



Modicon Networking

Connecting Ethernet Devices



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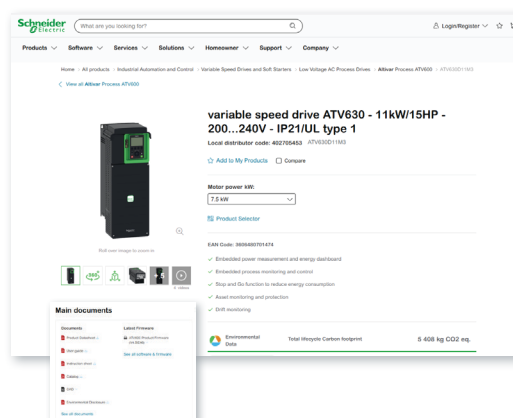


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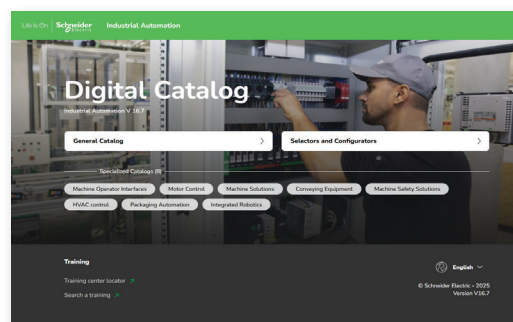
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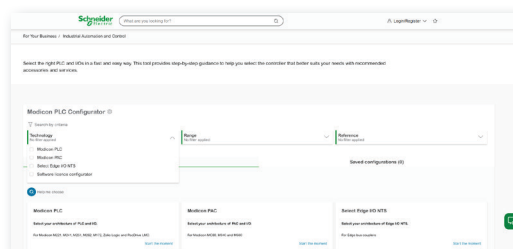
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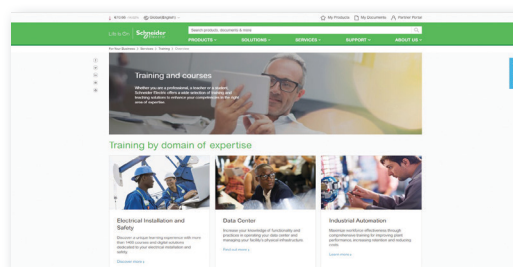
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- Configure your [control system with a PLC controller and I/O modules](#)
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CONNECT.
PROTECT.
PERFORM.



Modicon Switch | Secure, Scalable
Industrial networking solutions that keep your world running

General contents

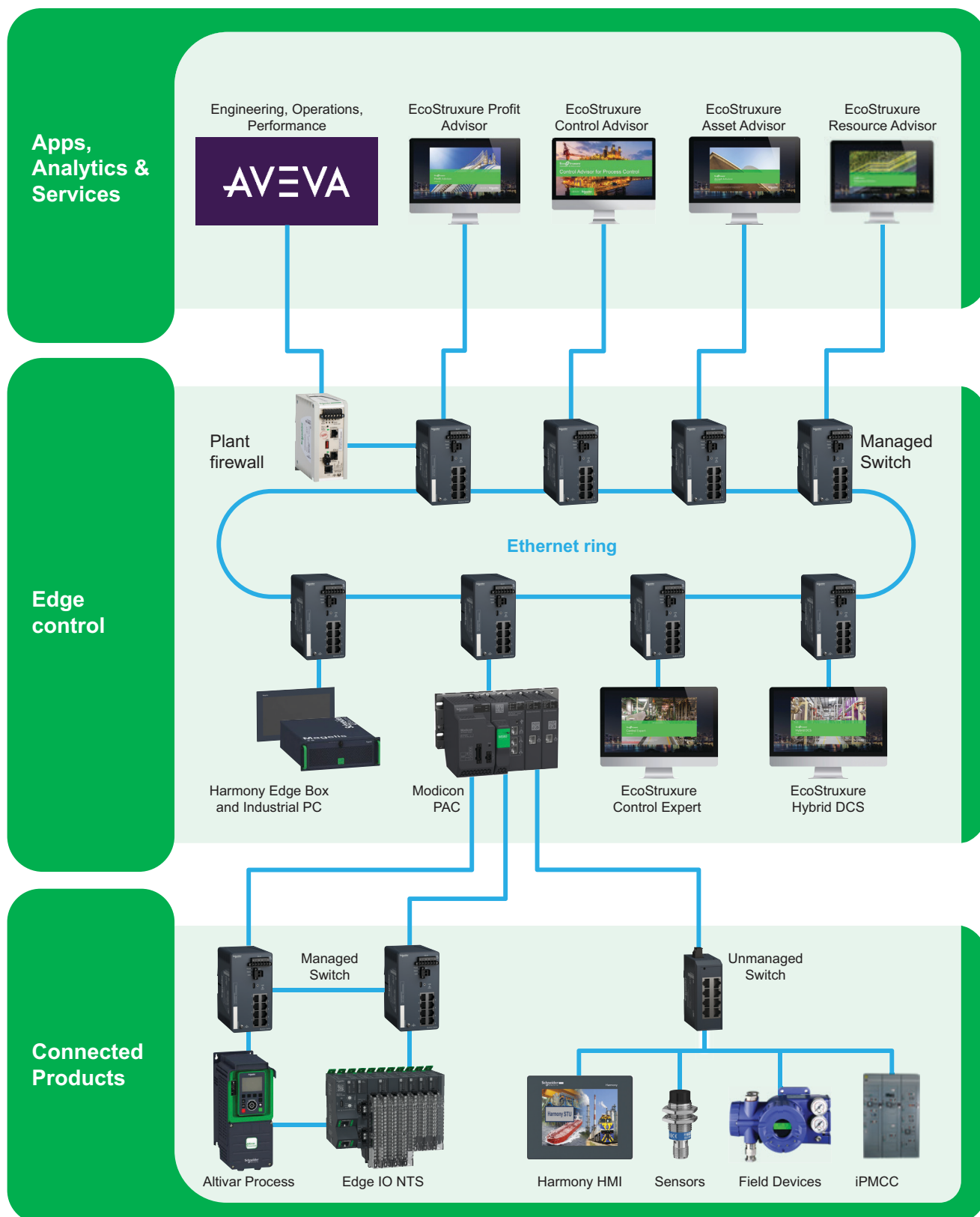
Modicon Networking - Connecting Ethernet devices

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Industrial Ethernet Architecture

Ethernet Architecture

Modicon Networking is a complete offer portfolio of Ethernet connectivity products. It connects all the EcoStruxure stacks together in an efficient and secure manner.



Ethernet Networking offers

Based on the complexity and application, we provide networking products in different categories and levels, covering unmanaged switches, managed switches and firewalls.



Industrial Ethernet Switch

Standard Unmanaged Switch,
IP67 Unmanaged Switch

Device type			Standard Unmanaged Switch, 5TX	Standard Unmanaged Switch, 4TX/1FX-MM	Standard Unmanaged Switch, 8TX	Standard Unmanaged Switch, 6TX/2FX-MM	Standard Unmanaged Switch, 6TX/2FX-SM	IP67 Unmanaged Switch, 5TX	
									
Interfaces	Copper cable ports	Number and type	5 x 10/100BASE-TX ports	4 x 10/100BASE-TX ports	8 x 10/100BASE-TX ports	6 x 10/100BASE-TX ports		5 x 10/100BASE-TX ports	
		Shielded connectors	RJ45						
		Medium	Shielded twisted pair, category CAT 5E						
		Total length of pair	100 m/328 ft						
	Fiber optic ports	Number and type	–	1 x 100BASE-FX port	–	2 x 100BASE-FX port		–	
		Connectors	–	Duplex SC	–	Duplex SC		–	
		Medium	–	Multimode fiber	–	Multimode fiber		Singlemode fiber	
	Length of fiber	50/125 µm	–	5,000 m/16,404 ft (1)	–	5,000 m/16,404 ft (1)		–	
		62.2/125 µm	–	4,000 m/13,123 ft (1)	–	4,000 m/13,123 ft (1)		–	
		9/125 µm	–	–	–	30,000 m/98,425 ft (2)		–	
Attenuation analysis	50/125 µm fiber	–	8 dB	–	8 dB		–		
	62.2/125 µm fiber	–	11 dB	–	11 dB		–		
	9/125 µm fiber	–	–	–	16 dB		–		
Ethernet services	–								
Configuration	–								
Redundancy			–						
Power supply	Voltage	12...24 V $\overline{\text{---}}$ (9.6...32 V) SELV							
	Consumption	1.3 W	2.4 W	1.5 W	3.8 W		24 V $\overline{\text{---}}$ (18...32 V) SELV		
	Removable terminal block	3 - pin							5 - pin, with M12 (type A, male)
Operating temperature			0...+ 60°C/+ 32...+ 140°F						
Relative humidity			10...95% non-condensing						
Degree of protection			IP 30						
Dimensions		W x H x D	26 x 102 x 79 mm/1.02 x 4.01 x 3.11 in.		38 x 102 x 79 mm/1.50 x 4.02 x 3.11 in.	45 x 110 x 88 mm/1.77 x 4.33 x 3.46 in.		60 x 126 x 31 mm/2.36 x 4.96 x 1.22 in.	
Mounting			On symmetrical DIN rail, 35 mm/1.38 in. wide						
Weight			0.125 kg/0.275 lb	0.130 kg/0.285 lb	0.150 kg/0.331 lb	0.235 kg/0.518 lb		0.210 kg/0.463 lb	
Mean Time between Failure (MTBF)		At 25 °C	2,845,546	2,218,157	2,282,903	1,499,396		–	
Conforming to standards			IEC/EN 61131-2, UL 61010-1, UL 61010-2-201, CAN/CSA C22.2 No. 61010-1, CAN/CSA C22.2 No. 61010-2-201						
LED indicators			Power supply, link status, data status						
Alarm relay			–			–			
Reference			MCSESU053FN0	MCSESU053F1CU0	MCSESU083FN0	MCSESU083F2CU0	MCSESU083F2CS0	TCSESU051F0	
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(1) Length dependent on the attenuation analysis and attenuation of the fiber (typical value: 2,000 m/6,561 ft).

