



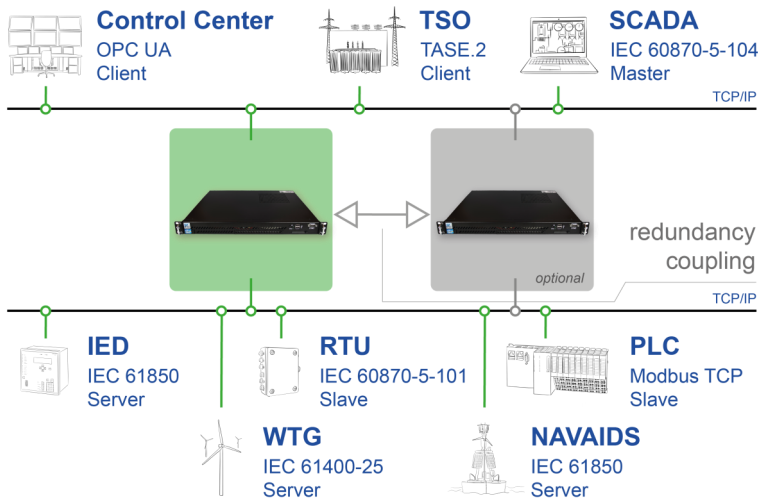
Universal Communication Gateway

ipConv is an universal communication gateway for data transmission between different protocols. As a system for protocol conversion, it is suitable for coupling heterogeneous controllers, fieldbus devices, and telecontrol systems.

Available with powerful high-end devices, *ipConv* is suitable for demanding large-scale projects: The system is able to process up to 500,000 node variables and transmit up to 40,000 information changes per second.

The multitude of communication interfaces available complete the flexibility and expandability of the system.

- Security at the highest level (see Cyber Security)
- Communication between multiple data sources
- Simultaneous use of diverse protocols
- No programming required for configuration (see Configuration)
- Simple control unit connection
- Intelligent information processing
- Maintenance free operation
- Redundancy



SUPPORTED PROTOCOLS

- OPC UA
- OPC DAXML
- IEC 60870-5-104
- IEC 60870-5-101
- IEC 60870-5-103
- DNP 3.0
- IEC 61850
- TASE.2 / ICCP
- ELCOM-90
- Modbus
- PROFIBUS
- PROFINET
- SNMP
- Simatic Fetch/Write
- REST
- MQTT Client
- Database Client
- Email Client
- G174
- RP 570/571
- TG 80x
- SEAB 1/F
- Sinaut ST1
- Indactic 33/41, 2033

Further protocols on request!

FUNCTIONAL RANGE

• Configuration

Configuration and maintenance of the system is conducted through the integrated web interface, which provides central access to all settings and services. Microsoft® Excel templates are provided to simplify data point configuration. In addition, the web interface enables the import of files and updates, such as

- Firmware (application and operating system)
- Excel configuration spreadsheet (signal table)
- X.509 certificates
- License files

• 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 Certificate Signing Requests (CSRs)
- Import and export of certificates
- Configuration of VPN tunnels (OpenVPN and IPsec)
- Firewall
- Safeguarded real-time Linux operating system

• Data processing

- All data is broken down into individual information (single indications, measured values, counter values, etc.) and processed accordingly. A quality identifier and - if necessary - a time stamp is 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.

• Network features

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



THE HARDWARE

ipConv is currently available with the following hardware models:



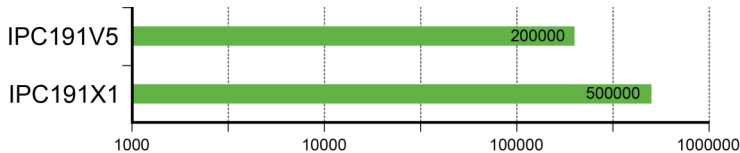
The *IPC191V5* 19" 1U industrial PC is the cost-effective hardware model from the *ipConv* portfolio that offers significantly higher performance and greater flexibility than the embedded solutions. It has up to 10 LAN interfaces and can be equipped with up to 20 serial RS-232 interfaces. Its PCIe expansion slot enables further extension of the basic system.



