Instrutel

RFDIS Rapid Field Deploy Industrial Systems

INSTRUTEL IOT STACK

Ins_Things | Edge | Inos

"Make technology affordable for System Builders with Ready to Deploy Platforms".

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Instrutel IoT Stack
Empowering System Builders

Value

We deliver ready-to-deploy solutions that accelerate ROI for system builders

Flexibility

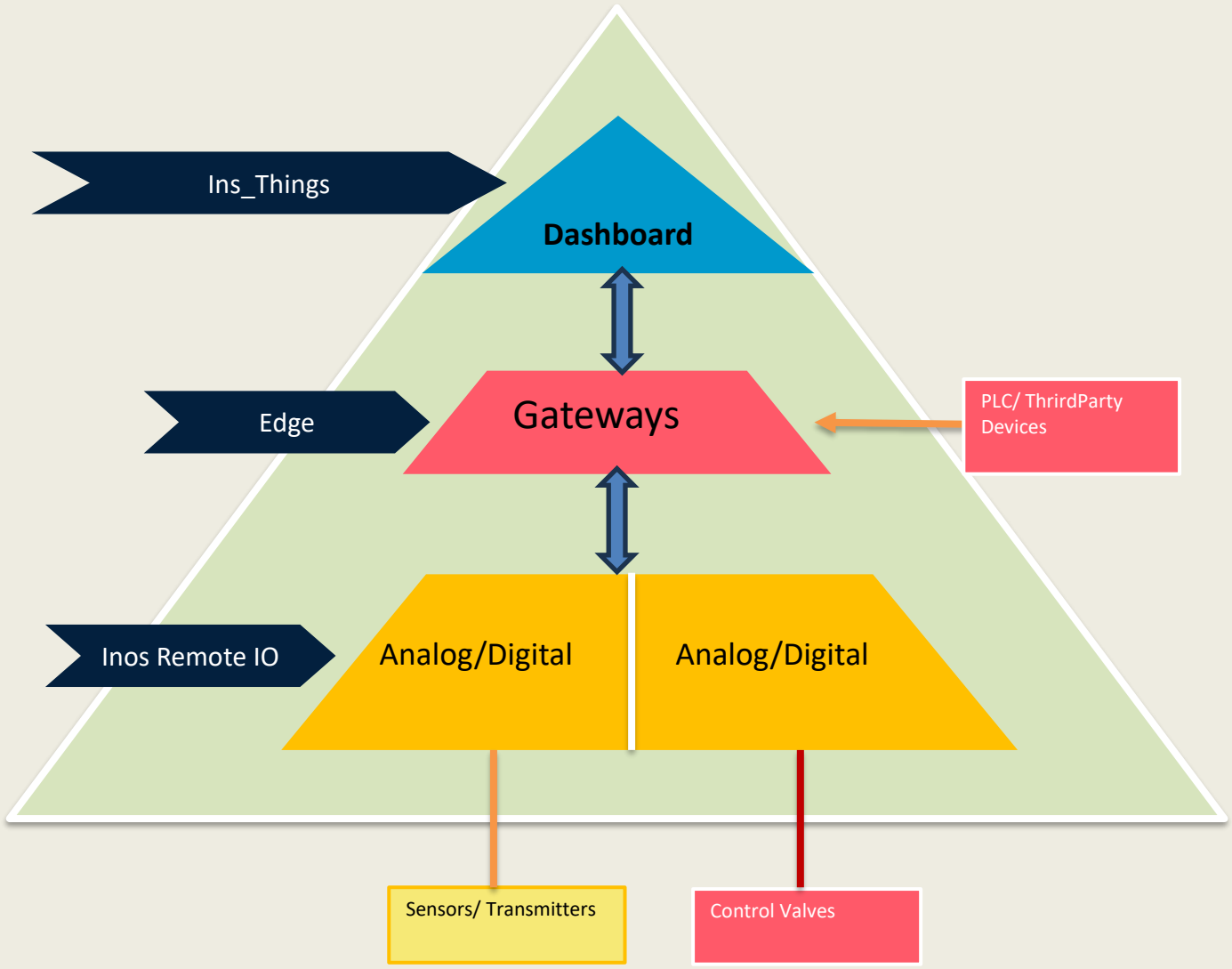
Our IoT product stack is customizable and can be adapted to Business needs and Field Conditions

