

arteche

Sockets and accessories for auxiliary relays

User manual





651.601.437

Rev: 1.5

Int. Ref.: 10

Date: 09/08/2017

© Arteche

This document, including texts, photos, graphics and any other content, is protected from unauthorized use under international copyright law. Any unauthorized copying, downloading, republication, or other use of the referenced material, without the prior written authorization of ARTECHE is strictly prohibited.

The information in this document is subject to change without notice and should not be considered as a commitment by ARTECHE.

Chapter 1. Purpose	4
Chapter 2. Acceptance and storage	4
Chapter 3. Type description	4
3.1. Sockets / Relays overview table	5
3.2. OP socket with front screw or faston connections (IP20)	6
3.3. OP socket with front screw or faston connections (IP10)	7
3.4. OP socket with spring type front connections (IP20)	8
3.5. OP socket with rear screw or faston connections (IP10)	9
3.6. OP socket with rear flush mounting screw or faston.....	11
3.7. “No OP” sockets	13
3.7.1. Not available sockets (bases already provided).....	13
3.7.2. Available sockets.....	14
Chapter 4. Installation.....	15
4.1. Sockets installation on DIN rails.....	15
4.2. Spacing between sockets	16
4.2.1. For OP relays (contactors and impulse relays included)	16
4.2.2. For latching relays (No OP)	18
4.2.3. Drawings	19
4.3. Installation I size relay in a flush mounting socket.....	20
4.3.1. Relay positioning.....	20
4.3.2. Relay connection.....	20
4.3.3. Cover fixation	21
4.3.4. Cable connections.....	21
4.4. Correspondences	22
Chapter 5. Retaining clips	23
5.1. Plastic retaining clip E0.....	25
5.2. Metallic retaining clip.....	26
5.2.1. Metallic retaining clip front socket.....	26
5.2.2. Metallic retaining clip rear socket.....	28
Chapter 6. Security pins	30
6.1. Keying Sample.....	32
Chapter 7. Tests	35

Chapter 1. Purpose

The purpose of this user manual is to help the user to define, fit and use the sockets for ARTECHE auxiliary relays.

Chapter 2. Acceptance and storage

The sockets have been dispatched in boxes with packaging that guarantees their protection during normal handling for this type of equipment.

If they are not to be installed immediately, it is recommended that they remain in their packaging, perfectly closed and in interior environmental conditions away from pollution, rain, dust, vibration, etc.

If the packaging has been damaged or there is doubt over breakage due to incorrect handling during transport, this must be reported quickly (less than three days) to the carrier, to the relevant insurance company and to the factory.

Also check that the material received matches the data on the order.

Chapter 3. Type description

The sockets are classified according to 4 criteria:

- Size of relay (D, F, J, I)
- Installation type (DIN rail or front connection, rear and flush mounting)
- Type of connections (screw, faston, double faston and spring type)
- Degree of protection (IP 10, IP 20)

There are currently two families of sockets, those for the updated design developed by ARTECHE in 2005 and 2006, called "OP" from now on and sockets for the previous design, called "NO OP."

The following tables show the OP and NO OP sockets in the ARTECHE range classified according to the four criteria described above.

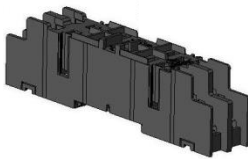
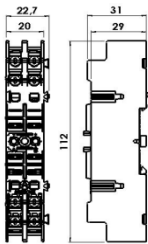
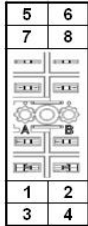
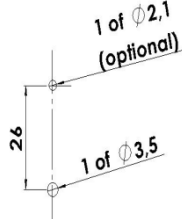
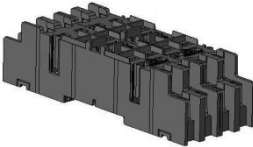
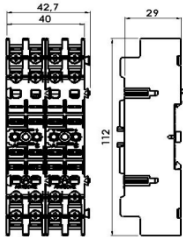
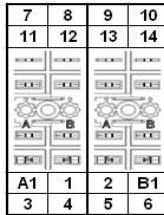
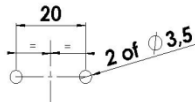
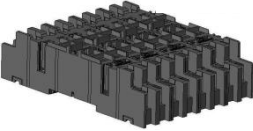
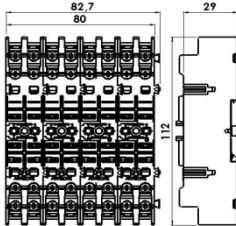
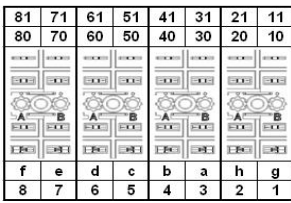
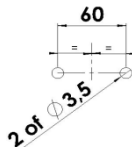
For bases mounted on DIN rails with front connections, there are two options according to the degree of protection for the terminals, called IP 10 and IP 20.






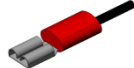
For the spring type Sockets and for rear or imbedded connection, the Degree of Protection is fixed.

3.1. Sockets / Relays overview table

SOCKETS / RELAYS OVERVIEW TABLE						
BASE TYPE	SIZE	IP10	IP20	IP30	IP40	ASSOCIATED RELAYS
REAR	D	DN-TR-OP DN-TR2C-OP				RD-OP CD
	F	F-TR-OP F-TR2C-OP				RF-OP BF TDF-OP CF VDF10-OP RBF RUT
	J	J-TR-OP J-TR2C-OP				RJ-OP RJS4-OP TDJ-OP BJ VDJ30-OP CJ
	I	I-TR-OP I-TR2C-OP				RI BI
FRONT	D	DN-DE-IP10 DN-DE2C-IP10	DN-DE-IP20 DN-DE2C-IP20			RD-OP CD
	F	FN-DE-IP10 FN-DE2C-IP10	FN-DE-IP20 FN-DE2C-IP20 F-DE-CL-IP20			RF-OP BF TDF-OP CF VDF-OP RBF RUT
	J	JN-DE-IP10 JN-DE2C-IP10	JN-DE-IP20 JN-DE2C-IP20			RJ-OP RJS4-OP TDJ-OP BJ VDJ-OP CJ
	I					
FLUSH MOUNTING	D					
	F			F-EMP-TR-BF4RP-OP		BF4RP
				F-EMP-TR-SHORT-RF-OPXXX1X		RF4-OPXXX1X
					F-EMP-TR2C-OP F-EMP-TR-OP F-EMP-TR-SHORT-OP	TDF-OP VDF10-OP RUT RBF BF RF-OP CF
	J			J-EMP-TR-BJ8RP-OP		BJ8RP
				J-EMP-TR-RJS4-OP		RJS4-OP
				J-EMP-TR-SHORT-RJ-OPXXX1X		RJ8-OPXXX1X
	I				J-EMP-TR-OP	TDJ-OP BJ VDJ30-OP CJ
					J-EMP-TR-SHORT-OP	RJ
			I-EMP-TR-OP I-EMP-TR-BI16RPOP			BI RI BI16RP

3.2. OP socket with front screw or faston connections (IP20)

SOCKET	DIMENSIONS	INTERNAL CONNECTIONS (Top view)	FIX DRILLING	RELAYS
 DN-DE-IP20 DN-DE2C-IP20 (*)				RD OP CD
 FN-DE-IP20 FN-DE2C IP20 (*)				RF OP TDF OP VDF10 OP BF CF RBF RUT
 JN-DE-IP20 JN-DE2C IP20 (*)				RJ OP TDJ OP VDJS0 OP RJS4 OP BJ CJ

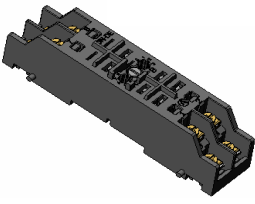
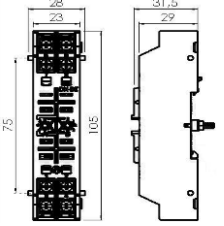
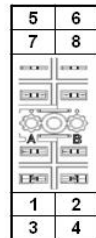
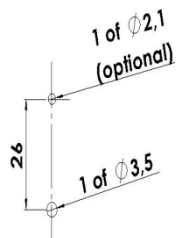
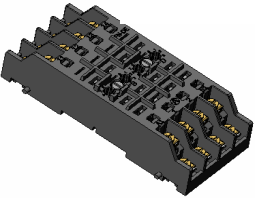
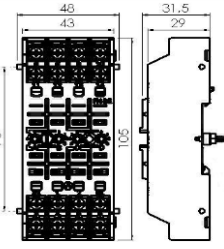
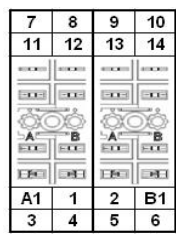
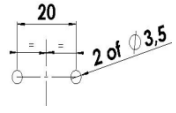

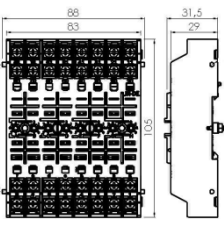
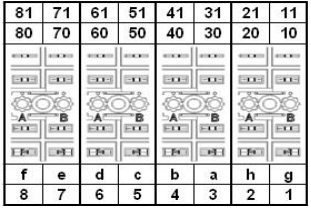
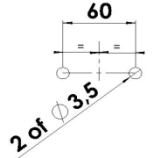
TERMINAL			
TYPE		MAX. WIRE SECTION	QUANTITY
FORK TERMINAL		2,5 mm ²	1
LOCKING TERMINAL		2,5 mm ²	1
CABLE PIN TERMINAL		2,5 mm ²	1
BLADE TERMINAL		2,5 mm ²	1
WIRE		0,2 – 2,5 mm ²	2
DOUBLE FASTON 4,8 x 0,5 (*)		2,5 mm ²	2

(*) The double faston terminal can be used only in models marked with an asterisk.

