Adroit Process Suite)
- Over 4,000 circuit breakers and residual current devices
- High-voltage AC power switches and contactors
- Digital Mitsubishi Electric video surveillance system
- Passenger elevators
- Flat screen monitors
- Video wall

### Certification

- Leadership in Energy and Environmental Design (LEED) certification is an internationally recognized certification for resource-efficient, sustainable and environmentally friendly building management.
- The evaluation criteria include sustainable site development, energy and air quality, materials and resources, indoor climate, design and innovation and regional priorities. Categories include: Certified / Silver / Gold and Platinum.



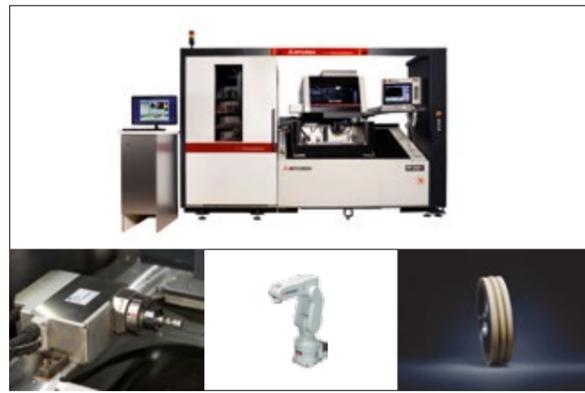
### We build machine line control automation

Mitsubishi Electric and Akyapak Machinery have partnered to deliver an optimized control solution using Mitsubishi Electric's unique iQ Platform for Akyapak's new ADM series of CNC-controlled multi-axis drilling machines.



### Our Diamond Cell solution

Our technology partner, ITS-Technologies from the Black Forest, have proved that dressing the grinding wheels on Mitsubishi Electric Eroding Machines (EDM) with metallic binders is very easy, precise and cost-effective. Mechatronics Machinery have therefore combined a wire-cutting EDM MV1200R with a Melfa RV12SDL and an ITS B-axis in an automatic production cell for grinding wheel dressing. The so-called "Diamond Cell" solution is in production at the profile grinding wheel companies.

