

The image features a background of high-voltage power lines and towers silhouetted against a sunset sky with orange and grey clouds. In the top left corner, there is a white rectangular box containing the Siemens logo. Below the logo is a thin white horizontal line.

**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?

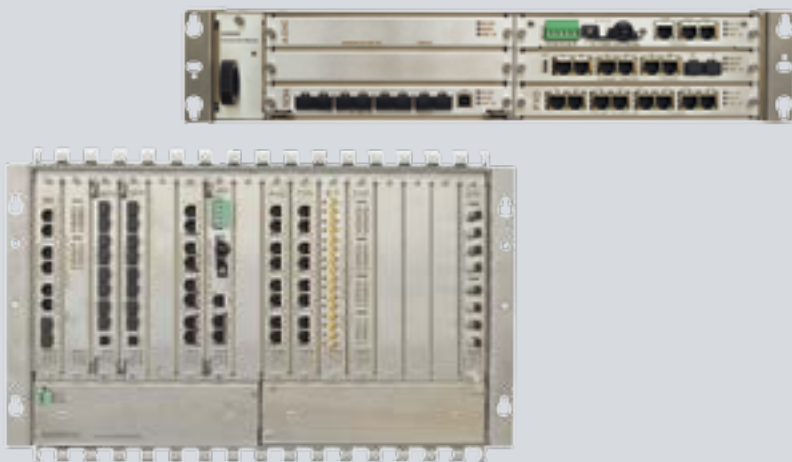
## **Our solution: One platform – three proven technologies**

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.

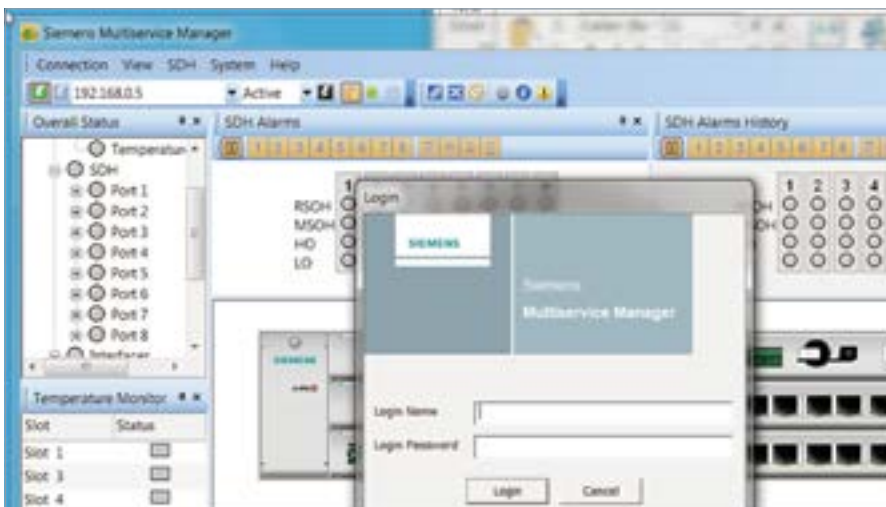
It can seamlessly interface with any Network Management System (NMS) via its powerful NorthBound Interface (NBI) over SNMP.

- 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.

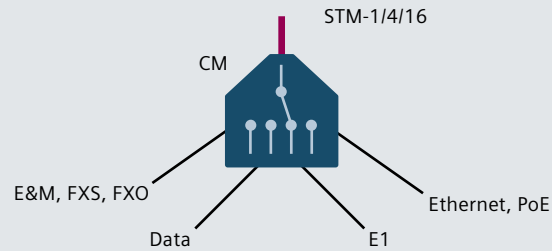


*Siemens Multiservice Manager is PC software for local management of Connection Master nodes and for managing a large number of nodes in the network.*