Recommended torque for screwed sockets:

Connection type	Recommended tightening torque	Screwdriver type
Screw	1Nm	Philips
		Pozi
		Flat

3.3. OP socket with front screw or faston connections (IP10)

SOCKET	DIMENSIONS	INTERNAL CONNECTIOS (Top view)	FIX DRILLING	RELAYS
 DN-DE IP10 DN-DE2C IP10 (*)				RD OP CD
 FN-DE IP10 FN-DE2C IP10 (*)				RF OP TDF OP VDF10 OP BF CF RBF RUT
 JN-DE IP10 JN-DE2C IP10 (*)				RJ OP TDJ OP VDJ30 OP RJS4 OP BJ CJ

TERMINAL			
TYPE		MAX. WIRE SECTION	QUANTITY
ROUND TERMINAL		2,5 mm ²	2
FORK TERMINAL		6,0 mm ²	2
LOCKING TERMINAL		2,5 mm ²	2
CABLE PIN TERMINAL		2,5 mm ²	2
BLADE TERMINAL		2,5 mm ²	2
WIRE		0,2 – 4,0 mm ²	2
DOUBLE FASTON 6,35 x 0,8 (*)		2,5 mm ²	2

(*)The double faston terminal can be used only in models marked with an asterisk.

Recommended torque for screwed sockets:

Connection type	Recommended tightening torque	Screwdriver type
Screw	1Nm	Philips
		Pozi
		Flat

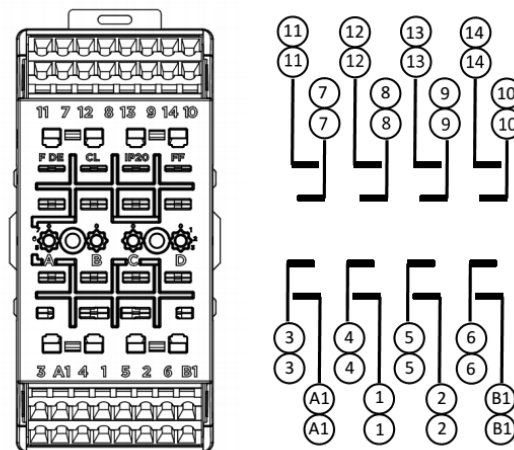
3.4. OP socket with spring type front connections (IP20)

SOCKET	DIMENSIONS	INTERNAL CONNECTIOS (Top view)	FIX DRILLING	RELAYS
<p>F DE CL IP20</p>				RF OP TDF OP VDF10 OP BF CF RBF RUT

TERMINAL			
TYPE		MAX. WIRE SECTION.	QUANTITY
RIGID (Stripped wire length: 5 – 6mm)		0,08 - 2,5mm ²	1+1
FLEXIBLE (Stripped wire length: 5 – 6mm)		0,08 - 2,5mm ²	1+1
TIP ISOLATE TERMINAL		0,25 - 1,5mm ²	1+1
TIP WITHOUT ISOLATE TERMINAL		0,25 - 2,5mm ²	1+1


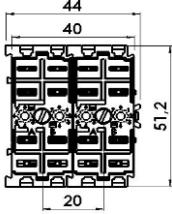
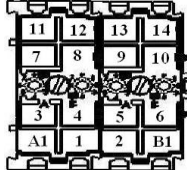
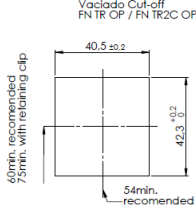

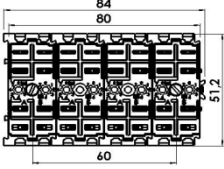

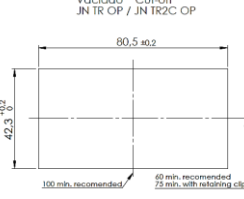
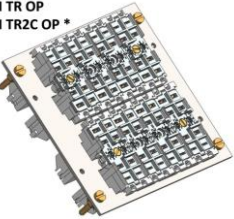
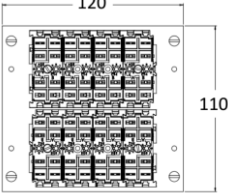
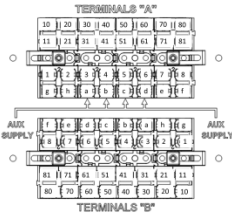
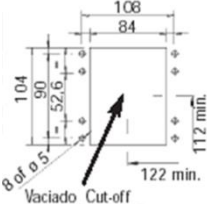
(Recommended tool by spring type connector supplier: flat screwdriver 0,4 x 3,5mm maximum)






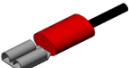
ELECTRICAL CONNECTIONS (2 holes on the terminal block for each connection):



3.5. OP socket with rear screw or faston connections (IP10)

SOCKET	DIMENSIONS	INTERNAL CONNECTIONS (Top view)	FIX DRILLING	IP	RELAYS
<p>DN-TR OP DN-TR2C OP *</p>	<p>24, 20, 43, 51,2, 42</p>		<p>Vaciado Cut-off DN TR OP / DN TR2C OP</p> <p>20,5 ±0,2 42,3 ±0,2 33min. recommended 60min. recommended 75min. with retaining clip</p>	10	RD OP CD

SOCKET	DIMENSIONS	INTERNAL CONNECTIONS (Top view)	FIX DRILLING	IP	RELAYS
F-TR OP F-TR2C OP * 				10	RF OP TDF OP VDF10 OP BF CF RBF RUT
J-TR OP J-TR2C OP * 				10	RJ OP TDJ OP VD30 OP RJS4 OP BJ CJ
I TR OP I TR2C OP * 				10	RI BI

TERMINAL			
TYPE		MAX. WIRE SECTION.	QUANTITY
FORK TERMINAL		2,5 mm ²	1
LOCKING TERMINAL		2,5 mm ²	2
CABLE PIN TERMINAL		2,5 mm ²	2
BLADE TERMINAL		2,5 mm ²	2
WIRE		0,2 – 2,5 mm ²	2
DOUBLE FASTON 4,8 x 0,5 (*)		2,5 mm ²	2

(*)The double faston terminal can be used only in models marked with an asterisk.

Recommended torque for screwed sockets:






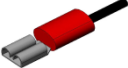
Connection type	Recommended tightening torque	Screwdriver type
Screw	1Nm	Philips
		Pozi
		Flat

3.6. OP socket with rear flush mounting screw or faston

SOCKET	DIMENSIONS	INTERNAL CONNECTIONS (Top view)	FIX DRILLING	IP	RELAYS										
<p>F EMP TR OP F EMP TR BF4RP OP F EMP TR CORTA OP F EMP TR CORTA RF OPXXX1X F EMP TR2C OP (*)</p>	<p>12,80 12,50 A 10</p> <table border="1"> <tr><td>F EMP TR OP</td><td>124mm</td></tr> <tr><td>F EMP TR BF4RP OP</td><td>101,5mm</td></tr> <tr><td>F EMP TR CORTA OP</td><td>101,5mm</td></tr> <tr><td>F EMP TR CORTA RF OPXXX1X</td><td>101,5mm</td></tr> </table>	F EMP TR OP	124mm	F EMP TR BF4RP OP	101,5mm	F EMP TR CORTA OP	101,5mm	F EMP TR CORTA RF OPXXX1X	101,5mm	<p>11 12 13 14 7 8 9 10 3 4 5 6 A1 I 2 B1</p>	<p>61 50 4 X Ø A,50 66 57 R2 80 MÍNIMO 90 MÍNIMO</p>	(**)	<p>F EMP TR OP, F EMP TR2C OP: TDF OP VDF10 OP RBF RF RUT F EMP TR BF4RP OP BF4RP F EMP TR CORTA OP: RF OP CF F EMP TR CORTA RF OPXXX1X RF4 OPXXX1X</p>		
F EMP TR OP	124mm														
F EMP TR BF4RP OP	101,5mm														
F EMP TR CORTA OP	101,5mm														
F EMP TR CORTA RF OPXXX1X	101,5mm														
<p>J EMP TR OP J EMP TR RIS4 OP J EMP TR BJ8RP OP J EMP TR CORTA OP J EMP TR CORTA RJ OPXXX1X</p>	<p>12,80 12,50 A 10</p> <table border="1"> <tr><td>J EMP TR OP</td><td>124mm</td></tr> <tr><td>J EMP TR RIS4 OP</td><td>101,5mm</td></tr> <tr><td>J EMP TR BJ8RP OP</td><td>101,5mm</td></tr> <tr><td>J EMP TR CORTA OP</td><td>101,5mm</td></tr> <tr><td>J EMP TR CORTA RJ OPXXX1X</td><td>101,5mm</td></tr> </table>	J EMP TR OP	124mm	J EMP TR RIS4 OP	101,5mm	J EMP TR BJ8RP OP	101,5mm	J EMP TR CORTA OP	101,5mm	J EMP TR CORTA RJ OPXXX1X	101,5mm	<p>80 70 60 50 40 30 20 10 81 71 61 51 41 31 21 11 8 7 6 5 4 3 2 1 f e d c b a h g</p>	<p>106 96 4 X Ø A 66 57 R2 125 MÍNIMO 90 MÍNIMO</p>	(**)	<p>J EMP TR OP: TDJ OP VDJ30 OP BJ CJ J EMP TR RIS4 OP RIS4 OP J EMP TR BJ8RP OP BJ8RP J EMP TR CORTA OP: RJ J EMP TR CORTA RJ OPXXX1X RJ8 OPXXX1X</p>
J EMP TR OP	124mm														
J EMP TR RIS4 OP	101,5mm														
J EMP TR BJ8RP OP	101,5mm														
J EMP TR CORTA OP	101,5mm														
J EMP TR CORTA RJ OPXXX1X	101,5mm														
<p>I EMP TR OP I EMP TR BI16RP OP</p>	<p>18 6 144 4</p>	<p>TERMINALS "A" 10 20 30 40 50 60 70 80 11 21 31 41 51 61 71 81 9 19 29 39 49 59 69 79 89 10 20 30 40 50 60 70 80 11 21 31 41 51 61 71 81 9 19 29 39 49 59 69 79 89 TERMINALS "B"</p>	<p>R6 max 134 4x Ø6 100 124 143</p>	(**)	<p>I EMP TR OP BI RI I EMP TR BI16RP OP BI16RP</p>										

