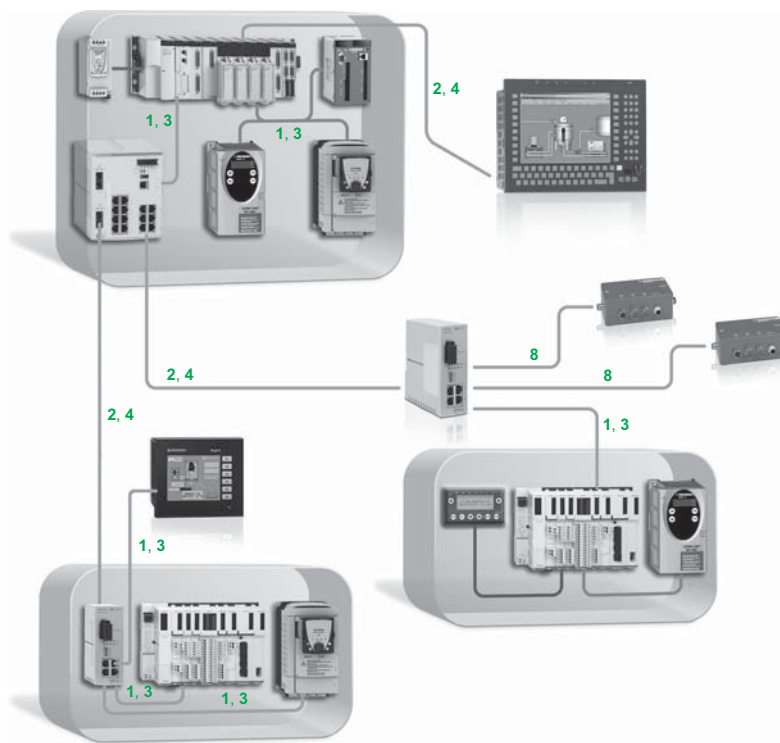


Presentation

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

Examples

Mixed IP 20 and IP 67 wiring (copper)



Key:

