SIEMENS

Industrial Communication

SCALANCE X –

Industrial Ethernet Switches
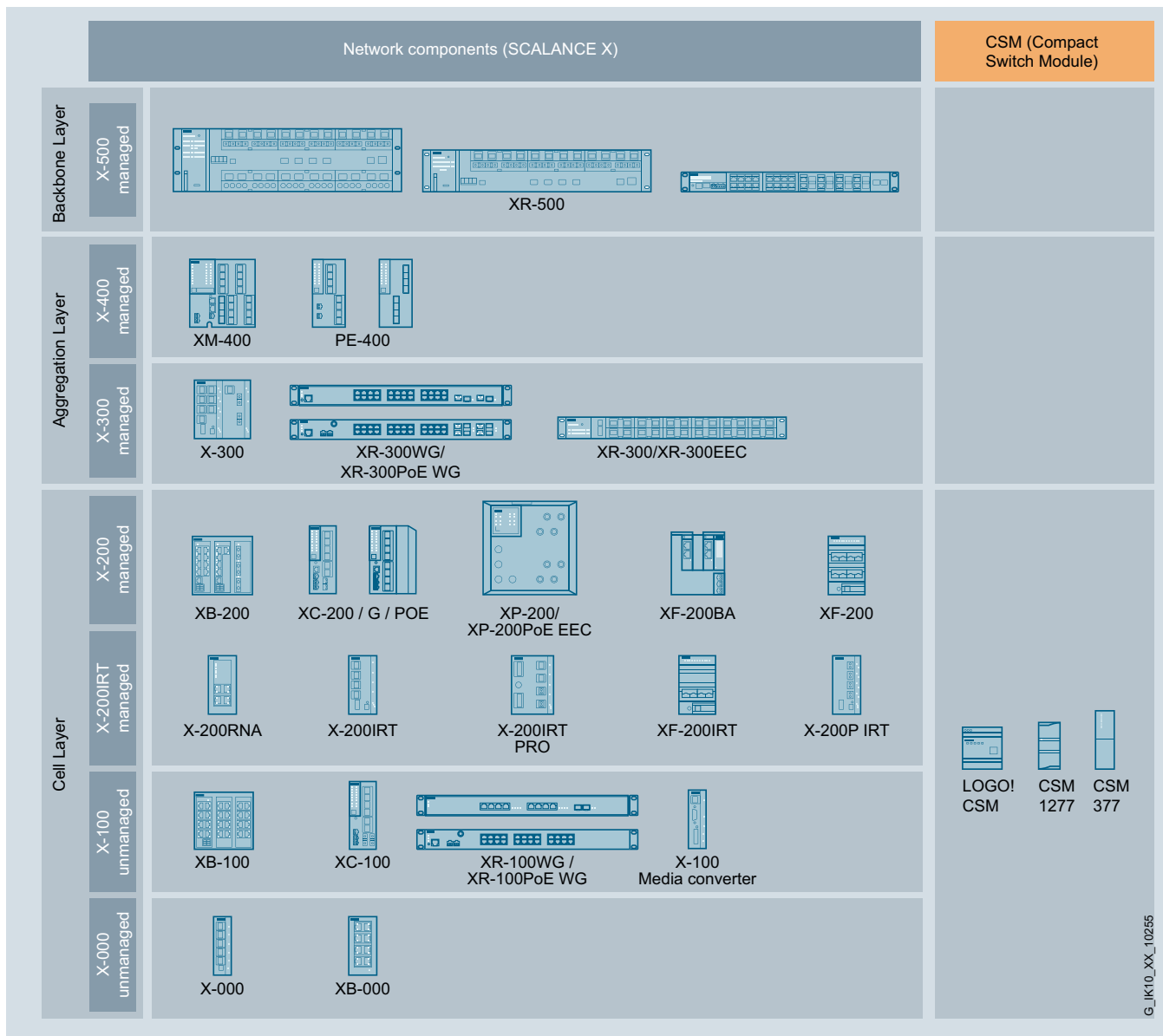
Brochure

Edition 2021

siemens.com/switches

Overview of the portfolio

Network components (SCALANCE X) | CSM (Compact Switch Module)

