

ipConv/VM

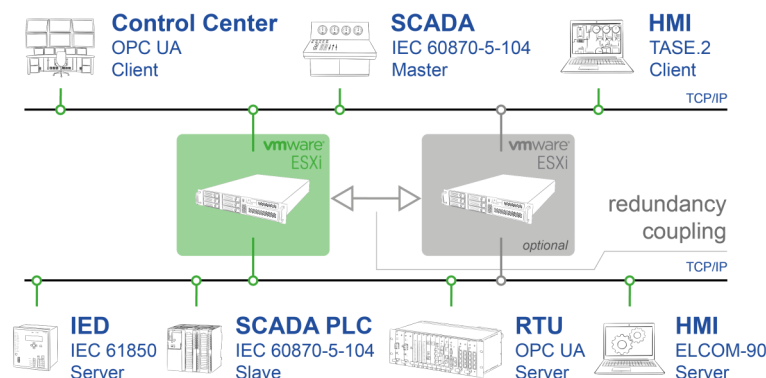
Universal Protocol Conversion for VMware Workstation Pro, VMware ESXi and Microsoft Hyper-V

ipConv/VM is a system for universal protocol conversion in virtual machines and enables data transmission between different protocols.

As a Virtual Appliance, *ipConv/VM* is suitable for coupling heterogeneous controllers, fieldbuses, and telecontrol systems.

Benefits at a Glance

- Use of existing IT infrastructure
- Leverage free resources through system consolidation
- Efficient provisioning and administration of virtual machines (moving VM instances, live migration)
- Quick system commissioning
- Lower maintenance expenditure
- Soft license (no hardware dongle required)



Characteristics

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

SUPPORTED PROTOCOLS

- | | |
|-------------------|-----------------------|
| • OPC UA | • OPC DAXML Server |
| • IEC 60870-5-104 | • Simatic Fetch/Write |
| • DNP 3.0 | • S7 Protocol Client |
| • IEC 61850 | • MQTT Client |
| • TASE.2 / ICCP | • Database Client |
| • ELCOM-90 | • SNMP |
| • Modbus TCP | |

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

- Assignment of 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

PROVISIONING

- **VMware:** The virtual machine is provided as a downloadable OVA template, which can be opened in or imported into supported VMware environments to create new VM instances.
Operation requires VMware Workstation Pro (version 11.x or later) or a VMware ESXi host system (version 6.0 or later).
- **Microsoft Hyper-V:** The virtual machine is provided as a downloadable ZIP archive containing a VHDX virtual hard disk for use with Microsoft Hyper-V.
Operation requires a system supporting Generation 2 virtual machines with configuration version 9 or higher.

LICENSING

No USB dongle is needed to license a virtual machine: We provide a VM-specific license in the form of a license file. The license is preserved when the VM is moved or migrated. Depending on the virtualization platform, the imported license may become invalid when the VM is copied, cloned or created as a new VM. In this case, the license must be requested again.

SCOPE OF SUPPLY

In addition to the bundled *ipConv/VM* protocol conversion software, the software package includes our custom open-source Linux distribution *ipLinux*, which is preconfigured for optimal interoperability with virtual machines.

INDIVIDUAL INQUIRIES



Make use of our Product Wizard for enquiries in order to consider your individual project requirements. The adjoining QR code leads to a sample offer for *ipConv/VM* including the protocol stacks IEC 60870-5-104 Master and OPC UA Server.

REDUNDANCY

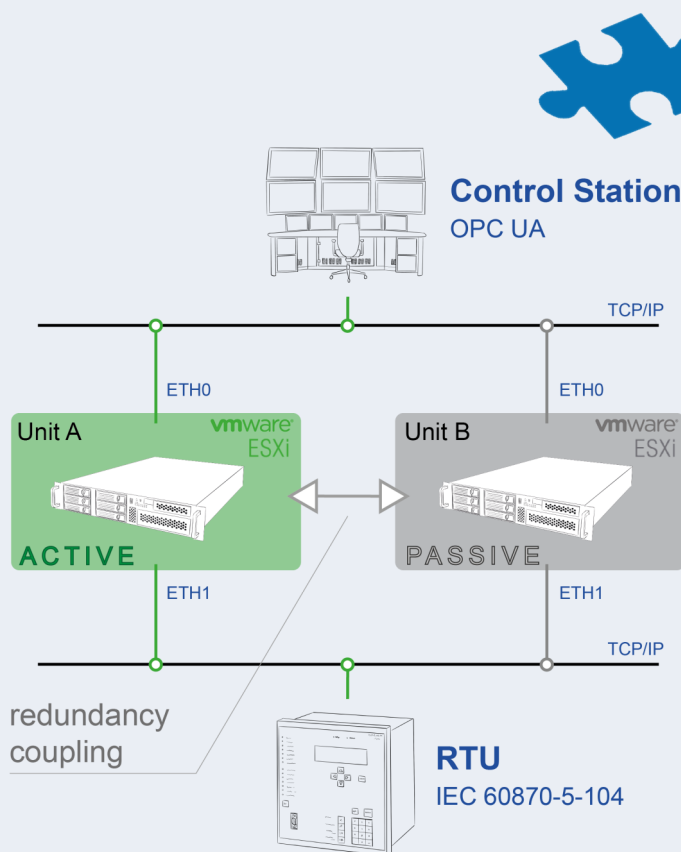
To meet even increased security requirements, *ipConv/VM* is fully capable of redundancy in combination with a second instance.

- 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 is done via Ethernet.



Example of an Ethernet-based redundancy coupling.