



**HITACHI**  
**INDUSTRIAL UPS SYSTEM FOR**  
**HEATER TREATER APPLICATION IN OIL & GAS**  
**INDUSTRY**

## ABOUT HEATER TREATER APPLICATION IN OIL & GAS INDUSTRY

Heater treaters play a crucial role in the oil and gas industry by ensuring the efficient separation of water, oil, and gas mixtures. This process is essential for producing high-quality crude oil and maintaining the integrity of downstream processing equipment.

### Function and Importance:

A heater treater is a vessel that uses heat and electrostatic fields to separate emulsified water and gas from crude oil. The primary functions of a heater treater include:

- **Separation:** Efficiently separates water and gas from crude oil to meet pipeline and refinery specifications.
- **Heating:** Raises the temperature of the crude oil to reduce its viscosity, facilitating easier separation of water and gas.
- **Dehydration:** Removes water content from the crude oil to prevent corrosion and fouling in downstream equipment.

### Components of a Heater Treater:

- **Firetube:** Provides the necessary heat to the crude oil.
- **Electrostatic Coalescer:** Uses an electric field to coalesce water droplets, enhancing separation.
- **Gas Boot:** Separates and removes gas from the crude oil.
- **Water Boot:** Collects and removes separated water from the crude oil.
- **Oil Outlet:** Discharges the treated oil for further processing or storage.

### Applications in Group Gathering Stations (GGS)

In Group Gathering Stations, heater treaters are used to process the crude oil collected from multiple wells. The key applications include:

- **Quality Improvement:** Ensures the crude oil meets the required quality standards for transportation and refining.
- **Flow Assurance:** Reduces the viscosity of crude oil, ensuring smooth flow through pipelines.
- **Corrosion Prevention:** Removes water content to prevent corrosion in pipelines and processing equipment.

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- **Environmental Compliance:** Ensures the separated water and gas are treated and disposed of according to environmental regulations.

## CHALLENGE/ISSUES

While heater treaters are essential for efficient oil and gas processing, they come with their own set of challenges and issues. Understanding these challenges is crucial for maintaining optimal performance and minimizing downtime.

- **Emulsion Stability:** Stable emulsions can be difficult to break, leading to inefficient separation of water and oil.
- **Scaling and Fouling:** Deposits of scale and other contaminants can build up inside the heater treater, reducing heat transfer efficiency and flow rates.
- **Corrosion:** Corrosive elements in the crude oil can cause damage to the heater treater, leading to leaks and equipment failure.
- **Temperature Control:** Maintaining the optimal temperature for separation can be challenging, especially in varying environmental conditions.
- **Gas Handling:** Efficiently separating and handling gas can be problematic, leading to pressure build-up and safety concerns.
- **Water Quality:** Poor quality of separated water can lead to environmental compliance issues and damage to downstream equipment.
- **Operational Downtime:** Unplanned shutdowns due to equipment failure or maintenance can disrupt production and lead to financial losses.

## NEED FOR THE SOLUTION

Heater treaters are critical components in the oil and gas industry, responsible for the efficient separation of water, oil, and gas. Ensuring their continuous operation is vital for maintaining production quality and safety.

- **Preventing Operational Downtime:** Power outages can cause heater treaters to shut down, disrupting the separation process and leading to production losses.
- **Protecting Sensitive Control Systems:** Voltage spikes and power surges can damage the control systems of heater treaters, resulting in costly repairs and replacements.
- **Ensuring Data Integrity and Process Control:** Power interruptions can lead to data loss or corruption in the control systems of heater treaters, affecting process control and monitoring.
- **Enhancing Safety:** Power failures can compromise the safety of heater treater operations, especially in hazardous environments.
- **Supporting Remote Locations:** Heater treaters often operate in remote locations with unreliable power supply.
- **Compliance with Industry Standards:** Regulatory requirements mandate uninterrupted operation of critical systems to ensure safety and environmental compliance.

# HITACHI INDUSTRIAL UPS SYSTEM FOR HEATER TREATER APPLICATION IN OIL & GAS INDUSTRY

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## HITACHI'S OFFERED PRODUCT / SOLUTION

Hitachi's Industrial UPS systems provide a robust solution to ensure the reliable performance of heater treaters, addressing key challenges and enhancing operational efficiency.