(2) Length dependent on the attenuation analysis and attenuation of the fiber (typical value: 15,000 m/49,212 ft).

Industrial Ethernet Switch
Premium Unmanaged Switch

Device type			Premium Unmanaged Switch, 4TX/1FX-MM	Premium Unmanaged Switch, 4TX/1FX-SM	Premium Unmanaged Switch, 8TX	Premium Unmanaged Switch, 7TX/2FX-MM	Premium Unmanaged Switch, 7TX/2FX-SM					
												
Interfaces	Copper cable ports	Number and type	4 x 10/100BASE-TX ports			8 x 10/100BASE-TX ports		7 x 10/100BASE-TX ports				
		Shielded connectors	RJ45									
		Medium	Shielded twisted pair, category CAT 5E									
		Total length of pair	100 m/328 ft									
	Fiber optic ports	Number and type	1 x 100BASE-FX port			—		2 x 100BASE-FX port				
		Connectors	Duplex SC			—		Duplex SC				
		Medium	Multimode fiber	Single-mode fiber		—		Multimode fiber		Single-mode fiber		
		Length of fiber	50/125 µm	5,000 m/16,404 ft (1)			—		5,000 m/16,404 ft (1)		—	
	62.2/125 µm		4,000 m/13,123 ft (1)			—		4,000 m/13,123 ft (1)		—		
	9/125 µm		—			30,000 m/98,425 ft (2)		—		30,000 m/98,425 ft (2)		
	Attenuation analysis	50/125 µm fiber	8 dB			—		8 dB		—		
		62.2/125 µm fiber	11 dB			—		11 dB		—		
		9/125 µm fiber	—			16 dB		—		16 dB		
	Ethernet services		QoS, aging time, flow control, broadcast storm protection/threshold, multicast storm protection/threshold, port based priority, link alarm									
Configuration		USB Master mode, USB 2.0 type A										
Redundancy			—									
Power supply	Voltage		12 ... 24 V $\overline{\text{DC}}$ (9.6...32 V) SELV									
	Consumption		4.3 W			2.6 W		6.9 W				
	Removable terminal block		6 - pin (redundant power supplies)									
Operating temperature			- 40...+ 70°C/- 40...+ 158°F									
Relative humidity			10...95% non-condensing									
Degree of protection			IP 40									
Dimensions		W x H x D	39 x 135 x 117 mm/1.53 x 5.31 x 4.61 in.			50 x 135 x 117 mm/1.97 x 5.31 x 4.50 in.		56 x 135 x 117 mm/2.20 x 5.31 x 4.61 in.				
Mounting			On symmetrical DIN rail, 35 mm/1.38 in. wide									
Weight			0.430 kg/0.948 lb			0.440 kg/0.970 lb		0.510 kg/1.124 lb				
Conforming to standards			IEC/EN 61131-2, UL 61010-1, UL 61010-2-201, CAN/CSA C22.2 No. 61010-1, CAN/CSA C22.2 No. 61010-2-201, IACS E10, UL 121201 / CSA C22.2 No. 213 Class I Division 2									
LED indicators			P1 and P2 power supplies, link status, data status									
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			TCSESPU053F1CU0		TCSESPU053F1CS0		TCSESPU083FN0		TCSESPU093F2CU0		TCSESPU093F2CS0	
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(1) Length dependent on the attenuation analysis and attenuation of the fiber (typical value: 2,000 m/6,561 ft).
(2) Length dependent on the attenuation analysis and attenuation of the fiber (typical value: 15,000 m/49,212 ft).



Industrial Ethernet Switch
Lite Managed Switch, Basic Managed Switch

Device type			Lite Managed Switch, 4TX	Basic Managed Switch, 8TX	Basic Managed Switch, 6TX/2FX-MM	Basic Managed Switch, 6TX/3FX-MM
						
Interfaces	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 ft			
	Fiber optic ports	Number and type	–		2 x 100BASE-FX ports	3 x 100BASE-FX ports
		Connectors	–		Duplex SC	
		Medium	–		Multimode fiber	
	Length of fiber	50/125 µm	–		5,000 m/16,404 ft (1)	
		62.2/125 µm	–		4,000 m/13,123 ft (1)	
		9/125 µm	–			
	Attenuation analysis	50/125 µm fiber	–		8 dB	
		62.2/125 µm fiber	–		11 dB	
		9/125 µm fiber	–			
Ethernet services		Web Management, HTTPS, SNMP V1/V2/V3, BOOTP server, DHCP server, Log files, remote monitoring (RMON)	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			
Configuration		–	RJ11 V.24 (RS232)			
Redundancy			RSTP	HIPER-ring, RSTP, MRP		
Power supply	Voltage	12...24 V $\overline{\text{---}}$ (9.6...32 V $\overline{\text{---}}$) SELV				
	Consumption	2.35 W	6 W	8 W	9 W	
	Removable terminal block	3 - pin	6 - pin (redundant power supplies)			
Operating temperature			0...+ 50 °C/+ 32...122 °F	0...+ 60 °C/+ 32...+ 140 °F		
Relative humidity			5...95% non-condensing	10...95% non-condensing		
Degree of protection			IP 30	IP 20		
Dimensions			W x H x D	25 x 114 x 79 mm/0.98 x 4.49 x 3.11 in.	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.
Mounting			On symmetrical DIN rail, 35 mm/1.38 in. wide			
Weight			0.103 kg/0.227 lb	0.400 kg/0.882 lb	0.410 kg/0.904 lb	
Conforming to standards			IEC/EN 61131-2, UL 61010-1, UL 61010-2-201, CAN/CSA C22.2 No. 61010-1, CAN/CSA C22.2 No. 61010-2-201	IEC/EN 61131-2, UL 508, CAN/CSA C22.2 No. 142, UL 121201 / CSA C22.2 No. 213 Class I Division 2		
LED indicators			Power supply status, link status, data rate	Power supply status, alarm relay status, active redundancy, redundancy management, port status		
Alarm relay			–	Detected fault (power supply, Ethernet network, or communication port) (volt-free contact 1 A max. at 24 V $\overline{\text{---}}$)		
Reference			TCSESL043F23F0	TCSESB083F23F0	TCSESB083F2CU0	TCSESB093F2CU0
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(1) Length dependent on the attenuation analysis and attenuation of the fiber (typical value: 2,000 m/6,561 ft).



Industrial Ethernet Switch
Standard Managed Switch

Device type			Standard Managed Switch, 4TX	Standard Managed Switch, 4TX/1FX-MM	Standard Managed Switch, 4TX/1FX-SM	Standard Managed Switch, 4TX/2FX-MM	Standard Managed Switch, 4TX/2FX-SM	Standard Managed Switch, 8TX	Standard Managed Switch, 8TX, Harsh	
										
