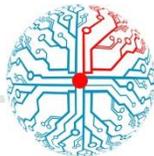
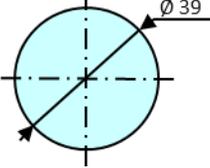
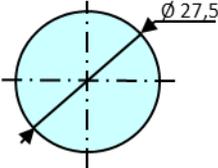
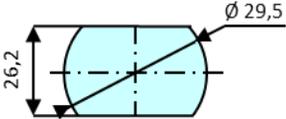
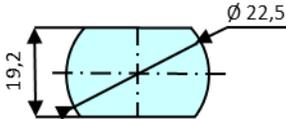
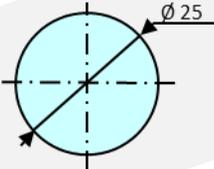
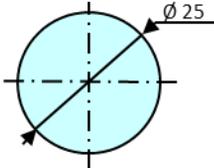


# INSTALLATION GUIDE FOR TYPE C SWITCHES



CONTROL AND SIGNALING SOLUTIONS FOR HARSH ENVIRONMENTS

## Drillings summary table

Switches	Drilling
<p data-bbox="429 349 472 382"><b>CP</b></p> 	
<p data-bbox="422 571 479 604"><b>CM</b></p> 	
<p data-bbox="419 813 482 846"><b>CPR</b></p> 	
<p data-bbox="429 1054 472 1087"><b>CR</b></p> 	
<p data-bbox="386 1335 515 1367"><b>CFA / CL</b></p> 	
<p data-bbox="415 1576 486 1609"><b>CMC</b></p> 	

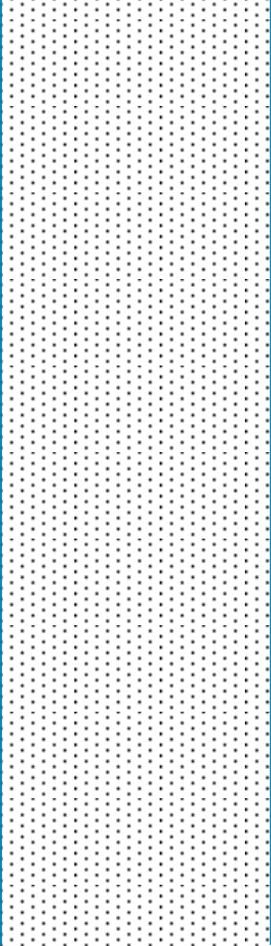
## Panel thickness summary table

Switches	Panel thickness (mm)	
	With escutcheon or symbol*	Without escutcheon or symbol*
<b>CP</b> 	2 à 5 mm	6 à 9 mm
<b>CM</b> 	2 à 5 mm	5 à 8 mm
<b>CPR</b> 	2 à 5 mm	5 à 8 mm
<b>CR</b> 	2 à 5 mm	5 à 8 mm
<b>CFA / CL</b> 	2 à 4 mm	3 à 5 mm
<b>CMC</b> 	-	2 à 4 mm

**i** \* Values according to MAFELEC supplied escutcheon plates or symbols

3 \* The specifications and drawings given are subject to change and are not binding unless confirmed by our specialists.

## Tightening tools and recommended torque values summary table

Switches	Standard mounting wrench	Adapter for torque tightening	Torque tightening	Torque* (N.m)
<b>CP</b> 	1SNA317003R2400 	1SNA910706T0000 	Standard wrench + adapter 	25
<b>CM</b> 	1SNA317179R0000 	1SNA910707T0100 	Standard wrench + adapter 	12 N.m
<b>CPR</b> 	1SNA317147R2000 		1SNA910704T0600 	22 N.m
<b>CR</b> 	1SNA317146R2700 		1SNA910705T0700 	12,5 N.m
<b>CFA / CL</b> 	1SNA317147R2000 		1SNA910704T0600 	22 N.m
<b>CMC</b> 	1SNA318356R1200 		1SNA910711T2400 	22 N.m