(**) Protection degree of the OP flush mounting socket with the panel installation:

- F EMP TR OP, F EMP TR2C OP, F EMP TR SHORT OP, J EMP TR OP, J EMP TR OP and J EMP TR SHORT OP: IP40
- F EMP TR BF4RP OP, F EMP TR SHORT RF OPXXX1X, J EMP TR RJS4 OP, J EMP TR BJ8RP OP and J EMP TR SHORT RJ OPXXX1X: IP30
- I EMP TR OP and I EMP TR BI16RP OP: IP20

TERMINAL			
TYPE		MAX. WIRE SECTION.	QUANTITY
FORK TERMINAL		2,5 mm ²	1
LOCKING TERMINAL		2,5 mm ²	2
CABLE PIN TERMINAL		2,5 mm ²	2
BLADE TERMINAL		2,5 mm ²	2
WIRE		0,2 – 2,5 mm ²	2
DOUBLE FASTON 4,8 x 0,5 (*)		2,5 mm ²	2

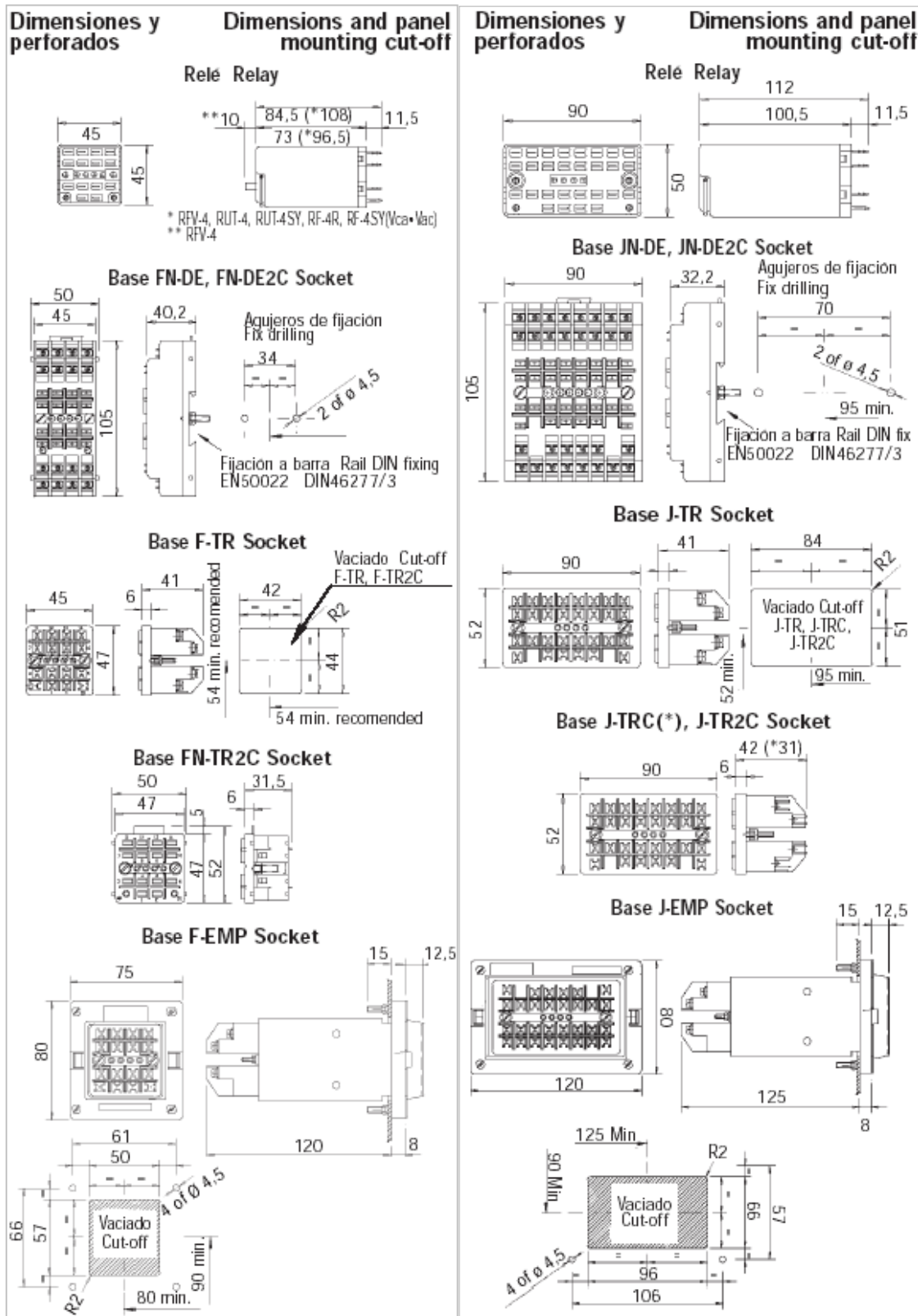
(*)The double faston terminal can be used only in models marked with an asterisk.

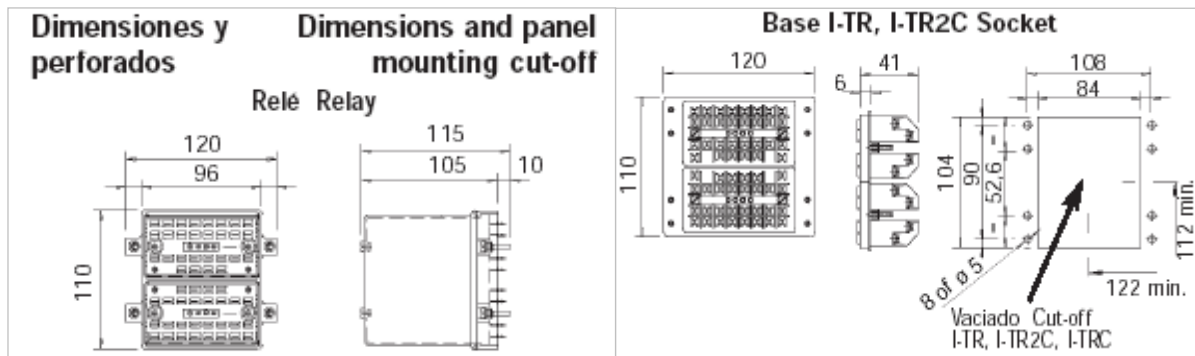
Recommended torque for screwed sockets:

Connection type	Recommended tightening torque	Screwdriver type
Screw	1Nm	Philips
		Pozi
		Flat

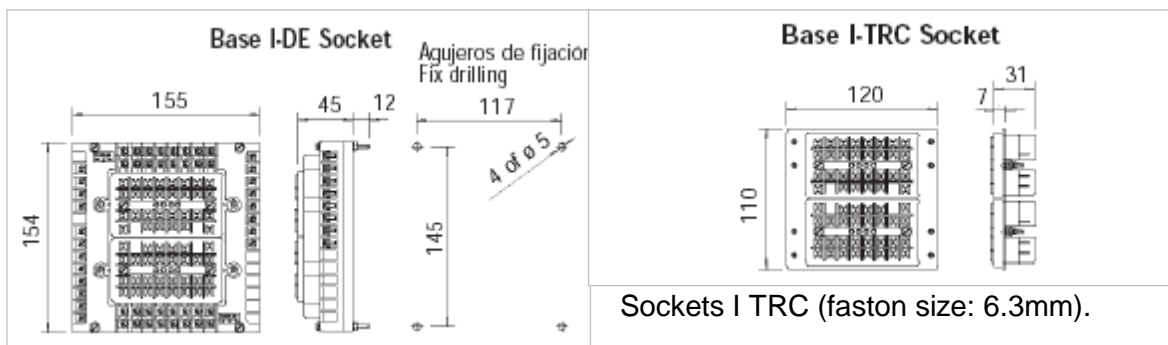
3.7. “No OP” sockets

3.7.1. Not available sockets (bases already provided)





3.7.2. Available sockets



Chapter 4. Installation

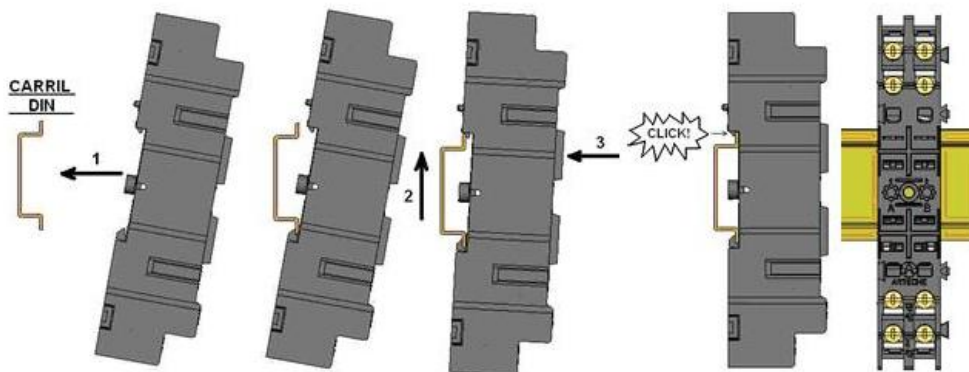
The previous section defined both the sizes of the various types of sockets and the cut-outs for rear and flush mounting sockets and the spacing between fixing holes.