Interfaces	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 ft								
	Fiber optic ports	Number and type	–		1 x 100BASE-FX port		2 x 100BASE-FX ports		–	
		Connectors	–		Duplex SC		–		–	
		Medium	–		Multimode fiber		Multimode fiber		–	
	Length of fiber	50/125 µm	–		5,000 m/16,404 ft (1)		5,000 m/16,404 ft (1)		–	
		62.2/125 µm	–		4,000 m/13,123 ft (1)		4,000 m/13,123 ft (1)		–	
		9/125 µm	–		30,000 m/98,425 ft (2)		30,000 m/98,425 ft (2)		–	
Attenuation analysis	50/125 µm fiber	–		8 dB		8 dB		–		
	62.2/125 µm fiber	–		11 dB		11 dB		–		
	9/125 µm fiber	–		16 dB		16 dB		–		
Configuration		USB Type- C (3)								
Software function	Switching		Rate limiter, filter for MAC address, IGMP snooping, TSN, MRP-IEEE, GARP, QoS/priority, VLAN							
	Configuration		Web-based management, Command Line Interface, EAM (USB), Text-based Configuration File (XML), Ethernet Switch Configurator, DHCP Server, Full-featured MIB Support							
	Management		IPv6 Management, LLDP, SSHv2, HTTP, HTTPS, SNMP v1/v2/v3, Telnet, TFTP, SFTP, SCP, DNS Client							
	Security		User Management, Authentication List, LDAP, Management Access, Pre-login Banner, SSH Known Hosts, Port Security, 802.1x, RADIUS assignment, DoS, DHCP Snooping, IP Source Guard, dynamic ARP Inspection, ACL, TATACS+							
	Time Synchronization		SNTP Server/Client, Buffered Real Time Clock, PTPv2 Transparent Clock/Boundary Clock, 802.1AS							
	Industrial Profiles		EtherNet/IP, Modbus TCP, IEC61850 MMS Server, OPC UA Server							
	Diagnostic		LED, Email Notification, Syslog, LLDP, Loop Protection, SFLOW, RSPAN, Signal Contact, TCPDump, Port Mirroring, SFP Management							
	Miscellaneous		Digital IO Management							
Redundancy			HIPER-Ring (Client), RSTP, MRP, MSTP, Link Aggregation, Link Backup, Redundant network coupling, Redundant Coupling Protocol							
Power supply	Voltage		12...24 V ⎓ (9.6...32 V ⎓) SELV							
	Consumption		5 W	6 W		7 W		6 W		
	Removable terminal block		6-pin (redundant power supplies)							
Operating temperature			0...+ 60°C/+ 32...+ 140°F							-40...+ 70°C/ -40...+ 158°F
Relative humidity			1...95% non-condensing							
Degree of protection			IP 30							
Dimensions		W x H x D	57 x 142.8 x 117.6 mm/2.24 x 5.62 x 4.57 in.						73 x 142.8 x 117.6 mm/2.87 x 5.62 x 4.57 in.	
Mounting			On symmetrical DIN rail, 35 mm/1.38 in. wide							
Weight			0.380 kg/0.837 lb	0.420 kg/0.925 lb					0.500 kg/1.102 lb	
Mean Time between Failure (MTBF)	At 25 °C		5,880,430	3,577,779		2,638,177		4,467,842		
	At 60 °C		1,703,256	858,123		596,279		1,399,895		
Conforming to standards			IEC/EN 61131-2, UL 61010-1, UL 61010-2-201, CAN/CSA C22.2 No. 61010-1, CAN/CSA C22.2 No. 61010-2-201, UL 121201 / CSA C22.2 No. 213 Class I Division 2, IEC/EN 60079-0, IEC/EN 60079-15, IACS E10, IEC 50121-4, IEC 61850-3							
LED indicators			Power supply status, device status, storage medium status, port status							
Alarm relay			Detected fault (temperature, ring redundancy, connection errors, external memory, power supply), (volt-free contact 1 A max. at 24 V ⎓)							
Reference			MCSESM043F23F0	MCSESM053F1CU0	MCSESM053F1CS0	MCSESM063F2CU0	MCSESM063F2CS0	MCSESM083F23F0	MCSESM083F23F0H	
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(1) Length dependent on the attenuation analysis and attenuation of the fiber (typical value: 2,000 m/6,561 ft).
(2) Length dependent on the attenuation analysis and attenuation of the fiber (typical value: 15,000 m/49,212 ft).
(3) The optional reference Memory Backup adapter is available in Separate parts and accessories for switches in [page 32](#).

Industrial Ethernet Switch
Standard Managed Switch

Device type			Standard Managed Switch, 8TX/1FX-MM		Standard Managed Switch, 8TX/1FX-SM		Standard Managed Switch, 8TX/2FX-MM		Standard Managed Switch, 8TX/2FX-MM, Harsh		Standard Managed Switch, 8TX/2FX-SM		Standard Managed Switch, 8TX/2FX-SM, Harsh				
																	
Interfaces	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 ft														
	Fiber optic ports	Number and type	1 x 100BASE-FX port						2 x 100BASE-FX ports								
		Connectors	Duplex SC														
		Medium	Multimode fiber			Single-mode fiber			Multimode fiber			Single-mode fiber					
	Length of fiber	50/125 µm	5,000 m/16,404 ft (1)			–			5,000 m/16,404 ft (1)			–					
		62.2/125 µm	4,000 m/13,123 ft (1)			–			4,000 m/13,123 ft (1)			–					
		9/125 µm	–			30,000 m/98,425 ft (2)			–			30,000 m/98,425 ft (2)					
	Attenuation analysis	50/125 µm fiber	8 dB			–			8 dB			–					
		62.2/125 µm fiber	11 dB			–			11 dB			–					
9/125 µm fiber		–			16 dB			–			16 dB						
Configuration		USB Type-C (3)															
Software function	Switching		Rate limiter, filter for MAC address, IGMP snooping, TSN, MRP-IEEE, GARP, QoS/priority, VLAN														
	Configuration		Web-based management, Command Line Interface, EAM (USB), Text-based Configuration File (XML), Ethernet Switch Configurator, DHCP Server, Full-featured MIB Support														
	Management		IPv6 Management, LLDP, SSHv2, HTTP, HTTPS, SNMP v1/v2/v3, Telnet, TFTP, SFTP, SCP, DNS Client														
	Security		User Management, Authentication List, LDAP, Management Access, Pre-login Banner, SSH Known Hosts, Port Security, 802.1x, RADIUS assignment, DoS, DHCP Snooping, IP Source Guard, dynamic ARP Inspection, ACL, TATACS+														
	Time Synchronization		SNTP Server/Client, Buffered Real Time Clock, PTPv2 Transparent Clock/Boundary Clock, 802.1AS														
	Industrial Profiles		EtherNet/IP, Modbus TCP, IEC61850 MMS Server, OPC UA Server														
	Dignostic		LED, Email Notification, Syslog, LLDP, Loop Protection, SFLOW, RSPAN, Signal Contact, TCPDump, Port Mirroring, SFP Management														
	Miscellaneous		Digital IO Management														
Redundancy			HIPER-Ring (Client), RSTP, MRP, MSTP, Link Aggregation, Link Backup, Redundant network coupling, Redundant Coupling Protocol														
Power supply	Voltage		12...24 V --- (9.6...32 V ---) SELV														
	Consumption		7 W						8 W								
	Removable terminal block		6-pin (redundant power supplies)														
Operating temperature			0...+ 60°C/+ 32...+ 140°F						-40...+ 70°C/ -40...+ 158°F		0...+ 60°C/+ 32...+ 140°F			-40...+ 70°C/ -40...+ 158°F			
Relative humidity			1...95% non-condensing														
Degree of protection			IP 30														
Dimensions		W x H x D	73 x 142.8 x 117.6 mm/2.87 x 5.62 x 4.57 in.														
Mounting			On symmetrical DIN rail, 35 mm/1.38 in. wide														
Weight			0.500 kg/1.102 lb						0.570 kg/1.256 lb			0.500 kg/1.102 lb			0.570 kg/1.256 lb		
Mean Time between Failure (MTBF)	At 25 °C	At 60 °C	2,957,173						2,284,631								
			752,890						543,493								
Conforming to standards			IEC/EN 61131-2, UL 61010-1, UL 61010-2-201, CAN/CSA C22.2 No. 61010-1, CAN/CSA C22.2 No. 61010-2-201, UL 121201 / CSA C22.2 No. 213 Class I Division 2, IEC/EN 60079-0, IEC/EN 60079-15, IACS E10, IEC 50121-4, IEC 61850-3														
LED indicators			Power supply status, device status, storage medium status, port status														
Alarm relay			Detected fault (temperature, ring redundancy, connection errors, external memory, power supply), (volt-free contact 1 A max. at 24 V ---)														
Reference			MCSESM093F1CU0		MCSESM093F1CS0		MCSESM103F2CU0		MCSESM103F2CU0H		MCSESM103F2CS0		MCSESM103F2CS0H				
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(1) Length dependent on the attenuation analysis and attenuation of the fiber (typical value: 2,000 m/6,561 ft).
(2) Length dependent on the attenuation analysis and attenuation of the fiber (typical value: 15,000 m/49,212 ft).
(3) The optional reference Memory Backup adapter is available in Separate parts and accessories for switches in [page 32](#).



Industrial Ethernet Switch
Standard Managed Switch

Device type			Standard Managed Switch, 8TX/4GE-TX		Standard Managed Switch, 8TX/4GE-SFP		Standard Managed Switch, 16TX	
								