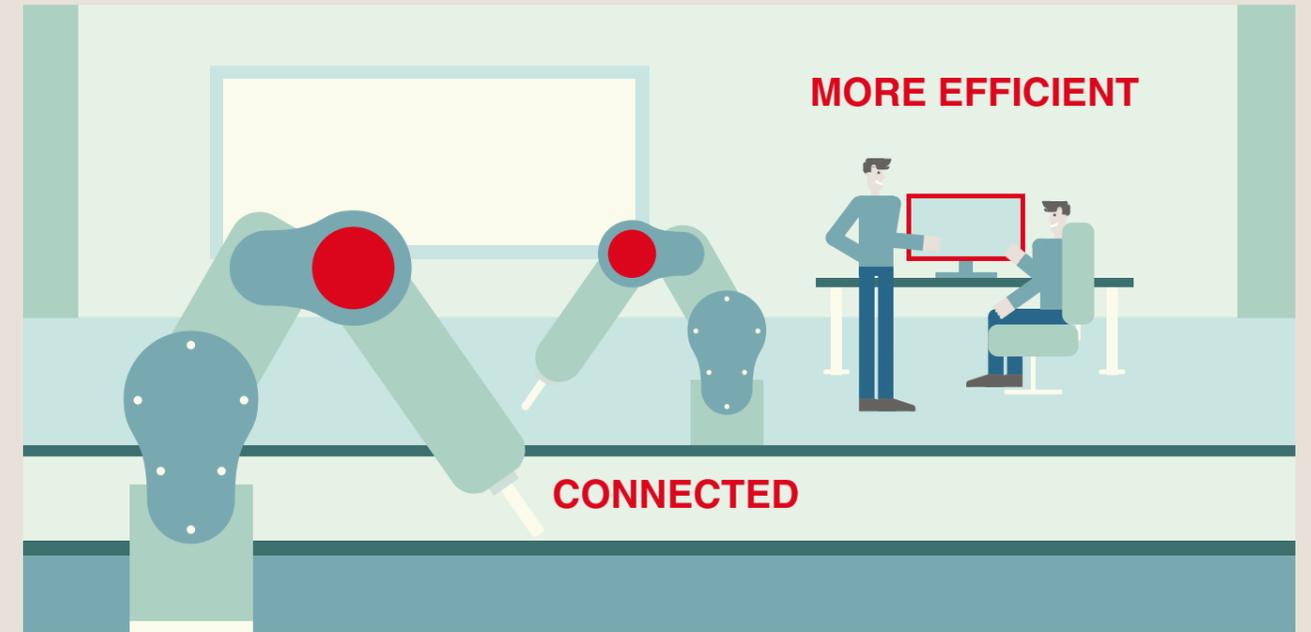


### We create predictive maintainance

Every day, around 300 tons of thermal paper make their way through Coating Machine 3 at Mitsubishi HiTec Paper Europe GmbH in Bielefeld. It has 26 ventilation units, each with an intake and an exhaust fan. This allows us to dry the coated paper without touching it. Using vibration measurements from 26 FAG SmartCheck systems from Schaeffler, these ventilators are monitored for deviant vibrations. A FAG SmartController based on a Mitsubishi Electric SPS from the MELSEC L series serves as a bidirectional gateway between customer controls and sensors. This monitoring system helps us avoid machine malfunctions, which means that production can be optimized and total operating costs lowered.



Want to learn more about our Automation Solutions? Then, visit our Homepage at: [www.MitsubishiElectric.de](http://www.MitsubishiElectric.de)



We make production more efficient with our automation systems.

### Our solutions:



Programmables Controllers



Industrial Robots



Eroding Systems  
Laser Cutting Systems



Drive Products



Low-Voltage Power  
Distribution Products



7th Gen. IGBT Modules



Chilled Water System



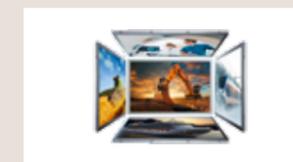
Visualization



Power Monitoring  
Products



CNC-Complete Solutions



TFT-LCD Modules for  
industrial applications



### Our energy-efficient technology helps getting the DGNB quality seal

Energy efficient air conditioning for shops – The Decathlon sports superstore in Essingen, Germany, has been awarded with the silver signet of the German Sustainable Building Council (DGNB).

The installation of the VRF-R2 heat pump system with heat recovery strongly contributed to the DGNB certificate. Units paced within the central system pre-condition the air with Mr. Slim Series heat pumps. Shoppers at this Decathlon branch are very comfortable whatever the weather outside.



### Our technology for an office building with zero energy consumption

The goal of the 3,200 m<sup>2</sup>-high office tower in Münster is zero consumption. All technical installations have been developed and designed for low energy requirements. The primary energy requirement is 58 % lower than the consumption of the reference building. Earth probes use free cooling energy (16 °C - 18 °C) through a heat exchange from the ground almost the entire year. It is used to cool the supply air and control the concrete core temperature. The water temperature is set to 30 °C in winter and 19 °C in summer. The indoor climate within the building is controlled by a decentralized ventilation system.

