

Networks & communication
ConneXium™

Industrial *Ethernet* solutions
for *open* architectures



Transparent®
Ready



Simply Smart !

Leveraging
ingenuity
and intelligence
for **ease of use.**

ConneXium™

Open Industrial Ethernet networking solutions

ConneXium products are the industrial Ethernet-ready network devices that can provide you with integrated Ethernet solutions to unite everything in your plant, from the device level all the way to your corporate intranet.

With innovative new tools like ConneXview Industrial Ethernet Diagnostic Software, intelligent managed switches, and an ever-expanding line of cables and accessories, the ConneXium range can help you realize the benefits of open and reliable networking in the industrial environment.



Transparent[®] Ready

“As part of Schneider’s Transparent Ready strategy, we are making a commitment to implement the open standards of the Internet within the industrial control environment in order to provide you with solutions that are simple and cost-effective to deploy.”

A unified communication solution based on Ethernet standards and 3rd party compatibility

Improved network performance

ConneXium switched networks limit the number of collisions in the media and increase overall network performance. Furthermore, ConneXium full duplex capability delivers a high level of determinism to your industrial Ethernet network. ConneXium IP Multicast capability supports the Publish/Subscribe and streaming protocols of today’s Industrial networks.

ConneXview Ethernet Diagnostic Software

Help your network perform at peak efficiency with ConneXview, the powerful yet easy to use Ethernet network diagnostic tool. It automatically discovers and maps your networks and devices, then gives you all the tools you’ll need to easily monitor and troubleshoot network operations.

Diagnosing and managing installations

ConneXium switches implement SNMP protocol to facilitate network monitoring and diagnosis of problems. A web server is embedded in every TCSES499NxS17100 switch to deliver complementary management services that can be accessed via any web browser.

Fault-Tolerant

ConneXium switches incorporate a mechanism to support a high level of resilience. With their scalable redundant features, from single to double ring structure, it is easy to build a network that fits the specific requirements of your environment.

Designed for Harsh Environments

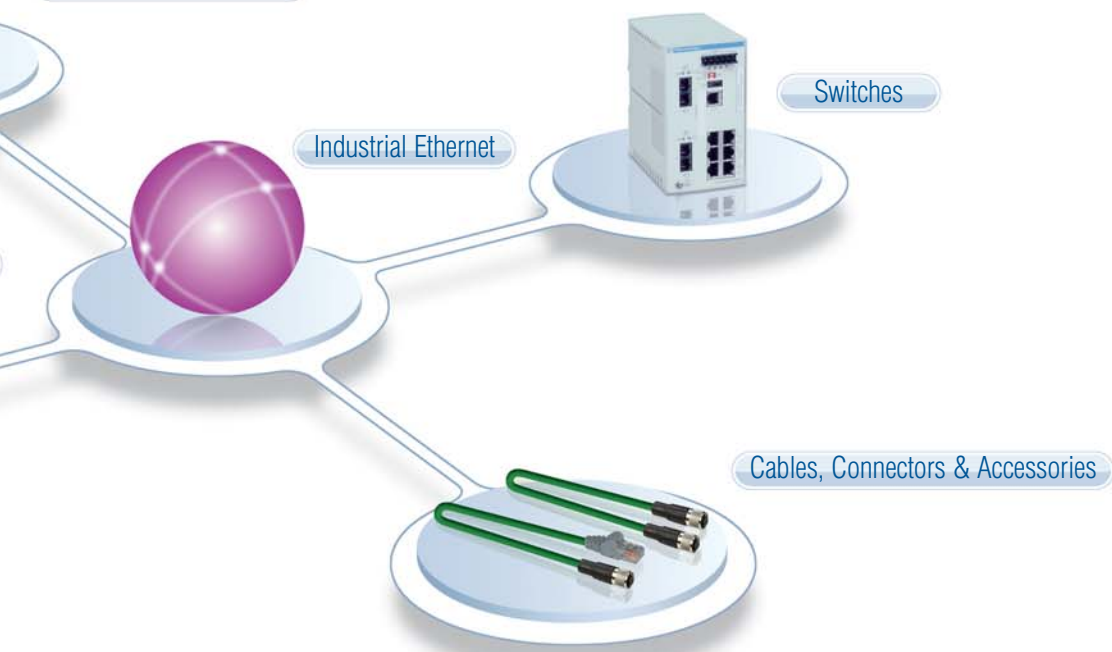
- Industrial – IEC 61131-2
- UL & FM3611 Class 1, Div 2
- Marine

Gateways & Converters

Industrial Ethernet

Switches

Cables, Connectors & Accessories



ConneXium™

discover the range

Switches

ConneXium Switches are used to reduce the limitations of architectures based on hubs or transceivers. By separating collision domains, higher layer communication is provided between the ports and collisions at the link layer are not propagated. Certain ConneXium switches also enable redundant architectures to be created on twisted pair copper or fiber optic rings. Fiber optic modules allow the extension of an industrial Ethernet network to tens of kilometers and also provide electrical noise immunity.

