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04 December 2017

***Mitsubishi Electric, a sponsor of the International Tunneling Symposium,  
attracted attention by its innovative technologies***

## **Mitsubishi Electric explained its Marmaray Solutions in the Tunneling Symposium**

***Mitsubishi Electric, the leading brand in the automation industry, supported International Tunneling Symposium organized by the Tunneling Association with Silver Sponsorship. Mitsubishi Electric Turkey Factory Automation Systems Major Projects Business Development and Factory Automation Director Hüsnü Dökmeci, being the spokesman in the event, described the solutions of Marmaray Project, which has a daily passenger capacity of over 500 thousand. Dökmeci providing information about the control system designed by Mitsubishi Electric with a 100% redundant in the world's deepest immersed tube tunnel Marmaray, indicates that everything in the system is ready for passenger safety 7/24.***



In the International Tunneling Symposium of Tunneling Association at the Wyndham Grand Istanbul Levent Hotel between 2-3 December with the theme "Challenges of Tunneling" sector representatives met from around the world. **Mitsubishi Electric Turkey Factory Automation Systems Major Projects Business Development**

**and Factory Automation Director Hüsnü Dökmeci** made a representation in the event that Mitsubishi Electric as the pioneer brand of automation industry provided support with Silver Sponsorship. Dökmeci described the solutions of Mitsubishi Electric, which combines strength with Taisei Corporation, which has a prestigious place in large scale construction projects in the world, in the Marmaray Project, which has the deepest immersed tube tunnel and with a daily passenger capacity of over 500 thousand.

### **Mitsubishi Electric's services in Marmaray**

Hüsnü Dökmeci, who stated that realised Marmaray's "Station Information and Management System Project" within the scope of infrastructure projects among Mitsubishi Electric's activities in Turkey, explained that their services of Marmaray in the following way; "Mitsubishi Electric's services at Marmaray BC1 Bosphorus Transition Project cover; high-tech automation equipment, engineering and design, projecting, software programming, hardware assembly, commissioning, training and service support. We carried out control and supervision of electromechanical equipment in the tunnel, all stations, ventilation buildings and generator buildings. Additionally, the scenario required for the Marmaray energy systems to be supplied by two TEİAŞ and two generator sets in both sides.

Within the scope of the Marmaray Bosphorus Transition Project, works which Mitsubishi Electric performed in the tunnels were; control and monitoring the ventilation system, starting, stopping and monitoring the smoke discharge scenarios, opening and closing the flood gates, monitoring the drainage system



and monitoring the alarms, monitoring and controlling the illumination, monitoring the environmental measurement systems, monitoring fire alarm and extinguishing systems. The works of our brand in station and ventilation buildings include control and monitoring of common area and room fans, control and monitoring of low voltage distribution and UPS systems, monitoring of fire and extinguishing systems, control and monitoring of common area lighting, monitoring of clean water, polluted and wastewater system, control and monitoring of the stairs, monitoring of the elevators."

### **100% Redundant Control system operating 7/24**

Dökmeci, providing information about Marmaray control system designed by Mitsubishi Electric as a 100% redundant system, explained that "Marmaray control system with 37 thousand hardware monitoring and control points, 107 thousand software monitoring and control points, 750 operator screen control pages and 100 km communication cable operated 7/24. Therefore, for example, in the event of a fire in the tunnel, the operators

can contact the train operator at the relevant incident point and can detect the air flow direction to evacuate the passengers and the smoke. Thus, the system can direct the operator to minimize the possibility of error and easily start the defined ventilation scenario.”

### **Everything is ready for passenger safety**

Dökmeci, indicating that all electromechanical systems of Marmaray BC1 Bosphorus Transition Project are monitored by SCADA system called SIMS (Station Information Management System); concluded that "Among these subsystems, tunnel and station ventilation, power distribution systems, lighting, flood gates, fire detection and extinguishing systems have a critical importance. All of this is controlled and monitored in full by Mitsubishi Electric's infrastructure. In the tunnel there is also a fully redundant fiber infrastructure. In each station, the control of the subsystems is provided continuously with redundant PLCs. The continuity of the systems, which is very important in underground subway systems, is an extremely sensitive issue when evaluated in terms of passenger safety.”

### **About Mitsubishi Electric Corporation**

*With over 95 years of experience in providing reliable, high-quality products, Mitsubishi Electric Corporation is a recognized world leader in the manufacture, marketing and sales of electrical and electronic equipment used in information processing and communications, space development and satellite communications, consumer electronics, industrial technology, energy, transportation and building equipment. Embracing the spirit of its corporate statement, Changes for the Better, and its environmental statement, Eco Changes, Mitsubishi Electric endeavors to be a global, leading green company, enriching society with technology. The company recorded consolidated group sales of 4,238.6 billion yen (US\$ 37.8 billion\*) in the fiscal year ended March 31, 2017. For more information visit: [www.MitsubishiElectric.com](http://www.MitsubishiElectric.com)*

*\* It was calculated by 1 USD = 112 Yen exchange rate announced by the Tokyo Foreign Exchange Market on March 31, 2017.*

### **About Mitsubishi Electric's Activities in Turkey**

*Mitsubishi Electric's main fields of activity in Turkey are sales and after-sales services of air conditioning systems, factory automation systems, advanced robot technologies, CNC mechatronic systems, elevator and escalator systems and visual data systems. In addition to these activities, it supports satellites, power supplies and transportation-related infrastructure works. Mitsubishi Electric, the producer of Turksat 4A and 4B satellites, which contributes to the communication and publishing infrastructure of Turkey and neighboring countries, is notable for its satellites as well as the automation technology used in the Marmaray project. In April 2016, Mitsubishi Electric, which has established a domestic air conditioning development and production company in Turkey, is preparing to make production in January 2018 in the Manisa factory. For more information; [tr.mitsubishielectric.com](http://tr.mitsubishielectric.com)*

### **About Mitsubishi Electric Turkey Factory Automation Systems**

*Mitsubishi Electric Turkey Factory Automation Systems; provide added value in terms of rapid integration, productivity, flexibility and productivity to the leading industrial companies in Turkey in various fields such as automotive, food, packaging, metal and PVC processing machines. The new industry, also called "Industry 4.0", responds with e-F@ctory, i.e. the digital factory concept. For more information; [tr3a.mitsubishielectric.com](http://tr3a.mitsubishielectric.com)*