

# ConneXium Connecting Ethernet devices

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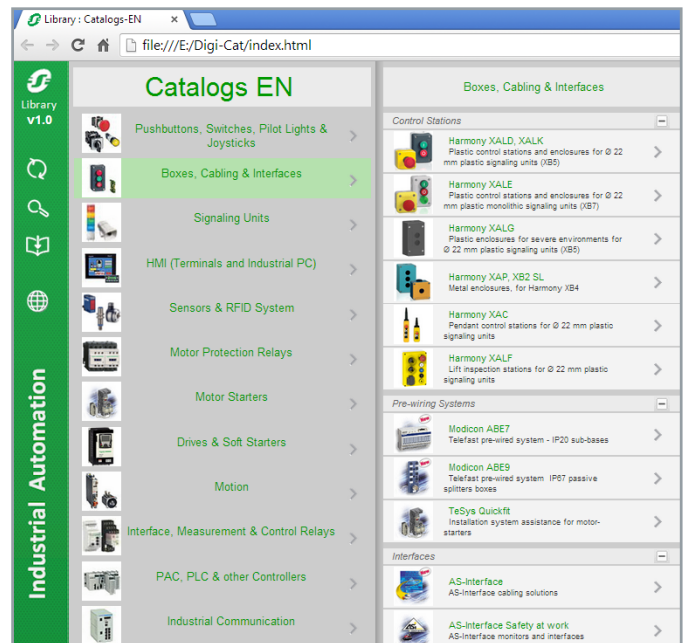
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# Ethernet network

## Cabling system

### ConneXium unmanaged switches

Device type		Unmanaged switches, copper twisted pair	
			
<b>Interfaces</b>	Copper cable ports	Number and type	5 x 10BASE-T/100BASE-TX ports
		Shielded connectors	M12 (type D)
		Medium	Shielded twisted pair, category CAT 5E
		Total length of pair	100 m/328.08 ft
	Fiber optic ports	Number and type	–
		Connectors	–
		Medium	–
		Length of fiber	50/125 µm
			62.2/125 µm
		Attenuation analysis	50/125 µm fiber
		62.2/125 µm fiber	
	Ethernet services	Storage and re-routing of received data, auto MDI/MDX, automatic negotiation of 10/100 Mbps and duplex mode (on all ports)	–
<b>Topology</b>	Number of switches	Cascaded	Unlimited
		Redundant in a ring	–
<b>Redundancy</b>		–	P1 and P2 redundant power supplies
<b>Power supply</b>	Voltage	24 V $\overline{\text{---}}$ (18...32) SELV	
	Consumption	100 mA max.	125 mA (290 mA max.)
	Removable terminal block	5 terminals, M12 (type A, male)	5 terminals
<b>Operating temperature</b>		0...+60°C/+32...+140°F	
<b>Relative humidity</b>		–	10...95% non-condensing
<b>Degree of protection</b>		IP 67	IP 20
<b>Dimensions</b>	W x H x D	60 x 126 x 31 mm/2.36 x 4.96 x 1.22 in.	47 x 135 x 111 mm/1.85 x 5.31 x 4.37 in.
<b>Mounting</b>		On a flat surface	On symmetrical DIN rail, 35 mm/1.38 in. wide
<b>Weight</b>		0.210 kg/0.463 lb	0.230 kg/0.507 lb
<b>Conforming to standards</b>		cUL 508 and CSA 22.2 No. 142, Cc	cUL 60950, UL 508 and CSA 22.2 No. 142, UL 1604 and CSA 22.2 No. 213 class 1 division 2, Cc, GL
<b>LED indicators</b>		Power supply, link status, data rate	P1 and P2 power supplies, Ethernet link/port status
<b>Alarm relay</b>		–	Detected fault (power supply, Ethernet network, or communication port) (volt-free contact 1 A max. at 24 V $\overline{\text{---}}$ )
<b>Reference</b>		<b>TCSESU051F0</b>	<b>499NES18100</b>
<b>Pages</b>		21	

(1) Length dependent on the attenuation analysis and attenuation of the fiber (typical value: 2,000 m/6,561.66 ft).

Device type		Unmanaged switches, copper twisted pair and fiber optic			
					
<b>Interfaces</b>	Copper cable ports	8 x 10BASE-T/100BASE-TX ports	3 x 10BASE-T/100BASE-TX ports	4 x 10BASE-T/100BASE-TX ports	5 x 10BASE-T/100BASE-TX ports
		RJ45			
		Shielded twisted pair, category CAT 5E			
		100 m/328.08 ft			
	Fiber optic ports	–	–	1 x 100BASE-FX port	–
		–	–	Duplex SC	–
		–	–	Multimode fiber	–
		–	–	5,000 m/16,404.15 ft (1)	–
		–	–	4,000 m/13,123.32 ft (1)	–
		–	–	8 dB	–
	–	–	11 dB	–	
	Ethernet services	Storage and re-routing of received data, auto MDI/MDX, automatic negotiation of 10/100 Mbps and duplex mode (on all ports), automatic change of polarity	Storage and re-routing of received data, auto MDI/MDX, automatic negotiation of 10/100 Mbps and duplex mode (on all ports)		
<b>Topology</b>	Number of switches	Unlimited	Unlimited		
		–	–		
<b>Redundancy</b>		–	–		
<b>Power supply</b>	Voltage	24 V $\overline{\text{---}}$ (9.6...32) SELV			
	Consumption	4.1 W max.	2.2 W max.	3.9 W max.	2.2 W max.
	Removable terminal block	3 terminals	3 screw terminals		
<b>Operating temperature</b>		0...+60°C/+32...+140°F			
<b>Relative humidity</b>		95% max. non-condensing			
<b>Degree of protection</b>		IP 30			
<b>Dimensions</b>	W x H x D	35 x 138 x 121 mm/1.38 x 5.43 x 4.76 in.	25 x 114 x 79 mm/0.98 x 4.49 x 3.11 in.		
<b>Mounting</b>		On symmetrical DIN rail, 35 mm/1.38 in. wide			
<b>Weight</b>		0.246 kg/0.542 lb	0.113 kg/0.249 lb	0.120 kg/0.265 lb	0.113 kg/0.249 lb
<b>Conforming to standards</b>		UL 508 and CSA 22.2 No.142 IEC/EN 61131-2, IEC 60825-1 class 1			
<b>LED indicators</b>		Power supply, copper port activity, 10 or 100 Mbps data rate			
		–	Fiber optic port activity and status	–	
<b>Alarm relay</b>		–			
<b>Reference</b>		<b>TCSESU083FN0</b>	<b>TCSESU033FN0</b>	<b>TCSESU043F1N0</b>	<b>TCSESU053FN0</b>
<b>Pages</b>		21	22		

# Ethernet network

## Cabling system

### Managed and unmanaged ConneXium switches

#### Device type

#### Unmanaged switches, 5 ports, copper twisted pair and fiber optic



Interfaces	Copper cable ports	Number and type			
				4 x 10BASE-T/ 100BASE-TX ports	3 x 10BASE-T/ 100BASE-TX ports
		Shielded connectors Medium			
		Total length of pair 100 m/328.08 ft			
	Fiber optic ports	Number and type			
		1 x 100BASE-FX port	2 x 100BASE-FX ports	1 x 100BASE-FX port	2 x 100BASE-FX ports
		Connectors Medium			
		Multimode fiber		Single-mode fiber	
	Length of fiber	50/125 μm	62.2/125 μm	9/125 μm	–
		–	–	–	32,500 m/106,627 ft (2)
	Attenuation analysis	50/125 μm fiber	62.2/125 μm fiber	9/125 μm fiber	–
		8 dB	11 dB	–	16 dB
		–	–	–	–
	Ethernet services	–			

Topology	Number of switches	Cascaded
		Unlimited
		Redundant in a ring

Redundancy
P1 and P2 redundant power supplies

Power supply	Voltage	Consumption	Removable terminal block
	24 V $\overline{\text{DC}}$ (18...32 V) SELV	200 mA max.	5 terminals
		240 mA max.	
		200 mA max.	
		240 mA max.	

Operating temperature
-40...+70°C/-40...+158°F

Relative humidity
10...95% non-condensing

Degree of protection
IP 20

Dimensions	W x H x D
	47 x 135 x 111 mm/1.85 x 5.31 x 4.37 in.

Mounting
On symmetrical DIN rail, 35 mm/1.38 in. wide

Weight
0.330 kg/0.728 lb
0.335 kg/0.739 lb
0.330 kg/0.728 lb
0.335 kg/0.739 lb

Conforming to standards
cUL 60950, cUL 508 and CSA 22.2 No. 142, UL 1604 and CSA 22.2 No. 213 class 1 division 2, CE, GL

LED indicators
P1 and P2 power supplies, Ethernet link status, transmission activity

Alarm relay
Activity, detected fault (power supply, Ethernet network, or communication port) (volt-free contact 1 A max. at 24 V $\overline{\text{DC}}$ )

Reference
<b>499NMS25101</b> <b>499NMS25102</b> <b>499NSS25101</b> <b>499NSS25102</b>

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(1) Length dependent on the attenuation analysis and attenuation of the fiber (typical value: 2,000 m/6,561.66 ft).  
 (2) Length dependent on the attenuation analysis and attenuation of the fiber (typical value: 15,000 m/49,212.45 ft).