The following gives a series of recommendations for installing the sockets in panels or cabinets.

4.1. Sockets installation on DIN rails

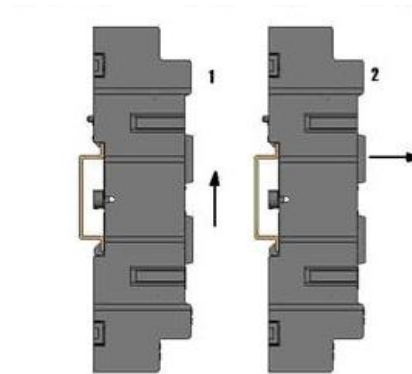
The front sockets are easily mounted on DIN rails, as follows:

1. Insert the lower tabs on the socket on the lower part of the DIN rail as shown in figure below.
2. Fully fit the socket on the lower part of the DIN rail and press lightly and horizontally so that the socket is fixed to the rail by the upper tabs on its rear.



To remove a front socket from a DIN rail:

1. Fully fit the socket on the lower part of the DIN rail as shown in figure below.
2. Pull the socket lightly outwards to remove it from the DIN rail.



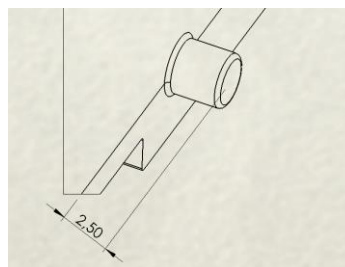
4.2. Spacing between sockets

The following section gives the minimum recommended distances between sockets (horizontally arranged) for the correct installation of ARTECHE relays, to allow their installation and removal avoiding harmful overheating that could damage the relays.

In the case the sockets are arranged vertically, to avoid heating, the distances between sockets and relays will be approximately three times the indicated below.

4.2.1. For OP relays (contactors and impulse relays included)

- On IP10 front connection sockets and spring type IP20 sockets, the width of the socket is similar to the width of the relays. The sockets include 2,50mm distancing bars located at the lateral side of each socket, which guarantee a minimum distance of 5mm when installing two sockets together.



- In IP20 front connection sockets and rear connection sockets, the width of the sockets is smaller than the width of the relays. The relays are, in their three sizes D, F and J, 2,50mm wider than their corresponding socket. Therefore, when installing these sockets, it is necessary to take into account not only the minimum distance of 5 mm between the relays, but also the 1,25mm the relay protrudes from the socket on each side. That means the minimum distance between sockets must be 7,50mm. In

this case there is no external element which guarantees this distance, so it must be taken into account by the installer.

(mm)	Relay width	Socket width
D	22,50	20
F	42,50	40
J	82,50	80

The distances (mm) between sockets for OP relays are:

Relay size	Front connection sockets		Rear connection sockets
	DE IP10 and DE CL IP20 (guaranteed with distancing bars on the socket)	DE IP20	TR
D	5	7,50	7,50
F	5	7,50	7,50
J	5	7,50	7,50

If metallic retaining clips are used, in order to make easier the assembly and disassembly of the sockets, the distances (mm) between them will be as follows:

Relay size	Front connection sockets			Rear connection sockets
	IP10	IP20	CL IP20	TR
D	8	10	-	10
F	8	10	8	10
J	8	10	-	10

NOTE: In case of using spring type retaining clip (no OP relays), the retaining clip must be mounted on the socket before it is installed.

4.2.2. For latching relays (No OP)

→ In latching relays the width of the relays is bigger than the width of the sockets. Therefore the distance between sockets will be calculated taking into account the width difference between relays and sockets.

Relay size	Width (mm)	DE IP10 socket	CL IP20 socket	DE IP20 socket	TR socket
F	Socket	43	45	40	40
	Relay	45	45	45	45
J	Socket	83	-	80	80
	Relay	90	90	90	90

The minimum distance of 5mm is in this case not necessary, as these relays do not have permanent consumption. Only 1,5mm will be added on each side of the relay to ease plug and unplug. The distances are (mm):

Relay size	Front connection sockets			Rear connection sockets
	IP10	IP20	CL IP20	TR
F	5	8	3	8
J	10	13	-	13

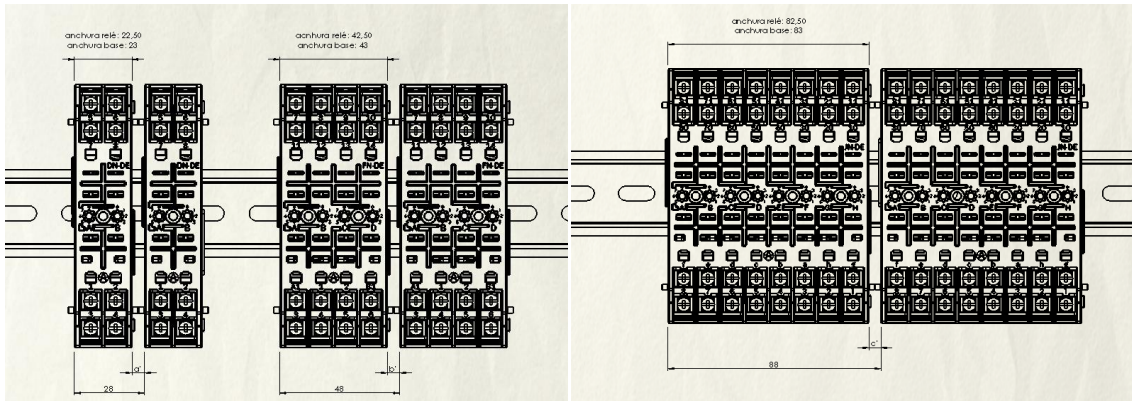
→ In case of using spring type retaining clips, to ease plug and unplug of the sockets, the distance (mm) between them will be as follows:

Relay size	Front connection sockets			Rear connection sockets
	IP10	IP20	CL IP20	TR
F	11	14	9	14
J	15	18	-	18

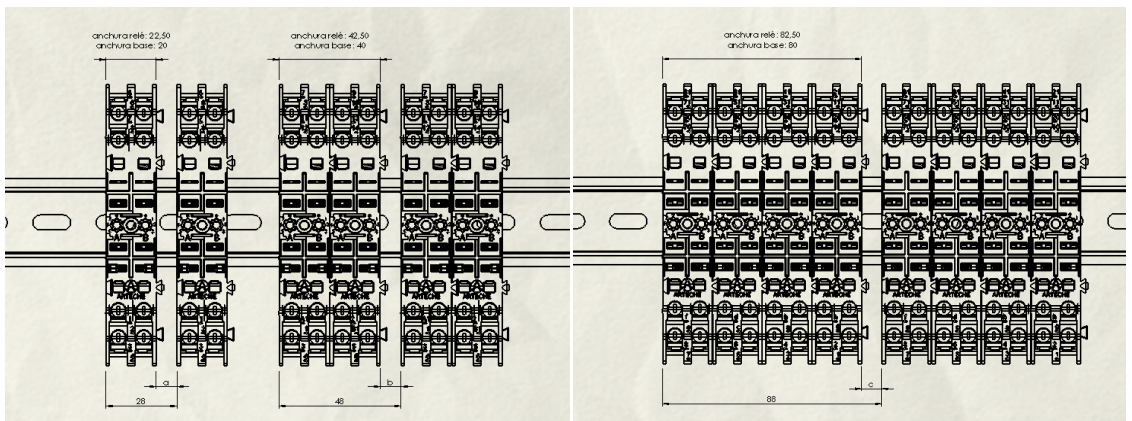
NOTE: In case of using spring type retaining clip (no OP relays), the retaining clip must be mounted on the socket before it is installed.