**i** \* Valeurs recommandées si sollicitations de vibrations / séismes

Installation and maintenance

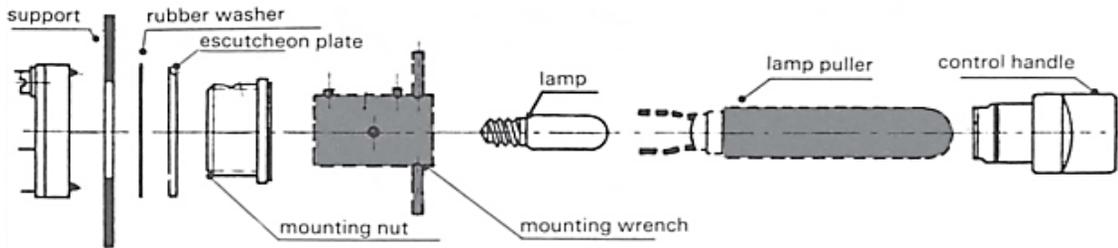


Fixing of CM or CP switches

The standard device can be fitted on a panel thick :

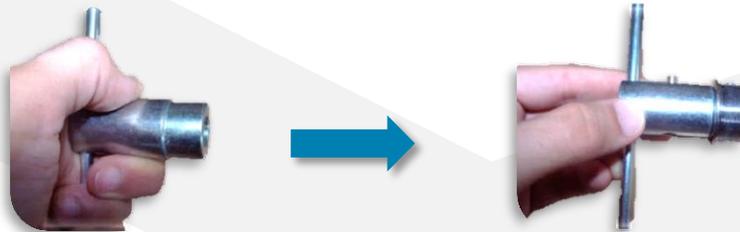
	CP	CM
With escutcheon plate / symbol	2 to 5	2 to 5
Without escutcheon plate / symbol	6 to 9	5 To 8

The product is fixed to the panel through a central nut. 2 people are recommended to fix correctly the switch : a person behind the panel to guide and maintain the product, the other one to set up the escutcheon plate, the central nut and then tighten the switch.



**Step 1 :**

Insert the mounting nut on the mounting wrench by pressing on the piston.  
 (reference : 1SNA317003R2400 for CP switch and reference : 1SNA317179R0000 for CM switch)



**Step 2 :** *(Ignore this step if escutcheon plate or symbol is not supply with switch)*

Set up the escutcheon plate or symbol with the rubber washer on the mounting nut.



Installation and maintenance



Fixing of CM or CP switches

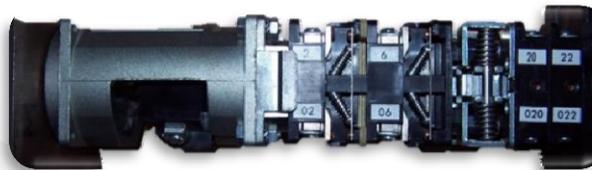
**Step 3 :**

Position the switch at the rear of the panel by respecting the orientation\* and take care of the right alignment with the drill hole. Tighten the switch with the mounting wrench and take care of the right adjustment of its position and the position of escutcheon plate.



\* Normal orientation of the switch:

View from the back of the switch, the contacts located at the right have odd marks and the contacts located at the left have even marks.



**Step 4 :** (We recommend to realize this step if the products can be subject to vibrations/seismic stresses. In other cases this step is facultative but recommended).

With a calibrated torque wrench, the standard mounting wrench and the adapter (reference : 1SNA910706T000 for CP switch and reference : 1SNA910707T0100 for CM switch) complete the tightening by applying a torque of 25 N.m for a CP switch or 12 N.m for CM switch.