#### Managed switches, 4 ports, copper twisted pair and fiber optic



Interfaces	Copper cable ports	Number and type			
				3 x 10/100BASE-TX ports	2 x 10/100BASE-TX ports
		Shielded connectors Medium			
		Total length of pair 100 m/328.08 ft			
	Fiber optic ports	Number and type			
		1 x 100BASE-FX port	2 x 100BASE-FX ports	1 x 100BASE-FX port	2 x 100BASE-FX ports
		Connectors Medium			
		Multimode fiber		Single-mode fiber	
	Length of fiber	5,000 m/16,404.15 ft (1)	4,000 m/13,123.32 ft (1)	–	–
		–	–	–	32,500 m/106,627 ft (2)
	Attenuation analysis	5,000 m/16,404.15 ft (1)	4,000 m/13,123.32 ft (1)	–	–
		8 dB	11 dB	–	16 dB
		–	–	–	–
	Ethernet services	FDR, SMTP V3, SNMP client, multicast filtering for optimization of the Global Data protocol, configuration via Web access, VLAN, IGMP Snooping, RSTP (Rapid Spanning Tree Protocol), priority port, data stream control, secure port			

Topology	Number of switches	Cascaded
		Unlimited
		50 max.

Redundancy
Redundant power supplies, redundant single ring, ring coupling

Power supply	Voltage	Consumption	Removable terminal block
	9.6...60 V $\overline{\text{DC}}$ / 18...30 V $\sim$ SELV	6.5 W	6 terminals
		7.3 W	
		6.5 W	
		7.3 W	

Operating temperature
0...+60°C/+32...+140°F

Relative humidity
10...90% non-condensing

Degree of protection
IP 20

Dimensions	W x H x D
	47 x 131 x 111 mm/1.85 x 5.15 x 4.37 in.

Mounting
On symmetrical DIN rail, 35 mm/1.38 in. wide

Weight
0.400 kg/0.882 lb

Conforming to standards
IEC 61131-2, UL 508, UL 1604 class 1 division 2, CSA 22.2 No. 142 (cUL), CSA 22.2 No. 213 class 1 division 2 (cUL), CE, GL

LED indicators
Power supply status, alarm relay status, active redundancy, redundancy management, copper port status, and copper port activity

Alarm relay
Detected fault (power supply, Ethernet network, communication port, or redundancy) (volt-free contact 1 A max. at 24 V $\overline{\text{DC}}$ )

Reference
<b>TCSESM043F1CU0</b> <b>TCSESM043F2CU0</b> <b>TCSESM043F1CS0</b> <b>TCSESM043F2CS0</b>

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(1) Length dependent on the attenuation analysis and attenuation of the fiber (typical value: 2,000 m/6,561.66 ft).  
 (2) Length dependent on the attenuation analysis and attenuation of the fiber (typical value: 15,000 m/49,212.45 ft).

# Ethernet network

## Cabling system

### ConneXium managed switches

Device type			Managed switches, 4 and 8 ports, copper twisted pair	
<b>Interfaces</b>	Copper cable ports	Number and type	4 x 10/100BASE-TX ports	8 x 10/100BASE-TX ports
		Shielded connectors	RJ45	
		Medium	Shielded twisted pair, category CAT 5E	
		Total length of pair	100 m/328.08 ft	
	Fiber optic ports	Number and type	-	
		Connectors	-	
		Medium	-	
	Length of fiber	50/125 µm	-	
		62.2/125 µm	-	
		9/125 µm	-	
Attenuation analysis	50/125 µm fiber	-		
	62.2/125 µm fiber	-		
	9/125 µm fiber	-		
Ethernet services	FDR, SMTP V3, SNMP client, multicast filtering for optimization of the Global Data protocol, configuration via Web access, VLAN, IGMP Snooping, RSTP ( <i>Rapid Scanning Tree Protocol</i> ), priority port, data stream control, secure port			
<b>Topology</b>	Number of switches	Cascaded	Unlimited	
		Redundant in a ring	50 max.	
<b>Redundancy</b>			P1 and P2 redundant power supplies, redundant single ring, ring coupling	
<b>Power supply</b>	Voltage	9.6...60 V $\overline{\text{---}}$ /18...30 V $\sim$ SELV		
	Consumption	5.3 W		
	Removable terminal block	6 terminals		
<b>Operating temperature</b>			0...+60°C/+32...+140°F	
<b>Relative humidity</b>			10...90% non-condensing	
<b>Degree of protection</b>			IP 20	
<b>Dimensions</b>	W x H x D	47 x 131 x 111 mm/1.85 x 5.15 x 4.37 in.		74 x 131 x 111 mm/2.91 x 5.15 x 4.37 in.
<b>Mounting</b>			On symmetrical DIN rail, 35 mm/1.38 in. wide	
<b>Weight</b>			0.400 kg/0.882 lb	
<b>Conforming to standards</b>			IEC/EN 61131-2, UL 508, UL 1604 class 1 division 2, CSA 22.2 No. 214 (cUL), CSA 22.2 No. 213 class 1 division 2 (cUL), CE, GL	
<b>LED indicators</b>			Power supply status, alarm relay status, active redundancy, redundancy management, copper port status, and copper port activity	Power supply status, alarm relay status, active redundancy, redundancy management, fiber optic port status, and fiber optic port activity
<b>Alarm relay</b>			Detected fault (power supply, Ethernet network, communication port, or redundancy) (volt-free contact 1 A max. at 24 V $\overline{\text{---}}$ )	
<b>Reference</b>			<b>TCESM043F23F0</b>	<b>TCESM083F23F0</b>
<b>Pages</b>			23	


Device type					Managed switches, 8 ports, copper twisted pair and fiber optic				
<b>Interfaces</b>	7 x 10/100BASE-TX ports	6 x 10/100BASE-TX ports	7 x 10/100BASE-TX ports	6 x 10/100BASE-T ports					
	RJ45								
	Shielded twisted pair, category CAT 5E								
	100 m/328.08 ft								
	1 x 100BASE-FX port	2 x 100BASE-FX ports	1 x 100BASE-FX port	2 x 100BASE-FX ports					
	Duplex SC								
	Multimode fiber				Single-mode fiber				
	5,000 m/16,404.15 ft (1)				-				
	4,000 m/13,123.32 ft (1)				-				
	-				32,500 m/106,627 ft (2)				
8 dB				-					
11 dB				-					
-				16 dB					
FDR, SMTP V3, SNMP client, multicast filtering for optimization of the Global Data protocol, configuration via Web access, VLAN, IGMP Snooping, RSTP ( <i>Rapid Scanning Tree Protocol</i> ), priority port, data stream control, secure port									
Unlimited									
50 max.									
Redundant power supplies, redundant single ring, ring coupling									
<b>Power supply</b>	9.6...60 V $\overline{\text{---}}$ /18...30 V $\sim$ SELV								
	6.5 W	7.3 W	6.5 W	7.3 W					
	6 terminals								
0...+60°C/+32...+140°F									
10...90% non-condensing									
IP 20									
75 x 131 x 111 mm/2.95 x 5.15 x 4.37 in.									
On symmetrical DIN rail, 35 mm/1.38 in. wide									
0.410 kg/0.904 lb									
IEC/EN 61131-2, UL 508, UL 1604 class 1 division 2, CSA 22.2 No. 214 (cUL), CSA 22.2 No. 213 class 1 division 2 (cUL), CE, GL									
Power supply status, alarm relay status, active redundancy, redundancy management, fiber optic port status, and fiber optic port activity									
Detected fault (power supply, Ethernet network, or communication port) (volt-free contact 1 A max. at 24 V $\overline{\text{---}}$ )									
<b>TCESM083F1CU0</b>		<b>TCESM083F2CU0</b>		<b>TCESM083F1CS0</b>		<b>TCESM083F2CS0</b>			
24									


(1) Length dependent on the attenuation analysis and attenuation of the fiber (typical value: 2,000 m/6,561.66 ft).  
 (2) Length dependent on the attenuation analysis and attenuation of the fiber (typical value: 15,000 m/49,212.45 ft).

