

9 - Machine cabling accessories OsiSense XZ

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Adaptors and accessories

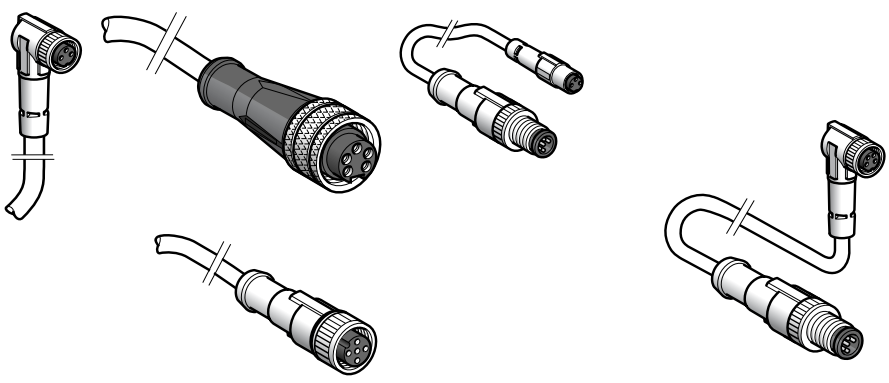
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Passive splitter boxes

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Selection of cabling accessories

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Description		Pre-wired connectors					Jumper cables (female–male)										
		Type		M8 Ø 8	M12	1/2"- 20UNF	7/8"- 16UN	M8 – M8		M8 – M12		M12 – M8		M12 – M12		DIN – M12	
		Female	•	• (1)	•		• (M8)				• (M12)			• (DIN)			
Male	•	• (1)	–			• (M8)	• (M12)	• (M8)	• (M12)								
Connection	Clip	•	–										–				
	Screw threaded	•															
Model	Straight	•											–				
	Elbowed	•	• (3)	•	–												
Number of pins		3	4	3	4	5	3						5				
Signalling	Without LED	•	–	•													
	With LED	•	–	•	–												
Nominal voltage	– 10...30 V (with LED)	•	–	•	–												
	~ 30, – 36 V	–			•	–							•	–	•		
	~ 60, – 75 V	•	–										–				
	~ 125, – 150 V	–															
	~ 250, – 300 V	–		•	–	•	–						•	–			
	~ 250 V	–					•										
Current (A)		4					6	4 & 6	4								
Cable length	0.5 m	•	–	• (2)	–												
	1 m	•	–	• (2)	–												
	2 m	•															
	5 m	•		• (3)	•												
	10 m	•		• (3)	•												
Reference		XZ CP					XZ CR										
Pages		9/8 to 9/13					9/14 to 9/21										

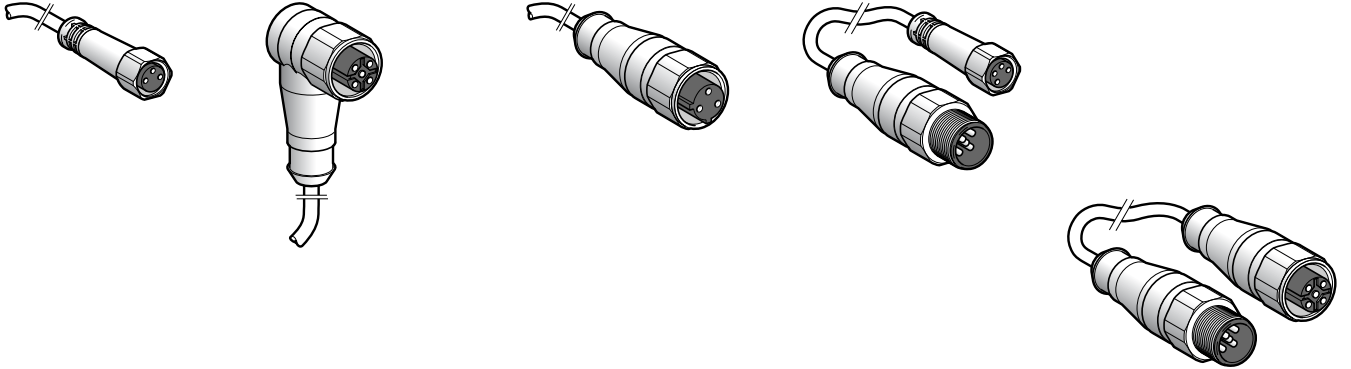
(1) With 4 or 5 pins.
 (2) For male pre-wired connectors.
 (3) For female pre-wired connectors.

• Characteristics applicable to the cabling accessory.
 – Characteristics not applicable to the cabling accessory.

Pre-wired connectors - Application series

PVC cable, stainless steel clamping ring and IP 69K degree of protection

Jumper cables (female–male) - Application series



M8		M12		1/2"-20UNF	
•		•		•	
–		–		–	
–					
• (1)					
•					
–		•		•	
3	4	4	5	3	
•					
–					
–					
–					
•		–			
–					
–		•			
–					
4					
–					
–					
–		•		–	
•					
•					

M8 – M12		M12 – M12		
• (M8)		• (M12)		
• (M12)		• (M12)		
–				
–				
• (1)				
•				
–				
4		3	4	5
•				
–				
–				
–				
•		–		
–				
–		•		
–				
4				
–				
–				
•				
•				
–				

XZ CPA

9/22 and 9/23

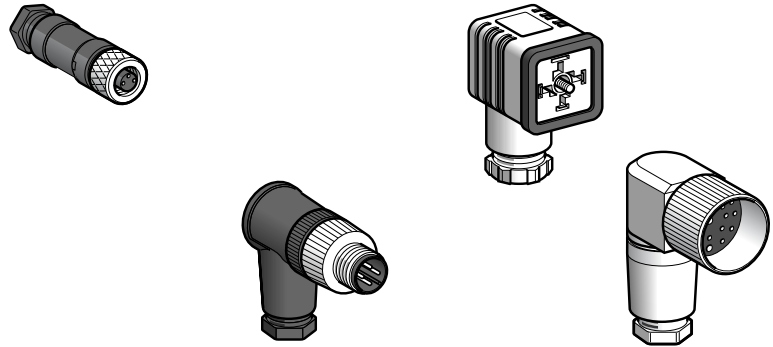
XZ CRA

9/24 and 9/25

(1) Tightening by hand recommended.
 • Characteristics applicable to the cabling accessory.
 – Characteristics not applicable to the cabling accessory.

Description

Connectors



Type	Female
	Male

M8	M12	1/2"-20UNF	M18	DIN 43650	M23
•					
•			–		•

Connection	Clip
	Screw threaded

–					
•					

Model	Straight
	Elbowed

•				–	•
•					

Number of pins					
-----------------------	--	--	--	--	--

3	4	5	3	4	19
---	---	---	---	---	----

Signalling	Without LED
	With LED

•					
–	•	–			

Nominal voltage	≡ 10...30 V (with LED)
	~ 30, ≡ 36 V
	~ 60, ≡ 75 V
	~ 125, ≡ 150 V
	~ 250, ≡ 300 V
	~ 250 V

–	•	–			
–		•	–		
•	–				•
–	•	–			
–			•		–
–					–

Current (A)					
--------------------	--	--	--	--	--

4	3	4	16		7.5
---	---	---	----	--	-----

Cable length	0.5 m
	1 m
	2 m
	5 m
	10 m

–					
–					
–					
–					
–					
–					

Reference

XZ CC

Pages

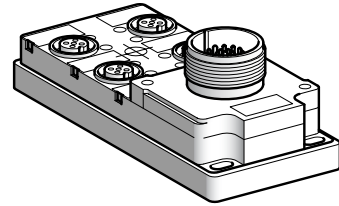
9/26 to 9/75

- Characteristics applicable to the cabling accessory.
- Characteristics not applicable to the cabling accessory.

Connector adaptors



Passive splitter boxes (1)



M12		7/8"-16UN		4 or 8 channel
-				● (M12)
●				-
-				-
●				-
●				●
-				-
4		5		19
●				●
-				●
-				≡ 24 V
-		●		-
-				-
-				-
●		-	●	-
-				-
4		6		4 per channel
Length of wires: 0.10m				-
				-
				-
				●
				●

XZ CE

ABE 9

9/76

9/78

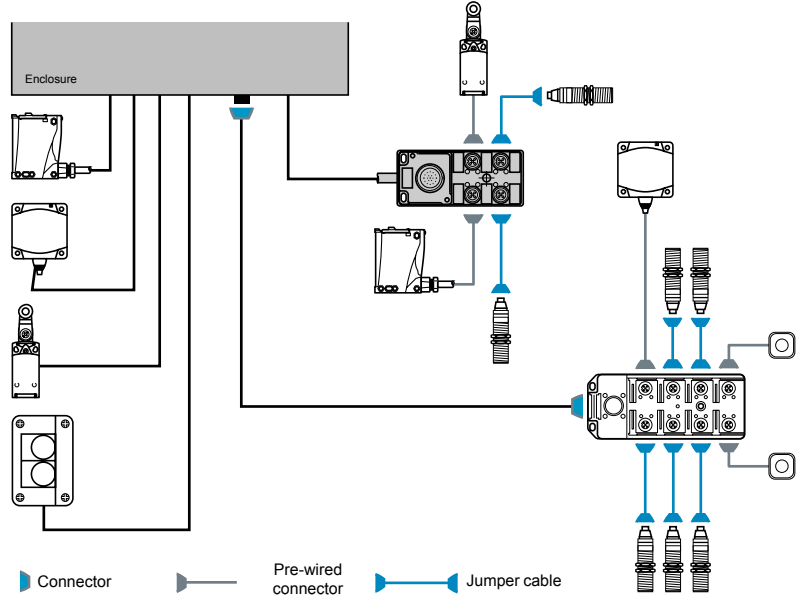
(1) Other splitter boxes, including Advantys FTB etc. Please refer to the "Power supplies, splitter boxes and interfaces" catalogue.
 ● Characteristics applicable to the cabling accessory.
 - Characteristics not applicable to the cabling accessory.

Other versions

Please consult our Customer Care Centre.

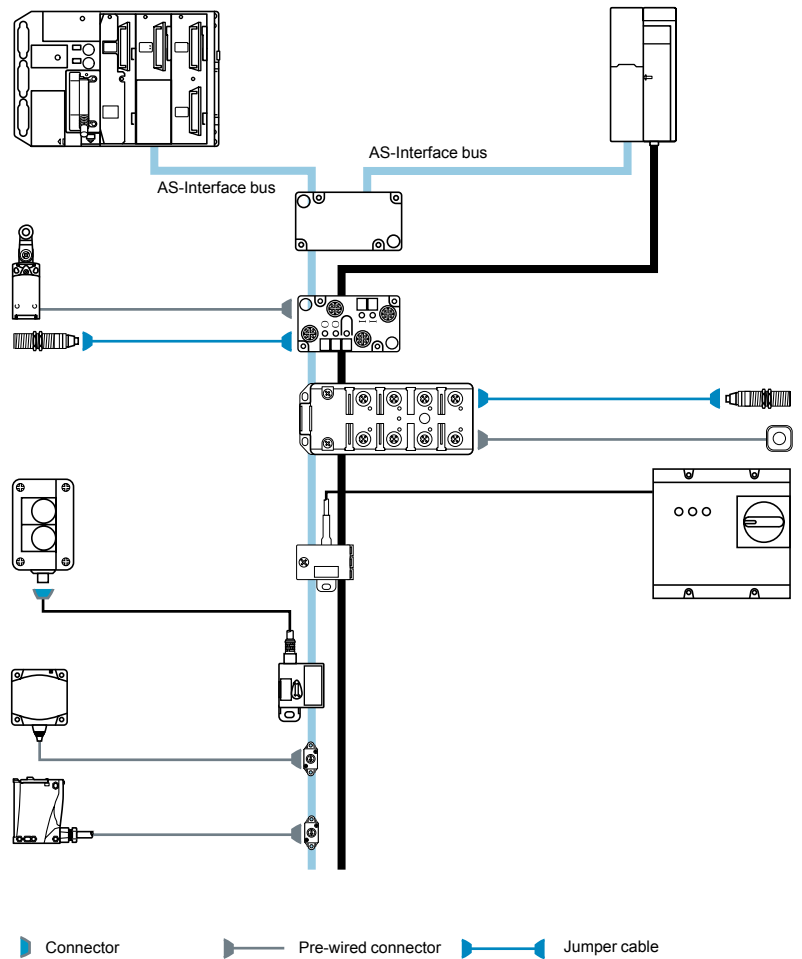
Parallel cabling system

Traditional cabling



Series cabling system

Cabling on AS-Interface bus



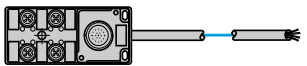
Cabling accessories

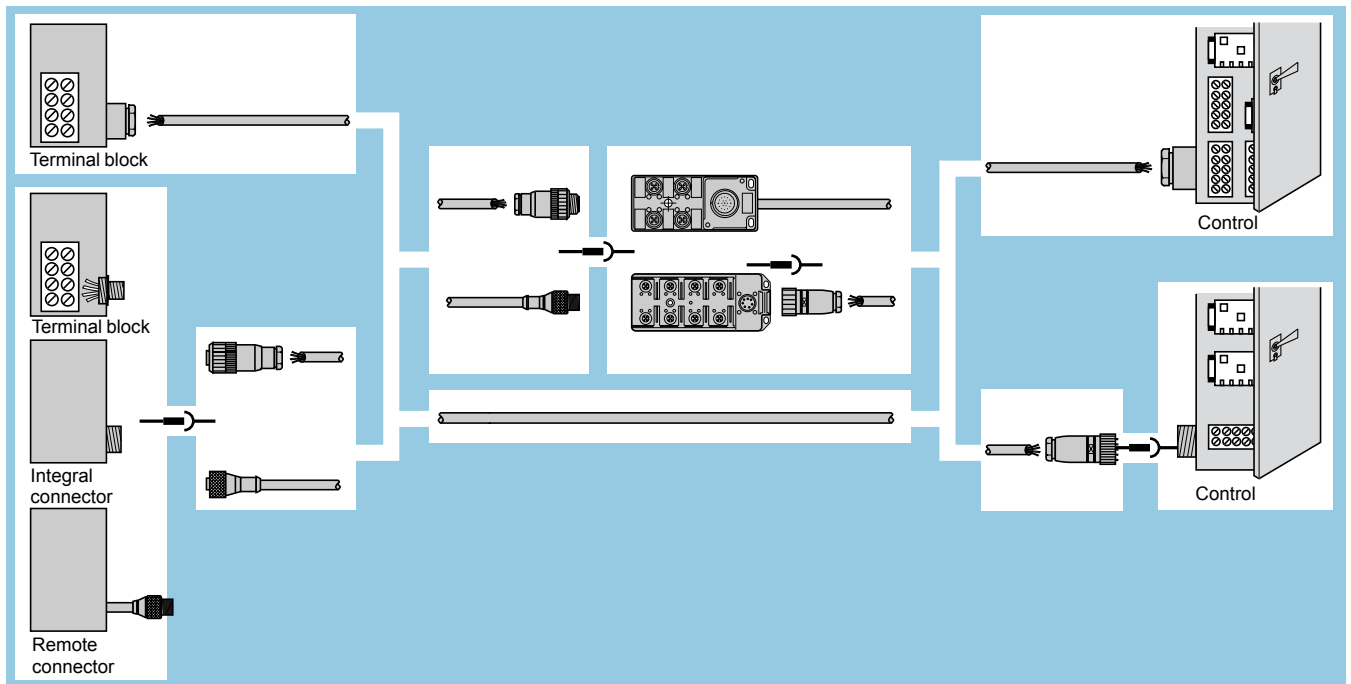
 Connector adaptor **XZ CE** for cable gland entry

 Connector **XZ CC**

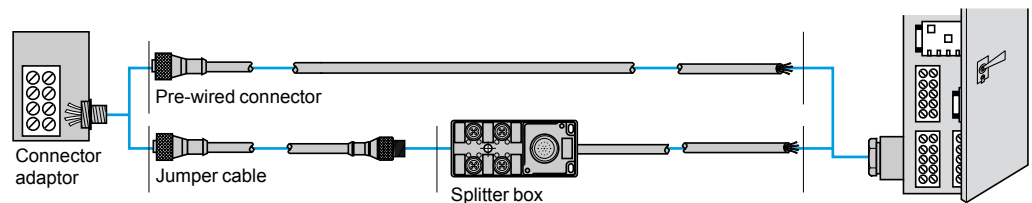
 Pre-wired connector **XZ CP**

 Jumper cable **XZ CR**

 Splitter box **ABE 9**



Connection example



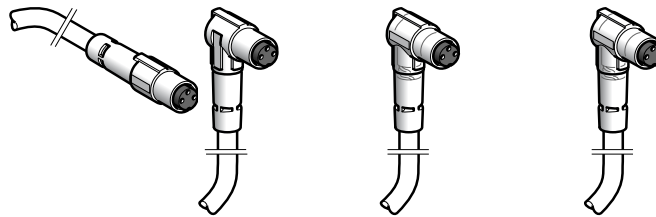
Characteristics

Type of cable		Cable for pre-wired connectors and jumper cables	Bare cables XZ CB4L●●●	Application series cables
Ambient air temperature				
For operation	°C	- 35...+ 90		- 25... + 95
For storage	°C	- 35...+ 100	- 40...+ 100	- 25... + 95
Colour		Matt black		
Material Sheath		PUR/PVC	PvR (PVC/NBR)	PVC
Conductor insulation		PVC		PVC
Manufacturing method		Without silicone and without unmoulding agent		
Nominal voltage	V	320 conforming to DIN VDE 0110 (III/3)	300	~ 250 --- 300
Insulation voltage	kV	2.5	2 conforming to NF C 32-201-1	3
Flame resistance		C2 conforming to NF C 32-070	C2 conforming to NF C 32-070	C2 conforming to NF C 32-070
Environmental resistance		Resistant to soluble, mineral or synthetic oils at 90 °C		Resistant to solvents and detergents
Bending radius		Flexing: 15 x external diameter Static: 10 x external diameter	R min. = 3 x external diameter	Static: 10 x external diameter
Tensile strength	N/mm ²	20...45	10...35	11
Hardness		80 +/- 5 shore A	70 +/- 5 shore A	80 +/- 5 shore A