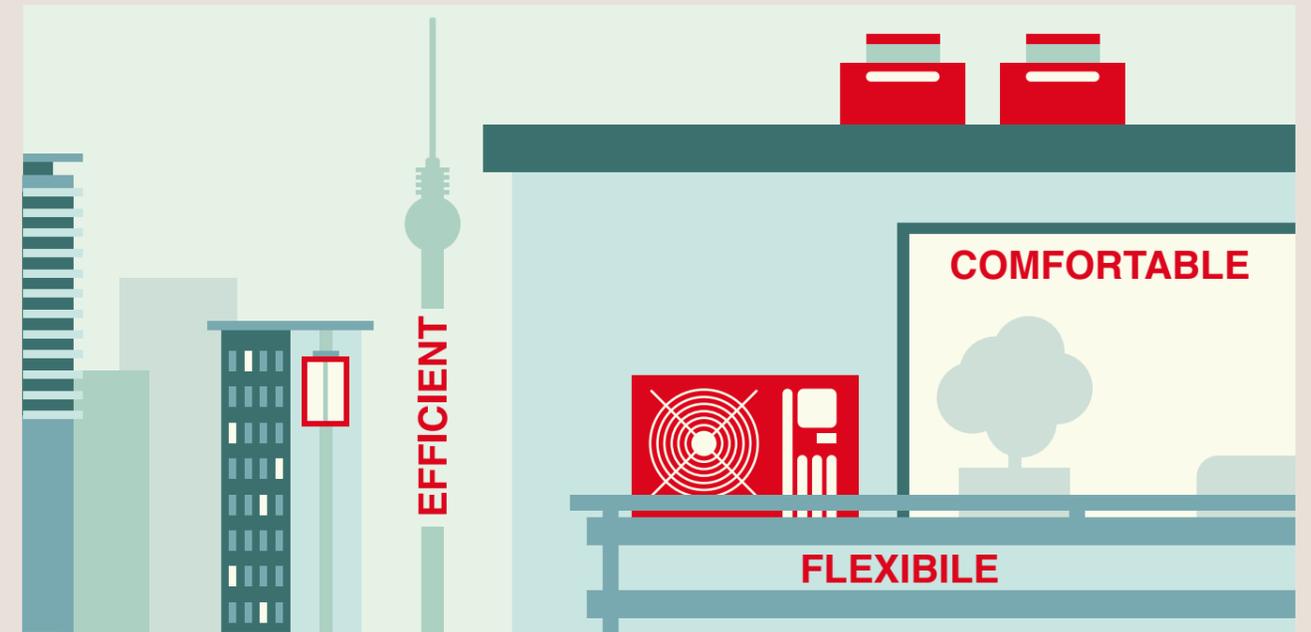


### We make Five-Star-Lifestyle even more comfortable

The Mainport Hotel in Rotterdam is one of the most influential designer hotels in the new luxury segment and has more than 260 rooms. All rooms are equipped with high class entertainment electronics and are individually air-conditioned. To stick to the short building time of less than one year, the VRF-R2 heat pump system was selected. It is the world's only heat recovery system that allows for simultaneous heating and cooling with only two pipes. Elevators from Mitsubishi Electric carry the guests quickly and safely to their floors.



Want to learn more about our Building Solutions? Then, visit our Homepage at: [www.MitsubishiElectric.de](http://www.MitsubishiElectric.de)



We make life more comfortable with our building systems.

#### Our solutions:



Room Air Conditioners



Decentral Air Conditioning Systems



Heat Pumps



Variable Refrigerant Flow (VRF) Systems



Hand Dryers



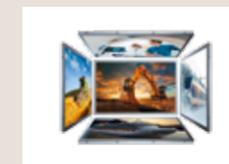
Cold Water Systems



Chilled Water Systems



Displays



TFT-LCD Modules  
Elevators for Elevators



Elevators



Low-Voltage Power Distribution Products



G1-Series Intelligent Power Modules (IPM)



MAPS Visualization & Energy Management



### We make screens – for an audience of 18,000 viewers

The Lanxess Arena in Cologne is an incredible arena: it boasts 18,000 seats, 83,700 m<sup>2</sup> of usable space, 1,000 employees, large screens for direct video broadcasting, a restaurant, bistro, bars, shops and much, much more.

It is setting new standards as Germany's largest arena, and now it does the same with its video cube. Probably the largest indoor video cube in the world, it impresses thousands of viewers with brilliant, film-free images every day.



### We make data centres faster

More than 70 % of communication takes place in large data centres with more than 10,000 servers with fibre optic connections. These require powerful transmission links. For this, Mitsubishi Electric delivers important components with its 10Gbps & 25Gbps laser diodes. These are of the highest quality, making us a reliable and powerful industrial partner.



### We install impressive giant posters

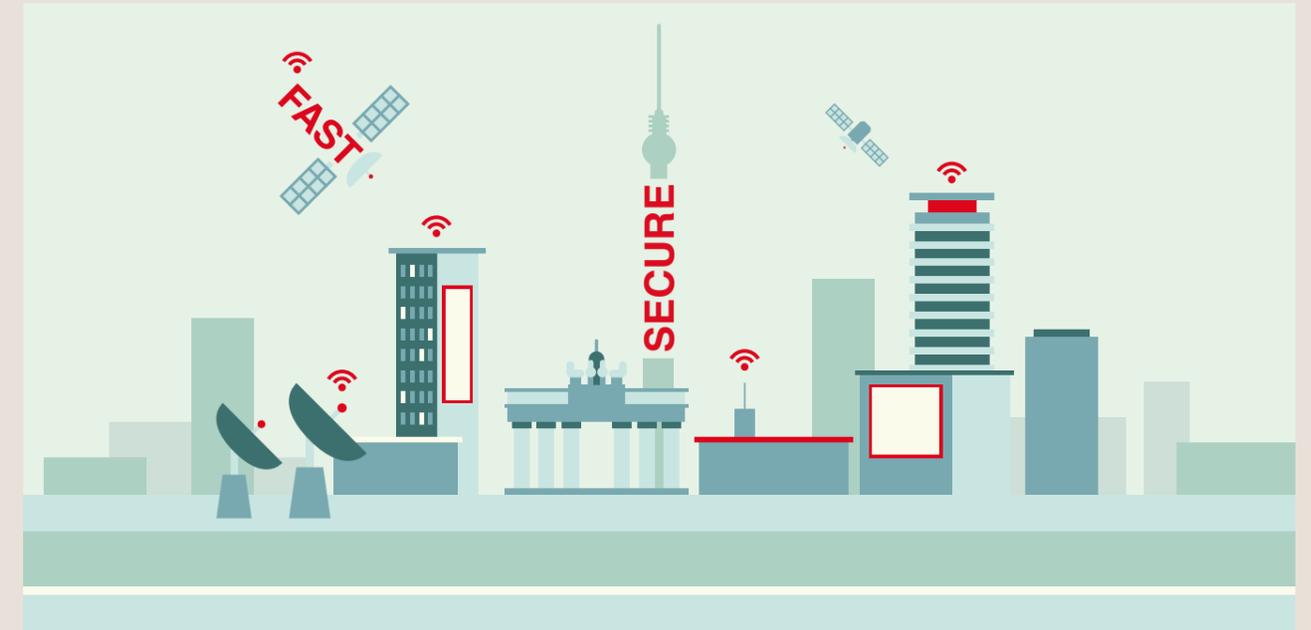
PosterNetwork AG has operated a giant digital poster, which is over 33 m<sup>2</sup>, since November 2011 in Hamburg.