# Ethernet network

## Cabling system

### Basic ConneXium managed switches

Device type		Basic managed switch, 8 ports, copper twisted pair	
			
<b>Interfaces</b>	Copper cable ports	Number and type 8 x 10/100BASE-TX ports Shielded connectors Medium Total length of pair 100 m/328.08 ft	
	Fiber optic ports	Number and type – Connectors – Medium –	
	Length of fiber	50/125 μm	–
		62.2/125 μm	–
		9/125 μm	–
	Attenuation analysis	50/125 μm fiber	–
		62.2/125 μm fiber	–
		9/125 μm fiber	–
	Ethernet services	FDR, SNTP client, multicast filtering for optimization of the Global Data protocol, configuration via Web access, IGMP Snooping, RSTP ( <i>Rapid Scanning Tree Protocol</i> ), priority port	
	<b>Topology</b>	Number of switches	Unlimited
Cascaded Redundant in a ring		50 max.	
<b>Redundancy</b>		P1 and P2 redundant power supplies, redundant single ring, ring coupling	
<b>Power supply</b>	Voltage	9.6...32 V --- SELV	
	Consumption	6 W	
	Removable terminal block	6 terminals	
<b>Operating temperature</b>		0...+ 60°C/+ 32...+ 140°F	
<b>Relative humidity</b>		95% max. non-condensing	
<b>Degree of protection</b>		IP 20	
<b>Dimensions</b>		W x H x D 47 x 131 x 111 mm/1.85 x 5.15 x 4.37 in.	
<b>Mounting</b>		On symmetrical DIN rail, 35 mm/1.38 in. wide	
<b>Weight</b>		0.400 kg/0.882 lb	
<b>Conforming to standards</b>		IEC/EN 61131-2, UL 508, UL 1604 class 1 division 2, CSA 22.2 No. 214 (cUL), CSA 22.2 No. 213 class 1 division 2 (cUL), CE	
<b>LED indicators</b>		Power supply status, alarm relay status, active redundancy, redundancy management, copper port status, and copper port activity	
<b>Alarm relay</b>		Detected fault (power supply, Ethernet network, or communication port) (volt-free contact 1 A max. at 24 V ---)	
<b>Reference</b>		<b>TCSB083F23F0</b>	
<b>Pages</b>		24	

Device type		Basic managed switches, 8 and 9 ports, copper twisted pair and fiber optic	
			
<b>Interfaces</b>	Copper cable ports	Number and type 6 x 10/100BASE-TX ports RJ45 Shielded twisted pair, category CAT 5E Total length of pair 100 m/328.08 ft	
	Fiber optic ports	Number and type – Connectors – Medium –	
	Length of fiber	50/125 μm	–
		62.2/125 μm	–
		9/125 μm	–
	Attenuation analysis	50/125 μm fiber	–
		62.2/125 μm fiber	–
		9/125 μm fiber	–
	Ethernet services	FDR, SNTP client, multicast filtering for optimization of the Global Data protocol, configuration via Web access, IGMP Snooping, RSTP ( <i>Rapid Scanning Tree Protocol</i> ), priority port	
	<b>Topology</b>	Number of switches	Unlimited
Cascaded Redundant in a ring		50 max.	
<b>Redundancy</b>		P1 and P2 redundant power supplies, redundant single ring, ring coupling	
<b>Power supply</b>	Voltage	9.6...32 V --- SELV	
	Consumption	8 W	
	Removable terminal block	6 terminals	
<b>Operating temperature</b>		0...+ 60°C/+ 32...+ 140°F	
<b>Relative humidity</b>		95% max. non-condensing	
<b>Degree of protection</b>		IP 20	
<b>Dimensions</b>		W x H x D 74 x 131 x 111 mm/2.91 x 5.15 x 4.37 in.	
<b>Mounting</b>		On symmetrical DIN rail, 35 mm/1.38 in. wide	
<b>Weight</b>		0.400 kg/0.882 lb	
<b>Conforming to standards</b>		IEC/EN 61131-2, UL 508, UL 1604 class 1 division 2, CSA 22.2 No. 214 (cUL), CSA 22.2 No. 213 class 1 division 2 (cUL), CE	
<b>LED indicators</b>		Power supply status, alarm relay status, active redundancy, redundancy management, fiber optic port status, and fiber optic port activity	
<b>Alarm relay</b>		Detected fault (power supply, Ethernet network, or communication port) (volt-free contact 1 A max. at 24 V ---)	
<b>Reference</b>		<b>TCSB083F2CU0</b> <b>TCSB093F2CU0</b>	
<b>Pages</b>		24	

(1) Length dependent on the attenuation analysis and attenuation of the fiber (typical value: 2,000 m/6,561.66 ft).  
 (2) Length dependent on the attenuation analysis and attenuation of the fiber (typical value: 15,000 m/49,212.45 ft).

# Ethernet network

## Cabling system

### ConneXium managed switches

#### Device type

#### Managed switches, 8 extended ports, copper twisted pair and fiber optic (1)



Interfaces	Copper cable ports	Number and type	8 x 10/100BASE-TX ports	6 x 10/100BASE-TX ports	6 x 10/100BASE-T ports
		Shielded connectors	RJ45		
		Medium	Shielded twisted pair, category CAT 5E		
		Total length of pair	100 m/328.08 ft		
Fiber optic ports		Number and type	2 x 100BASE-FX ports		
		Connectors	Duplex SC		
		Medium	Multimode fiber		
Length of fiber		50/125 μm	5,000 m/16,404.15 ft (2)	Single-mode fiber	
		62.2/125 μm	4,000 m/13,123.32 ft (2)		
		9/125 μm	–	32,500 m/106,627 ft (3)	
Attenuation analysis		50/125 μm fiber	8 dB	–	
		62.2/125 μm fiber	11 dB	–	
		9/125 μm fiber	–	16 dB	
Ethernet services		FDR, SMTP V3, SNMP client, multicast filtering for optimization of the Global Data protocol, configuration via Web access, VLAN, IGMP Snooping, RSTP (Rapid Scanning Tree Protocol), priority port, data stream control, secure port			

Topology	Number of switches	Cascaded	Unlimited		
		Redundant in a ring	50 max.		

Redundancy	Redundant power supplies, redundant single ring, ring coupling, rings supporting MRP, Fast HIPER Ring and RSTP				
------------	--	--	--	--	--

Power supply	Voltage	18...60 V ~			
	Consumption	10 W	12 W		
	Removable terminal block	2 terminal blocks, 2 terminals			

Operating temperature	0...+60°C/+32...+140°F				
-----------------------	------------------------	--	--	--	--

Relative humidity	10...90% non-condensing				
-------------------	-------------------------	--	--	--	--

Degree of protection	IP 30				
----------------------	-------	--	--	--	--

Dimensions	W x H x D	120 x 137 x 115 mm/4.72 x 5.39 x 4.53 in.			
------------	-----------	---	--	--	--

Mounting	On symmetrical DIN rail, 35 mm/1.38 in. wide				
----------	--	--	--	--	--

Weight	1 kg/2.205 lb				
--------	---------------	--	--	--	--

Conforming to standards	IEC/EN 61131-2, IEC 61850-3, UL 508, UL 1604 class 1 division 2, CSA 22.2 No. 214 (cUL), CSA 22.2 No. 213 class 1 division 2 (cUL), CE, GL, C-Tick, LR, BV, ATEX Zone 2				
-------------------------	---	--	--	--	--

LED indicators	Power supply status, alarm relay status, active redundancy, redundancy management, copper port status, and copper port activity				
----------------	---	--	--	--	--

Alarm relay	Detected fault (power supply, Ethernet network, or communication port) (volt-free contact 1 A max. at 24 V ~, 2-way)				
-------------	--	--	--	--	--

Reference	<b>TCSESM083F23F1</b>	<b>TCSESM063F2CU1</b>	<b>TCSESM063F2CS1</b>		
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Pages	24				
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(1) These managed switches are also available in a Conformal Coating version for harsh environments. In this case, add the letter "C" to the end of the reference.  
 (2) Length dependent on the attenuation analysis and attenuation of the fiber (typical value: 2,000 m/6,561.66 ft).  
 (3) Length dependent on the attenuation analysis and attenuation of the fiber (typical value: 15,000 m/49,212.45 ft).

#### Managed switches, 16 and 24 ports, copper twisted pair and fiber optic



Interfaces	16 x 10/100BASE-TX ports	14 x 10/100BASE-TX ports	14 x 10/100BASE-TX ports	22 x 10/100BASE-TX ports
	RJ45			
	Shielded twisted pair, category CAT 5E			
	100 m/328.08 ft			
Fiber optic ports	–			
	2 x 100BASE-FX ports			
	Duplex SC			
	Multimode fiber			
Length of fiber	5,000 m/16,404.15 ft (1)	Single-mode fiber		Multimode fiber
	4,000 m/13,123.32 ft (1)	–		5,000 m/16,404.15 ft (1)
	–	32,500 m/106,627 ft (2)		4,000 m/13,123.32 ft (1)
Attenuation analysis	8 dB	–		8 dB
	11 dB	–		11 dB
	–	16 dB		–
Ethernet services		FDR, SMTP V3, SNMP client, multicast filtering for optimization of the Global Data protocol, configuration via Web access, VLAN, IGMP Snooping, RSTP (Rapid Scanning Tree Protocol), priority port, data stream control, secure port		

Topology	Number of switches	Cascaded	Unlimited		
		Redundant in a ring	50 max.		