Machine cabling accessories

OsiSense XZ

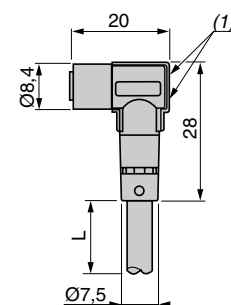
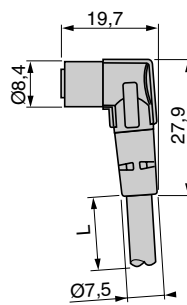
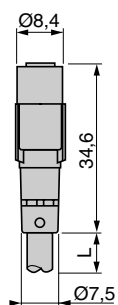
Pre-wired connectors, Ø 8 mm and M8



Connector type		Female, Ø 8 mm, straight	Female, Ø 8 mm, elbowed	Female, Ø 8 mm, elbowed with PNP LED	Female, Ø 8 mm, elbowed with NPN LED
Number of pins		3			
References					
PUR cable (see page 9/7)	L = 2 m	XZ CP0166L2	XZ CP0266L2	XZ CP0366L2	XZ CP0466L2
	L = 5 m	XZ CP0166L5	XZ CP0266L5	XZ CP0366L5	XZ CP0466L5
	L = 10 m	XZ CP0166L10	XZ CP0266L10	XZ CP0366L10	XZ CP0466L10
Weight (kg)		0.050 (L = 2 m), 0.110 (L = 5 m), 0.215 (L = 10 m)			

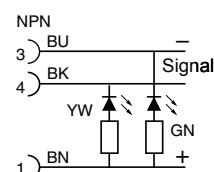
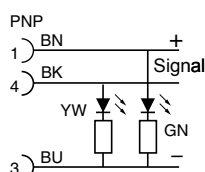
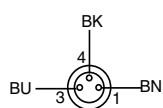
Characteristics					
Certification		UL		UL	
Connection type		Clip (1)		Clip (1)	
Degree of protection		IP 67 (when correctly clipped together)		IP 65 (when correctly clipped together)	
Ambient air temperature	Static cable	- 35...+ 90 °C		- 35...+ 90 °C	
	Flexing cable	- 5...+ 90 °C		- 5...+ 90 °C	
Cabling		Ø 5.2 mm cable, conductor c.s.a.: 3 x 0.34 mm ²		Ø 5.2 mm cable, conductor c.s.a.: 3 x 0.34 mm ²	
LED indicators		–		2 PNP LEDs	2 NPN LEDs
Nominal voltage		~ 60 V, --- 75 V		--- 10...30 V	
Nominal current		4 A		4 A	
Insulation resistance		> 10 ⁹ Ω		> 10 ⁹ Ω	
Contact resistance		≤ 5 mΩ		≤ 5 mΩ	

Dimensions	
XZ CP0166L●	XZ CP0266L● XZ CP0366L●, XZ CP0466L●

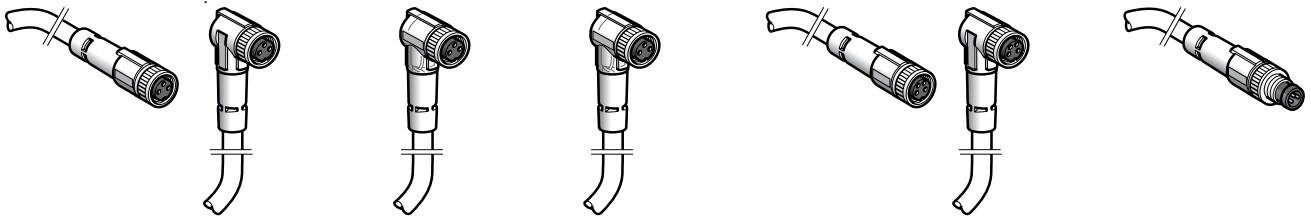


(1) 2 LEDs limited to --- 10...30 V max.
L = 2, 5 or 10 m

Connections		
XZ CP0●66L●	LED connection	XZ CP0466L●

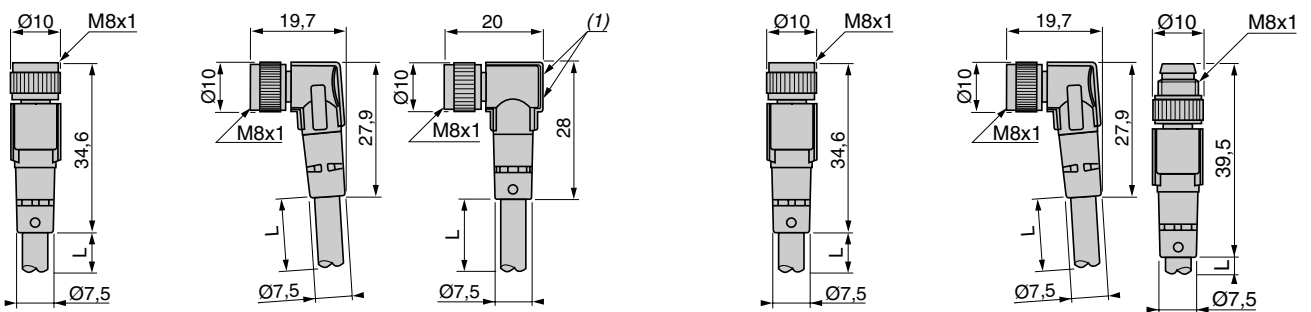


(1) Clip together connectors, without clamping ring.



Female, M8, straight	Female, M8, elbowed	Female, M8, elbowed with PNP LED	Female, M8, elbowed with NPN LED	Female, M8, straight	Female, M8, elbowed	Male, M8, straight
3				4		3
XZ CP0566L2	XZ CP0666L2	XZ CP0766L2	XZ CP0866L2	XZ CP0941L2	XZ CP1041L2	XZ CP2737L05
XZ CP0566L5	XZ CP0666L5	XZ CP0766L5	XZ CP0866L5	XZ CP0941L5	XZ CP1041L5	XZ CP2737L1
XZ CP0566L10	XZ CP0666L10	XZ CP0766L10	XZ CP0866L10	XZ CP0941L10	XZ CP1041L10	XZ CP2737L2
0.060 (L = 2 m), 0.120 (L = 5 m), 0.225 (L = 10 m)				0.080 (L = 2 m), 0.180 (L = 5 m), 0.360 (L = 10 m)		0.030 (L = 0.5 m), 0.050 (L = 1 m), 0.080 (L = 2 m)
UL		UL		UL		UL
Screw threaded (metal clamping ring)		Screw threaded (metal clamping ring)		Screw threaded (metal clamping ring)		Screw threaded and clip (metal clamping ring)
IP 67 (with clamping ring correctly tightened)		IP 67 (with clamping ring correctly tightened)		IP 67 (with clamping ring correctly tightened)		IP 67 (with clamping ring correctly tightened)
- 35...+ 90 °C		- 35...+ 90 °C		- 35...+ 90 °C		- 35...+ 90 °C
- 5...+ 90 °C		- 5...+ 90 °C		- 5...+ 90 °C		- 5...+ 90 °C
Ø 5.2 mm cable, conductor c.s.a.: 3 x 0.34 mm ²		Ø 5.2 mm cable, conductor c.s.a.: 3 x 0.34 mm ²		Ø 5.2 mm cable, conductor c.s.a.: 4 x 0.34 mm ²		Ø 5.2 mm cable, conductor c.s.a.: 3 x 0.34 mm ²
-		2 PNP LEDs		2 NPN LEDs		-
~ 60 V, --- 75 V		--- 10...30 V		~ 60 V, --- 75 V		~ 60 V, --- 75 V
4 A		4 A		4 A		4 A
> 10 ⁹ Ω		> 10 ⁹ Ω		> 10 ⁹ Ω		> 10 ⁹ Ω
≤ 5 mΩ		≤ 5 mΩ		≤ 5 mΩ		≤ 5 mΩ

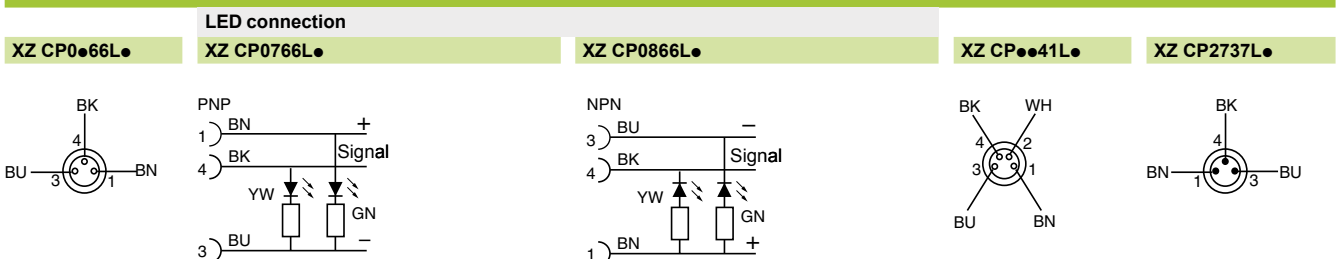
XZ CP0566L● **XZ CP0666L●** **XZ CP0766L●, XZ CP0866L●** **XZ CP0941L●** **XZ CP1041L●** **XZ CP2737L●**

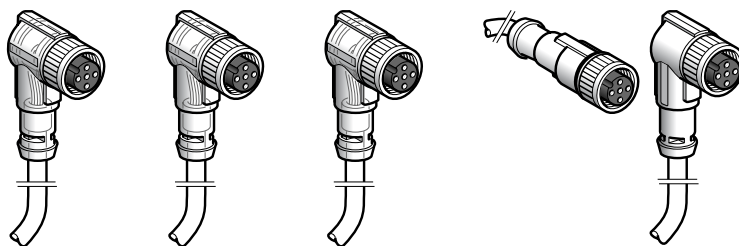


(1) 2 LEDs limited to --- 10...30 V max.

L = 2, 5 or 10 m

L = 0.5, 1 or 2 m

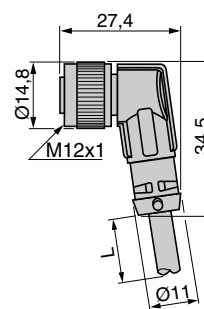
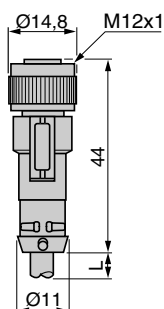
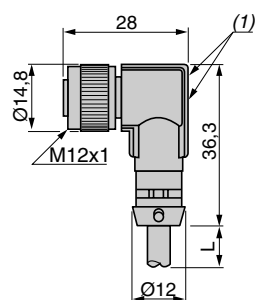




Connector type	Female, M12, elbowed with LED	Female, M12, elbowed with LED	Female, M12, elbowed with LED	Female, M12, straight	Female, M12, elbowed	
Number of pins	3			4		
References						
PUR cable (see page 9/7)	L = 0.5 m	-				
	L = 1 m	-				
	L = 2 m	XZ CP2540L2	XZ CP1340L2	XZ CP1440L2	XZ CP1141L2	XZ CP1241L2
	L = 5 m	XZ CP2540L5	XZ CP1340L5	XZ CP1440L5	XZ CP1141L5	XZ CP1241L5
	L = 10 m	XZ CP2540L10	XZ CP1340L10	XZ CP1440L10	XZ CP1141L10	XZ CP1241L10
Weight (kg)	0.080 (L = 2 m), 0.180 (L = 5 m), 0.350 (L = 10 m)			0.090 (L = 2 m), 0.190 (L = 5 m), 0.370 (L = 10 m)		

Characteristics					
Certification	UL			UL	
Connection type	Screw threaded (stainless steel clamping ring)		Screw threaded (metal clamping ring)		Screw threaded (metal clamping ring)
Degree of protection	IP 67 (with clamping ring correctly tightened)			IP 67 (with clamping ring correctly tightened)	
Ambient air temperature	Static cable	-35...+90 °C			-35...+90 °C
	Flexing cable	-5...+90 °C			-5...+90 °C
Cabling	Ø 5.2 mm cable, conductor c.s.a.: 3 x 0.34 mm ²			Ø 5.2 mm cable, conductor c.s.a.: 4 x 0.34 mm ²	
LED indicators	2 PNP LEDs	2 PNP LEDs	2 NPN LEDs	-	
Nominal voltage	~ 10...30 V			~ 250 V, ~ 300 V	
Nominal current	4 A			4 A	
Insulation resistance	> 10 ⁹ Ω			> 10 ⁹ Ω	
Contact resistance	≤ 5 mΩ			≤ 5 mΩ	

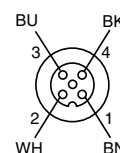
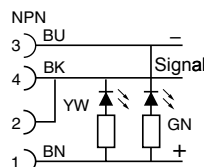
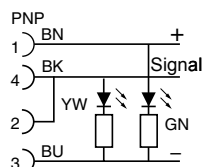
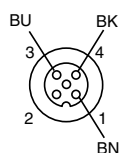
Dimensions	
XZ CP2540L●, XZ CP1340L●, XZ CP1440L●	XZ CP1141L●
XZ CP1141L●	XZ CP1241L●

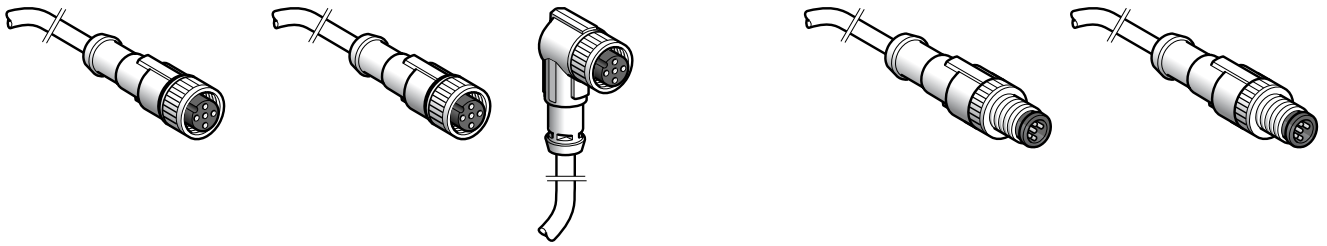


(1) 2 LEDs limited to ~ 10...30 V max.
L = 2, 5 or 10 m

Connections

LED connection	
XZ CP2540L●, XZ CP1340L●	XZ CP1440L●
XZ CP1340L●	XZ CP1141L●



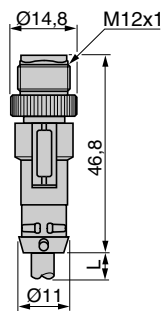
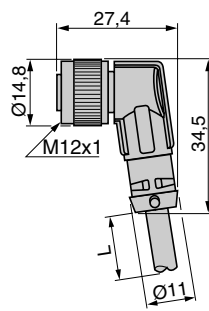
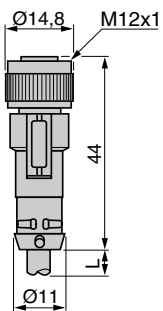


Female, M12, straight	Female, M12, straight	Female, M12, elbowed	Male, M12, straight	Male, M12, straight
4	5	5	4	5
-			XZ CP1541L05	XZ CP1564L05
-			XZ CP1541L1	XZ CP1564L1
XZ CP1169L2	XZ CP1164L2	XZ CP1264L2	XZ CP1541L2	XZ CP1564L2
XZ CP1169L5	XZ CP1164L5	XZ CP1264L5	-	-
XZ CP1169L10	XZ CP1164L10	XZ CP1264L10	-	-
0.105 (L = 2 m), 0.260 (L = 5 m), 0.500 (L = 10 m)	0.115 (L = 2 m), 0.270 (L = 5 m), 0.520 (L = 10 m)		0.030 (L = 0.5 m), 0.050 (L = 1 m), 0.085 (L = 2 m)	0.040 (L = 0.5 m), 0.065 (L = 1 m), 0.115 (L = 2 m)
UL		UL		
Screw threaded (metal clamping ring)		Screw threaded (metal clamping ring)		
IP 67 (with clamping ring correctly tightened)		IP 67 (with clamping ring correctly tightened)		
- 35...+ 90 °C		- 35...+ 90 °C		
- 5...+ 90 °C		- 5...+ 90 °C		
Ø 5.7 mm cable, conductor c.s.a.: 4 x 0.34 mm ²	Ø 5.9 mm cable, conductor c.s.a.: 5 x 0.34 mm ²	Ø 5.2 mm cable, conductor c.s.a.: 4 x 0.34 mm ²	Ø 5.9 mm cable, conductor c.s.a.: 4 x 0.34 mm ² + 1 x 0.5 mm ²	
-	-	-	-	
~ 250 V, = 300 V	~ 30 V, = 36 V	~ 250 V, = 300 V	~ 30 V, = 36 V	
4 A	4 A	4 A	4 A	
> 10 ⁹ Ω	> 10 ⁹ Ω	> 10 ⁹ Ω	> 10 ⁹ Ω	
≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ	

XZ CP1169L●, XZ CP1164L●

XZ CP1264L●

XZ CP1541L●, XZ CP1564L●



L = 2, 5 or 10 m

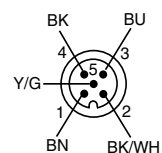
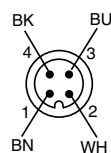
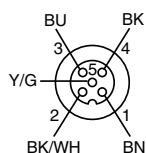
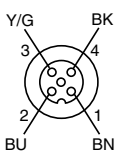
L = 0.5, 1 or 2 m

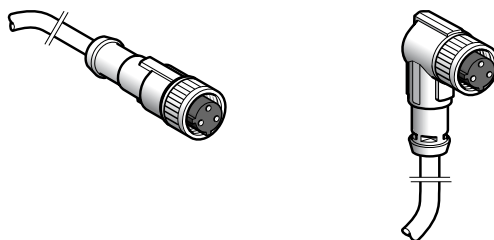
XZ CP1169L●

XZ CP1●64L●

XZ CP1541L●

XZ CP1564L●

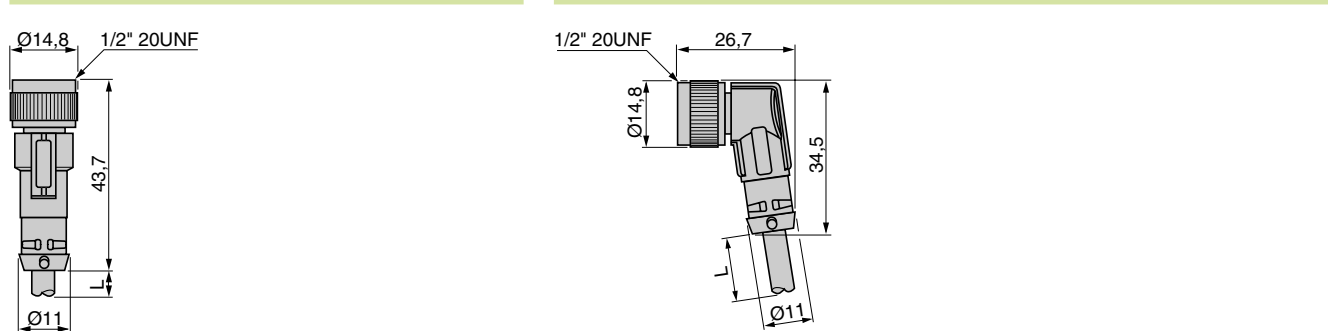




Connector type	Female, 1/2"-20UNF, straight	Female, 1/2"-20UNF, elbowed	
Number of pins	3		
References			
PUR cable (see page 9/7)	L = 2 m	XZ CP1865L2	XZ CP1965L2
	L = 5 m	XZ CP1865L5	XZ CP1965L5
	L = 10 m	XZ CP1865L10	XZ CP1965L10
Weight (kg)	0.080 (L = 2 m), 0.180 (L = 5 m), 0.350 (L = 10 m)		

