JAN 2024

A piece of cloud - to provide digital solutions

Smart Communication Card

Smart Communication Card – A piece of cloud for everyone!

Overview

MARKET NEEDS

The main requirement to meet this trend is to add just communication and basic logic capacity, not full automation

MARKET TRENDS

With the convergence of IT and OT, there is a trend to have devices that can connect the data coming from the field with cloud-based systems and perform control logic

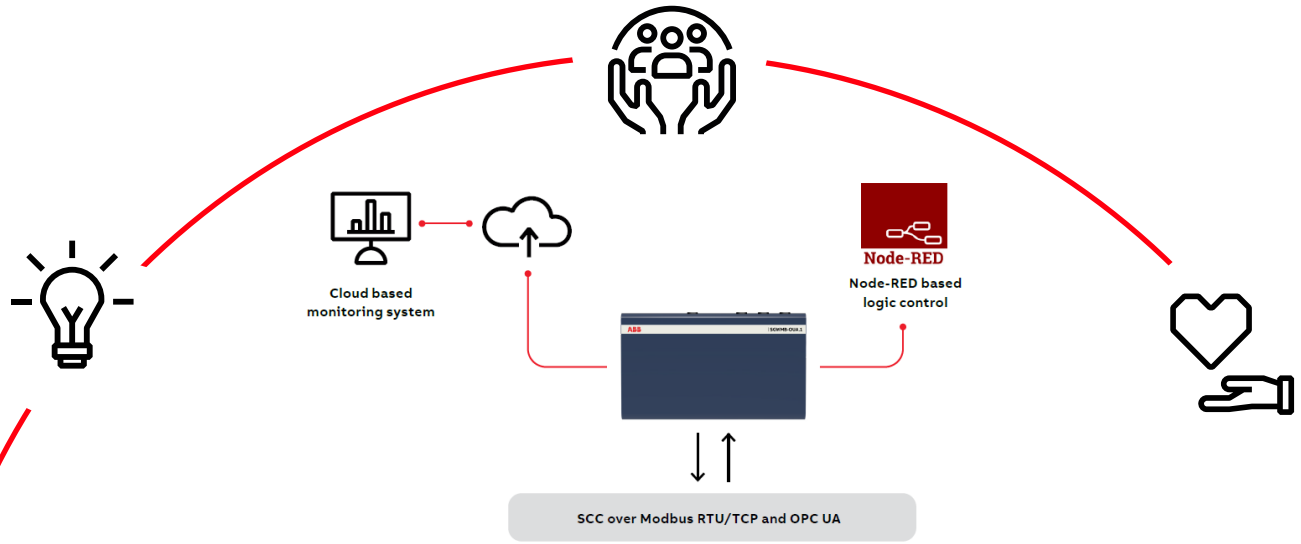

ABB SOLUTION

Implement basic control logic using **Smart Communication Card** with Node-RED

WHY WE DEVELOPED OUR SOLUTION

We are aiming to enable cost-efficient connectivity and control functions for smaller or decentralized applications.