Interfaces	Copper cable ports	Number and type	8 x 10/100BASE-TX + 4 x 10/100/1000BASE-TX ports		8 x 10/100BASE-TX ports		16 x 10/100BASE-TX ports	
		Shielded connectors	RJ45					
		Medium	Shielded twisted pair, category CAT 5E					
		Total length of pair	100 m/328 ft					
	Fiber optic ports	Number and type	–		4 x 100/1000BASE-SFP ports		–	
		Connectors	–				–	
		Medium	–		SFP (1)		–	
	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	–					
Configuration		USB Type-C (2)						
Software function	Switching	Rate limiter, filter for MAC address, IGMP snooping, TSN, MRP-IEEE, GARP, QoS/priority, VLAN						
	Configuration	Web-based management, Command Line Interface, EAM (USB), Text-based Configuration File (XML), Ethernet Switch Configurator, DHCP Server, Full-featured MIB Support						
	Management	IPv6 Management, LLDP, SSHv2, HTTP, HTTPS, SNMP v1/v2/v3, Telnet, TFTP, SFTP, SCP, DNS Client						
	Security	User Management, Authentication List, LDAP, Management Access, Pre-login Banner, SSH Known Hosts, Port Security, 802.1x, RADIOUS assignment, DoS, DHCP Snooping, IP Source Guard, dynamic ARP Inspection, ACL, TATACS+						
	Time Synchronization	SNTP Server/Client, Buffered Real Time Clock, PTPv2 Transparent Clock/Boundary Clock, 802.1AS						
	Industrial Profiles	EtherNet/IP, Modbus TCP, IEC61850 MMS Server, OPC UA Server						
	Dignostic	LED, Email Notification, Syslog, LLDP, Loop Protection, SFLOW, RSPAN, Signal Contact, TCPDump, Port Mirroring, SFP Management						
	Miscellaneous	Digital IO Management						
Redundancy		HIPER-Ring (Client), RSTP, MRP, MSTP, Link Aggregation, Link Backup, Redundant network coupling, Redundant Coupling Protocol						
Power supply	Voltage	12...24 V $\overline{\text{---}}$ (9.6...32 V $\overline{\text{---}}$) SELV						
	Consumption	9 W	9 W + 1 W per SFP fiber optic module		10 W			
	Removable terminal block	6-pin (redundant power supplies)						
Operating temperature		0...+ 60°C/+ 32...+ 140°F						
Relative humidity		1...95% non-condensing						
Degree of protection		IP 30						
Dimensions		W x H x D	73 x 142.8 x 117.6 mm/2.87 x 5.62 x 4.57 in.				108.8 x 142.8 x 117.6 mm/4.28 x 5.62 x 4.57 in.	
Mounting		On symmetrical DIN rail, 35 mm/1.38 in. wide						
Weight			0.700 kg/1.543 lb	0.570 kg/1.256 lb		0.880 kg/1.940 lb		
Mean Time between Failure (MTBF)	At 25 °C	3,070,388	4,326,692		3,054,970			
	At 60 °C	1,063,016	1,340,367		1,077,415			
Conforming to standards		IEC/EN 61131-2, UL 61010-1, UL 61010-2-201, CAN/CSA C22.2 No. 61010-1, CAN/CSA C22.2 No. 61010-2-201, UL 121201 / CSA C22.2 No. 213 Class I Division 2, IEC/EN 60079-0, IEC/EN 60079-15, IACS E10, IEC 50121-4 (3), IEC 61850-3						
LED indicators		Power supply status, device status, storage medium status, port status						
Alarm relay		Detected fault (temperature, ring redundancy, connection errors, external memory, power supply), (volt-free contact 1 A max. at 24 V $\overline{\text{---}}$)						
Reference		MCSESM123F23G0		MCSESM123F2LG0		MCSESM163F23F0		
Pages		27				28		

(1) Recommended SFP transceivers: MCSEAAF1LFU00, MCSEAAF1LFS00, TCSEAAF1LFS00, TCSEAAF1LFU00, TCSEAAF1LFH00. For detailed information, see 'Separate parts and accessories for switches' on [page 32](#).
(2) The optional reference Memory Backup adapter is available in *Separate parts and accessories for switches* on [page 32](#).
(3) Not applicable to Standard Managed Switch, 16TX - MCSESM163F23F0.

Industrial Ethernet Switch
Standard Managed Switch,
PoE Managed Switch

Device type			Standard Managed Switch, 16TX/4GE-SFP		Standard Managed Switch, 20TX/4GE-SFP		PoE Managed Switch, 8GE-TX		PoE Managed Switch, 8GE-TX, Extended temperature			
												
Interfaces	Copper cable ports	Number and type	16 x 10/100BASE-TX ports		20 x 10/100BASE-TX ports		8 x 10/100/1000BASE-TX ports with PoE					
		Shielded connectors	RJ45									
		Medium	Shielded twisted pair, category CAT 5E									
	Fiber optic ports	Total length of pair	100 m/328 ft									
		Number and type	4 x 100/1000BASE-SFP ports				–					
		Connectors	–									
	Length of fiber	Medium	SFP (1)				–					
		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	–										
Configuration		USB Type-C (2)										
Software function	Switching	Rate limiter, filter for MAC address, IGMP snooping, TSN, MRP-IEEE, GARP, QoS/priority, VLAN					Rate limiter, filter for MAC address, IGMP snooping, TSN, MRP-IEEE, GARP, QoS/priority, VLAN					
	Configuration	Web-based management, Command Line Interface, EAM (USB), Text-based Configuration File (XML), Ethernet Switch Configurator, DHCP Server, Full-featured MIB Support					Web-based management, Command Line Interface, EAM (USB), Text-based Configuration File (XML), Ethernet Switch Configurator, DHCP Server, Full-featured MIB Support					
	Management	IPv6 Management, LLDP, SSHv2, HTTP, HTTPS, SNMP v1/v2/v3, Telnet, TFTP, SFTP, SCP, DNS Client					IPv6 Management, LLDP, SSHv2, HTTP, HTTPS, SNMP v1/v2/v3, Telnet, TFTP, SFTP, SCP, DNS Client					
	Security	User Management, Authentication List, LDAP, Management Access, Pre-login Banner, SSH Known Hosts, Port Security, 802.1x, RADIUS assignment, DoS, DHCP Snooping, IP Source Guard, dynamic ARP Inspection, ACL, TATACS+					User Management, Authentication List, LDAP, Management Access, Pre-login Banner, SSH Known Hosts, Port Security, 802.1x, RADIUS assignment, DoS, DHCP Snooping, IP Source Guard, dynamic ARP Inspection, ACL, TATACS+					
	Time Synchronization	SNTP Server/Client, Buffered Real Time Clock, PTPv2 Transparent Clock/Boundary Clock, 802.1AS					SNTP Server/Client, Buffered Real Time Clock, PTPv2 Transparent Clock/Boundary Clock, 802.1AS					
	Industrial Profiles	EtherNet/IP, Modbus TCP, IEC61850 MMS Server, OPC UA Server					EtherNet/IP, Modbus TCP, IEC61850 MMS Server, OPC UA Server					
	Dignostic	LED, Email Notification, Syslog, LLDP, Loop Protection, SFLOW, RSPAN, Signal Contact, TCPDump, Port Mirroring, SFP Management					LED, Email Notification, Syslog, LLDP, Loop Protection, SFLOW, RSPAN, Signal Contact, TCPDump, Port Mirroring, SFP Management					
	Miscellaneous	Digital IO Management					Digital IO Management, PoE, PoE+					
Redundancy			HIPER-Ring (Client), RSTP, MRP, MSTP, Link Aggregation, Link Backup, Redundant network coupling, Redundant Coupling Protocol									
Power supply	Voltage	12...24 V  (9.6...32 V ) SELV					24 V  (18...30 V ) SELV					
	Consumption	15 W + 1 W per SFP fiber optic module		16 W + 1 W per SFP fiber optic module			106 W (90W for PoE Power Output)					
	Removable terminal block	6 - pin (redundant power supplies)										
Operating temperature			0...+ 60°C/+ 32...+ 140°F					-40...+ 70°C/ -40...+ 158°F				
Relative humidity			1...95% non-condensing									
Degree of protection			IP 30									
Dimensions		W x H x D	108.8 x 142.8 x 117.6 mm/4.28 x 5.62 x 4.57 in.				122.4 x 144.2 x 117.15 mm/4.82 x 5.68 x 4.61 in.					
Mounting			On symmetrical DIN rail, 35 mm/1.38 in. wide									
Weight			0.95 kg/2.0943 lb		1.05 kg/2.315 lb			1.4 kg/3.086 lb				
Mean Time between Failure (MTBF)	At 25 °C		2,972,379		2,311,547			548,815		548,815		
	At 60 °C		1,033,659		852,976			200,801		200,801		
Conforming to standards			IEC/EN 61131-2, UL 61010-1, UL 61010-2-201, CAN/CSA C22.2 No. 61010-1, CAN/CSA C22.2 No. 61010-2-201, UL 121201 / CSA C22.2 No. 213 Class I Division 2, IEC/EN 60079-0, IEC/EN 60079-15, IACS E10, EN50121-4 (3), IEC 61850-3									
LED indicators			Power supply status, device status, storage medium status, port status									
Alarm relay			Detected fault (temperature, ring redundancy, connection errors, external memory, power supply), (volt-free contact 1 A max. at 24 V )									
Reference			MCSESM203F4LG0			MCSESM243F4LG0			MCSESP083F23G0			
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(1) Recommended SFP transceivers: MCSEAAF1LFU00, MCSEAAF1LFS00, TCSEAAF1LFS00, TCSEAAF1LFU00, TCSEAAF1LFH00. For detailed information, see 'Separate parts and accessories for switches' on page 32.
(2) The optional reference Memory Backup adapter is available in Separate parts and accessories for switches on page 32.
(3) Not applicable to Standard Managed Switch, MCSESM203F4LG0 and MCSESM243F4LG0.

