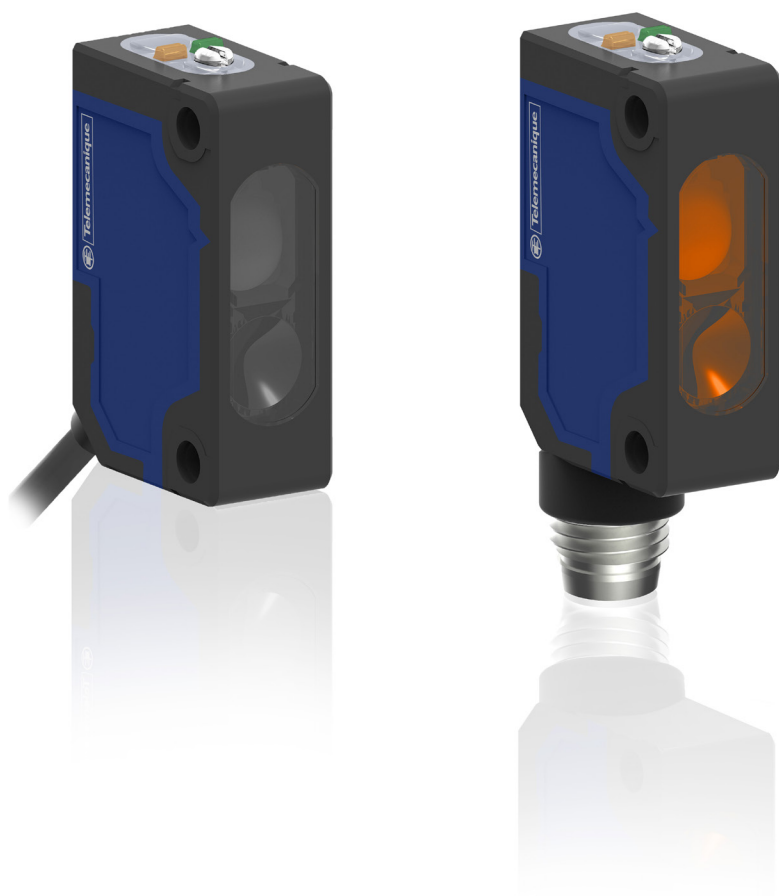

Photo-electric sensors miniature design XUM range

Catalogue



Simply easy!™

Photo-electric sensors miniature design XUM range

- **References**
 - Polarised reflex system page 2
 - Background suppression system page 2
 - Diffuse system page 3
 - Fixing accessories page 3
 - Cabling accessories pages 10 to 15
- **Characteristics** page 4
- **Wiring schemes** page 4
- **Curves** pages 5 to 7
- **Dimensions** pages 8 and 9
- **Product reference index** page 16

Photo-electric sensors

XUM, general purpose, single mode function

Miniature design, plastic

Three-wire DC, solid-state output

Potentiometer setting for NO/NC, sensitivity



XUM9A●XBL2



XUM9A●XBM8

Polarised reflex system with adjustable sensitivity

Sensors

Max./operating sensing distance (Sn)	Function	Output	Connection	Reference	Weight kg
8 m / 6.7 m with reflector XUZC50	Light ON (NC) / Dark ON (NO) configuration by potentiometer	PNP	Pre-cabled (L = 2 m)	XUM9APXBL2	0.063
			M8 connector (4-pin)	XUM9APXBM8	0.010
		NPN	Pre-cabled (L = 2 m)	XUM9ANXBL2	0.063
			M8 connector (4-pin)	XUM9ANXBM8	0.010

Reflectors

Description	Size	Fixing mode	Reference	Weight kg
Rigid square reflectors	100 mm x 100 mm	2 brackets (not provided)	XUZC100	0.035
	50 mm x 50 mm	6 holes	XUZC50	0.020
Rigid rectangle reflectors	24 mm x 21 mm	2 holes	XUZC24	0.010
	8.6 mm x 29.5 mm	2 holes	XUZC08	0.006

Note: All reflectors are IP 67 and IP 69K.

Background suppression system with adjustable sensitivity

Max./operating sensing distance (Sn)	Function	Output	Connection	Reference	Weight kg
300 mm / 200 mm (white object or paper)	Light ON (NO) / Dark ON (NC) configuration by potentiometer	PNP	Pre-cabled (L = 2 m)	XUM8APXBL2	0.063
			M8 connector (4-pin)	XUM8APXBM8	0.010
		NPN	Pre-cabled (L = 2 m)	XUM8ANXBL2	0.063
			M8 connector (4-pin)	XUM8ANXBM8	0.010



XUZC50



XUZC08



XUM8A●XBL2



XUM8A●XBM8

Accessories

Fixing accessories

See page 3.

Cabling accessories

See pages 10 to 15.

Photo-electric sensors

XUM, general purpose, single mode function

Miniature design, plastic

Three-wire DC, solid-state output

Potentiometer setting for NO/NC, sensitivity



XUM4A●XBL2



XUM4A●XBM8



XUM6A●XBL2



XUM6A●XBM8



XUM5A●XBL2



XUM5A●XBM8



XUZAM04



XUZAM03



XUZAM02



XUZA50

Diffuse system with adjustable sensitivity

Max./operating sensing distance (Sn)	Function	Output	Connection	Reference	Weight kg
Diffuse short range					
0.25 m / 0.17 m	Light ON (NO) / Dark ON (NC) configuration by potentiometer	PNP	Pre-cabled (L = 2 m)	XUM4APXBL2	0.063
			M8 connector (4-pin)	XUM4APXBM8	0.010
		NPN	Pre-cabled (L = 2 m)	XUM4ANXBL2	0.063
			M8 connector (4-pin)	XUM4ANXBM8	0.010

Diffuse medium range

1.1 m / 0.8 m	Light ON (NO) / Dark ON (NC) configuration by potentiometer	PNP	Pre-cabled (L = 2 m)	XUM6APXBL2	0.063
			M8 connector (4-pin)	XUM6APXBM8	0.010
		NPN	Pre-cabled (L = 2 m)	XUM6ANXBL2	0.063
			M8 connector (4-pin)	XUM6ANXBM8	0.010

Diffuse long range

1.9 m / 1.5 m	Light ON (NO) / Dark ON (NC) configuration by potentiometer	PNP	Pre-cabled (L = 2 m)	XUM5APXBL2	0.063
			M8 connector (4-pin)	XUM5APXBM8	0.010
		NPN	Pre-cabled (L = 2 m)	XUM5ANXBL2	0.063
			M8 connector (4-pin)	XUM5ANXBM8	0.010

Accessories for all XUM miniature sensors

Fixing accessories

Description	For use with sensors	Reference	Weight kg
Rear mounting bracket Supplied with 2 M3 screws	XUM●A●XBL2 XUM●A●XBM8	XUZAM04	0.026
Wrap around vertical mounting bracket, for pre-cabled version Supplied with 2 M3 screws	XUM●A●XBL2	XUZAM02	0.062
Wrap around horizontal mounting bracket, for pre-cabled version Supplied with 2 M3 screws	XUM●A●XBL2	XUZAM03	0.026
Metal fixing bracket Supplied with 2 M3 screws	XUM●A●XBL2 XUM●A●XBM8	XUZA50	0.025

Cabling accessories

See pages 10 to 15.