Redundancy	Redundant power supplies, redundant single ring, ring coupling				
------------	--	--	--	--	--

Power supply	Voltage	9.6...60 V ~ / 18...30 V ~ SELV			
	Consumption	9.4 W	11.8 W	11.8 W	15.5 W
	Removable terminal block	6 terminals			

Operating temperature	0...+60°C/+32...+140°F				
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Relative humidity	10...90% non-condensing		95% max. non-condensing		10...90% non-condensing
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Degree of protection	IP 20				
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Dimensions	W x H x D	111 x 131 x 111 mm/4.37 x 5.16 x 4.37 in.			
------------	-----------	---	--	--	--

Mounting	On symmetrical DIN rail, 35 mm/1.38 in. wide				
----------	--	--	--	--	--

Weight	0.600 kg/1.323 lb			0.650 kg/1.433 lb	
--------	-------------------	--	--	-------------------	--

Conforming to standards	IEC/EN 61131-2, UL 508 and CSA 22.2 No. 142, UL 1604 and CSA 22.2 No. 213 class 1 division 2, CE, GL		IEC/EN 61131-2, UL 508, UL 1604 class 1 division 2, CSA 22.2 No. 142 (cUL), CSA 22.2 No. 213 class 1 division 2 (cUL), CE, GL		IEC/EN 61131-2, UL 508 and CSA 22.2 No. 142, UL 1604 and CSA 22.2 No. 213 class 1 division 2, CE, GL
-------------------------	--	--	---	--	--

LED indicators	Power supply status, alarm relay status, active redundancy, redundancy management, copper port status and copper port activity	Power supply status, alarm relay status, active redundancy, redundancy management, fiber optic port status and fiber optic port activity			
----------------	--	--	--	--	--

Alarm relay	Detected fault (power supply, Ethernet network, communication port, or redundancy) (volt-free contact 1 A max. at 24 V ~)				
-------------	---	--	--	--	--

Reference	<b>TCSESM163F23F0</b>	<b>TCSESM163F2CU0</b>	<b>TCSESM163F2CS0</b>	<b>TCSESM243F2CU0</b>	
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Pages	25				
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(1) Length dependent on the attenuation analysis and attenuation of the fiber (typical value: 2,000 m/6,561.66 ft).  
 (2) Length dependent on the attenuation analysis and attenuation of the fiber (typical value: 15,000 m/49,212.45 ft).



**Device type** **Managed switch, 8 ports and 2 Gigabit ports, copper twisted pair and fiber optic**



<b>Interfaces</b>	Copper cable ports	Number and type	8 x 10/100BASE-TX ports		
		Shielded connectors	RJ45		
		Medium	Shielded twisted pair, category CAT 5E		
		Total length of pair	100 m/328.08 ft		
	Fiber optic Gigabit ports (with SFP fiber optic module to be mounted on SFP connector)	Number and type	2 x 1000BASE-SX ports (1)	2 x 1000BASE-LH ports (2)	2 x 1000BASE-LX ports (3)
		Connectors	LC		
		Medium	Multimode fiber		
		Length of fiber	50/125 µm	Single-mode fiber	Single-mode and multimode fiber
		62.2/125 µm	550 m/1,804.46 ft	–	550 m/1,804.46 ft
		9/125 µm	275 m/902.23 ft	–	550 m/1,804.46 ft
Attenuation analysis	50/125 µm fiber	–	8 - 72,000 m/26.25 - 236,219.8 ft	20,000 m/65,616.6 ft	
		7.5 dB	–	11 dB	
		7.5 dB	–	11 dB	
Ethernet services	62.2/125 µm fiber	–	6 - 22 dB	11 dB	
	9/125 µm fiber	–	–	–	

<b>Topology</b>	Number of switches	Cascaded	Unlimited
		Redundant in a ring	50 max.

**Redundancy** Redundant power supplies, redundant single ring, ring coupling

<b>Power supply</b>	Voltage	9.6...60 V $\overline{\text{---}}$ /18...30 V $\sim$ SELV
	Consumption	8.9 W + 1 W per SFP fiber optic module
	Removable terminal block	6 terminals

**Operating temperature** 0...+60°C/+32...+140°F

**Relative humidity** 10...90% non-condensing

**Degree of protection** IP 20

**Dimensions** W x H x D 111 x 131 x 111 mm/4.37 x 5.16 x 4.37 in.

**Mounting** On symmetrical DIN rail, 35 mm/1.38 in. wide

**Weight** 0.410 kg/0.904 lb

**Conforming to standards** cUL 60950, UL 508 and CSA 22.2 No. 142, UL 1604 and CSA 22.2 No. 213 class 1 division 2, CE, GL

**LED indicators** Power supply status, alarm relay status, active redundancy, redundancy management, fiber optic port status, and fiber optic port activity

**Alarm relay** Detected fault (power supply, Ethernet network, or communication port) (volt-free contact 1 A max. at 24 V  $\overline{\text{---}}$ )

**Reference** **TCSESM103F2LG0**

**Pages** 25

(1) With TCSEAAF1LFU00 fiber optic module, to be ordered separately (see page 19).  
 (2) With TCSEAAF1LFH00 fiber optic module, to be ordered separately (see page 19).  
 (3) With TCSEAAF1LFS00 fiber optic module, to be ordered separately (see page 19).

**Device type** **Managed switch, 8 ports and 2 Gigabit ports, copper twisted pair**



<b>Interfaces</b>	Copper cable ports	Number and type	8 x 10/100BASE-TX ports and 2 x 10/100/1000BASE-TX ports (Gigabit)		
		Shielded connectors	RJ45		
		Medium	Shielded twisted pair, category CAT 5E		
		Total length of pair	100 m/328.08 ft		
	Fiber optic Gigabit ports (with SFP fiber optic module to be mounted on SFP connector)	Number and type	–		
		Connectors	LC		
		Medium	–		
		Length of fiber	–		
		62.2/125 µm	–		
		9/125 µm	–		
Attenuation analysis	50/125 µm fiber	–	–	–	
		–	–	–	
		–	–	–	
Ethernet services	62.2/125 µm fiber	–	–	–	
	9/125 µm fiber	–	–	–	

<b>Topology</b>	Number of switches	Cascaded	Unlimited
		Redundant in a ring	50 max.

**Redundancy** Redundant power supplies, redundant single ring, ring coupling

<b>Power supply</b>	Voltage	9.6...60 V $\overline{\text{---}}$ /18...30 V $\sim$ SELV
	Consumption	8.3 W
	Removable terminal block	6 terminals

**Operating temperature** 0...+60°C/+32...+140°F

**Relative humidity** 10...90% non-condensing

**Degree of protection** IP 20

**Dimensions** W x H x D 111 x 131 x 111 mm/4.37 x 5.16 x 4.37 in.

**Mounting** On symmetrical DIN rail, 35 mm/1.38 in. wide

**Weight** 0.410 kg/0.904 lb

**Conforming to standards** cUL 60950, UL 508 and CSA 22.2 No. 142, UL 1604 and CSA 22.2 No. 213 class 1 division 2, CE, GL

**LED indicators** Power supply status, alarm relay status, active redundancy, redundancy management, fiber optic port status, and fiber optic port activity



**Alarm relay** Detected fault (power supply, Ethernet network, or communication port) (volt-free contact 1 A max. at 24 V  $\overline{\text{---}}$ )

