



Compressed Air Monitoring

SMC Smart Case

Internet of Things system for the remote monitoring of compressed air consumption using **SMC** equipment



Hardware

SMC Smart Case

Portable **Plug&Play** device for local and cloud monitoring and control of **compressed air line** operating parameters via **SMC Wireless Base** devices, designed to carry out energy analysis and optimization campaigns of pneumatic line operating parameters

SMC Wireless Base and Air Management System

Acquisition of compressed air operating parameters

Tablet 10"

Local visualization of the monitoring dashboard



AssetLinker 300

Optimo IoT AssetLinker300

IoT gateway to acquire data and transmit it to the cloud monitoring platform



Wireless Sensors

Battery-powered wireless sensors for LoRaWAN communication

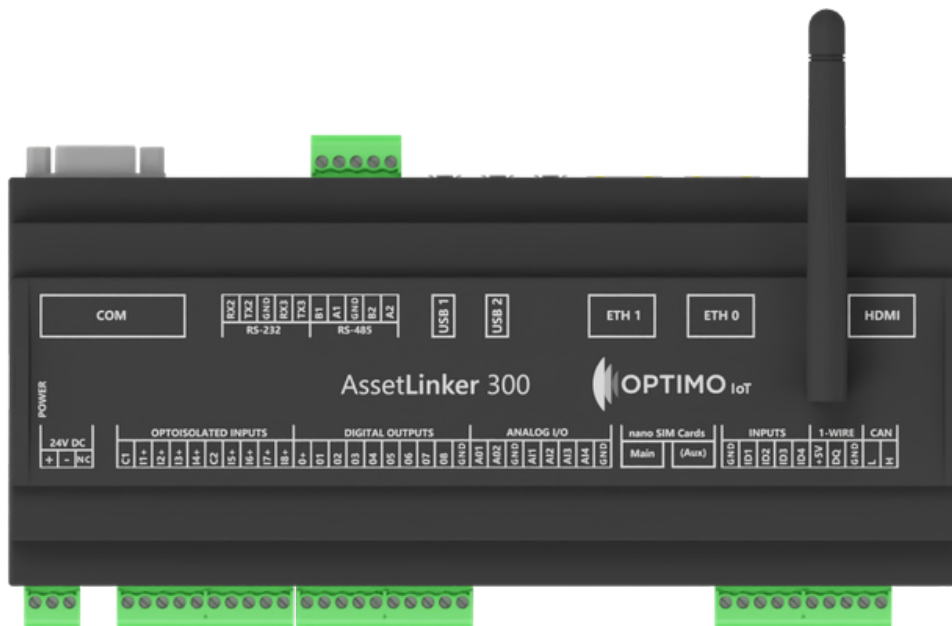


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Gateway AssetLinker 300

Optimo IoT AssetLinker 300 gateway is the connecting link between field data and the cloud platform. It allows you to **acquire data of interest in just a few minutes**, view it locally, and **make it immediately available on the cloud and local network**



AssetLinker 300

FEATURES

- Internet connection over **WiFi, LAN, or 4G LTE network**
- Integration of the main **industrial field protocols**
- Direct integration with **Siemens and Rockwell PLCs**
- Analog and digital **inputs and outputs**
- **Local webserver** for offline use
- Internal supercapacitors for **safe shutdown**
- **24V DC** power supply
- **DIN rail** or **wall** mounting
- **VPN channel** for remote interventions



Integrable SMC Devices



SMC wireless Base

Wireless device for the acquisition of monitoring data detected by SMC sensors with IO-Link and SMC Air Management System devices installed in the plant



[Link to the SMC website](#)

SMC Air Management System

Intelligent compressed air flow controller for monitoring flow, pressure, temperature and optimized line pressure management based on the operating conditions of the user (standby, operational)



[Link to the SMC website](#)



SMC PSH sensor

Sensor for monitoring the relative humidity inside compressed air distribution ducts in order to minimize condensation formation

