

# Industrial Products

## Connective Industries

#Carbon Neutral #Sustainability #Productivity Improvement #Generative AI #IoT/Data Utilization #Industrial Equipment

### 1. Commercialized 2,400-kVA UPS System

In recent years, with the growing number of digital technologies such as artificial intelligence (AI) and the Internet of Things (IoT), the increased use of remote work and e-commerce, and the expanding use of cloud services in various fields, there is increased demand for large-scale datacenters that play an important role as communication infrastructure. Uninterruptible power supply (UPS) systems are indispensable for large-scale data centers, and an increasing requirement for these is larger capacity products with a smaller footprint per unit of capacity.

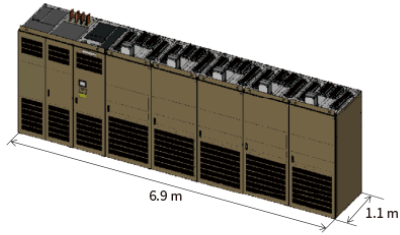
Accordingly, Hitachi has commercialized a model with a maximum capacity of 2,400 kVA as part of the UP2001i UPS series for large-scale datacenters, designed with compact space, high efficiency, and high reliability in mind.

This series can provide a wide range of UPS supply capacities from 1,000 kVA to 2,400 kVA to meet customer needs.

(Hitachi Industrial Products, Ltd.)

[01] Main features of large-scale UP2001i series UPS (left) and 2,400 kVA model (right)

Capacity	1,000 kVA	1,500 kVA	2,000 kVA	2,400 kVA	Remarks
Electrical specifications	Global standard power supply specification, compatible with 3-phase 4-wire equipment				
Width × depth	3.9 × 1.1 m	4.9 × 1.1 m	5.9 × 1.1 m	6.9 × 1.1 m	
Footprint per unit capacity	4.29 m <sup>2</sup> /MVA	3.59 m <sup>2</sup> /MVA	3.25 m <sup>2</sup> /MVA	3.17 m <sup>2</sup> /MVA	Three-phase 4-wire, UPS main unit
Storage batteries	Supports both lithium-ion and lead acid chemistries				



### 2. CHAdeMO3.0 Charger—New-generation EV charging standard

Hitachi has developed an EV charger that can provide some solutions for several societal issues such as the increasing capacity of electric vehicles (EVs), charging time reduction (charging congestion), and stable operations of the power grid.

The newly developed EV charger consists of a 500 kW alternating current/direct current (AC/DC) converter for grid connection and multiple 25 kW DC/DC converters in parallel, which can charge EVs with a maximum of 400 ADC (at 150V to 450V output DC voltage). Other EV charging configurations are also possible which can charge a maximum of 20 EVs, as each DC/DC converter can be controlled individually. In addition, the EV charger supports V2X \*1 functions, which can be applied to systems to contribute to effective power utilization and stabilization of the power grid.

The EV charger has been used in the facility for the demonstrative operation of the CHAdeMO\*2 3.0 (ChaoJi2) standard since October 2023. Furthermore, the DC/DC converter is designed to handle up to 850 VDC to accommodate rising EV battery voltages.

(Hitachi Industrial Products, Ltd.)

\*1 Vehicle to X: Power supply from EVs to various objects (X).

\*2 See the list of “Trademarks.”

## [02] Verification and main specifications of EV charger for CHAdeMO 3.0



Item	Specifications	Remarks
DC output	400 Adc, 400 Vdc	400 Adc, 850 Vdc (second phase)
No. of ports	1	Using liquid cooled cable
Standard	CHAdeMO 3.0 <sup>*1</sup>	Compliant with ChaoJi 2 <sup>*2</sup>
Efficiency	95%	AC input–DC output (at 400 Vdc)

\*1 A new standard being developed by the CHAdeMO Association in cooperation with Japan and China.

\*2 Codename of a joint project for the development of the next generation, ultra-fast EV charging standard.