**Reference** **TCSESM103F23G0**




**Pages** 25

# Ethernet networks

## ConneXium industrial firewalls

Device type		TX/TX firewall	TX/TX Tofino firewall
			
<b>Interfaces</b>	Copper cable ports	2 x 10/100 BASE-TX ports for internal and external networks	
		Shielded connectors	
		RJ45 type	
		Medium	
		Shielded twisted pair, category CAT 5E	
		Total length of pair	
		100 m/328.08 ft	
	Fiber optic ports	-	
		Number and type	
		Connectors	
	Medium		
	Length of fiber	-	
		50/125 µm	
		62.2/125 µm	
	Attenuation analysis	-	
		50/125 µm fiber	
		62.2/125 µm fiber	
	Configuration tools	Configuration via Web access or command line interface. Monitoring, discovery, and configuration via ConneXium Network Manager v1.2	Menu based off-line configuration software that is included with the firewall
<b>Security capabilities</b>		Packet filtering, network address translation, VPN, denial of service, routing, redundancy	Built-in security modules that include Firewall, Modbus/TCP Enforcer, and Event Logger
<b>Power supply</b>	Voltage	12 to 48 V $\overline{\text{---}}$ (minimum 9 V to maximum 60 V) or 24 V $\sim$ (minimum 18 V to maximum 30 V)	
	Consumption	6.9 W max.	
	Hold up time	Minimum 20 ms at 20.4 V $\overline{\text{---}}$	
<b>Ambient air temperature</b>	For operating	0 to +60°C/+ 32 to + 140°F	
	For storage	- 40 to + 70°C/- 40 to + 158°F	
<b>Relative humidity</b>		10 to 95% non-condensing	
<b>Maximum operating altitude</b>		2,000 m/6,560 ft	
<b>Pollution degree</b>		2	
<b>Degree of protection</b>		IP 20	
<b>MTBF (mean time between failures)</b>		450,861 hr. at + 25 °C/+ 77 °F	240,024 hr. at + 25 °C/+ 77 °F
<b>Dimensions</b>		W x H x D	
		60 x 145 x 125 mm/2.36 x 5.71 x 4.92 in.	60 x 145 x 123 mm/2.36 x 5.71 x 4.84 in.
<b>Mounting</b>		35 mm/1.38 in. DIN rail	
<b>Weight</b>		0.600 kg/1.323 lb	0.615 kg/1.356 lb
<b>Standards and certifications</b>		IEC 60068-2-6, IEC 60068-2-27, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-9, EN 55022 class A/FCC 47 CFR Part 15 class A cUL 508:1988, C(1)	
<b>LED indicators</b>		Power Supply 1, Power Supply 2, Detected Fault, Device Status, External Port Status, Internal Port Status, Serial Port Status	
<b>References</b>		<b>TCSEFEC23F3F20</b>	<b>TCSEFEA23F3F20</b>
<b>Pages</b>		25	

(1) The ConneXium Tofino Industrial Ethernet Firewalls TCSEFEA23F3F20 and TCSEFEC23F3F21 are also compliant with the Germanischer Lloyd VI-7-3 Part 1 Ed. 2003 certification.  
 (2) Length dependent on the attenuation analysis and attenuation of the fiber (typical value: 2,000 m/6,561.66 ft).  
 (3) Length dependent on the attenuation analysis and attenuation of the fiber (typical value: 15,000 m/49,212.45 ft).

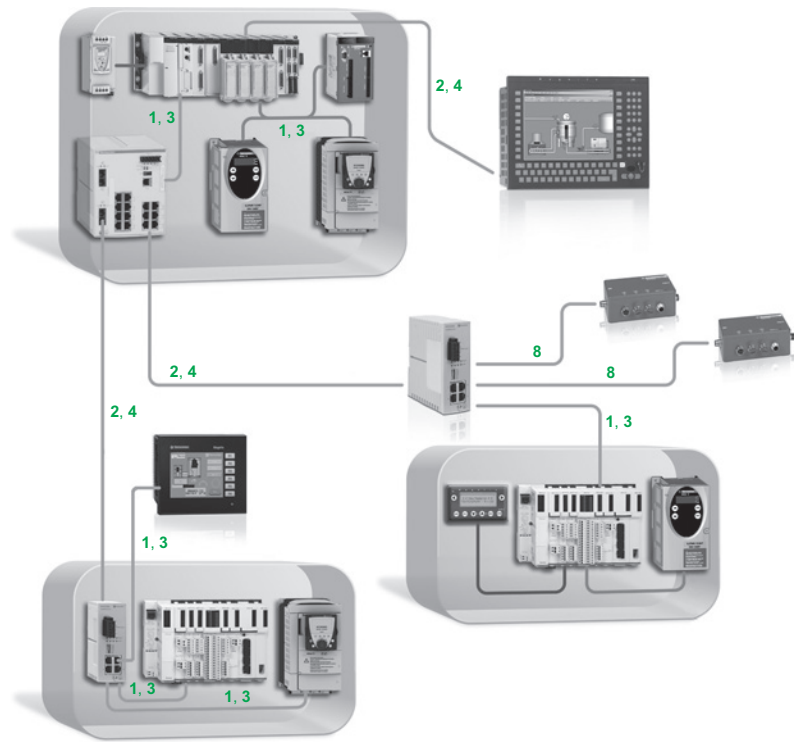
TX/TX Tofino firewall with EtherNet/IP Enforcer	TX/MM firewall	MM/TX firewall
		
2 x 10/100 BASE-TX ports for internal and external networks	1 x 10/100BASE-TX port for internal network	1 x 10/100BASE-TX port for external network
RJ45 type		
Shielded twisted pair, category CAT 5E		
100 m/328.08 ft		
-	1 x 100BASE-FX port for external network	1 x 100BASE-FX port for internal network
-	Duplex SC type	
-	Multimode fiber	
-	5,000 m/16,404.15 ft (2)	
-	4,000 m/13,123.32 ft (3)	
-	8 dB	
-	11 dB	
Menu based off-line configuration software that is included with the firewall	Configuration via Web access or command line interface Monitoring, discovery, and configuration via ConneXium Network Manager v1.2	
Built-in security modules that include Firewall, EtherNet/IP Enforcer, Modbus/TCP Enforcer, and Event Logger	Packet filtering, network address translation, VPN, denial of service, routing, redundancy	
12 to 48 V $\overline{\text{---}}$ (minimum 9 V to maximum 60 V) or 24 V $\sim$ (minimum 18 V to maximum 30 V)		
6.9 W max.	8.1 W max.	
Minimum 20 ms at 20.4 V $\overline{\text{---}}$		
0 to +60°C/+ 32 to + 140°F		
- 40 to + 70°C/- 40 to + 158°F		
10 to 95% non-condensing		
2,000 m/6,560 ft		
2		
IP 20		
240,024 hr. at + 25°C/+ 77°F	426,672 hr. at + 25°C/+ 77°F	
60 x 145 x 123 mm/2.36 x 5.71 x 4.84 in.	60 x 145 x 125 mm/2.36 x 5.71 x 4.92 in.	
35 mm/1.38 in. DIN rail		
0.615 kg/1.356 lb	0.630 kg/1.389 lb	
IEC 60068-2-6, IEC 60068-2-27, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-9, EN 55022 class A/FCC 47 CFR Part 15 class A cUL 508:1988, C(1)	EN60825-1, IEC 60068-2-6, IEC 60068-2-27, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-9, EN 55022 class A/FCC 47 CFR Part 15 class A cUL 508:1988, C(1)	
Power Supply 1, Power Supply 2, Detected Fault, Device Status, External Port Status, Internal Port Status, Serial Port Status	Power Supply 1, Power Supply 2, Detected Fault, Device Status, External Port Status, Internal Port Status, Serial Port Status	
<b>TCSEFEA23F3F21</b>	<b>TCSEFEC23FCF20</b>	<b>TCSEFEC2CF3F20</b>
25	25	

## Presentation

Schneider Electric offers copper and fiber optic cables for connecting IP 20 and IP 67 Ethernet devices.

## Examples

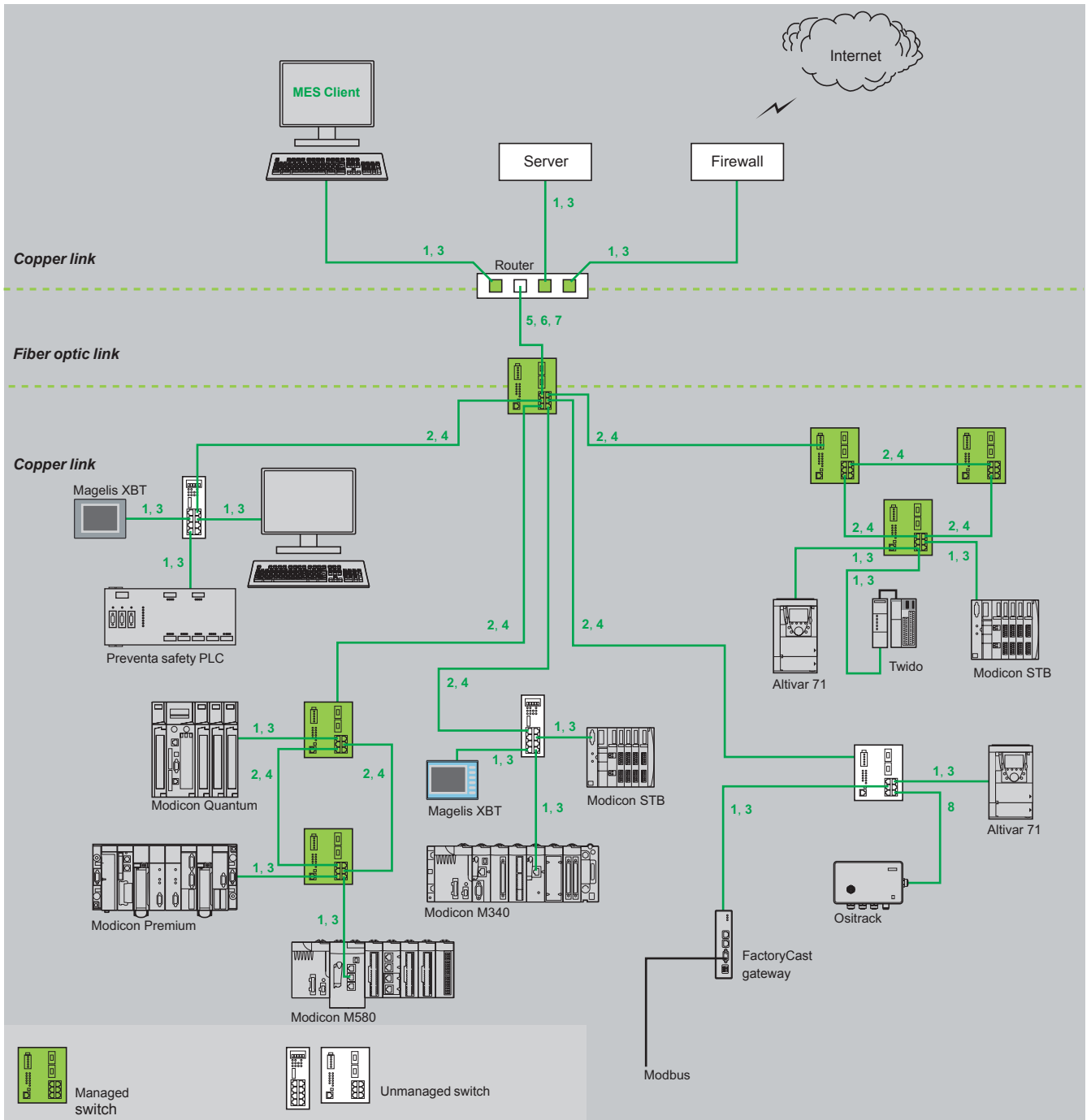
### Mixed IP 20 and IP 67 wiring (copper)



