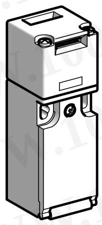
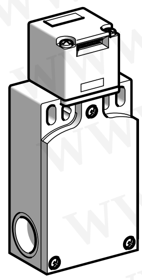
Guard switches
Double insulated, turret head (1), types XCS-PA, XCS-TA and XCS-TE
Cable entries tapped M16 x 1.5

Dimensions :
pages 2/34 and 2/35
Schemes :
page 2/36

References, characteristics

Type of switch	Without locking of actuator	
		

References of switches without actuator (⊖ N/C contact with positive opening operation)

2-pole N/C + N/O break before make slow break (2)	XCS-PA592 ⊖	–
2-pole N/O + N/C make before break slow break (2)	XCS-PA692 ⊖	–
2-pole N/C + N/C slow break (2)	XCS-PA792 ⊖	–
3-pole N/C + N/O + N/O (2 N/O staggered) slow break (2)	–	XCS-TA592 ⊖
3-pole N/C + N/C + N/O (N/O staggered) slow break (2)	–	XCS-TA792 ⊖
3-pole N/C + N/C + N/C slow break (2)	–	XCS-TA892 ⊖
Weight (kg)	0.110	0.160

Complementary characteristics not shown under general characteristics (page 2/15)

Actuation speed	Maximum : 0.5 m/s, minimum : 0.01 m/s
Resistance to forcible withdrawal of actuator	**XCS-PA, XCS-TA :** 10 N (50 N using actuators **XCS-Z12** or **XCS-Z13** together with guard retaining device **XCS-Z21**) **XCS-TE :** 500 N
Mechanical durability	**XCS-PA, XCS-TA : > 1 million operating cycles** **XCS-TE : 1 million operating cycles**
Maximum operating rate	For maximum durability : 600 operating cycles per hour
Minimum force for positive opening	15 N
Cable entry	**XCS-PA, XCS-TE :** 1 entry tapped M16 x 1.5 for ISO cable gland. **XCS-TA:** 2 entries tapped M16 x 1.5 for ISO cable gland. Clamping capacity 7 to 10 mm.

References of accessories

Description	For use with guard switches	Unit reference	Weight kg
Set of 10 blanking plugs for operating head slot	XCS-PA, XCS-TA, XCS-TE	**XCS-Z28**	0.050
Tool for forced opening of interlocking device (Sold in lots of 10)	XCS-TE	**XCS-Z100**	0.050

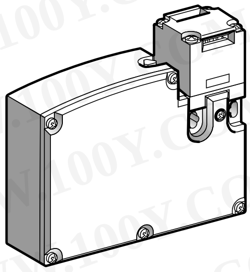
(1) Adjustable throughout 360° in 90° steps. Blanking plug for operating head slot included with switch.
(2) Schematic diagrams shown represent the contact states whilst the actuator is inserted in the head of the switch.

Guard switches
Double insulated, turret head (1), types XCS-PA, XCS-TA and XCS-TE
Cable entries tapped M16 x 1.5

Dimensions :
pages 2/34 and 2/35
Schemes :
pages 2/36 and 2/37

References, characteristics

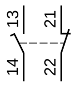
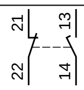
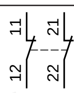
Type of switch	With interlocking, locking by solenoid



2

Type of interlocking	**Locking on de-energisation and unlocking on energisation of solenoid** (2). To order a guard switch with locking on energisation and unlocking on de-energisation of the solenoid, replace the 2nd number (**3**) by **5** in the references shown below. Example : **XCS-TE5312** becomes **XCS-TE5512**.		
Supply voltage of solenoid	∿ or ⎓ 24 V (50/60 Hz on ∿)	∿ or ⎓ 120 V (50/60 Hz on ∿)	∿ or ⎓ 230 V (50/60 Hz on ∿)

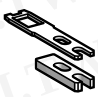
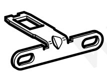
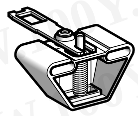
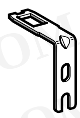
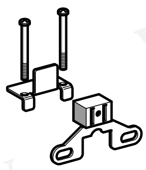
References of switches without actuator (⊖ N/C contact with positive opening operation)

2-pole N/C + N/O break before make slow break (3)		**XCS-TE5312** ⊖	**XCS-TE5332** ⊖	**XCS-TE5342** ⊖
2-pole N/O + N/C make before break slow break (3)		**XCS-TE6312** ⊖	**XCS-TE6332** ⊖	**XCS-TE6342** ⊖
2-pole N/C + N/C slow break (3)		**XCS-TE7312** ⊖	**XCS-TE7332** ⊖	**XCS-TE7342** ⊖
Weight (kg)		0.360	0.360	0.360

Solenoid characteristics

Load factor	100 %		
Rated operational voltage	**∿ or ⎓ 24 V**	**∿ or ⎓ 120 V**	**∿ or ⎓ 230 V**
Voltage limits	- 20 %, + 10 % of the rated operational voltage (including ripple on ⎓) conforming to IEC 947-1		
Service life	20,000 hours		
Consumption	10 VA max.		