Scalable

Can be Adopted to different domain verticals and can be scaled on demand

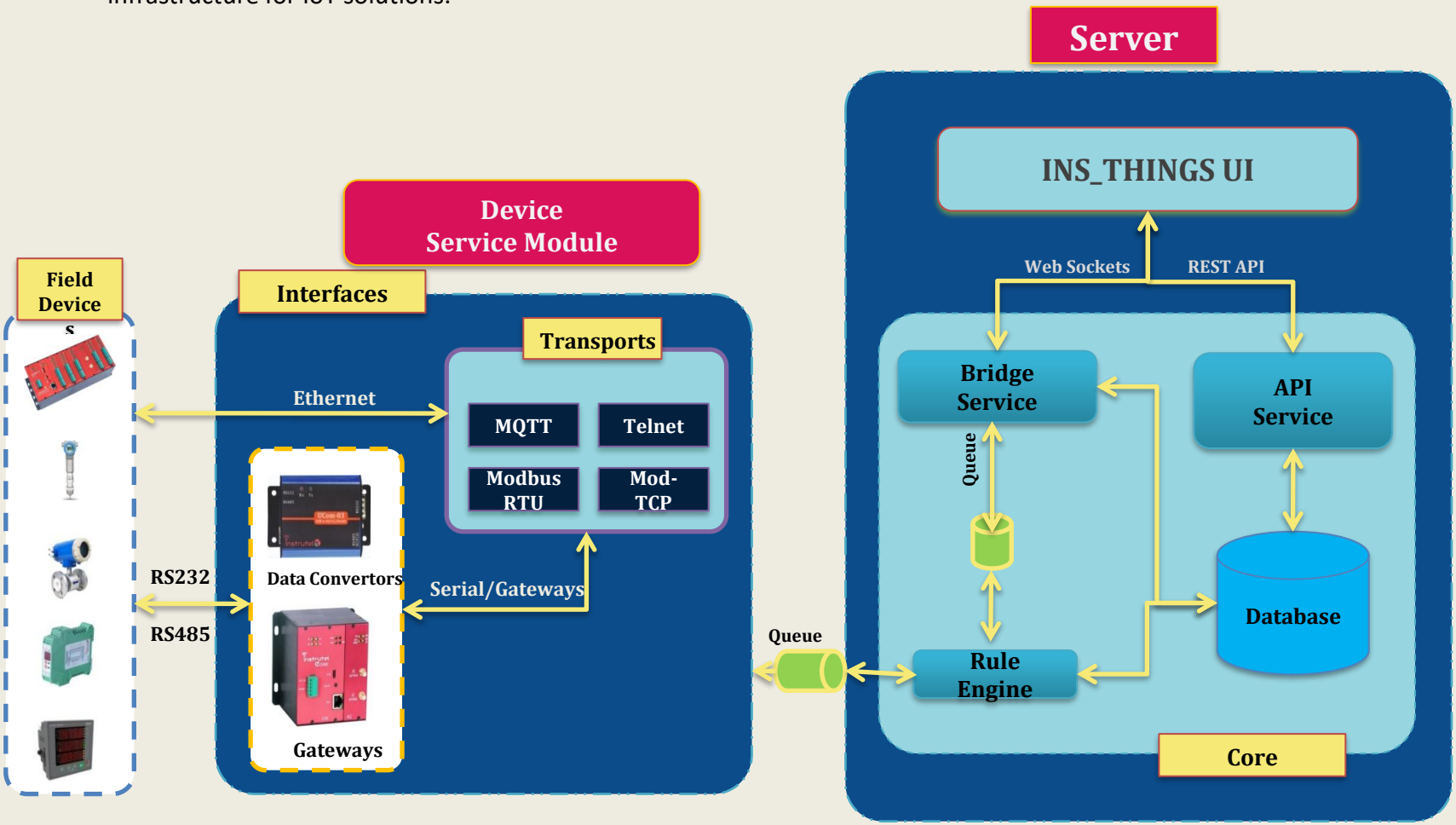
Intro

WHAT WE OFFER



INS_THINGS is a comprehensive IoT platform that enables the collection, processing, visualization, and management of data from connected devices and sensors.

It provides real-time dashboards, device management, rule engines for complex event processing, and integrations with various protocols like MQTT, HTTP, and Modbus making it a scalable server-side infrastructure for IoT solutions.



Features of INS_THINGS

Data Collection & Processing

- Gathers telemetry data from devices using various protocols (MQTT, CoAP, HTTP) and converts it into a usable format.

Device Management:

- Provisions, monitors, and manages IoT devices, assets, and customers.

Data Visualization:

- Creates customizable, real-time dashboards with widgets to display device data and insights.

Rule Engine:

- Builds complex workflows to process incoming data, trigger alarms, and control devices.

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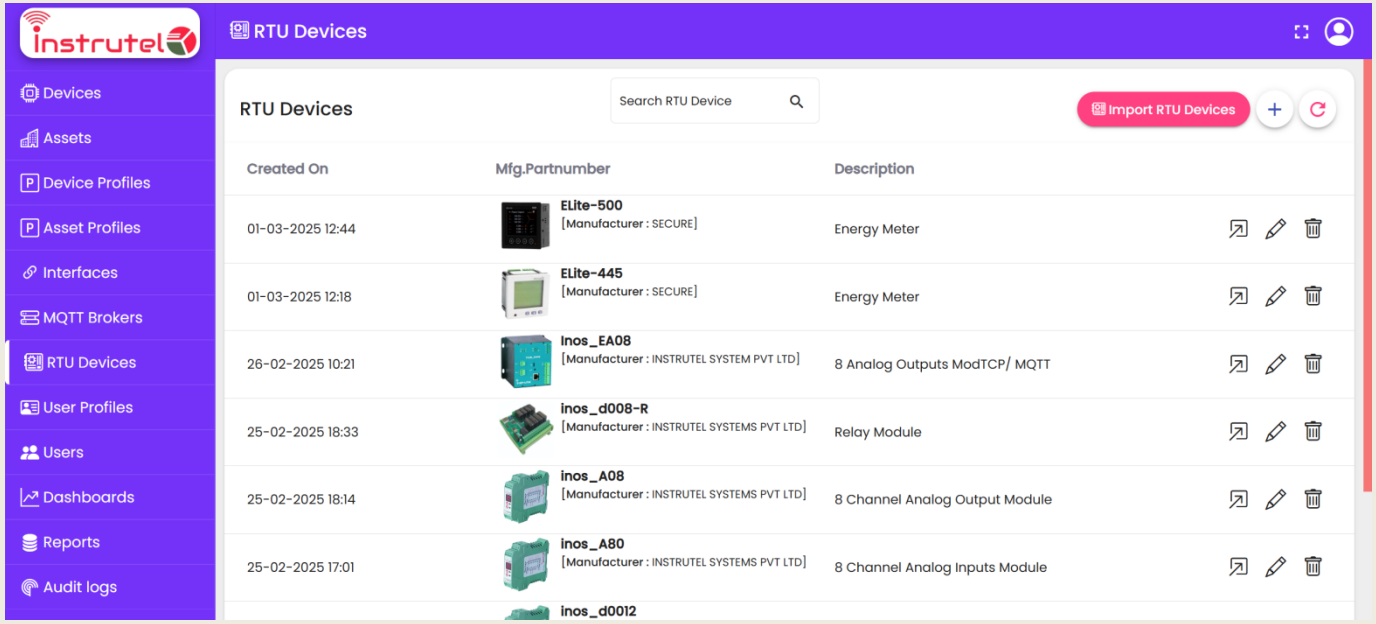
Devices

Devices represent field-level hardware used to collect real-time data from instruments like energy and industrial equipment (like PLC etc). These devices act as the data source layer for the INS_THINGS platform.



- Supports devices from different manufacturers.
- Maintain reusable device definitions.
- Bulk import devices for faster on boarding.
- Search devices instantly.
- Each device links to detailed register/parameter configuration.