- Industrial UPS systems provide immediate backup power, ensuring heater treaters continue to operate without interruption, minimizing downtime and maintaining production flow.
- It offers surge protection, safeguarding the control systems and ensuring the longevity of heater treaters.
- It maintains power to the control systems, allowing for proper shutdown procedures and preserving data integrity, ensuring accurate process control.
- It ensures continuous operation of safety-critical systems, such as emergency shutdown controls and monitoring equipment, enhancing overall safety.
- It provides a reliable power source, ensuring that heater treaters function smoothly even in areas with unstable power grids.
- Implementing Industrial UPS systems helps meet industry standards and regulatory requirements by ensuring continuous operation of heater treaters.

Hitachi Industrial UPS systems in the oil and gas industry, specifically for heater treaters, is driven by the necessity to maintain continuous operations, protect sensitive control systems, ensure data integrity, enhance safety, support remote locations, and comply with industry standards.

## BENEFITS OF USING HITACHI INDUSTRIAL UPS SYSTEM FOR HEATER TREATER APPLICATION IN OIL & GAS INDUSTRY

Heater treaters are essential for the efficient separation of water, oil, and gas in the oil and gas industry. Ensuring their continuous operation is crucial for maintaining production quality and safety. Hitachi's i4+ Industrial Uninterrupted Power Supply (UPS) systems offer numerous benefits that enhance the reliability and efficiency of heater treater operations.

- **Enhanced Reliability**
  - **Continuous Operation:** Hitachi's i4+ UPS systems provide immediate backup power during outages, ensuring heater treaters continue to operate without interruption. This minimizes downtime and maintains consistent production flow.
  - **High-Quality Components:** Built with robust and reliable components, Hitachi's i4+ UPS systems ensure long-term performance and durability, reducing the risk of unexpected failures.
- **Protection of Sensitive Equipment**
  - **Surge Protection:** The i4+ UPS systems offer comprehensive surge protection, safeguarding heater treater control systems from voltage spikes and power surges. This prevents damage and extends the lifespan of the equipment.
  - **Galvanic Isolation:** Built-in isolation transformers protect against electrical noise and ensure a clean power supply, enhancing the reliability of control systems.



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- Improved Data Integrity and Process Control
  - Uninterrupted Power Supply: Continuous power to control systems allows for proper shutdown procedures and preserves data integrity, ensuring accurate process control and monitoring.
  - Advanced Monitoring: Hitachi's i4+ UPS systems feature user-friendly interfaces and remote monitoring capabilities, allowing operators to track performance and address issues proactively.
- Increased Safety
  - Safety-Critical Systems: By ensuring uninterrupted operation of safety-critical systems, such as emergency shutdown controls and monitoring equipment, Hitachi's i4+ UPS systems enhance overall safety in heater treater operations.
  - Compliance with Standards: The i4+ UPS systems help meet industry standards and regulatory requirements, ensuring safe and compliant operations.
- Operational Efficiency
  - Reduced Downtime: Immediate backup power minimizes operational downtime, ensuring continuous and efficient heater treater operations. This leads to higher productivity and reduced financial losses.
  - Optimized Maintenance: Intelligent Battery Management Systems (BMS) and remote monitoring capabilities enable predictive maintenance, reducing the likelihood of unexpected failures and optimizing maintenance schedules.
- Adaptability to Harsh Environments
  - Robust Design: Designed to operate in harsh industrial environments, Hitachi's i4+ UPS systems feature high-grade enclosures and temperature tolerance up to 50°C, making them well-suited for demanding conditions in oil and gas facilities.
  - Customizable Solutions: Available in a wide range of capacities, Hitachi's i4+ UPS systems can be tailored to meet specific power requirements, ensuring optimal performance for heater treater applications.