References of actuators and guard retaining device

					
Description	Straight actuator	Wide actuator	Pivoting actuator	Right-angled actuator	Guard retaining device (4)
For guard switches XCS-PA, TA, TE	**XCS-Z11**	**XCS-Z12**	**XCS-Z13**	**XCS-Z14**	**XCS-Z21**
Weight (kg)	0.015	0.015	0.085	0.025	0.080

(1) Adjustable throughout 360° in 90° steps. Blanking plug for operating head slot included with switch.
(2) A special tool included with the guard switch enables the forced opening of the interlocking mechanism by authorised personnel, allowing withdrawal of actuator and subsequent opening of the N/C safety contacts.
(3) Schematic diagrams shown represent the contact states whilst the actuator is inserted in the head of the switch.
(4) Only for use with XCS-PA and XCS-TA guard switches used in conjunction with actuators XCS-Z12 or XCS-Z13.

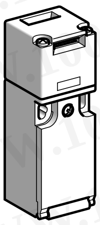
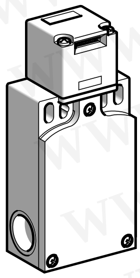
Guard switches
Double insulated, turret head (1), types XCS-PA, XCS-TA and XCS-TE
Cable entries tapped for Pg 11 (n° 11) cable gland

Dimensions :
pages 2/34 and 2/35
Schemes :
page 2/36

References, characteristics

Type of switch	Without locking of the actuator	

For UK market, please refer to pages 2/28 and 2/29

References of switches without actuator (⊖ N/C contact with positive opening operation)

2-pole N/C + N/O break before make slow break (2)	**XCS-PA591** ⊖	–
2-pole N/O + N/C make before break slow break (2)	**XCS-PA691** ⊖	–
2-pole N/C + N/C slow break (2)	**XCS-PA791** ⊖	–
3-pole N/C + N/O + N/O (2 N/O staggered) slow break (2)	–	**XCS-TA591** ⊖
3-pole N/C + N/C + N/O (N/O staggered) slow break (2)	–	**XCS-TA791** ⊖
3-pole N/C + N/C + N/C slow break (2)	–	**XCS-TA891** ⊖
Weight (kg)	0.110	0.160

Complementary characteristics not shown under general characteristics (page 2/15)

Actuation speed	Maximum : 0.5 m/s, minimum : 0.01 m/s
Resistance to forcible withdrawal of actuator	**XCS-PA, XCS-TA :** 10 N (50 N using actuators **XCS-Z12** or **XCS-Z13** together with guard retaining device **XCS-Z21**) **XCS-TE :** 500 N
Mechanical durability	**XCS-PA, XCS-TA : > 1 million operating cycles** **XCS-TE : 1 million operating cycles**
Maximum operating rate	For maximum durability : 600 operating cycles per hour
Minimum force for positive opening	15 N
Cable entry	**XCS-PA, XCS-TE :** 1 entry tapped for n° 11 cable gland conforming to NF C 68-300 (DIN Pg 11). **XCS-TA:** 2 entries tapped for n° 11 cable gland conforming to NF C 68-300 (DIN Pg 11). Clamping capacity 7 to 10 mm.

References of accessories

Description	For use with guard switches	Unit reference	Weight kg
Set of 10 blanking plugs for operating head slot	XCS-PA, XCS-TA, XCS-TE	**XCS-Z28**	0.050
Tool for forced opening of interlocking device (Sold in lots of 10)	XCS-TE	**XCS-Z100**	0.050

(1) Adjustable throughout 360° in 90° steps. Blanking plug for operating head slot included with switch.
(2) Schematic diagrams shown represent the contact states whilst the actuator is inserted in the head of the switch.

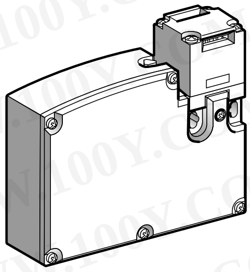
Guard switches
Double insulated, turret head (1), types XCS-PA, XCS-TA and XCS-TE
Cable entries tapped for Pg 11 (n° 11) cable gland

Dimensions :
pages 2/34 and 2/35
Schemes :
pages 2/36 and 2/37

References, characteristics

Type of switch	With interlocking, locking by solenoid

For UK market, please refer to pages 2/28 and 2/29



2

Type of interlocking	**Locking on de-energisation and unlocking on energisation of solenoid** (2). To order a limit switch with locking on energisation and unlocking on de-energisation of the solenoid, replace the 2nd number (**3**) by **5** in the references shown below. Example : **XCS-TE5311** becomes **XCS-TE5511**.		
Supply voltage of electromagnet	∿ or ⎓ 24 V (50/60 Hz on ∿)	∿ or ⎓ 120 V (50/60 Hz on ∿)	∿ or ⎓ 230 V (50/60 Hz on ∿)

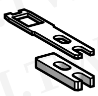
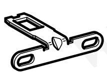
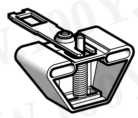
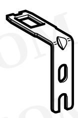
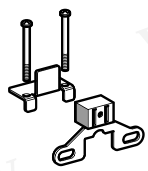
References of switches without actuator (⊖ N/C contact with positive opening operation)

