

The image features the Siemens logo in a white box in the top left corner. The background is a photograph of high-voltage power lines and towers silhouetted against a sunset sky with orange and grey clouds. The towers are lattice-structured and support multiple lines that stretch across the frame.

SIEMENS

Connection Master

Voice, data, protection – the communication platform for mission-critical applications in transmission networks of utilities

[siemens.com](https://www.siemens.com)

Connection Master: Your safe way to future-proof utility communications

The pace of innovation in telecommunications is increasing at breathtaking speed. What is necessary to keep your utility at the leading edge in this area? How can you benefit from new, IP-based services – while protecting your existing SDH and PDH interfaces in running systems?

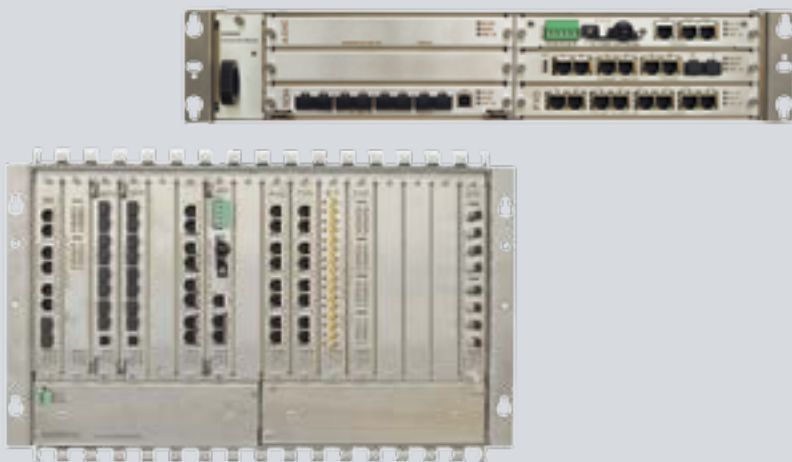
Our solution: One platform – three proven technologies

Connection Master is Siemens' new multiservice access communication platform for utilities and industrial applications. Complying with SDH, PDH (TDM), and Ethernet (over SDH), it supports voice and data legacy interfaces transported via Next Generation SDH.

With its performance capabilities, Connection Master can handle any type of application including POTS (Plain Old Telephone Service) and SCADA (Supervisory Control and Data Acquisition). Very low latency enables reliable support of time-critical applications such as teleprotection.

Easy migration of existing access equipment

To protect your investment, Connection Master is designed to be backward compatible with your existing network – for example, with FMX2 product families. The new platform is available along with Network Management Systems (NMS) that support legacy equipment, too. This allows for a flexible migration to the Connection Master.



“The Connection Master is your comprehensive platform for SDH, PDH, and future-proof Ethernet-based services for strictly time-critical, low-latency utility communication applications.”

System Overview covering today's and tomorrow's needs

Trunk interfaces:

SDH STM-1/4/16

Access interfaces:

- Legacy interfaces e.g. FXS, FXO, E&M, X21, V35,.....
- Ethernet interface

Characteristics:

- 64 kbit/s cross-connection functionality for legacy TDM services (voice and data) including advanced path protection
- Power-over-Ethernet functionality
- High capacity TDM and Ethernet based tributary units
- High availability via redundant critical modules
- Very short delay times in protection signal transmission

Network administration systems

- Siemens Multiservice Manager

Siemens Multiservice Manager is a LCT-Network Management System for small networks or individual nodes that works locally or remotely via a Windows-based GUI or a Command Line Interface (CLI).

Siemens Multiservice Manager allows the user to access all functions of Connection Master while CLI is the embedded management application accessible via SSH.

- Siemens Network Management System

Siemens NMS is designed for bigger networks and offers all features to efficiently manage and maintain these networks. Fault management, configuration possibilities, inventory management, and other functionalities offer tools to ensure that the network and the services run as

expected. End-to-end circuit provisioning of 64 kbps is a good example of how efficient NMS is designed to be.