Characteristics	
Certification	UL
Connection type	Screw threaded (metal clamping ring)
Degree of protection	IP 67 (with clamping ring correctly tightened)
Ambient air temperature	- 35...+ 80 °C
Cabling	Ø 5.2 mm cable, conductor c.s.a.: 3 x 0.34 mm ²
LED indicators	–
Nominal voltage	~ 250 V, ~ 300 V
Nominal current	4 A
Insulation resistance	> 10 ⁹ Ω
Contact resistance	≤ 5 mΩ

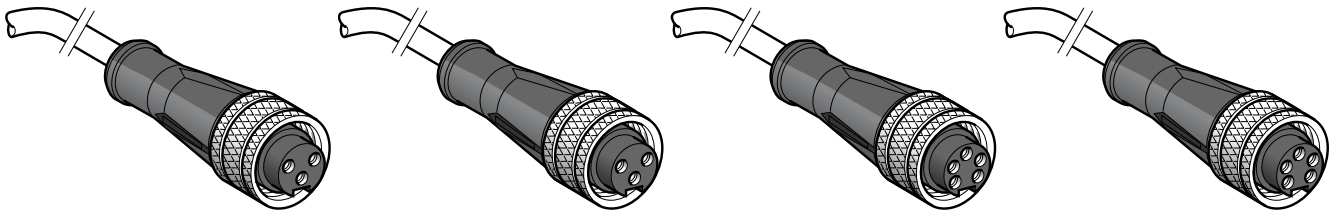
Dimensions



L = 2, 5 or 10 m

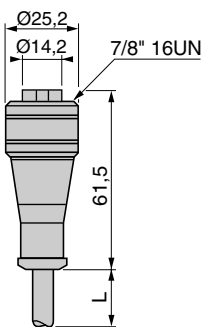
Connections





Female, 7/8"-16UN, straight 3	Female, 7/8"-16UN, straight	Female, 7/8"-16UN, straight 5	Female, 7/8"-16UN, straight
XZ CP1662L2	XZ CP1670L2	XZ CP1764L2	XZ CP1771L2
XZ CP1662L5	XZ CP1670L5	XZ CP1764L5	XZ CP1771L5
–	XZ CP1670L10	XZ CP1764L10	XZ CP1771L10
0.180 (L = 2 m), 0.420 (L = 5 m)	0.180 (L = 2 m), 0.420 (L = 5 m), 0.820 (L = 10 m)	0.185 (L = 2 m), 0.460 (L = 5 m), 0.900 (L = 10 m)	0.190 (L = 2 m), 0.475 (L = 5 m), 0.950 (L = 10 m)
UL	UL	UL	UL
Screw threaded (metal clamping ring)	Screw threaded (metal clamping ring)	Screw threaded (metal clamping ring)	Screw threaded (metal clamping ring)
IP 67 (with clamping ring correctly tightened)	IP 67 (with clamping ring correctly tightened)	IP 67 (with clamping ring correctly tightened)	IP 67 (with clamping ring correctly tightened)
- 35...+ 80 °C	- 35...+ 80 °C	- 35...+ 80 °C	- 35...+ 80 °C
Ø 5 mm cable conductor c.s.a.: 3 x 0.5 mm ²	Ø 5 mm cable conductor c.s.a.: 3 x 0.5 mm ²	Ø 5.9 mm cable conductor c.s.a.: 5 x 0.34 mm ²	Ø 6.7 mm cable conductor c.s.a.: 5 x 0.5 mm ²
–	–	–	–
~ 250 V	~ 250 V	~ 250 V	~ 250 V
6 A	6 A	4 A	6 A
> 10 ⁹ Ω	> 10 ⁹ Ω	> 10 ⁹ Ω	> 10 ⁹ Ω
≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ

XZ CP1662L●, XZ CP1670L●, XZ CP1764L●, XZ CP1771L●



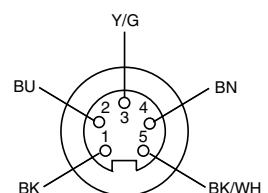
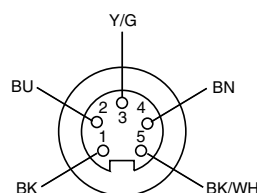
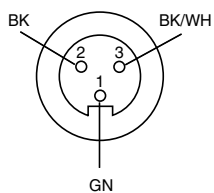
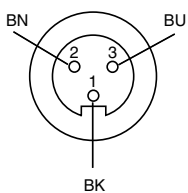
L = 2, 5 or 10 m

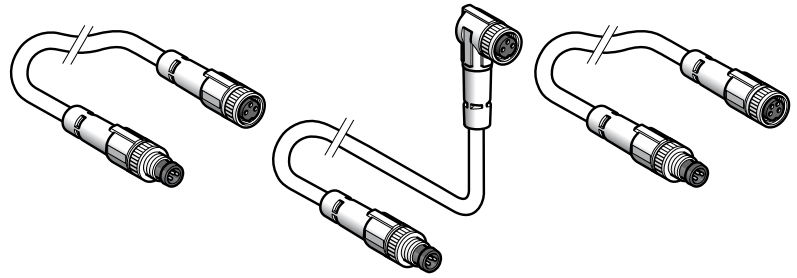
XZ CP1662L●

XZ CP1670L●

XZ CP1764L●

XZ CP1771L●





Male connector type	M8, 3-pin, straight		
Female connector type	M8, 3-pin, straight	M8, 3-pin, elbowed	M8, 4-pin, straight
Number of conductors	3	3	3

References

PUR cable	L = 1 m	XZ CR2705037R1	XZ CR2706037R1	XZ CR2709037S1
	L = 2 m	XZ CR2705037R2	XZ CR2706037R2	XZ CR2709037S2
Weight (kg)	L = 1 m	0.060		
	L = 2 m	0.090		

Characteristics

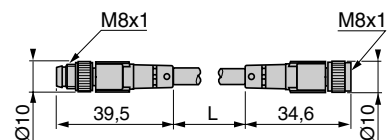
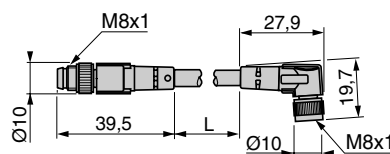
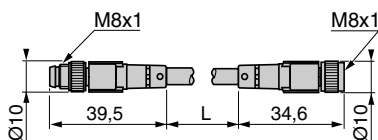
Certification	UL		
Connection type	Male: screw threaded and clip. Female: screw threaded. Metal clamping ring.		
Degree of protection	IP 67		
Ambient air temperature	Static cable	- 35...+ 90 °C	
	Flexing cable	- 5...+ 90 °C	
Conductor c.s.a.	3 x 0.34 mm ²		
Cable diameter	5.2 mm		
Nominal voltage	~ 60 V, ~ 45 V		
Nominal current	4 A		
Insulation resistance	> 10 ⁹ Ω		
Contact resistance	≤ 5 mΩ		

Dimensions

XZ CR2705037R●

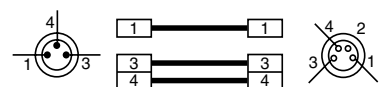
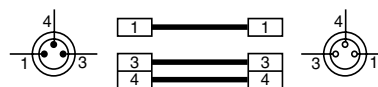
XZ CR2706037R●

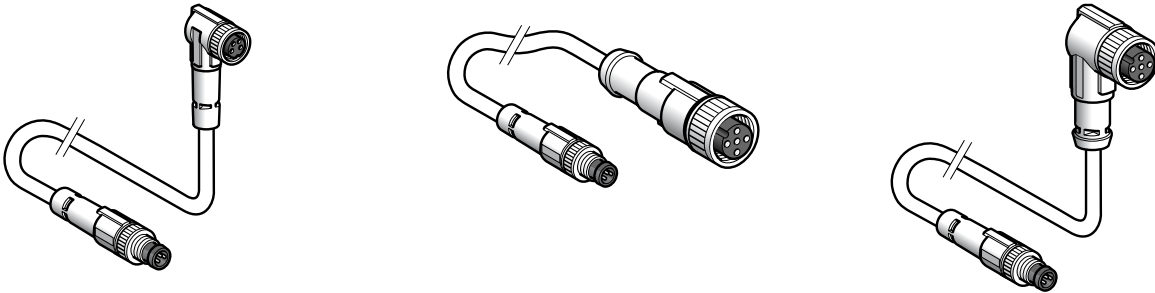
XZ CR2709037S●



L = 1 or 2 m

Connections

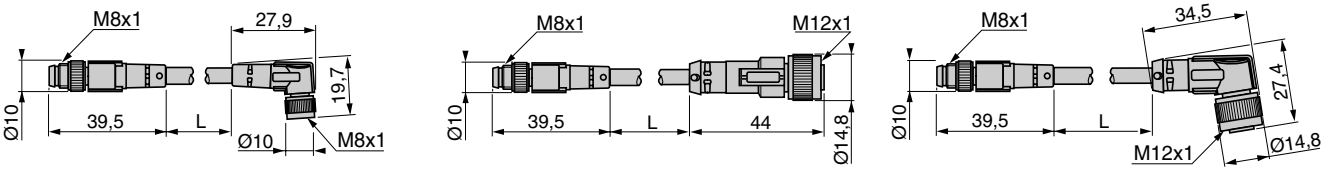




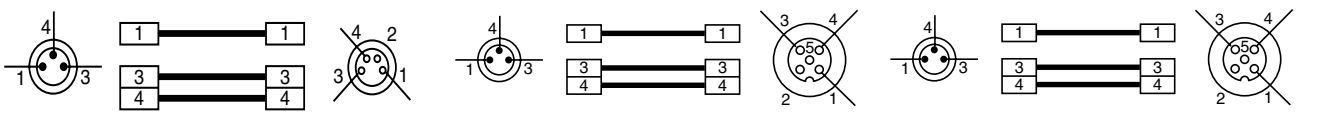
M8, 3-pin, straight		
M8, 4-pin, elbowed	M12, 5-pin, straight	M12, 5-pin, elbowed
3	3	3
XZ CR2710037S1	XZ CR2711037T1	XZ CR2712037T1
XZ CR2710037S2	XZ CR2711037T2	XZ CR2712037T2
0.060	0.065	0.065
0.090	0.093	0.093

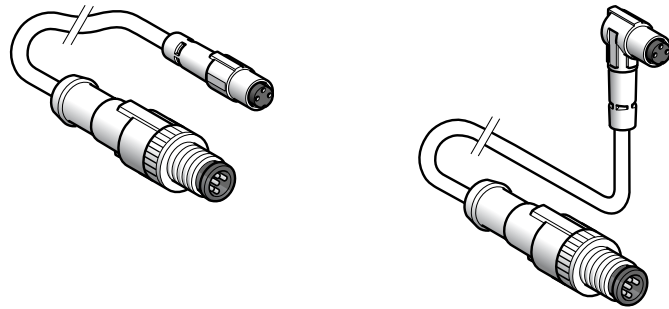
UL
Male: screw threaded and clip. Female: screw threaded. Metal clamping ring
IP 67
-35...+90 °C
-5...+90 °C
3 x 0.34 mm ²
5.2 mm
~ 60 V, ~ 45 V
4 A
> 10 ⁹ Ω
≤ 5 mΩ

XZ CR2710037S●	XZ CR2711037T●	XZ CR2712037T●
-----------------------	-----------------------	-----------------------



L = 1 or 2 m





		Clip	
Male connector type		M12, 3-pin, straight	
Female connector type		Ø 8 mm, 3-pin, straight	Ø 8 mm, 3-pin, elbowed
Number of conductors		3	

References

PUR cable (see page 9/7)	L = 1 m	XZ CR1501040G1	XZ CR1502040G1
	L = 2 m	XZ CR1501040G2	XZ CR1502040G2
Weight (kg)		0.050 (L = 1 m), 0.080 (L = 2 m)	

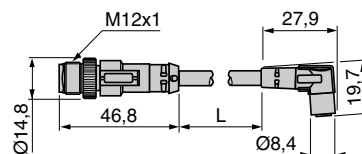
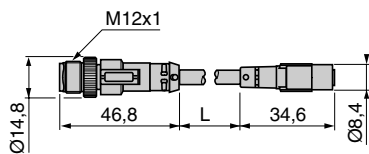
Characteristics

Certification		UL
Connection type		Male: screw threaded. Female: clip (1)
Degree of protection		IP 67 (when correctly clipped together or with clamping ring correctly tightened)
Ambient air temperature	Static cable	- 35...+ 90 °C
	Flexing cable	- 5...+ 90 °C
Conductor c.s.a.		3 x 0.34 mm ²
Cable diameter		5.2 mm
Nominal voltage		~ 60 V, --- 75 V
Nominal current		4 A
Insulation resistance		> 10 ⁹ Ω
Contact resistance		≤ 5 mΩ

Dimensions

XZ CR1501040G●

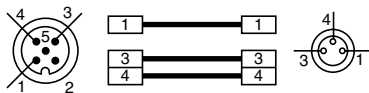
XZ CR1502040G●



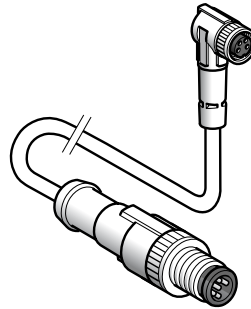
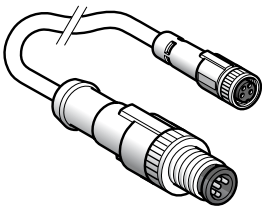
L = 1 or 2 m

Connections

XZ CR1501040G●, XZ CR1502040G●



(1) Clip together connector, without clamping ring.



Screw threaded

M12, 3-pin, straight	M8, 3-pin, straight	M8, 3-pin, elbowed	M12, 4-pin, straight	M8, 4-pin, straight	M8, 4-pin, elbowed
3			4		

XZ CR1509040H1	XZ CR1510040H1	XZ CR1509041J1	XZ CR1510041J1
XZ CR1509040H2	XZ CR1510040H2	XZ CR1509041J2	XZ CR1510041J2
0.050 (L = 1 m), 0.080 (L = 2 m)		0.055 (L = 1 m), 0.090 (L = 2 m)	

UL

Male and female: screw threaded

IP 67 (with clamping ring correctly tightened)

- 35...+ 90 °C

- 5...+ 90 °C

3 x 0.34 mm²

4 x 0.34 mm²

5.2 mm

~ 60 V, --- 75 V

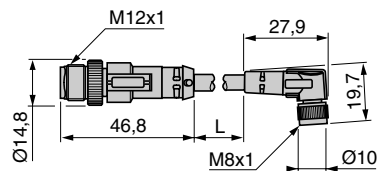
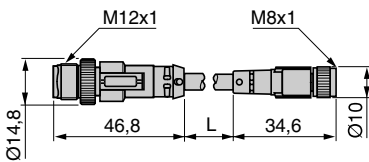
4 A

> 10⁹ Ω

≤ 5 mΩ

XZ CR1509040H●, XZ CR1509041J●

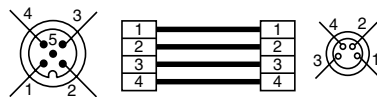
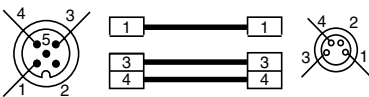
XZ CR1510040H●, XZ CR1510041J●

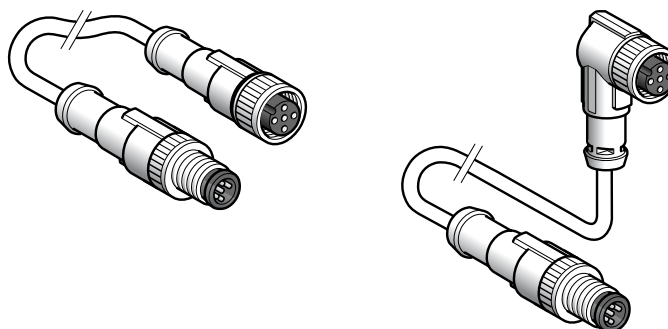


L = 1 or 2 m

XZ CR1509040H●, XZ CR1510040H●

XZ CR1509041J●, XZ CR1510041J●





Male connector type	M12, 3-pin, straight			
Female connector type	M12, 3-pin, straight	M12, 3-pin, elbowed	M12, 3-pin, straight	M12, 3-pin, elbowed
Number of conductors	3			

References

PUR cable (see page 9/7)	L = 1 m	XZ CR1511040A1	XZ CR1512040A1	XZ CR1511040E1	XZ CR1512040E1
	L = 2 m	XZ CR1511040A2	XZ CR1512040A2	XZ CR1511040E2	XZ CR1512040E2
Weight (kg)	0.065 (L = 1 m), 0.095 (L = 2 m)				

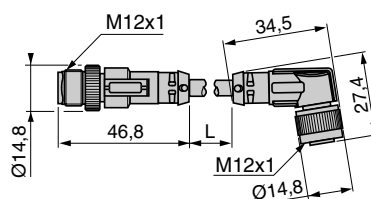
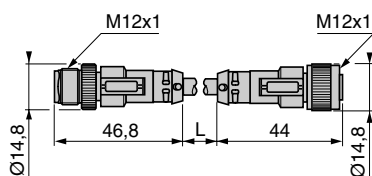
Characteristics

Certification	UL
Connection type	Male and female: screw threaded
Degree of protection	IP 67 (with clamping ring correctly tightened)
Ambient air temperature	Static cable: - 35...+ 90 °C Flexing cable: - 5...+ 90 °C
Conductor c.s.a.	3 x 0.34 mm ²
Cable diameter	5.2 mm
Nominal voltage	~ 250 V, ~ 300 V
Nominal current	4 A
Insulation resistance	> 10 ⁹ Ω
Contact resistance	≤ 5 mΩ