Managed switches

- Management – via the web, SNMP, Serial, port mirroring, log file
- Redundancy – dual and single ring, spanning tree, rapid spanning tree and power supply
- Security – port security, SNMP v3
- Optimized traffic (QOS) – message and port priority, flow control, multicast
- Filtering – broadcast limiter, multicast, IGMP snooping, VLAN
- Time synchronization (SNTP)
- Simple field replacement (FDR)

Unmanaged switches

- “Plug & play”
- No configuration necessary
- Remote diagnostics via alarm relays

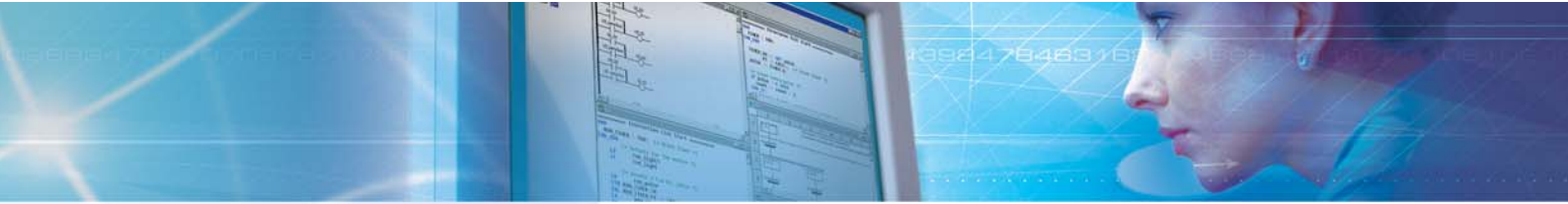
NEW!

Transparent Ready goes outside – no cabinet needed – with the new IP67-rated unmanaged switch. Ready to operate with any IP67-rated industrial Ethernet device.

Gateways & Converters

ConneXium gateways and converters are used when connecting devices between Ethernet MODBUS TCP/IP and devices on MODBUS RS485/RS232 or MODBUS Plus. ConneXium Converters, such as the TwidoPort, are tightly integrated “plug and play” devices that give you transparent access to the end device.

- They allow full programming and data exchange from either of the above networks
- Messages are transferred in real-time without any type of translation or data table configuration
- ConneXium gateways are “plug and play” but can also be configured for complex routing schemes (remote or local configuration)



ConneXview Software

ConneXview™ is a user-friendly, powerful diagnostic software program that lets you visualize your entire network on a single screen, making it easy to monitor, edit and troubleshoot your industrial Ethernet networks.

More than just a simple tool to visualize your network, ConneXview allows users to perform a wide variety of intelligent functions to keep your network traffic moving at peak efficiency, and your entire factory moving at optimum productivity.

- Reduce downtime & increase productivity
- Optimize network performance and efficiency
- Decrease maintenance and startup costs
- Increase system quality and performance

Cables & Connectors

Shielded twisted pair cables (RJ45 male to RJ45 female) in lengths from 2m to 80m quickly connect devices to hubs, switches, transceivers or patch panels.

Shielded twisted pair cross over cables (RJ45 male to RJ45 female) in lengths from 5m to 80m cascade hubs, switches or transceivers.

Fiber optic cables (MT/RJ-SC, MT/RJ-ST, MT/RJ-MT/RJ) come in 5m lengths to connect devices to hubs, switches, transceivers or patch panels.

NEW! IP67 Patch cords and Adapters

To complement the new IP67-rated switch, the ConneXium range now offers you IP20 – IP67 light duty industrial Ethernet patch cords and pass through adapters for applications in IP67/IP20 environments. To be used with the IP67 Ethernet switch TCSESU051F0 and other upcoming IP67 Schneider Electric Industrial Ethernet devices. (M12, 4-pin D coding in both ends; M12, 4-pin D coding to RJ45 male).

