

# ip4Cloud



## The Clever IoT Controller

ip4Cloud is able to extract information from existing systems with critical processes and transmit it to IT applications, cloud services, and SCADA systems for further processing.

Forward-looking manufacturing concepts provide for the connection of previously independent controllers, fieldbus devices, and SCADA systems to each other, as well as to the IT or IoT environment, as investment protection for existing plants/controllers.

- Security at the highest level
- Communication between multiple data sources
- Simple control unit connection
- Intelligent information processing
- Support of industry-standard protocols
- Maintenance-free operation



## SEC3PB — The PROFIBUS Sniffer

Captures data from PROFIBUS DP by listening in without interfering with or disturbing the communication and enables the transmission of captured data to cloud services, databases, and SCADA systems via a whole range of industrial protocols.

When connecting to the PROFIBUS network, there is no need to change the configuration of the bus participants (PLC, bus terminals, etc.) and no interference on the bus cycle.

Since the injection of data into the bus is physically prevented, setup can be performed simultaneously to the running process.

**The focus is on monitoring of PROFIBUS data without feedback (even from critical processes) and forwarding these to IoT or IT applications, cloud services, databases, etc. without the risk of production downtime.**

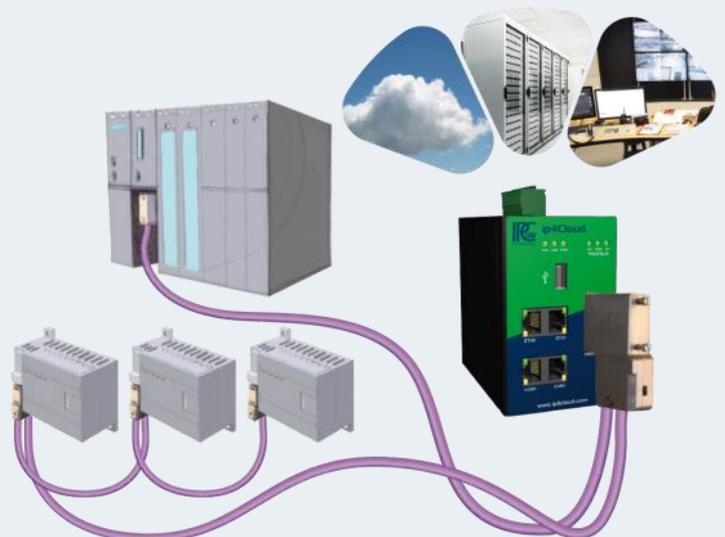


Numerous standardized protocols are available for data transmission between different communication partners. These include communication interfaces like: MQTT, REST, database, PROFIBUS, Modbus, RFC 1006 (Simatic Fetch/Write), IEC 60870-5-101/104, IEC 61850, DNP 3.0, TASE.2, OPC UA, OPC DA XML, and more.

Multiple protocols can be used simultaneously. By default, the usage of one primary and one secondary protocol is licensed. If more protocols shall be used at the same time, an additional license can be purchased.

To simplify the configuration further, various templates are available, such as 'Profibus2AzureMQTT' (send data from PROFIBUS DP to the 'Microsoft Azure Cloud' via MQTT protocol).

## Cloud / IT / SCADA





## SEC3IO — The I/O Controller

Extends the base version by eight digital inputs to capture digital states and make them available to IT and cloud environments for analysis/processing (e. g. input data (Slave→Master), output data (Master→Slave), diagnostic data).

The attributes quality and time stamp can be transferred or processed (depending on the protocol) in addition to the pure value of a data point.

Eight digital outputs are available to replicate switching states and for control purposes.

**The focus is on monitoring and switching digital signals.**

## SEC3 — The Base Model

The base model for capturing information via standardized telecontrol protocols and transmitting it to the IT and cloud environment. ip4Cloud offers a simple and secure data connection to superordinate systems.

**The focus is on connecting local PLCs, field devices, and SCADA systems to the cloud.**

## Functional Range

### • Configuration

The integrated web server allows configuration and maintenance to be carried out easily, using just a web browser. The most important industrial communication protocols are supported for simple integration. In addition, templates are provided for further simplification.

Central access to all settings and services is provided and all important files/updates are imported via the web interface:

- Firmware (application and operating system)
- Configuration data using Excel spreadsheet (signal table)
- X. 509 certificates
- License

### • Cyber Security

- Secure access to all administrative services (HTTPS, SSH, SFTP)
- Role-based access protection with login and password
- User administration for local users
- Central user administration via Active Directory (LDAP) and/or RADIUS
- Crypto Store for certificate management
- Creation of self-signed certificates and CSRs
- Import and export of certificates
- Configuration of VPN tunnels (OpenVPN and IPsec)
- Firewall
- Safeguarded 'state-of-the-art' real-time Linux operating system

### • Data processing

- All data is broken down into separate information (single indications, measured values, counter values, etc.) and processed accordingly. A quality identifier and - if necessary - a time stamp can be associated with each information item.
- Namespace and data model can be changed as desired.
- Powerful functions for data processing such as type conversion, scaling, grouping, etc.
- Data reduction / regulation of bandwidth required on secondary side via update intervals, threshold values, old/new comparison, collective messages, selection of data points, etc.
- Up to 6000 variables
- Up to 600 information changes per second

### • Network features

- Assigning multiple IP addresses to a physical Ethernet interface
- Bonding
- PRP
- VLAN
- Network management using an integrated SNMP agent
- NTP based clock synchronization
- HTTPS/SSH/SFTP access
- DHCP



## THE HARDWARE

The industrial controller SEC3x is used as the hardware platform, which is available in three models (SEC3, SEC3PB, SEC3IO). The hardware is entirely passively cooled and does not contain any moving parts. This maintenance-free solution offers a high degree of usability, reliability, and best cost-benefit ratio.

	SEC3	SEC3IO	SEC3PB
Modbus	✓	✓	✓
RFC 1006 Fetch / Write	✓	✓	✓
REST	✓	✓	✓
Industrial standard protocols	✓	✓	✓
Digital I/O		✓	
PROFIBUS			✓

More detailed technical data about SEC3x with ip4Cloud can be found at [www.ip4cloud.com](http://www.ip4cloud.com)



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