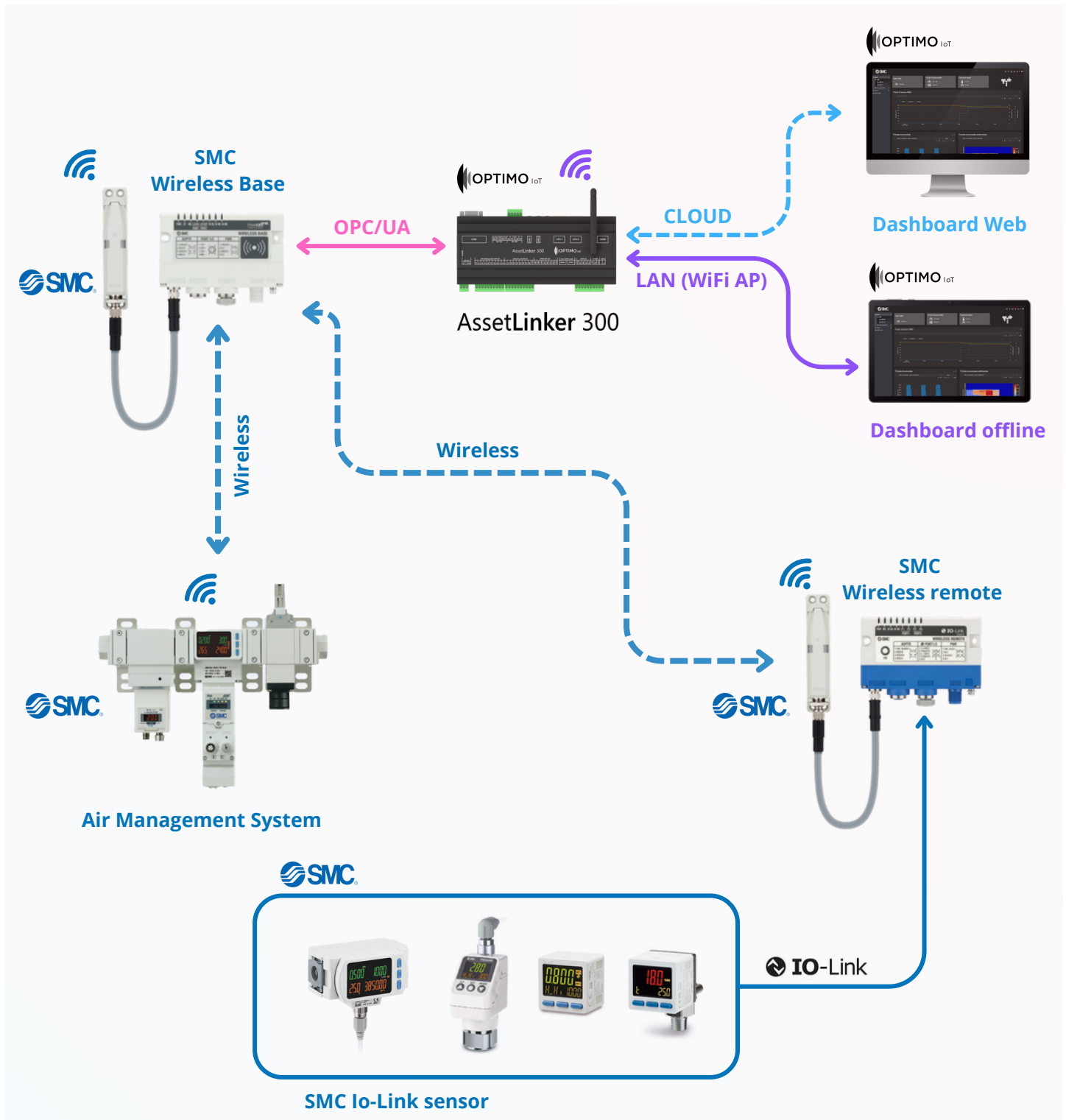


[Link to the SMC website](#)



Monitoring System Architecture

Build your own compressed air network monitoring system with the **SMC Air Management System** flow optimizer, **SMC IO-Link sensors**, and **SMC Wireless Base** and **SMC Wireless Remote** modules



LoRaWAN Wireless Sensors

The **LoRaWAN** communication protocol allows the creation of **low-energy, battery-powered wireless sensor** networks that enable long-distance data communication without using cables for data transmission or for the remote sensors' power supply

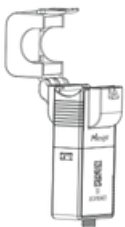


Current Transducer

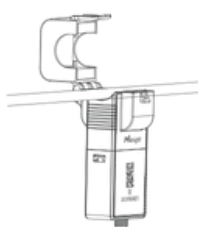
Accurately measures electrical current drawn, without batteries and cables, enabling remote monitoring through LoRaWAN connectivity