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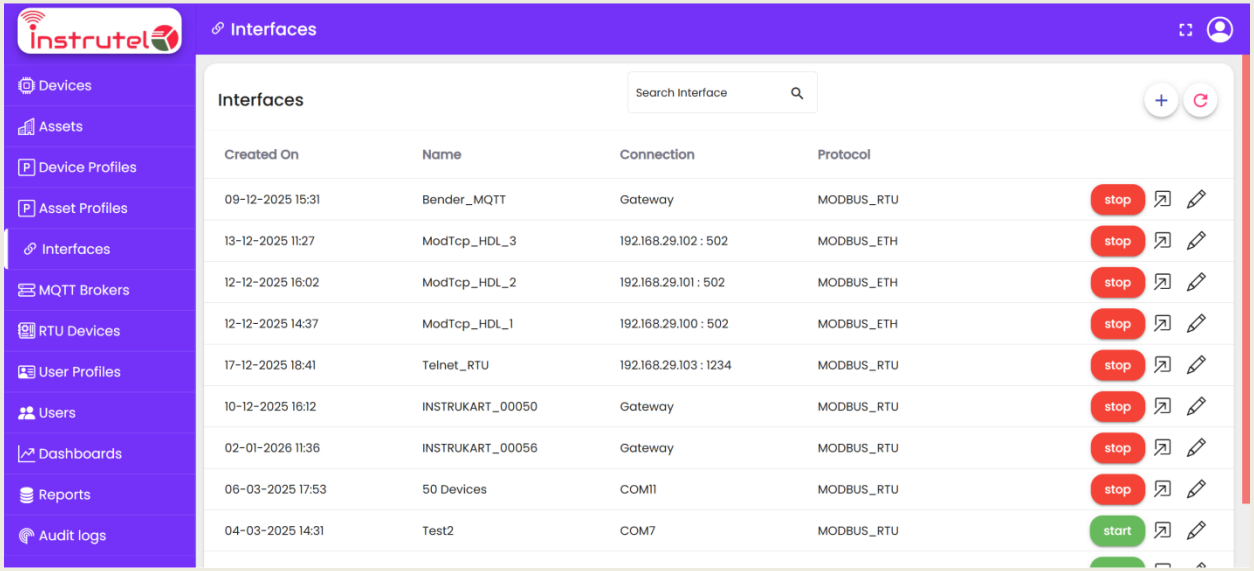
Interfaces – Data Collection & Communication Layer

Interfaces define how field devices communicate with the INS_THINGS platform. They act as the bridge between RTU devices and the software, enabling real-time data collection using industry-standard protocols.



Supported Communication Types

- Ethernet-Based Interfaces
  - Modbus TCP (ModTCP)
  - Modbus RTU over Ethernet
- Serial-Based Interfaces
  - Modbus RTU (COM ports)
- Gateway-Based Interfaces
  - MQTT Protocol

Key Features

- **Multi-Protocol Support**
  - Ethernet, Serial, and MQTT Gateway communication Modbus RTU over Ethernet
- **Flexible Connectivity**
  - IP-based, COM-port-based, and gateway-based connections
- **Start / Stop Data Collection**
  - Control data polling with a single click with password protection
- **Scalable Interface Management**
  - Supports multiple interfaces for large deployments

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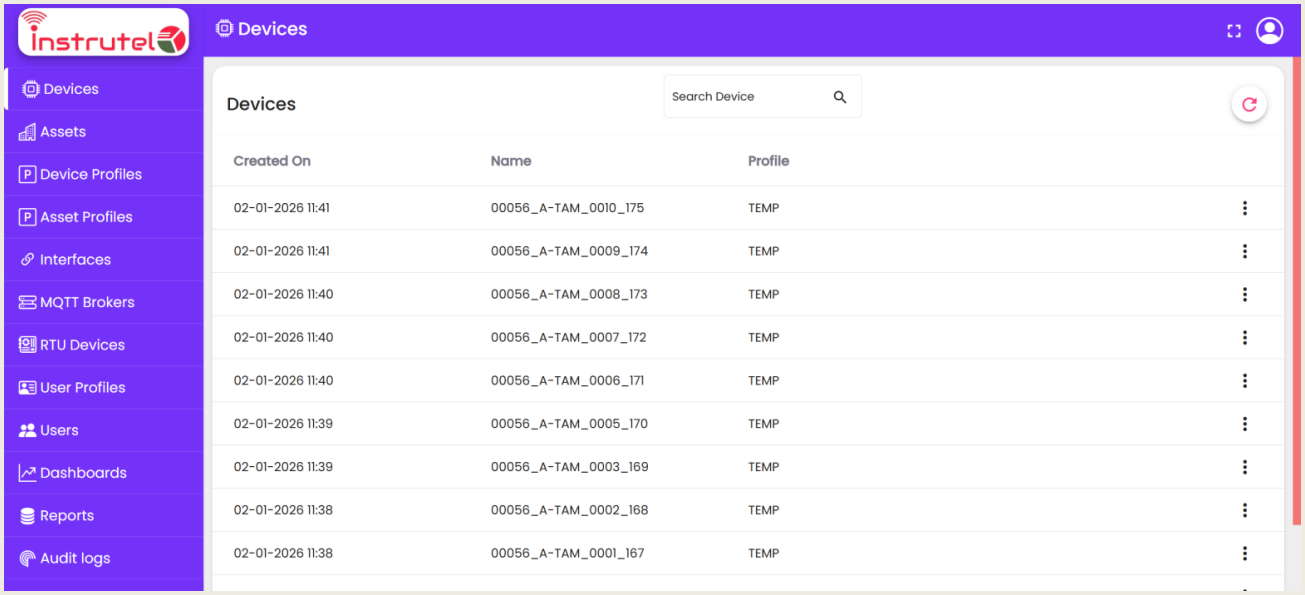
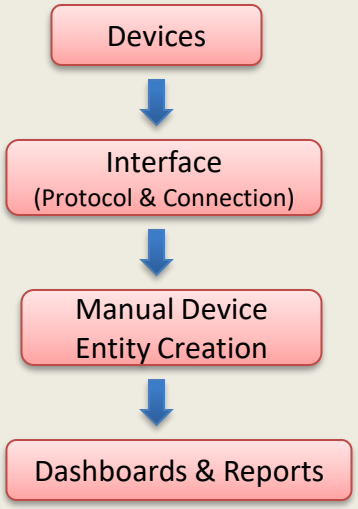
Devices – Configurable Monitoring Entities

Overview

Devices are manually created monitoring entities in INS_THINGS. When an RTU device is added to an interface, users can manually create device entities that represent actual monitoring points used for dashboards, reports, and analytics.