The LED system (Diamond Vision) from Mitsubishi Electric, which was installed in one of Hamburg's premier locations, is setting new standards with respect to large-format advertising.

A total of 18 AVL-ODT10 LED modules were installed for the project. With a resolution of 800 x 416 pixels and a pixel pitch of just 10 mm, Mitsubishi Electric also makes high definition possible outside via Diamond Vision.



Want to learn more about our Communication Solutions? Then, visit our Homepage at: [www.MitsubishiElectric.de](http://www.MitsubishiElectric.de)



### We connect with our communication systems.

#### Our solutions:



High Frequency Devices  
Monitor Controlling  
for Satellite Communication



High-Power Devices for  
Cellular Base Stations



Monitor Controlling



Displays



Laser Components for Data  
Centres



E-Factory Alliance



Contact Image Sensors



Cloud Computing



Chilled Water Systems



Low-Noise Devices for  
Satellite Receiver Systems

### Our new 6in1 modules in compact packages for electric and hybrid vehicles

Power modules for automobiles must deliver higher reliability than industrial-use modules due to extremely high standards for vehicle safety, performance and durability.

J1-Series high-power modules provide compact, lightweight, single-package inverter solutions as a step forward, in keeping with drivers' new expectations.



### We provide semiconductors for industrial applications

The precise and efficient control of dynamic processes puts heavy demands on the components used. With 30 years' history of IGBT production, Mitsubishi Electric provides superior experience and expertise to meet such requirements. The latest chip technology and mounting and assembly technologies offer benefits to users like an extended module lifetime, high-power density for compact design and easy system assembly.