2-pole N/C + N/O break before make slow break (3)	**XCS-TE5311** ⊖	**XCS-TE5331** ⊖	**XCS-TE5341** ⊖
2-pole N/O + N/C make before break slow break (3)	**XCS-TE6311** ⊖	**XCS-TE6331** ⊖	**XCS-TE6341** ⊖
2-pole N/C + N/C slow break (3)	**XCS-TE7311** ⊖	**XCS-TE7331** ⊖	**XCS-TE7341** ⊖
Weight (kg)	0.360	0.360	0.360

Solenoid characteristics

Load factor	100 %		
Rated operational voltage	**∿ or ⎓ 24 V**	**∿ or ⎓ 120 V**	**∿ or ⎓ 230 V**
Voltage limits	- 20 %, + 10 % of the rated operational voltage (including ripple on ⎓) conforming to IEC 947-1		
Service life	20,000 hours		
Consumption	10 VA max.		

References of actuators and guard retaining device

Description	Straight actuator	Wide actuator	Pivoting actuator	Right-angled actuator	Guard retaining device (4)
For guard switches XCS-PA, TA, TE	**XCS-Z11**	**XCS-Z12**	**XCS-Z13**	**XCS-Z14**	**XCS-Z21**
Weight (kg)	0.015	0.015	0.085	0.025	0.080

(1) Adjustable throughout 360° in 90° steps. Blanking plug for operating head slot included with switch.
(2) A special tool included with the guard switch enables the forced opening of the interlocking mechanism by authorised personnel, allowing withdrawal of actuator and subsequent opening of the N/C safety contacts.
(3) Schematic diagrams shown represent the contact states whilst the actuator is inserted in the head of the switch.
(4) Only for use with XCS-PA and XCS-TA guard switches used in conjunction with actuators XCS-Z12 or XCS-Z13.

Components for safety applications

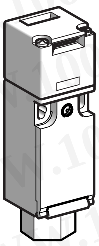
Guard switches
Double insulated, turret head (1), types XCS-PA, XCS-TA and XCS-TE
Cable entries tapped 1/2" NPT

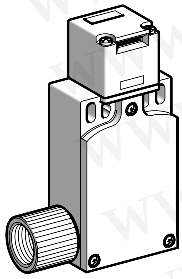
Dimensions :
pages 2/34 and 2/35
Schemes :
page 2/36

References, characteristics

Type of switch	Without locking of actuator

For UK market, please refer to pages 2/28 and 2/29





References of switches without actuator (⊖ N/C contact with positive opening operation)

2-pole N/C + N/O break before make slow break (2)	**XCS-PA593** ⊖	–
2-pole N/O + N/C make before break slow break (2)	**XCS-PA693** ⊖	–
2-pole N/C + N/C slow break (2)	**XCS-PA793** ⊖	–
3-pole N/C + N/O + N/O (2 N/O staggered) slow break (2)	–	**XCS-TA593** ⊖
3-pole N/C + N/C + N/O (N/O staggered) slow break (2)	–	**XCS-TA793** ⊖
3-pole N/C + N/C + N/C slow break (2)	–	**XCS-TA893** ⊖
Weight (kg)	0.110	0.160

Complementary characteristics not shown under general characteristics (page 2/15)

Actuation speed	Maximum : 0.5 m/s, minimum : 0.01 m/s
Resistance to forcibl withdrawal of actuator	**XCS-PA, XCS-TA :** 10 N (50 N using actuators **XCS-Z12** or **XCS-Z13** together with guard retaining device **XCS-Z21**) **XCS-TE :** 500 N
Mechanical durability	**XCS-PA, XCS-TA : > 1 million operating cycles** **XCS-TE : 1 million operating cycles**
Maximum operating rate	For maximum durability : 600 operating cycles per hour
Minimum force for positive opening	15 N
Cable entry	**XCS-PA :** 1 entry tapped for 1/2" NPT (USAS B2-1) conduit. **XCS-TE :** 1 entry tapped 11 mm and fitted with metal adaptor DE9-RA1012 for 1/2" NPT (USAS B2-1) conduit. **XCS-TA:** 2 entries tapped 11 mm, 1 fitted with metal adaptor DE9-RA1012 for 1/2" NPT (USAS B2-1) conduit. Second entry fitted with blanking plug.

References of accessories

Description	For use with Guard switches	Unit reference	Weight kg
Set of 10 blanking plugs for operating head slot	XCS-PA, XCS-TA, XCS-TE	**XCS-Z28**	0.050
Tool for forced opening of interlocking device (Sold in lots of 10)	XCS-TE	**XCS-Z100**	0.050

(1) Adjustable throughout 360° in 90° steps. Blanking plug for operating head slot included with switch.
(2) Schematic diagrams shown represent the contact states whilst the actuator is inserted in the head of the switch.