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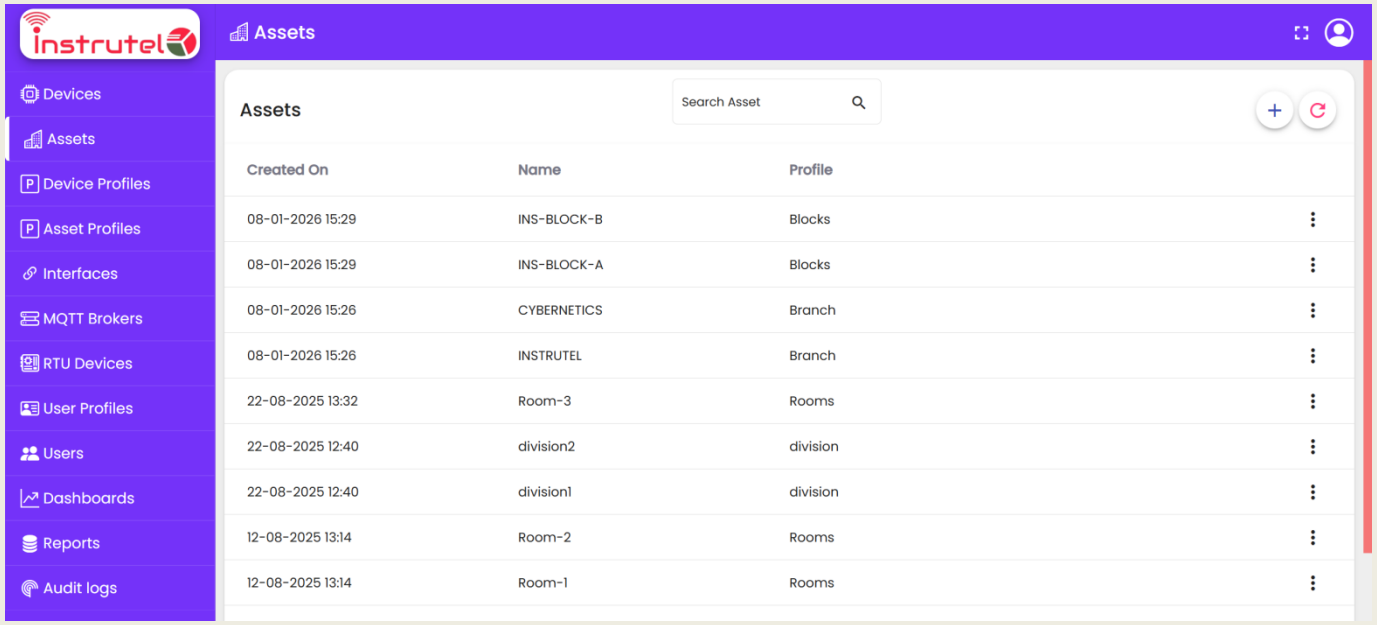
Key Features

- **Manual Device Entity Creation**
  - Users create devices based on RTU device and interface configuration
- **Profile-Based Configuration**
  - Devices follow predefined device profiles for structured data
- **Controlled Mapping**
  - Full control over which RTU parameters become monitoring devices
- **Central Device Entity Management**
  - View, manage, and organize all devices in one place

Assets Management & Location Hierarchy

The Assets module allows users to create, organize, and manage physical or logical assets such as branches, blocks, divisions, and rooms. These assets form the foundation for location-wise data visualization and monitoring.



- Enables location-wise data monitoring in dashboards.
- Improves data organization and clarity.
- Simplifies device-to-location mapping.
- Helps management analyze performance across branches, blocks, or rooms.
- Provides a scalable foundation for future expansion.

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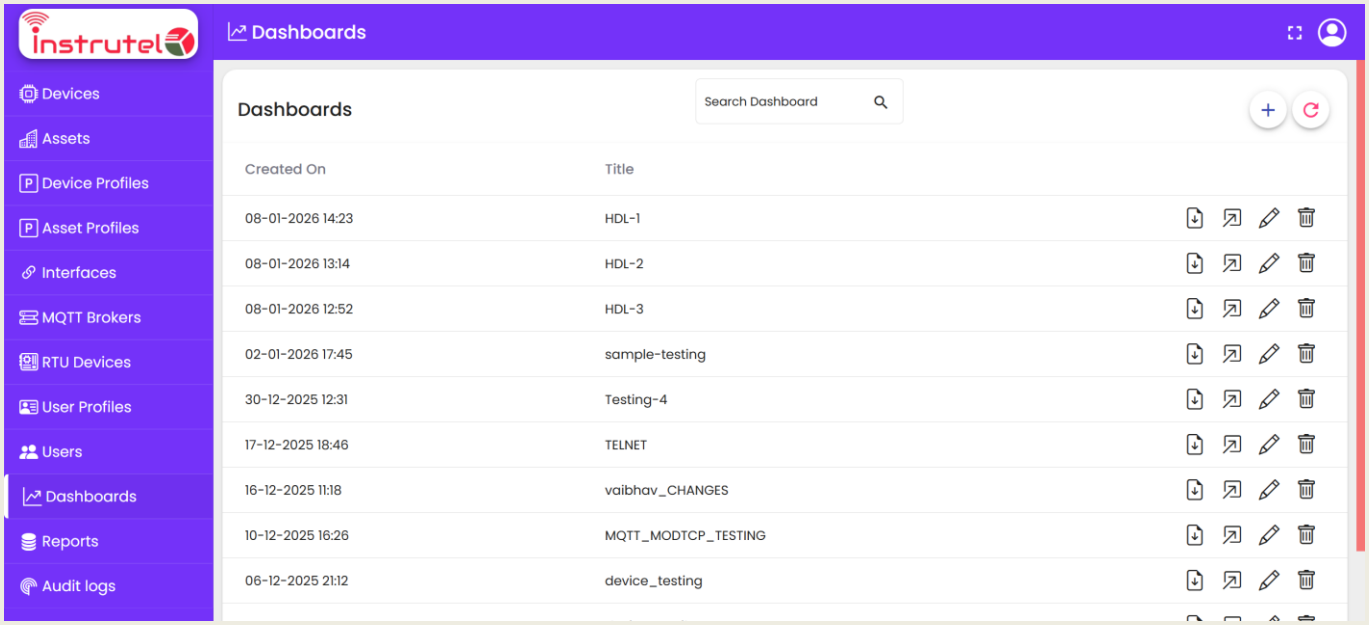
Dashboards – Real-Time Monitoring & Visualization

Dashboards provide a visual layer to monitor real-time and historical data collected from field devices. Users can design dashboards using multiple widgets to gain instant insights into operations.