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Smart communication card

Control and monitor your equipment

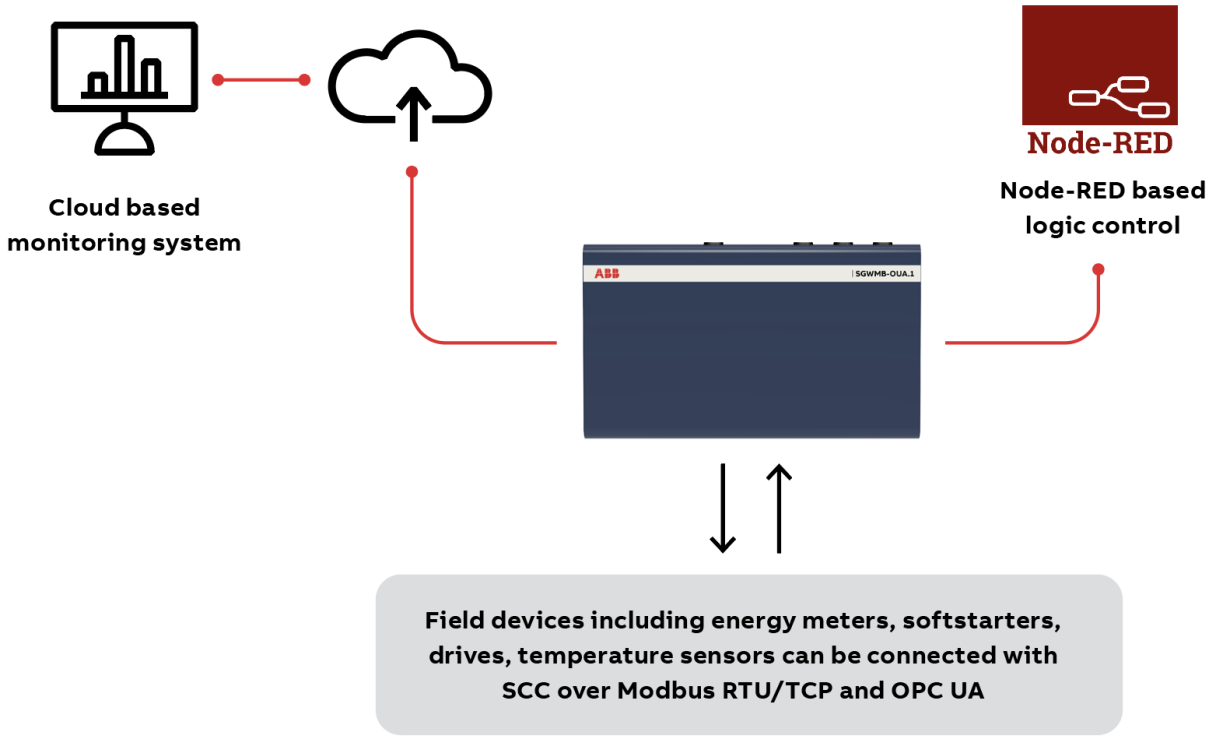
A piece of Cloud for everyone one

Let's develop application for escalators capable of performing logic control loops and making data available in cloud-based platform for monitoring and analytics.

Smart Communication Card is IT-OT device to enable connecting your data center to cloud-based portals and at the same time, perform control logic using Node-RED.

With default Modbus RTU, Modbus TCP and OPC UA protocol, the Smart Communication Card provides seamless integration of ABB and 3rd party device to the cloud.

Cost-optimized, easy-to-Configure Smart Communication Card is there to offer a piece of cloud to everyone, allowing to monitor and analyze data in cloud-based system (using smart phone or computers) .



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Smart Communication Card

..in a nutshell

Smart Communication Card (SCC) is a gateway which supports integration of field devices over Modbus TCP, Modbus RTU and OPC UA.