ConneXium™

in the Industrial Ethernet Environment

Plant Network / Information System

- Data Warehousing and Large Servers
- Supervision / Control Room
- Plant Management & Quality Systems



Desktop PC running SCADA

Laptop PC running ConneXview diagnostic

Ethernet



Ethernet

Control Network / Automation System

- PLC
- Local servers
- HMI



Premium

Quantum Redundant PLCs



Ethernet Gateway

Modbus Plus



Quantum



Premium



IP67 Switch



Device Network

- Sensors/Actuators
- Intelligent devices
- Distributed I/Os

Modbus



Ethernet Gateway



Advantys STB

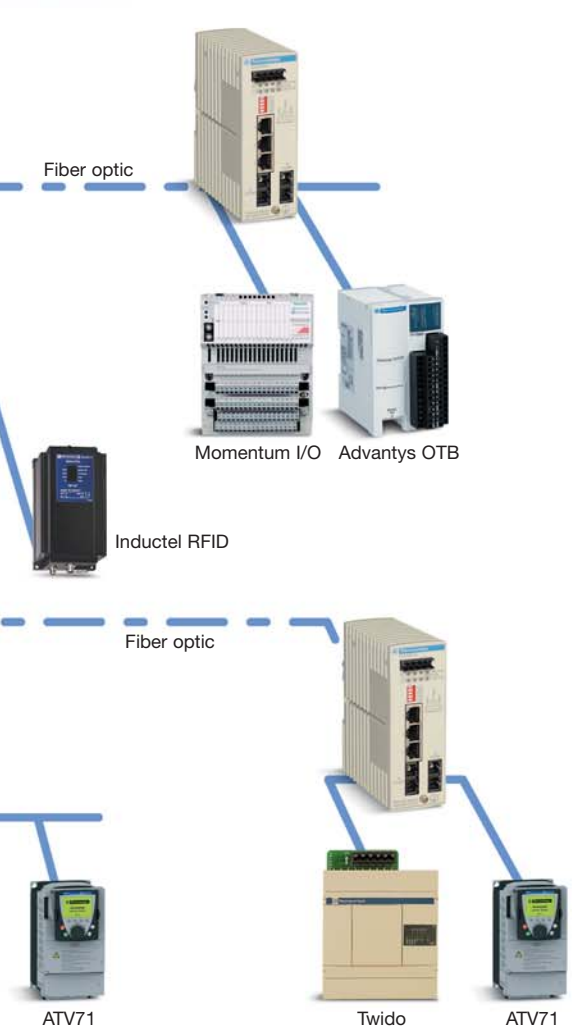


Lexium



Advantys STB

Selection Guide



Managed switches

4 Ports

Copper

TCSESM043F23F0 4TX
4 10/100 BASE-TX ports (RJ45 connectors)

Multi-mode Fiber

TCSESM043F1CU0 3TX/1FX-MM
TCSESM043F2CU0 2TX/2FX-MM
10/100 BASE-TX ports (RJ45 connectors)
100 BASE-FX multi-mode (SC duplex connector)

Single-mode Fiber

TCSESM043F1CS0 3TX/1FX-SM
TCSESM043F2CS0 2TX/2FX-SM
10/100 BASE-TX ports (RJ45 connectors),
100 BASE-FX single mode (SC duplex connector)

8 Ports

Copper

TCSESM083F23F0 8TX
8 10/100 BASE-TX ports (RJ45 connectors)

Multi-mode Fiber

TCSESM083F1CU0 7TX/1FX-MM
TCSESM083F2CU0 6TX/2FX-MM
10/100 BASE-TX ports (RJ45 connectors)
100 BASE-FX multi-mode (SC duplex connector)

Single-mode Fiber

TCSESM083F1CS0 7TX/1FX-SM
TCSESM083F2CS0 6TX/2FX-SM
10/100 BASE-TX ports (RJ45 connectors)
100 BASE-FX single mode (SC duplex connector)

Single and Multi-mode Fiber

TCSESM083F2CX0 6TX / 1FX-MM/1FX-SM
6 10/100 BASE-TX ports (RJ45 connectors), and
1 100 BASE-FX multi mode and 1 100 BASE-FX
single mode (SC duplex connectors)

16 Ports

Copper

TCSESM163F23F0 16TX
16 10/100 BASE-TX ports (RJ45 connectors)

Multi-mode Fiber

TCSESM163F2CU0 14TX/2FX-MM
14 10/100 BASE-TX ports (RJ45 connectors),
2 100 BASE-FX multi-mode (SC duplex connector)

24 Ports

Multi-mode Fiber

TCSESM243F2CU0 22TX/2FX-MM
22 10/100 BASE-TX ports (RJ45 connectors),
2 100 BASE-FX multi-mode
(SC duplex connector)

Gigabit version – 10 Ports

Copper

TCSESM103F23G0 8TX/2TX-Gbit
8 10/100 BASE-TX ports (RJ45 Connectors),
2 10/100/1000 BASE-TX (RJ45 connectors)

Fiber

TCSESM103F2LG0 * 8TX/2SFP-Gbit
8 10/100 BASE-TX ports (RJ45 Connectors),
2 1000 (SFP socket)

* **Note:** This product ships with open sockets (SFP) on the fiber ports. In order to use these ports, order 1 or 2 fiber modules in any combination (see below).