Photo-electric sensors

XUM, general purpose, single mode function

Miniature design, plastic

Three-wire DC, solid-state output

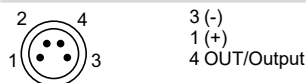
Potentiometer setting for NO/NC, sensitivity

Characteristics			
Sensor type		XUM●A●XBM8	XUM●A●XBL2
Product certifications		CE, cULus, UKCA EAC, RCM (<i>pending</i>)	
Connection	Connector	M8	–
	Pre-cabled	–	Length: 2 m
Nominal sensing distance Sn	Polarised reflex system (using a 50 x 50 mm reflector XUZC50)	XUM9	m 0.05...8 (with excess gain = 1) 0.05...6.7 (with excess gain = 2)
	Background suppression system	XUM8	mm 4 mm...300 mm: White paper or object. Sn (90%) 5 mm...265 mm: Grey object. Sn (18%): 8 mm...200 mm: Black object. Sn (6%):
	Diffuse system (using a white paper 200 x 200 mm)	XUM4	m 0.25 (with excess gain = 1) 0.17 (with excess gain = 2)
		XUM5	m 1.9 (with excess gain = 1) 1.5 (with excess gain = 2)
	XUM6	m 1.1 (with excess gain = 1) 0.8 (with excess gain = 2)	
Hysteresis		2% < H < 20% at Sn	
Type of transmission	Red	Polarised reflex system XUM9 Background suppression system XUM8 Diffuse system XUM6	
	Infrared	Diffuse system XUM4 and XUM5	
Degree of protection	Conforming to IEC 60529	IP 65, IP 67	
Storage temperature		°C	- 40...+ 70
Operating temperature		°C	- 30...+ 55
Materials	Case	PBT	
	Lens	PMMA	
	Display	PC	
	Cable	–	PVC
Vibration resistance	Conforming to IEC 60068-2-6	9 gn, 10 to 55 Hz, amplitude ± 1.5 mm, 2 hours in each direction X, Y and Z	
Shock resistance	Conforming to IEC 60068-2-27	100 m/s ² 10 x in each direction X, Y and Z	
Indicator lights	Output state	Yellow LED	
	Stability	Green LED	
Rated supply voltage		V	≐ 12...24 with protection against reverse polarity
Voltage limits (including ripple)		V	≐ 12...24
Current consumption, no-load		mA	< 20 max.
Switching capacity		mA	100
Voltage drop, closed state		V	≤ 2
Maximum switching frequency		Hz	1000
Delays	First-up	ms	< 100
	Response	ms	0.5
	Recovery	ms	0.5

Wiring schemes

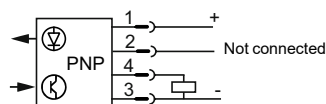
Polarised reflex, background suppression and diffuse systems

M8 connector - 4 pins



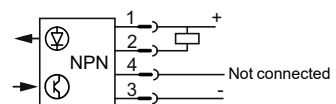
PNP

XUM●APXBM8



NPN

XUM●ANXBM8



Pre-cabled - 3 wires

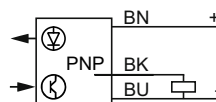
(-) BU (Blue)

(+) BN (Brown)

OUT/Output BK (Black)

PNP

XUM●APXBL2



NPN

XUM●ANXBL2

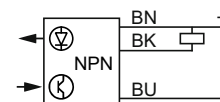


Photo-electric sensors

XUM, general purpose, single mode function

Miniature design, plastic

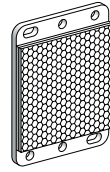
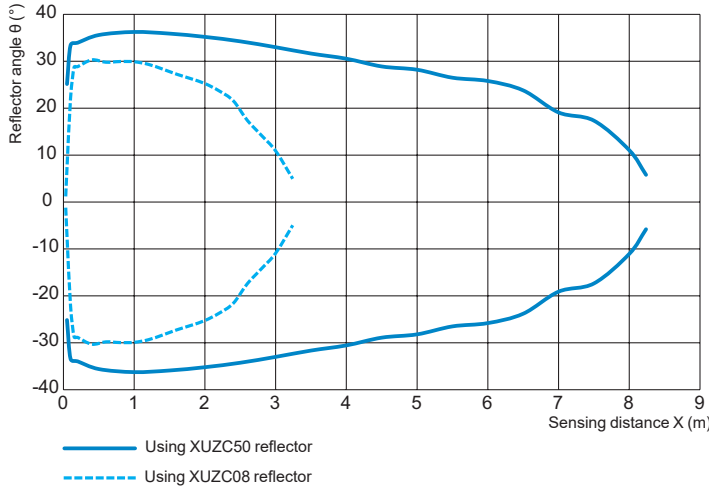
Three-wire DC, solid-state output

Potentiometer setting for NO/NC, sensitivity

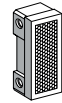
Detection curves

Polarised reflex system: XUM9

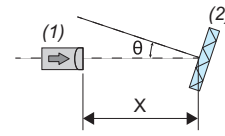
Reflector angle



XUZC50

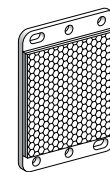
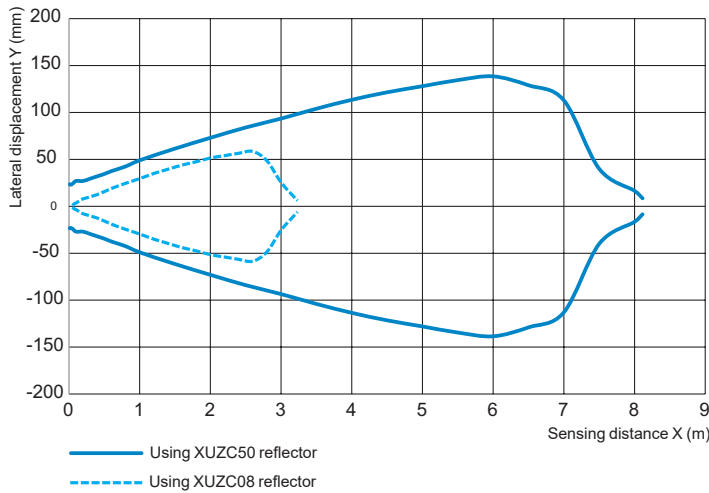