Backbone Layer — X-500 managed: XR-500

Aggregation Layer — X-400 managed: XM-400, PE-400

Aggregation Layer — X-300 managed: X-300, XR-300WG/XR-300PoE WG, XR-300/XR-300EEC

Cell Layer — X-200 managed: XB-200, XC-200 / G / POE, XP-200/XP-200PoE EEC, XF-200BA, XF-200

Cell Layer — X-200IRT managed: X-200RNA, X-200IRT, X-200IRT PRO, XF-200IRT, X-200P IRT

Cell Layer — X-100 unmanaged: XB-100, XC-100, XR-100WG / XR-100PoE WG, X-100 Media converter

Cell Layer — X-000 unmanaged: X-000, XB-000

CSM: LOGO! CSM, CSM 1277, CSM 377

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Portfolio of the Industrial Ethernet Switches SCALANCE X and Compact Switch Modules (CSM)

	Layer 3 / Routing	19" design	Modular through media modules	Support of Gigabit Ethernet	Support of 10 Gbit/s	PROFINET	EtherNet/IP	Office features (VLAN)	Diagnostic functions	Isochronous Real-Time (IRT)	Power-over-Ethernet	Can be used under enhanced ambient conditions	Time synchronization to IEEE 1588	Additional interface for SIMATIC S7-300/ET 200M, S7-1200 or LOGO!
X-500	•	•	•	•	•	•	•	•	•				•	
X-400	•		•	•		•	•	•	•		•			
X-300		•	•	•	•	•		•	•		•	•	•	
X-200			•	•	•	•	•	•	•	•	•	•		
X-100		•		•							•			
X-000				•								•		
CSM														•

• applies to selected versions

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With the Industrial Ethernet Switches you can meet specific challenges in a customized manner – our comprehensive product portfolio always has the right switch for you.

Today's requirements on an industrial communication network are manifold. Appropriate network components enable you to master every challenge.

- Open and integrated communication across the entire company and across company limits

- Uninterrupted flow of information from the sensor/actuator level all the way to the enterprise level

- Fast data exchange between the plant components

- Availability of information at any location

- Easy and consistent configuration and efficient diagnostics, simple expansions and modernizations

- Integrated security functions which prevent unauthorized access

- 5 year warranty on all SCALANCE products

- Comprehensive consideration of cybersecurity measures in all phases of the product lifecycle

Find the right Industrial Ethernet Switches directly in the configurator – to the TIA Selection Tool: siemens.com/tstcloud/

Further information concerning PLUGs: siemens.com/plugs

Further information concerning cabling: siemens.com/fastconnect

Further information concerning network management: siemens.com/sinec

Portfolio

OVERVIEW

UNMANAGED		
Compact Switch Modules CSM	**SCALANCE X-000 unmanaged**	**SCALANCE X-100 unmanaged**
More connection to SIMATIC	Space-saving, cost-efficient, and industrial-grade entry-level solution	For a reliable network solution with all equipment details
Page 6	Page 6	Page 7

LOGO! CSM

SCALANCE X005/X005EEC

SCALANCE XB-100

CSM 1277

SCALANCE XB-000

SCALANCE XR-100WG

CSM 377

SCALANCE XC-100

SCALANCE X108PoE

SCALANCE X101-1

SCALANCE X101-1LD

Highlights unmanaged switches

- Rugged, industrial-grade design
- The right device type for each application
- Investment protection: existing networks can be extended with new products
- Wide range of usability in small or large networks, even outside the control cabinet
- Avoid additional training and introduction costs by using standardized Ethernet technology
- Versions for connection of twisted pair and fiber optic cables

