INDUSTRIAL REMOTE COMMUNICATION

# Remote Networks

Easy remote access to machines and plants

Brochure

Edition
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SIEMENS

# Many ways of connecting to remote networks

Increasing bandwidths and performance levels of public communication networks are opening up new possibilities in industrial environments. It's now easier than ever to connect your widely distributed plants, remote machines, or mobile applications via remote networks. Siemens offers a wide range of modems and routers for establishing the ideal connection to remote networks over Internet, cellular telephone networks, or two-wire lines – either wired or wireless.

The IP-based network components of SCALANCE M and SCALANCE S can be used widely in the fields of telecontrol, teleservice, and any other application for industrial remote communication. These devices protect remote networks and the communication between them against unauthorized access and data espionage by means of integrated security functions, like firewall and VPN (virtual private network) encryption.

In addition, SINEMA Remote Connect, a management platform, facilitates secure and easy administration of communication connections.

The remote networks portfolio for IP-based networks is suitable for many industries, for example:

- Power distribution
- Transportation systems
- Plant and machine building
- Water/wastewater treatment plants
- Oil and gas supply
- District heating networks
- Pumping stations

In the field of wind energy and photovoltaic plants, this portfolio also enables a global network to be set up for condition monitoring.

For more information, visit:
siemens.com/remote-networks

**Your benefits with the Siemens remote networks portfolio:**

- Reduction in travel and personnel costs thanks to remote programming and diagnostics
- Higher standard of data communication security thanks to integrated encryption and access protection mechanisms
- Easy and secure administration of VPN connections
- 5 years warranty for all SCALANCE products

MANAGEMENT PLATFORM FOR REMOTE NETWORKS

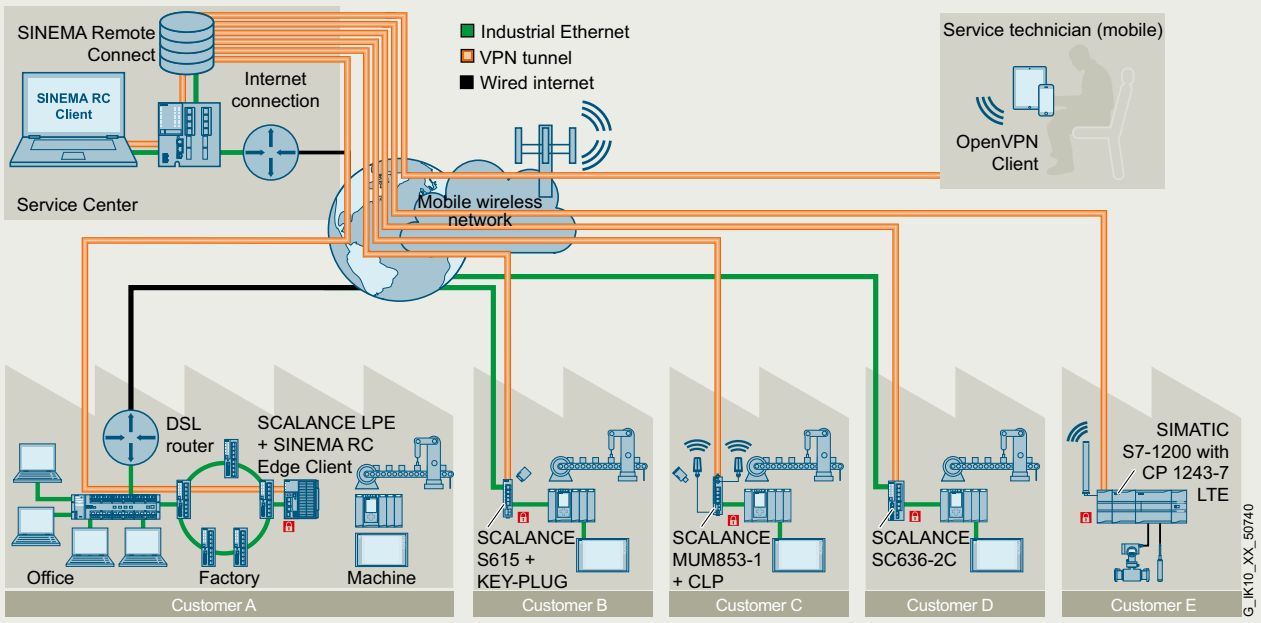
# SINEMA Remote Connect

The management platform for remote networks – SINEMA Remote Connect – is a server application. It allows users to easily maintain widely distributed plants or machines by secured remote access. SINEMA Remote Connect ensures the secured administration of VPN connections between the control centers, the service engineers, and the installed plants. Direct access to the corporate network, in which the plant or machine is integrated, is avoided. The service engineer and the machine to be maintained each establish an independent connection to a SINEMA Remote Connect server. The identity of the partners is verified by an exchange of certificates, before any access to the machine is granted. The connection to SINEMA Remote Connect can be set up over diverse media, such as cellular phone networks, DSL, or existing private network infrastructures.