Dimensions

XZ CR1511040A●, XZ CR1511040E●

XZ CR1512040A●, XZ CR1512040E●

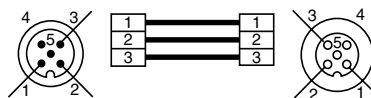
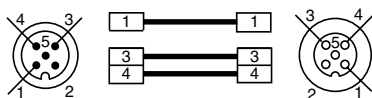


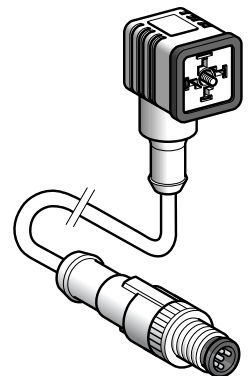
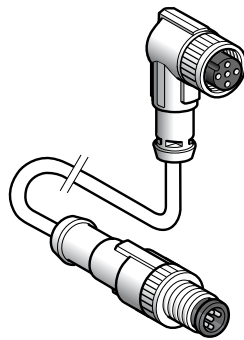
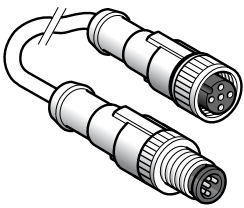
L = 1 or 2 m

Connections

XZ CR1511040A●, XZ CR1511040E●

XZ CR1511040E●, XZ CR1512040E●



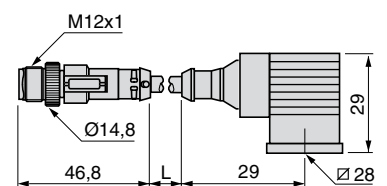
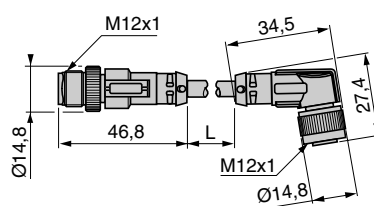
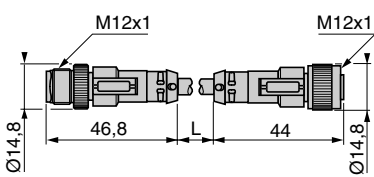


M12, 3-pin, straight	M12, 3-pin, straight	M12, 3-pin, elbowed	M12, 3-pin, straight	M12, 3-pin, elbowed	DIN 43650 A, elbowed
3					

XZ CR1511062B1	XZ CR1512062B1	XZ CR1511062F1	XZ CR1512062F1	XZ CR1523062K1
XZ CR1511062B2	XZ CR1512062B2	XZ CR1511062F2	XZ CR1512062F2	XZ CR1523062K2
0.065 (L = 1 m), 0.095 (L = 2 m)				0.110 (L = 1 m), 0.140 (L = 2 m)

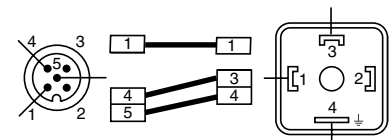
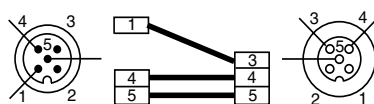
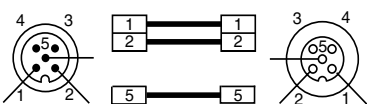
UL	-
Male and female: screw threaded	
IP 67 (with clamping ring correctly tightened)	
- 35...+ 90 °C	
- 5...+ 90 °C	
3 x 0.5 mm ²	3 x 0.50 mm ²
5.2 mm	4.5 mm
~ 30 V, ~ 36 V	
4 A	
> 10 ⁹ Ω	
≤ 5 mΩ	

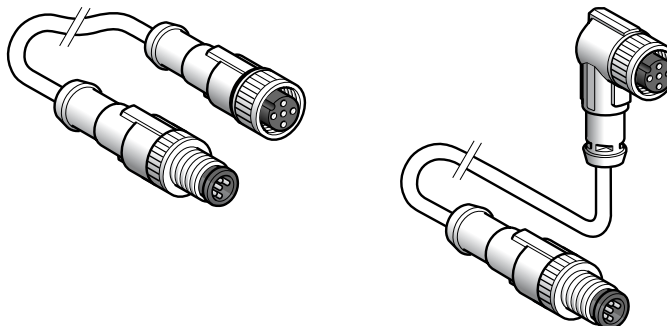
XZ CR1511062B●, XZ CR1511062F●	XZ CR1512062B●, XZ CR1512062F●	XZ CR1523062K●
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L = 1 or 2 m

XZ CR1511062B●, XZ CR1512062B●	XZ CR1511062F●, XZ CR1512062F●	XZ CR1523062K●
---------------------------------------	---------------------------------------	-----------------------





Male connector type	M12, 4-pin, straight	
Female connector type	M12, 4-pin, straight	M12, 4-pin, elbowed
Number of conductors	4	

References

PUR cable (see page 9/7)	L = 1 m	XZ CR1511041C1	XZ CR1512041C1
	L = 2 m	XZ CR1511041C2	XZ CR1512041C2
Weight (kg)	0.065 (L = 1 m), 0.095 (L = 2 m)		

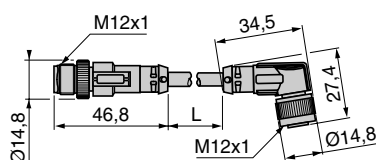
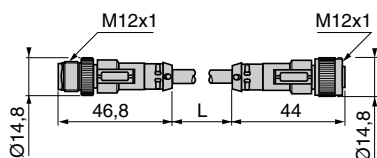
Characteristics

Certification	UL		
Connection type	Male and female: screw threaded		
Degree of protection	IP 67 (with clamping ring correctly tightened)		
Ambient air temperature	Static cable	- 35...+ 90 °C	
	Flexing cable	- 5...+ 90 °C	
Conductor c.s.a.	4 x 0.34 mm ²		
Cable diameter	5.2 mm		
Nominal voltage	~ 250 V, ~ 300 V		
Nominal current	4 A		
Insulation resistance	> 10 ⁹ Ω		
Contact resistance	≤ 5 mΩ		

Dimensions

XZ CR1511041C●

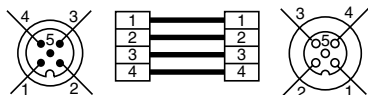
XZ CR1512041C●



L = 1 or 2 m

Connections

XZ CR1511041C●, XZ CR1512041C●

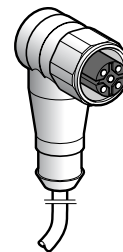
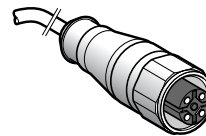
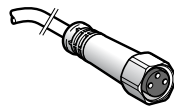


Machine cabling accessories

OsiSense XZ

Pre-wired connectors, Application series

M8, M12 and 1/2"-20UNF



Connector type	Female, M8, straight	Female, M8, straight	Female, M12, straight	Female, M12, elbowed	Female, M12, elbowed
Number of pins	3	4	4	4	5

References

PVC cable (see page 9/7)	L = 2 m	–	–	XZ CPA1141L2	XZ CPA1241L2	XZ CPA1164L2
	L = 5 m	XZ CPA0566L5	XZ CPA0941L5	XZ CPA1141L5	XZ CPA1241L5	XZ CPA1164L5
	L = 10 m	XZ CPA0566L10	XZ CPA0941L10	XZ CPA1141L10	XZ CPA1241L10	XZ CPA1164L10
Weight (kg)	L = 2 m	–	–	0.090	0.090	0.110
	L = 5 m	0.175	0.200	0.210	0.210	0.250
	L = 10 m	0.340	0.400	0.410	0.410	0.485

Characteristics

Connection type	Screw threaded, smooth, hexagonal, stainless steel 316L clamping ring (1)					
Clamping ring dimension	9 mm		14 mm			
Degree of protection	IP 68			IP 69K		
Ambient air temperature	Static cable usage - 25...+ 85 °C					
Cabling	Cable	Ø 5.0 mm	Ø 5.3 mm	Ø 5.3 mm	Ø 5.3 mm	Ø 5.7 mm
	Conductor c.s.a.	3 x 0.34 mm ²	4 x 0.34 mm ²	4 x 0.34 mm ²		5 x 0.34 mm ²
Nominal voltage	~ 60 V, ~ 75 V			~ 250 V, ~ 300 V		
Nominal current	4 A			4 A		
Insulation resistance	> 10 ⁹ Ω			> 10 ⁹ Ω		
Contact resistance	≤ 5 mΩ			≤ 5 mΩ		

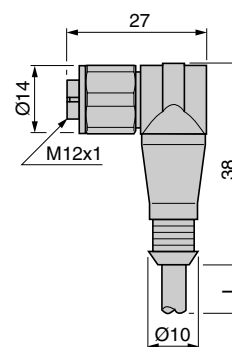
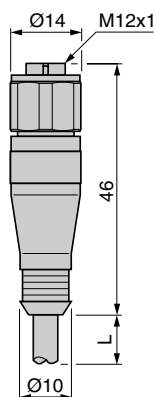
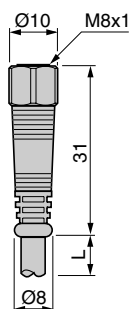
(1) Tightening by hand recommended

Dimensions

XZ CPA0566L●, XZ CPA0941L●

XZ CPA1141L●

XZ CPA1241L●, XZ CPA1164L●



L = 2, 5 or 10 m

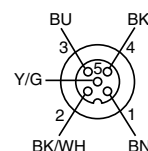
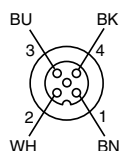
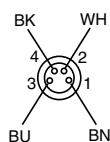
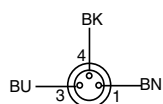
Connections

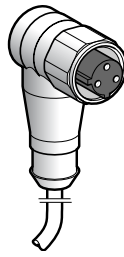
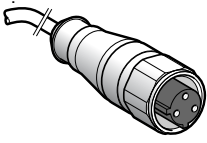
XZ CPA0566L●

XZ CPA0941L●

XZ CPA1141L●, XZ CPA1241L●

XZ CPA1164L●





Female, 1/2"-20UNF,
straight
3

Female, 1/2"-20UNF,
elbowed
3

-

-

XZ CPA1865L5
XZ CPA1865L10

XZ CPA1965L5
XZ CPA1965L10

-

-

0.210
0.410

0.250
0.485

Screw threaded, smooth, hexagonal, stainless steel 316L clamping ring (1)

14 mm

IP 69K

- 25...+ 85 °C

Ø 5.0 mm

3 x 0.34 mm²

3 x 0.34 mm²

~ 250 V, ~ 300 V

~ 250 V, ~ 300 V

4 A

4 A

> 10⁹ Ω

> 10⁹ Ω

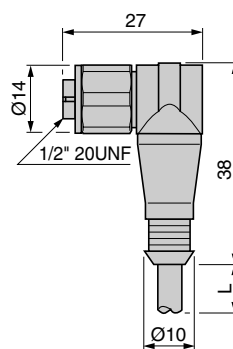
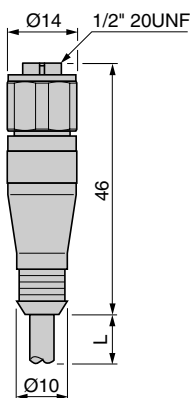
≤ 5 mΩ

≤ 5 mΩ

(1) Tightening by hand recommended

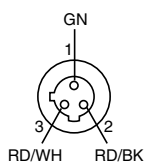
XZ CPA1865L●

XZ CPA1965L●



L = 5 or 10 m

XZ CPA1865L●, XZ CPA1965L●





Male connector type	M12, 4-pin, straight	M12, 3-pin, straight
Female connector type	M8, 4-pin, straight	M12, 3-pin, straight
Number of conductors	4	3

References

PVC cable (see page 9/7)	L = 2 m	XZ CRA150941J2	XZ CRA151140A2
	L = 5 m	XZ CRA150941J5	XZ CRA151140A5
Weight (kg)	L = 2 m	0.100	0.095
	L = 5 m	0.210	0.200

Characteristics

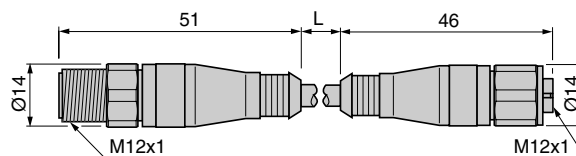
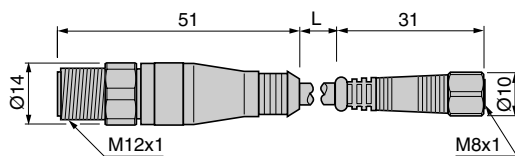
Connection type	Screw threaded, smooth, hexagonal, stainless steel 316L clamping ring (1)		
Clamping ring dimension	14/9 mm		14 mm
Degree of protection	IP 68		IP 69K
Ambient air temperature	Static cable usage	- 25...+ 85 °C	
Cabling	Cable	Ø 5.3 mm	Ø 5.0 mm
	Conductor c.s.a.	4 x 0.34 mm ²	3 x 0.34 mm ²
Nominal voltage	~ 60 V, --- 75 V		~ 250 V, --- 300 V
Nominal current	4 A		
Insulation resistance	> 10 ⁹ Ω		
Contact resistance	≤ 5 mΩ		

(1) Tightening by hand recommended

Dimensions

XZ CRA150941J●

XZ CRA151140A●

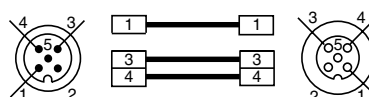
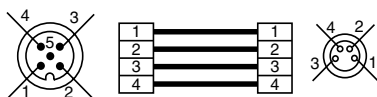


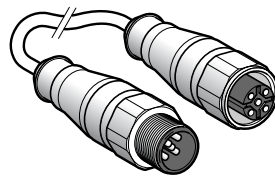
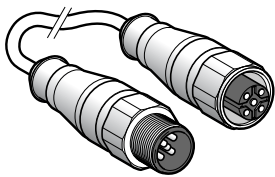
L = 2 or 5 m

Connections

XZ CRA150941J●

XZ CRA151140A●



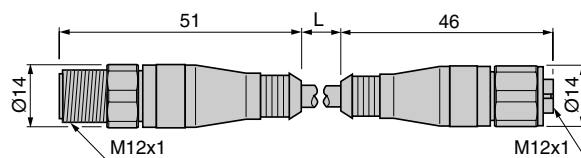
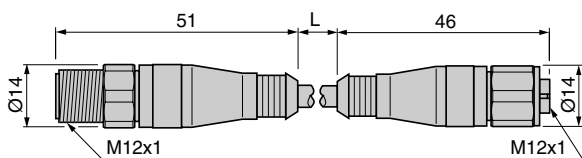


M12, 4-pin, straight	M12, 5-pin, straight
M12, 4-pin, straight	M12, 5-pin, straight
4	5
XZ CRA151141C2	XZ CRA151164D2
XZ CRA151141C5	XZ CRA151164D5
0.105	0.120
0.220	0.260
Screw threaded, smooth, hexagonal, stainless steel 316L clamping ring (1)	
14 mm	
IP 69K	
- 25... + 85 °C	
Ø 5.3 mm	Ø 5.7 mm
4 x 0.34 mm ²	5 x 0.34 mm ²
~ 250 V, ~ 300 V	
4 A	
> 10 ⁹ Ω	
≤ 5 mΩ	

(1) Tightening by hand recommended

XZ CRA151141C●

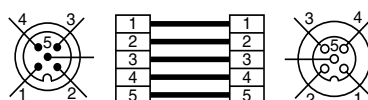
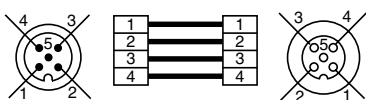
XZ CRA151164D●

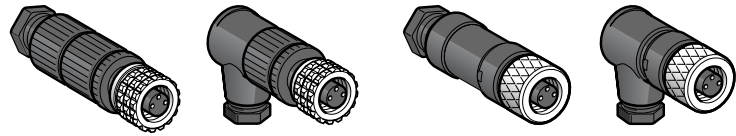


L = 2 or 5 m

XZ CRA151141C●

XZ CRA151164D●





Connector type	Female, M8, straight	Female, M8, elbowed	Female, M8, straight	Female, M8, elbowed
Number of pins	3			
Cable connection	By axial IDC (Insulation Displacement Connector)		To solder terminals	

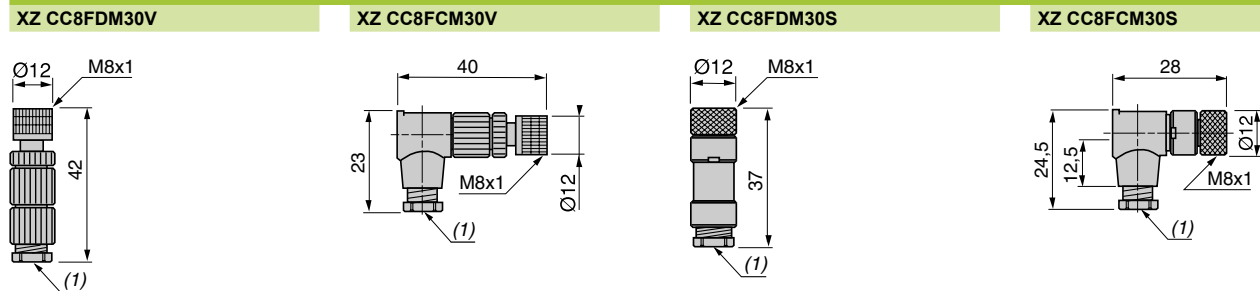
References

Plastic body	Metal clamping ring	XZ CC8FDM30V	XZ CC8FCM30V	XZ CC8FDM30S	XZ CC8FCM30S
	Plastic clamping ring	-			
Weight (kg)	0.010				

Characteristics

Connection type	Screw threaded (metal clamping ring)	Screw threaded (metal clamping ring)
Degree of protection	IP 67 (with clamping ring correctly tightened)	IP 67 (with clamping ring correctly tightened)
Ambient air temperature	- 25...+ 70 °C	- 40...+ 85 °C
Cabling	By IDC. Conductor diameter: 1...1.55 mm Cable gland: M9.5 x 1. Maximum clamping capacity: 5 mm	To solder terminals. Maximum conductor c.s.a.: 0.25 mm ² Cable gland: M9.5 x 1. Maximum clamping capacity: 5 mm
LED indicators	-	
Nominal voltage	~ 60 V, ≐ 75 V	~ 60 V, ≐ 75 V
Nominal current	4 A	
Insulation resistance	> 10 ⁹ Ω	
Contact resistance	≤ 10 mΩ	≤ 5 mΩ