XUZC08

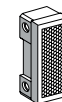


(1): Sensor
 (2): Reflector
 θ : Reflector angle (°)
 X: Sensing distance (m)

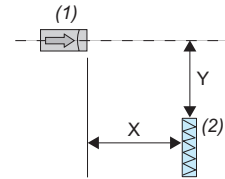
Lateral displacement



XUZC50

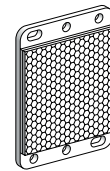
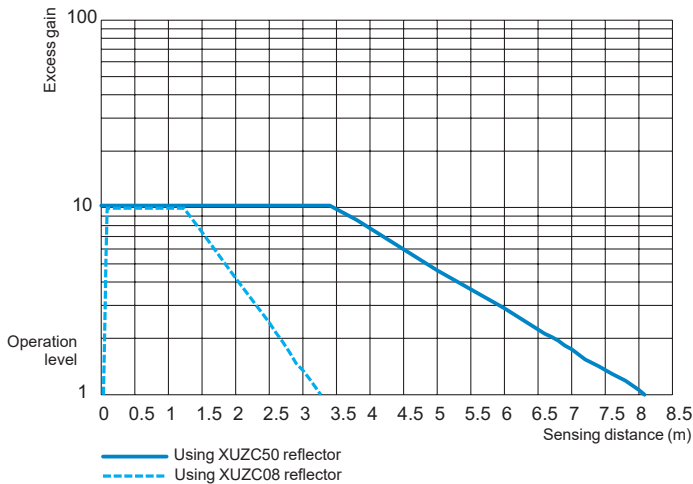


XUZC08

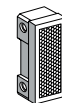


(1): Sensor
 (2): Reflector
 Y: Lateral displacement (mm)
 X: Sensing distance (m)

Excess gain



XUZC50



XUZC08

Photo-electric sensors

XUM, general purpose, single mode function

Miniature design, plastic

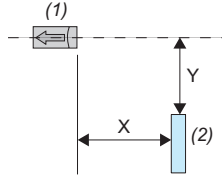
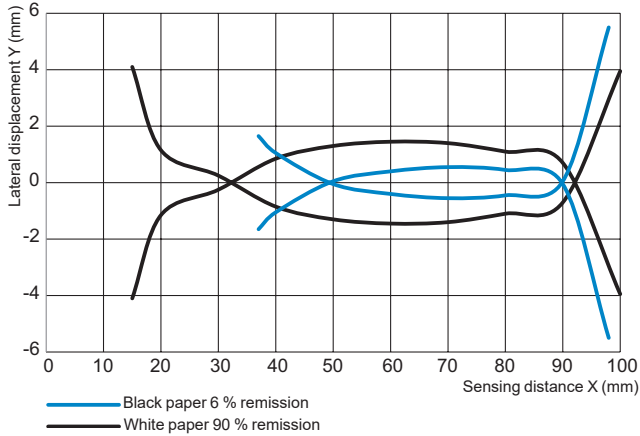
Three-wire DC, solid-state output

Potentiometer setting for NO/NC, sensitivity

Detection curves (continued)

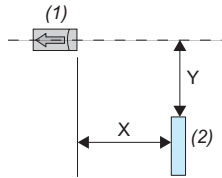
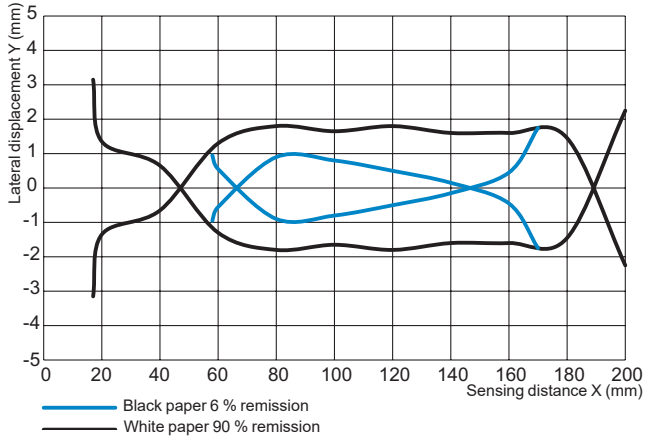
Background suppression system: XUM8

Lateral displacement (preset 100 mm)



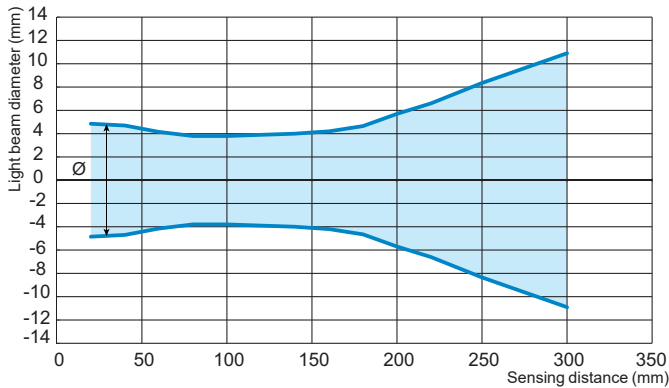
(1): Sensor
(2): Object (200 mm square white and black mat paper)
X: Sensing distance (mm)
Y: Lateral displacement (mm)

Lateral displacement (preset 200 mm)

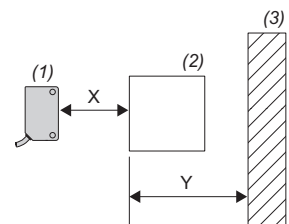
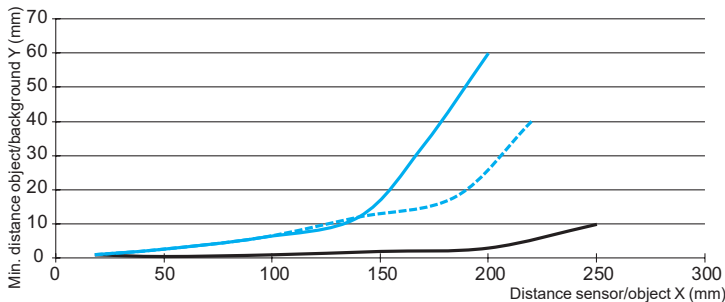