Key Features

- **Multiple Dashboards Support**
  - Create dashboards per plant, block, line, or system
- **Widget-Based Design**
  - Each dashboard contains multiple widgets
- **Editable Layout**
  - Drag-and-drop widgets in edit mode
- **Reusable Dashboards**
  - Copy dashboards for faster setup

- Centralized operational visibility.
- Faster decision-making.
- Converts raw field data into clear visual insights for faster decisions.

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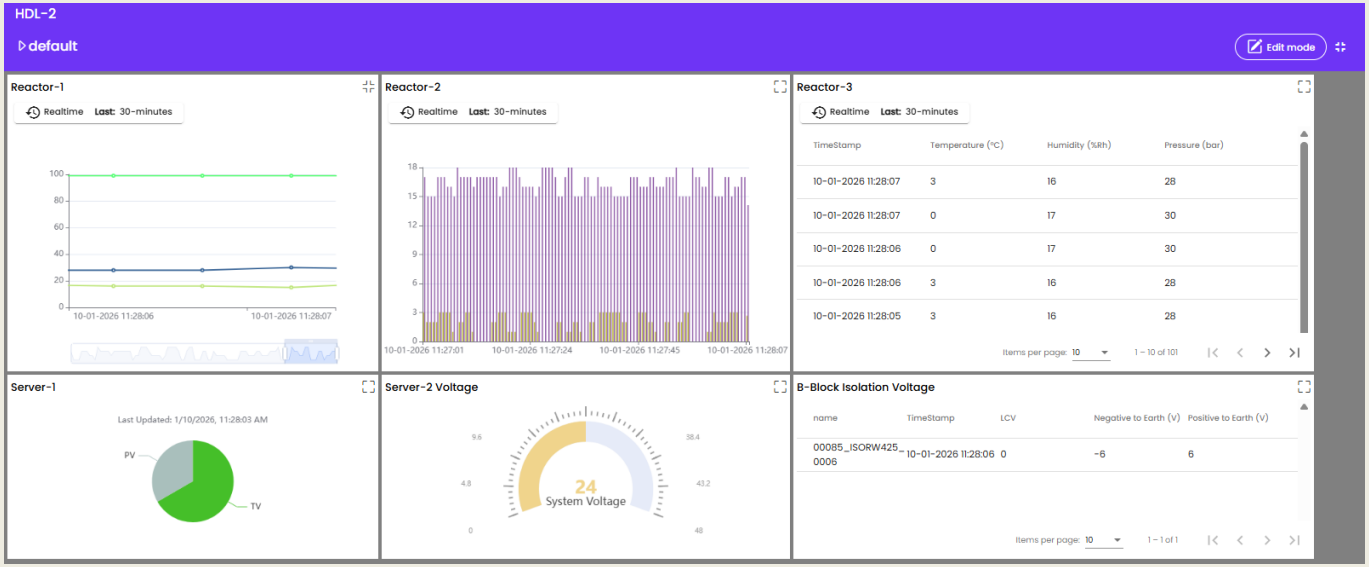
Dashboard Widgets – Charts, Gauges & Tables

Widgets are the building blocks of dashboards. Each widget represents real-time or historical data using intuitive visual formats.



Key Features

- **Real-Time & Time-Range Data**
  - Real-time (last 30 minutes)
  - Custom time window selection
- **Auto Refresh**
  - Live updates without page reload
- **Full-Screen View**
  - Expand widgets for detailed analysis
- **Reusable Dashboards**
  - Copy dashboards for faster setup

- Centralized operational visibility.
- Faster decision-making.
- Converts raw field data into clear visual insights for faster decisions.

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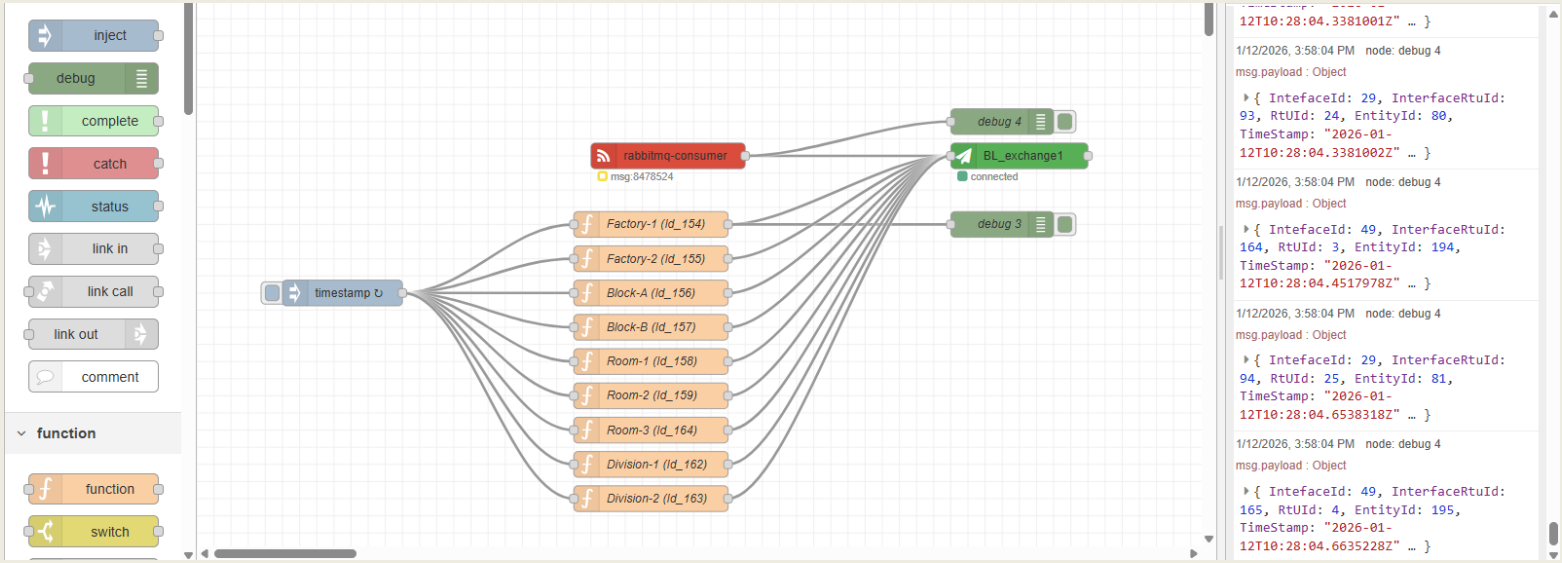
Rule Engine

Make your business logic with Node-Red with pre configured INS_THINGS node modules. With all required APIs and Rule Nodes your business logic can be integrated with third-party applications and the most flexible No-Code industry proven Node-Red environment



Key Features

- **Pre Configured Rule nodes** for standard requirements like Utilities
- **Alarms**
  - Create Alarms and Acknowledgments with
  - Mail and SMS Integrations
- **Third Party Integrations:**
  Integrate with any applications with available APIs
- **Multiple Rule Chains**
  Create Multiple Applications like Energy, Water, Warehouse for a customer.