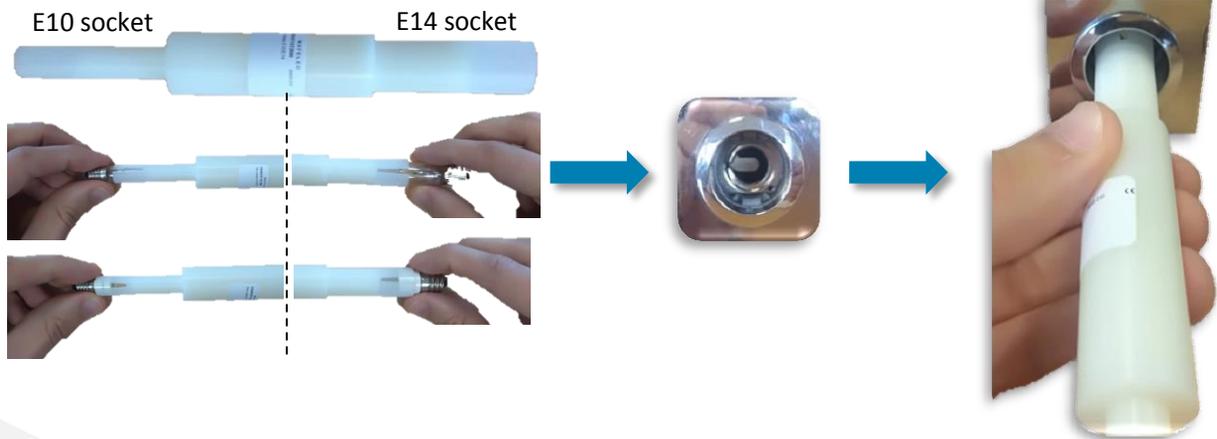
Installation and maintenance

Fixing of CM or CP switches



**Step 4' :** (lamp) *(Ignore this step if the lamp isn't used or if it's installed by factory)*

Put the lamp in the lamp/led puller for E10 and E14 socket : reference 1SNA910713T2600  
 Insert the assembly into the socket of the switch taking care to center on the thread. Screw gently clockwise. Remove the lamp/led puller.



**Step 5 :**

Set up the handle in abutment of the mechanical transmission part. /!\ A single direction of assembly



## Installation and maintenance



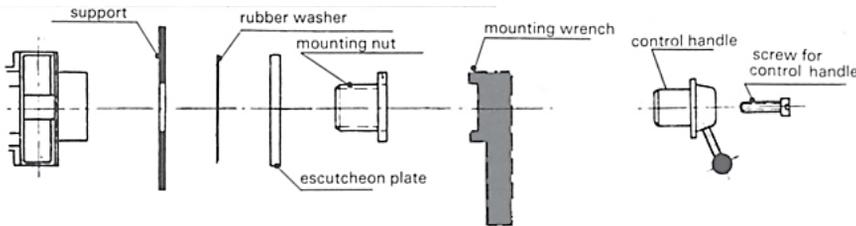
### Fixing of handle or key command type C switches

The standard device can be fitted on a panel thick :

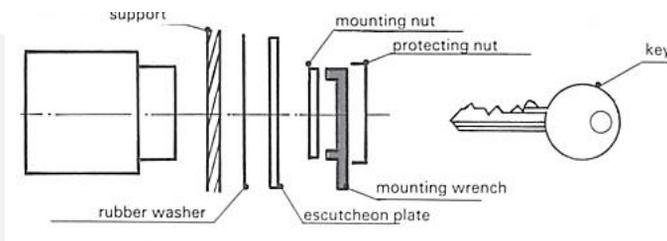
	CFA or CL	CR or CPR	CMC
With escutcheon plate	2 à 4	2 à 5	-
Without escutcheon plate	3 à 5	5 à 8	2 à 4

The product is fixed to the panel through a central nut. 2 people are recommended to fix correctly the switch : a person behind the panel to guide and maintain the product, the other one to set up the escutcheon plate, the central nut and then tighten the switch .