- Easy to install
- Self-powered
- Wireless transmission
- Currents up to 300A

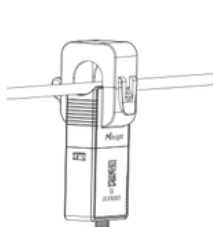
"Clamp On" current transducer



Step 1



Step 2



Step 3



Control button

Sends control signals to the SMC Air Management System to control Standby and Operational states on compressed air lines, transmitting data via LoRaWAN connectivity without batteries or cables

- Easy to install
- Battery powered
- Wireless transmission
- control signal

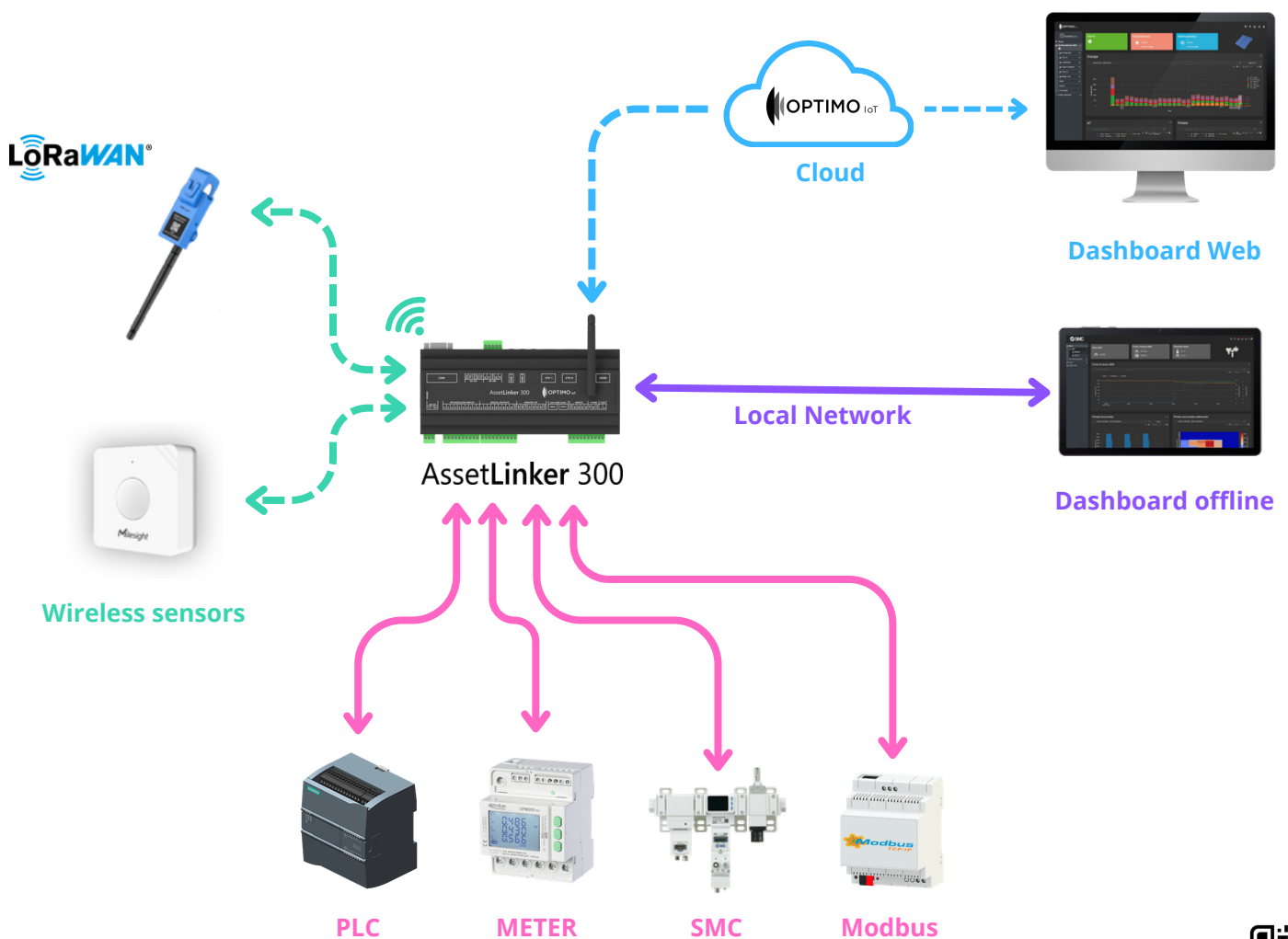


Monitoring IoT Platform

The data acquired in the field is made available through a **user-friendly interface** accessible via any web browser, eliminating the need for software installation or locally offline by the AL300