4.2.3. Drawings

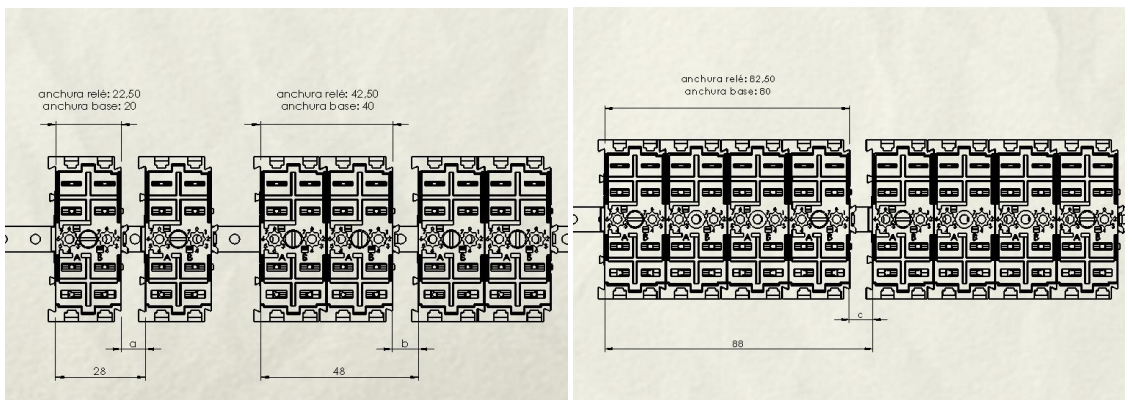
IP10 and CL IP20



IP20

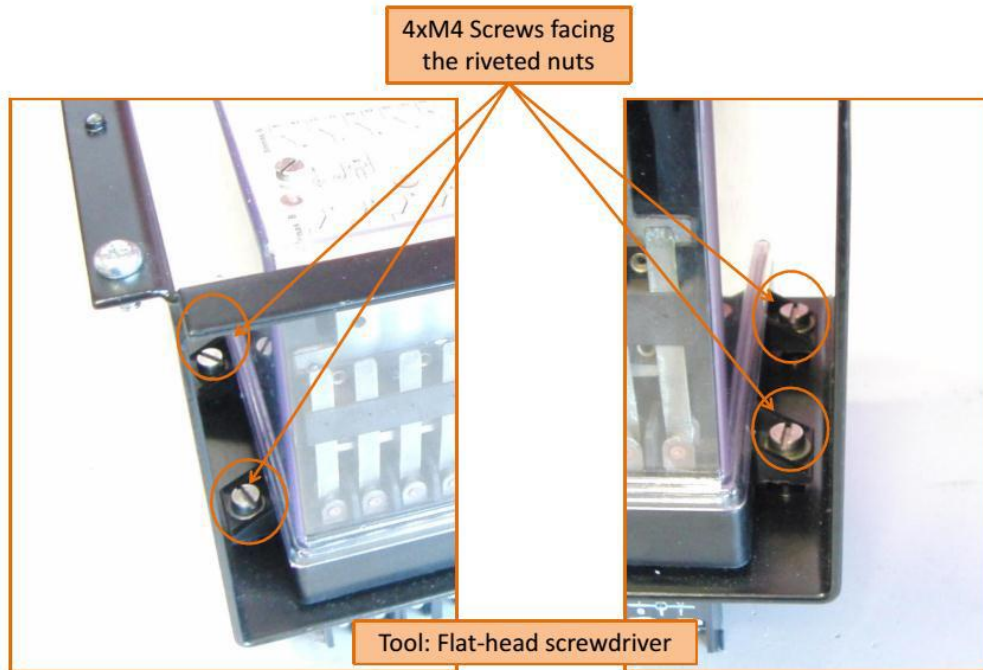


TR

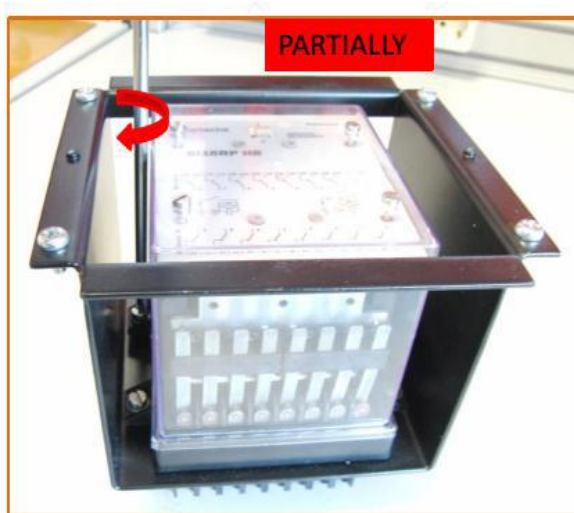


4.3. Installation I size relay in a flush mounting socket

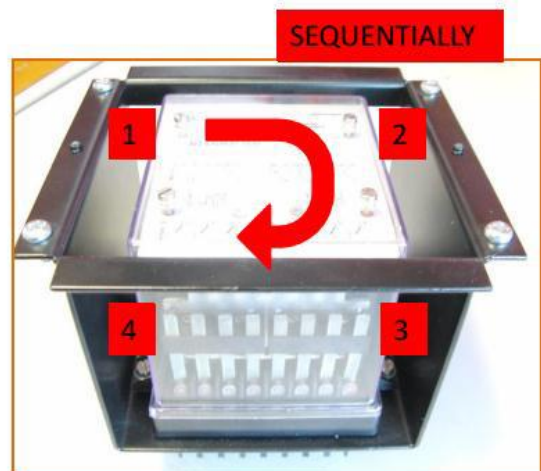
4.3.1. Relay positioning



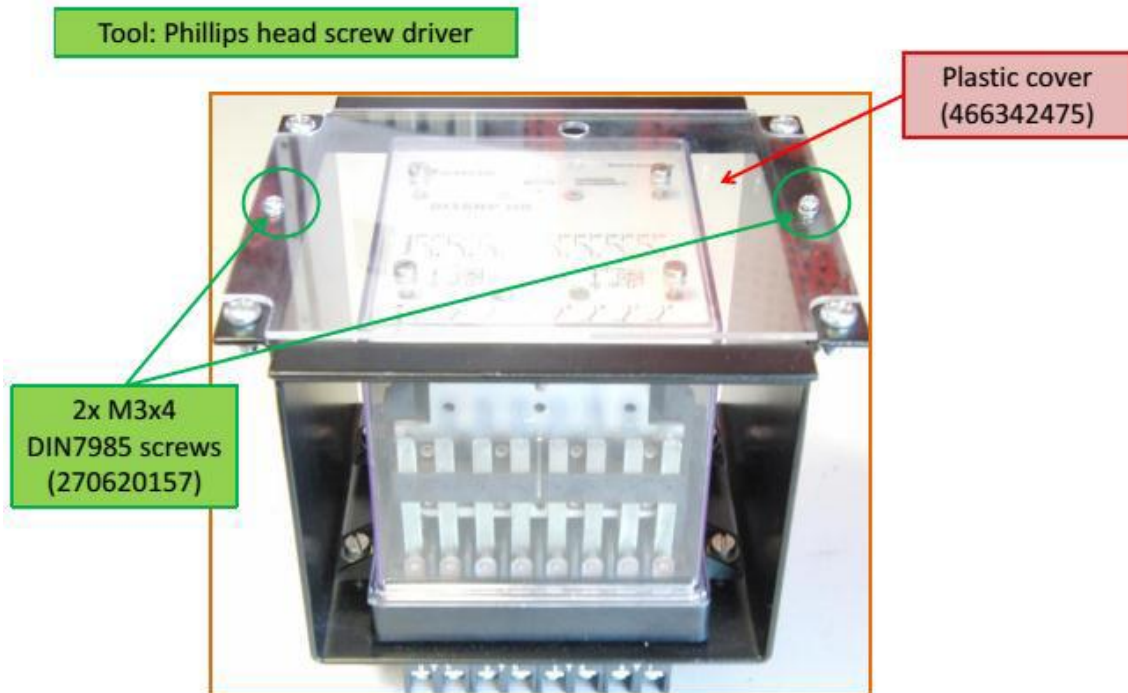
4.3.2. Relay connection



4 screws to be fastened sequentially and partially, connecting the relay little by little

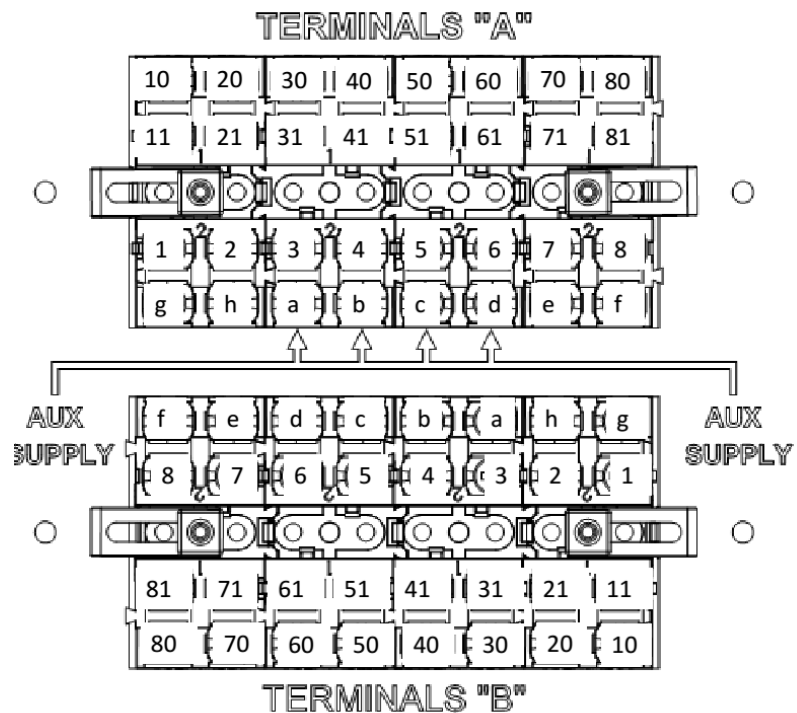


4.3.3. Cover fixation



4.3.4. Cable connections

(Information provided printed on each socket)