## 3. Hitachi Compressors Contribute Basrah Refinery Upgrading Project

Five items and seven centrifugal compressor trains have been delivered to JGC Corporation for the Basrah Refinery in the Republic of Iraq. Due to the long-term effects of war and aging infrastructure, oil refineries in Iraq have experienced a decline in production capacity. Despite being the fifth-largest oil-producing country in the world, Iraq is unable to meet domestic petroleum demand, instead relying on imports.

These compressors will be utilized as part of the refinery's modernization efforts funded by a yen-denominated loan from the Japan International Cooperation Agency (JICA) with the aim of enhancing production capacity and reducing its environmental impact. Hitachi will continue to contribute to the restoration of the Iraqi economy using the outstanding functionality and stable operation of the compressors.

(Hitachi Industrial Products, Ltd.)

### [03] 03-K-001 Recycle gas compressor



## 4. IoT-based Pump Monitoring System “e-pump”

Hitachi is digitizing operational management and maintenance tasks at pump facilities, and has developed "e-pump," a new solution that will revolutionize facility maintenance.

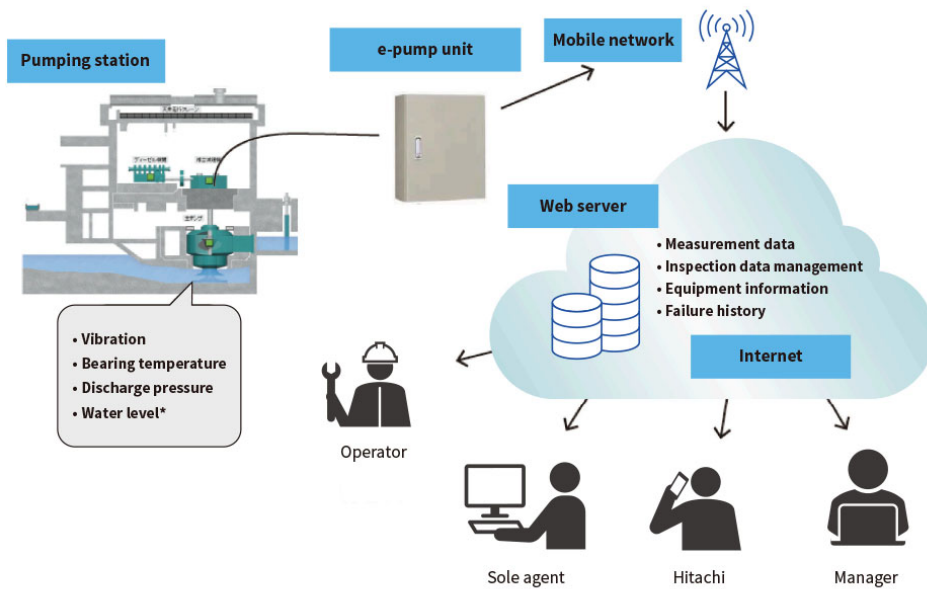
By installing vibration, pressure, and temperature sensors on pumps along with a device to connect to the cloud at worksites, the system includes functionality such as remote status monitoring, email notification of anomalies, operation logs, and written comments during equipment inspections.

Introduction of this system is effective in operation and management tasks, as it allows checking of water levels at the pumping station and the status of nearby pumping stations even when traveling to sites during heavy rain. Being configured in the cloud simplifies improvements to the system to meet future customer needs. Functionality is also customizable through optional contracts, allowing for features such as adding water level measurements.

This system has adopted a monthly subscription service model for simplified facility installation, enabling remote monitoring while keeping initial deployment costs low.

(Hitachi Industrial Products, Ltd.)

#### [04] Overview of simplified pump monitoring system configuration



\*Water level display available as an option.