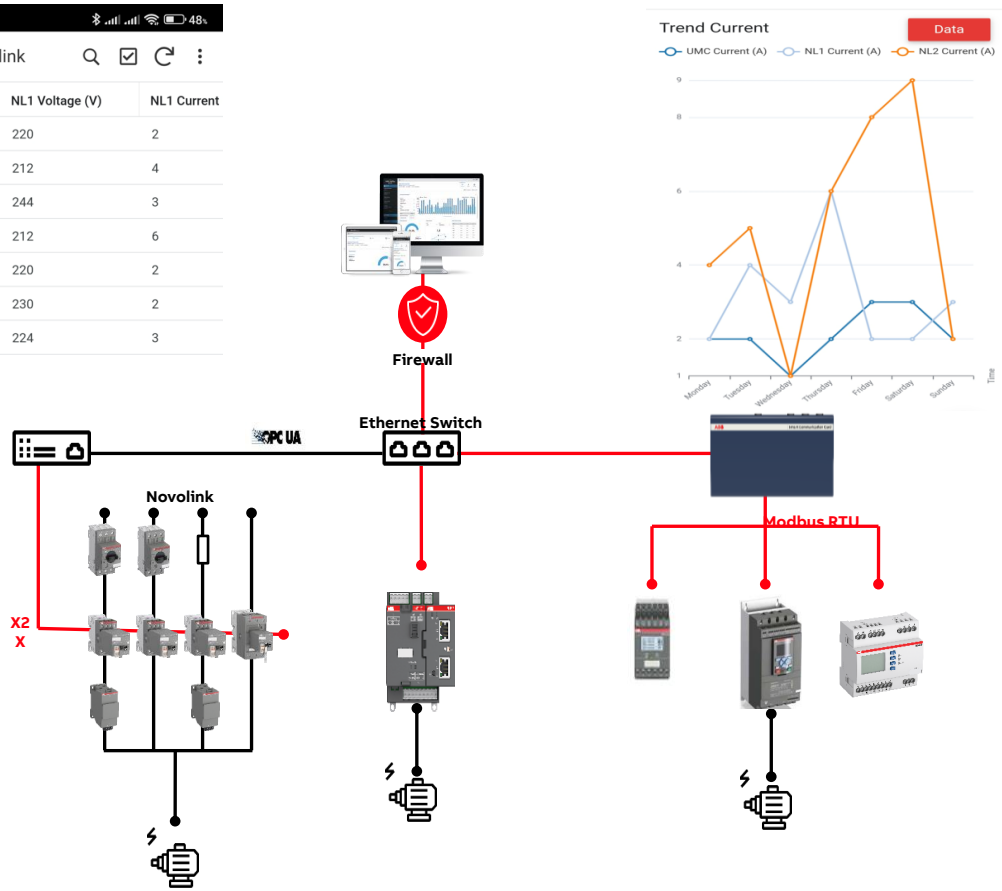
It can be connected to ABB Ability EM and 3rd party cloud over MQTT, OPC UA.

What it brings for you..

Remain in touch with your system using Data monitoring.

Perform analytics using Trending and alarms.

Flexible report generation for multiple set of data.



Main features:

Optimum Interface: Integrate field devices including 3rd party devices.

Space saving: Optimize your panel size.

Speed up your project with Web –based tool

Targeted applications:

Pumping stations.

Energy /other parameters monitoring.

HVAC system.

Machines.

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Smart Communication Card

Topology Overview

OPC UA
Modbus TCP
Modbus RTU
X2X
https / MQTT
Standard ethernet

3rd party cloud systems

SCC cloud connectivity:
https / MQTT / OPC UA

Firewall

A webserver-based configurator is used to set up the SCC and devices (only for commissioning).

Node-RED based application can be developed from this PC

IT cooperate Compliant
Secure access

Local Industrial LAN

Novolink cloud connectivity

Device cloud connectivity

Ethernet Switch

ABB Smart Gateway or B&R X20 Controller

SCC device connectivity:
Modbus RTU, Modbus TCP, OPC UA

Smart Communication Card (SCC)