MANAGED LAYER 2			MANAGED LAYER 2/3	
SCALANCE X-200 managed	**SCALANCE X-200IRT managed**	**SCALANCE X-300 managed**	**SCALANCE X-400 managed layer 2/3**	**SCALANCE X-500 managed layer 3**
For all network structures in machine-oriented applications up to linked units	Acting in hard real-time	Convincing performance – modular and powerful	Segmentation on all levels	Structuring high-performance plants and connecting them to the office IT
Page 8	Page 9	Page 9	Page 10	Page 11
SCALANCE XF-200	**SCALANCE X-200IRT**	**SCALANCE X-300 (Work Group)**	**SCALANCE XM-400**	**SCALANCE XR524-8C**
SCALANCE XB-200	**SCALANCE XF-200BA IRT**	**SCALANCE XR-300WG**	**Port Extender**	**SCALANCE XR526-8C**
SCALANCE XC-200	**SCALANCE X-200IRT PRO**	**SCALANCE XR-300**		**SCALANCE XR528-6M**
SCALANCE XF-200BA		**SCALANCE XR-300EEC**		**SCALANCE XR552-12M**
SCALANCE XP-200				
SCALANCE X-200RNA				

Highlights managed switches

- Real-time network (PROFINET and EtherNet/IP) and standard TCP/IP, eliminating of duplicate infrastructure
- High network availability due to integrated redundancy mechanisms and system redundancy
- Reduced downtimes by saving data for project planning and configuration
- Integration into existing concepts for network security through integrated security functions

- Configuration through WBM or CLI, local or remote
- Diagnostics through LEDs on the device, via WBM, or network management through SNMP with SINEC NMS
- Integration in the STEP 7 and PCS 7/PCS neo engineering tools
- Seamless system diagnostics with PROFINET
- High network and machine availability

Compact Switch Modules

More connection to SIMATIC

Compact Switch Modules (CSM) are an affordable and simple solution for connecting a SIMATIC S7-300/ET 200M, S7-1200, or LOGO! to an electrical Industrial Ethernet network.

Applications	Variants	Highlights
■ For integration of small machines into existing automation networks ■ Standalone operation of the machines ■ For setting up small, local Ethernet networks	**LOGO! CSM** ■ In LOGO! design **CSM 1277** ■ In SIMATIC S7-1200 design **CSM 377** ■ In SIMATIC S7-300 design	■ Transmission rate up to 100 Mbps ■ Industrial-grade design, for example, retaining collars for PROFINET-compliant connector IE FC RJ45 Plug for additional strain relief

SCALANCE X-000/XB-000

Simple, space-saving, for industrial use

SCALANCE X-000/XB-000 are an affordable and easy entry-level solution for the realization of simple machine networks and small Ethernet networks.

Applications	Variants	Highlights
■ For setting up small industrial line or star structures in machine or plant sections ■ For usage in rail and road traffic or building automation	**SCALANCE X005/X005EEC** ■ 5 x RJ45 ports ■ Transmission rate up to 100 Mbps **SCALANCE XB-000** ■ Up to 8 x RJ45 ports/2 x SC ■ Transmission rate up to 1 Gbps ■ Variants with 24 V AC (50/60 Hz) for use in building automation	■ LED diagnostics on the device (power, link status, data traffic) ■ Use of straight-through connecting cables thanks to integrated autocrossover function ■ Automatic detection and negotiation of data rate

SCALANCE X-100

Full basic version for industrial use

SCALANCE X-100 switches are an affordable solution that provides many ports within a compact design.

Applications

- For setting up electrical and/or optical line and star structures in machine-oriented applications
- Power over Ethernet (PoE) if required

Variants

SCALANCE XB-100

- Up to 24 x RJ45 ports, 2 x SC or ST/BFOC
- Transmission rate up to 100 Mbps
- PROFINET CC-A compliant

SCALANCE XR-100WG

- Small mounting depth for installing on both sides
- Up to 24 x RJ45 ports, 2 x SFP, of which 8 x RJ45 ports with PoE
- Transmission rate up to 10 Gbps

SCALANCE XC-100

- Transmission rate up to 100 Mbps
- Motor vehicle approval E1 (SCALANCE XC108 only)

SCALANCE X108PoE

- 8 x RJ45 ports, of which 2 x RJ45 with PoE
- Transmission rate up to 100 Mbps

Highlights

- LED diagnostics on the device (power, link status, data traffic)
- Use of straight-through connecting cables thanks to integrated autocrossover function
- Automatic detection and negotiation of data rate
- Work Group (WG) switches as affordable solution, available with PoE

SCALANCE X-100 Media Converter

Customized conversion

SCALANCE X-100 media converters transform electrical into optical signals and enable a cost-effective combination of copper and fiber optic cables in Industrial Ethernet networks.

