

# News Release

**FOR IMMEDIATE RELEASE**

## **Hitachi Systems Launches "Manhole Crime Prevention and Safety Measure Solution" Using IoT Technology and LPWA**

Providing Total Support Services Closer to Social Infrastructure Maintenance and Management

**Tokyo, October 4, 2017** --- Hitachi Systems, Ltd. ("Hitachi Systems"), a wholly owned subsidiary of Hitachi, Ltd. (TSE: 6501), today announced that, in conjunction with TOMISU Corp. ("TOMISU"), eTRUST Co., Ltd. ("eTRUST"), it has launched the "Manhole Crime Prevention and Safety Measure Solution", which detects the opened/closed status of the manhole cover, the emission of noxious gases, and water quality and levels, to various corporations and municipalities that own or manage manholes.

In recent years, aging public buildings and facilities have caused increased needs for systems that support the maintenance and management of social infrastructure. There are urgent needs for measures regarding manholes involved in water and sewage, gas, and electric facilities, including countermeasures to prevent the covers from being damaged or removed due to aging or torrential rainfall that exceeds their drainage capacity. There are also concerns about covers being stolen or manholes being used in acts of terrorism, and efforts to solve the problems caused by manholes are required so that people can live more safely in peace.

With this in mind, Hitachi Systems, in cooperation with TOMISU and eTRUST, has been performing field tests of "Manhole Crime Prevention and Safety Measure Solution" since May of 2016, examining a method for attaching sensors to existing manholes, developing specialized sensors, and evaluating various methods of wireless communication. In light of those results, today, Hitachi Systems launched its "Manhole Crime Prevention and Safety Measure Solution".

This solution retrofits existing manholes with various sensors that match the customer's purpose for monitoring. By collecting and monitoring information on opened/closed status of manhole cover, the emission of noxious gas, and water quality and levels using sensors and IoT technology, the solution provides total support for manhole crime prevention and safety measures.

By monitoring opened/closed status of manhole covers located in places where many people are coming or going, such as in the venue of large events or roads near

venues, stations, and airports, this solution supports the quick discovery of acts of terrorism, such as the setting of hazardous goods.

For municipalities or corporations that own manholes for water and sewage or gas located over a broad area, such as public roads, by performing remote monitoring of the gas concentrations or water level inside the manholes, their engineer can grasp the status inside the manholes before going to work, preventing work accidents before they occur.

Furthermore, in addition to the conventional monitoring for the discharge of noxious materials into public sewage, factories can use this solution to perform water quality monitoring for the manholes in each of the factory buildings, thus achieving quick discovery and countermeasures in the event that noxious materials are discharged.

Through field testing, it has been recognized that the requirements for sensors vary depending on the use, size, and installation environment of the manholes. Upon starting sales of this solution, prototypes of the open/close sensor, gas sensor<sup>\*1</sup>, and water level sensor are available. They will be customized to meet the customer's requirements, supporting various needs. In addition to these, expansion of sensor lineup is currently being planned.

And now, in data collection, not only does the manhole cover itself, but obstacles such as buildings, also block radio waves. To enable efficient data collection using wireless communication even with the cover closed in such a situation, "LPWA (Low Power, Wide Area)" is used as a communication method for its solution. In addition to a private network using a gateway device of Hitachi Systems' existing collaborator, Cisco Systems G.K. ("Cisco"), public networks using the LPWA services provided by various telecommunication companies are prepared. For example, to monitor manholes in a factory or building premises, a configuration using a private network will be proposed; or for those located on public roads, a configuration using public networks that utilize base stations already installed will be proposed. In this way, Hitachi Systems proposes an optimal network for the local environment and needs of the monitored object. Until now, Hitachi Systems has been performing tests using LoRaWAN, Sigfox, and the like to measure how far wireless communication is possible from a closed manhole. Currently, Hitachi Systems is planning to gradually support cellular LPWA that each telecommunication company plans to provide.

Furthermore, this solution can be combined with other existing services of Hitachi Systems to perform the manhole operation even more efficiently.

For example, by combining it with "Social Infrastructure Maintenance and

Management System", you cannot only manage the inspection and repair results for facilities, but also can utilize the data acquired from sensors located inside manholes to support the improvement of inspection accuracy or optimization of the timing for inspections, repairs, and replacements. This allows you not only to reduce the work load on engineers but also the costs for maintaining and managing facilities.

With the "Facility Monitoring Service", you can link up the operating information of various facilities and equipment in your factory to the discharged water quality information acquired from the sensor located in manholes, letting you not only detect information at each factory building but also specify a facility or piece of equipment that causes the discharge of noxious materials, and thus, prevent accidents.

In the days ahead, Hitachi Systems aims to cooperate with many partners and actively expands the sales of its "Manhole Crime Prevention and Safety Measure Solution", pursuing a total of 1.2 billion yen in sales by the end of FY2020.

\*1: As the gas sensor requires the specialized and advanced technology for measuring the concentration depending on the gas components, we plan to receive technology from the specialized manufacturer RIKEN KEIKI Co., Ltd. to proceed with development.

### **About Hitachi Systems, Ltd.**

Hitachi Systems, Ltd. is an IT services company with strengths in high-quality operations and maintenance services. Hitachi Systems works closely with customers through a network of roughly 300 service sites and contact centers across Japan, through which it offers a wide range of business system design and integration services, as well as outsourcing services that take advantage of its robust data center infrastructure. A leader since the dawn of the IT era in Japan, Hitachi Systems leverages its track record and proficiency in IT services to offer one-stop services covering the entire IT life cycle - from system consulting to integration, installation, operation and maintenance. Hitachi Systems also pushes beyond the boundaries of IT to create new value for customers, with the aim of becoming a global service company to which customers can entrust any operation.

For details: <http://www.hitachi-systems.com/eng/>

### **About TOMISU**

Since its founding in 1937, TOMISU Corp. has continued to produce a wide range of water and sewage products aimed at enriching the lives of the local populace. TOMISU has a long history of developing delivering products in-house, ranging from iron covers for fire hydrants, air valves and gate valves, and delivering them to various

municipalities all over Japan. In an age where client needs are diversifying, TOMISU has developed a reputation for reducing construction time and expenses while delivering outstanding levels of product safety, quality and eco-friendliness in addition to retaining the long-lasting properties of its products. TOMISU is committed to maintaining its reputation as a provider of products in which the company is proud, backed by a strict control system, to further contribute to maintaining safe and reliable infrastructure, while also actively pursuing the enhancement and creation of new technologies and valuing customer feedback.

For details: <http://www.tomisu.info/>

### **About eTRUST**

In the 80 years since its founding, eTRUST Co., Ltd. has been involved in a broad range of infrastructure development projects for the Ministry of Land, Infrastructure, Transport and Tourism and prefectural and city municipalities, among others. Backed by a strong technological and organizational foundation, eTRUST is capable of undertaking any endeavor in the electrical and information communications fields through a systematic approach to design through to construction and maintenance. In recent times, the company has successfully developed new "disaster risk reduction and environmental surveillance systems" based on its technical know-how and experience in the electrical and information communications fields. In addition to its excellent track record delivering systems to municipalities in Japan, eTRUST also provides "disaster risk reduction monitoring systems" to developing countries that are highly susceptible to natural disasters. This system is capable of conveying emergency evacuation information based on information collected from sensor and image data. eTRUST will continue to contribute to urban development facilitating local communities living with peace of mind based on the catch phrase "approaching the natural environment with IoT".

For details: <http://etrust.ne.jp/corporate/>

### **For Customer Inquiries**

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\* This news release is the English translation already announced to Japanese market.

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