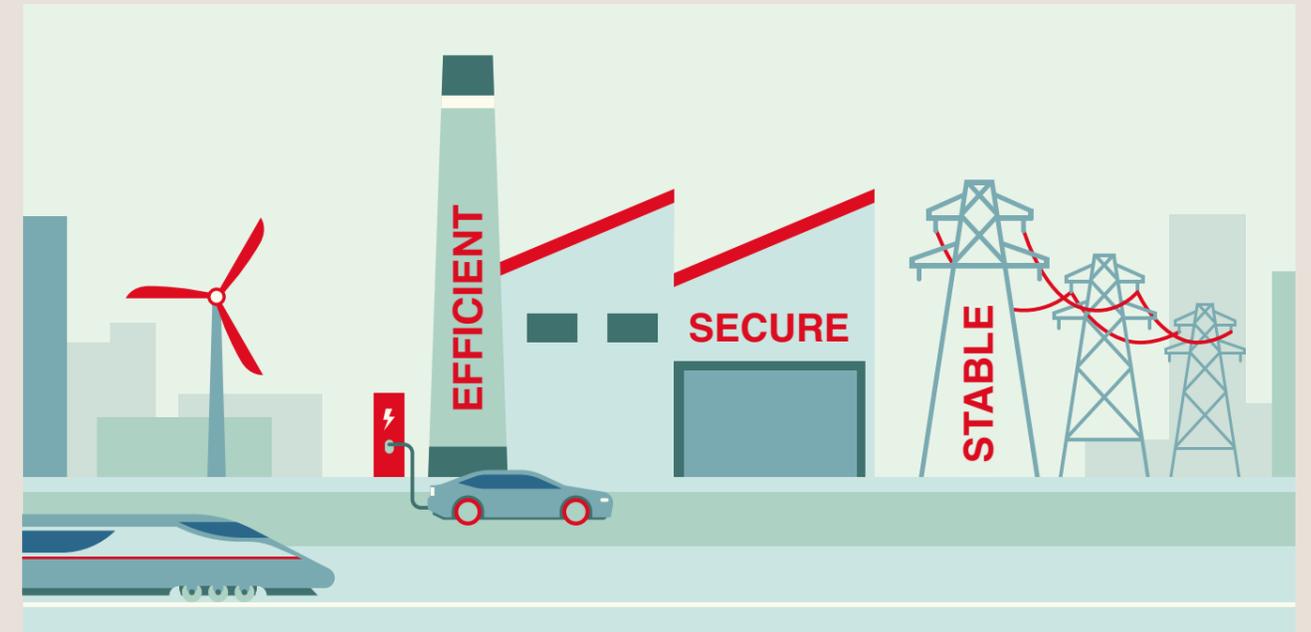


### Our LV100 and HV100 high voltage power modules

These are Mitsubishi Electric's new high voltage power modules for a safer and greener tomorrow. The newly developed dual module structure reduces the thermal stress applied to Si- and SiC-power chips, enabling low internal package inductance and good scalability for flexible power electronics solutions. The latest proven technologies are applied to guarantee reliable operations and long life-time requirements in demanding applications, such as railways, wind generators and MV-drives.



Want to learn more about our Energy Solutions?  
Then, visit our Homepage at: [www.MitsubishiElectric.de](http://www.MitsubishiElectric.de)



We ensure a reliable power supply with our energy systems.

Our solutions:



High Voltage IGBT Modules



Inverters



MAPS Visualization & Energy Management



Redundante PLC Controllers



Displays

### We modernize Deutsche Bahn ICE 2

Deutsche Bahn AG has awarded Mitsubishi Electric a project to modernize traction equipment in 46 Intercity Express 2 High-Speed trains. Products will be sequentially delivered after equipment for the first trains receives certification.

The DB Group is a major railway operator with one of the longest track lengths in Europe. ICE-2, one of DB's high-speed train series, started operating in 1997. Mitsubishi Electric first supplied railway equipment in Europe for the Electric Locomotive Project in Spain in 1967. Over the years the company has steadily grown its involvement with the European railway market.



### We are delivering air conditioning systems for the RRX

Mitsubishi Electric has been awarded its first contract with Siemens AG for railcar air-conditioning systems, which will be used in their Desiro High Capacity railcars on the Rhine-Ruhr Express (RRX) train network that connects cities in Germany's North Rhine-Westphalia region. Mitsubishi Electric is delivering 328 air-conditioning systems for 164 wagons.