Applications

- For integration of remote stations in glass fiber networks through fiber optic cables
- For bridging large distances

Variants

SCALANCE X101-1

- Implementation of 1 x 10/100 Mbps RJ45 to 1 x 100 Mbps ST/BFOC (multimode)
- Distances up to 5 kilometers

SCALANCE X101-1LD

- Implementation of 1 x 10/100 Mbps RJ45 to 1 x 100 Mbps ST/BFOC (single mode)
- Distances up to 26 kilometers

Highlights

- LED diagnostics on the device (power, link status, data traffic)
- LED diagnostics on the device (power, link status, data traffic)
- Redundant power supply

MANAGED L2

SCALANCE X-200

Universal and convenient

SCALANCE X-200: enable high network availability in different device types

Applications

- For setting up Industrial Ethernet bus, star, and ring structures for high network availability and increased demand on functionality
- For machine-oriented applications and usage in the aggregation layer
- High bandwidth and Power over Ethernet (PoE) if required

Variants

SCALANCE XF-200

- Up to 8 x RJ45/2 x ST/BFOC
- Distances up to 5 kilometers

SCALANCE XB-200

- Up to 13 x RJ45/3 x ST/BFOC or SC
- Distances up to 26 kilometers
- Console port
- For PROFINET and EtherNet/IP applications

SCALANCE XC-200

- Up to 24 x RJ45 (up to 6 x with PoE)/2 x ST/BFOC, SC, or SFP
- Distances up to 200 km via SFPs
- Integrated diagnostics for fiber optic (Fiber Monitoring)
- For PROFINET and EtherNet/IP applications
- Trackside railway approval EN 50121-4

SCALANCE XF-200BA

- Up to 4 x RJ45/4 x SC RJ/4 x LC
- Flexible bus adapter concept
- For EtherNet/IP applications (SCALANCE XF204-2BA only)

Highlights

- Transmission rate up to 100 Mbps
- Redundant power supply
- Increased plant availability due to integrated configuration and remote diagnostics

- Transmission rate up to 1 Gbps
- Redundant power supply
- Fast, redundant ring coupling with MRP Interconnection and RSTP+
- Support for VLANs (Virtual Local Area Network)

- Installation outside the control cabinet and outdoors
- For high temperatures, in harsh ambient conditions and hazardous areas
- Supply for PoE devices outside (e.g., WLAN Access Points)

SCALANCE XP-200

- Up to 16 x M12, of which 4 x PoE
- Up to 4 x 1 Gbps ports
- Support of redundancy mechanisms MRP, MRP Interconnection, and RSTP+
- Motor vehicle approval e1/E1, variants for railway applications

- Transmission rate up to 1 Gbps
- Redundant power supply

- Seamless networks with HSR/PRP
- In process automation
- In energy supply systems
- For critical applications that require high availability with system redundancy

SCALANCE X-200RNA

- Up to 4 x RJ45 ports/2 x FO
- Enables very short runtimes for network reconfiguration

SCALANCE X-200IRT: high availability in real-time

Applications

- For high-speed Motion Control applications
- For high-precision applications (isochronous mode)
- For plant concepts without control cabinet

Variants

SCALANCE X-200IRT

- Up to 4 x RJ45/4 x ST/BFOC or SC RJ

SCALANCE XF-200BA IRT

- Flexible bus adapter concept
- Up to 4 x RJ45 or 4 x SC RJ
- 2 x bus adapter slots

SCALANCE X-200IRT PRO

- Up to 4 x RJ45/3 x SC RJ Push Pull

Highlights

- Transmission rate up to 100 Mbps
- Support of PROFINET with IRT (Isochronous Real Time) requirements
- Seamless redundancy (MRPD) for seamless switching
- Redundant power supply

SCALANCE X-300

Compact high performance

SCALANCE X-300: high network availability and flexibility

Applications

- For large networks with high functionality and availability
- High bandwidth and Power over Ethernet (PoE) if required