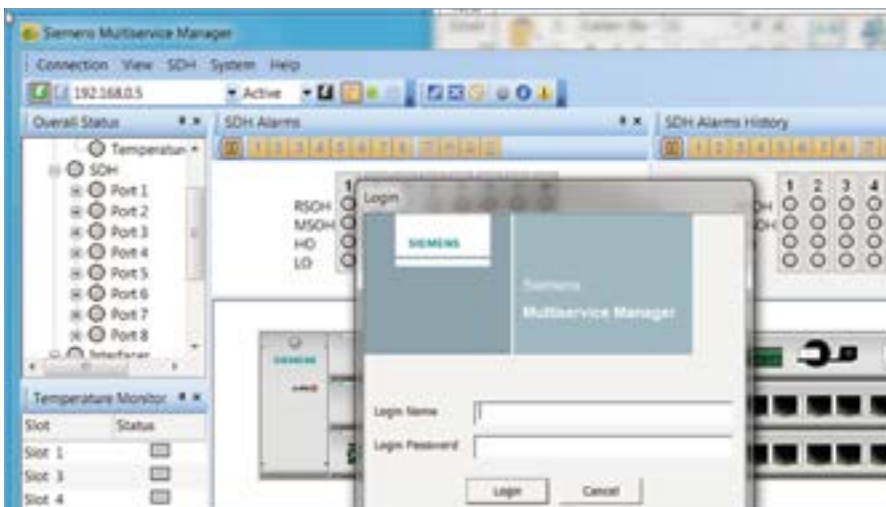
It can seamlessly interface with any Network Management System (NMS) via its powerful NorthBound Interface (NBI) over SNMP.

- Connection Master and SWT 3000

Using an SNMP connection between Connection Master nodes and teleprotection unit SWT 3000, both the telecom equipment and alarms from SWT3000 are visible in both management systems.

Your benefits at a glance:

- Utility-optimized communication equipment ensures high reliability of your energy network.
- Long-term availability of your communication system
- Investment protection for your legacy voice and data interfaces
- Support of packet-based applications guarantees future safety of your system.

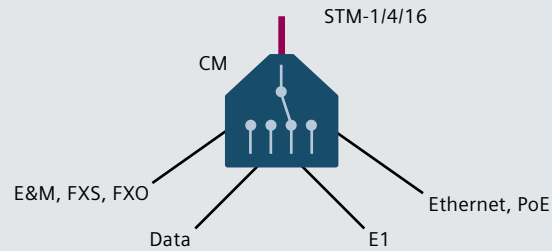


Siemens Multiservice Manager is PC software for local management of Connection Master nodes and for managing a large number of nodes in the network.

Application examples

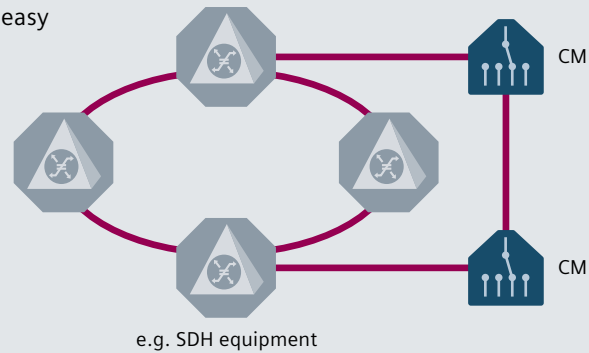
Multiservice solution

CM offers a multiplexer, a cross-connect, and a transport device – all in one node



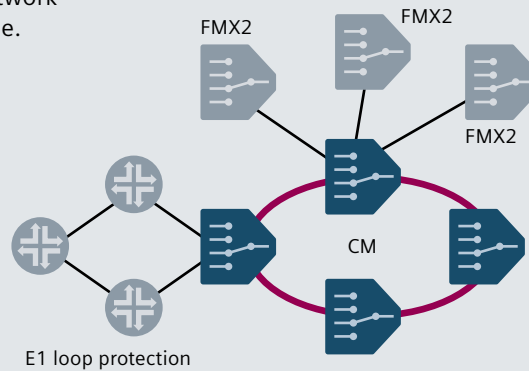
Smooth evolution to Next Generation (NG) SDH

CM as a fully standardized NG SDH system enables interoperability with existing SDH equipment. This makes the expansion of existing SDH networks easy