3rd party devices, including PC:s/HMI:s

Temperature Monitoring Relay CM TCN.012

Soft Starter PSTX

Grid feeding monitoring relays CM-UFD

Energy Meter

3rd party devices, including PC:s/HMI:s

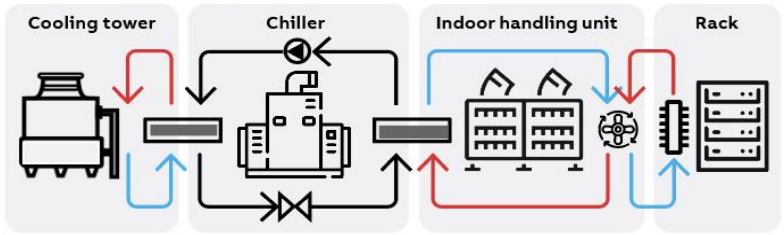
Universal motor controller

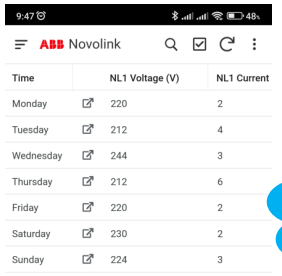
IO:s

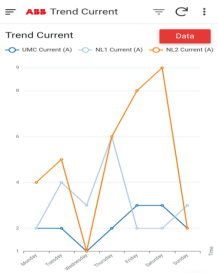
3rd party devices, including PC:s/HMI:s

Control, monitor and reports

Manage machines, monitor it or simply Generate report



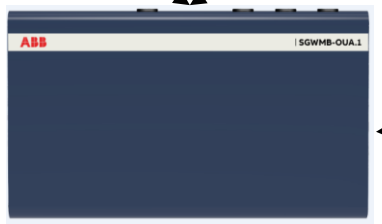


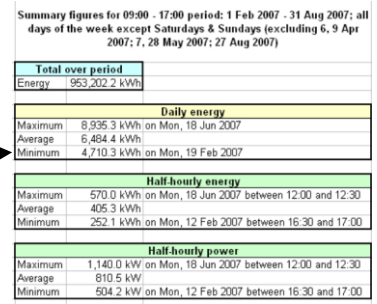


Cloud based monitoring system

Node-RED based logic control

Node-RED





Field devices including Energy meters, Softstarters, drives, temperature sensors can be connected with SCC over Modbus RTU /TCP and OPC UA

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Smart Communication Card

With Novolink - can be used with 3rd party cloud systems over OPC UA

With Node-Red control logic can also be implemented in Smart Communication Card

Integrate Novolink in 3rd party cloud

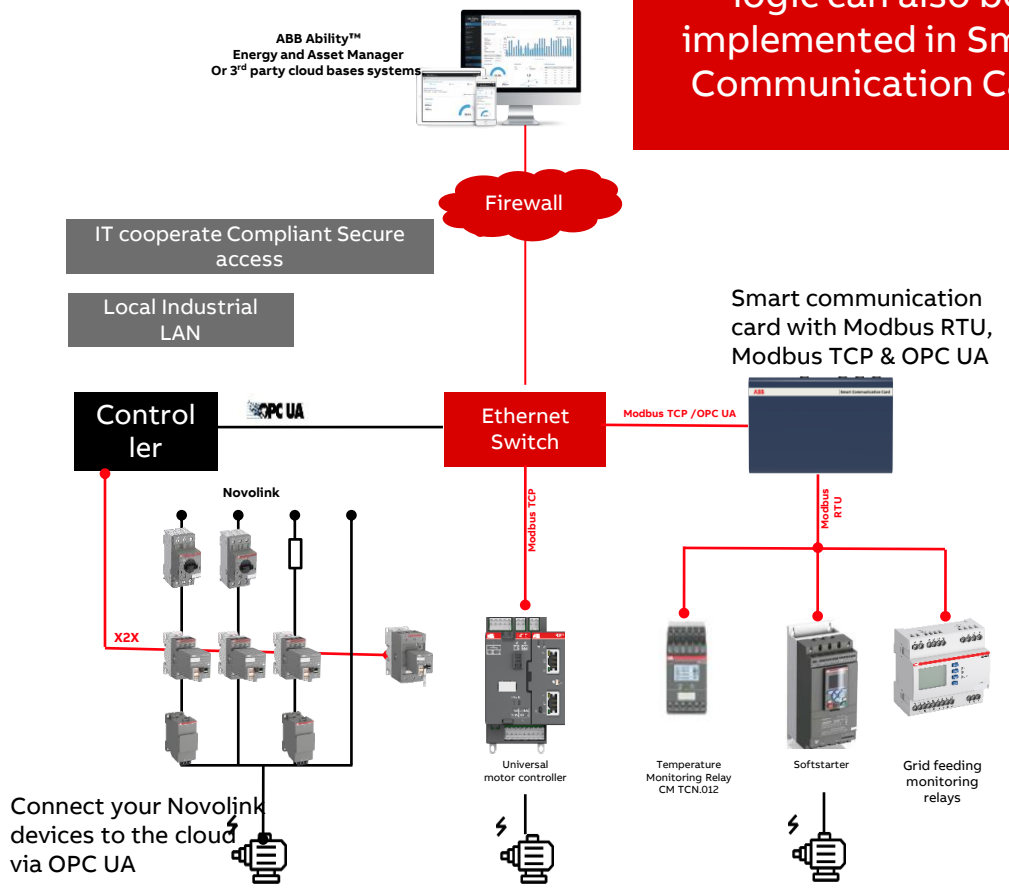
Smart Communication Card gathers the data from X2X to OPC UA convertor and make it available for 3rd party cloud systems