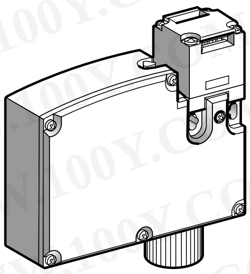
Guard switches
Double insulated, turret head (1), types XCS-PA, XCS-TA and XCS-TE
Cable entries tapped 1/2" NPT

Dimensions :
pages 2/34 and 2/35
Schemes :
pages 2/36 and 2/37

References, characteristics

Type of switch	With interlocking, locking by solenoid

For UK market, please refer to pages 2/28 and 2/29



Type of interlocking	**Locking on de-energisation and unlocking on energisation of solenoid** (2). To order a guard switch with locking on energisation and unlocking on de-energisation of the solenoid, replace the 2nd number (**3**) by **5** in the references shown below. Example : **XCS-TE5313** becomes **XCS-TE5513**.		
Supply voltage of solenoid	∼ or ⎓ 24 V (50/60 Hz on ∼)	∼ or ⎓ 120 V (50/60 Hz on ∼)	∼ or ⎓ 230 V (50/60 Hz on ∼)

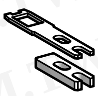
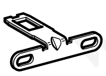
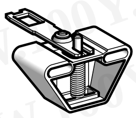
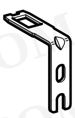
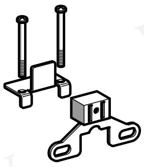
References of switches without actuator (⊖ N/C contact with positive opening operation)

2-pole N/C + N/O break before make slow break (3)	**XCS-TE5313** ⊖	**XCS-TE5333** ⊖	**XCS-TE5343** ⊖
2-pole N/O + N/C make before break slow break (3)	**XCS-TE6313** ⊖	**XCS-TE6333** ⊖	**XCS-TE6343** ⊖
2-pole N/C + N/C slow break (3)	**XCS-TE7313** ⊖	**XCS-TE7333** ⊖	**XCS-TE7343** ⊖
Weight (kg)	0.360	0.360	0.360

Solenoid characteristics

Load factor	100 %		
Rated operational voltage	**∼ or ⎓ 24 V**	**∼ or ⎓ 120 V**	**∼ or ⎓ 230 V**
Voltage limits	- 20 %, + 10 % of the rated operational voltage (including ripple on ⎓) conforming to IEC 947-1		
Service life	20,000 hours		
Consumption	10 VA max.		

References of actuators and guard retaining device

Description	Straight key	Wide key	Pivoting key	Right-angled key	Guard retaining device (4)
For guard switches XCS-PA, TA, TE	**XCS-Z11**	**XCS-Z12**	**XCS-Z13**	**XCS-Z14**	**XCS-Z21**
Weight (kg)	0.015	0.015	0.085	0.025	0.080

(1) Adjustable throughout 360° in 90° steps. Blanking plug for operating head slot included with switch.
(2) A special tool included with the guard switch enables the forced opening of the interlocking mechanism by authorised personnel , allowing withdrawal of actuator and subsequent opening of the N/C safety contacts.
(3) Schematic diagrams shown represent the contact states whilst the actuator is inserted in the head of the switch.
(4) Only for use with XCS-PA and XCS-TA guard switches used in conjunction with actuators XCS-Z12 or XCS-Z13.