- Key:
- 1, 3: Straight-through copper cables
  - 2, 4: Crossover copper cables
  - 8: Cables with IP 67 connector (see page 19)

## Examples (continued)

### Mixed copper and fiber optic wiring



- Key:
- 1, 3: Straight-through copper cables
  - 2, 4: Crossover copper cables
  - 5, 6, 7: Fiber optic cables
  - 8: Cables with IP 67 connector (see pages 18 and 19)

# Ethernet network

## Wiring system

### ConneXium connection components

#### Shielded copper connection cables

ConneXium shielded connection cables are available in two versions to meet the various current standards and approvals:

■ **EIA/TIA 568 shielded twisted pair cables for C€ market**

These cables conform to:

- EIA/TIA-568 standard, category CAT 5E
- IEC 11801/EN 50173-1 standard, class D

Their fire resistance conforms to:

- NF C32-070 standard, class C2
- IEC 322/1 standards
- Low Smoke Zero Halogen (LSZH)

■ **EIA/TIA 568 shielded twisted pair cables for UL market**

These cables are:

- CEC type FT-1
- NEC type CM

A new range of ConneXium fully shielded preassembled cables has been specially designed for use in harsh industrial environments. These cables combine a category 5E shielded cable and RJ45 connectors reinforced with a metal profile.

#### EIA/TIA 568 shielded twisted pair cables for C€ market

Description	With connectors at both ends	No.	Type	Length m/ft	Reference	Weight kg/lb
<b>Straight-through copper cables</b> C€ compatible	2 x RJ45 connectors For connection to terminal equipment (DTE)	1	Standard	2/6.56	490NTW00002	–
				5/16.40	490NTW00005	–
				12/39.37	490NTW00012	–
				40/131.23	490NTW00040	–
				80/262.47	490NTW00080	–
			Rugged	1/3.28	TCSECE3M3M1S4	–
				2/6.56	TCSECE3M3M2S4	–
				3/9.84	TCSECE3M3M3S4	–
				5/16.40	TCSECE3M3M5S4	–
				10/32.81	TCSECE3M3M10S4	–
<b>Crossover copper cables</b> C€ compatible	2 x RJ45 connectors For connection between hubs, switches, and transceivers	2	Standard	5/16.40	490NTC00005	–
				15/49.21	490NTC00015	–
				40/131.23	490NTC00040	–
				80/262.46	490NTC00080	–



TCSEC●3M3M●●S4

#### Shielded twisted pair cables for UL market

Description	With connectors at both ends	No.	Type	Length m/ft	Reference	Weight kg/lb
<b>Straight-through copper cables</b> UL compatible	2 x RJ45 connectors For connection to terminal equipment (DTE)	3	Standard	2/6.56	490NTW00002U	–
				5/16.40	490NTW00005U	–
				12/39.37	490NTW00012U	–
				40/131.23	490NTW00040U	–
				80/262.47	490NTW00080U	–
			Rugged	1/3.28	TCSECU3M3M1S4	–
				2/6.56	TCSECU3M3M2S4	–
				3/9.84	TCSECU3M3M3S4	–
				5/16.40	TCSECU3M3M5S4	–
				10/32.81	TCSECU3M3M10S4	–
<b>Crossover copper cables</b> UL compatible	2 x RJ45 connectors For connection between hubs, switches, and transceivers	4	Standard	5/16.40	490NTC00005U	–
				40/131.23	490NTC00040U	–
				80/262.46	490NTC00080U	–

#### Do it Yourself copper cable and connectors

The ConneXium Do it Yourself offer consists of 4 references for connectors (M12 and RJ45) and 3 cable references (300 m/984.24 ft coil), enabling Ethernet 10/100 Mbps networks to be cabled in the field.

The maximum length of cables created in this way is 80 m/262.47 ft.

They are quick to assemble using a knife and simple wire cutters (no special tools are required).

Description	Characteristics	Length m/ft	Reference	Weight kg/lb
<b>Ethernet copper cable</b> 2 shielded twisted pairs AWG 24	Conforms to the standards and approvals listed above	300/984.24	TCSECN300R2	–
<b>Ethernet copper cable</b> 4 shielded twisted pairs AWG 24	Conforms to the CE standards	300/984.24	TCSECE300R2	–
	Conforms to the UL standards	300/984.24	TCSECU300R2	–
<b>M12 connector</b>	Conforms to IEC 60176-2-101	–	TCSEK1MDRS	–
<b>RJ45 connector</b>	Conforms to EIA/TIA-568-D	–	TCSEK3MDS	–
<b>RJ45 rugged connectors</b>	Set of 2 connectors	–	TCSEK3MR2	–
	Set of 10 connectors	–	TCSEK3MR10	–



490NOC00005



490NOT00005



490NOR00005

#### Glass fiber optic cables

Glass fiber optic cables are intended for connection:

- To terminal devices (DTE)
- Between hubs, transceivers, and switches

Description	With connectors at both ends	No.	Length m/ft	Reference	Weight kg/lb
Glass fiber optic cables	1 SC connector 1 MT-RJ connector	5	5/16.40	490NOC00005	–
	1 ST (BFOC) connector 1 MT-RJ connector	6	5/16.40	490NOT00005	–
	2 MT-RJ connectors	7	3/9.84	490NOR00003	–
			5/16.40	490NOR00005	–

#### Separate parts for TCSESM and TCSESB switches

Description	Fiber	Type	Reference	Weight kg/lb
Fiber optic modules for Gigabit ports with LC connector (1)	Multimode 50/125 µm or 62.5/125 µm	1000BASE-SX	TCSEAAF1LFU00	0.040/0.088
	Single-mode 9/125 µm	1000BASE-LH	TCSEAAF1LFH00	0.040/0.088
	Multimode 50/125 µm or 62.5/125 µm Single-mode 62.5/125 µm	1000BASE-LX	TCSEAAF1LFS00	0.040/0.088

Description	Use	Port	Reference	Weight kg/lb
Configuration backup key for TCS ESM switches	Connected on the front of the switch; used to: <ul style="list-style-type: none"> <li>- Save and retrieve the switch configuration</li> <li>- Update the internal software</li> </ul>	USB	TCSEAM0100	–
Configuration backup key for TCS ESB switches		RJ45 (V24)	TCSEAM0200	–

#### Connection components for IP 67 switch

Description	With connectors at both ends	No.	Length m/ft	Reference	Weight kg/lb
Straight-through copper cables	1 x IP 67 4-way M12 connector and 1 x RJ45 connector	8	1/3.28	TCSECL1M3M1S2	–
			3/9.84	TCSECL1M3M3S2	–
			10/32.81	TCSECL1M3M10S2	–
			25/82.02	TCSECL1M3M25S2	–
			40/131.23	TCSECL1M3M40S2	–
	2 x IP 67 4-way M12 connectors	–	1/3.28	TCSECL1M1M1S2	–
			3/9.84	TCSECL1M1M3S2	–
			10/32.81	TCSECL1M1M10S2	–
			25/82.02	TCSECL1M1M25S2	–
			40/131.23	TCSECL1M1M40S2	–
Power supply cables	2 female M12 straight connectors	–	2/6.56	XZCP1164L2	–
			5/16.40	XZCP1164L5	–
	2 female M12 elbowed connectors	–	2.5/8.20	XZCP1264L2	–
			5/16.40	XZCP1264L5	–
	2 female M12 straight connectors	–	–	XZCC12FDM50B	–
2 female M12 elbowed connectors	–	–	XZCC12FCM50B	–	
M12/RJ45 adapter	IP 67 4-way female M12 connector and female RJ45 connector	–	–	TCSEAAF11F13F00	–