For more information, visit:
siemens.com/sinema-remote-connect

**Your benefits:**

- Central administration of all VPN connections
- Simple management of different users, including user-specific access rights – even to unique IP addresses in the subnet (Dedicated Device Access)
- Address book function for fast connection
- Easy integration of Siemens routers, Industrial Security Appliances, compact RTUs, and communications processors by auto-configuration
- Operation also in virtualized environment (on-premise or Cloud) or as a hosting service from Siemens (SaaS)
- Multi-factor authentication and an interface to 3rd party authentication services such as Microsoft Entra ID
- Protocol-independent, IP-based communication
- Special IT knowledge regarding remote access is not necessary




Secured remote service of serial machines and remote stations by means of SINEMA Remote Connect

INDUSTRIAL ROUTERS

# SCALANCE M

The SCALANCE M portfolio consists of industrial routers for wireless or wired access. The products facilitate the efficient connection of stationary and mobile stations to a control center. Extensive security functions, such as firewalls and VPN encryption, offer protection during transmission of data.

### Wireless routers

The wireless SCALANCE M routers use the globally available, public cellular telephone networks (2G, 3G, 4G, and 5G) for data transmission. This makes them a cost-effective alternative to the set-up of corporate wireless networks.

### Your benefits:

- High data rates allow the transmission of mass data or images in real time
- Provider-independent
- Connection of extremely remote substations is possible

| | SCALANCE MUM856-1 | SCALANCE MUM853-1 | SCALANCE MUB852-1 | SCALANCE M876-4 (LTE) |
|---|---|---|---|---|
| **Standard** | 5G, 4G, 3G | 5G, 4G, 3G | 5G, 4G, 3G | 4G, 3G, 2G |
| **Frequency bands** | Public, private (private 5G networks) | Public, private (private 5G networks) | Public, private (private 5G networks) | Public (public mobile networks) |
| **Bandwidth** | Downlink: up to 1000 Mbps Uplink: up to 500 Mbps | Downlink: up to 1000 Mbps Uplink: up to 500 Mbps | Downlink: up to 1000 Mbps Uplink: up to 500 Mbps | Downlink: up to 100 Mbps Uplink: up to 50 Mbps |
| **DI/DO** | 1/1 | 1/1 | – | 1/1 |
| **Antenna connectors** | 4 x N-connect | 4 x SMA | 4 x SMA | 2 x SMA |
| **LAN interfaces** | 1 x M12 (1000 Mbit) | 4 x RJ45 (1000 Mbit) | 1 x RJ45 (1000 Mbit) | 4 x RJ45 (100 Mbit) |
| **Temperature range** | –30 °C ... +70 °C | –30 °C ... +60 °C | 0 °C ... +55 °C | –20 °C ... +70 °C |
| **Safety class** | IP65 | IP30 | IP20 | IP20 |
| **Security** | VPN (IPsec/OpenVPN*)/ Firewall | VPN (IPsec/OpenVPN*)/ Firewall | VPN (OpenVPN**)/ Firewall | VPN (IPsec/OpenVPN*)/ Firewall |
| **Special characteristics** | Certified for rail applications; Sleep-Mode (hardware-based); VXLAN; redundant power supply; text message alerts | Managed 4-port switch; Sleep-Mode (hardware-based); VXLAN; redundant power supply; text message alerts | VXLAN | Managed 4-port switch; certified for rail applications; redundant power supply; text message alerts |
| | Network management via SNMP; NAT; connection to SINEMA Remote Connect | | | |
| **Advantages** | High security standards by means of a firewall (stateful packet inspection) and VPN connections as an integral component of the Industrial Security concept | | | |

* For connection to SINEMA Remote Connect as a client

** Only in conjunction with SINEMA Remote Connect

### Wired routers

Wired SCALANCE M routers enable the connection of Ethernet-based subnets and automation devices via existing cable infrastructures. The connection of devices in PROFIBUS networks is also possible. This portfolio includes devices for connection to two-wire cables or wired telephone and DSL networks.