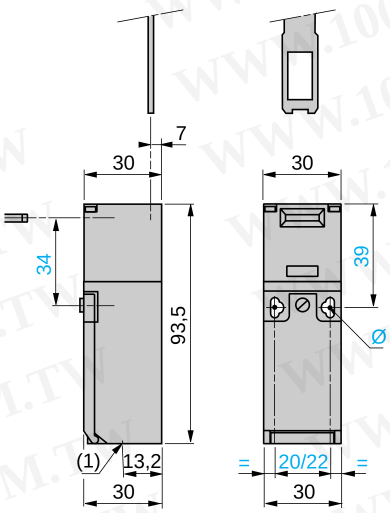
Components for safety applications

Guard switches
Double insulated, turret head, types XCS-PA, XCS-TA and XCS-TE

References :
pages 2/30 to 2/33
Schemes :
pages 2/36 and 2/37

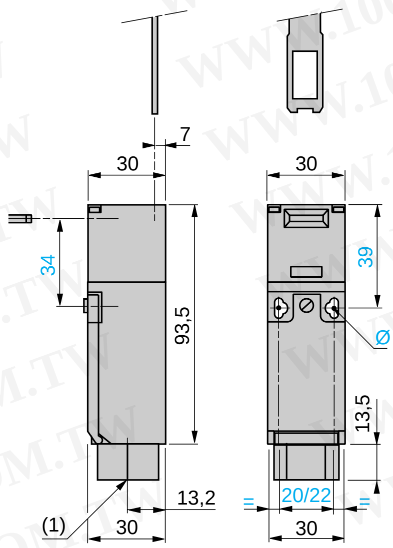
Dimensions

XCS-PA●91, XCS-PA●92



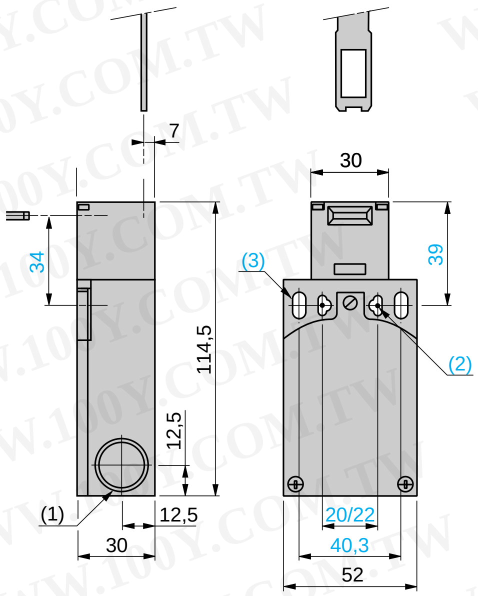
(1) 1 tapped entry for cable gland
Ø : 2 elongated holes Ø 4.3 x 8.3 on 22 ctrs., 2 holes Ø 4.3 on 20 ctrs.

XCS-PA●93



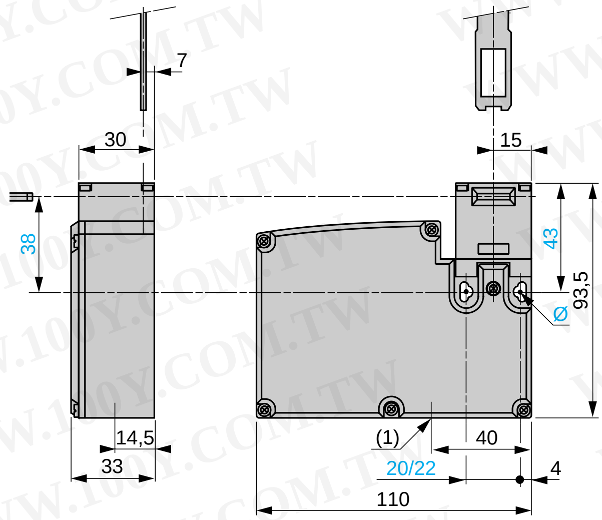
(1) 1 cable entry tapped for 1/2" NPT conduit
Ø : 2 elongated holes Ø 4.3 x 8.3 on 22 ctrs., 2 holes Ø 4.3 on 20 ctrs.

XCS-TA●9●



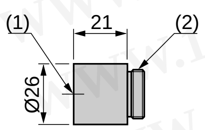
(1) 2 tapped entries for cable gland or 1/2" NPT conduit adaptor
(2) 2 elongated holes Ø 4.3 x 8.3 on 22 ctrs., 2 holes Ø 4.3 on 20 ctrs.
(3) 2 elongated holes Ø 5.3 x 13.3

XCS-TE●●●●



(1) 1 tapped entry for cable gland or 1/2" NPT conduit adaptor
Ø : 2 elongated holes Ø 4.3 x 8.3 on 22 ctrs., 2 holes Ø 4.3 on 20 ctrs.

1/2" NPT conduit adaptor
DE9-RA1012



(1) Tapped entry for 1/2" NPT conduit
(2) 11 mm threaded shank

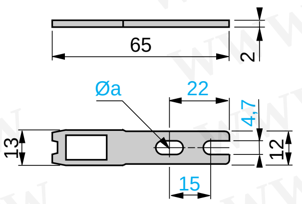
Components for safety applications

Guard switches
Double insulated, turret head, types XCS-PA, XCS-TA and XCS-TE

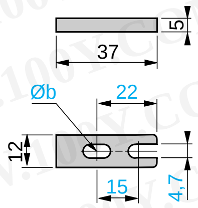
References :
pages 2/30 to 2/33
Schemes :
pages 2/36 and 2/37

Dimensions

XCS-Z11



Adaptor shank (1)

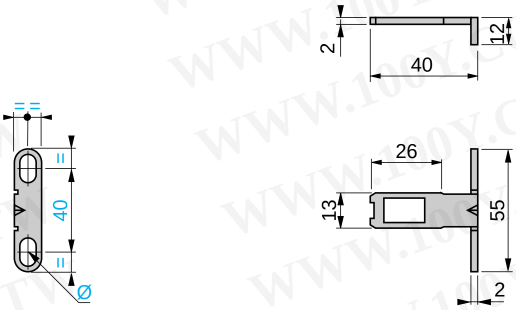


(1) Adaptor (supplied with actuator XCS-Z11) for replacing, without drilling additional fixing hole, an XCK-T guard switch with actuator XCK-Y01 by an XCS-TA guard switch with actuator XCS-Z11

Ø a : 2 elongated holes Ø 4.7 x 10

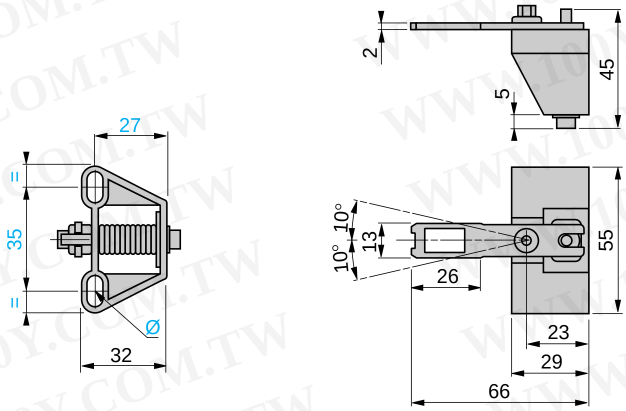
Ø b : 1 elongated hole for M4 or M4.5 screw