Fiber (SFP) modules – (SFP Gigabit switch only)

Fiber

TCSEAAF1LFU00 SFP-SX/LC (50/125µm - 550m)
(62.5/125µm - 275m)
TCSEAAF1LFS00 SFP-LX/LC (50/125µm - 550m)
(62.5/125µm - 550m) (9/125µm - 20km)
TCSEAAF1LFH00 SFP-LH/LC (9/125µm - 72km)

Accessories Managed Switches

TCSEAM0100 ConneXium memory backup adapter (optional)
490NTRJ11 ConneXium serial configuration cable (optional)



Unmanaged Switches		
	Copper	
	499NES25100	5x10BaseT/100BaseTX
	499NES18100	8x10BaseT/100BaseTX
5 Ports	Multi-mode Fiber/Copper	
	499NMS25101	4TX/1FX-MM
	499NMS25102	3TX/2FX-MM 10/100 BASE-TX ports (RJ45 connectors), 100 BASE-FX multi mode (SC duplex connector)
5 Ports	Single mode Fiber/Copper	
	499NSS25101	4TX/1FX-SM
	499NSS25102	3TX/2FX-SM 10/100 BASE-TX ports (RJ45 connectors), 100 BASE-FX single mode (SC duplex connector)
IP67 Switch (5 Ports)	TCSESU051F0	5TX 10/100 BASE-TX ports, M12 type D female connector
Accessories- IP67 Switch	Power Cables	
	XZCP1164L•	• = 2 or 5 (meters), Female M12, straight
	XZCP1264L•	• = 2 or 5 (meters), Female M12, elbow
	Spare Power Connectors	
	XZ-CC12FDM50B	Female M12, straight
	XZ-CC12FCM50B	Female M12, elbow
Hubs		
	Copper	
	499NEH10410	4x10BaseT
Transceivers		
	Multi mode copper	
	499NTR10100	1x100BaseTX 1x100BaseFX
Gateways & Converters		
	Gateways	
	TSXETG100	Modbus/ Ethernet gateway
	174CEV20040	Modbus Plus/ Ethernet gateway
	Converter	
	499TWD01100	Twidoport Ethernet
Cables		
Ethernet Patch Cords IP20	490NTW000**	(EIA/ TIA 568) Ethernet STP CAT5/RJ45 cables
	490NTW000**U	(UL, CSA 22.1) (** = 02,05,12,40, 80m length)
	490NTC000**	(EIA/ TIA 568) Ethernet STP CAT5/RJ45
	490NTC000**U	(UL, CSA 22.1) crossed cables (** = 05,15,40, 80 meter length)
Ethernet Patch Cords IP67	TCSECL1M3M*S2	Straight; RJ45 Male to M12 D coded 4 pole Male
	TCSECL1M1M*S2	Straight; M12 D coded 4 pole Male to M12 D coded 4 pole Male. (* = 1,3, 5, 10, 25, 40 meter length)
Ethernet Bulkhead	TCSEAAF11F13F00	M12 D coded 4 pole Female (IP67) to RJ 45 Female (IP20)
Ethernet Fiber Adapters	Fiber Optic	
	490NOC00005	SC/ MT-RJ Fiber optic adapter cable, 5m
	490NOT00005	ST/ MT-RJ Fiber optic adapter cable, 5m
	490NOR000**	MT-RJ/ MT-RJ Fiber optic adapter cable (** = 03, 05, 15 meter length)
Software		
ConneXview Ethernet Diagnostic Software	TCSEAZ01PSFE10	Single user license
	TCSEAZ01PGFE10	Group license (3-user)
	TCSEAZ01PTFE10	Team license (10-user)
	TCSEAZ01PFFE10	Site license (Facility license)
ConneXview Software Subscription Service	TCSEAZ01PSSE10	Single user subscription
	TCSEAZ01PGSE10	Group subscription (3-user)
	TCSEAZ01PTSE10	Team subscription (10-user)
	TCSEAZ01PFSE10	Site subscription (Facility license)



Networking Tips & Guidelines

General recommendations

- Use switches to eliminate collisions, increase performance and simplify network design.
- Avoid using Hubs whenever possible.
- Understand network traffic and segment network properly.