Industrial Ethernet Switch
Extended Managed Switch

Device type			Extended Managed Switch, 8TX		Extended Managed Switch, 8TX, Harsh		Extended Managed Switch, 8TX/2FX-MM		Extended Managed Switch, 8TX/2FX-MM, Harsh		Extended Managed Switch, 8TX/2FX-SM		Extended Managed Switch, 8TX/2FX-SM, Harsh							
																				
Interfaces	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 ft																	
	Fiber optic ports	Number and type	–					2 x 100BASE-FX ports												
		Connectors	–					Duplex SC												
		Medium	–					Multimode fiber				Single-mode fiber								
		Length of fiber	50/125 µm	–					5,000 m/16,404 ft (1)		–									
	Attenuation analysis	62.2/125 µm	–					4,000 m/13,123 ft (1)		–										
		9/125 µm	–							30,000 m/98,425 ft (2)										
50/125 µm fiber		–					8 dB		–											
62.2/125 µm fiber		–					11 dB		–											
9/125 µm fiber	–							16 dB												
Configuration		USB Type-C (3)																		
Software function	Switching		Rate limiter, filter for MAC address, IGMP snooping, TSN, MRP-IEEE, GARP, QoS/priority, VLAN																	
	Configuration		Web-based management, Command Line Interface, EAM (USB), Text-based Configuration File (XML), Ethernet Switch Configurator, Full-featured MIB Support																	
	Management		IPv6 Management, LLDP, SSHv2, HTTP, HTTPS, SNMP v1/v2/v3, Telnet, TFTP, SFTP, SCP, DNS Client																	
	Security		User Management, Authentication List, LDAP, Management Access, Pre-login Banner, SSH Known Hosts, Port Security, 802.1x, RADIUS assignment, DoS, DHCP Snooping, IP Source Guard, dynamic ARP Inspection, ACL																	
	Time Synchronization		SNTP Server/Client, Buffered Real Time Clock, PTPv2 Transparent Clock/Boundary Clock, 802.1AS																	
	Industrial Profiles		EtherNet/IP, Modbus TCP, IEC61850 MMS Server																	
	Dignostic		LED, Email Notification, Syslog, LLDP, Loop Protection, Signal Contact, TCPDump, Port Mirroring, SFP Management																	
	Miscellaneous		Digital IO Management																	
Redundancy			HIPER-Ring (Client), RSTP, MRP, Link Aggregation, Link Backup, Redundant network coupling, Redundant Coupling Protocol, dual-RSTP ring coupling																	
Power supply	Voltage		12...24 V $\overline{\text{---}}$ (9.6...32 V $\overline{\text{---}}$) SELV																	
	Consumption		6 W					8 W												
	Removable terminal block		6 - pin (redundant power supplies)																	
Operating temperature			0...+ 60°C/+ 32...+ 140°F			-40...+ 70°C/-40...+ 158°F			0...+ 60°C/+ 32...+ 140°F			-40...+ 70°C/-40...+ 158°F			0...+ 60°C/+ 32...+ 140°F			-40...+ 70°C/-40...+ 158°F		
Relative humidity			1...95% non-condensing																	
Degree of protection			IP 30																	
Dimensions		W x H x D	73 x 142.8 x 117.6 mm/2.87 x 5.62 x 4.57 in.																	
Mounting			On symmetrical DIN rail, 35 mm/1.38 in. wide																	
Weight			0.420 kg/0.925 lb			0.500 kg/1.102 lb			0.570 kg/1.256 lb			0.500 kg/1.102 lb			0.570 kg/1.256 lb					
Mean Time between Failure (MTBF)	At 25 °C		4,467,842					2,284,631												
	At 60 °C		1,399,895					543,493												
Conforming to standards			IEC/EN 61131-2, UL 61010-1, UL 61010-2-201, CAN/CSA C22.2 No. 61010-1, CAN/CSA C22.2 No. 61010-2-201, UL 121201 / CSA C22.2 No. 213 Class I Division 2, IEC/EN 60079-0, IEC/EN 60079-15, IACS E10, EN501212-4, IEC 61850-3																	
LED indicators			Power supply status, device status, storage medium status, port status																	
Alarm relay			Detected fault (temperature, ring redundancy, connection errors, external memory, power supply) (volt-free contact 1 A max. at 24 V $\overline{\text{---}}$)																	
Reference			MCSESM083F23F1			MCSESM083F23F1H			MCSESM103F2CU1			MCSESM103F2CU1H			MCSESM103F2CS1			MCSESM103F2CS1H		
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(1) Length dependent on the attenuation analysis and attenuation of the fiber (typical value: 2,000 m/6,561 ft).
(2) Length dependent on the attenuation analysis and attenuation of the fiber (typical value: 15,000 m/49,212 ft).
(3) The optional reference Memory Backup adapter is available in Separate parts and accessories for switches in [page 32](#).

Industrial Ethernet Switch
Redundancy Switch

Device type			Redundancy Switch, 4TX	Redundancy Switch, 4TX, Coated	Redundancy Switch, 2TX/2SFP	Redundancy Switch, 2TX/2SFP, Coated
						
Interfaces	Copper cable ports	Number and type	4 x 10/100BASE-TX ports			2 x 10/100BASE-TX ports
		Shielded connectors	RJ45			
		Medium	Shielded twisted pair, category CAT 5E			
		Total length of pair	100 m/328 ft			
	Fiber optic ports	Number and type	–			2 x 100BASE-SFP ports
		Connectors	–			
	Length of fiber	Medium	–			SFP (1)
		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		Web Management, SNMP V1/V2/V3, BOOTP server, DHCP server, Ethernet TCP/IP, SSH, HTTP, HTTPS, SFTP, LLDP, SNMP-Traps and SYSLOG, IGMP Snooping, VLAN, Telnet, TFTP, address conflict detection, port monitoring, port mirroring, bandwidth management, MAC notification, TCP dump, link flap detection, RMON (remote network monitoring), self test, signal contact, password protection, RADIUS assignment, DoS prevention, audit trail, PTP				
Configuration		USB Type-A (2), V.24				
Redundancy			RSTP, MRP, link aggregation, link backup, PRP			
Power supply	Voltage		12...48 V $\overline{\text{---}}$ (9.6...60 V $\overline{\text{---}}$) / 24 V~(18...30 V~) SELV			
	Consumption		7 W		9 W	
	Removable terminal block		6 - pin (redundant power supplies)			
Operating temperature			0...+ 60°C/+ 32...+ 140°F	-40...+ 60°C/-40...+ 140°F	0...+ 60°C/+ 32...+ 140°F	-40...+ 60°C/-40...+ 140°F
Relative humidity			10...95% non-condensing			
Degree of protection			IP 20			
Dimensions		W x H x D	46 x 130 x 105 mm/1.81 x 5.11 x 4.13in.			
Mounting			On symmetrical DIN rail, 35 mm/1.38 in. wide			
Weight			0.290 kg/0.639 lb		0.291 kg/0.641 lb	
Mean Time between Failure (MTBF)	At 25 °C		6,494,025	6,494,025	6,468,913	6,468,913
	At 60 °C		2,075,184	2,075,184	2,044,509	2,044,509
Conforming to standards			IEC/EN 61131-2, UL 61010-2-201 / CSA C22.2 No 61010-2-201			
LED indicators			Power supply status, device status, storage medium status, redundancy status, port status			
Alarm relay			Detected fault (temperature, ring redundancy, connection errors, external memory, power supply) (volt-free contact 1000 mA max. at 24 V $\overline{\text{---}}$)			
Reference			MCSESR043F23F0	MCSESR043F23F0C	MCSESR043F2LM0	MCSESR043F2LM0C
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(1) Recommended SFP transceivers: MCSEAAF1LFU00, MCSEAAF1LFS00. For detailed information, see 'Separate parts and accessories for switches' on [page 32](#).
(2) The optional reference Memory Backup adapter is available in Separate parts and accessories for switches on 32.



Device type			Tofino Industrial Firewall TX/TX	Industrial Firewall/Router TX/TX	Industrial Firewall/Router TX/MM
					
Interfaces	Copper cable ports	Number and type	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 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	–		
Configuration tools		PC-based software tool (Tofino Configurator) that is used to create configuration files for Tofino Firewall		V.24 connection; Ethernet Switch Configurator protocol via the application Ethernet Switch Configurator; Memory Backup Adapter; Graphical User Interface	
Security capabilities			Built-in security modules (Firewall, Event Logger, Modbus/TCP Enforcer, NetConnect), optional field upgradeable modules for adding the new LSM modules for other protocols (OPC, EIP, DNP3, IEC104 and GOOSE), Tofino Configurator for creating secure zones, DoS prevention and MAC address filtering for encryption protocol.		Built-in security modules (Firewall, Event Logger, NetConnect), role-based access control, syslog protocol support, IPSec and MAC address filtering for encryption protocol.
Power supply	Voltage	12...24 V  (9.6...32 V) SELV			
	Consumption	6.9 W			
	Removable terminal block	6-pin (Redundant power supplies)			8.3 W
Operating temperature			0° to 60° C/ 32° to 140° F		
Relative humidity			10 to 95% non-condensing		
Degree of protection			IP 20		
Dimensions		W x H x D	60 x 145 x 125 mm /2.36 x 5.71 x 4.92 in.		
Mounting			On symmetrical DIN rail, 35 mm/1.38 in. wide		
Weight			0.660 kg/1.455 lb	0.610 kg/1.345 lb	
Conforming to standards			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), German Lloyd VI-7-3 Part 1 Ed. 2003, RoHS Directive, CSA C22.2 No 213 Class I Division 2, UL 1604 Class 1 Division 2, CSA C22.2 No 214, UL 508, EN/IEC 61131-2	EN 50121-4, EN 55022 (Class A), EN 60079-15, EN 60950-1, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-9, EN 61000-4-12, EN 61000-6-2, EN 61000-6-4, GL Guidelines VI-7-3 Part 1 Ed.2003 (EMC 1), FCC 47 CFR Part 15 (Class A), IEC 60068-2-6, IEC 60068-2-27, IEC 60825-1, IEC 61131-2, IEC/EN 61850-3, IEEE 802.1AB, IEEE 802.3-2002, IEEE 802.3ac, IEEE 1613, IEEE C37.90.1, IEEE C37.90.3, UL 508, 2011/65/EU (RoHS), 2004/108/EC (EMC), UL 508, CSA C22.2 No 213 Class I Division 2, CSA C22.2 No 214, UL 1604 Class 1 Division 2, EN/IEC 61131-2	
LED indicators			Power supply, link activity, detected fault, mode, save/load, reset	Device state: Power Supply 1, Power Supply 2, Detected Fault, Device Status, Router redundancy mode, EAM storage medium status; VPN status; Port state: Link status, Data status, External Port Status, Internal Port Status, Serial Port Status	
References			TCSEFEA23F3F22	TCSEFEC23F3F21	TCSEFEC23FCF21
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(1) The Tofino Industrial Ethernet Firewalls TCSEFEA23F3F20 and TCSEFEA23F3F21 are also compliant with 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 ft).
(3) Length dependent on the attenuation analysis and attenuation of the fiber (typical value: 15,000 m/49,212 ft).