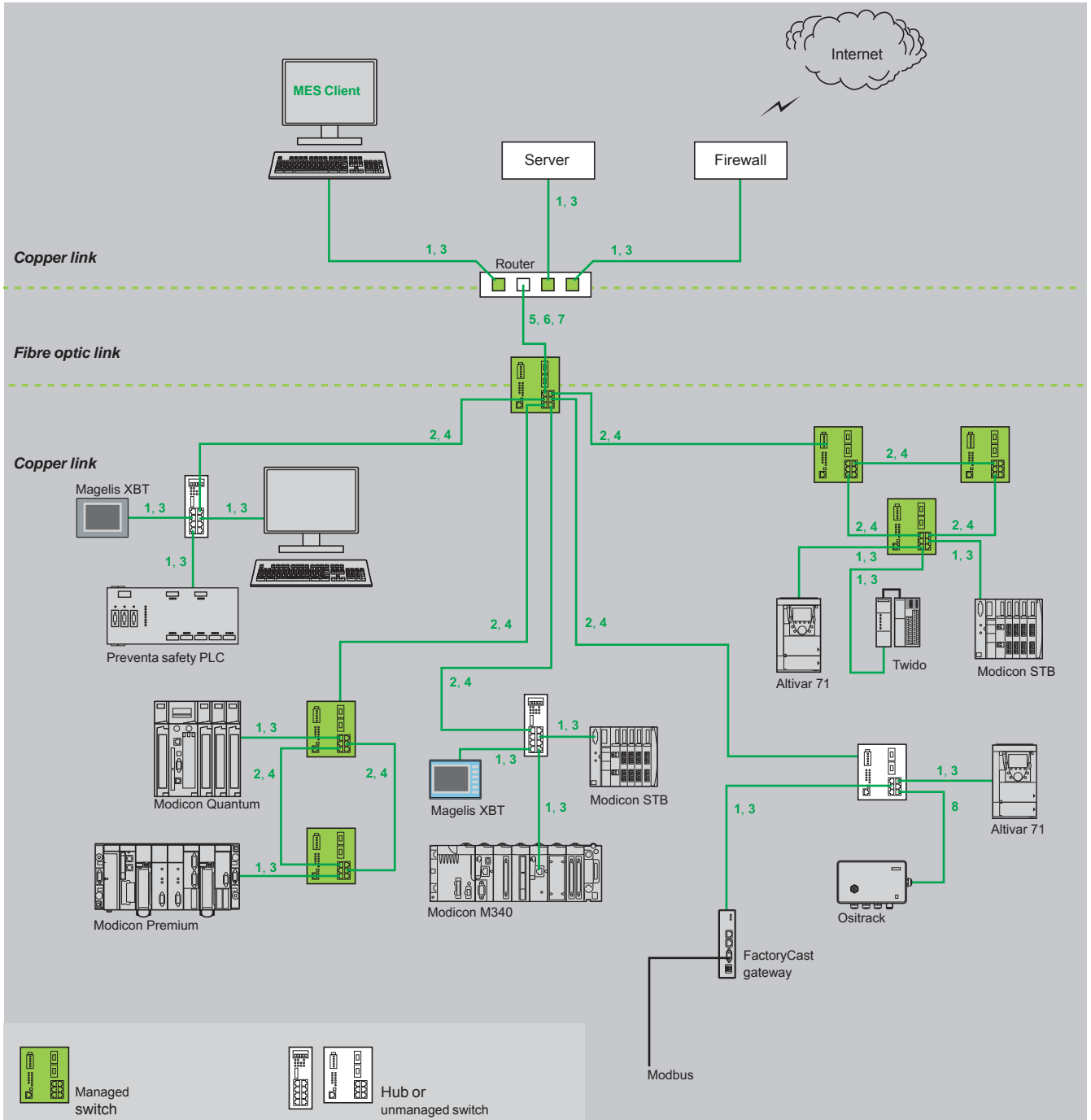
1, 3 : Straight-through copper cables

2, 4 : Crossover copper cables

8 : Cables with IP 67 connector (see pages 48384/4 and 48384/5)

Examples (continued)

Mixed copper and fibre optic wiring



- Key:
- 1, 3: Straight-through copper cables
 - 2, 4: Crossover copper cables
 - 5, 6, 7 : Fibre optic cables
 - 8 : Cables with IP 67 connector (see pages 48384/4 and 48384/5)

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 Cc 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 Cc market

Description	With connectors at both ends	No.	Type	Length	Reference	Weight kg	
Straight-through copper cables Cc compatible	2 x RJ45 connectors For connection to terminal equipment (DTE)	1	Standard	2 m	490NTW00002	–	
				5 m	490NTW00005	–	
				12 m	490NTW00012	–	
				40 m	490NTW00040	–	
				80 m	490NTW00080	–	
				Ruggedized	1 m	TCSECE3M3M1S4	–
					2 m	TCSECE3M3M2S4	–
					3 m	TCSECE3M3M3S4	–
					5 m	TCSECE3M3M5S4	–
					10 m	TCSECE3M3M10S4	–
Crossover copper cables Cc compatible	2 x RJ45 connectors For connection between hubs, switches and transceivers	2	Standard	5 m	490NTC00005	–	
				15 m	490NTC00015	–	
				40 m	490NTC00040	–	
				80 m	490NTC00080	–	