# Application examples

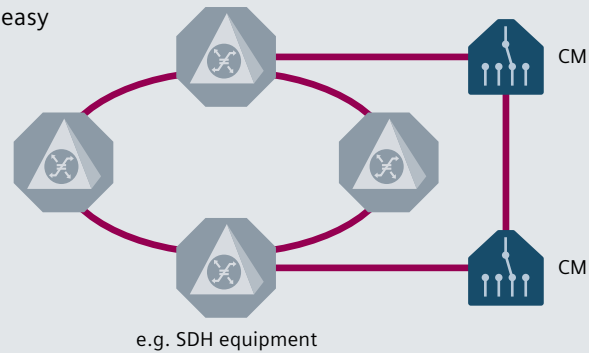
## Multiservice solution

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



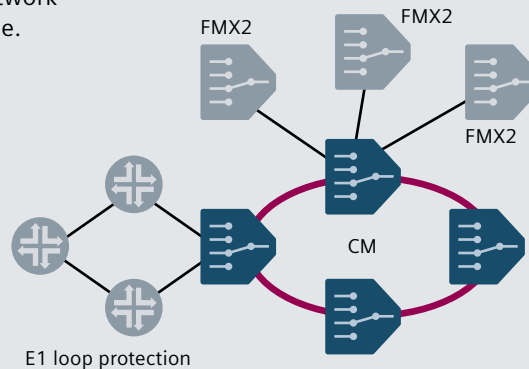
## Smooth evolution to Next Generation (NG) SDH

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



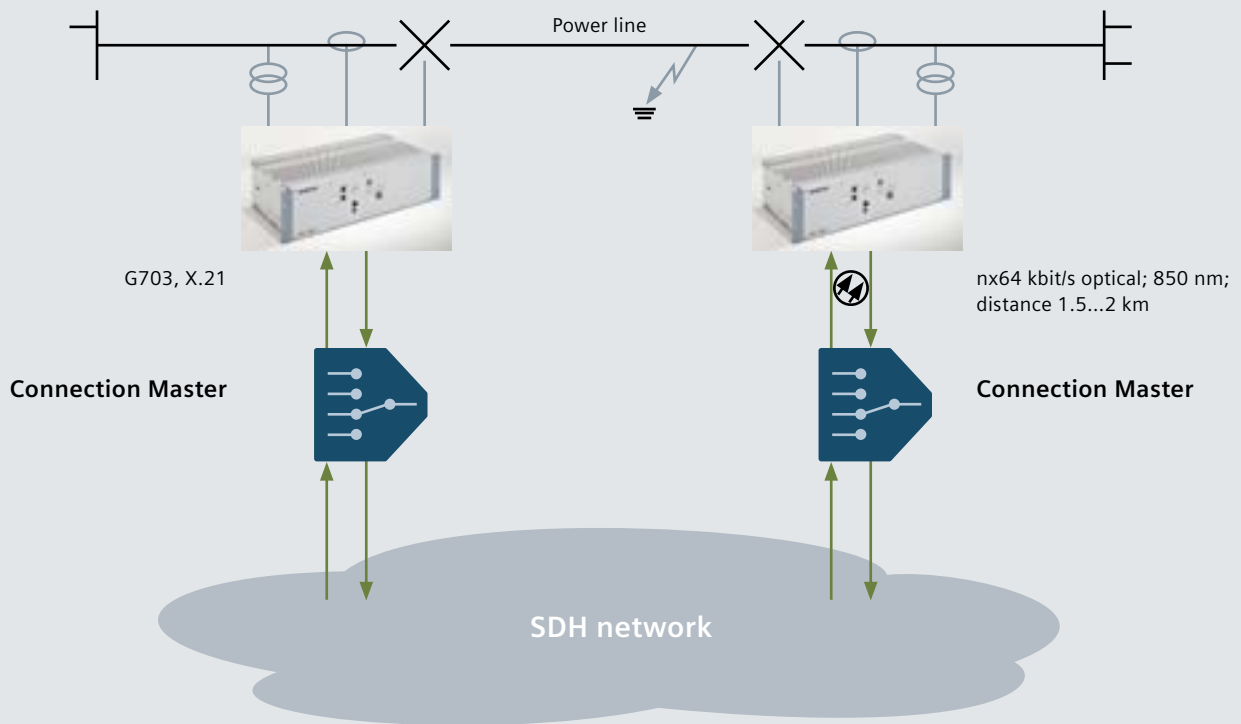
## Easy expansion of legacy networks

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)**

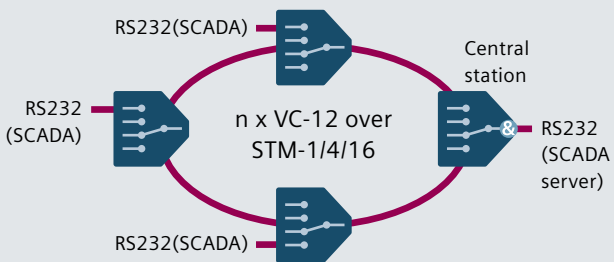
Teleprotection signals can be transmitted via two different transmission routes, either via digital interfaces (G.703, X.21) or the optical interface C37.94