Industrial Ethernet Switch

Switch comparison table

Features		Unmanaged Switches			Managed Switches				
		Standard	Premium	IP67	Lite	Basic	Standard	Extended	PoE
		MCSESU●	MCSEPU●	TCSESU051●	TCSESL●	TCSESB●	MCSESM●0(H)	MCSESM●1(H)	MCSESP●
Number of Ports (Copper, Fiber Optic, SFP)		5..8	5..9	5	4	8..9	4..24	8..10	8
Max. Number of Copper Ports		8	7	5	4	8 (6 (1))	20	8	8
Max. Number of Fiber Optic or SFP Ports		2	2	–	–	3	4	2	–
Max. Transition rate		100Mbps	100Mbps	100Mbps	100Mbps	100Mbps	1000Mbps	100Mbps	1000Mbps
Operating Temperature		0..60°C	-40..70°C	0..60°C	0..60°C	0..60°C	0..60°C (-40..70°C (2))	0..60°C (-40..70°C (2))	0..60°C (-40..70°C (2))
IP Degree of Protection		IP30	IP40	IP67	IP30	IP20	IP30	IP30	IP30
Availability Hazardous Location		–	✓	–	–	–	✓	✓	✓
Redundant Power Supply Input		–	✓	–	–	✓	✓	✓	✓
Signal Contact		–	✓	–	–	✓	✓	✓	✓
Web interface	HTTP	–	–	–	✓	✓	✓	✓	✓
	HTTPS	–	–	–	–	–	✓	✓	✓
Diagnostics	SNMP	–	–	–	✓	✓	✓	✓	✓
	Alarms	–	✓	–	✓	✓	✓	✓	✓
	LLDP	–	–	–	✓	✓	✓	✓	✓
	Port Mirroring	–	–	–	–	✓	✓	✓	✓
Cyber Security	Password	–	–	–	✓	✓	✓	✓	✓
	Access Control List (IP or MAC)	–	–	–	–	–	✓	✓	–
	Denial-of-Service	–	–	–	–	–	✓	✓	✓
	Local Role-based Access Control	–	–	–	–	–	✓	✓	✓
Redundancy	RSTP	–	–	–	✓	✓	✓	✓	✓
	MRP	–	–	–	–	✓	✓	✓	✓
	HIPER-ring	–	–	–	–	✓	✓	✓	–
	Link aggregation	–	–	–	–	–	✓	✓	✓
	Link backup	–	–	–	–	–	✓	✓	✓
	Redundant network/ring coupling	–	–	–	–	–	✓	✓	–
	Dual RSTP ring coupling	–	–	–	–	–	–	✓	–
	PRP	–	–	–	–	–	–	–	✓
Switching/ Performance	QoS	–	✓	–	✓	✓	✓	✓	✓
	Multicast IGMP/GMRP	–	–	–	–	✓	✓	✓	✓
	Flow Control	–	–	–	–	–	✓	✓	✓
Filtering	VLAN	–	–	–	–	–	✓	✓	✓
	Broadcast Limiting	–	–	–	–	–	✓	✓	✓
Time	SNTP	–	–	–	–	✓	✓	✓	✓
	PTP	–	–	–	–	–	✓	✓	✓
Advanced Function	IPv6	–	–	–	–	–	✓	✓	–
	TSN	–	–	–	–	–	✓	✓	–
	OPC UA	–	–	–	–	–	✓	✓ ⁽³⁾	–
	EC61850 MMS	–	–	–	–	–	✓	✓	✓
	Modbus TCP	–	–	–	–	–	✓	✓	✓
	EtherNet/IP	–	–	–	–	–	✓	✓	✓

(1) Max. 6 copper ports for fiber optic variants

(2) Only for harsh, extended temperature or coated variants

(3) To be supported with the future software upgrade

Selection guide:

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MCSESU053FN0



MCSESU053F1CU0



MCSESU083FN0

MCSESU083F2CU0
MCSESU083F2CS0TCSESPU053F1CU0
TCSESPU053F1CS0

TCSESPU083FN0

TCSESPU093F2CU0
TCSESPU093F2CS0

TCSESU051F0

Standard unmanaged switches, 5~8 ports, twisted pair and fiber optic

References

Description	Interfaces	Reference	Weight kg/ lb
Standard Unmanaged Switch 5TX	■ 5 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors	MCSESU053FN0	0.125/ 0.275
Standard Unmanaged Switch 4TX/1FX-MM	■ 4 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors ■ 1 x 100BASE-FX port (multimode fiber), duplex SC connector	MCSESU053F1CU0	0.130/ 0.285
Standard Unmanaged Switch 8TX	■ 8 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors	MCSESU083FN0	0.150/ 0.331
Standard Unmanaged Switch 6TX/2FX-MM	■ 6 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors ■ 2 x 100BASE-FX port (multimode fiber), duplex SC connector	MCSESU083F2CU0	0.235/ 0.518
Standard Unmanaged Switch 6TX/2FX-SM	■ 6 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors ■ 2 x 100BASE-FX port (single mode fiber), duplex SC connectors	MCSESU083F2CS0	0.235/ 0.518

Premium unmanaged switches, 5~9 ports, twisted pair and fiber optic

References

Description	Interfaces	Reference	Weight kg/ lb
Premium Unmanaged Switch 4TX/1FX-MM	■ 4 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors ■ 1 x 100BASE-FX port (multimode fiber), duplex SC connector	TCSESPU053F1CU0	0.430/ 0.948
Premium Unmanaged Switch 4TX/1FX-SM	■ 4 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors ■ 1 x 100BASE-FX port (singlemode fiber), duplex SC connectors	TCSESPU053F1CS0	0.430/ 0.948
Premium Unmanaged Switch 8TX	■ 8 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors	TCSESPU083FN0	0.440/ 0.970
Premium Unmanaged Switch 7TX/2FX-MM	■ 7 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors ■ 2 x 100BASE-FX ports (multimode fiber), duplex SC connector	TCSESPU093F2CU0	0.510/ 1.124
Premium Unmanaged Switch 7TX/2FX-SM	■ 7 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors ■ 2 x 100BASE-FX ports (singlemode fiber), duplex SC connector	TCSESPU093F2CS0	0.510/ 1.124

IP67 unmanaged switch, 5 ports, twisted pair

References

Description	Interfaces	Reference	Weight kg/ lb
IP67 Unmanaged Switch 5TX	■ 5 x 10/100BASE-TX ports (copper cable), shielded M12 type D connectors, IP67	TCSESU051F0	0.210/ 0.463



TCSESL043F23F0



TCSESB083F23F0



TCSESB083F2CU0



TCSESB093F2CU0



MCSESM043F23F0

MCSESM053F1CU0
MCSESM053F1CS0MCSESM063F2CU0
MCSESM063F2CS0

Lite managed switch, 4 ports, twisted pair

References

Description	Interfaces	Reference	Weight kg/ lb
Lite Managed Switch 4TX	■ 4 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors	TCSESL043F23F0	0.103/ 0.227

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

References

Description	Interfaces	Reference	Weight kg/ lb
Basic Managed Switch 8TX	■ 8 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors	TCSESB083F23F0	0.400/ 0.882
Basic Managed Switch 6TX/2FX-MM	■ 6 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors ■ 2 x 100BASE-FX ports (multimode fiber), duplex SC connector	TCSESB083F2CU0	0.410/ 0.904
Basic Managed Switch 6TX/3FX-MM	■ 6 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors ■ 3 x 100BASE-FX ports (multimode fiber), duplex SC connector	TCSESB093F2CU0	0.410/ 0.904

Standard managed switches, 4~6 ports, twisted pair and fiber optic

References

Description	Interfaces	Reference	Weight kg/ lb
Standard Managed Switch 4TX	■ 4 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors	MCSESM043F23F0	0.380/ 0.837
Standard Managed Switch 4TX/1FX-MM	■ 4 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors ■ 1 x 100BASE-FX ports (multimode fiber), duplex SC connector	MCSESM053F1CU0	0.420/ 0.925
Standard Managed Switch 4TX/1FX-SM	■ 4 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors ■ 1 x 100BASE-FX ports single mode fiber, duplex SC connector	MCSESM053F1CS0	0.420/ 0.925
Standard Managed Switch 4TX/2FX-MM	■ 4 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors ■ 2 x 100BASE-FX ports (multimode fiber), duplex SC connector	MCSESM063F2CU0	0.420/ 0.925
Standard Managed Switch 4TX/2FX-SM	■ 4 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors ■ 2 x 100BASE-FX ports (single mode fiber), duplex SC connector	MCSESM063F2CS0	0.420/ 0.925