## 5. SANFEMS neo factory energy management solution

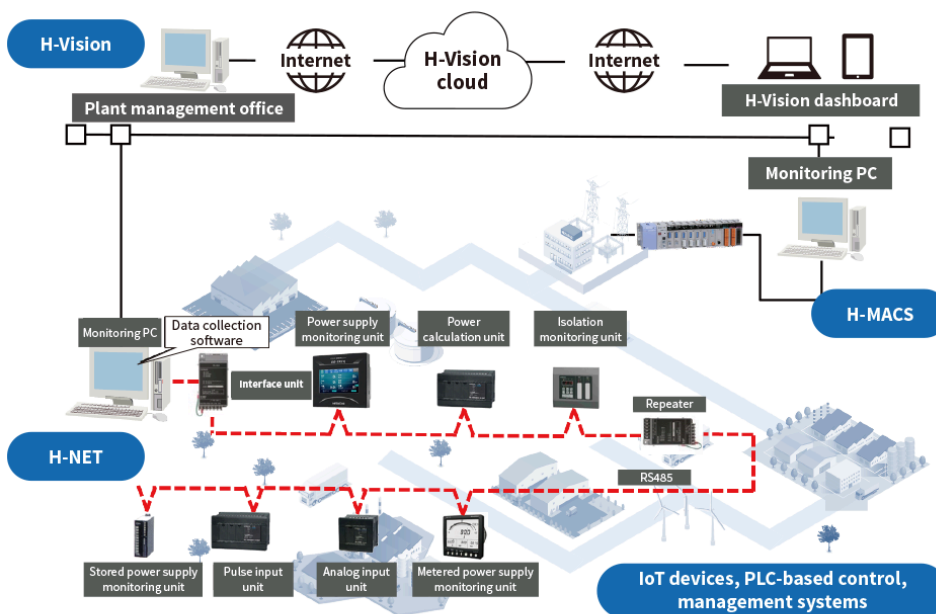
Hitachi has released SANFEMS neo, a next-generation factory energy management solution. SANFEMS neo allows users to collect and visualize energy-related data and analyze it to identify issues, which they can address by using specific energy consumption reduction measures, including the adoption of Hitachi Industrial Equipment Systems' green products and monitoring and control systems.

Data collection and visualization uses H-NET and H-MACS (formerly ES-MACS), provided by Hitachi Industrial Equipment Systems Co., Ltd. together with the H-Vision cloud service, which can handle data from multiple sites at once. H-Vision has already been launched in Europe, with provision of service slated to start in Japan in the near future.

In recent years, there has been more interest in carbon neutrality, with ever-stricter requirements for energy management in factories. Hitachi Industrial Equipment Systems will respond to this demand through the global deployment of SANFEMS neo.

(Hitachi Industrial Equipment Systems Co., Ltd.)

#### [05] Overview of SANFEMS neo



PLC: programmable logic controller

## 6. CPTrans-GLW Wireless Industrial Router for Use in Harsh Environments

Hitachi has launched the CPTrans-GLW industrial wireless router designed for operation in harsh environments for use in industrial vehicles such as construction and agricultural machinery. This product supports automation to address labor shortages and improve operational efficiency, as well as responding to the need to collect vehicle location and maintenance information and monitor it in the cloud.

[06] CPTrans-GLW



CPTrans-GLW is built to withstand harsh conditions with specifications including dust and waterproofing (equivalent to IP67), automotive component vibration standards (JIS D1601) compliance, operating temperatures from -20°C to +60°C, and power voltage of DC 7 to 32 V. It is equipped with a variety of interfaces such as Ethernet, serial communication ports (RS232C), and Controller Area Network (CAN) communications. The application software implemented in CPTrans-GLW can respond to various needs, such as collecting operations and work information from construction equipment via the CAN bus and transmitting this to the cloud together with location information, thus enabling monitoring over various cloud services. Furthermore, it features a dual-frequency global navigation satellite system (GNSS) positioning module, enabling the acquisition of position information with an accuracy of several tens of millimeters by utilizing GNSS correction services.

(Hitachi Industrial Equipment Systems Co., Ltd.)