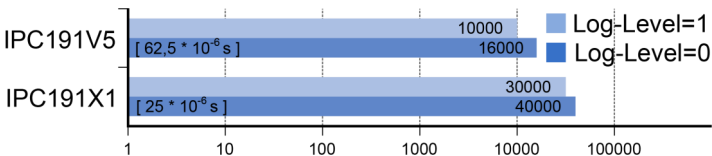
The *IPC191X1* 19" 1U industrial PC is currently the most powerful gateway platform supplied with a real-time Linux operating system. It can also be equipped with further serial interfaces and network interfaces via two PCIe expansion slots. Due to the powerful Intel Core i5 processor, the *IPC191X1* can be used for the smooth, simultaneous operation of time-critical processes.

As with all systems, the *IPC191X1* has been designed for continuous operation and maximum availability. The device meets the particular requirements for electromagnetic compatibility and power supply described in the third part of the IEC 61850 standard (IEC 61850-3), provided that signal cables with a maximum length of 10 meters are used.

Maximum performance: Number of node variables that can be managed, processed, and transmitted.



Maximum throughput: Information changes per second that can be transmitted in real time without data loss or buffering.



For detailed technical data on the *IPC191V5* and *IPC191X1* models, please visit www.ipcomm.de

REDUNDANCY

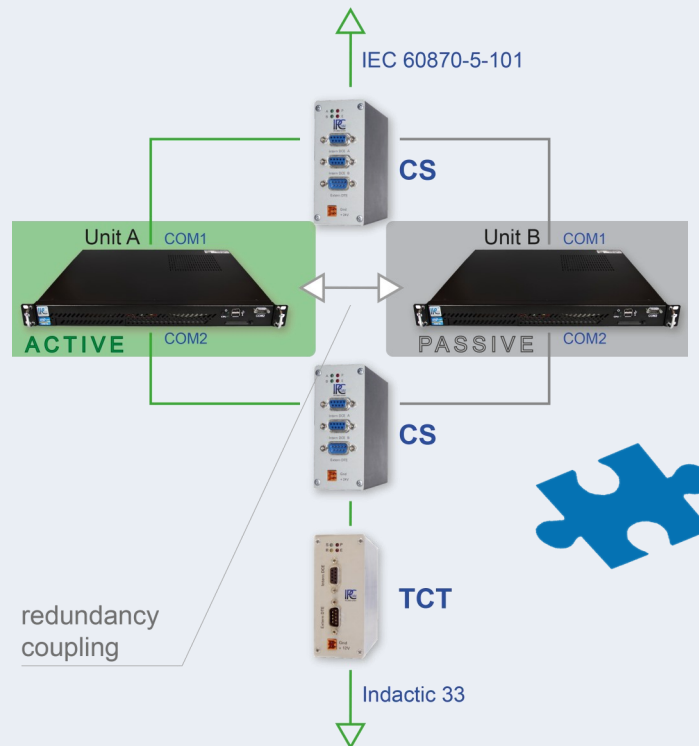
To meet even increased security requirements, *ipConv* is fully capable of redundancy in combination with a second device.

- Line redundancy
- Information redundancy
- Device redundancy (hot-standby, parallel operation)

With redundant protocol converters, reliability can be ensured, based on the "hot standby" principle. At any one time only one device assumes the active role, while the passive device monitors the active one and takes the initiative if it fails.

This minimizes downtimes due to maintenance work or component and interface outages, for example.

The redundancy coupling can be realized via Ethernet as well as over serial connections. If separate serial communication connections must be connected to both redundant devices, the CS channel switch will be applied.



Example of a redundancy coupling based on serial connections.



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