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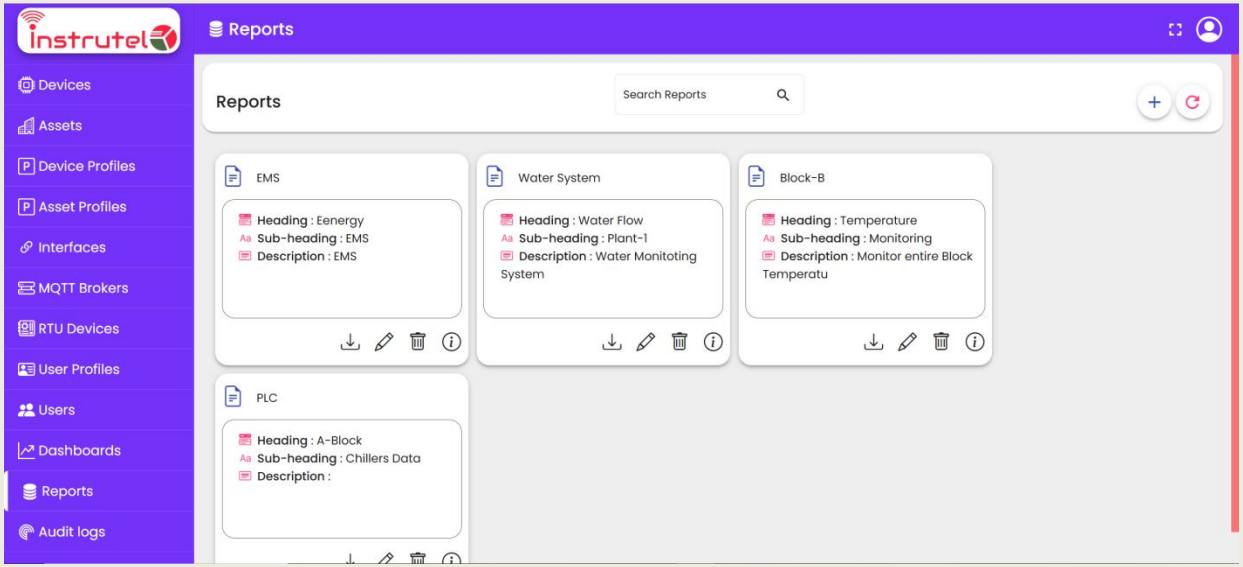
Reports – Structured & Historical Data Access

The Reports module enables users to create structured report templates and download historical data collected from devices in a well-formatted and shareable manner.



Key Features

- **Reusable Report Templates**
  - Create once, reuse multiple times
- **Application-Specific Reports**
  - Energy, Water, Temperature, PLC, etc
- **Centralized Report Management**
  - All reports accessible from a single place

- Easy access to historical data.
- Standardized reporting across the organization.
- Supports compliance, audits, and analysis.

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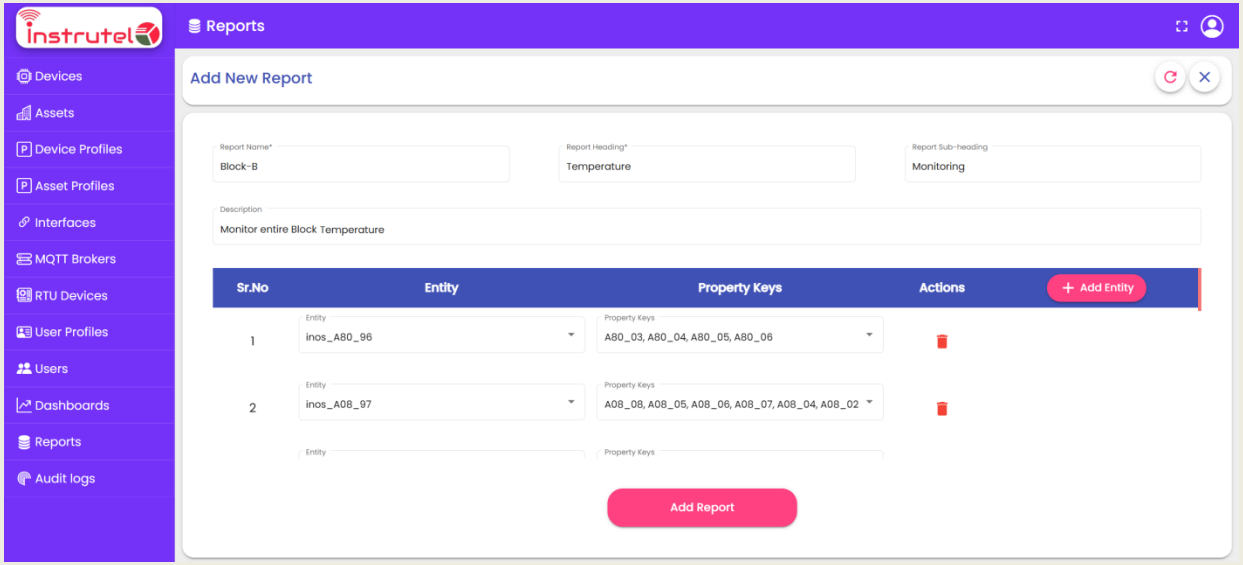
Report Templates – Customizable & Flexible

Users can define custom report templates by selecting device entities and required parameters, making reports highly flexible and relevant to specific business needs.



Key Features

- **Entity-Based Report Design**
  - Select one or multiple device entities
- **Parameter-Level Selection**
  - Choose only required parameters

Example Use Cases

- Block-wise temperature monitoring.
- Energy consumption reports.
- PLC and chillers performance reports.

- Avoids unnecessary data overload.
- Ensures meaningful and relevant reports.
- Reduces manual data processing.