High bandwidth availability

- Use full-duplex switches (10BASE-T/100BASE-TX)
- Understand network traffic and segment network properly.

Minimum application downtime

- Use self-healing ring or redundant self-healing ring networks.

Reference: TCS ESM ••3F•••0

Basic level diagnostics (such as No Link or failure of one P/S)

- Use unmanaged switches with alarm relay **References: 499 N•S 251 01, 499 N•S 251 02 and 499 NES 181 00**

High level diagnostic, services and traffic administration

- Use managed switches **Reference: TCS ESM ••3F•••0**

Network discovery and monitoring

- Use managed switches **Reference: TCS ESM ••3F•••0**

Interconnecting devices separated by long distances (> 100m)

- Use fiber optic products
Multi-mode fiber: Up to 2 km between nodes.
Single mode fiber: Up to 15 km between nodes.

Note: Depending on the optical budget (signal strength), you can achieve 4 km in multimode and 30 km in single mode (see Transparent Ready Catalog)

Reference: TCS ESM ••3F•••0

Higher speed, more bandwidth

- Use products with gigabit backbone ports **Reference: TCS ESM 103F2•G0**

High immunity to electromagnetic noise

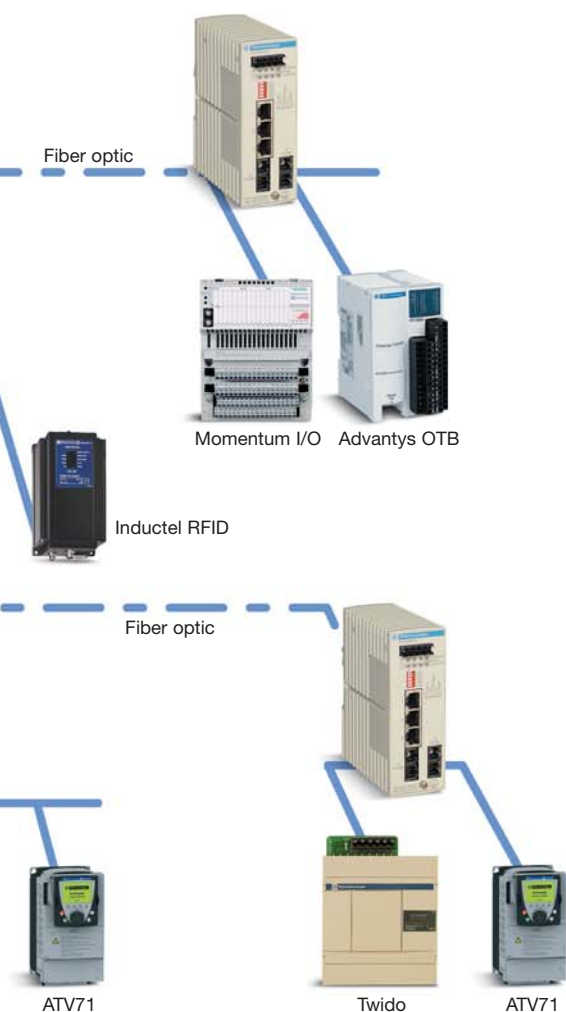
- Use products with fiber optic ports **Reference: 499 N•S 2510•/ TCS ESM ••3F•••0**

Physical medium change

- Use transceivers or switches with a combination of copper and fiber optic ports.

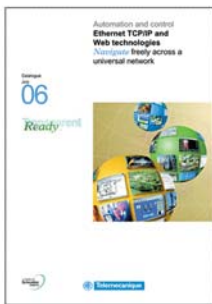
External (IP67) mounting of the switch

- Use IP 67 switches and cables **Reference: TCS ESU 051 F0**



The efficiency of Telemecanique branded *solutions*

Used in combination, Telemecanique products provide quality solutions, meeting all your **Automation & Control** applications requirements.



A worldwide presence

Constantly available

- More than 5 000 points of sale in 130 countries.
- You can be sure to find the range of products that are right for you and which complies fully with the standards in the country where they are used.

Technical assistance wherever you are

- Our technicians are at your disposal to assist you in finding the optimum solution for your particular needs.
- Schneider Electric provides you with all necessary technical assistance, throughout the world.

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