### We are building the future: with mobile mapping and with the EMIRAI 3.1 xDAS concept-car

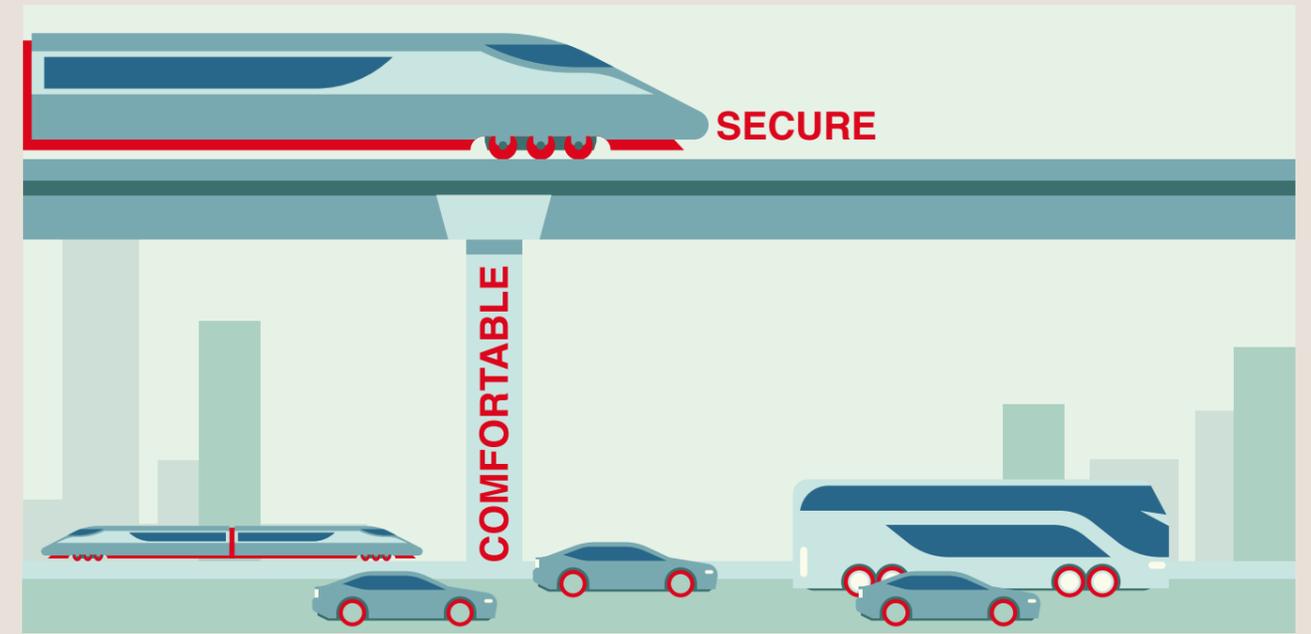
Mitsubishi Electric's mobile mapping system uses a combination of sensors, cameras and lasers mounted on a car roof to collect data in real-time, allowing for the creation of centimetre-accurate 3D maps.



This concept car showcases next-generation driver assistance features and aims to create a safe and comfortable ride for tomorrow's drivers. It features a hands-on, 3D head-up display and advanced HMI technologies, such as multi-bonded displays and gesture control.



Want to learn more about our Transportation Solutions? Then, visit our Homepage at: [www.MitsubishiElectric.de](http://www.MitsubishiElectric.de)



### We secure mobility with our transportation systems.

#### Our solutions:



TFT-LCD Modules for Automotive & Public Transport



Infotainment Products



Transport Planning and Control Systems



Advanced Driver-Assistance Systems (ADAS)



Rolling Stock Systems



Powertrain Solutions



High-Power Modules for Electric and Hybrid Vehicles



Air Conditioning for Trains



Engine Management Products



High Voltage IGBT Modules for Railways





Mitsubishi Electric is one of the world's leading names in the manufacture and sale of electrical and electronic products and systems used in a broad range of fields and applications. As a leading global green company, we're applying our technologies as a contribution to society and daily life around the world.

### Solutions

Mitsubishi Electric has the solution to every challenge at the factory, at work, at home, around town and even in the skies and beyond. Our broad line-up of innovative products and services provides the key to new possibilities and changes for the better.

### Quality

We base every aspect of product development and production on the requirements of the market to ensure our products reflect our customers' current needs. We incorporate quality control programmes that leave nothing to chance. And all that, to maintain our high levels of product reliability, resulting in the outstanding quality and reliability synonymous with which the name Mitsubishi Electric has become synonymous.

### Bringing innovative technology to society

As we progress toward our 100th anniversary, our company-wide focus is clear: applying our technologies to contribute to society and enhance quality of life around the globe. We're working to create a brighter future through innovation, and to ensure a more sustainable world. In order to achieve this goal, we will continue to improve our wide-ranging products, services, and business activities to help change the planet's environment for the better.

### Trust

We believe in long-term relationships built on understanding and trust. Foundations like this ensure improved collaboration with our suppliers and help us to move forward together to achieve mutual prosperity.

## A global network of innovation.



As a leader in the manufacture and sales of electric and electronic equipment used in energy and electrical systems, industrial automation, information and communications systems, electronic devices and home appliances, the Mitsubishi Electric Group operates along the corporate principles of contributing to creating a vibrant and affluent society by enhancing its technologies, services and creative powers.

### Worldwide:

- Headquarter Worldwide: Tokyo Building, Japan
- Foundation: 15 January 1921
- Employees: approx. 135,000 \*
- Consolidated Net Sales: approx. 40 billion US Dollar \*

### Europe:

- Headquarter Worldwide: Uxbridge, United Kingdom
- Foundation: June 1996
- Employees: approx. 5,000 \*
- Turnover: approx. 3.5 billion Euro \*

\* status quo on 31 March 2016

### Germany:

- Headquarter Worldwide: Ratingen, Germany
- Foundation: 1978
- External offices: Filderstadt, Munich, Nuremberg, Raunheim, etc.