Hitachi's i4+ Industrial UPS systems offer significant benefits for heater treater applications in the oil and gas industry. By providing enhanced reliability, protection of sensitive equipment, improved data integrity, increased safety, operational efficiency, and adaptability to harsh environments, these UPS systems ensure the continuous and efficient operation of heater treaters. Investing in Hitachi's i4+ UPS systems is a strategic decision that enhances productivity, safety, and overall operational performance.

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## ABOUT HITACHI INDUSTRIAL UPS SYSTEM FOR HEATER TREATER APPLICATION IN OIL & GAS INDUSTRY

### **i4 Series Industrial UPS System**

Range: 5 kVA to 250 kVA (3:1)

- Higher grade enclosure protection
- High frequency PWM based inverter
- Multiple rectifier options with controlled bridge configuration
- G3 conformal coating
- Full digital signal processing using the latest DSP technology
- User friendly HMI / display for monitor & control parameters
- Wide range of connectivity



### **i4eti Industrial UPS System**

Range: 5 kVA to 250 kVA (3:1)

- DSP based technology
- Wide input voltage and frequency range
- Wide DC Link range
- Near to unity power factor
- Enclosure protection - IP 42
- Protection against short circuit and overload
- Intelligent Battery Management System
- Suitable for 3:1 crest factor load
- Built-in I/P galvanic isolation transformer (Specially design for Ni-Cd and Plante battery)
- Built-in O/P galvanic isolation transformer
- Suitable for separate or common battery bank
- Suitable for Parallel Redundancy up to 1+1
- Auto transfer re-transfer facility with bi directional static switch
- Immune to input phase reversal



## ABOUT HITACHI INDUSTRIAL UPS URL:

<https://www.hitachi-hirel.com/products/ups/single-phase-industrial-ups-system>

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## ABOUT HITACHI HI-REL POWER ELECTRONICS PRIVATE LIMITED

Founded & established in 1983 as Hi-Rel Electronics Pvt. Ltd., which later on in year 2015 had become the 100% subsidiary company of Hitachi, Japan which is one of the Global fortune 500 companies with a new name as Hitachi Hi-Rel Power Electronics Private Limited, which is being recognized as one of the pioneers in power electronics domain. Hitachi Hi-Rel, today, is a leading manufacturer of Industrial UPS, IT & Infra UPS, Medium & Low Voltage Variable Frequency Drives, Grid Tied Solar Inverters, Air Compressors and Railway Inverters.

Hitachi Hi-Rel has state-of-the art manufacturing facility at Sanand near Ahmedabad in Gujarat-India. Hitachi Hi-Rel is helping a wide array of industries and organizations to meet the mission critical demands through technologically superior, low polluting and innovative products Solutions and continue to offer world class power electronics products, value added services & customized solutions.

With a vision of “To be recognized as the most trusted Power Electronics Company by supplying superior products and services”, Hitachi Hi-Rel has garnered a significant level of trust in Indian power electronics market segment wherein it serves the entire gamut of Industries, particularly in mission critical applications for Refineries, Petro-Chemicals, Power Generation, Steel & Metals, and Process Industries as well as Critical Data Processing Applications. Besides offering greater energy efficiency & lower carbon footprint, each of the company product streams bears the hallmark of excellence with company accreditations. Hitachi Hi-Rel is an ISO 9001:2015, ISO 14001:2015, ISO 45001:2018 & ISO/IEC 27001:2022 certified company having export house status. Hitachi Hi-Rel sales network & service infrastructure expands out to the world & with this network, we have made strong inroad in Global markets like South East Asia, Middle East, Africa and Brazil. Also, with a presence of strategically located skilled service engineers in India helps us to score high in terms of customer expectations on service deliverables & uptime of the product.

With expertise, experience and an efficient product line, Hitachi Hi-Rel will always try to be your power electronics partner. When you choose to do business with Hitachi Hi-Rel, you are partnering with a company who cares.

## FOR MORE INFORMATION

To know more about Hitachi Hi-Rel Power Electronics Private Limited and its offered products and solutions, please visit [www.hitachi-hirel.com](http://www.hitachi-hirel.com)

You may also share your requirements at <https://www.hitachi-hirel.com/inquiry> to receive the phone call or Hitachi product information email from our authorized sales representative of your region.

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