Dimensions



(1) Cable gland: M9.5 x 1

Connections

XZ CC8FDM30●, XZ CC8FCM30●



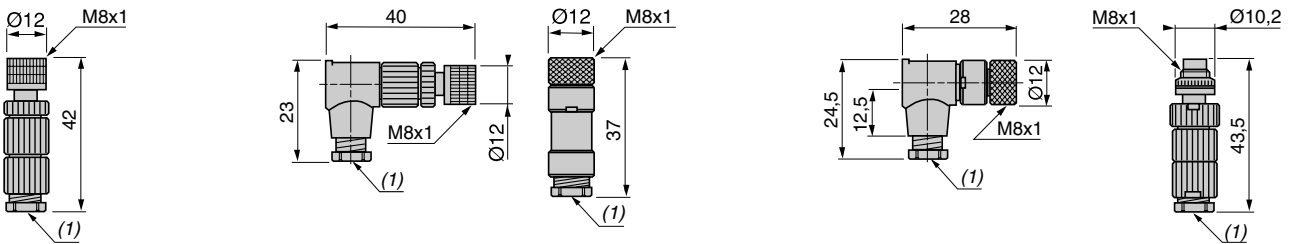


Female, M8, straight	Female, M8, elbowed	Female, M8, straight	Female, M8, elbowed	Male, M8, straight
4				3
By axial IDC (Insulation Displacement Connector)		To solder terminals		

XZ CC8FDM40V	XZ CC8FCM40V	XZ CC8FDM40S	XZ CC8FCM40S	XZ CC8MDM30V
-				
0.010				

Screw threaded (metal clamping ring)	Screw threaded (metal clamping ring)	Screw threaded (metal clamping ring)
IP 67 (with clamping ring correctly tightened)	IP 67 (with clamping ring correctly tightened)	IP 67 (with clamping ring correctly tightened)
- 25...+ 70 °C	- 40...+ 85 °C	- 40...+ 85 °C
By IDC. Conductor diameter: 1...1.55 mm Cable gland: M9.5 x 1. Maximum clamping capacity: 5 mm	To solder terminals. Maximum conductor c.s.a.: 0.25 mm ² Cable gland: M9.5 x 1. Maximum clamping capacity: 5 mm	By IDC. Maximum conductor c.s.a.: 0.25 mm ² Cable gland: M9.5 x 1. Maximum clamping capacity: 5 mm
-	-	-
~ 60 V, ≐ 75 V	~ 60 V, ≐ 75 V	~ 60 V, ≐ 75 V
4 A	4 A	4 A
> 10 ⁹ Ω	> 10 ⁹ Ω	> 10 ⁹ Ω
≤ 10 mΩ	≤ 5 mΩ	≤ 5 mΩ

XZ CC8FDM40V	XZ CC8FCM40V	XZ CC8FDM40S	XZ CC8FCM40S	XZ CC8MDM30V
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(1) Cable gland: M9.5 x 1

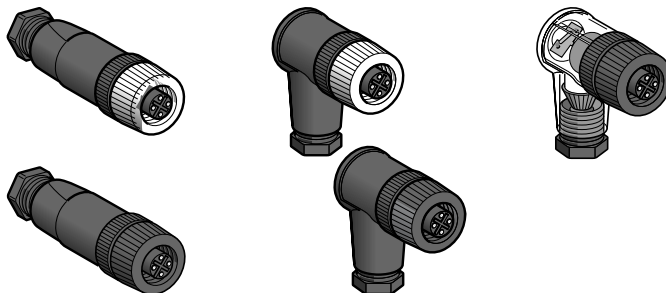
XZ CC8FDM40●, XZ CC8FCM40●	XZ CC8MDM30V
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Machine cabling accessories

OsiSense XZ

Connectors, M12 and 1/2"-20UNF



Connector type	Female, M12, straight	Female, M12, elbowed	Female, M12, elbowed
Number of pins	4		
Cable connection	To screw terminals		

References

Plastic body	Metal clamping ring	XZ CC12FDM40B	XZ CC12FCM40B	-
	Plastic clamping ring	XZ CC12FDP40B	XZ CC12FCP40B	XZ CC12FCP42B
Weight (kg)	0.020			

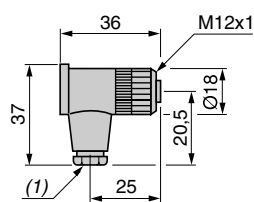
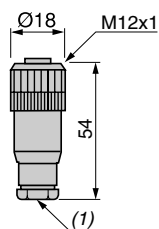
Characteristics

Connection type	Screw threaded (plastic or metal clamping ring, depending on model)		
Degree of protection	IP 67 (with clamping ring correctly tightened)		
Ambient air temperature	- 40...+ 85 °C		
Cabling	To screw terminals. Maximum conductor c.s.a.: 0.75 mm ² . Cable gland: n° 7 plastic (Pg 7). Clamping capacity: 3 to 6 mm		
LED indicators	-	2 PNP LEDs	
Nominal voltage	~ 125 V, ~ 150 V	~ 10...30 V	
Nominal current	3 A	3 A	
Insulation resistance	> 10 ¹² Ω	> 10 ¹² Ω	
Contact resistance	≤ 8 mΩ	≤ 8 mΩ	

Dimensions

XZ CC12FD●40B

XZ CC12FC●40B, XZ CC12FCP42B

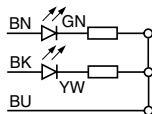


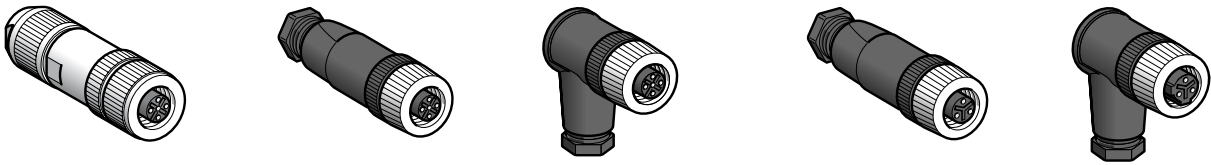
(1) Cable gland: n° 7 plastic (Pg 7)

Connections

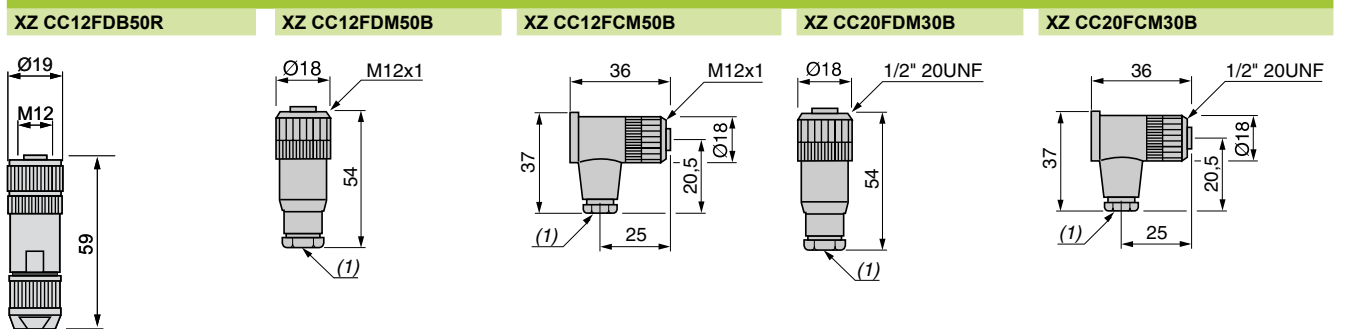
XZ CC12FD●40B, XZ CC12FC●40B, XZ CC12FCP42B

LED connection for XZ CC12FCP42B



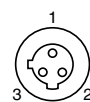


Female, M12, straight, shielded	Female, M12, straight	Female, M12, elbowed	Female, 1/2"-20UNF, straight	Female, 1/2"-20UNF, elbowed
5	5		3	
To spring terminals	To screw terminals			
XZ CC12FDB50R	XZ CC12FDM50B	XZ CC12FCM50B	XZ CC20FDM30B	XZ CC20FCM30B
-	-			
0.050	0.020			
Screw threaded (metal clamping ring)				
IP 67 (with clamping ring correctly tightened)			IP 67 (with clamping ring correctly tightened)	
- 40...+ 85 °C			- 40...+ 85 °C	
To spring terminals Maximum conductor c.s.a.: 0.5 mm ² . Clamping capacity: 4 to 8 mm		To screw terminals. Maximum conductor c.s.a.: 0.75 mm ² . Cable gland: n° 7 plastic (Pg 7). Clamping capacity: 3 to 6 mm		
-		-		
~ 30 V, --- 36 V		~ 250 V		
4 A		4 A		
> 10 ¹² Ω		> 10 ¹² Ω		
≤ 8 mΩ		≤ 8 mΩ		



(1) Cable gland: n° 7 plastic (Pg 7)

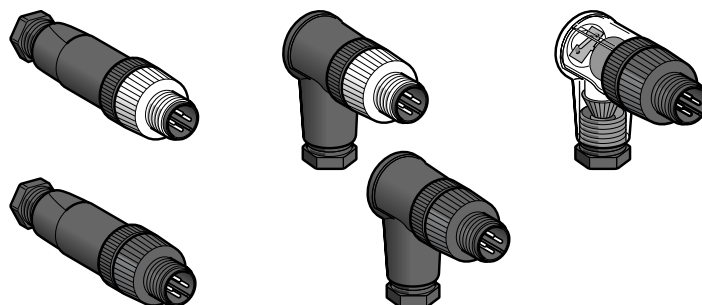
XZ CC12FDB50R, XZ CC12F●M50B	XZ CC20F●M30B
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Machine cabling accessories

OsiSense XZ

Connectors, M12 and 1/2"-20UNF



Connector type	Male, M12, straight	Male, M12, elbowed	Male, M12, elbowed
Number of pins	4		
Cable connection	To screw terminals		

References

Plastic body	Metal clamping ring	XZ CC12MDM40B	XZ CC12MCM40B	-
	Plastic clamping ring	XZ CC12MDP40B	XZ CC12MCP40B	XZ CC12MCP42B
Weight (kg)	0.025			

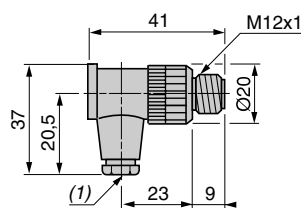
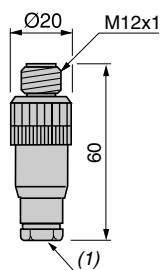
Characteristics

Connection type	Screw threaded (plastic or metal clamping ring, depending on model)		
Degree of protection	IP 67 (with clamping ring correctly tightened)		
Ambient air temperature	- 40...+ 85 °C		
Cabling	To screw terminals. Maximum conductor c.s.a.: 0.75 mm ² . Cable gland: n° 7 plastic (Pg 7). Clamping capacity: 3 to 6 mm		
LED indicators	-	2 PNP LEDs	
Nominal voltage	~ 125 V, ~ 150 V	~ 10...30 V	
Nominal current	3 A	3 A	
Insulation resistance	> 10 ¹² Ω	> 10 ¹² Ω	
Contact resistance	≤ 8 mΩ	≤ 8 mΩ	

Dimensions

XZ CC12MD●40B

XZ CC12MC●40B, XZ CC12MCP42B

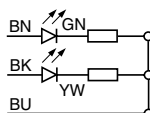


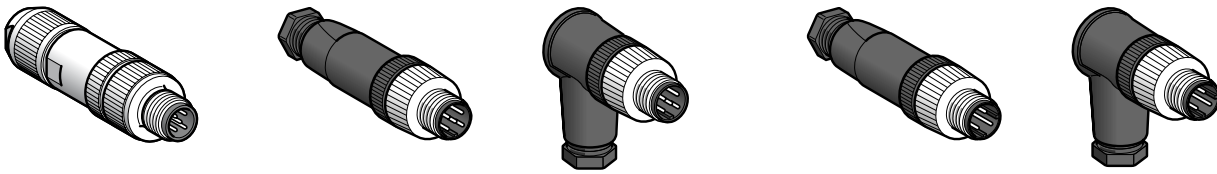
(1) Cable gland: n° 7 plastic (Pg 7)

Connections

XZ CC12MD●40B, XZ CC12MC●40B, XZ CC12MCP42B

LED connection for XZ CC12MCP42B



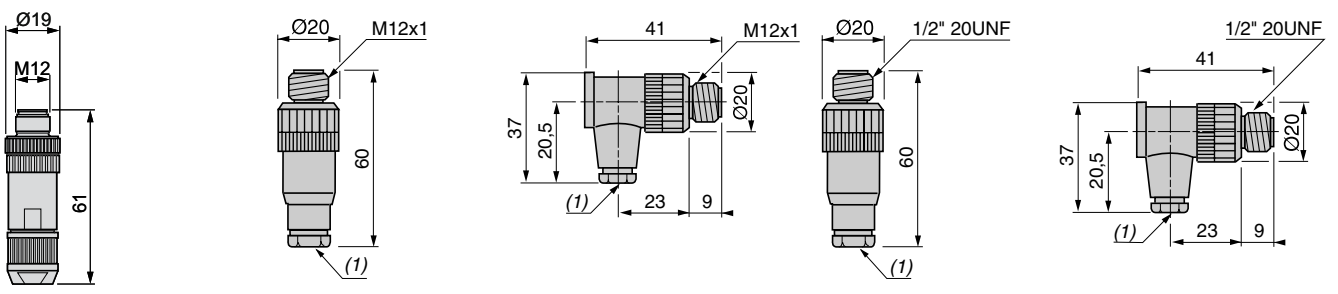


Male, M12, straight	Male, M12, straight	Male, M12, elbowed	Male, 1/2"-20UNF, straight	Male, 1/2"-20UNF, elbowed
5	5		3	
To spring terminals	To screw terminals			

XZ CC12MDB50R	XZ CC12MDM50B	XZ CC12MCM50B	XZ CC20MDM30B	XZ CC20MCM30B
0.050	0.025			

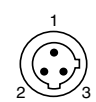
Screw threaded (metal clamping ring)				
IP 67 (with clamping ring correctly tightened)				
- 40...+ 85 °C				
To spring terminals Maximum conductor c.s.a.: 0.5 mm ² . Clamping capacity: 4 to 8 mm	To screw terminals. Maximum conductor c.s.a.: 0.75 mm ² . Cable gland: n° 7 plastic (Pg 7). Clamping capacity: 3 to 6 mm			
-	-			-
~ 30 V, --- 36 V	~ 30 V, --- 36 V			~ 250 V
4 A	3 A			4 A
> 10 ¹² Ω	> 10 ¹² Ω			> 10 ¹² Ω
≤ 8 mΩ	≤ 8 mΩ			≤ 8 mΩ

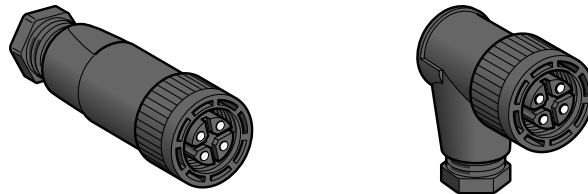
XZ CC12MDB50R	XZ CC12MDM50B	XZ CC12MCM50B	XZ CC20MDM30B	XZ CC20FCM30B
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(1) Cable gland: n° 7 plastic (Pg 7)

XZ CC12MDB50R, XZ CC12M●M50B	XZ CC20M●M30B
-------------------------------------	----------------------





Connector type	Female, M18, straight	Female, M18, elbowed
Number of pins	4	
Cable connection	To screw terminals	

References

Plastic body	Metal clamping ring	-
	Plastic clamping ring	XZ CC18FDP40B
Weight (kg)	0.035	

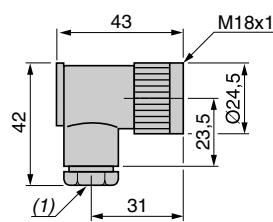
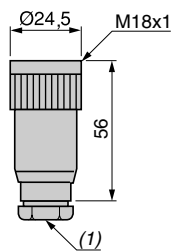
Characteristics

Connection type	Screw threaded (plastic clamping ring)
Degree of protection	IP 65 (with clamping ring correctly tightened)
Ambient air temperature	- 40...+ 85 °C
Cabling	To screw terminals. Maximum conductor c.s.a.: 1.5 mm ² . Cable gland: n° 9 plastic (Pg 9). Clamping capacity: 5 to 8 mm
LED indicators	-
Nominal voltage	~ 250 V
Nominal current	16 A
Insulation resistance	> 10 ¹² Ω
Contact resistance	≤ 10 mΩ

Dimensions

XZ CC18FDP40B

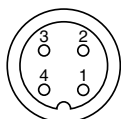
XZ CC18FCP40B

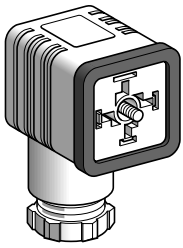


(1) Cable gland: n° 9 plastic (Pg 9)

Connections

XZ CC18F●P40B





Female, DIN 43650 A, elbowed

4

To screw terminals

XZ CC43FCP40B

-

0.035

With locking screw

IP 65 (with connector correctly locked)

- 40...+ 125 °C

To screw terminals.
 Maximum conductor c.s.a.: 1.5 mm².
 Cable gland: n° 11 plastic (Pg 11).
 Clamping capacity: 7 to 10 mm

-

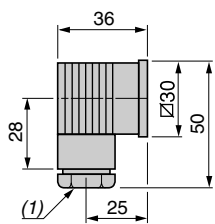
~ 250 V

16 A

> 10⁸ Ω

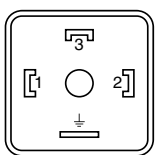
≤ 4 mΩ

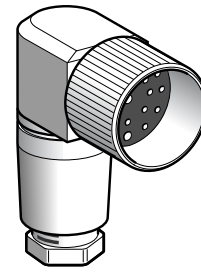
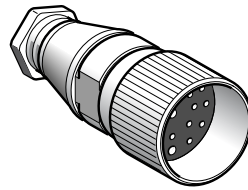
XZ CC43FCP40B



(1) Cable gland: n° 11 plastic (Pg 11)

XZ CC43FCP40B





Connector type	Female, M23, straight	Female, M23, elbowed
Number of pins	19	
Cable connection	To solder terminals	