(1): Sensor
(2): Object (200 mm square white and black mat paper)
X: Sensing distance (mm)
Y: Lateral displacement (mm)

Light beam diameter



Minimum distance between the object to detect and white background



(1): Sensor
(2): Object
(3): Background
X: Distance sensor/object (mm)
Y: Min. distance object/background (mm)

Photo-electric sensors

XUM, general purpose, single mode function

Miniature design, plastic

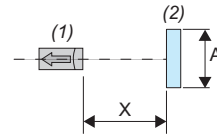
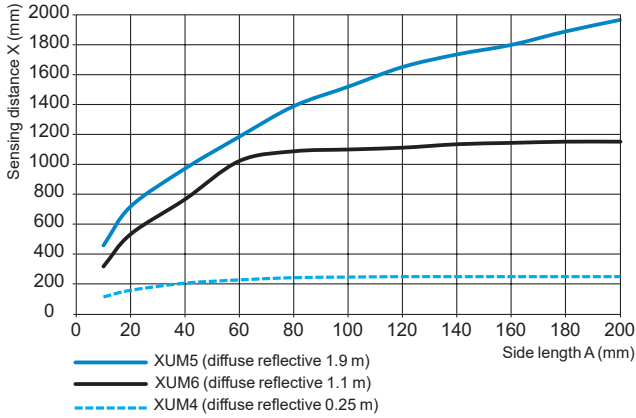
Three-wire DC, solid-state output

Potentiometer setting for NO/NC, sensitivity

Detection curves (continued)

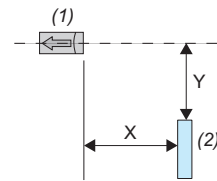
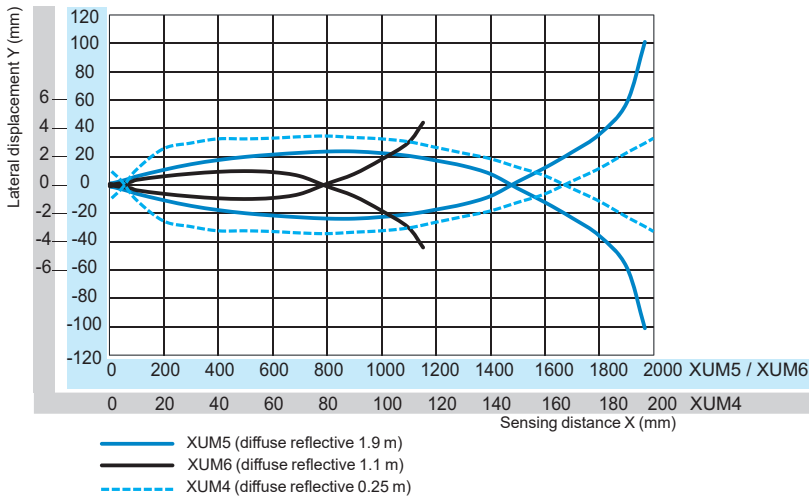
Diffuse system: XUM4, XUM5 and XUM6

Object size/sensing distance



(1): Sensor
 (2): Object (white mat paper of A mm square)
 A: Side length (mm)
 X: Sensing distance (mm)

Lateral displacement



(1): Sensor
 (2): Object (200 x 200 mm square white paper)
 X: Sensing distance (mm)
 Y: Lateral displacement (mm)

Excess gain

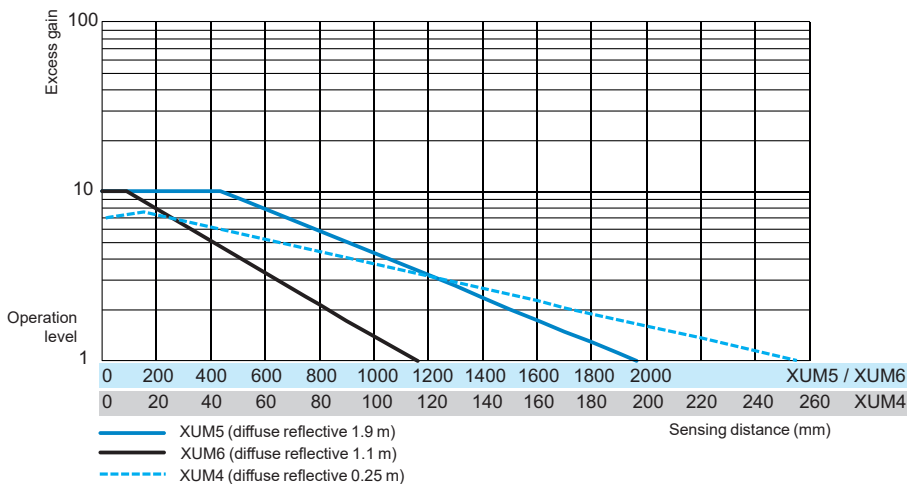


Photo-electric sensors

XUM, general purpose, single mode function

Miniature design, plastic

Three-wire DC, solid-state output

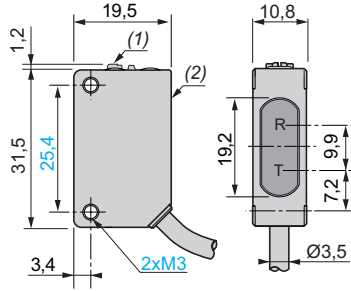
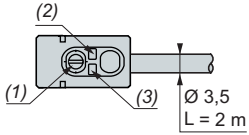
Potentiometer setting for NO/NC, sensitivity

Polarised reflex system, background suppression system and diffuse system

Pre-cabled version

Description - XUM9A●XBL2, XUM5A●XBL2, XUM6A●XBL2, XUM4A●XBL2, XUM8A●XBL2

Dimensions - XUM9A●XBL2, XUM5A●XBL2, XUM6A●XBL2, XUM4A●XBL2, XUM8A●XBL2



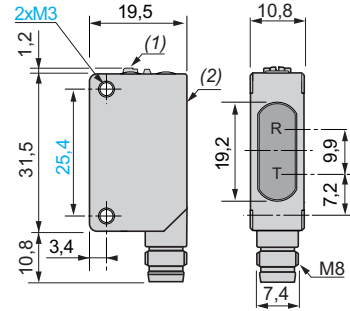
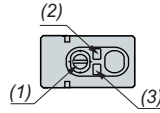
- (1) Setting potentiometer (sensitivity).
- (2) Output indicator (yellow).
- (3) Stability indicator (green).