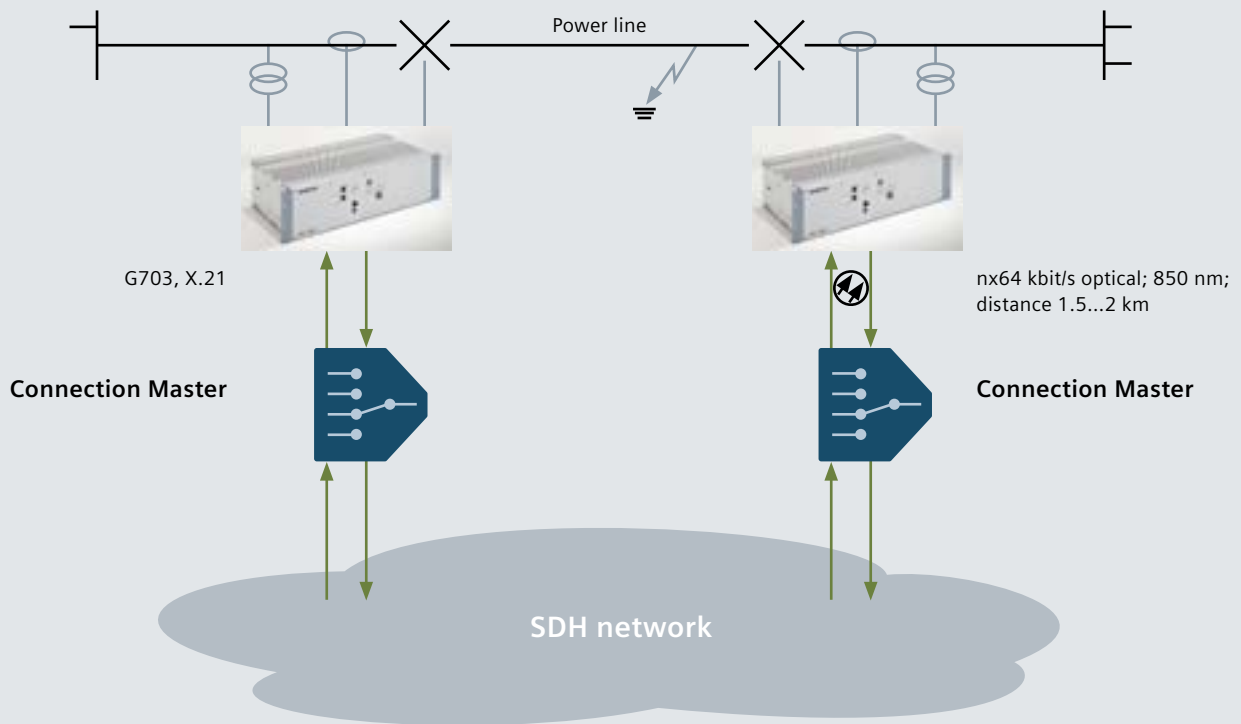
Easy expansion of legacy networks

When CM is placed in the middle of an existing legacy network, typically the capacity of the network increases and connections continue working e2e.



Flexible integration of teleprotection systems (e.g. SWT 3000)

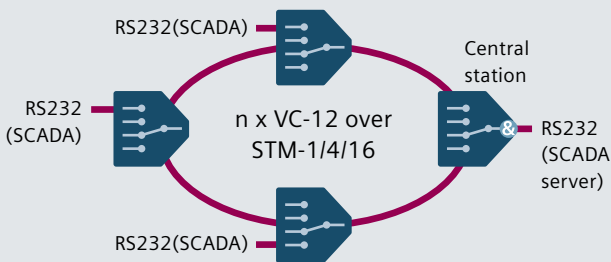
Teleprotection signals can be transmitted via two different transmission routes, either via digital interfaces (G.703, X.21) or the optical interface C37.94



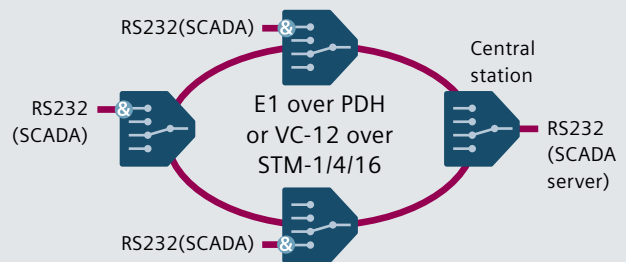
Point to multipoint functionality optimizes usage of network capacity

The P2MP reduces the amount of hardware at the central site, which saves HW investment