TCSECE3M3M1S4

Shielded twisted pair cables for UL market

Description	With connectors at both ends	No.	Type	Length	Reference	Weight kg	
Straight-through copper cables UL compatible	2 x RJ45 connectors For connection to terminal equipment (DTE)	3	Standard	2 m	490NTW00002U	–	
				5 m	490NTW00005U	–	
				12 m	490NTW00012U	–	
				40 m	490NTW00040U	–	
				80 m	490NTW00080U	–	
				Ruggedized	1 m	TCSECU3M3M1S4	–
					2 m	TCSECU3M3M2S4	–
					3 m	TCSECU3M3M3S4	–
					5 m	TCSECU3M3M5S4	–
					10 m	TCSECU3M3M10S4	–
Crossover copper cables UL compatible	2 x RJ45 connectors For connection between hubs, switches and transceivers	4	Standard	5 m	490NTC00005U	–	
				40 m	490NTC00040U	–	
				80 m	490NTC00080U	–	

Do it Yourself copper cable and connectors

The ConneXium Do it Yourself offer consists of 2 references for connectors (M12 and RJ45) and 1 cable reference (300 m 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.

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

Description	Characteristics	Length	Reference	Weight kg
Ethernet copper cable 2 shielded twisted pairs 24 AWG	Conforms to the standards and approvals listed above	300 m	CSECN300R2	–
RJ45 connector	Conforms to EIA/TIA-568-D	–	TCSEK3MDS	–
M12 connector	Conforms to IEC 60176-2-101	–	TCSEK1MDRS	–



490NOC00005



490NOT00005



490NOR00005

Glass fibre optic cables

Glass fibre optic cables are intended for connection:

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

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

Separate parts for TCS ESM and TCS ESB switches

Description	Optical fibre	Type	Reference	Weight kg
Fibre optic modules for Gigabit ports with LC connector (1)	Multimode 50/125 µm or 62.5/125 µm	1000BASE-SX	TCSEAAF1LFU00	0.040
	Single mode 9/125 µm	1000BASE-LH	TCSEAAF1LFH00	0.040
	Multimode 50/125 µm or 62.5/125 µm Single mode 62.5/125 µm	1000BASE-LX	TCSEAAF1LFS00	0.040
Description	Use	Port	Reference	Weight kg
Configuration backup key for TCS ESM switches	Connected on the front of the switch, used to: <ul style="list-style-type: none"> - Save and retrieve the switch configuration - Update the internal software 	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	Reference	Weight kg
Straight-through copper cables	1 x IP 67 4-way M12 connector and 1 x RJ45 connector	8	1 m	TCSECL1M3M1S2	–
			3 m	TCSECL1M3M3S2	–
			10 m	TCSECL1M3M10S2	–
			25 m	TCSECL1M3M25S2	–
			40 m	TCSECL1M3M40S2	–
	2 x IP 67 4-way M12 connectors	–	1 m	TCSECL1M1M1S2	–
			3 m	TCSECL1M1M3S2	–
			10 m	TCSECL1M1M10S2	–
			25 m	TCSECL1M1M25S2	–
			40 m	TCSECL1M1M40S2	–
Power supply cables	2 female M12 straight connectors	–	2 m	XZCP1164L2	–
			5 m	XZCP1164L5	–
	2 female M12 elbowed connectors	–	2.5 m	XZCP1264L2	–
			5 m	XZCP1264L5	–
	2 female M12 straight connectors	–	–	XZCC12FDM50B	–
2 female M12 elbowed connectors	–	–	XZCC12FCM50B	–	
M12/RJ45 adaptor	IP 67 4-way female M12 connector and female RJ45 connector	–	–	TCSEAAF11F13F00	–

Reinforced connectors and ConneXium Ethernet cables

Description	Characteristics	Length	Reference	Weight kg
Ethernet cable 4 pairs	Conforms to the CE standards	300 m	TCSECE300R2	–
	Conforms to the UL standards	300 m	TCSECU300R2	–
RJ45 reinforced connectors	Set of 2 connectors	–	TCSEK3MR2	–
	Set of 10 connectors	–	TCSEK3MR10	–

(1) Dimensions: W x H x D = 20 x 18 x 50 mm

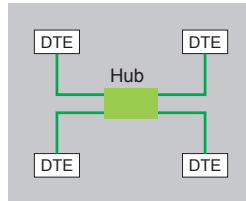
ConneXium hub

Presentation

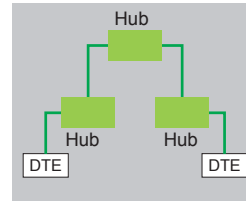
Hubs (*concentrators*) are used for transmitting signals between several media (ports). Hubs are plug and play devices that do not need to be configured by the user.