References

Metal body and metal clamping ring	Contacts numbered anti-clockwise	XZ CC23FDM190S	XZ CC23FCM190S
Weight (kg)		0.080	0.150

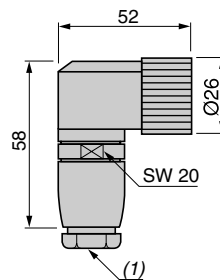
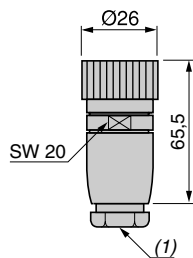
Characteristics

Connection type	Screw threaded (metal clamping ring)
Degree of protection	IP 65 (with clamping ring correctly tightened)
Ambient air temperature	- 25...+ 110 °C
Cabling	To solder terminals. Maximum conductor c.s.a.: 1 mm ² Cable gland: n° 13 metal (Pg 13.5). Clamping capacity: 9 to 12 mm
LED indicators	–
Nominal voltage	~ 60 V, --- 75 V
Nominal current	7.5 A
Insulation resistance	> 10 ¹⁶ Ω
Contact resistance	≤ 5 mΩ

Dimensions

XZ CC23FDM190S

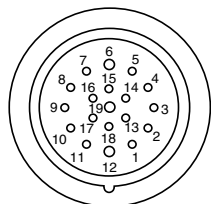
XZ CC23FCM190S

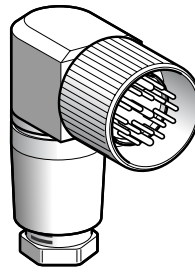
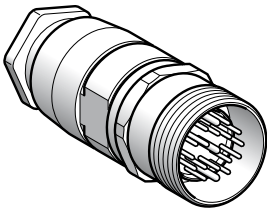


(1) Cable gland: n° 13 metal (Pg 13.5)

Connections

XZ CC23F●M190S

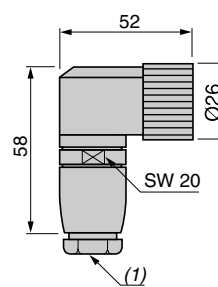
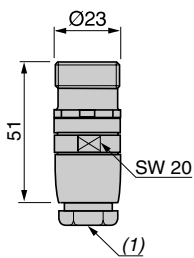




Male, M23, straight	Male, M23, elbowed (compatible with enclosure feed-throughs ABE 7ACC82)
19	
To solder terminals	
XZ CC23MDM190S	XZ CC23MCM190S
0.080	0.150
Screw threaded (metal clamping ring)	
IP 65 (with clamping ring correctly tightened)	
- 25...+ 110 °C	
To solder terminals. Maximum conductor c.s.a.: 1 mm ² . Cable gland: n° 13 metal (Pg 13.5). Clamping capacity: 9 to 12 mm	
-	
~ 60 V, ≡ 75 V	
7.5 A	
> 10 ¹⁶ Ω	
≤ 5 mΩ	

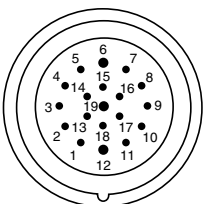
XZ CC23MDM190S

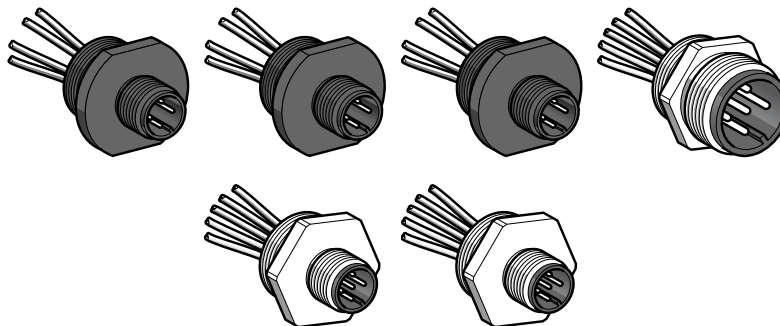
XZ CC23MCM190S



(1) Cable gland: n° 13 metal (Pg 13.5)

XZ CC23M●M190S





Type of 5-pin connector	M12, male		7/8" 16UN, male	
Size of tapped hole	11 (Pg 11)	13 (Pg 13.5)	M20 x 1.5	13 (Pg 13.5)

References

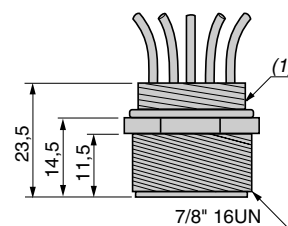
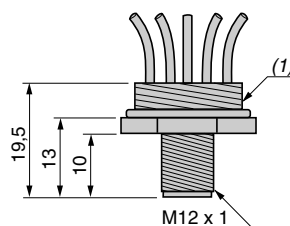
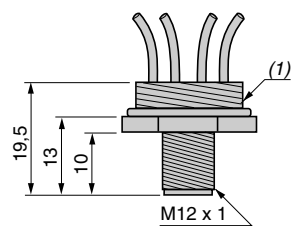
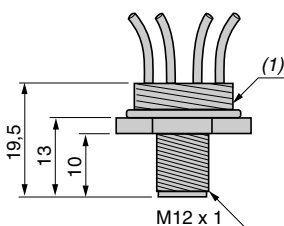
4-wire connector adaptors, plastic body	XZ CE11P124M	XZ CE13P124M	XZ CE03P124M	–
5-wire connector adaptors, metal body	–	XZ CE13M125M	XZ CE03M125M	XZ CE13M785M
Weight (kg)	0.020	0.020 (4-wire), 0.025 (5-wire)		0.050

Characteristics

Connection type	Screw threaded			
Degree of protection	IP 67			
Ambient air temperature	- 25...+ 80 °C			
Cabling	Via 100 mm long wires.			
Conductor c.s.a.	4 x 0.34 mm ²	XZ CE●3P124M: 4 x 0.34 mm ² XZ CE●3M125M: 4 x 0.34 mm ² + 1 x 0.5 mm ²	5 x 1 mm ²	
Nominal voltage	~ 250 V, ≐ 300 V	XZ CE●3P124M: ~ 250 V, ≐ 300 V XZ CE●3M125M: ~ 30 V, ≐ 36 V	~ 250 V, ≐ 300 V	
Nominal current	4 A		6 A	
Insulation resistance	> 10 ⁹ Ω			
Contact resistance	≤ 5 mΩ			

Dimensions

XZ CE11P124M	XZ CE●3P124M	XZ CE●3M125M	XZ CE13M785M
--------------	--------------	--------------	--------------



(1) Thread size 11

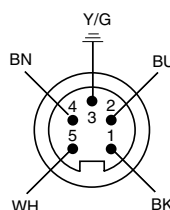
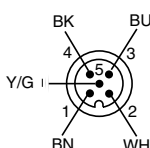
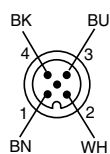
(1) Thread size 13 or M20 x 1.5

(1) Thread size 13 or M20 x 1.5

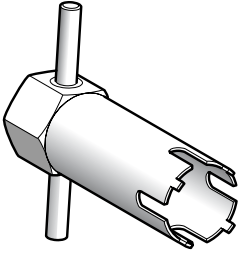
(1) Thread size 13

Connections

XZ CE●●P124M	XZ CE●●P125M	XZ CE13M785M
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806083



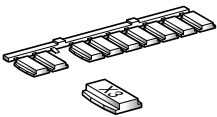
XZ CG0223

806082



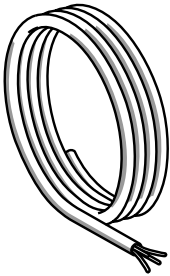
XZ LG102

806081



XZ LG101

806084



XZ CB4L●●●●

Accessories

Description	Unit reference	Weight kg
Mounting tool for M23 connector	XZ CG0223	0.120
Blanking plugs for M12 female connectors (Sold in lots of 10)	XZ LG102	0.005
Markers for splitter boxes (Strips of 10 units)	XZ LG101	0.010
PvR cables, 4 x 0.5 mm² (see characteristics, page 9/7)	L = 25 m	XZ CB4L0025 1.115
	L = 50 m	XZ CB4L0050 2.220
	L = 100 m	XZ CB4L0100 4.490
	L = 500 m	XZ CB4L0500 25.700
	L = 1000 m	XZ CB4L1000 46.300

Presentation

Passive splitter boxes ABE9 for M12 connectors make it possible to eliminate long and difficult cabling operations. Due to their modularity and their dimensions, they are the ideal solution for a wide variety of customer applications.

Connection to the processing unit can either be made by connector or by multicore cable of different lengths.

IP 67 protection allows these products to be used within processes or machines in harsh environments (splashing water, oil, dust, etc.).

The splitter boxes, available in 4 or 8 channel versions, allow connection of up to 16 signals maximum, depending on the version (2 per channel).

The characteristics of splitter boxes ABE 9C12 are as follows:

- Connection of sensors and actuators using M12, 5-pin connectors.

- Modularity: 4 or 8 channels.

- Fixing system and connection to the processing unit conforming to market standards:

- fixing centres,

- M23, 19-pin connector, enabling the use of pre-formed cables in order to reduce installation time and the risk of error,

- multicore cable, 5 or 10 metres long. The splitter box comprises a connection cover fitted with plug-in terminals, which provides considerable flexibility for:

- the replacement of damaged parts,

- modification of cable length.

Base units ABE 9C12●●L●● enable the use of 2 separate commons which, for example, can be used for the management of an emergency stop. This function is accessible beneath the terminal cover using 2 removable links. If both links are removed, the 2 supplies become independent.

The use of a Y-connector allows 2 signals to be connected to the same M12 channel on the splitter box.

Example: splitter box ABE 9C1281 (8 channels) enables the connection of 16 signals to the processing unit.

The Y-connector is available in 2 versions:

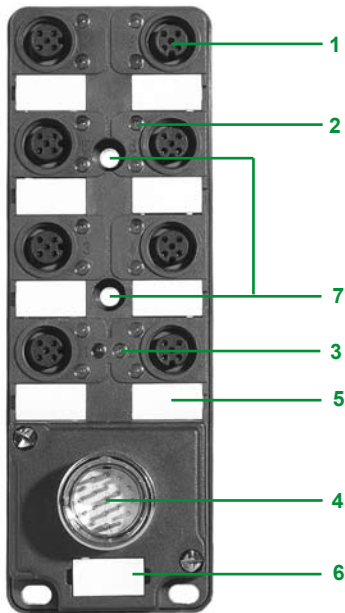
- M12-M12 for connection of two M12 connectors to a single M12 channel on the splitter box,

- M8-M12 for connection of two M8 connectors to a single M12 channel on the splitter box.

Complete reference	= Splitter box only	+ Connector with cable
ABE 9C1240L05	= ABE 9C1240M	+ ABE 9XCA1405
ABE 9C1240L10	= ABE 9C1240M	+ ABE 9XCA1410
ABE 9C1241L05	= ABE 9C1241M	+ ABE 9XCA1405
ABE 9C1241L10	= ABE 9C1241M	+ ABE 9XCA1410
ABE 9C1280L05	= ABE 9C1280M	+ ABE 9XCA1805
ABE 9C1280L10	= ABE 9C1280M	+ ABE 9XCA1810
ABE 9C1281L05	= ABE 9C1281M	+ ABE 9XCA1805
ABE 9C1281L10	= ABE 9C1281M	+ ABE 9XCA1810

Connector only

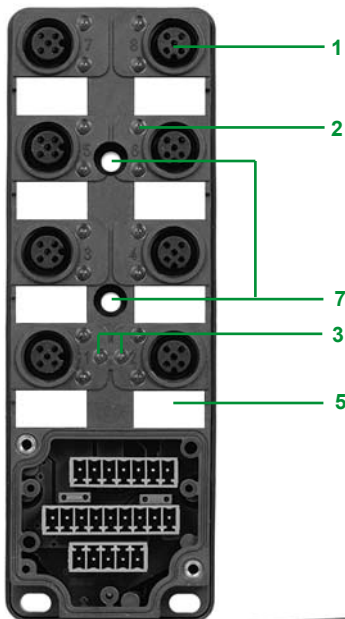
ABE 9CM12C



Description

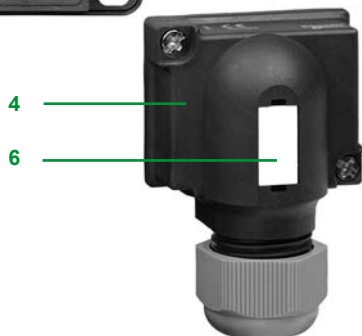
Passive splitter boxes ABE 9C12...C23 have the following on the front face:

- 1 Four or eight M12 female connectors (depending on model) for connection of sensors and actuators (2 channels per connector).
- 2 Eight or sixteen channel status indicator lights (depending on model).
- 3 One "Power on" indicator light on the splitter box (depending on model).
- 4 One M23, 19-pin male connector.
- 5 Four or eight channel marker labels.
- 6 One splitter box marker label.
- 7 Splitter box fixing holes.



Passive splitter boxes ABE 9C12...L... have the following on the front face:

- 1 Four or eight M12 female connectors (depending on model) for connection of sensors and actuators (2 channels per connector).
- 2 Eight or sixteen channel status indicator lights (depending on model).
- 3 Two "Power on" indicator lights on the splitter box (depending on model).
- 4 One removable connection cover fitted with plug-in terminals.
- 5 Four or eight channel marker labels.
- 6 One splitter box marker label.
- 7 Splitter box fixing holes.



Splitter box type			ABE 9C12●0C23	ABE 9C12●1C23	ABE 9C12●0L●●, ABE 9C12●0M	ABE 9C12●1L●●, ABE 9C12●1M
Environmental characteristics						
Product certifications			cULus			
Temperature	Operation	°C	- 20...+ 80			
	Storage	°C	- 40...+ 85			
Degree of protection	Conforming to IEC 529		IP 67			
Vibration resistance	Conforming to IEC 68-2-6, test Fc	Hz	10 ≤ f ≤ 57 (constant amplitude = 1.5 mm) 57 ≤ f ≤ 150 (constant acceleration = 0.20 gn)			
Shock resistance	Conforming to IEC/EN 68-2-2		30 gn, 11 ms			
Insulation group	VDE 0110		Category 3			
Mounting			All positions			
Mechanical fixing			M4 screw fixing			
Channel characteristics						
Number of channels			4 or 8 (depending on model)			
Type of connection per channel			M12, 5-pin female connectors			
Nominal voltage		~ V	24			
Current per channel		A	4 maximum			
Contact resistance		m Ω	5			
Power supply status indication			–	Green LED	–	Green LED
Channel status indication			–	Yellow LED	–	Yellow LED
Connection characteristics						
Type of connection			M23, 19-pin male connector		Multicore cable	
Total current in commons	1 mm² supply wire	A	16			
	0.75 mm² supply wire	A	12			
Separation of commons			Without		Without or with (by removing links BR1 and BR2, see connections on page 9/43).	

Substitution table

Old range	New range
Splitter boxes with connection by M23 connector	
XZ LC1241C3	ABE 9C1241C23
XZ LC1240C3	ABE 9C1240C23
XZ LC1281C3	ABE 9C1281C23
XZ LC1280C3	ABE 9C1280C23
Splitter boxes with connection by cable	
XZ LC1241L5	ABE 9C1241L05
XZ LC1240L5	ABE 9C1240L05
XZ LC1241L10	ABE 9C1241L10
XZ LC1240L10	ABE 9C1240L10
XZ LC1281L5	ABE 9C1281L05
XZ LC1280L5	ABE 9C1280L05
XZ LC1281L10	ABE 9C1281L10
XZ LC1280L10	ABE 9C1280L10
Accessories	
XZ LG102	FTX CM12B
XZ LC1220C1	FTX CY1212



ABE 9C124●C23



ABE 9C128●C23



ABE 9C124●L●●



ABE 9C128●L●●



ABE 9C128●M



ABE 9XCA1●●●



References

Splitter boxes with connection by M23 connector

Number of channels	Connection by	LED indicator	Reference	Weight kg
4	4 x M12 female connectors	With	ABE 9C1241C23	0.080
		Without	ABE 9C1240C23	0.080
8	8 x M12 female connectors	With	ABE 9C1281C23	0.140
		Without	ABE 9C1280C23	0.140

Splitter boxes with connection by cable

Number of channels	Connection by	Length m	LED indicator	Reference	Weight kg
4	4 x M12 female connectors	5	With	ABE 9C1241L05	0.680
			Without	ABE 9C1240L05	0.680
		10	With	ABE 9C1241L10	1.700
			Without	ABE 9C1240L10	1.700
8	8 x M12 female connectors	5	With	ABE 9C1281L05	1.610
			Without	ABE 9C1280L05	1.610
		10	With	ABE 9C1281L10	3.060
			Without	ABE 9C1280L10	3.060

Splitter boxes only, M12

Number of channels	For use with connector		LED indicator	Reference	Weight kg
	terminal	with cable			
4	ABE 9CM12C	ABE 9XCA14●●	With	ABE 9C1241M	0.060
			Without	ABE 9C1240M	0.060
8	ABE 9CM12C	ABE 9XCA18●●	With	ABE 9C1281M	0.100
			Without	ABE 9C1280M	0.100

Separate components

Type	No. of channels	For use with splitter box	Length	Reference	Weight kg
			m		
Terminal block connector (1)	-	ABE 9C124●M ABE 9C128●M	-	ABE 9CM12C	0.040
Connectors with cable	4	ABE 9C124●M	5	ABE 9XCA1405	1.060
			10	ABE 9XCA1410	2.080
	8	ABE 9C128●M	5	ABE 9XCA1805	1.510
			10	ABE 9XCA1810	2.240

Accessories

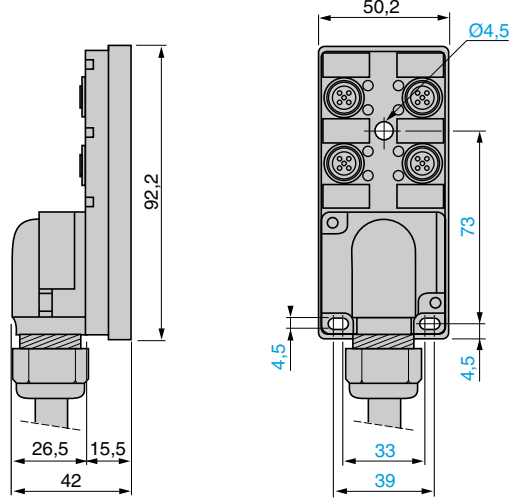
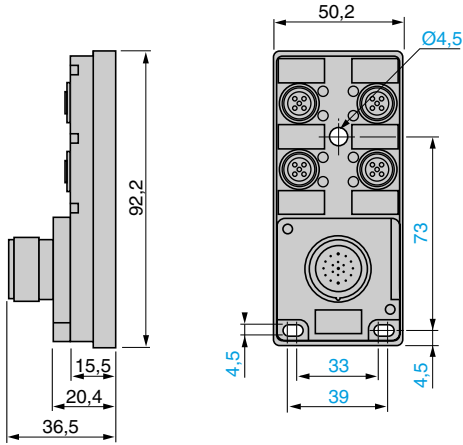
Description	Composition	Reference	Weight kg
Sealing plugs	For M8 connector (lot of 10)	FTX CM08B	0.100
	For M12 connector (lot of 10)	FTX CM12B	0.100
Y-connectors	Connection of 2 x M8 connectors to M12 connector on splitter box	FTX CY1208	0.020
	Connection of 2 x M12 connectors to M12 connector on splitter box	FTX CY1212	0.030
Marker labels	Lot of 12	ABE 9XLA10	-

(1) To be cabled by user.