MCSESM083F23F0
MCSESM083F23F0H



MCSESM093F1CU0
MCSESM093F1CS0



MCSESM103F2CU0
MCSESM103F2CU0H
MCSESM103F2CS0
MCSESM103F2CS0H



MCSESM123F2LG0



MCSESM123F23G0

Standard managed switches, 8~10 ports, twisted pair and fiber optic

References

Description	Interfaces	Reference	Weight kg/ lb
Standard Managed Switch 8TX	■ 8 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors	MCSESM083F23F0	0.420/ 0.925
Standard Managed Switch 8TX - Harsh	■ 8 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors	MCSESM083F23F0H	0.500/ 1.102
Standard Managed Switch 8TX/1FX-MM	■ 8 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors ■ 1 x 100BASE-FX ports (multimode fiber), duplex SC connector	MCSESM093F1CU0	0.500/ 1.102
Standard Managed Switch 8TX/1FX-SM	■ 8 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors ■ 1 x 100BASE-FX ports (single mode fiber), duplex SC connector	MCSESM093F1CS0	0.500/ 1.102
Standard Managed Switch 8TX/2FX-MM	■ 8 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors, 1 Gb ■ 2 x 100BASE-FX ports (multimode fiber), duplex SC connector	MCSESM103F2CU0	0.500/ 1.102
Standard Managed Switch 8TX/2FX-MM - Harsh	■ 8 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors ■ 2 x 100BASE-FX ports (multimode fiber), duplex SC connector	MCSESM103F2CU0H	0.570/ 1.256
Standard Managed Switch 8TX/2FX-SM	■ 8 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors ■ 2 x 100BASE-FX ports (single mode fiber), duplex SC connectors	MCSESM103F2CS0	0.500/ 1.102
Standard Managed Switch 8TX/2FX-SM - Harsh	■ 8 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors ■ 2 x 100BASE-FX ports (single mode fiber), duplex SC connector	MCSESM103F2CS0H	0.570/ 1.256

Standard managed switches, 12 ports (including up to 4 Gigabit ports), twisted pair and SFP

References

Description	Interfaces	Reference	Weight kg/ lb
Standard Managed Switch 8TX/4GE-SFP	■ 8 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors ■ 4 x 100/1000BASE-SFP (fiber optic or copper cable)	MCSESM123F2LG0	0.570/ 1.256
Standard Managed Switch 8TX/4GE-TX	■ 8 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors ■ 4 x 10/100/1000BASE-TX ports (copper cable), RJ45 shielded connectors	MCSESM123F23G0	0.700/ 1.543



MCSESM163F23F0



MCSESM203F4LG0



MCSESM243F4LG0

MCSESP083F23G0
MCSESP083F23G0TMCSESM083F23F1
MCSESM083F23F1HMCSESM103F2CU1
MCSESM103F2CU1H
MCSESM103F2CS1
MCSESM103F2CS1H

Standard managed switches, 16~24 ports (including up to 4 Gigabit ports), twisted pair and SFP

References

Description	Interfaces	Reference	Weight kg/ lb
Standard Managed Switch 16TX	■ 16 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors	MCSESM163F23F0	0.880/ 1.940
Standard Managed Switch 16TX/4GE-SFP	■ 16 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors ■ 4 x 100/1000BASE-SFP (fiber optic or copper cable)	MCSESM203F4LG0	0.95/ 2.0943
Standard Managed Switch 20TX/4GE-SFP	■ 20 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors ■ 4 x 100/1000BASE-SFP (fiber optic or copper cable)	MCSESM243F4LG0	1.05/ 2.315

PoE managed switches, 8 Gigabit ports, twisted pair with PoE

References

Description	Interfaces	Reference	Weight kg/ lb
PoE Managed Switch 8GE-TX	■ 8 x 10/100/1000BASE-TX ports (copper cable), RJ45 shielded connectors	MCSESP083F23G0	1.400/ 3.086
PoE Managed Switch 8GE-TX - Harsh	■ 8 x 10/100/1000BASE-TX ports (copper cable), RJ45 shielded connectors	MCSESP083F23G0T	1.400/ 3.086

Extended managed switches, 8~10 ports, twisted pair and fiber optic

References

Description	Interfaces	Reference	Weight kg/ lb
Extended Managed Switch 8TX	■ 8 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors	MCSESM083F23F1	0.420/ 0.925
Extended Managed Switch 8TX - Harsh	■ 8 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors	MCSESM083F23F1H	0.500/ 1.102
Extended Managed Switch 8TX/2FX-MM	■ 8 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors ■ 2 x 100BASE-FX ports (multimode fiber), duplex SC connector	MCSESM103F2CU1	0.500/ 1.102
Extended Managed Switch 8TX/2FX-MM - Harsh	■ 8 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors ■ 2 x 100BASE-FX ports (multimode fiber), duplex SC connector	MCSESM103F2CU1H	0.570/ 1.256
Extended Managed Switch 8TX/2FX-SM	■ 8 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors ■ 2 x 100BASE-FX ports (single-mode fiber), duplex SC connector	MCSESM103F2CS1	0.500/ 1.102
Extended Managed Switch 8TX/2FX-SM - Harsh	■ 8 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors ■ 2 x 100BASE-FX ports (single-mode fiber), duplex SC connector	MCSESM103F2CS1H	0.570/ 1.256



MCSESR043F23F0
MCSESR043F23F0C



MCSESR043F2LM0
MCSESR043F2LM0C

Redundancy Switch, 4 ports, twisted pair and SFP

References

Description	Interfaces	Reference	Weight kg/ lb
Redundancy Switch 4TX	■ 4 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors	MCSESR043F23F0	0.290/ 0.639
Redundancy Switch 4TX - Coated	■ 4 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors	MCSESR043F23F0C	0.290/ 0.639
Redundancy Switch 2TX/2SFP	■ 2 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors ■ 2 x 100BASE-SFP (fiber optic or copper cable)	MCSESR043F2LM0	0.291/ 0.641
Redundancy Switch 2TX/2SFP - Coated	■ 2 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors ■ 2 x 100BASE-SFP (fiber optic or copper cable)	MCSESR043F2LM0C	0.291/ 0.641



TCSEFEA23F3F22
TCSEFEC23F3F21
TCSEFEC23FCF21

Industrial firewalls			
References			
Description	Interfaces	Reference	Weight kg/ lb
Tofino Industrial Firewall TX/TX (1)	■ 2 x 10/100BASE-TX ports (copper cable) for internal and external network connections	TCSEFEA23F3F22	0.660/ 1.455
Industrial Firewall/Router TX/TX	■ 2 x 10/100BASE-TX ports (copper cable) for internal and external network connections	TCSEFEC23F3F21	0.610/ 1.345
Industrial Firewall/Router TX/MM	■ 1 x 10/100BASE-TX port for internal network ■ 1 x 10/100BASE-TX port for external network	TCSEFEC23FCF21	0.610/ 1.345

(1) Modbus/TCP Enforcer is natively integrated in the Tofino firewall software.

Shielded copper connection cables

Ethernet 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 range of 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.



TCSECE3M3M●●S4

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

Description	Connectors	Type	Length m/ft	Reference	Weight kg/lb
Straight-through copper cables C€ compatible	2 x RJ45 connectors For connection to terminal equipment (DTE)	Standard	2/6.56	490NTW00002	0.130/0.286
			5/16.40	490NTW00005	0.281/0.619
			12/39.37	490NTW00012	0.579/1.276
			40/131	490NTW00040	1.964/4.329
			80/262	490NTW00080	3.623/7.987
	Rugged		1/3.28	TCSECE3M3M1S4	0.090/0.198
			2/6.56	TCSECE3M3M2S4	0.130/0.286
			3/9.84	TCSECE3M3M3S4	0.198/0.436
			5/16.40	TCSECE3M3M5S4	0.274/0.604
Crossover copper cables C€ compatible	2 x RJ45 connectors For connection between hubs, switches, and transceivers	Standard	10/32.81	TCSECE3M3M10S4	0.510/1.124
			5/16.40	490NTC00005	0.293/0.646

EIA/TIA 568 shielded twisted pair cables for UL market

Description	Connectors	Type	Length m/ft	Reference	Weight kg/lb
Straight-through copper cables UL compatible	2 x RJ45 connectors For connection to terminal equipment (DTE)	Standard	2/6.56	490NTW00002U	0.127/0.280
			5/16.40	490NTW00005U	0.274/0.604
			12/39.37	490NTW00012U	0.607/1.338
	Rugged		1/3.28	TCSECU3M3M1S4	0.090/0.198
			2/6.56	TCSECU3M3M2S4	0.130/0.286
			3/9.84	TCSECU3M3M3S4	0.190/0.418
			5/16.40	TCSECU3M3M5S4	0.274/0.604

Do it Yourself copper cable and connectors

The Do it Yourself offer consists of references for connectors (RJ45) and cable references (300 m/984 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 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
Ethernet copper cable 4 shielded twisted pairs AWG 24	Conforms to the CE standards	300/984	TCSECE300R2	13.255/29.222
	Conforms to the UL standards	300/984	TCSECU300R2	14.440/31.835
RJ45 connector	Conforms to EIA/TIA-568-D	–	TCSEK3MDS	–
RJ45 rugged connectors	Set of 2 connectors	–	TCSEK3MR2	–
	Set of 10 connectors	–	TCSEK3MR10	–