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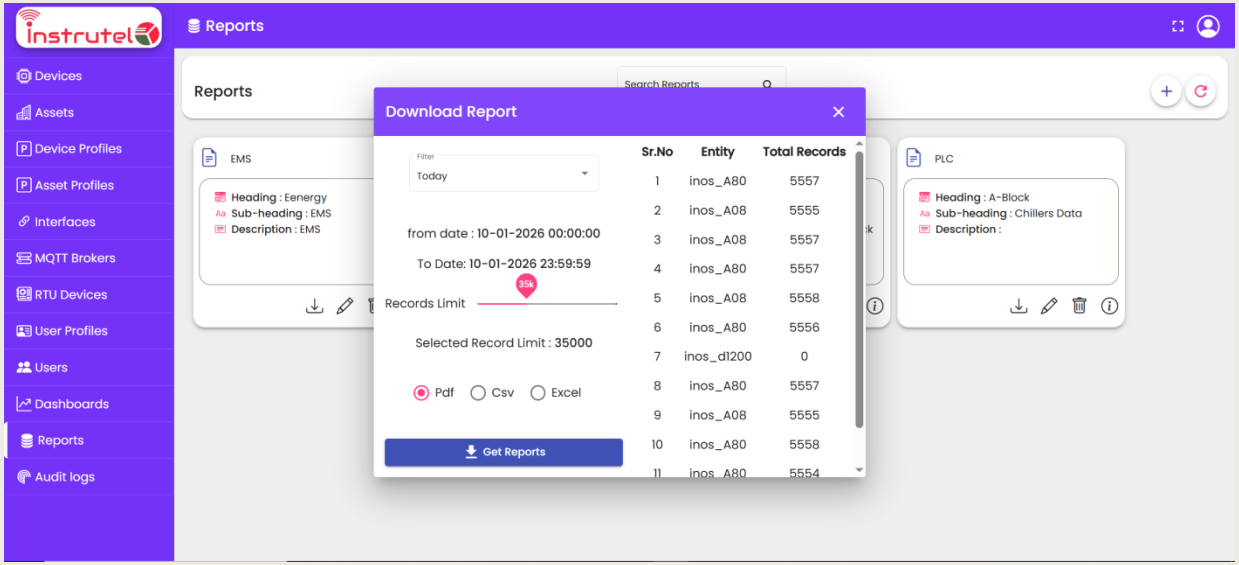
Report Download – Flexible Filters & Export Options

Once a report template is created, users can download reports on demand by applying filters such as date range, record limit, and file format.



Key Features

- **Custom Date Range Selection**
  - Download reports for specific periods
- **Record Limit Control**
  - Manage large data volumes efficiently
- **Multiple Export Formats**
  - PDF for sharing
  - Excel for analysis
  - CSV for integration
- **Entity-Wise Record Visibility**
  - Displays record count for each selected device entity

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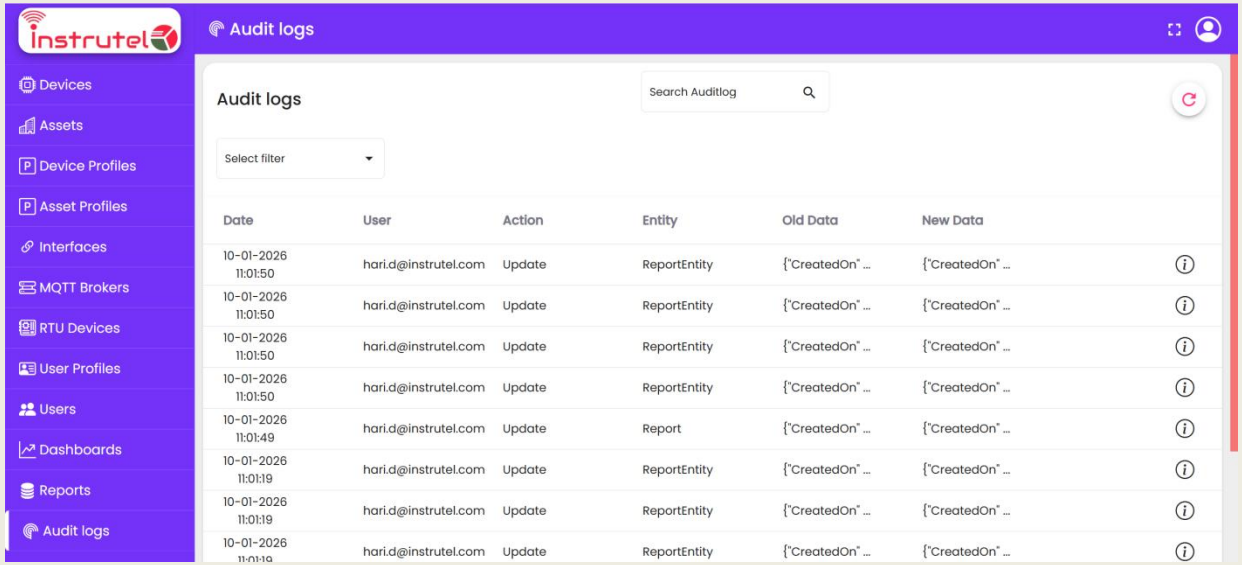
Audit Logs – Complete System Activity Tracking

Audit Logs record every important action performed by users in the INS_THINGS platform. This ensures traceability, accountability, and transparency across the system.



Key Features

- **User Activity Tracking**
  - Captures who did what and when
- **Entity-Level Logging**
  - Logs changes across reports, devices, assets, and configurations
- **Before & After Data Visibility**
  - Shows old data **vs** updated data
- **Search & Filter Support**
  - Quickly find logs based on user, action, or entity
- **Read-Only & Secure**
  - Logs cannot be modified by users

- Ensures accountability of user actions.
- Helps in troubleshooting and root-cause analysis.
- Supports compliance and audit requirements.
- Improves system security and trust

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Edge Devices

Our Edge Devices are categorized into three broad categories.

1) For Third Party Devices Integration/ Field Devices Integration
2) Connected IO Intelligence on the Edge
3) Edge Devices for OEMs

Edge

Application

For connecting RTU devices on RS485/Ethernet to Cloud

Features

1) Inbuilt 4G GSM
2) Connect upto 30 Devices
3) Remotely Configurable
4) Transmits data in configured intervals
5) Abstracts field parameters by converting data to JSON

Swift

Application

Intelligence on Edge. Control and Transmit data to cloud

Features

1) Inbuilt 4G GSM
2) Connect Analog and Digital Sensors
3) Build Customizable business logics.
4) Control Relays, Valves
5) Transmits data in configured intervals
6) Abstracts field parameters by converting data to JSON

INS_Sbc1600

Application

Intelligence on Edge. Made for Machiene OEMs for connected assets.