Point-to-multipoint SCADA – centralized summing



Point-to-multipoint SCADA – distributed summing



Important technical data and ordering codes

interfaces	ordering code
CU SDH	ST32001.01
SFP interfaces	4 x STM-4/16, 4 x STM-1/4 or 4 x STM-4/16, 2 x STM-1/4, 2 x GbE
Ethernet Unit 1000BT, 8 ports	ST32002.01
RJ-45 interface	6 x 10/100/1000BASE-T Full duplex or half duplex Auto negotiation 4 x PoE
SFP interface	1 x 10/100/1000BASE 1 x 1000BASE
E1/T1 Unit, 8 ports, 75 ohm / 120 ohm	ST32003.01 / ST32003.11
E1 G.703/G.704 interface	8 x SMB (ST32003.01) 8 x RJ-45 (ST32003.11)
Data Unit V and X, 4 ports	ST32004.01
4-port SSC interface	V.28, V.11, V.35, X.21, RS-530, RS-530A
Data Unit G.703/64k, 8 ports	ST32004.02
RJ-45 interface	8 x G.703 / 64 kbit/s
Optical Teleprotection Unit, 4 ports	ST32004.11
Optical interfaces	8 x ST connector, 4 ports nx64 kbit/s payload (n = 1...12); multimode fiber; transmission capacity per port: 64...768 kbit/s
Protocol	IEEE C37.94
VF/E&M Unit, 8 ports	ST32005.01
8-port SSC interface	8 x 2-wire / 4-wire
Signaling	3 x E and 3 x M per port
FXS Unit, 16 ports	ST32005.11
RJ-45 interface	8 connectors, 2 ports/connector
Integrated ring generator	25 Hz / 50 Hz
Signaling	R2 / Hot Line
FXO Unit, 16 ports	ST32005.21
RJ-45 interface	8 connectors, 2 ports/connector
Advanced DXC Unit	ST32010.01
Cross-connect capacity	Based on license Maximum cross-connect capacity: 189 x E1 / VC-12 links (equivalent to 63 E1 Y loops) Granularity: 8 kbit/s...nx64 kbit/s, non-blocking
Connection types	B (point-to-point connection supporting condition bit), Y (loop protection), C (digital summing), S (VF summing), M (bit masking)

alarm unit, mechanics, and power supply	
Alarm Unit	ST32011.01
Digital inputs	15 pcs; E&M or TTL; alarm filtering time 10 ms...10 min
Analog inputs	4 pcs; -150 VDC...+150 VDC or 0.0 VDC...4.0 VDC; alarm filtering time 10 ms...10 min
Alarm outputs	3 pcs; dry loop or ground connection
MultiLine Terminal	ST32012.01
Line interface	1 x RJ-45; 1...4 pairs; SHDSL/SHDSL.bis Line rate: Up to 5.7 Mbit/s over a single copper pair. With bonded SHDSL.bis, it is possible to deliver 22.8 Mbit/s
Digital interfaces	2 x E1; 2 x Fast Ethernet; 2 x V.11/V.24/V.35
Operating modes	Ethernet over TDM; TDM over copper, legacy mode; TDM and Ethernet over copper; Ethernet over copper
Subrack 6-Slot	ST32009.01
Installation capacity	2...4 tributary units
Subrack 16-Slot	ST32009.04
Installation capacity	12...14 tributary units
NOTE!	All the above subrack models support CU SDH trunk unit redundancy and also tributary units to be introduced in the later releases of Connection Master. Also, all subrack models can house 1 or 2 power adapter units.
Fan Unit for 6-Slot Subrack	ST32007.01
Fan Unit for 8+8-Slot /16-Slot Subrack	ST32007.02 / ST32007.12 (with alarm output)
Power Supply AC/DC 2x1kW	ST32006.02
Power Adapter DC 48V	ST32008.01
Power Adapter DC 24-60/48V	ST32008.02
Power Adapter DC 48V Bus Extension	ST32008.11

environmental	
Environmental specifications	
Climatic: 6-slot subrack with fan	Operation: EN 300 019-1-3, Class 3.1 (-5 to +50 °C) Storage: EN 300 019-1-1 Class 1.2 (-25 to +55 °C) Transport: EN 300 019-1-2 Class 2.3 (-40 to +70 °C)
Climatic: 16-slot subrack with fan	Operation: EN 300 019-1-3, Class 3.2 (-5 to +55 °C) Storage: EN 300 019-1-1 Class 1.2 (-25 to +55 °C) Transport: EN 300 019-1-2 Class 2.3 (-40 to +70 °C)
EMC	EN 300 386 V1.4.1...1.6.1, class B EN 55022, class B
Safety	EN 60950-1

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