XCS-Z12



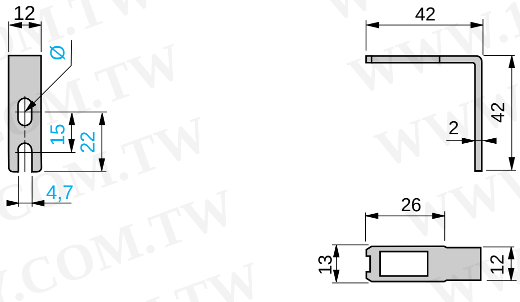
Ø : 2 elongated holes Ø 4.7 x 10

XCS-Z13



Ø : 2 elongated holes Ø 4.7 x 10

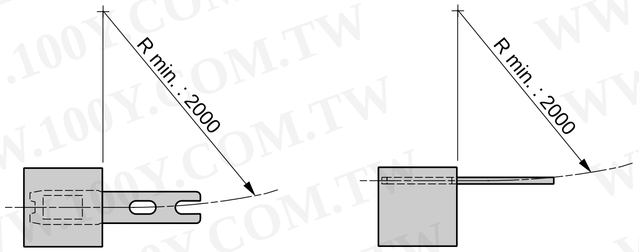
XCS-Z14



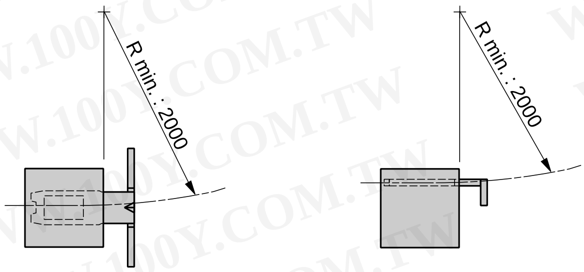
Ø : 1 elongated hole Ø 4.7 x 10

Operating radius required for actuator

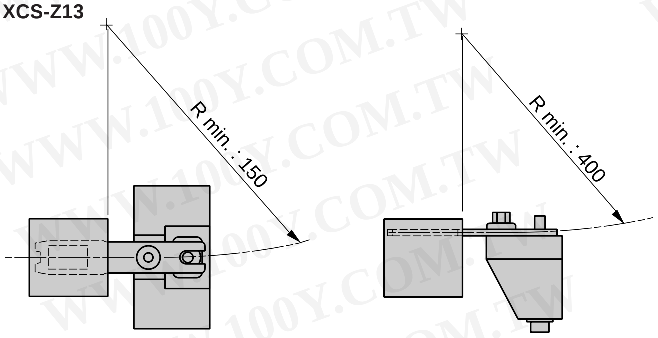
XCS-Z11



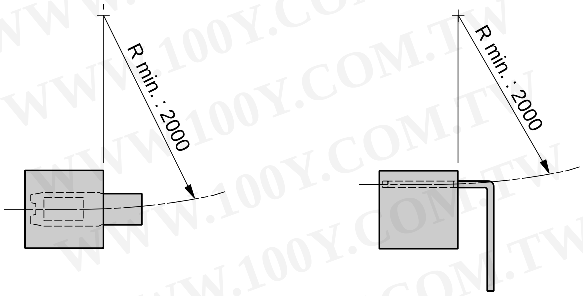
XCS-Z12



XCS-Z13



XCS-Z14



Guard switches
Double insulated, turret head, types XCS-PA, XCS-TA and XCS-TE

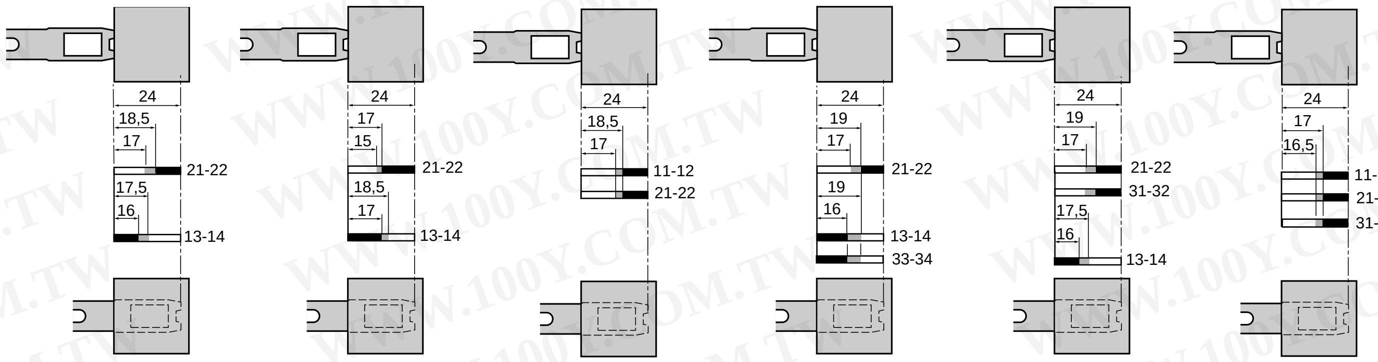
References :
pages 2/30 to 2/33
Dimensions :
pages 2/34 and 2/35