- R: Reception.
- T: Transmission.
- (1) Setting potentiometer (sensitivity).
- (2) Setting potentiometer (output).

Connector version

Description - XUM9A●XBM8, XUM5A●XBM8, XUM6A●XBM8, XUM4A●XBM8, XUM8A●XBM8

Dimensions - XUM9A●XBM8, XUM5A●XBM8, XUM6A●XBM8, XUM4A●XBM8, XUM8A●XBM8



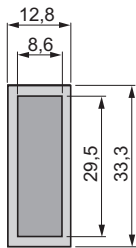
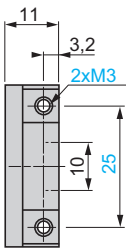
- (1) Setting potentiometer (sensitivity).
- (2) Output indicator (yellow).
- (3) Stability indicator (green).

- R: Reception.
- T: Transmission.
- (1) Setting potentiometer (sensitivity).
- (2) Setting potentiometer (output).

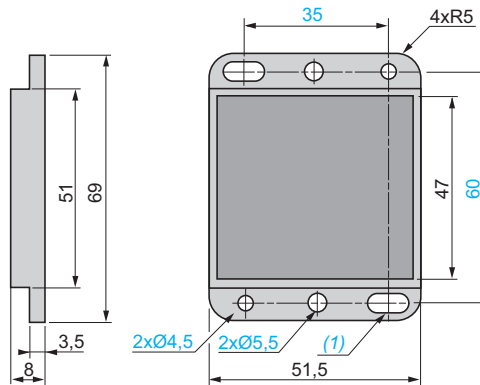
Accessories

Reflectors

XUZC08

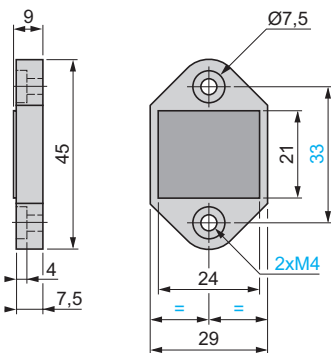


XUZC50

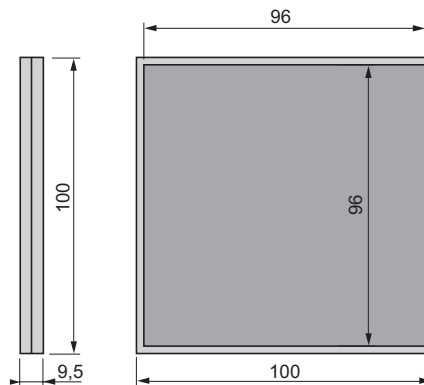


(1) 2 elongated holes Ø 4.5 x 8

XUZC24



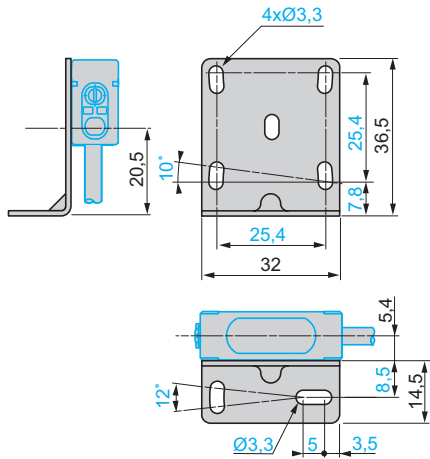
XUZC100



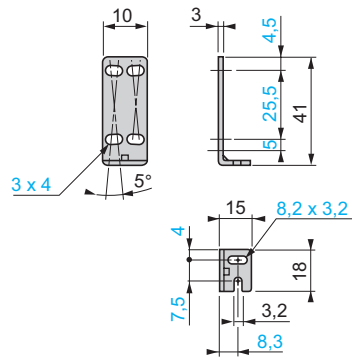
Accessories (continued)

Fixing brackets

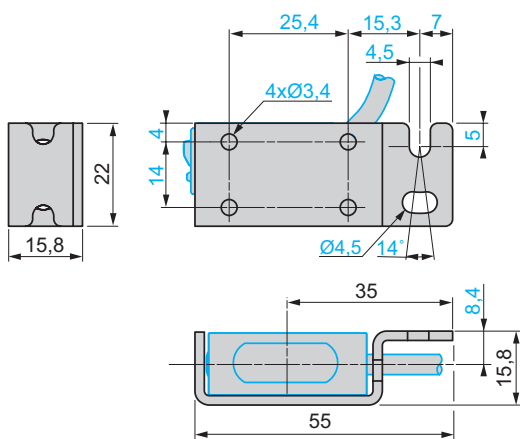
XUZAM04



XUZA50



XUZAM03



XUZAM02

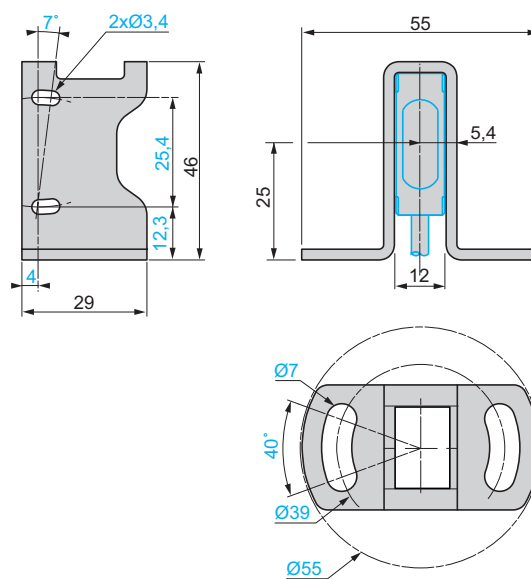
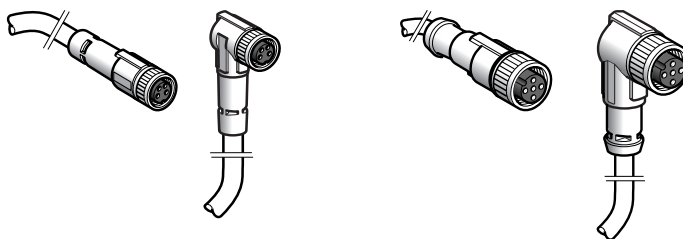