4.4. Correspondences

Relation between relay size, socket type and socket application

Size of relay		Installation Type	Type of Connection	Degree of protection	Energy	Railway
D	short/large	DIN Rail or front connection	Screw	IP10	DN DE IP10	DN DE IP10 FF
D	short/large	DIN Rail or front connection	Screw	IP20	DN DE IP20	DN DE IP20 FF
D	short/large	DIN Rail or front connection	Double faston	IP10	DN DE2C IP10	DN DE2C IP10 FF
D	short/large	DIN Rail or front connection	Double faston	IP20	DN DE2C IP20	DN DE2C IP20 FF
D	short/large	Rear connection	Screw	IP10	DN TR OP	DN TR OP FF
D	short/large	Rear connection	Double faston	IP10	DN TR2C OP	DN TR2C OP FF
F	short/large	DIN Rail or front connection	Screw	IP10	FN DE IP10	FN DE IP10 FF
F	short/large	DIN Rail or front connection	Screw	IP20	FN DE IP20	FN DE IP20 FF
F	short/large	DIN Rail or front connection	Double faston	IP10	FN DE2C IP10	FN DE2C IP10 FF
F	short/large	DIN Rail or front connection	Double faston	IP20	FN DE2C IP20	FN DE2C IP20 FF
F	short/large	Rear connection	Screw	IP10	FN TR OP	FN TR OP FF
F	short/large	Rear connection	Double faston	IP10	FN TR2C OP	FN TR2C OP FF
F	short	Flush mounting	Screw	IP40	F EMP TR SHORT OP	**
F	large	Flush mounting	Screw	IP40	F EMP TR OP	**
F	large	Flush mounting	Screw	IP30	F EMP TR BF4RP OP	**
F	short (only for RF OP relays with trip flag)	Flush mounting	Screw	IP30	F EMP TR SHORT RF*OP.XXX1X OP	**
F	large	Flush mounting	Double faston	IP40	F EMP TR2C OP	**
F	short/large	DIN Rail or front connection	Spring	IP20	-	F DE CL IP20 FF
J	short/large	DIN Rail or front connection	Screw	IP10	JN DE IP10	JN DE IP10 FF
J	short/large	DIN Rail or front connection	Screw	IP20	JN DE IP20	JN DE IP20 FF
J	short/large	DIN Rail or front connection	Double faston	IP10	JN DE2C IP10	JN DE2C IP10 FF
J	short/large	DIN Rail or front connection	Double faston	IP20	JN DE2C IP20	JN DE2C IP20 FF
J	short/large	Rear connection	Screw	IP10	JN TR OP	JN TR OP FF
J	short/large	Rear connection	Double faston	IP10	JN TR2C OP	JN TR2C OP FF
J	short	Flush mounting	Screw	IP40	J EMP TR SHORT OP	**
J	large	Flush mounting	Screw	IP40	J EMP TR OP	**
J	large	Flush mounting	Screw	IP30	J EMP TR BJ 8RP OP	**
J	short (only for RJ OP relays with trip flag)	Flush mounting	Screw	IP30	J EMP TR SHORT RJ*OP.XXX1X OP	**
J	large	Flush mounting	Screw	IP30	J EMP TR RJS4 OP	**
**)	Check availability of this option					

Chapter 5. Retaining clips

The sockets are designed to ensure the electric continuity. If used in an environment submitted to vibrations or continuous movement, retaining clips must be used.

The ARTECHE relays and sockets can be mounted in any position guarantying their correct performance. If the installation is carried out on a non-vertical surface, the use of the retaining clips and the screwing the socket to surface is recommended.

If retaining clip is needed, their definition will depend on the combination of relay and socket, as follows:

Type	OP Socket	OP Relay
E0	Universal	Universal (RD OP; RF OP; RJ OP; TDF OP; VDF OP; VDJ OP; RJS OP; RUT OP; CD; CF; CJ; RBF)
E40	FN DE IP, F DE CL IP	RF OP, CF
E41	DN DE IP	RD OP, CD
E42	FN TR OP	RF OP, CF
E43	FN DE IP, F DE CL IP	TDF OP; VDF OP; RUT OP, RBF
E44	FN TR OP	TDF OP; VDF OP; RUT OP; RBF
E45	JN DE IP	RJ OP, CJ
E46	JN TR OP	RJ OP, CJ
E47	JN DE IP	TDJ OP; VDJ OP
E48	JN TR OP	TDJ OP; VDJ OP

Type	OP Socket	No OP Relay
E20	FN TR OP	RF except RF4SY of VAC, RF4R, RFV and RUT
E21	FN TR OP	BF; RFV; VDF; TF; TF-FT; RUT; RF4R, RF4SY of VAC
E26	JN TR OP	RJ de VDC (except RJ8R)
E27	JN TR OP	BJ; UJ; IJ; TJ; RJ of VAC, RJ8R
E28	JN DE IP	RJ of VDC (except RJ8R)
E29	JN DE IP	BJ; UJ; IJ; TJ; RJ of VAC, RJ8R
E30	FN DE IP	RF except RF4SY of VAC, RF4R, RFV and RUT
E31	FN DE IP, F DE CL IP	BF; RFV; VDF; TF; TF-FT; RUT; RF4R, RF4SY of VAC

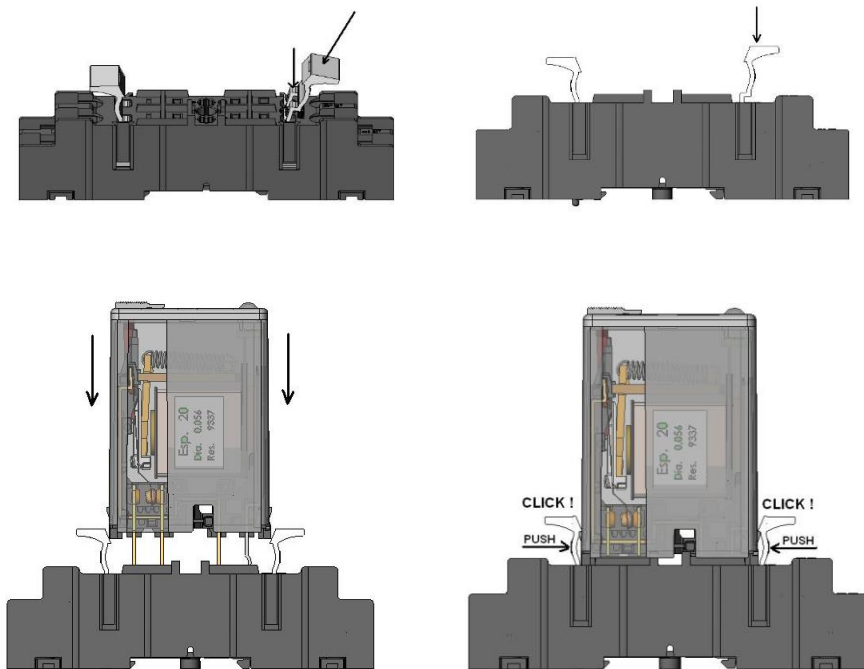
Type	No OP Socket	OP Relay
E22	F TR	RF OP, CF
E23	F TR	VDF OP; TDF OP; RUT OP, RBF
E24	FN DE	RF OP, CF
E25	FN DE	VDF OP; TDF OP; RUT OP, RBF
E32	J-TR	RJ OP, CJ
E33	J-TR	TDJ OP
E34	JN-DE	RJ OP, CJ
E35	JN-DE	TDJ OP

Type	No OP Socket	No OP Relay
E1	FN-DE (front screw connection) FN-DE2C (front double clip connections)	RF (except RF4SY for VAC, RFV and RUT)
E2	FN-DE (front screw connection) FN-DE2C (front double clip connections)	BF, RFV, VDF, TF, TF-FT, TDF RUT, RF4SY for VAC
E4	JN-DE (front screw connection) JN-DE2C (front double clip connections)	RJ for VDC (except RJ8R)
E5	JN-DE (front screw connection) JN-DE2C (front double clip connections)	BJ, UJ, IJ, RJ for VAC, RJ8R
E6	DN-DE (front screw connection)	RD
E7	F-DE (rear screw connection) FN-DE2C (rear double clip connections)	RF except RF4SY for VAC, RJ8R
E8	F-TR (rear screw connection) FN-TR2C (rear double clip connections)	BF, RFV, VDF, TF, TF-FT, TDF RUT, RF4R, RF4SY for VAC
E10	J-TR (rear screw connection) J-TRC (rear screw connection) JN-DE2C (rear double clip connections)	RJ for VDC (except RJ8R)
E11	J-TR (rear screw connection) J-TRC (rear screw connection) J-TR2C (rear double clip connections)	BJ, UJ, IJ, RJ for VAC, RJ8R
E12	D-TR (rear screw connection) DN-TRC(rear clip connections)	RD

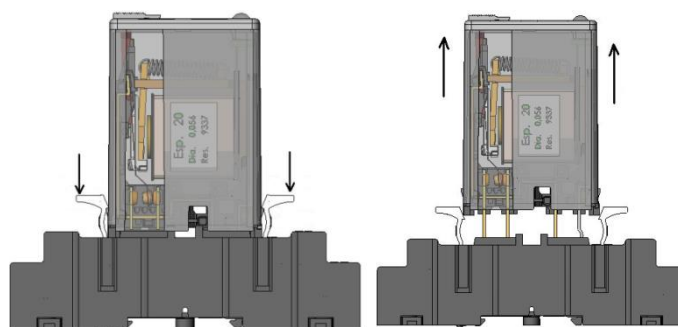
5.1. Plastic retaining clip E0

To fit the E0 universal retaining clip:

- Insert the retaining clips in the housing in the socket as shown in the following figure.
- Fully fit the retaining clip against the socket on the lower part of the DIN rail with a light vertical pressure.
- Insert the relay.
- Press on the retaining clip in the area marked PUSH at right angles to the relay until it clips onto the cover (a click is heard).