Similarly, data from UMC, CM TCN.012, Softstarter and UFD can be collected with Smart Communication Card over Modbus RTU /TCP and shared with 3rd party cloud platform over OPC UA

Note: Smart Communication Card will be communicating to the cloud only over Ethernet.

Important: JSON approach is flexible and allows fast and efficient integration of multiple devices.

3rd party devices can be supported but Json files need to be developed



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Market

Key Customers & Applications

- **Machinery OEMs**
- **Panel Builders**
- **System Integrators**
- **End-users**

Smaller and de-centralized systems to monitor/control:

- Energy/Temperature
- Water and Wastewater stations
- Plants and Machines
- HVAC installations
- Electrical panels including Novolink™

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Prospective applications

Applications which can be targeted Smart Communication Card as Logic controllers

IT/Infrastructure

Energy & temperature monitoring system can enable data center operators reduce down-time, generate reports, optimize energy, and ensure that all devices are operating in the permissible energy/ temperature range. Logic can be developed and implement to make exchange data /operate colling system equipment and show indications using lamps or other warning switch on.

Pumps

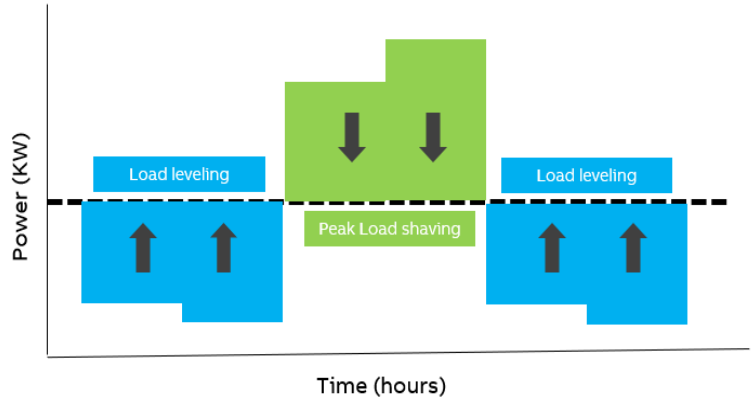
Manage pumping stations consisting of single pumps. Manage flow/ pressure by measuring temperature, flow, pressure by switching on/off pumps.

Also, duty and stand by pumps application can be realized.

Electrical Panels

With reference to energy consumption, temperature, switch on /off certain loads.

Means load sharing and optimization can be achieved.



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Prospective applications

Applications which can be targeted Smart Communication Card as Logic controllers

HVAC Systems

With reference to energy consumption, temperature, switch on/off certain ventilators, fans, pumps. Also, certain indication with lamps can be implemented.

Motor bearings

Monitoring energy, temperature of the motors and then subjected to certain conditions, switch off /on the motor, create alarms or perform certain actions: like switching on certain process.

Elevators/Escalators

An escalator is a moving staircase which carries people between floors of a building or structure. It consists of a motor-driven chain of individually linked steps on a track which cycle on a pair of tracks which keep the step tread horizontal.

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