Photo-electric sensors

Cabling accessories for XUM miniature sensors

Pre-wired connectors M8 and M12

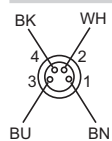
PVC cable



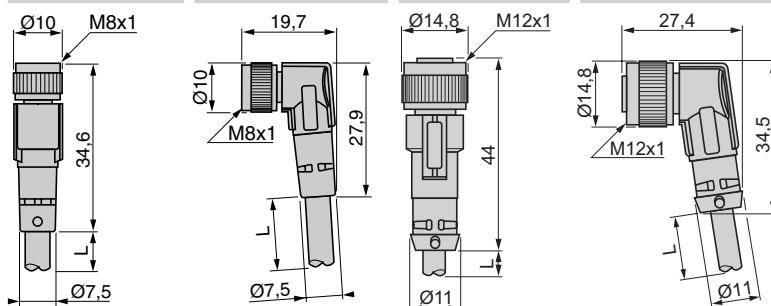
Connector type		Female, M8, straight	Female, M8, elbowed	Female, M12, straight	Female, M12, elbowed
Number of pins		4			
References					
PVC cable	L = 2 m	XZCPV0941L2	XZCPV1041L2	XZCPV1141L2	XZCPV1241L2
	L = 5 m	XZCPV0941L5	XZCPV1041L5	XZCPV1141L5	XZCPV1241L5
	L = 10 m	XZCPV0941L10	XZCPV1041L10	XZCPV1141L10	XZCPV1241L10
Weight (kg)		0.090 (L = 2 m) 0.200 (L = 5 m) 0.380 (L = 10 m)		0.090 (L = 2 m) 0.200 (L = 5 m) 0.380 (L = 10 m)	

Characteristics		
Certifications	cULus	
Connection type	Screw threaded (metal clamping ring)	
Cable material	PVC sheath, PP conductor insulation	
Degree of protection	IP 65, IP 67	
Ambiant air temperature	Static cable	- 25...+ 80 °C
	Flexing cable	- 5...+ 80 °C
Cabling	Ø 4.6 mm cable, conductor c.s.a.: 4 x 0.25 mm ²	
Nominal voltage	~ 60 V, --- 75 V	~ 250 V, --- 300 V
Nominal current	3 A	
Insulation resistance	> 10 ⁹ Ω	
Contact resistance	≤ 5 m Ω	

Connections	Dimensions			
XZCPV0941L●, XZCPV1041L●	XZCPV0941L●	XZCPV1041L●	XZCPV1141L●	XZCPV1241L●



BN: Brown
WH: White
BU: Blue
BK: Black



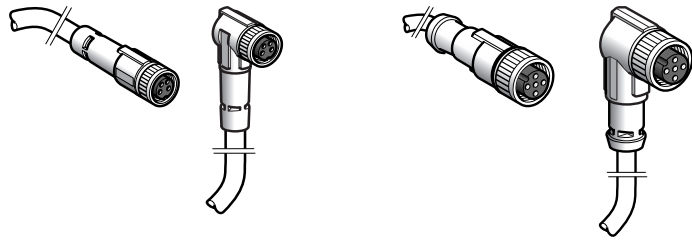
L = 2, 5 or 10 m

Photo-electric sensors

Cabling accessories for XUM miniature sensors

Pre-wired connectors M8 and M12

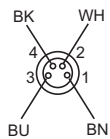
PUR cable



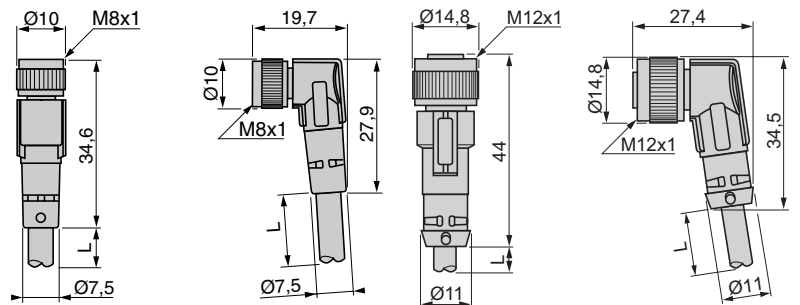
Connector type	Female, M8, straight	Female, M8, elbowed	Female, M12, straight	Female, M12, elbowed	
Number of conductors	4				
References					
PUR cable	L = 2 m	XZCP0941L2	XZCP1041L2	XZCP1141L2	XZCP1241L2
	L = 5 m	XZCP0941L5	XZCP1041L5	XZCP1141L5	XZCP1241L5
	L = 10 m	XZCP0941L10	XZCP1041L10	XZCP1141L10	XZCP1241L10
Weight (kg)	0.080 (L = 2 m) 0.180 (L = 5 m) 0.360 (L = 10 m)		0.090 (L = 2 m) 0.190 (L = 5 m) 0.370 (L = 10 m)		

Characteristics		
Certifications	cULus	
Connection type	Screw threaded (metal clamping ring)	
Cable material	PUR sheath, PP conductor insulation	
Degree of protection	IP 65, IP 67, IP 69K	
Ambiant air temperature	Static cable	- 40...+ 80 °C
	Flexing cable	- 5...+ 80 °C
Cabling	Ø 5.2 mm cable, conductor c.s.a.: 4 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 m Ω	

Connections	Dimensions			
XZCP0941L●, XZCP1041L●	XZCP0941L●	XZCP1041L●	XZCP1141L●	XZCP1241L●