Two different ways to **access your data**

- **Cloud Access:** Monitor your systems remotely using any device
- **Local Access:** Connect your tablet or PC directly to the company network or to the WiFi network generated by the AL300 gateway



SMC Products Integration

Select SMC devices from our **Plug&Play list** and **start monitoring your devices** directly in the Optimo IoT dashboards

Overdigit EX04AIO



4 channels analog input/output module

Tags: **rs485** **modbus** **plug&play**

Add

Telematica MB880-X



External Modbus/RTU, Modbus/TCP converter for Iskra MT880 meters

Tags: **tcp-ip** **modbus** **plug&play**

Add

SMC

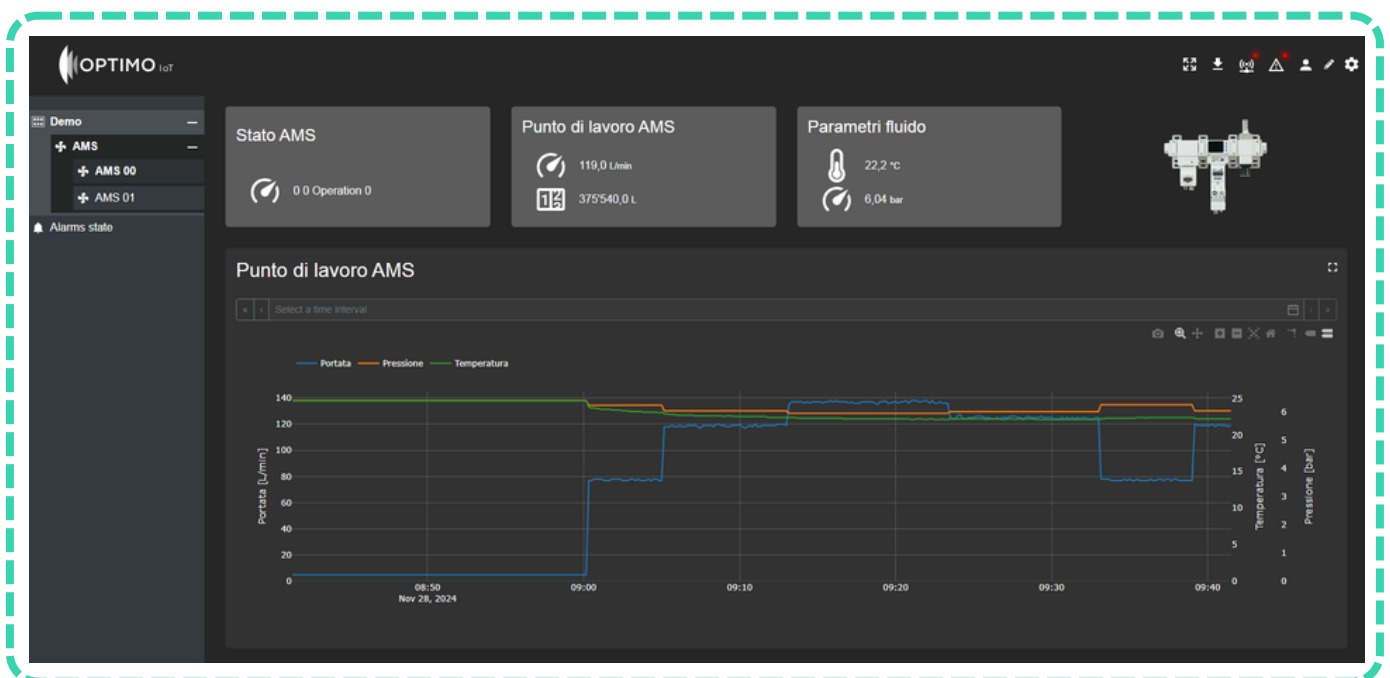


Monitors the machine standby conditions (when production stops) and automatically decreases the pressure. Reduces unnecessary air consumption.