To remove the relay, release the retaining clip by pressing lightly on it as shown in the following figure:

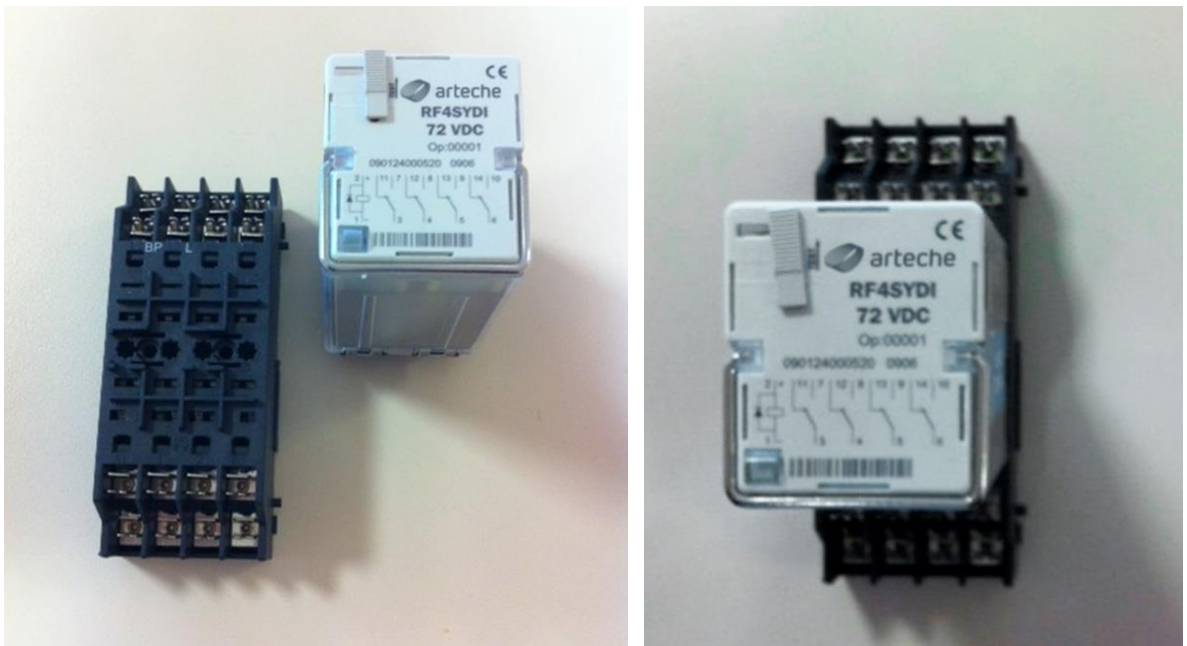


5.2. Metallic retaining clip

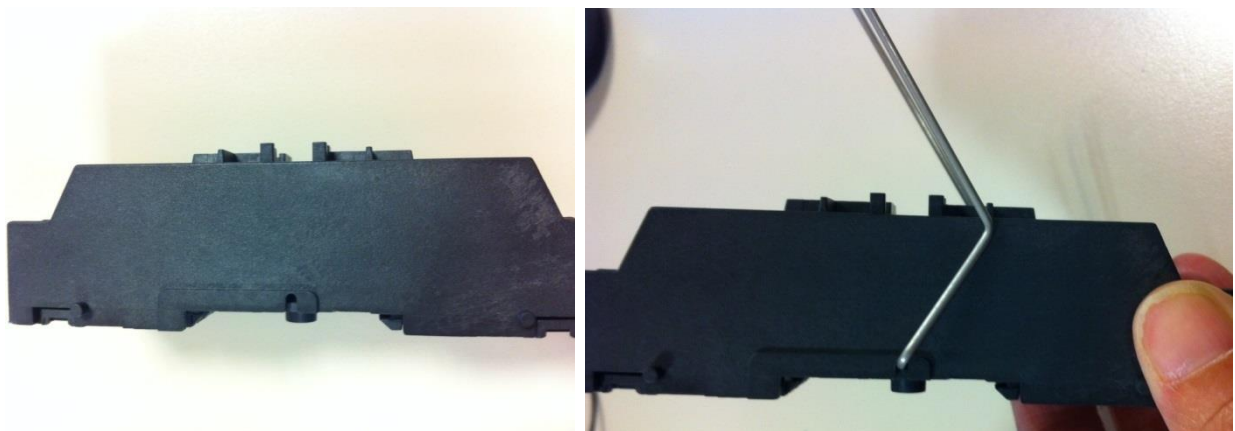
5.2.1. Metallic retaining clip front socket

Next you will find the installation instructions of a Stick Retaining clip to a front socket (Instructions valid to every Arteche model).

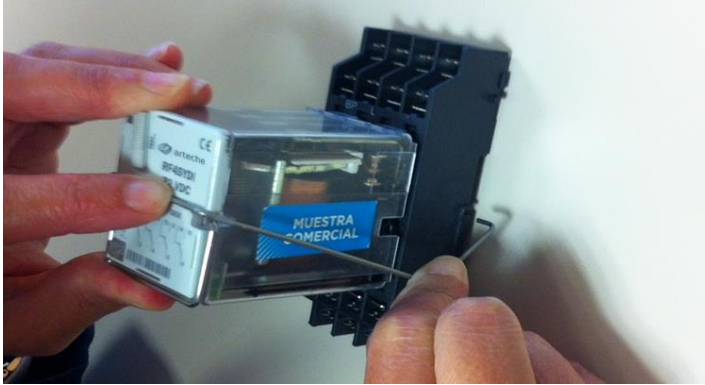
- I. Connect the relay to the base.



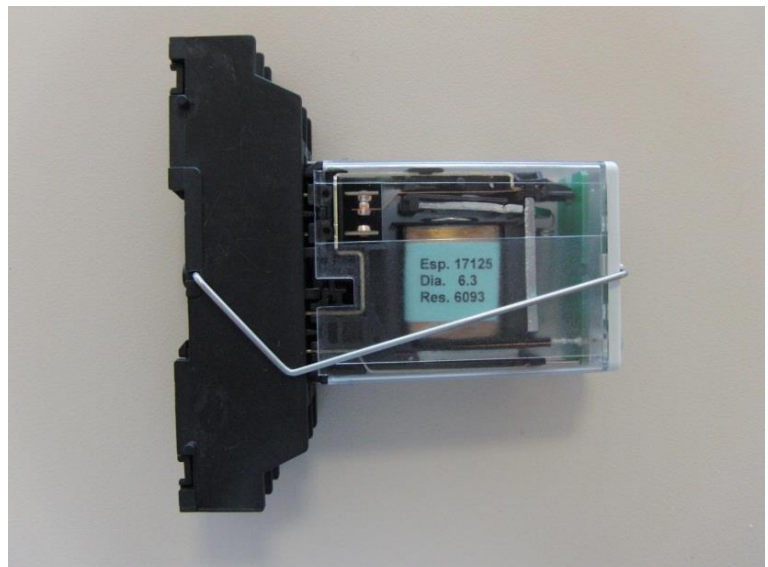
- II. Set the retaining clip to the relays by introducing it in one of the bases's inlet opening.



- III. Slide the clip until it's positioned under the two notches. Then, when the clip is between the notches, insert the clip in the second inlet opening.



- IV. Final installation.



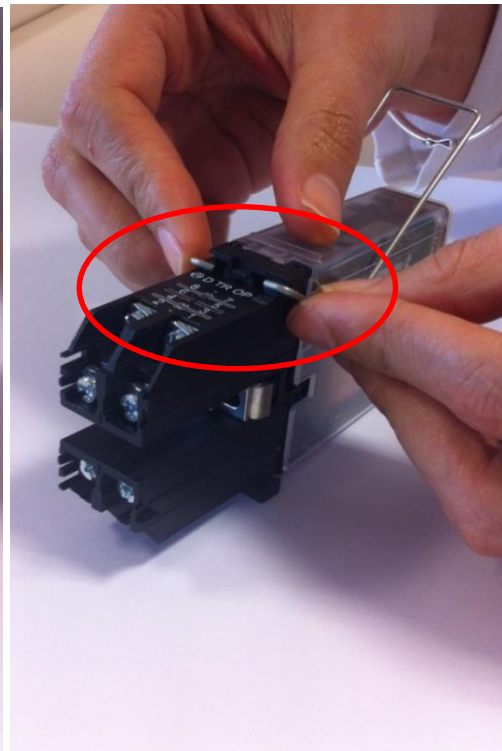
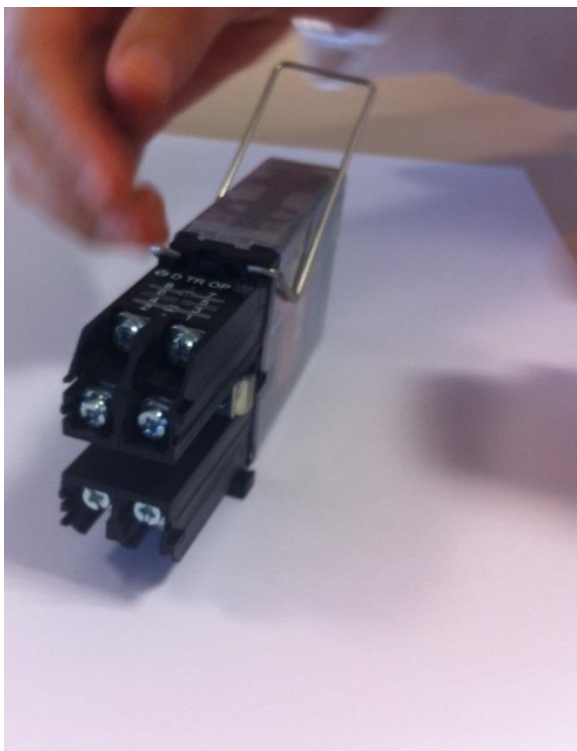
5.2.2. Metallic retaining clip rear socket

Next you will find the installation instructions of a Stick retaining clip to a rear socket (Instructions valid to every Arteche model).