Features

1) 24 DI, 16DO, 16AI, 8 AO
2) 2 RS485 Ports
3) Build User Aplication in minimum time
4) Connect assets and control in realtime

Remote IO

Remote I/O systems bridge the gap between a central controller (PLC, DCS) and field devices (sensors, actuators) located away from the control panel. These systems consist of remote I/O modules installed near field devices, connected to a central controller through a communication network. The remote modules handle signal conditioning, data acquisition, and control functions, reducing wiring complexity and simplifying plant layout.

1.Benefits of Remote I/O Systems for Indian Industries Enhanced Efficiency and Productivity: Remote I/O minimises cabling needs, reducing installation time and maintenance costs. This allows for flexible plant layouts, easier system expansion, and faster troubleshooting.

2.Improved Data Acquisition and Control: Remote I/O systems offer real-time data acquisition from various field devices, enabling better process monitoring and control. This translates to optimized production processes, improved product quality, and reduced downtime.

3.Increased Scalability and Flexibility: Remote I/O systems can be easily expanded to accommodate additional I/O points as production needs evolve. This modularity allows industries to adapt to changing demands without significant infrastructure overhaul.

4.Reduced Costs and Increased Safety: By minimising cabling and simplifying wiring, remote I/O systems contribute to lower installation and maintenance costs. Additionally, with fewer cables in the control room, the risk of electrical hazards decreases, improving overall safety.

Digital Outputs

Digital Inputs

Analog Inputs

Analog Outputs

Inos

Industry Verticals

Railways

For 25KV Traction control and Monitoring

- Transmission lines Voltage, Health and Power
- Circuit Breakers Status and Control
- BMs Breakers and Control

Pharma/ Bulk Drugs

- Utilities

- Boilers
- Compressors
- Energy
- Water

Advantage of having one single dash boards for different parameters

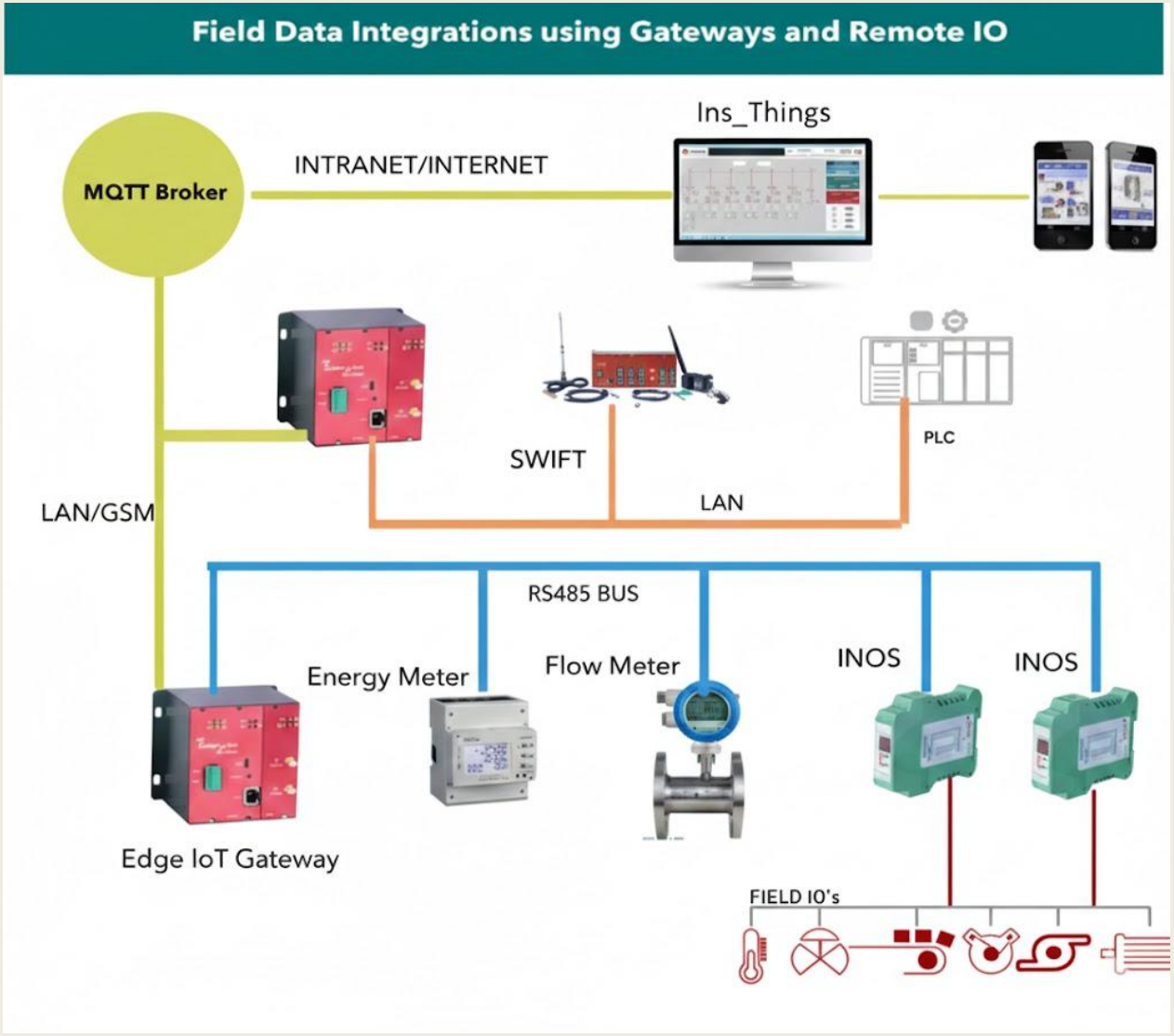
Solar Energy

- Monitor Solar energy generation in real time
- Monitor Energy generated in a Day-Month-Year

Use Case

IoT Stack Application

The image depicts the real-time integration of various modules of IoT Stack working along with third-party devices for real-time monitoring applications.



Use case

Thanks for your interest.

Contact us on
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