Tags: **tcp-ip** **opcua**

Add

People for Process Automation



Web Interface features

Select SMC devices from our list and **start monitoring** your device directly on the **Optimo IoT dashboards**

Plant Tree diagram

Access data from your different plants and monitor all your devices from a single dashboard

Alarms

Configure custom alarms to be sent via email or SMS in case of operating anomalies or when monitored parameters exceed thresholds

Devices status

Monitors the operating status of the Air Management System, signaling alarms and the system operating state



Real-time Trend

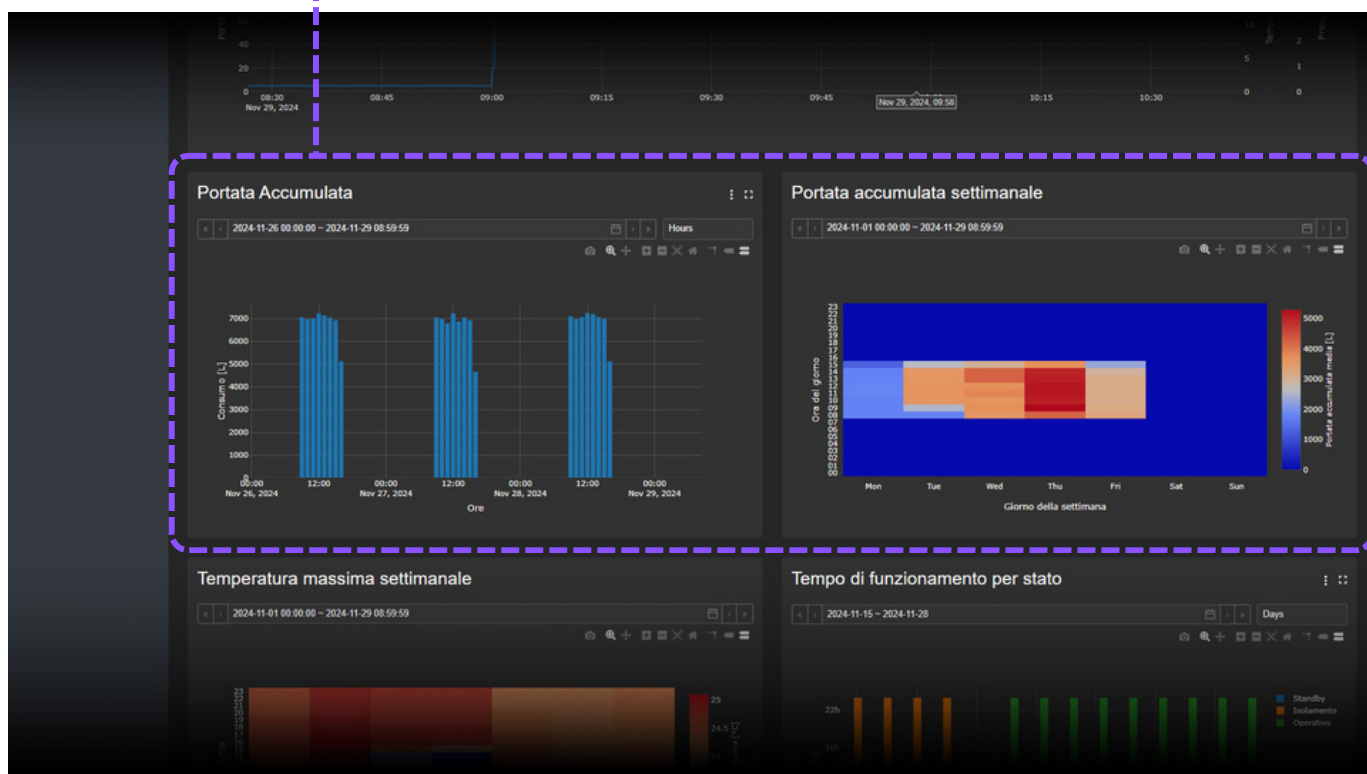
Real-time monitoring of Air Management System operating parameters: flow, pressure, and temperature. The user has the possibility to modify charts and create new customized variables



