

+ PSI Smart Security

IEC 104 Security Proxy

Secure process interfacing & cyber protection

Security for process interfaces and distributed applications

- + Transparent installation in existing environments without reconfiguration
- + Eavesdropping mode for multiple control systems
- + Migration support by toggling between eavesdropping and control mode for each connection
- + IEC 104 filtering based on all IEC 104 protocol elements
- + ASDU address conversion
- + Aggregation of IEC 104 connections
- + Implementation of distributed applications using the smartgrid API
- + Proxy server as component for resilient design of smart grids



Secure process interfaces and distributed applications

IEC 60870-5-104 is used as standard protocol for connecting the master station to telemetering equipment. However, communication is often not protected against attacks from the outside. The work-arounds assuring security may be very expensive. PSI GridConnect's IEC 104 Security Proxy offers a secure and cost-effective solution to the problem.

Proxy functionality: The IEC 104 Security Proxy operates as an independent instance between control systems and the IEC 104 grid edge devices. Control systems are protected by preventing direct IEC 104 (TCP) connections.

Protocol verification: The IEC 60870-5-104 stack verifies the correct implementation and use of the IEC 104 protocol between the involved objects. All received protocol elements (ASDU) are decoded and verified. Non-conformant connections are disconnected and reported.

Transparent installation: The IEC Security Proxy supports a transparent mode for easy integration into existing installations. It operates invisibly for all other components. The IEC 104 Security Proxy uses the IP addresses of the RTUs when communicating with the control system, and the IP address of the control system when communicating with the RTUs (see figure below).

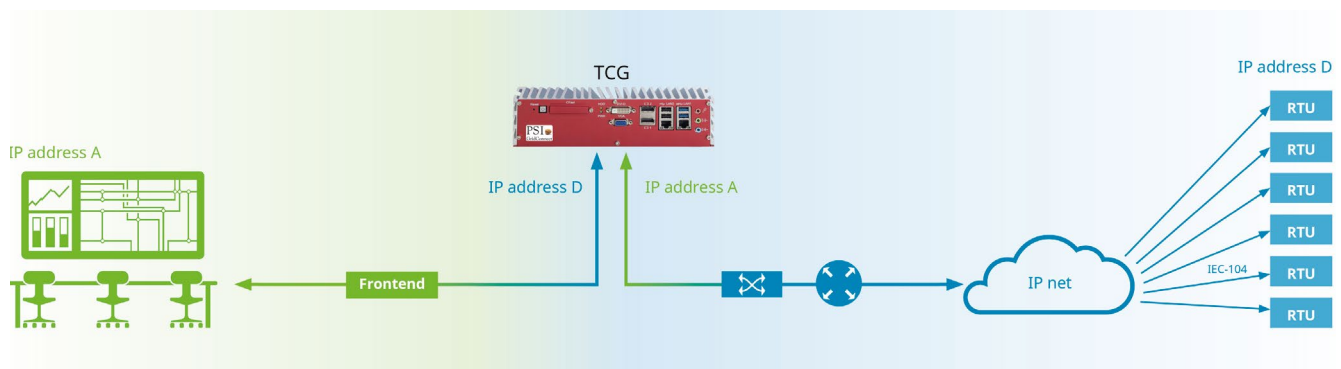
Eavesdropping mode: This mode supports providing data to several control systems simultaneously. For each IEC 104 address and the associated object, the control system with listen-only rights and the control system with control rights can be specified.

Migration: The IEC 104 Security Proxy is the ideal device for migration due to the easy change of the control direction between the existing system and the new system. The eavesdropping mode supports setting up and verifying the new system's data model. Each connection can selectively be switched to the new system for controlling access.

Filter: Filters for incoming and outgoing objects can be defined for every IEC 60870-5-104 connection. Objects which are not explicitly permitted are not transmitted. Filters may use all protocol fields defined by the IEC 60870-5-104 standard such as ASDU address, IOA, object type, and object value range.

Aggregation of IEC 60870-5-104 connections: In many applications, it is not necessary to link all IEC 104 connections into the control center individually. The IEC 104 Security Proxy can aggregate the connections and indicate their statuses by separate IEC 104 objects.

Smart grid applications: The integrated smart grid library and its API support implementing your own distributed applications on the IEC 104 Security Proxy.



IEC 104 Security Proxy – Transparent installation in existing environments without reconfiguration within the control system nor in the telemetering equipment (RTUs)

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