Setting-up, schemes

Setting-up

Function diagrams

XCS-PA5●●, XCS-TE5●●● | **XCS-PA6●●, XCS-TE6●●●** | **XCS-PA7●●, XCS-TE7●●●** | **XCS-TA5●●** | **XCS-TA7●●** | **XCS-TA8●●**



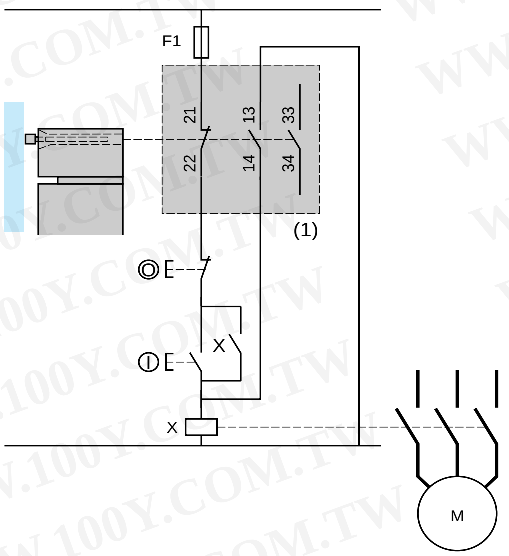
Contact operation
contact closed   contact open   unstable

Schemes

Note: These schemes are given as examples only, the designer must refer to the relevent safety standards for guidance

Wiring to category 1 (EN 954-1)
Example with 3-pole N/C + N/O + N/O contact and protection fuse to prevent shunting of the N/C contact, either by cable damage or by tampering.

The risk assessment (EN1050) will help the designer determine the most appropriate risk reduction methods and the part played by the safety related parts of the control system in reducing the risk

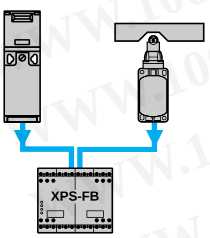


(1) Signalling contact

(1) Signalling contact

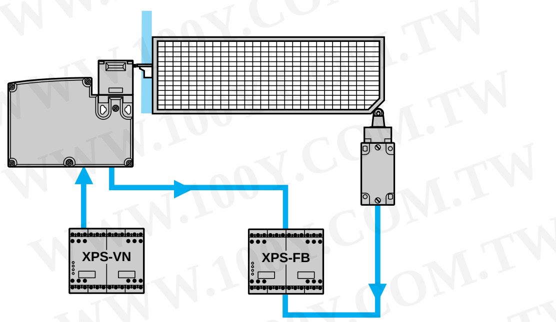
Wiring to category 4 (EN 954-1). Wiring method used in conjunction with PREVENTA safety module.
(The guard switch should be used in conjunction with a safety limit switch to give electrical/mechanical redundancy)

Method for machines with quick rundown time (low inertia)
Locking or interlocking mechanism uses the principles of redundancy and autocheck. The safety modules ensure these functions.



Locking by actuator and actuation in positive mode associated with a safety module.
See page 1/9

Method for machines with long rundown time (high inertia)



Interlocking mechanism with actuator captive in the guard and zero speed detection. See page 1/9.

Guard switches
Double insulated, turret head, type XCS-TE

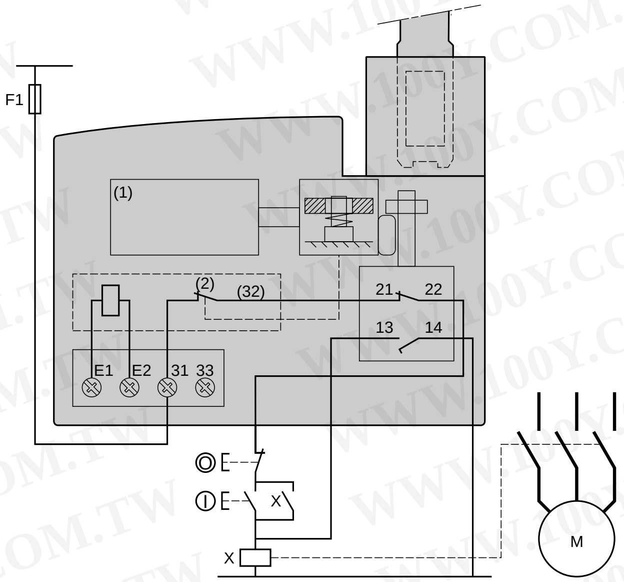
References :
pages 2/30 to 2/33
Dimensions :
pages 2/34 and 2/35

Schemes

Note: These schemes are given as examples only, the designer must refer to EN 954-1 for guidance