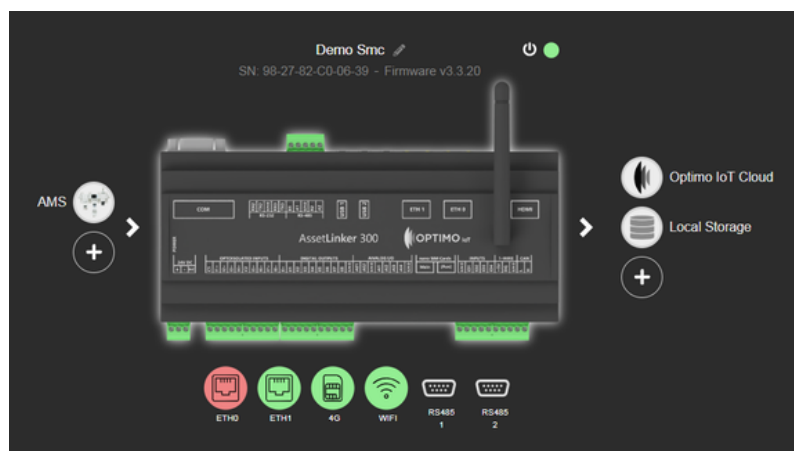
Cumulative Charts

Aggregate monitored parameters through histograms, heatmaps, and other charts available to the user for the creation of customized graphs

- **Real-time** monitoring
- **Historical trend** analysis
- **Data export** to CSV
- **Plant Synoptics** graphics
- Remote **set-point setting**
- Remote **operating hours** setting



Gateway Configuration Interface



Configure the gateway AL300 even remotely through the **cloud configuration page**, allowing you to easily **configure the networks and integrate the variables** to be monitored from the sources connected to the gateway **in a few clicks**



Automatic Generation of Periodic Reports



Create custom **PDF reports** that are **periodically updated and sent** to specific email addresses

Use all available **dashboard widgets** to **compose your customized** reports.

Create **different templates of reports**, each with its own analysis frequency and specific **email distribution lists**

Potential Uses for Automatic Report Generation



- sending sustainability KPIs to corporate management
- sending daily KPIs to production managers
- sending emission measurements to local authorities
- sending performance reports to maintenance staff
- sending energy KPIs to energy managers
- sending trendline reports to external consultants
- sending monitoring campaign reports to customers



Hardware Extensions

In addition to SMC devices, it is possible to integrate **other Plug&Play devices**, as well as generic devices with standard protocols, such as **Modbus RTU TCP/IP and OPC UA**



PLC Siemens & Rockwell

Direct reading and writing of Siemens CPU DBs. Support for basic and custom data types. Includes a configuration interface designed to facilitate commissioning



Modbus TCP & RS485 devices

Reading and writing of generic Modbus TCP and RTU devices. Support for all Modbus functions. Includes fast reading and testing tools for commissioning



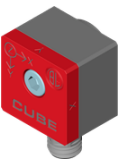
Server OPC-UA

Easy integration with DCS or SCADA systems. Variable exploration, support for complex structures, authorization, and encryption



Telematica MB880-X Fiscal Meter Module

Monitors the energy consumption of electrical users by directly reading fiscal meter data. This allows you to know their load profile and calculate the production's energy footprint



CEMB Cube Vibration Sensor

Measures vibrations of machinery and rotating machines to monitor operating status and prevent damage or malfunctions



Algodue UP209 power meter

Monitors energy consumption of electrical users to know their load profile and calculate the energy footprint of production



Overdigit Analog-Digital I/O Module

Allows the acquisition and transmission of analog and digital signals for process monitoring, sensor integration, and plant control



Software Extensions

Using Optimo IoT software extensions library it is possible to **use real-time monitored data in Python and Knime environments**, create custom applications with **Node-RED**, and exchange data with other platforms via **HTTP APIs**

No-code Automation with Node-RED

AL300 IoT Gateway runs **Node-RED**, allowing you to interact in reading and writing with the variables already configured on the Gateway. It is possible to **develop custom automations** using the Gateway's onboard I/O, pre-process complex variables, and expose new calculated variables



Tools for Data Scientists



For rapid and repeated analysis, starting from data exported in CSV format from the Optimo IoT cloud might not be optimal. For this reason, we have developed a **Python library** and a **Knime extension** for quick and easy complex analysis

APIs for integration with third-party apps and platforms

The cloud platform exposes monitoring data through documented HTTP APIs. It is therefore possible to easily **integrate the data collected by the gateway into third-party apps and platforms**



For more information, **contact us!**

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