The use of hubs makes it possible to create the following topologies:

- Star topology
- Tree topology



Star topology



Tree topology



499NEH10410

Reference

Description	Interfaces	Reference	Weight kg
ConneXium hub	4 x 10BASE-T ports (copper cable), RJ45 shielded connectors	499NEH10410	0.530

ConneXium transceiver

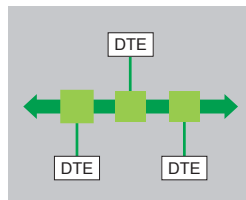
Presentation

ConneXium transceivers are used to:

- Create fibre optic linear bus topologies, for devices with a twisted pair cable Ethernet connection
- Interface devices with a twisted pair cable Ethernet connection with a fibre optic cable

Transceivers are plug and play devices that do not need to be configured by the user.

ConneXium transceivers provide fibre optic connections for transmission in areas subject to interference (high levels of electromagnetic interference) and for long distance communications.



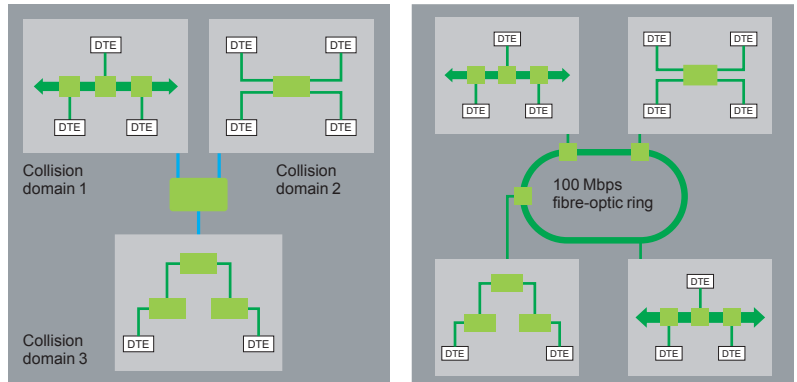
Linear topology on optical fibre

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 twisted pair copper ring or optical fibre.

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

Reference

Description	Interfaces	Reference	Weight kg
ConneXium unmanaged switches	5 x 10BASE-T/100BASE-TX ports (copper cable), shielded M12 type D connectors, IP67	TCSESU051F0	0.210
	8 x 10BASE-T/100BASE-TX ports (copper cable), RJ45 shielded connectors, IP20	499NES18100	0.230
	8 x 10BASE-T/100BASE-TX ports (copper cable), RJ45 shielded connectors, IP30	TCSESU083FN0	0.246

Description	With connectors at both ends	Length	Reference	Weight kg
IP67 power supply cables (for ConneXium switch TCSESU051F0)	Female M12 straight connector	0.230 kg	XZCP1164L2	–
	Female M12 straight connector	5 m	XZCP1164L5	–
	Female M12 elbowed connector	2 m	XZCP1264L2	–
	Female M12 elbowed connector	5 m	XZCP1264L5	–
IP67 power supply connectors (for ConneXium switch TCSESU051F0)	Female M12 straight connector	–	XZCC12FDM50B	–
	Female M12 elbowed connector	–	XZCC12FCM50B	–