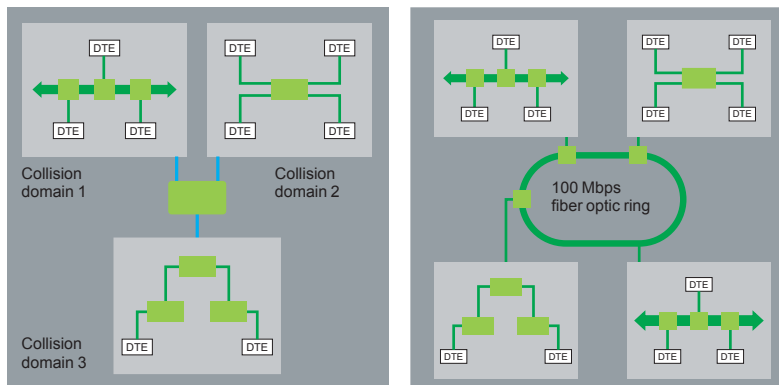
(1) Dimensions: W x H x D = 20 x 18 x 50 mm/0.787 x 0.708 x 1.968 in.

#### ConneXium unmanaged switches, twisted pair

##### Presentation

Switches are used to increase the limits of architectures based on hubs or transceivers, by separating collision domains. Higher layer communication is provided between the ports, and collisions at link layer are not propagated (filtering). They therefore improve performance by better allocation of the bandwidth due to the reduction of collisions and network load. Certain ConneXium switch models also enable redundant architectures to be created on a twisted pair copper ring or fiber optic ring.

Unmanaged switches are plug and play devices that do not need to be configured by the user. Certain models can also be managed remotely via SNMP or HTTP protocols for monitoring and diagnostic purposes.



TCSESU051F0



499NES18100

##### References

Description	Interfaces	Reference	Weight kg/ lb
ConneXium unmanaged switches	5 x 10BASE-T/100BASE-TX ports (copper cable), shielded M12 type D connectors, IP67	<b>TCSESU051F0</b>	0.210/ 0.462
	8 x 10BASE-T/100BASE-TX ports (copper cable), RJ45 shielded connectors, IP20	<b>499NES18100</b>	0.230/ 0.507

Description	With connectors at both ends	Length m/ft	Reference	Weight kg/ lb
IP67 power supply cables (for ConneXium switch TCSESU051F0)	Female M12 straight connector	2/6.56	<b>XZCP1164L2</b>	–
		5/16.40	<b>XZCP1164L5</b>	–
	Female M12 elbowed connector	2/6.56	<b>XZCP1264L2</b>	–
		5/16.40	<b>XZCP1264L5</b>	–
IP67 power supply connectors (for ConneXium switch TCSESU051F0)	Female M12 straight connector	–	<b>XZCC12FDM50B</b>	–
	Female M12 elbowed connector	–	<b>XZCC12FCM50B</b>	–

# Ethernet network

## Wiring system

### ConneXium unmanaged switches



TCSESU053FN0

#### ConneXium unmanaged switches, 3, 4, 5 and 8 ports, twisted pair and fiber optic

##### References

Description	Interfaces	Reference	Weight kg/ lb
ConneXium unmanaged switches	3 x 10BASE-T/100BASE-TX ports (copper cable), RJ45 shielded connectors	<b>TCSESU033FN0</b>	0.113/ 0.249
	<ul style="list-style-type: none"> <li>■ 4 x 10BASE-T/100BASE-TX ports (copper cable), RJ45 shielded connectors</li> <li>■ 1 x 100BASE-FX port (multimode fiber), duplex SC connector</li> </ul>	<b>TCSESU043F1N0</b>	0.120/ 0.264
	5 x 10BASE-T/100BASE-TX ports (copper cable), RJ45 shielded connectors	<b>TCSESU053FN0</b>	0.113/ 0.249
	8 x 10BASE-T/100BASE-TX ports (copper cable), RJ45 shielded connectors	<b>TCSESU083FN0</b>	0.246/ 0.542



499NMS25101

#### ConneXium unmanaged switches, 5 ports, twisted pair and fiber optic

##### References

Description	Interfaces	Reference	Weight kg/ lb
ConneXium unmanaged switches	<ul style="list-style-type: none"> <li>■ 4 x 10BASE-T/100BASE-TX ports (copper cable), RJ45 shielded connectors</li> <li>■ 1 x 100BASE-FX port (multimode fiber), duplex SC connector</li> </ul>	<b>499NMS25101</b>	0.330/ 0.728
	<ul style="list-style-type: none"> <li>■ 3 x 10BASE-T/100BASE-TX ports (copper cable), RJ45 shielded connectors</li> <li>■ 2 x 100BASE-FX ports (multimode fiber), duplex SC connector</li> </ul>	<b>499NMS25102</b>	0.335/ 0.738
	<ul style="list-style-type: none"> <li>■ 4 x 10BASE-T/100BASE-TX ports (copper cable), RJ45 shielded connectors</li> <li>■ 1 x 100BASE-FX port (single-mode fiber), duplex SC connector</li> </ul>	<b>499NSS25101</b>	0.330/ 0.728
	<ul style="list-style-type: none"> <li>■ 3 x 10BASE-T/100BASE-TX ports (copper cable), RJ45 shielded connectors</li> <li>■ 2 x 100BASE-FX ports (single-mode fiber), duplex SC connector</li> </ul>	<b>499NSS25102</b>	0.335/ 0.738



499NSS25102





TCSESM043F1CU0



TCSESM043F2CS0



TCSESM083F23F0



TCSESM083F1CU0



TCSESM083F2CS0

#### ConneXium managed switches, 4 ports, twisted pair and fiber optic

References			
Description	Interfaces	Reference	Weight kg/lb
ConneXium managed switches	<ul style="list-style-type: none"> <li>3 x 10BASE-T/100BASE-TX ports (copper cable), RJ45 shielded connectors</li> <li>1 x 100BASE-FX port (multimode fiber), duplex SC connector</li> </ul>	TCSESM043F1CU0	0.400/0.881
	<ul style="list-style-type: none"> <li>2 x 10BASE-T/100BASE-TX ports (copper cable), RJ45 shielded connectors</li> <li>2 x 100BASE-FX ports (multimode fiber), duplex SC connector</li> </ul>	TCSESM043F2CU0	0.400/0.881
	<ul style="list-style-type: none"> <li>3 x 10BASE-T/100BASE-TX ports (copper cable), RJ45 shielded connectors</li> <li>1 x 100BASE-FX port (single-mode fiber), duplex SC connector</li> </ul>	TCSESM043F1CS0	0.400/0.881
	<ul style="list-style-type: none"> <li>2 x 10BASE-T/100BASE-TX ports (copper cable), RJ45 shielded connectors</li> <li>2 x 100BASE-FX ports (single-mode fiber), duplex SC connector</li> </ul>	TCSESM043F2CS0	0.400/0.881

#### ConneXium managed switches, 4 and 8 ports, twisted pair

References			
Description	Interfaces	Reference	Weight kg/lb
ConneXium managed switches	4 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors	TCSESM043F23F0	0.400/0.881
	8 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors	TCSESM083F23F0	0.410/0.904

#### ConneXium managed switches, 8 ports, twisted pair and fiber optic

References			
Description	Interfaces	Reference	Weight kg/lb
ConneXium managed switches	<ul style="list-style-type: none"> <li>7 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors</li> <li>1 x 100BASE-FX port (multimode fiber), duplex SC connector</li> </ul>	TCSESM083F1CU0	0.410/0.904
	<ul style="list-style-type: none"> <li>6 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors</li> <li>2 x 100BASE-FX ports (multimode fiber), duplex SC connector</li> </ul>	TCSESM083F2CU0	0.410/0.904
	<ul style="list-style-type: none"> <li>7 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors</li> <li>1 x 100BASE-FX port (single-mode fiber), duplex SC connector</li> </ul>	TCSESM083F1CS0	0.410/0.904
	<ul style="list-style-type: none"> <li>6 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors</li> <li>2 x 100BASE-FX ports (single-mode fiber), duplex SC connector</li> </ul>	TCSESM083F2CS0	0.410/0.904