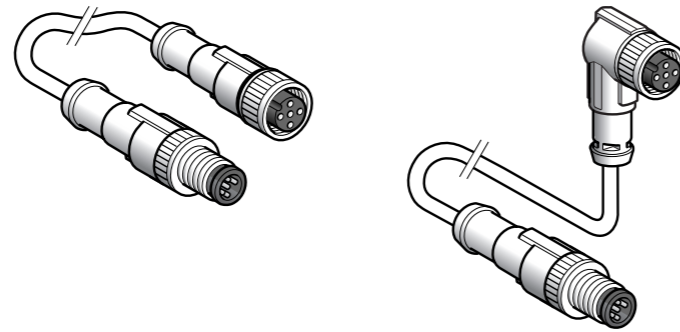
BN: Brown
WH: White
BU: Blue
BK: Black



L = 2, 5 or 10 m

Photo-electric sensors

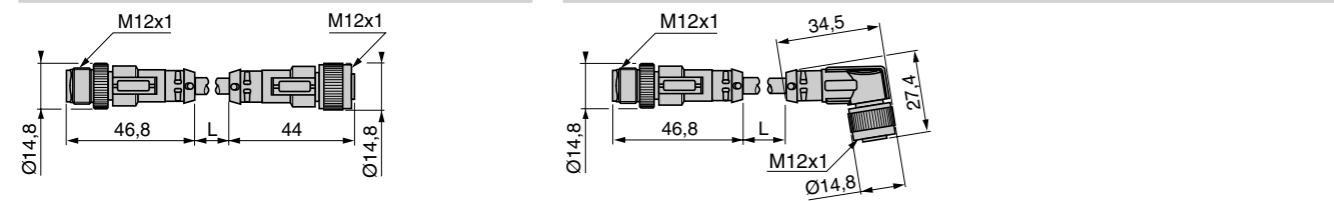
Cabling accessories for XUM miniature sensors
Jumper cables M12-M12
PVC cable



Male connector type	M12, 3-pin, straight		
Female connector type	M12, 3-pin, straight	M12, 3-pin, elbowed	
Number of conductors	3		
References			
PVC cable	L = 1 m	XZCRV1511040A1	XZCRV1512040A1
	L = 2 m	XZCRV1511040A2	XZCRV1512040A2
	L = 5 m	-	-
Weight (kg)	0.070 (L = 1 m) 0.100 (L = 2 m)		

Characteristics		
Certifications	cULus	
Connection type	Male and female: screw threaded	
Cable material	PVC sheath, PP conductor insulation	
Degree of protection	IP 65, IP 67	
Ambient air temperature	Static cable	- 25...+ 80°C
	Flexing cable	- 5...+ 80°C
Conductor c.s.a.	3 x 0.25 mm ²	
Cable diameter	4.6 mm	
Nominal voltage	~ 250 V, ~ 300 V	
Nominal current	3 A	
Insulation resistance	> 10 ⁹ Ω	
Contact resistance	≤ 5 m Ω	

Dimensions



L = 1 or 2 m

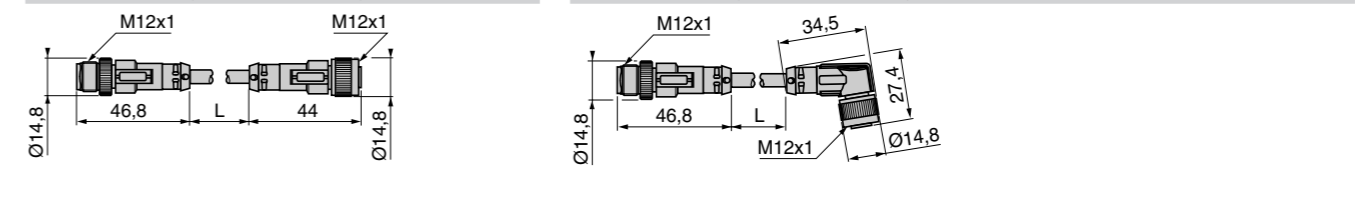
Connections



Male connector type	M12, 4-pin, straight		
Female connector type	M12, 4-pin, straight	M12, 4-pin, elbowed	
Number of conductors	4		
References			
PVC cable	L = 1 m	XZCRV1511041C1	XZCRV1512041C1
	L = 2 m	XZCRV1511041C2	XZCRV1512041C2
	L = 5 m	XZCRV1511041C5	XZCRV1512041C5
Weight (kg)	0.070 (L = 1 m) 0.110 (L = 2 m) 0.230 (L = 5 m)		

Characteristics		
Certifications	cULus	
Connection type	Male and female: screw threaded	
Cable material	PVC sheath, PP conductor insulation	
Degree of protection	IP 65, IP 67	
Ambient air temperature	Static cable	- 25...+ 80°C
	Flexing cable	- 5...+ 80°C
Conductor c.s.a.	4 x 0.25 mm ²	
Cable diameter	4.6 mm	
Nominal voltage	~ 250 V, ~ 300 V	
Nominal current	3 A	
Insulation resistance	> 10 ⁹ Ω	
Contact resistance	≤ 5 m Ω	

Dimensions



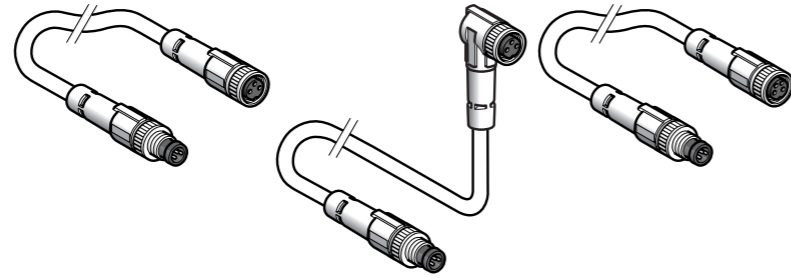
L = 1, 2 or 5 m

Connections



Photo-electric sensors

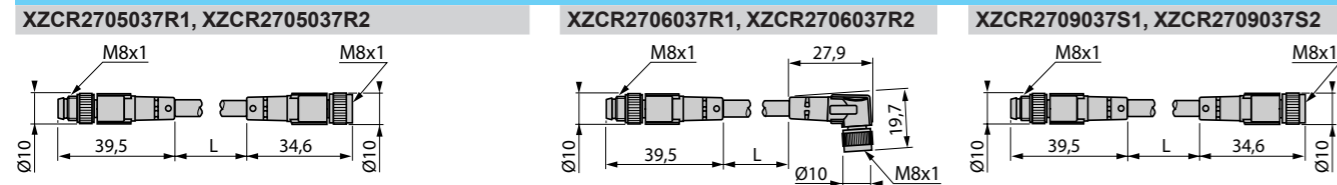
Cabling accessories for XUM miniature sensors
Jumper cables M8-M8 and M8-M12
PUR cable



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	XZCR2705037R1	XZCR2706037R1	XZCR2709037S1
	L = 2 m	XZCR2705037R2	XZCR2706037R2	XZCR2709037S2
Weight (kg)	L = 1 m	0.065		
	L = 2 m	0.090		