Dimensions

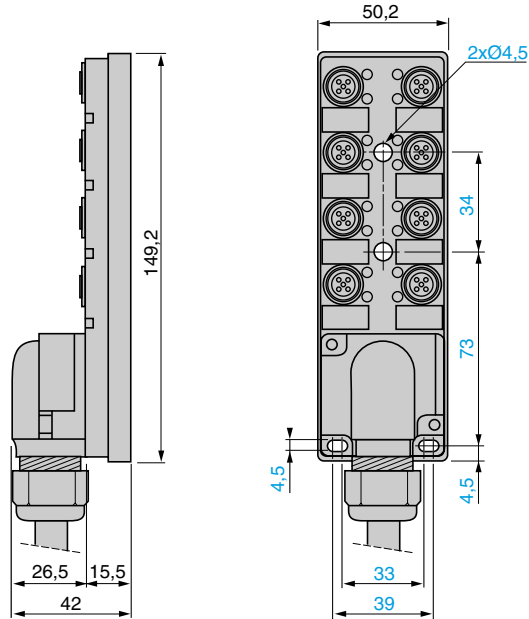
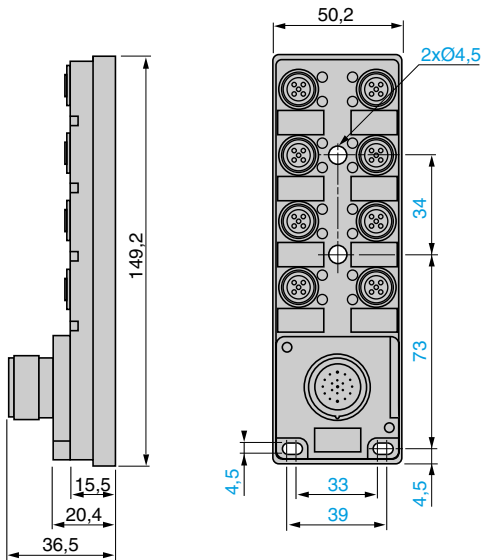
ABE 9C124●C23

ABE 9C124●L●●



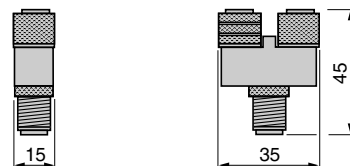
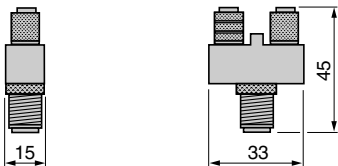
ABE 9C128●C23

ABE 9C128●L●●



FTX CY1208

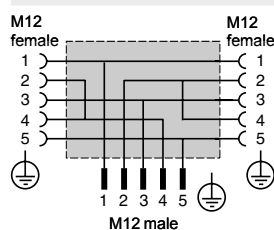
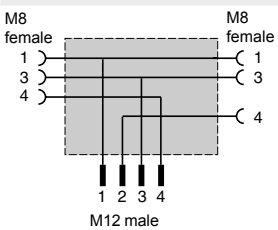
FTX CY1212



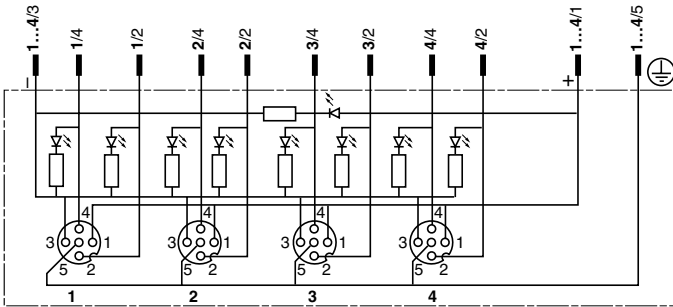
Y-connector connection

FTX CY1208

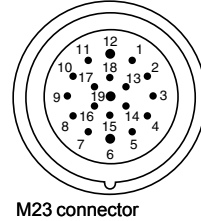
FTX CY1212



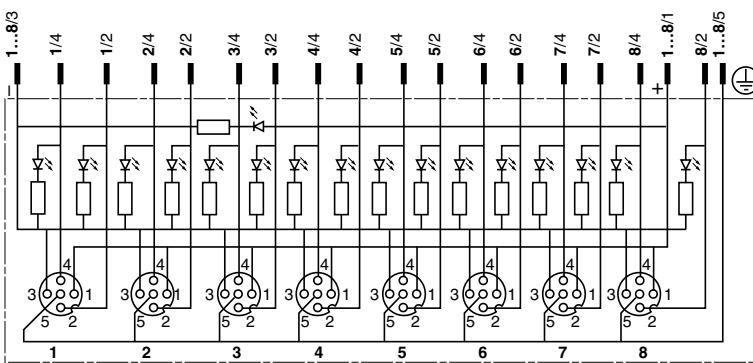
ABE 9C124●C23



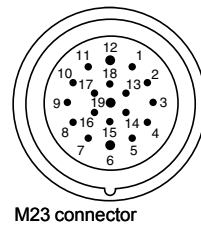
Item	Contact
1/4	15
1/2	7
2/4	5
2/2	4
3/4	16
3/2	8
4/4	3
4/2	14
1 and 3/1	19
2 and 4/1	19
1 and 3/3	6
2 and 4/3	6
1...4/5	12



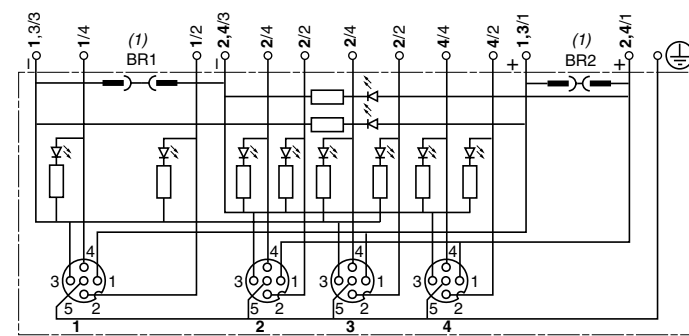
ABE 9C128●C23



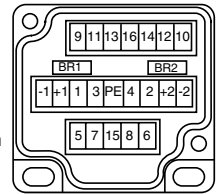
Item	Contact
1/4	15
1/2	7
2/4	5
2/2	4
3/4	16
3/2	8
4/4	3
4/2	14
5/4	17
5/2	9
6/4	2
6/2	13
7/4	11
7/2	10
8/4	1
8/2	18
1, 3, 5 & 7/1	19
2, 4, 6 & 8/1	19
1, 3, 5 & 7/3	6
2, 4, 6 & 8/3	6
1...8/5	12



ABE 9C124●L●●

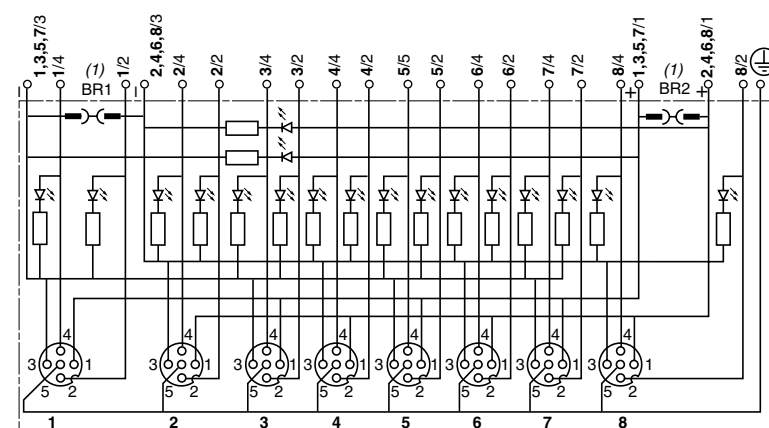


Item	Terminal	Wire
1/4	1	White
1/2	9	Grey/pink
2/4	2	Green
2/2	10	Red/blue
3/4	3	Yellow
3/2	11	White/green
4/4	4	Grey
4/2	12	Brown/green
1 and 3/1	+1	Brown 1
2 and 4/1	+2	Brown 2
1 and 3/3	-1	Blue 1
2 and 4/3	-2	Blue 2
1...4/5	PE	Green/yellow

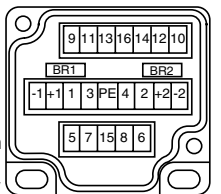


(1) BR1 and BR2: removable link.

ABE 9C128●L●●



Item	Terminal	Wire
1/4	1	White
1/2	9	Grey/pink
2/4	2	Green
2/2	10	Red/blue
3/4	3	Yellow
3/2	11	White/green
4/4	4	Grey
4/2	12	Brown/green
5/4	5	Pink
5/2	13	White/yellow
6/4	6	Red
6/2	14	Yellow/brown
7/4	7	Black
7/2	15	White/grey
8/4	8	Violet
8/2	16	Grey/brown
1, 3, 5 & 7/1	+1	Brown 1
2, 4, 6 & 8/1	+2	Brown 2
1, 3, 5 & 7/3	-1	Blue 1
2, 4, 6 & 8/3	-2	Blue 2
1...8/5	PE	Green/yellow



(1) BR1 and BR2: removable links.

Photo-electric sensors

Sensor type	Type of connection	Suitable pre-wired connectors		Suitable connectors		Suitable jumper cables	
		Reference	Page	Reference	Page	Reference	Page
XUA ●●●●●S	M8, 3-pin	XZ CP0166L● XZ CP0266L● XZ CP0566L● XZ CP0666L● XZ CP0366L● (1) XZ CP0766L● (1) XZ CP0466L● (2) XZ CP0866L● (2)	9/8 and 9/9	XZ CC8FDM30V XZ CC8FCM30V XZ CC8FDM30S XZ CC8FCM30S	9/26	XZ CR1501040G● XZ CR1502040G●	9/16
XUD ●●●●●M8 XUM ●●●●●M8 XUV K●●●●●S XUV F●●●●●M8	M8, 4-pin	XZ CP0941L● XZ CP1041L●	9/9	XZ CC8FDM40V XZ CC8FCM40V XZ CC8FDM40S XZ CC8FCM40S	9/27	XZ CR1509041J● XZ CR1510041J●	9/17
XU● ●●●●●D XU● ●●●●●M12 XUR ●●●●●D XUV F●●●●●M12	M12, 4-pin	XZ CP1141L● XZ CP1241L●	9/10	XZ CC12FDM40B XZ CC12FDP40B XZ CC12FCM40B XZ CC12FCP40B XZ CC12FDM40V	9/28	XZ CR1511041C● XZ CR1512041C●	9/20
XU● ●●●●●●●●K	1/2"-20UNF, 3-pin	XZ CP1865L● XZ CP1965L●	9/12	XZ CC20FDM30B XZ CC20FCM30B	9/29	—	—

Limit switches

Switch type	Type of connection	Suitable pre-wired connectors		Suitable connectors		Suitable jumper cables	
		Reference	Page	Reference	Page	Reference	Page
XCM D●●●●●M12 ZCM D●●●●●M12	M12, 4-pin (1 for earth wire)	XZ CP1169L●	9/11	XZ CC12FDM40B XZ CC12FDP40B XZ CC12FCM40B XZ CC12FCP40B XZ CC12FDM40V	9/28	XZ CR1511041C● XZ CR1512041C●	9/20
XCK P●●●●●M12 ZCP ●●●●●M12	M12, 4-pin without earth	XZ CP1141L● XZ CP1241L●	9/10	XZ CC12FDM40B XZ CC12FDP40B XZ CC12FCM40B XZ CC12FCP40B XZ CC12FDM40V	9/28	XZ CR1511041C● XZ CR1512041C●	9/20
ZCM D●●●●●C12 ZCM D●●●●●L08R12 XCK D●●●●●M12 ZCD ●●●●●M12 XCK J●●●●●D	M12, 5-pin	XZ CP1164L● XZ CP1264L●	9/11	XZ CC12FDM50B XZ CC12FCM50B	9/29	XZ CR1511064D● XZ CR1512064D●	9/21
ZCM D●●●●●L08U78 XCK J●●●●●A	7/8"-16UN, 5-pin	XZ CP1771L●	9/13	—	—	—	—

Note: For sensors with relay output or contacts, check that they are compatible with the nominal voltage and nominal current of the cabling accessory.

(1) With LED for 3-wire :— PNP.

(2) With LED for 3-wire :— NPN.

Proximity sensors							
Sensor type	Type of connection	Suitable pre-wired connectors		Suitable connectors		Suitable jumper cables	
		Reference	Page	Reference	Page	Reference	Page
XS●●●●●●●S XS●●●●●●M8 XS●●●●●●L01M8	M8, 3-pin	XZ CP0166L● XZ CP0266L● XZ CP0566L● XZ CP0666L● XZ CP0366L● (1) XZ CP0766L● (1) XZ CP0466L● (2) XZ CP0866L● (2)	9/8 and 9/9	XZ CC8FDM30V XZ CC8FCM30V XZ CC8FDM30S XZ CC8FCM30S	9/26	XZ CR1501040G● XZ CR1502040G●	9/16
XS●●●●●●D XS●●●●●●M12 XS●●●●●●L01M12	M12, 3 or 4-pin	XZ CP1141L● XZ CP1241L● XZ CP1340L● (1) XZ CP2540L● (1) XZ CP1440L● (2)	9/10	XZ CC12FDM40B XZ CC12FDP40B XZ CC12FCM40B XZ CC12FCP40B XZ CC12FDM40V XZ CC12FCP42B (1)	9/28	XZ CR1511041C● XZ CR1512041C●	9/20
XS●●●●●●U20 XS●●●●●●K	1/2"-20UNF, 3-pin	XZ CP1865L● XZ CP1965L●	9/12	XZ CC20FDM30B XZ CC20FCM30B	9/29		
Pressure switches, vacuum switches and analogue pressure sensors							
Sensor or switch type	Type of connection	Suitable pre-wired connectors		Suitable connectors		Suitable jumper cables	
		Reference	Page	Reference	Page	Reference	Page
XML●●●●●●C11 XML E●●●●●●C21	DIN 43650 A, 4-pin	–		XZ CC43FCP40B	9/73	XZ CR1523062K●	9/19
XML E●●●●●●D21	M12, 5-pin	XZ CP1164L● XZ CP1264L●	9/11	XZ CC12FDM50B XZ CC12FCM50B	9/29	XZ CR1511064D● XZ CR1512064D●	9/21
XML F●●●●●●D●●●●	M12, 4-pin	XZ CP1141L● XZ CP1241L●	9/11	XZ CC12FC●40B XZ CC12FD●40B XZ CC12FDM40V	9/28	XZ CR1511041C● XZ CR1512041C●	9/21
XML F●●●●●●E●●●●	7/8"-16UN, 5-pin	XZ CP1764L●	9/13	–		–	

Note: For sensors with relay output or contacts, check that they are compatible with the nominal voltage and nominal current of the cabling accessory.

(1) With LED for 3-wire : PNP.

(2) With LED for 3-wire : NPN.

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XGS ZCNF01	8/13	XML D070●1S12	2/117	XML F100D20●●	2/60	XML ZL●●●	2/70	XS1 L06N●●●●●	3/68
XMA H●●L2●35	2/149	XML D160●1S12	2/121		2/60	and	2/70	XS1 L06PC410	3/56
XMA V●●L2●35	2/149	XML D300●1S12	2/125		2/61	and	2/130	XS1 L06P●●●●●	3/68
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XML A004●●●●●	2/98	XML E010U1●●●	2/33	XML F160E204●	2/63		2/164	XS1 M12PAW01D	3/108
XML A010●●●●●	2/102		and	XML F250D20●●	2/64	XMP A25●●●●●	and	XS1 M18AB120	3/80
XML A020●●●●●	2/106		2/37		and		2/165	XS1 M18KP340●	3/58
XML A035●●●●●	2/110	XML E025U1●●●	2/33	XML F250D21●●	2/64		2/160	XS1 M18KPM40●	3/94
XML A070●●●●●	2/114		and	XML F250E20●●	2/65	XMP B06●●●●●	2/161	XS1 M18MA250●	3/54
XML A160●●●●●	2/118		2/37	XML F400D20●●	2/66		2/162	XS1 M18MB250●	3/54
XML A300●●●●●	2/122	XML E060U1●●●	2/34		and	XMP B12●●●●●	and	XS1 M18PAS●0	3/98
XML A500●●●●●	2/126		and		2/67		2/163	XS1 M18PAW01D	3/108
XML AM01●●●●●	2/78	XML E100U1●●●	2/34	XML F400D21●●	2/66	XMP B25B2131	2/164	XS1 M30KP340●	3/58
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XML B002●●●●●	2/95		2/38	XML F600D20●●	2/68		and	XS1 M30MA250●	3/54
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		XS5 08B1CA●●●	3/27	XS5 30BLN●M12	3/23	XS6 18B4P●M12	3/40	XS7 F1A1N●L01M8	3/44
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XS2 30BL●●●●●	3/65	XS5 08BSC●L●	3/26	XS5 30BSD●M12	3/26	XS6 30B1MBU20	3/38	XS7 G12●C440	3/100
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		XS5 12B1DAL08U78	3/27	XS6 06B3CAL01M12	3/36	XS6 30B1NAL01●	3/34	XS7 J1A1D●L2	3/44
XS2 L06N●340●	3/70	XS5 12B1DBL08M12	3/27	XS6 06B3C●L2	3/36	XS6 30B1NBL01●	3/34	XS7 J1A1N●L01M8	3/44
XS2 L06P●340●	3/70	XS5 12B1D●L2	3/27	XS6 08B1D●L2	3/36	XS6 30B1N●L2	3/34	XS7 J1A1N●L2	3/44
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XS2 N30NC410●	3/56	XS5 18B1DBL01B	3/27	XS6 12B3D●L2	3/36	XS7 C1A1D●L01M12	3/46	XS8 D1A1M●L2	3/52
XS2 N30PC410●	3/56	XS5 18B1DBL08M12	3/27	XS6 12B3D●M12	3/36	XS7 C1A1D●L2	3/46	XS8 D1A1N●L2	3/52
XS4 P08MA230●	3/60	XS5 18B1D●L2	3/27	XS6 12B4N●L2	3/40	XS7 C1A1D●M8	3/46	XS8 D1A1N●M12	3/52
XS4 P08MB230●	3/60	XS5 18B1D●M12	3/27	XS6 12B4N●M12	3/40	XS7 C1A1D●M8	3/46	XS8 D1A1P●L2	3/52
XS4 P08N●3●0	3/60	XS5 18B1MAU20	3/30	XS6 12B4P●L2	3/40	XS7 C1A1N●L2	3/46	XS8 D1A1P●M12	3/52
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Technical information

Protective treatment of equipment according to climatic environment

Depending on the climatic and environmental conditions in which the equipment is placed, Schneider Electric can offer specially adapted products to meet your requirements.