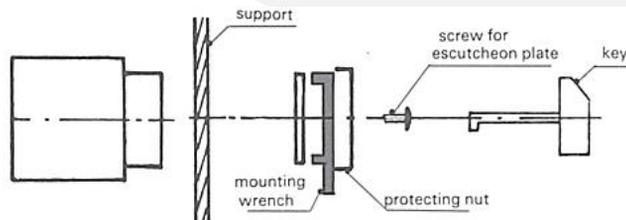
#### Principle of installation of CFA and CL switches



#### Principle of installation of CR and CPR switches



#### Principle of installation of CMC switches



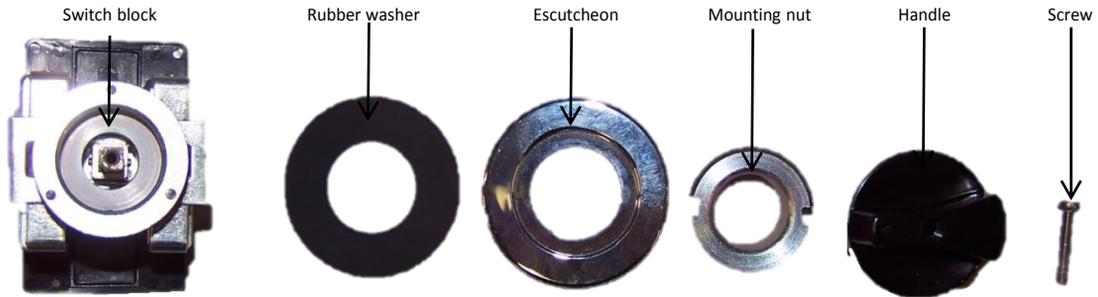
## Installation and maintenance



### Fixing of CFA or CL switches

#### Step 0 (preparation) :

Separate all the components of the front part of the switch as presented below.  
(The handle illustrated below is for a CFA switch, for CL switch only the form of the handle is different).



#### Step 1 :

Position the switch at the rear of the panel by respecting the orientation\* and take care of the right alignment with the drill hole. Set up the rubber washer and the escutcheon plate behind the mounting nut. Tighten the switch with the mounting wrench (reference : 1SNA317147R2000) and take care of the right adjustment of its position and the position of escutcheon plate.



\* Normal orientation of the switch:

View from the back of the switch, the contacts located at the right have odd marks and the contacts located at the left have even marks.



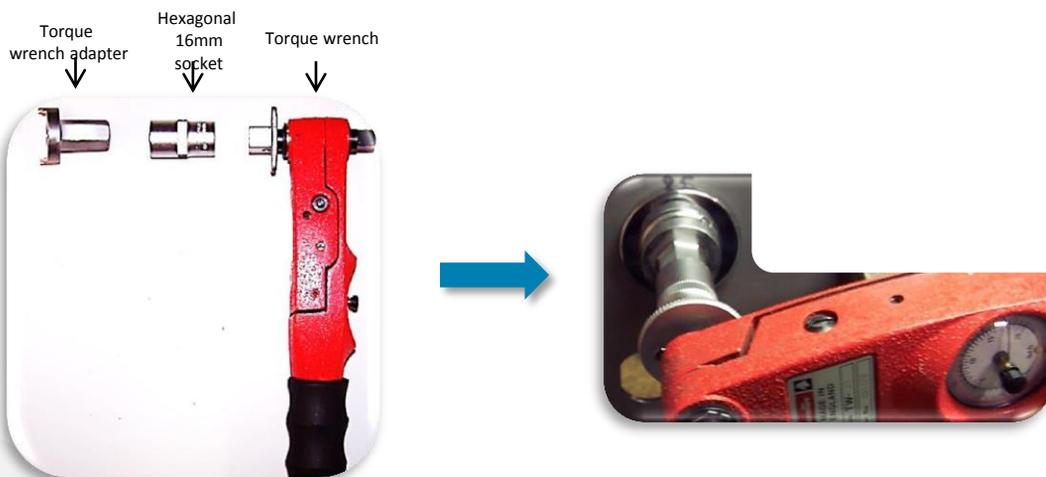
## Installation and maintenance



### Fixing of CFA or CL switches

**Step 2 :** (We recommend to realize this step if the products can be subject to vibrations/seismic stresses. In other cases this step is facultative but recommended).

With a calibrated torque wrench and , the torque wrench adapter (reference : 1SNA910704T0600), complete the tightening by applying a torque of 22 N.m.



