

**[MIRAIT ONE Corporation and KINKIDENKI Co.,Ltd.]**  
**Succeed in Development and Trial Flight of “Hydrogen Fuel Cell  
Drone”**

**Promoting secure, safe and smart future urban development initiatives using hydrogen  
fuel cell drones**

Major telecommunications construction company MIRAIT ONE Corporation (head office: Koto-ku, Tokyo; President and Chief Executive Officer: Toshiki Nakayama; "MIRAIT ONE") and its group company KINKIDENKI Co.,Ltd. (head office: Izumi-shi, Osaka; President : Akihiro Nakamura; "KINKIDENKI") jointly developed a "hydrogen fuel cell drone" and successfully conducted a test flight at the Drone Technoport Kobe outdoor training field of the manufacturing subcontractor MiratecDrone Corp. ("MiratecDrone") on March 28, 2023.

Until now, the MIRAIT ONE Group has embraced the challenge of future urban development utilizing hydrogen and jointly applied to the "Carbon Neutral Technology Development and Verification Project\*\*" offered publicly by Osaka Prefectural Government in June 2022 with the "Development and Verification of a Filling Temperature-Controlled Multiple Filling System for Compact Hydrogen Containers," and commenced this development and verification due to being chosen in the area of hydrogen production and usage technology. In the development verification conducted in FY2022, development, manufacture and test flight (tethered at a height of less than 3 meters) of a "hydrogen fuel cell drone" was carried out.

In response to the expectation that drones will be utilized for transportation of supplies, security and surveys of disaster conditions due to the lifting of the ban on visual flight of drones in populated areas (level 4) at the end of last year, the MIRAIT ONE Group will proceed with secure, safe and smart future urban development initiatives such as wide-area facility security, surveys of disaster conditions assuming the occurrence of disasters, and delivery of supplies to areas facing hardship by utilizing the characteristic long flight time that is an advantage of hydrogen fuel cell drones through the specialized drone company MiratecDrone. In future, the Group will establish technology enabling hydrogen refilling at low cost through further verification projects, and proceed with initiatives aimed at carbon neutrality through the realization of a hydrogen fueling network as social infrastructure.

\* This project is an Osaka Prefectural Government project supporting companies embracing the challenge of development and verification using the latest technology to contribute to carbon neutrality ahead of the Expo 2025 Osaka, Kansai, Japan to be held from April 2025.

An overview is of the project provided in the attachment.

### <About MIRAIT ONE Corporation>

MIRAIT ONE Corporation was launched on July 1, 2022 through the integration of MIRAIT Holdings Corporation, MIRAIT Corporation, and MIRAIT Technologies Corporation. MIRAIT ONE has established “co-creating an exciting future through challenges and technology” as its purpose (significance of existence), and is engaged in the resolution of issues faced by customers and society and regional revitalization by promoting initiatives such as urban development and regional development, corporate DX and GX, green business and global business based on the technical capability cultivated until now in telecommunications facility construction and the civil engineering business.

### <About KINKIDENKI Co.,Ltd. >

KINKIDENKI Co.,Ltd. was established in 1948, and conducts business such as refurbishment, repair, testing, storage, manufacture, kitting, sale, recycling and reuse of information equipment in the MIRAIT ONE Group. Furthermore, based on the advanced technological capabilities it has developed, it is engaged in the drone inspection, repair and storage business. It has also obtained ISO9001 and ISO14001 certification, seriously engaging with the aim of being an environmentally friendly company offering high quality. KINKIDENKI is engaged in the resolution of customers issues through each employee refining existing technology and know-how, and creating new value.

<About MiratecDrone Corp. > \* MiratecDrone is the MIRAIT ONE Group's company specializing in drones.

MiratecDrone Corp. was established as a company specializing in the drone business in 2020. It provides a wide range of services such as inspections, surveys, aerial photography and disaster relief using drones, and has a record of over 4,000 flights for clients including the national government, local governments, and infrastructure companies. It also provides various schools enabling participants to learn about drone operating methods and flight safety rules, and this January held the first course in Japan enabling the acquisition of certification for performing inspections of exterior walls of buildings using drones. In addition, the company handles a wide range of drones from Japan and overseas, and provides services able to meet all of the drone-related needs of customers.

## Overview of the Selection of MIRAIT ONE's Carbon Neutral Technology Development and Verification Project

**Area: Hydrogen**  
**Lead applicant: MIRAIT ONE Corporation**  
**Joint business operator: KINKIDENKI Co.,Ltd.**


**Overview and Effect of Technology Development and Verification**

Gas temperature increases when rapidly filling a compact hydrogen container (tank) with hydrogen. Tanks are filled slowly due to legal restrictions on the maximum temperature, but through the **development of a multiple hydrogen filling system**, the **time required for filling tanks can be reduced to one quarter** the conventional time required by simultaneously filling multiple tanks.

This system will be used to fill containers with hydrogen to conduct verification of use of hydrogen in hydrogen drones and fuel cell electrically assisted bicycles, with the aim of establishing and reducing the cost of hydrogen filling technology aimed at micromobility.


**Aimed to be demonstrated at the Expo**

The filling system will be **utilized for filling containers used in hydrogen drones and fuel cell bicycles, etc. with hydrogen.**




Hydrogen filling system  
\* Photo depicting the system

Filling container with hydrogen



Compact hydrogen container

Loading hydrogen container (detachable)



\* Artist's impression



Figure 1. Hydrogen Fuel Cell Drone



Figure 2. Hydrogen Fuel Cell Drone (in flight)

Hydrogen Fuel Cell Drone Specifications		
Drone body	Total weight	21kg
	Payload	2kg
Fuel cell	Manufacturer	Doosan
	Output	2.7KW
Hydrogen container	Manufacturer	JFE Container Co., Ltd.
	Capacity	2.8ℓ (44g of hydrogen)
	Pressure	19.6MPa
	Weight	2.1kg (bulb inserted)

Table 1. Hydrogen Fuel Cell Drone Specifications