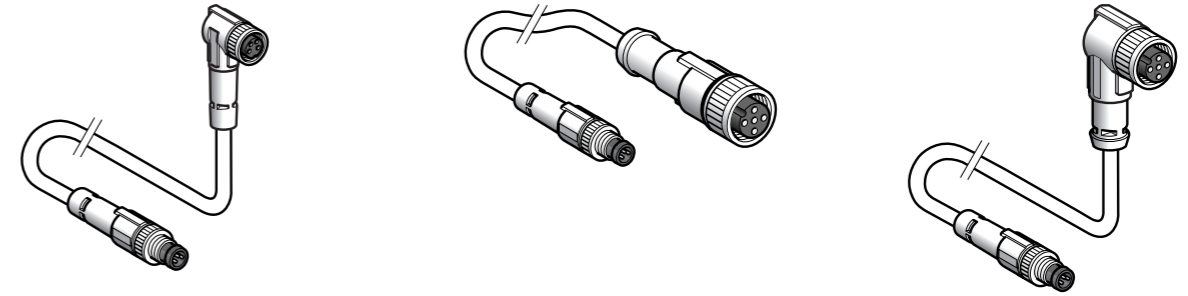
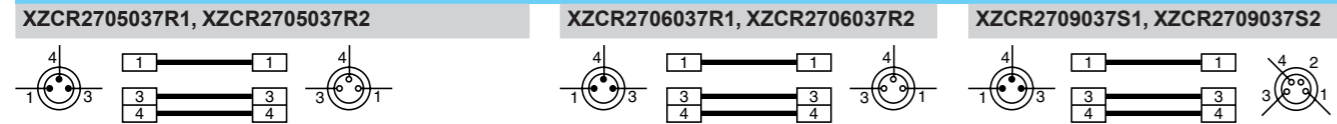
Characteristics		
Certifications	cULus	
Connection type	Male: screw threaded and clip. Female: screw threaded. Metal clamping ring.	
Cable material	PUR sheath, PP conductor insulation	
Degree of protection	IP 65, IP 67, IP 69K	
Ambient air temperature	Static cable	- 35...+ 90°C
	Flexing cable	- 5...+ 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 m Ω	

Dimensions



L = 1 or 2 m

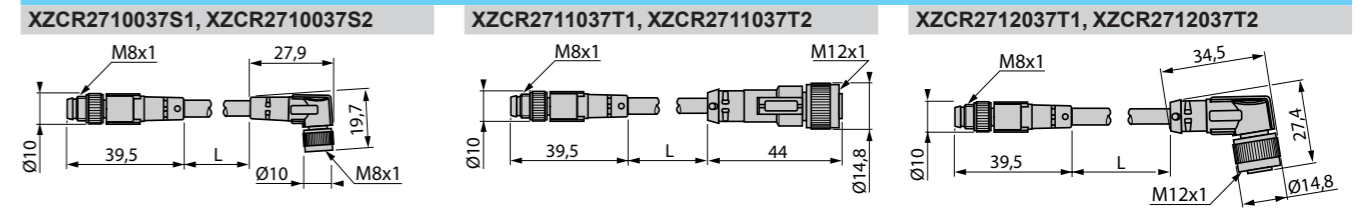
Connections



Male connector type	M8, 3-pin, straight			
Female connector type	M8, 4-pin, elbowed	M12, 5-pin, straight	M12, 5-pin, elbowed	
Number of conductors	3	3	3	
References				
PUR cable	L = 1 m	XZCR2710037S1	XZCR2711037T1	XZCR2712037T1
	L = 2 m	XZCR2710037S2	XZCR2711037T2	XZCR2712037T2
Weight (kg)	L = 1 m	0.065	0.065	0.065
	L = 2 m	0.090	0.093	0.093

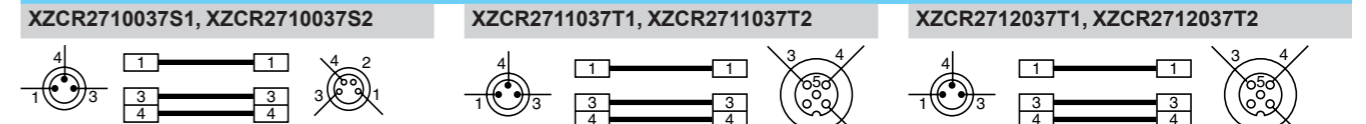
Characteristics		
Certifications	cULus	
Connection type	Male: screw threaded and clip. Female: screw threaded. Metal clamping ring.	
Cable material	PUR sheath, PP conductor insulation	
Degree of protection	IP 65, IP 67, IP 69K	
Ambient air temperature	Static cable	- 35...+ 90°C
	Flexing cable	- 5...+ 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 m Ω	

Dimensions



L = 1 or 2 m

Connections



X		XZCR2712037T2	15
XUM4ANXBL2	3	XZCRV1511040A1	12
XUM4ANXBM8	3	XZCRV1511040A2	12
XUM4APXBL2	3	XZCRV1511041C1	13
XUM4APXBM8	3	XZCRV1511041C2	13
XUM5ANXBL2	3	XZCRV1511041C5	13
XUM5ANXBM8	3	XZCRV1512040A1	12
XUM5APXBL2	3	XZCRV1512040A2	12
XUM5APXBM8	3	XZCRV1512041C1	13
XUM6ANXBL2	3	XZCRV1512041C2	13
XUM6ANXBM8	3	XZCRV1512041C5	13
XUM6APXBL2	3		
XUM6APXBM8	3		
XUM8ANXBL2	2		
XUM8ANXBM8	2		
XUM8APXBL2	2		
XUM8APXBM8	2		
XUM9ANXBL2	2		
XUM9ANXBM8	2		
XUM9APXBL2	2		
XUM9APXBM8	2		
XUZA50	3		
XUZAM02	3		
XUZAM03	3		
XUZAM04	3		
XUZC08	2		
XUZC24	2		
XUZC50	2		
XUZC100	2		
XZCP0941L2	11		
XZCP0941L5	11		
XZCP0941L10	11		
XZCP1041L2	11		
XZCP1041L5	11		
XZCP1041L10	11		
XZCP1141L2	11		
XZCP1141L5	11		
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XZCP1241L2	11		
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XZCPV1141L10	10		
XZCPV1241L2	10		
XZCPV1241L5	10		
XZCPV1241L10	10		
XZCR2705037R1	14		
XZCR2705037R2	14		
XZCR2706037R1	14		
XZCR2706037R2	14		
XZCR2709037S1	14		
XZCR2709037S2	14		
XZCR2710037S1	15		
XZCR2710037S2	15		
XZCR2711037T1	15		
XZCR2711037T2	15		
XZCR2712037T1	15		

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