### Step 3 :

Set up the handle and screw it on the command axe. We recommend to screw the handle with a torque screwdriver by applying a torque of 0,6 N.m.



CFA handle



CL handle

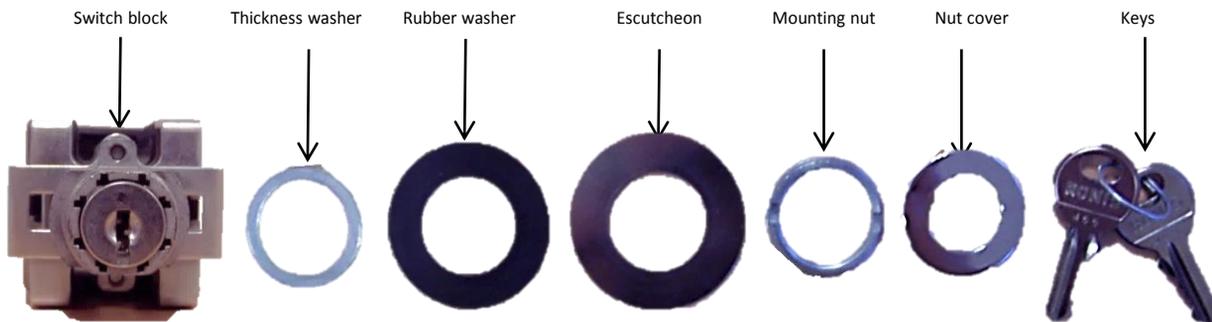
## Installation and maintenance



### Fixing of CR or CPR switches

#### Step 0 (preparation) :

Separate all the components of the front part of the switch as presented below.  
(The product illustrated below is a CR key switch, for a CPR key switch, the barrel (so the drilling) is different but the fixing principle is identical)



#### Step 1 :

Position the switch at the rear of the panel (Thickness washer at the rear of the panel) by respecting the orientation\* and take care of the right alignment with the drill hole. Set up the rubber washer and the escutcheon plate behind the mounting nut. Tighten the switch with the mounting wrench (reference : 1SNA317146R2700 for CR switch and reference : 1SNA317147R2000 for CPR switch) and take care of the right adjustment of its position and the position of escutcheon plate.



\* Normal orientation of the switch:

View from the back of the switch, the contacts located at the right have odd marks and the contacts located at the left have even marks.