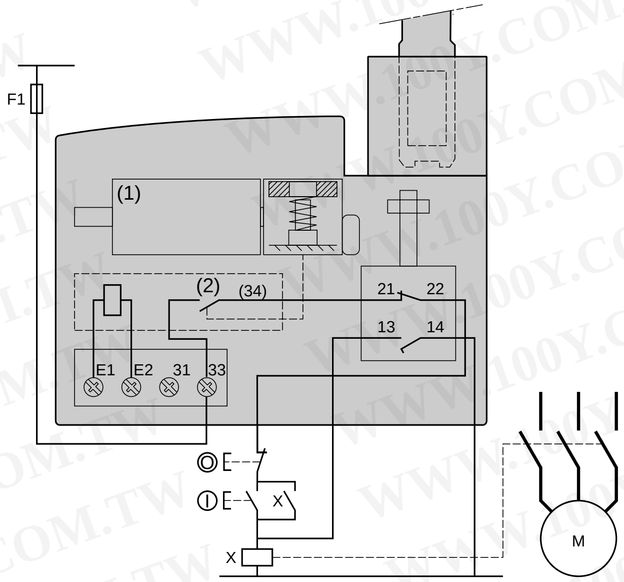
Wiring to category 1 (EN 954-1)
Wiring examples with protection fuse to prevent shunting of the N/C contact, either by cable damage or by tampering.

Locking on de-energisation
N/C + N/O
XCS-TE53●●



(1) Solenoid
(2) Auxiliary contact
E1-E2 : Solenoid supply
13-14 : Safety contact, available for redundancy or signalling

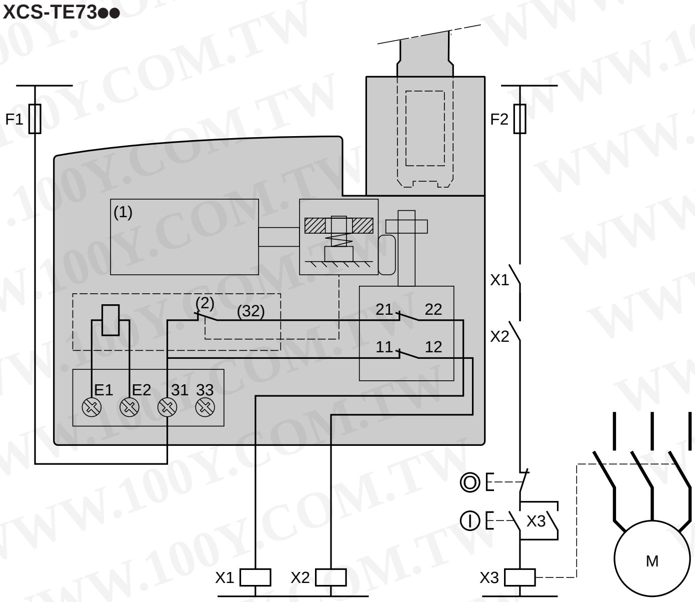
Locking on energisation
N/C + N/O
XCS-TE55●●



(1) Solenoid
(2) Auxiliary contact
E1-E2 : Solenoid supply
13-14 : Safety contact, available for redundancy or signalling

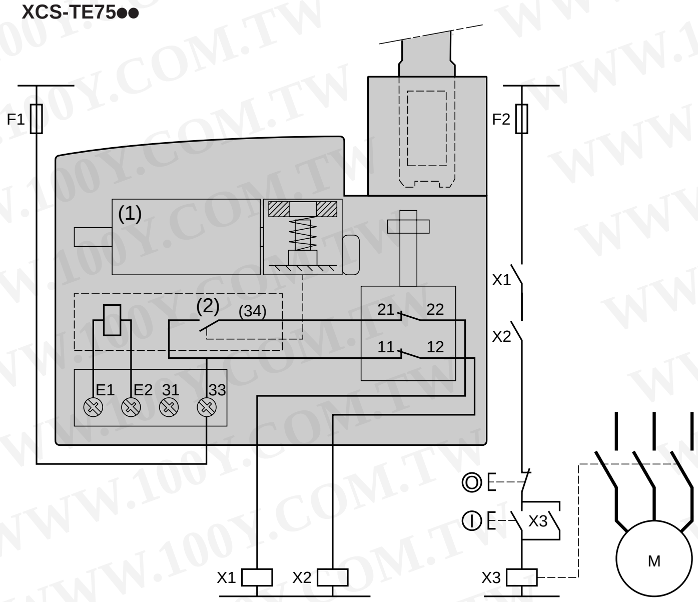
Wiring to category 3 (EN 954-1)
Wiring examples with redundancy for the guard switch contacts, without monitoring or redundancy in the power circuit..

Locking on de-energisation
N/C + N/C
XCS-TE73●●



(1) Solenoid
(2) Solenoid auxiliary contact
E1-E2 : Solenoid supply
11-12 : Safety contact, available for redundancy

Locking on energisation
N/C + N/C
XCS-TE75●●



(1) Solenoid
(2) Solenoid auxiliary contact
E1-E2 : Solenoid supply
11-12 : Safety contact, available for redundancy