Ethernet network

Wiring system

ConneXium unmanaged switches



TCSESU053FN0

ConneXium unmanaged switches, 3, 4 and 5 ports, twisted pair and fibre optic

References

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



499NMS25101



499NSS25102

ConneXium unmanaged switches, 5 ports, twisted pair and fibre optic

Reference

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



TCSSEM043F1CU0



TCSSEM043F2CS0



TCSSEM083F23F0

ConneXium managed switches, 4 ports, twisted pair and fibre optic

References

Description	Interfaces	Reference	Weight kg
ConneXium managed switches	<ul style="list-style-type: none"> ■ 3 x 10BASE-T/100BASE-TX ports (copper cable), RJ45 shielded connectors ■ 1 x 100BASE-FX port (multimode optical fibre), duplex SC connector 	TCSSEM043F1CU0	0.400
	<ul style="list-style-type: none"> ■ 2 x 10BASE-T/100BASE-TX ports (copper cable), RJ45 shielded connectors ■ 2 x 100BASE-FX ports (multimode optical fibre), duplex SC connector 	TCSSEM043F2CU0	0.400
	<ul style="list-style-type: none"> ■ 3 x 10BASE-T/100BASE-TX ports (copper cable), RJ45 shielded connectors ■ 1 x 100BASE-FX port (single mode optical fibre), duplex SC connector 	TCSSEU043F1CS0	0.400
	<ul style="list-style-type: none"> ■ 2 x 10BASE-T/100BASE-TX ports (copper cable), RJ45 shielded connectors ■ 2 x 100BASE-FX ports (single mode optical fibre), duplex SC connector 	TCSSEU043F2CS0	0.400

ConneXium managed switches, 4 and 8 ports, twisted pair

References

Description	Interfaces	Reference	Weight kg
ConneXium managed switches	4 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors	TCSSEM043F23F0	0.400
	8 x 10/100BASE-TX ports (copper cable), RJ45 shielded connectors	TCSSEM083F23F0	0.410

Ethernet network

Wiring system

ConneXium managed switches



TCS ESM 083F1CU0



TCSESM083F2CS0



TCSESB083F23F0



TCSESM063F2CS1

ConneXium managed switches, 8 ports, twisted pair and fibre optic

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

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

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

ConneXium managed switches, 8 extended ports, twisted pair and fibre optic

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

(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, see page 48286/2 or consult our website www.schneider-electric.com.

Ethernet network

Wiring system

ConneXium managed switches,

ConneXium Industrial Ethernet Firewalls



TCSESM163F23F0



TCSESM243F2CU0



TCSESM103F2LG0



TCSESM103F23G0



TCSEFEC23FCF20



TCSEFEA23F3F20

Selection guide:
page 0517Q/2

ConneXium managed switches, 16 and 24 ports, twisted pair and fibre optic

References

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

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

References

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

ConneXium Industrial Ethernet Firewalls

References

Description	Interfaces	Reference	Weight kg
ConneXium Industrial Ethernet Firewall TX/TX	2 x 10/100BASE-TX ports (copper cable) for internal and external network connections	TCSEFEC23F3F20	0.600
ConneXium Tofino Industrial Ethernet Firewall TX/TX	2 x 10/100BASE-TX ports (copper cable) for internal and external network connections	TCSEFEA23F3F20	0.615
ConneXium Industrial Ethernet Firewall TX/MM	1 x 10/100BASE-TX port (copper cable) for internal network and 1 x 100BASE-FX port (multimode optical fiber) (1) for external network connections	TCSEFEC23FCF20	0.630
ConneXium Industrial Ethernet Firewall MM/TX	1 x 100BASE-FX port for internal network (multimode optical fiber) (1) and 1 x 10/100BASE-TX port (copper cable) (2) for external network connections	TCSEFEC2CF3F20	0.630

(1) With TCSEAAF1LFU000 fibre optic module to be ordered separately (see page 48384/5)
 (2) With TCSEAAF1LFH000 fibre optic module to be ordered separately (see page 48384/5)
 (3) With TCSEAAF1LFS000 fibre optic module to be ordered separately (see page 48384/5)