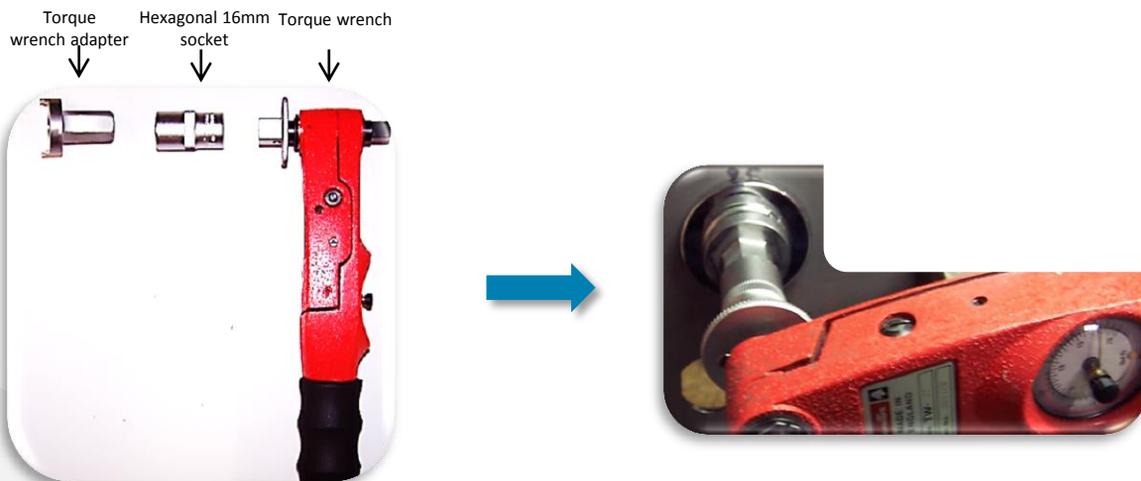
## Installation and maintenance

### Fixing of CR or CPR switches



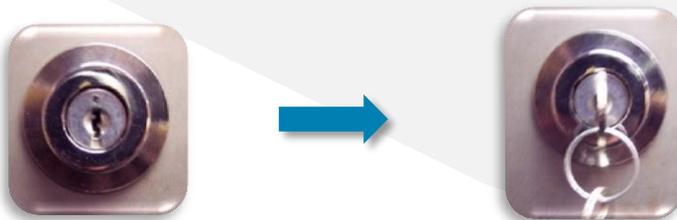
**Step 2 :** (We recommend to realize this step if the products can be subject to vibrations/seismic stresses. In other cases this step is facultative but recommended).

With a calibrated torque wrench and , the torque wrench adapter (reference : 1SNA910705T0700 for CR switch and référence 1SNA910704T0600 for CPR switch), complete the tightening by applying a torque of 12,5 N.m for CR switch or 22 N.m for CPR switch)



### Step 3 :

Set up the nut cover and the command key.



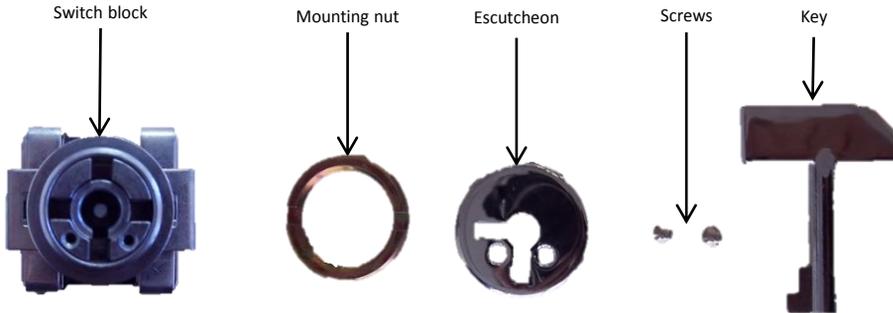
## Installation and maintenance

### Fixing of CMC switches



#### Step 0 (preparation) :

Separate all the components of the front part of the switch as presented below.



#### Step 1 :

Position the switch at the rear of the panel by respecting the orientation\* and take care of the right alignment with the drill hole. Set up the mounting nut. Tighten the switch with the mounting wrench (reference : 1SNA318356R1200) and take care of the right adjustment of its position .



\* Normal orientation of the switch:

View from the back of the switch, the contacts located at the right have odd marks and the contacts located at the left have even marks.