Connection Components

SFP transceivers, memory backup adapters and cables



MCSEAAF1LFU00



MCSEAM0100



TCSEAM0100



TCSECL1M3M10S2

SFP transceivers and memory backup adapters for switches

Description	Fiber/TX	Certification Type (1)	Fiber loss budgets		Example for max. distance	Temperature range	Reference	Weight kg/lb
			Transmit	Receive				
Fiber optic module SFP 1000BASE-SX/LC, Multimode	Multimode 50/125 µm Multimode 62.5/125 µm	Standard level	-20 ... -14 dBm	-32 ... -8 dBm	0.55 km/0.34 mi 0.275 km/0.17 mi	0 - 60°C	TCSEAAF1LFU00	0.040/ 0.088
Fiber optic module SFP 1000BASE-LX/LC, Single-mode/Multimode	Single-mode 9/125 µm Multimode 50/125 µm Multimode 62.5/125 µm	Standard level	-15 ... -8 dBm	-35 ... -5 dBm	20 km/12.43 mi 0.55 km/0.34 mi 0.55 km/0.34 mi	0 - 60°C	TCSEAAF1LFS00	0.040/ 0.088
Fiber optic module SFP 1000BASE-LH/LC, Single-mode	Single-mode 9/125 µm	Standard level	-9 ... -2.5 dBm	-18 ... -0 dBm	80 km/49.71 mi	0 - 60°C	TCSEAAF1LFH00	0.040/ 0.088
Fiber optic module SFP 100BASE-SX/LC, Multimode	Multimode 50/125 µm Multimode 62.5/125 µm	Entry level	-9.5 ... -3 dBm	-21 ... -0 dBm	5 km/3.11 mi 4 km/2.49 mi	0 - 60°C	MCSEAAF1LFU00	0.040/ 0.088
Fiber optic module SFP 100BASE-LX/LC, Single-mode	Single mode 9/125 µm	Entry level	-0 ... +5 dBm	-22 ... -0 dBm	25 km/15.53 mi	0 - 60°C	MCSEAAF1LFS00	0.040/ 0.088
Copper module SFP 100BASE-TX/RJ45	100BASE-TX/RJ45	Standard Level	—	—	0.1 km/0.06 mi	0 - 60°C	MCSEAAF1LFT00	0.040/ 0.088
Copper module SFP 1000BASE-TX/RJ45	1000BASE-TX/RJ45	Standard level	—	—	0.1 km/0.06 mi	0 - 60°C	MCSEAAF1LFG00	0.040/ 0.088

Name	Use	Port	Reference	Weight kg/lb
Memory Backup Adapter for MCSESM/MCSESP switches	Connected on the front of the switch; used to: - Save and retrieve the switch configuration	USB Type-C	MCSEAM0100	0.050/ 0.110
Memory Backup Adapter for MCSESR switches	- Update the internal software	USB Type-A	TCSEAM0100	0.22/ 0.485

Cables for IP 67 switch

Description	Connectors	Length m/ft	Reference	Weight kg/lb
Straight-through copper cables	1x IP 67 4-way M12 connector and 1x RJ45 connector	1/3.28	TCSECL1M3M1S2	—
		3/9.84	TCSECL1M3M3S2	—
		10/32.81	TCSECL1M3M10S2	—
Power supply cables	Female M12 straight connectors	2/6.56	XZCP1164L2	—
		5/16.40	XZCP1164L5	—
	Female M12 elbowed connectors	2.5/8.20	XZCP1264L2	—
		5/16.40	XZCP1264L5	—
	Female M12 straight connectors	—	XZCC12FDM50B	—
	Female M12 elbowed connectors	—	XZCC12FCM50B	—

(1) Use **entry-level** SFP transceivers for industrial applications that require only the following approvals: CE, FCC, or UL 61010-2-201.

Use **standard-level** SFP transceivers for industrial applications that require the 61010-2-201, DNV, Lloyd's Register, Bureau Veritas, UL 121201 (Hazardous Locations), IEC 61850-3, EN 50121-4, ATEX, or UKEX.

Approvals and Self-declarations	Unmanaged Switch			Managed Switch						Firewall
	Standard	Premium	IP67	Lite	Basic	Standard	Extended	PoE	Red.	
	MCSESU●	MCSEPU●	TCSESU051●	TCSESL●	TCSESB●	MCSESM●0(H)	MCSESM●1(H)	MCSESP●	MCSESR●	
 CE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
 UL (cULus)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
 RCM	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
 EAC	✓	✓	✓	✓	✓	✓	✓	✓	✓	–
 UKCA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
 FCC part 15 class A	✓	✓	✓	✓	✓	✓	✓	✓	✓	–
 UL121201 / CSA C22.2 No.213	–	✓	–	–	–	✓	✓	✓	–	–
 ATEX	–	–	–	–	–	✓	✓	✓	–	–
 UKEX	–	–	–	–	–	✓	✓	✓	–	–
 CCCEX	–	–	–	–	–	✓	✓	✓	–	–
 DNV	–	✓	–	–	–	✓	✓	✓	–	✓
 Merchant Navy Lloyd's Register LR	–	–	–	–	–	–	✓	–	–	–
 BV	–	–	–	–	–	–	✓	–	–	–
 EtherNet/IP	–	–	–	–	–	✓	✓	✓	–	–
 IEC 61850-3	–	–	–	–	–	✓	✓	–	–	–
 IEC 62443-4-2 SL2	–	–	–	–	–	✓	✓ ⁽²⁾	✓	–	–
 CENELECEN 50121-4	–	–	–	–	–	✓ ⁽¹⁾	✓	✓	–	–

(1) Only applicable for the variants less than or equal to 12 ports.

(2) IEC62443-4-2 SL1 only.

#		TCSECL1M3M1S2	32
490NTC00005	31	TCSECL1M3M3S2	32
490NTW00002	31	TCSECU300R2	31
490NTW00002U	31	TCSECU3M3M1S4	31
490NTW00005	31	TCSECU3M3M2S4	31
490NTW00005U	31	TCSECU3M3M3S4	31
490NTW00012	31	TCSECU3M3M5S4	31
490NTW00012U	31	TCSEFEA23F3F22	30
490NTW00040	31	TCSEFEC23F3F21	30
490NTW00080	31	TCSEFEC23FCF21	30
M		TCSEK3MDS	31
MCSEAAF1LFG00	32	TCSEK3MR10	31
MCSEAAF1LFS00	32	TCSEK3MR2	31
MCSEAAF1LFT00	32	TCSESB083F23F0	26
MCSEAAF1LFU00	32	TCSESB083F2CU0	26
MCSEAM0100	32	TCSESB093F2CU0	26
MCSESM043F23F0	26	TCSESL043F23F0	26
MCSESM053F1CS0	26	TCSESPU053F1CS0	25
MCSESM053F1CU0	26	TCSESPU053F1CU0	25
MCSESM063F2CS0	26	TCSESPU083FN0	25
MCSESM063F2CU0	26	TCSESPU093F2CS0	25
MCSESM083F23F0	27	TCSESPU093F2CU0	25
MCSESM083F23F0H	27	TCSESU051F0	25
MCSESM083F23F1	28	X	
MCSESM083F23F1H	28	XZCC12FCM50B	32
MCSESM093F1CS0	27	XZCC12FDM50B	32
MCSESM093F1CU0	27	XZCP1164L2	32
MCSESM103F2CS0	27	XZCP1164L5	32
MCSESM103F2CS0H	27	XZCP1264L2	32
MCSESM103F2CS1	28	XZCP1264L5	32
MCSESM103F2CS1H	28		
MCSESM103F2CU0	27		
MCSESM103F2CU0H	27		
MCSESM103F2CU1	28		
MCSESM103F2CU1H	28		
MCSESM123F23G0	27		
MCSESM123F2LG0	27		
MCSESM163F23F0	28		
MCSESM203F4LG0	28		
MCSESM243F4LG0	28		
MCSESP083F23G0	28		
MCSESP083F23G0T	28		
MCSESR043F23F0	29		
MCSESR043F23F0C	29		
MCSESR043F2LM0	29		
MCSESR043F2LM0C	29		
MCSESU053F1CU0	25		
MCSESU053FN0	25		
MCSESU083F2CS0	25		
MCSESU083F2CU0	25		
MCSESU083FN0	25		
T			
TCSEAAF1LFH00	32		
TCSEAAF1LFS00	32		
TCSEAAF1LFU00	32		
TCSEAM0100	32		
TCSECE300R2	31		
TCSECE3M3M10S4	31		
TCSECE3M3M1S4	31		
TCSECE3M3M2S4	31		
TCSECE3M3M3S4	31		
TCSECE3M3M5S4	31		
TCSECL1M3M10S2	32		

Notes

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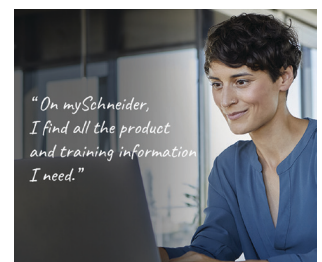
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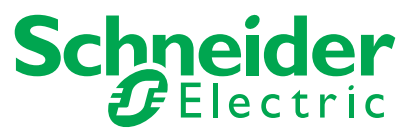
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