# Ethernet network

## Wiring system

### ConneXium managed switches



TCSESB083F23F0

#### Basic ConneXium managed switches, 8 and 9 ports, twisted pair and fiber optic

##### References

Description	Interfaces	Reference	Weight kg/ lb
Basic ConneXium managed switches	8 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors	<b>TCSESB083F23F0</b>	0.400/ 0.881
	<ul style="list-style-type: none"> <li>■ 6 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors</li> <li>■ 2 x 100BASE-FX ports (multimode fiber), duplex SC connector</li> </ul>	<b>TCSESB083F2CU0</b>	0.400/ 0.881
	<ul style="list-style-type: none"> <li>■ 6 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors</li> <li>■ 3 x 100BASE-FX ports (multimode fiber), duplex SC connector</li> </ul>	<b>TCSESB093F2CU0</b>	0.400/ 0.881



TCSESM063F2CS1

#### ConneXium managed switches, 8 extended ports, twisted pair and fiber optic

##### References

Description	Interfaces	Reference	Weight kg/ lb
ConneXium managed switches	8 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors, IP30	<b>TCSESM083F23F1 (1)</b>	1.000/ 2.205
	<ul style="list-style-type: none"> <li>■ 6 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors, IP30</li> <li>■ 2 x 100BASE-FX ports (multimode fiber), duplex SC connector</li> </ul>	<b>TCSESM063F2CU1 (1)</b>	1.000/ 2.205
	<ul style="list-style-type: none"> <li>■ 6 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors, IP30</li> <li>■ 2 x 100BASE-FX ports (single-mode fiber), duplex SC connector</li> </ul>	<b>TCSESM063F2CS1 (1)</b>	1.000/ 2.205

(1) Available in Conformal Coating version. For this version, add the letter **C** at the end of the reference. For example, the **TCSESM083F23F1** switch becomes **TCSESM083F23F1C** in the Conformal Coating version. For further information on treatments for harsh environments, please consult our website [www.schneider-electric.com](http://www.schneider-electric.com).

# Ethernet network

## Wiring system

### ConneXium managed switches



TCSESM163F23F0



TCSESM243F2CU0



TCSESM103F2LG0



TCSESM103F23G0

#### ConneXium managed switches, 16 and 24 ports, twisted pair and fiber optic

References			
Description	Interfaces	Reference	Weight kg/lb
ConneXium managed switches	16 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors	TCSESM163F23F0	0.600/1.323
	<ul style="list-style-type: none"> <li>■ 14 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors</li> <li>■ 2 x 100BASE-FX ports (multimode fiber), duplex SC connector</li> </ul>	TCSESM163F2CU0	0.600/1.323
	<ul style="list-style-type: none"> <li>■ 14 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors</li> <li>■ 2 x 100BASE-FX ports (single-mode fiber), duplex SC connector</li> </ul>	TCSESM163F2CS0	0.600/1.323
	<ul style="list-style-type: none"> <li>■ 22 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors</li> <li>■ 2 x 100BASE-FX ports (multimode fiber), duplex SC connector</li> </ul>	TCSESM243F2CU0	0.650/1.433

#### ConneXium managed switches, 8 ports and 2 Gigabit ports, twisted pair and fiber optic

References			
Description	Interfaces	Reference	Weight kg/lb
ConneXium managed switches	<ul style="list-style-type: none"> <li>■ 8 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors</li> <li>■ 2 x 1000BASE-SX ports (multimode fiber) (1), or</li> <li>■ 2 x 1000BASE-LH ports (single-mode fiber) (2), or</li> <li>■ 2 x 1000BASE-LX ports (single-mode and multimode fiber) (3)</li> </ul>	TCSESM103F2LG0	0.410/0.903
	<ul style="list-style-type: none"> <li>■ 8 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors</li> <li>■ 2 x 10/100/1000BASE-TX (Gigabit) ports (copper cable), RJ45 shielded connectors</li> </ul>	TCSESM103F23G0	0.410/0.903

(1) With TCSEAAF1LFU00 fiber optic module, to be ordered separately (see page 19)

(2) With TCSEAAF1LFH00 fiber optic module, to be ordered separately (see page 19)

(3) With TCSEAAF1LFS00 fiber optic module, to be ordered separately (see page 19)

# Ethernet network

## Wiring system

### ConneXium industrial Ethernet firewalls



TCSEFEC23FCF20



TCSEFEA23F3F20

#### ConneXium industrial Ethernet firewalls

References Description	Interfaces	Reference	Weight kg/lb
<b>ConneXium industrial Ethernet firewall TX/TX</b>	2 x 10/100BASE-TX ports (copper cable) for internal and external network connections	<b>TCSEFEC23F3F20</b>	0.600/ 1.323
<b>ConneXium Tofino industrial Ethernet firewall TX/TX</b>	2 x 10/100BASE-TX ports (copper cable) for internal and external network connections	<b>TCSEFEA23F3F20</b>	0.615/ 1.355
<b>ConneXium Tofino industrial Ethernet firewall TX/TX with EtherNet/IP Enforcer</b>	2 x 10/100BASE-TX ports (copper cable) for internal and external network connections	<b>TCSEFEA23F3F21</b>	0.615/ 1.355
<b>ConneXium industrial Ethernet firewall TX/MM</b>	1 x 10/100BASE-TX port (copper cable) for internal network and 1 x 100BASE-FX port (multimode fiber) (1) for external network connections	<b>TCSEFEC23FCF20</b>	0.630/ 1.389
<b>ConneXium industrial Ethernet firewall MM/TX</b>	1 x 100BASE-FX port for internal network (multimode fiber) (1) and 1 x 10/100BASE-TX port (copper cable) (2) for external network connections	<b>TCSEFEC2CF3F20</b>	0.630/ 1.389

(1) With **TCSEAAF1LFU00** fiber optic module, to be ordered separately (see page 19)

(2) With **TCSEAAF1LFH00** fiber optic module, to be ordered separately (see page 19)

<b>4</b>		TCSEK1MDRS	18
490NOC00005	19	TCSEK3MDS	18
490NOR00003	19	TCSEK3MR2	18
490NOR00005	19	TCSEK3MR10	18
490NOT00005	19	TCSESB083F2CU0	23
490NTC00005	18	TCSESB083F23F0	23
490NTC00005U	18	TCSESB093F2CU0	23
490NTC00015	18	TCSESM043F1CS0	22
490NTC00040	18	TCSESM043F1CU0	22
490NTC00040U	18	TCSESM043F2CS0	22
490NTC00080	18	TCSESM043F2CU0	22
490NTC00080U	18	TCSESM043F23F0	22
490NTW00002	18	TCSESM063F2CS1	23
490NTW00002U	18	TCSESM063F2CU1	23
490NTW00005	18	TCSESM083F1CS0	22
490NTW00005U	18	TCSESM083F1CU0	22
490NTW00012	18	TCSESM083F2CS0	22
490NTW00012U	18	TCSESM083F2CU0	22
490NTW00040	18	TCSESM083F23F0	22
490NTW00040U	18	TCSESM083F23F1	23
490NTW00080	18	TCSESM103F2LGO	24
490NTW00080U	18	TCSESM103F23G0	24
499NES18100	20	TCSESM163F2CS0	24
499NMS25101	21	TCSESM163F2CU0	24
499NMS25102	21	TCSESM163F23F0	24
499NSS25101	21	TCSESM243F2CU0	24
499NSS25102	21	TCSESU033FN0	21
		TCSESU043F1N0	21
		TCSESU051F0	20
		TCSESU053FN0	21
		TCSESU083FN0	21
<b>T</b>		<b>X</b>	
TCSEAAF1LFH00	19	XZCC12FCM50B	19
TCSEAAF1LFS00	19	XZCC12FDM50B	19
TCSEAAF1LFU00	19	XZCP1164L2	19
TCSEAAF11F13F00	19	XZCP1164L5	19
TCSEAM0100	19	XZCP1264L2	19
TCSEAM0200	19	XZCP1264L5	19
TCSECE3M3M1S4	18		
TCSECE3M3M2S4	18		
TCSECE3M3M3S4	18		
TCSECE3M3M5S4	18		
TCSECE3M3M10S4	18		
TCSECE300R2	18		
TCSECL1M1M1S2	19		
TCSECL1M1M3S2	19		
TCSECL1M1M10S2	19		
TCSECL1M1M25S2	19		
TCSECL1M1M40S2	19		
TCSECL1M3M1S2	19		
TCSECL1M3M3S2	19		
TCSECL1M3M10S2	19		
TCSECL1M3M25S2	19		
TCSECL1M3M40S2	19		
TCSECN300R2	18		
TCSECU3M3M1S4	18		
TCSECU3M3M2S4	18		
TCSECU3M3M3S4	18		
TCSECU3M3M5S4	18		
TCSECU3M3M10S4	18		
TCSECU300R2	18		
TCSEFEA23F3F20	25		
TCSEFEA23F3F21	25		
TCSEFEC23F3F20	25		
TCSEFEC23F3F20	25		
TCSEFEC23FCF20	25		





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