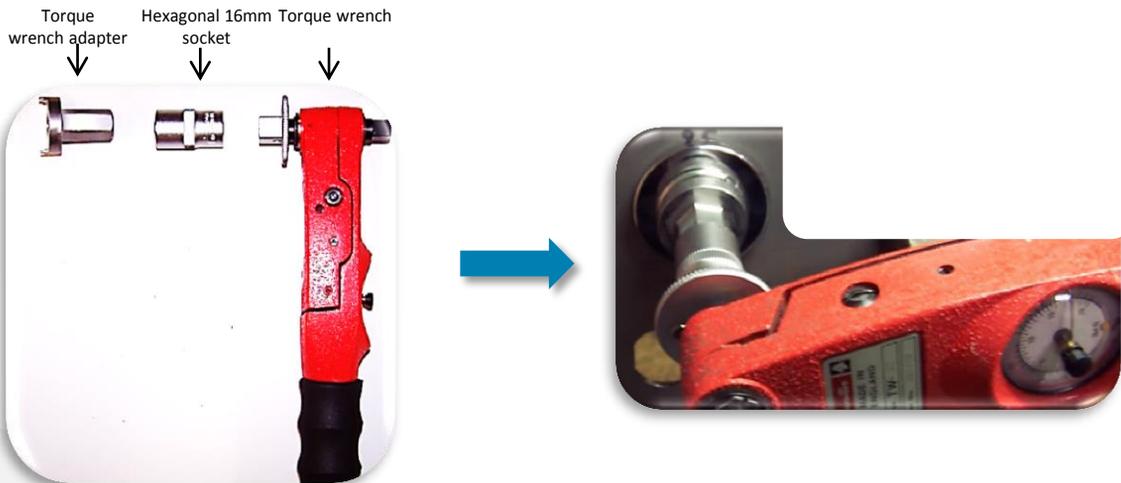
## Installation and maintenance



### Fixing of CMC switches

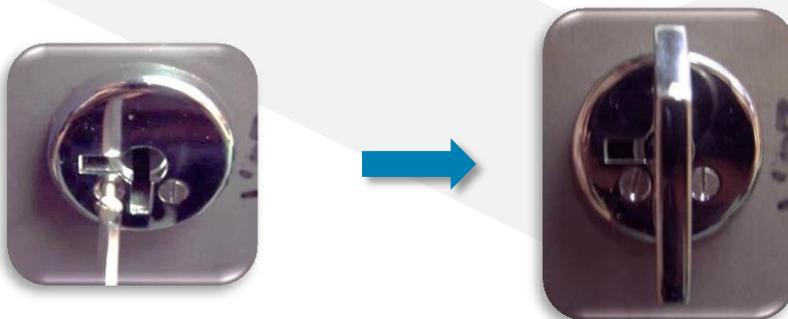
**Step 2 :** (We recommend to realize this step if the products can be subject to vibrations/seismic stresses. In other cases this step is facultative but recommended).

With a calibrated torque wrench and , the torque wrench adapter (reference : 1SNA910711T2400), complete the tightening by applying a torque of 22 N.m.



### Step 3 :

Set up the escutcheon plate and screw it on the front block. Set up the command key.



## Installation and maintenance

### Wiring of type C switches



The standard wiring of these switches is realized with M3 screw and clamp.  
The maximal section of cable is 2,5mm<sup>2</sup>.

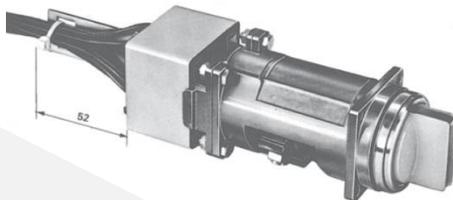
A common practice is to set a fork terminal for M3 screw, 6,35mm large, on the cable. Insert it under the clamp and screw it. We recommend a tightening torque of 0,6 N.m /!\ Do not exceed 0,8 N.m : an excess of torque can cause the rotation of the fixed contact and consequently a bad continuity of the circuit.

We recommend to use a screwdriver flat tip Ø 4 in 5 mm.

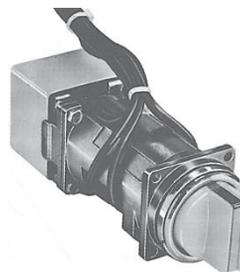
*(Control periodically the torque and if needed tighten slightly)*

The cables can be wire with a rear cable outlet or a front wire outlet. In case of rear cable outlet, the product is equipped with a rear plate cutted (option PD : included in standard). The switch can also be equipped with a cable panel (option ST) in order to attach the cable with a collar.

Rear cable outlet



Front wire outlet



*\*Pictures above are from TPL switches. The principle of wiring is identical on non illuminated handle and key switches.*

### Maintenance of type C switches

No special cleaning is required.

Never use solvents, acids or any chemicals. Do not use sandpaper or other metal abrasive.

For the protection and maintenance of contacts, make sure that the protective cover is correctly installed. After a few years of use, remove simply the dust with a vacuum cleaner or a wet fabric. Use only water to moisten slightly the fabric.

For the maintenance of escutcheon plates, handles... use a fabric slightly moistened with a mixture of water and alcohol (type cleaning glasses)