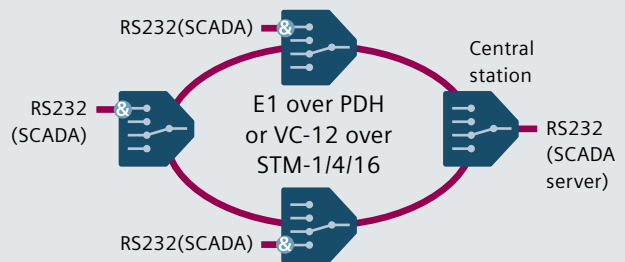
**Point to multipoint functionality optimizes usage of network capacity**

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
<b>CU SDH</b>	<b>ST32001.01</b>
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
<b>Ethernet Unit 1000BT, 8 ports</b>	<b>ST32002.01</b>
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
<b>E1/T1 Unit, 8 ports, 75 ohm / 120 ohm</b>	<b>ST32003.01 / ST32003.11</b>
E1 G.703/G.704 interface	8 x SMB (ST32003.01) 8 x RJ-45 (ST32003.11)
<b>Data Unit V and X, 4 ports</b>	<b>ST32004.01</b>
4-port SSC interface	V.28, V.11, V.35, X.21, RS-530, RS-530A
<b>Data Unit G.703/64k, 8 ports</b>	<b>ST32004.02</b>
RJ-45 interface	8 x G.703 / 64 kbit/s
<b>Optical Teleprotection Unit, 4 ports</b>	<b>ST32004.11</b>
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
<b>VF/E&amp;M Unit, 8 ports</b>	<b>ST32005.01</b>
8-port SSC interface	8 x 2-wire / 4-wire
Signaling	3 x E and 3 x M per port
<b>FXS Unit, 16 ports</b>	<b>ST32005.11</b>
RJ-45 interface	8 connectors, 2 ports/connector
Integrated ring generator	25 Hz / 50 Hz
Signaling	R2 / Hot Line
<b>FXO Unit, 16 ports</b>	<b>ST32005.21</b>
RJ-45 interface	8 connectors, 2 ports/connector
<b>Advanced DXC Unit</b>	<b>ST32010.01</b>
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	
<b>Alarm Unit</b>	<b>ST32011.01</b>
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
<b>Subrack 6-Slot</b>	<b>ST32009.01</b>
Installation capacity	2...4 tributary units
<b>Subrack 16-Slot</b>	<b>ST32009.04</b>
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.
<b>Fan Unit for 6-Slot Subrack</b>	<b>ST32007.01</b>
<b>Fan Unit for 8+8-Slot /16-Slot Subrack</b>	<b>ST32007.02 / ST32007.12 (with alarm output)</b>
<b>Power Supply AC/DC 2x1kW</b>	<b>ST32006.02</b>
<b>Power Adapter DC 48V</b>	<b>ST32008.01</b>
<b>Power Adapter DC 24-60/48V</b>	<b>ST32008.02</b>
<b>Power Adapter DC 48V Bus Extension</b>	<b>ST32008.11</b>

environmental	
<b>Environmental specifications</b>	
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

Siemens AG  
Energy Management  
Freyeslebenstr. 1  
91058 Erlangen,  
Germany  
[www.siemens.com](http://www.siemens.com)

Article No.: EMSG-B10010-00-4A00 |  
Dispo 6200 | GB150370 WS | © 2015, Siemens AG

The information provided in this brochure contains descriptions or characteristics of performance which in case of actual use do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of contract.

All product designations may be trademarks or product names of Siemens AG or supplier companies whose use by third parties for their own purposes could violate the rights of the owners.