### Your benefits:

- Simple connection of local networks using IP communication via WAN
- High process availability due to redundant transmission paths

| | SCALANCE M804PB | SCALANCE M826-2 |
|---|---|---|
| **Standard** | PROFIBUS/MPI | SHDSL |
| **Frequency bands** | Private (existing infrastructure) | Private (existing infrastructure) |
| **Bandwidth** | Up to 12 Mbps (at the PROFIBUS/MPI interface) | Up to 15.3 Mbps |
| **DI/DO** | 1/1 | 1/1 |
| **DSL connection system** | – | 2 x SHDSL (terminal strip) |
| **LAN interfaces** | 2 x RJ45 | 4 x RJ45 |
| **Temperature range** | –20 °C ... +60 °C | –40 °C ... +70 °C |
| **Safety class** | IP20 | IP20 |
| **Security** | VPN (IPsec/OpenVPN*)/Firewall | VPN (IPsec/OpenVPN*)/Firewall |
| **Special characteristics** | PROFIBUS/MPI interface | Certified for rail applications |
| | Redundant power supply; network management via SNMP; NAT; connection to SINEMA Remote Connect with autoconfiguration | |
| **Advantages** | • Convenient and cost-efficient connection of existing systems with PROFIBUS/MPI to SINEMA Remote Connect for secured remote access<br>• Standardized remote maintenance concept for new and existing plants | • Connection to existing two-wire infrastructure thanks to SHDSL support<br>• Wide range of possible network topologies – e.g., point-to-point, line, link aggregation (4-wire)<br>• Low investment and operating costs for operator control and monitoring of remotely connected substations |

* For connection to SINEMA Remote Connect as a client

INDUSTRIAL SECURITY APPLIANCES

# SCALANCE S

SCALANCE S Industrial Security Appliances ensure secured access to globally distributed plants, machines, and applications. They protect automation cells and all devices without their own protection functions from unauthorized access, such as espionage and manipulation.

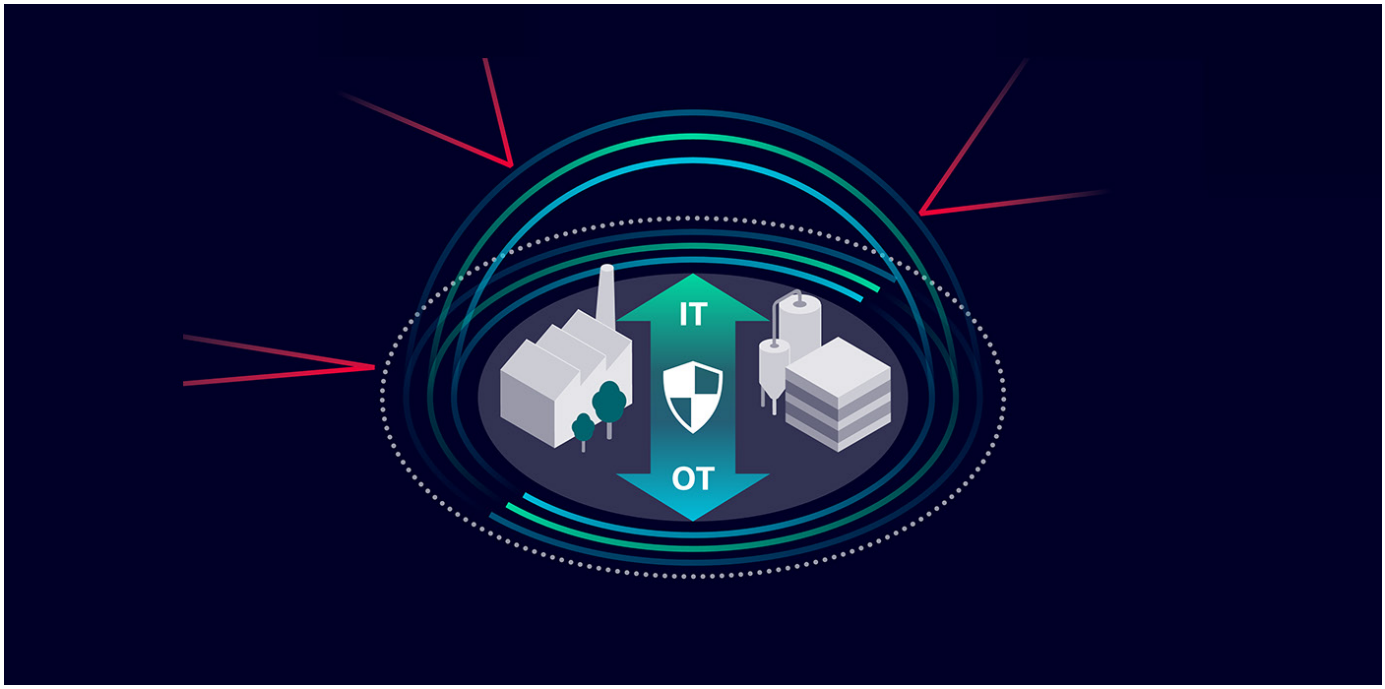
SCALANCE S components secure communication with stateful inspection firewall and virtual private networks (VPN). All variants enable configuration via Web-based Management (WBM), Command Line Interface (CLI), Simple Network Management Protocol (SNMP), Network Management SINEC NMS, and TIA Portal. A digital input enables the controlled establishment of a VPN connection, e.g., for remote maintenance.