In order to make the correct choice of protective finish, two points should be remembered:

- the prevailing climate of the country is never the only criterion,
- only the atmosphere in the immediate vicinity of the equipment need be considered.

All climates treatment "TC"

This is the standard treatment for Schneider-electric brand equipment and is suitable for the vast majority of applications. It is the equivalent of treatments described as "Klimafest", "Climateproof".

In particular, it meets the requirements specified in the following publications:

- Publication UTE C 63-100 (method I), successive cycles of humid heat at: + 40 °C and 95 % relative humidity.
- DIN 50016 - Variations of ambient conditions within a climatic chamber: + 23 °C and 83 % relative humidity, + 40 °C and 92 % relative humidity.

It also meets the requirements of the following marine classification societies: BV-LR-GL-DNV-RINA.

Characteristics

- Steel components are usually treated with zinc. When they have a mechanical function, they may also be painted.
- Insulating materials are selected for their high electrical, dielectric and mechanical characteristics.
- Metal enclosures have a stoved paint finish, applied over a primary phosphate protective coat, or are galvanised (e.g. some prefabricated busbar trunking components).

Limits for use of "TC" (All climates) treatment

- "TC" treatment is suitable for the following temperatures and humidity:

Temperature (°C)	Relative humidity (%)
20	95
40	80
50	50

"TC" treatment is therefore suitable for all latitudes and in particular tropical and equatorial regions where the equipment is mounted in normally ventilated industrial premises. Being sheltered from external climatic conditions, temperature variations are small, the risk of condensation is minimised and the risk of dripping water is virtually non-existent.

Extension of use of "TC" (All climates) treatment

In cases where the humidity around the equipment exceeds the conditions described above, or in equatorial regions if the equipment is mounted outdoors, or if it is placed in a very humid location (laundries, sugar refineries, steam rooms, etc.), "TC" treatment can still be used if the following precautions are taken:

- The enclosure in which the equipment is mounted must be protected with a "TH" finish (see next page) and must be well ventilated to avoid condensation and dripping water (e.g. enclosure base plate mounted on spacers).
- Components mounted inside the enclosure must have a "TC" finish.
- If the equipment is to be switched off for long periods, a heater must be provided (0.2 to 0.5 kW per square decimetre of enclosure), that switches on automatically when the equipment is turned off. This heater keeps the inside of the enclosure at a temperature slightly higher than the outside surrounding temperature, thereby avoiding any risk of condensation and dripping water (the heat produced by the equipment itself during normal running is sufficient to provide this temperature difference).
- Special considerations for "Operator dialog" and "Detection" products: for certain pilot devices, the use of "TC" treatment can be extended to outdoor use provided their enclosure is made of light alloys, zinc alloys or plastic material. In this case, it is also essential to ensure that the degree of protection against penetration of liquids and solid objects is suitable for the applications involved.

Technical information

Protective treatment of equipment according to climatic environment

“TH” treatment for hot and humid environments

This treatment is suitable for hot and humid atmospheres where installations are regularly subject to condensation, dripping water and the risk of fungi.

In addition, plastic insulating components are resistant to attacks from insects such as termites and cockroaches. These properties have often led to this treatment being described as “Tropical Finish”, but this does not mean that all equipment installed in tropical and equatorial regions must systematically have undergone “TH” treatment. On the other hand, certain operating conditions in temperate climates may well require the use of “TH” treated equipment (see limitations for use of “TC” treatment).

Special characteristics of “TH” treatment

- All insulating components are made of materials which are either resistant to fungi or treated with a fungicide, and which have increased resistance to creepage (Standards IEC 60112, NF C 26-220, DIN 5348).
- Metal enclosures receive a top-coat of stoved, fungicidal paint, applied over a rust inhibiting undercoat. Components with “TH” treatment may be subject to a surcharge (1) Please consult our Customer Care Centre.

Protective treatment selection guide

Surrounding environment	Duty cycle	Internal heating of enclosure when not in use	Type of climate	Protective treatment	
				of equipment	of enclosure
Indoors					
No dripping water or condensation	Unimportant	Not necessary	Unimportant	“TC”	“TC”
Presence of dripping water or condensation	Frequent	No	Temperate	“TC”	“TH”
	switching off for periods of more than 1 day	Yes	Equatorial	“TH”	“TH”
			Unimportant	“TC”	“TH”
Continuous	Not necessary	Unimportant	“TC”	“TH”	
Outdoors (sheltered)					
No dripping water or dew	Unimportant	Not necessary	Temperate Equatorial	“TC” “TH”	“TC” “TH”
Exposed outdoors or near the sea					
Frequent and regular presence of dripping water or dew	Frequent	No	Temperate	“TC”	“TH”
	switching off for periods of more than 1 day	Yes	Equatorial	“TH”	“TH”
			Unimportant	“TC”	“TH”
Continuous	Not necessary	Unimportant	“TC”	“TH”	

These treatments cover, in particular, the applications defined by methods I and II of guide UTE C 63-100.

Special precautions for electronic equipment

Electronic products always meet the requirements of “TC” treatment. A number of them are “TH” treated as standard.

Some electronic products (for example: programmable controllers, flush mountable controllers CCX and flush mountable operator terminals XBT) require the use of an enclosure providing a degree of protection to at least IP 54, as defined by standards IEC 60664 and NF C 20 040, for use in industrial applications or in environmental conditions requiring “TH” treatment.

These electronic products, including flush mountable products, must have a degree of protection to at least IP 20 (provided either by their own enclosure or by their installation method) for restricted access locations where the degree of pollution does not exceed 2 (a test booth not containing machinery or other dust producing activities, for example).

Special treatments

For particularly harsh industrial environments, Schneider Electric is able to offer special protective treatments. Please consult our Customer Care Centre.

(1) A large number of the Schneider-electric brand products are “TH” treated as standard and are, therefore, not subject to a surcharge.

Standardisation

Conformity to standards

Schneider Electric products satisfy, in the majority of cases, national (for example: BS in Great Britain, NF in France, DIN in Germany), European (for example: CENELEC) or international (IEC) standards. These product standards precisely define the performance of the designated products (such as IEC 60947 for low voltage equipment).

When used correctly, as designated by the manufacturer and in accordance with regulations and correct practices, these products will allow users to build equipment, machine systems or installations that conform to their appropriate standards (for example: IEC 60204-1, relating to electrical equipment used on industrial machines).

Schneider Electric is able to provide proof of conformity of its production to the standards it has chosen to comply with, through its quality assurance system.

On request, and depending on the situation, Schneider Electric can provide the following:

- a declaration of conformity,
- a certificate of conformity (ASEFA/LOVAG),
- a homologation certificate or approval, in the countries where this procedure is required or for particular specifications, such as those existing in the merchant navy.

Code	Certification authority		Country
	Name	Abbreviation	
ANSI	American National Standards Institute	ANSI	USA
BS	British Standards Institution	BSI	Great Britain
CEI	Comitato Elettrotecnico Italiano	CEI	Italy
DIN/VDE	Verband Deutscher Electrotechniker	VDE	Germany
EN	Comité Européen de Normalisation Electrotechnique	GENELEC	Europe
GOST	Gosudarstvennoe Komitet Standartov	GOST	Russia
IEC	International Electrotechnical Commission	IEC	Worldwide
JIS	Japanese Industrial Standards Committee	JISC	Japan
NBN	Institut Belge de Normalisation	IBN	Belgium
NEN	Nederlands Normalisatie Instituut	NNI	Netherlands
NF	Union Technique de l'Electricité	UTE	France
SAA	Standards Association of Australia	SAA	Australia
UNE	Asociacion Española de Normalizacion y Certificacion	AENOR	Spain

European EN standards

These are technical specifications established in conjunction with, and with approval of, the relative bodies within the various CENELEC member countries (European Union, European Free Trade Association and many central and eastern European countries having «member» or «affiliated» status). Prepared in accordance with the principle of consensus, the European standards are the result of a weighted majority vote. Such adopted standards are then integrated into the national collection of standards, and contradictory national standards are withdrawn.

European standards incorporated within the French collection of standards carry the prefix NF EN. At the 'Union Technique de l'Electricité' (*Technical Union of Electricity*) (UTE), the French version of a corresponding European standard carries a dual number: European reference (NF EN ...) and classification index (C ...).

Therefore, the standard NF EN 60947-4-1 relating to motor contactors and starters, effectively constitutes the French version of the European standard EN 60947-4-1 and carries the UTE classification C 63-110.

This standard is identical to the British standard BS EN 60947-4-1 or the German standard DIN EN 60947-4-1.

Whenever reasonably practical, European standards reflect the international standards (IEC).

With regard to automation system components and distribution equipment, in addition to complying with the requirements of French NF standards, Schneider Electric brand components conform to the standards of all other major industrial countries.

Regulations

European Directives

Opening up of European markets assumes harmonisation of the regulations pertaining to each of the member countries of the European Union.

The purpose of the European Directive is to eliminate obstacles hindering the free circulation of goods within the European Union, and it must be applied in all member countries. Member countries are obliged to transcribe each Directive into their national legislation and to simultaneously withdraw any contradictory regulations. The Directives, in particular those of a technical nature which concern us, only establish the objectives to be achieved, referred to as "essential requirements".

The manufacturer must take all the necessary measures to ensure that his products conform to the requirements of each Directive applicable to his production.

As a general rule, the manufacturer certifies conformity to the essential requirements of the Directive(s) for his product by affixing the CE mark.

The CE mark is affixed to Schneider Electric brand products concerned, in order to comply with French and European regulations.

Significance of the CE mark

- The CE mark affixed to a product signifies that the manufacturer certifies that the product conforms to the relevant European Directive(s) which concern it; this condition must be met to allow free distribution and circulation within the countries of the European Union of any product subject to one or more of the E.U. Directives.
- The CE mark is intended solely for national market control authorities.
- The CE mark must not be confused with a conformity marking.

European Directives (continued)

For electrical equipment, only conformity to standards signifies that the product is suitable for its designated function, and only the guarantee of an established manufacturer can provide a high level of quality assurance.

For Schneider Electric brand products, one or several Directives are likely to be applicable, depending on the product, and in particular:

- the Low Voltage Directive 2006/95/EC: the CE mark relating to this Directive has been compulsory since 16th January 2007.
- the Electromagnetic Compatibility Directive 89/336/EEC, amended by Directives 92/31/EEC and 93/68/EEC: the CE mark on products covered by this Directive has been compulsory since 1st January 1996.

ASEFA-LOVAG certification

The function of ASEFA (Association des Stations d'Essais Française d'Appareils électriques - Association of French Testing Stations for Low Voltage Industrial Electrical Equipment) is to carry out tests of conformity to standards and to issue certificates of conformity and test reports. ASEFA laboratories are authorised by the French authorisation committee (COFRAC). ASEFA is now a member of the European agreement group LOVAG (Low Voltage Agreement Group). This means that any certificates issued by LOVAG/ASEFA are recognised by all the authorities which are members of the group and carry the same validity as those issued by any of the member authorities.

Quality labels

When components can be used in domestic and similar applications, it is sometimes recommended that a "Quality label" be obtained, which is a form of certification of conformity.

Code	Quality label	Country
CEBEC	Comité Electrotechnique Belge	Belgium
KEMA-KEUR	Keuring van Electrotechnische Materialen	Netherlands
NF	Union Technique de l'Electricité	France
ÖVE	Österreichischer Verband für Electrotechnik	Austria
SEMKO	Svenska Electriska Materiel Kontrollnatanalen	Sweden

Product certifications

In some countries, the certification of certain electrical components is a legal requirement. In this case, a certificate of conformity to the standard is issued by the official test authority.

Each certified device must bear the relevant certification symbols when these are mandatory:

Code	Certification authority	Country
CSA	Canadian Standards Association	Canada
UL	Underwriters Laboratories	USA
CCC	China Compulsory Certification	China

Note on certifications issued by the Underwriters Laboratories (UL). There are two levels of approval:

"Recognized" (R) The component is fully approved for inclusion in equipment built in a workshop, where the operating limits are known by the equipment manufacturer and where its use within such limits is acceptable by the Underwriters Laboratories.
The component is not approved as a "Product for general use" because its manufacturing characteristics are incomplete or its application possibilities are limited.
A "Recognized" component does not necessarily carry the certification symbol.

"Listed" (L) The component conforms to all the requirements of the classification applicable to it and may therefore be used both as a "Product for general use" and as a component in assembled equipment. A "Listed" component must carry the certification symbol.

Marine classification societies

Prior approval (= certification) by certain marine classification societies is generally required for electrical equipment which is intended for use on board merchant vessels.

Code	Classification authority	Country
BV	Bureau Veritas	France
DNV	Det Norske Veritas	Norway
GL	Germanischer Lloyd	Germany
LR	Lloyd's Register	Great Britain
NKK	Nippon Kaiji Kyokai	Japan
RINA	Registro Italiano Navale	Italy
RRS	Register of Shipping	Russia

Note

For further details on a specific product, please refer to the "Characteristics" pages in this catalogue or consult our Customer Care Centre.

Degrees of protection against the penetration of solid bodies, water and personnel access to live parts

The European standard EN 60529 dated October 1991, IEC publication 529 (2nd edition - November 1989), defines a coding system (IP code) for indicating the degree of protection provided by electrical equipment enclosures against accidental direct contact with live parts and against the ingress of solid foreign objects or water. This standard does not apply to protection against the risk of explosion or conditions such as humidity, corrosive gasses, fungi or vermin.

Certain equipment is designed to be mounted on an enclosure which will contribute towards achieving the required degree of protection (example : control devices mounted on an enclosure).

Different parts of an equipment can have different degrees of protection (example : enclosure with an opening in the base).

Standard NF C 15-100 (May 1991 edition), section 512, table 51 A, provides a cross-reference between the various degrees of protection and the environmental conditions classification, relating to the selection of equipment according to external factors.

Practical guide UTE C 15-103 shows, in the form of tables, the characteristics required for electrical equipment (including minimum degrees of protection), according to the locations in which they are installed.

IP ●●● code

The IP code comprises **2 characteristic numerals** (e.g. **IP 55**) and may include **an additional letter** when the actual protection of personnel against direct contact with live parts is better than that indicated by the first numeral (e.g. IP 20C).

Any characteristic numeral which is unspecified is replaced by an X (e.g. IP XXB).

1st characteristic numeral:


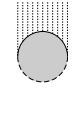

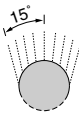
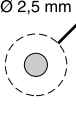
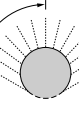
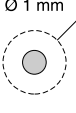
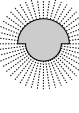


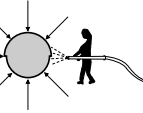


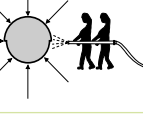
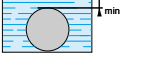

corresponds to protection of the equipment against penetration of solid objects and protection of personnel against direct contact with live parts.

2nd characteristic numeral:

corresponds to protection of the equipment against penetration of water with harmful effects.

Additional letter:

corresponds to protection of personnel against direct contact with live parts.

Protection of the equipment		Protection of personnel				
0	Non-protected	Non-protected	0	Non-protected	A	With the back of the hand.
1	 Protected against the penetration of solid objects having a diameter greater than or equal to 50 mm.	Protected against direct contact with the back of the hand (accidental contacts).	1	 Protected against vertical dripping water, (condensation).	B	With the finger.
2	 Protected against the penetration of solid objects having a diameter greater than or equal to 12.5 mm.	Protected against direct finger contact.	2	 Protected against dripping water at an angle of up to 15°.	C	With a Ø 2.5 mm tool.
3	 Protected against the penetration of solid objects having a diameter greater than or equal to 2.5 mm.	Protected against direct contact with a Ø 2.5 mm tool.	3	 Protected against rain at an angle of up to 60°.	D	With a Ø 1 mm wire.
4	 Protected against the penetration of solid objects having a diameter greater than or equal to 1 mm.	Protected against direct contact with a Ø 1 mm wire.	4	 Protected against splashing water in all directions.		
5	  Dust protected (no harmful deposits).	Protected against direct contact with a Ø 1 mm wire.	5	 Protected against water jets in all directions.		
6	  Dust tight.	Protected against direct contact with a Ø 1 mm wire.	6	 Protected against powerful jets of water and waves.		
			7	 Protected against the effects of temporary immersion.		
			8	 Protected against the effects of prolonged immersion under specified conditions.		

Degrees of protection against mechanical impact

The European standard EN 50102 dated March 1995 defines a coding system (IK code) for indicating the degree of protection provided by electrical equipment enclosures against external mechanical impact. Standard NF C 15-100 (May 1991 edition), section 512, table 51 A, provides a cross-reference between the various degrees of protection and the environmental conditions classification, relating to the selection of equipment according to external factors. Practical guide UTE C 15-103 shows, in the form of tables, the characteristics required for electrical equipment (including minimum degrees of protection), according to the locations in which they are installed.

IK ●● code

The IK code comprises **2 characteristic numerals** (e.g. **IK 05**).

2 characteristic numerals:

corresponding to a value of impact energy.

		h (cm)	Energy (J)
00	Non-protected		
01		7.5	0.15
02		10	0.2
03		17.5	0.35
04		25	0.5
05		35	0.7
06		20	1
07		40	2
08		30	5
09		20	10
10		40	20

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