Variants

SCALANCE X-300

- Up to 20 x RJ45/4 x ST/BFOC, SC, or SFP
- Up to 2 x 2-port media modules and 2 ports with PoE
- Transmission rate up to 1 Gbps
- Distances up to 200 kilometers
- Approval in accordance with EN 50155 and e1/E1

SCALANCE XR-300WG (Work Group)

- Small mounting depth for installing on both sides in 19" control cabinets
- Up to 24 x RJ45 ports, 4 x combo ports (up to 24 x 1 Gbps RJ45 PoE)
- Transmission rate of up to 1 Gbps
- Support of redundancy mechanisms MRP, MRP Interconnection and RSTP+

SCALANCE XR-300

- Up to 12 x 2-port media modules (up to 8 x RJ45 with PoE)
- Transmission rate up to 1 Gbps
- Distances up to 200 kilometers
- Variant with approval in accordance with EN 50155 and e1/E1

SCALANCE XR-300EEC

- Up to 4 x 2-port media modules
- Transmission rate up to 1 Gbps
- Distances up to 200 kilometers
- Approval acc. to IEC 61850-3

Highlights

- Support of VLANs
- Redundant power supply
- Work Group (WG) switches as affordable variants, available with PoE

Accessories

Media modules, plug-in transceivers, and PoE power supply

- 2-port media modules
- Electrical variants: RJ45, M12, VD (Variable Distance)
- Optical versions: SC, ST/BFOC
- Variants for LC plug-in transceivers

SCALANCE X-400

Secure connection of plants via network segmentation

SCALANCE X-400 switches offer high performance in a compact design.

Applications

- For high-performance plant networks
- Network security through segmentation
- For communication in layer 2 or layer 3 networks
- Power over Ethernet (PoE) if required

Variants

SCALANCE XM-400

- 8 x or 16 x RJ45 ports
- Can be extended up to 24 x ports (with port and function extender)
- Transmission rate up to 1 Gbps

Port Extender

- 8 x RJ45 ports with PE408
- 8 x RJ45 ports with PoE with PE408 PoE
- 8 x SFP slots with PE400-8SFP

Highlights

- Modular expandable
- Optional connection of layer 3 functionality
- Support of VLANs
- Console port
- Redundant power supply

Accessories

Power supplies

- 54 V DC power supply for Power over Ethernet according to IEEE 802.3at
- High power for connected end devices possible (up to 30 watts)

Plug-in transceivers

- Optical connection to cables with LC connectors
- Use in combination with SCALANCE XM408-8C, XM416-4C, and PE400-8SFP

SCALANCE X-500

Structuring of plants and connection to the enterprise IT

SCALANCE X-500 switches enable high performance and are available in 19" design with various height units.

Applications

- For structuring high-speed production networks with connection to the enterprise IT
- Network security through segmentation
- For transmission of high data rates (10 Gbps)
- Communication in layer 2 or layer 3 networks

Variants

SCALANCE XR524-8C

- For large scales with 28 ports

SCALANCE XR526-8C

- For large scales with 26 ports

SCALANCE XR528-6M

- For large scales with 28 ports
- Up to 6 x 4-port media modules for electrical and optical connections

SCALANCE XR552-12M

- For very large scales with 52 ports
- Up to 12 x 4-port media modules for electrical and optical connections

Highlights

- Support of VLANs
- Modular with media modules or SFP and SFP+ plug-in transceivers
- Redundant power supply
- Console port
- Granular network extension to 10 Gbps during operation

Accessories

Media modules

- Electrical and optical variants
- 4-port media modules
- Use for SCALANCE XR552-12M and XR528-6M

Plug-in transceivers

- SFP plug-in transceiver with transmission rates up to 100 or 1000 Mbps
- SFP+ plug-in transceiver with 10 Gbps
- Optical connection to cables with LC connectors

Security information

Siemens provides products and solutions with industrial security 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 security 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 security measures that may be implemented, please visit
https://www.siemens.com/industrialsecurity.

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.

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https://www.siemens.com/industrialsecurity.

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