**Your benefits:**

- High firewall and encryption performance
- Management of up to 200 VPN connections
- Network Address Translation (NAT/NAPT) for communication with serial machines with identical IP addresses

| | SCALANCE SC622-2C | SCALANCE SC626-2C | SCALANCE SC632-2C | SCALANCE SC636-2C |
|---|---|---|---|---|
| **Firewall data throughput** | 750 Mbps | 750 Mbps | 750 Mbps | 750 Mbps |
| **DI/DO** | 1/1 | 1/1 | 1/1 | 1/1 |
| **Electrical connection** | 2 x RJ45 ports | 2 x RJ45 ports | 2 x RJ45 ports | 6 x RJ45 ports |
| **Optical connection** | 2 x combo ports with SFP | 2 x combo ports with SFP | 2 x combo ports with SFP | 2 x combo ports with SFP |
| **Temperature range** | –40 °C ... +70 °C | –40 °C ... +70 °C | –40 °C ... +70 °C | –40 °C ... +70 °C |
| **Protection class** | IP20 | IP20 | IP20 | IP20 |
| **Bridge firewall** | No | No | Yes | Yes |
| **Dynamic firewall** | Yes | Yes | Yes | Yes |
| **User-specific firewall** | Yes | Yes | Yes | Yes |
| **Product function with VPN connection** | OpenVPN* | OpenVPN* | OpenVPN* | OpenVPN* |
| **Number of VPN tunnels** | – | – | – | – |
| **Number of firewall rules** | 1000 | 1000 | 1000 | 1000 |
| **MRP-Client/ HRP-Client** | No | Yes | No | Yes |
| **Special characteristics** | Configurable security zones, VRRPv3 coupling, connection to SINEMA Remote Connect | | | |

* For connection to SINEMA Remote Connect as a client




| | SCALANCE S615 | SCALANCE SC642-2C | SCALANCE SC646-2C |
|---|---|---|---|
| **Firewall data throughput** | 100 Mbps | 750 Mbps | 750 Mbps |
| **DI/DO** | 1/1 | 1/1 | 1/1 |
| **Electrical connection** | 5 x RJ45 ports | 2 x RJ45 ports | 6 x RJ45 ports |
| **Optical connection** | – | 2 x combo ports with SFP | 2 x combo ports with SFP |
| **Temperature range** | –40 °C ... +70 °C | –40 °C ... +70 °C | –40 °C ... +70 °C |
| **Protection class** | IP20 | IP20 | IP20 |
| **Bridge firewall** | No | Yes | Yes |
| **Dynamic firewall** | Yes | Yes | Yes |
| **User-specific firewall** | Yes | Yes | Yes |
| **Product function with VPN connection** | IPsec, OpenVPN* | IPsec, OpenVPN* | IPsec, OpenVPN* |
| **Number of VPN tunnels** | 20 | 200 | 200 |
| **Number of firewall rules** | 128 | 1000 | 1000 |
| **MRP-Client/ HRP-Client** | No | No | Yes |
| **Special characteristics** | Configurable security zones, VRRPv3 coupling, connection to SINEMA Remote Connect | | |

* For connection to SINEMA Remote Connect as a client

**For more information, please visit:**
**siemens.com/remote-networks**

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**Cybersecurity information**

Siemens provides products and solutions with industrial cybersecurity functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial cybersecurity concept. Siemens' products and solutions constitute one element of such a concept.

Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. Such systems, machines and components should only be connected to an enterprise network or the internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g. firewalls and/or network segmentation) are in place.

For additional information on industrial cybersecurity measures that may be implemented, please visit
**www.siemens.com/cybersecurity-industry**

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends that product updates are applied as soon as they are available and that the latest product versions are used. Use of product versions that are no longer supported, and failure to apply the latest updates may increase customer's exposure to cyber threats.

To stay informed about product updates, subscribe to the Siemens Industrial Cybersecurity RSS Feed under
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