7. "ICHIDAS-NET" for Highly Accurate Positioning Correction in Mobile Devices

In conjunction with the launch of the CPTrans-GLW industrial wireless router, Hitachi is offering the ICHIDAS-NET GNSS correction service for centimeter-level GNSS positioning.

ICHIDAS-NET is a Networked Transport of RTCM via Internet Protocol\* (NTRIP) method GNSS correction service utilizing a proprietary virtual reference station based on the electronic reference points from the Geospatial Information Authority of Japan (GSI), providing stable GNSS positioning with an accuracy of several centimeters. This covers all of Japan, and can be used even in ports and island areas.

ICHIDAS-NET is an additional service for the CPTrans-GLW and CPTrans-MJW industrial wireless routers.

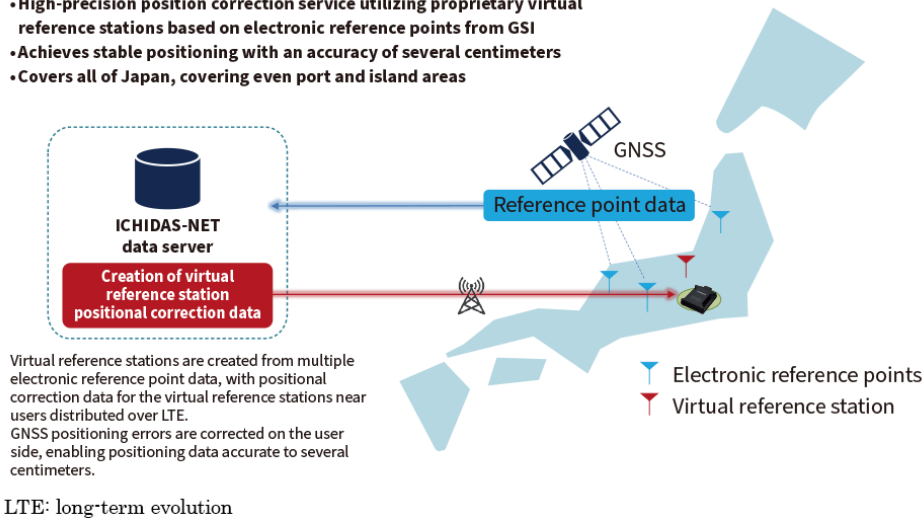
When combined with the CPNET line service, it enables the provision of devices with contracted GNSS correction service (one-stop support). This makes it easy to achieve detection of centimeter-level positions using GNSS positioning, enabling applications in automatic operation of construction machinery, agricultural machinery, and other mobile machinery.

(Hitachi Industrial Equipment Systems Co., Ltd.)

\* High-precision positioning correction data transmission protocol

[07] ICHIDAS-NET features and configuration

- High-precision position correction service utilizing proprietary virtual reference stations based on electronic reference points from GSI
- Achieves stable positioning with an accuracy of several centimeters
- Covers all of Japan, covering even port and island areas



8. Inverter WJ-C1 Series

As essential products that add various values to motor shaft drives and contribute to the realization of a circular economy, there are increasing demands upon inverters to contribute to achieving a low-carbon society.

In predicting the lifespan of inverters, the WJ-C1 monitors actual operating conditions and calculates the degree of power module degradation. It can also perform lifespan diagnosis of power modules as well as conventional capacitors and cooling fans. This gives users advance knowledge of maintenance periods for applications such as conveyors that frequently operate in forward and reverse or under regenerative loads, helping avoid sudden failures due to power cycling. By quantitatively estimating its own lifespan, it can support the rebuilt business, and detecting abnormalities on the load side using non-steady-state detection functions enables reductions in system down-time. Furthermore, adopting recycled materials and further reducing losses helps reduce the environmental impact throughout the new inverter's product lifecycle, for better responsiveness to societal changes.

(Hitachi Industrial Equipment Systems Co., Ltd.)

[08] WJ-C1 (0.1–15 kW)





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