- I. Connect the relay to the base.



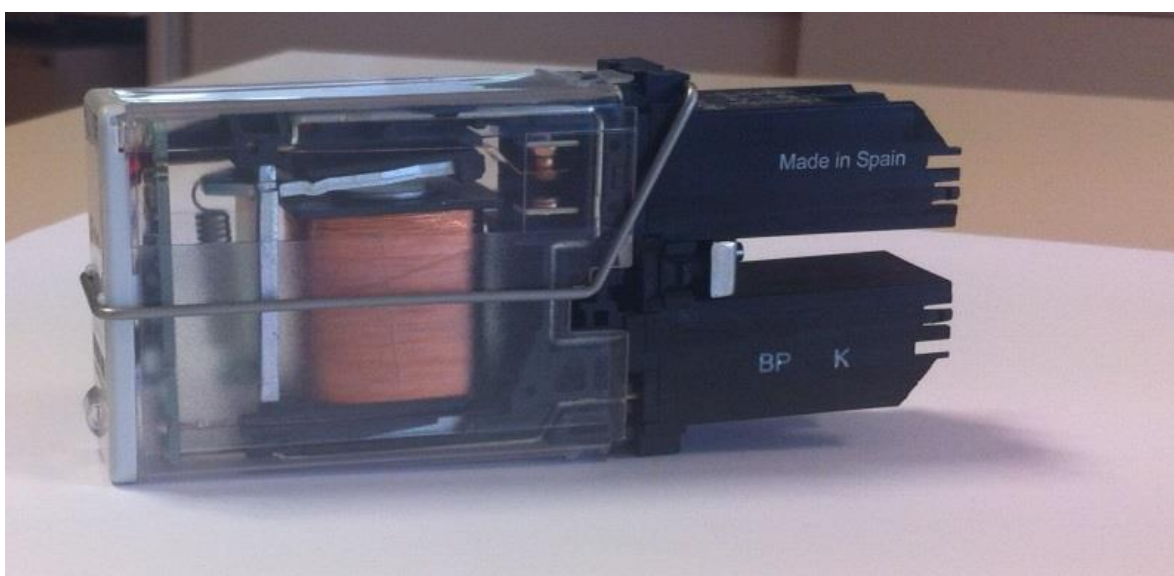
- II. Set the retaining clip to the relays by introducing it in the bases's inlet opening



III. Slide the clip until it's positioned under the two notches.

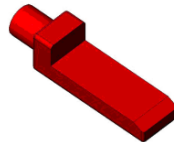


IV. Final installation.

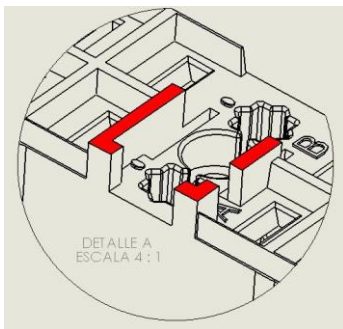


Chapter 6. Security pins

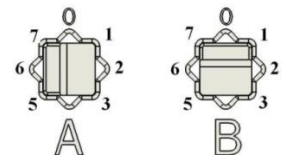
Security pins may be fitted to the OP sockets to be used with OP relays (instantaneous relays RD, RF and RJ, time-lag relays TDF and TDJ, trip circuit supervision relays VDF and VDJ). These security pins are not suitable to be used with “No OP” relays (latching relays BF and BJ, supply circuit supervision relays RUT) or with “No OP” sockets.



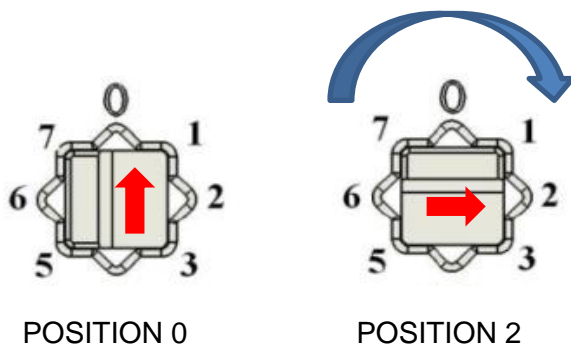
These security pins are placed in the sockets and in the relays to allow the client/user to code the relays and sockets to avoid errors when replacing relays already installed so that only a correct relay model can be connected (e.g., RF-4 OP00001 for 125 VDC).



The sockets have star-shaped sockets as shown in the following figure which allow a large number of combinations bases.



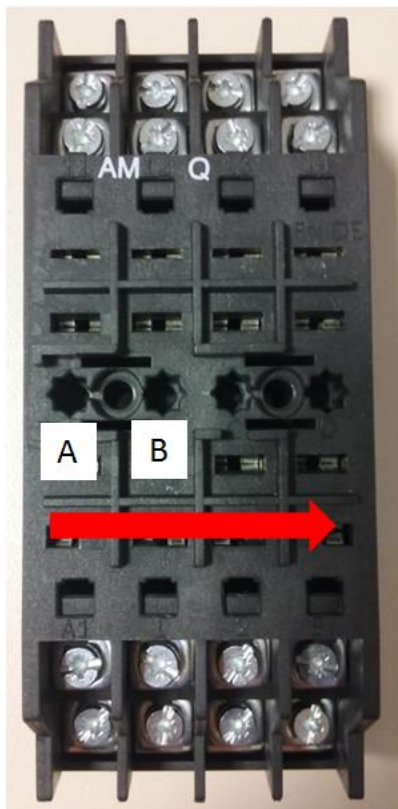
Each of the 8 points of the star is numbered from 0 to 7 ordered clockwise. The position of the security pin will be designated by rotating the pin clockwise starting from the 0 position (the red arrow representing the edge of the pin in the picture points the position), take a look to the sample:



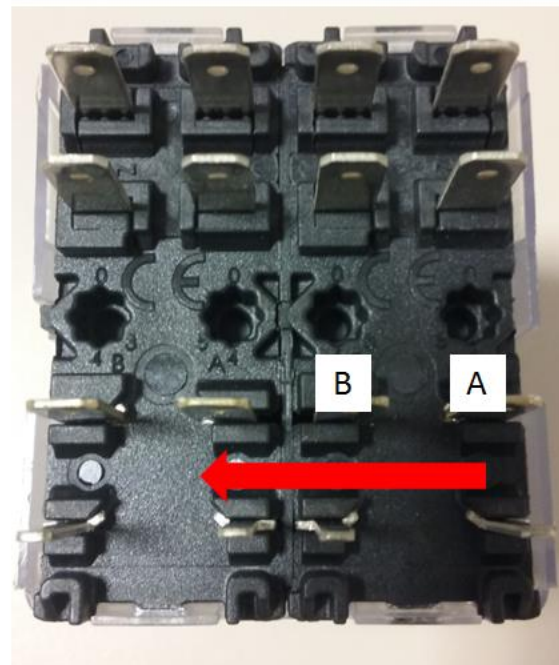
Depending on the socket model, they allow a large number of combinations:

- D sockets: 64 combinations (2 pins).
- F sockets: 4.096 combinations (4 pins).
- J sockets: 4.096^2 combinations (8 pins)

The receptacles are named by letters (A,B,...), ordered from left to right on the sockets and from right to left on the relays (see below):



SOCKET TOP VIEW



RELAY BOTTOM VIEW

In order to key a relay with its corresponding socket satisfactorily, the position correspondence of the pin inserted in the relay with the pin inserted on the socket will be:

	PIN POSITION							
PIN IN SOCKET	0	1	2	3	4	5	6	7
PIN IN RELAY	0	7	6	5	4	3	2	1

6.1. Keying Sample

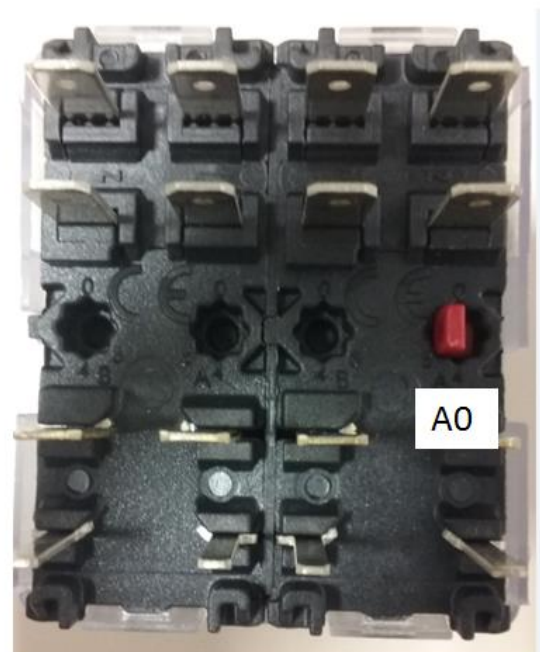
To key 2 relays/sockets, the usage of 1 star-shaped receptacle will be enough, as for example “A” star-shaped receptacle. 1 pin will be inserted in the relay and 1 pin will be inserted in the socket.

Relay 1 / Socket 1

PIN IN SOCKET	A0
PIN IN RELAY	A0

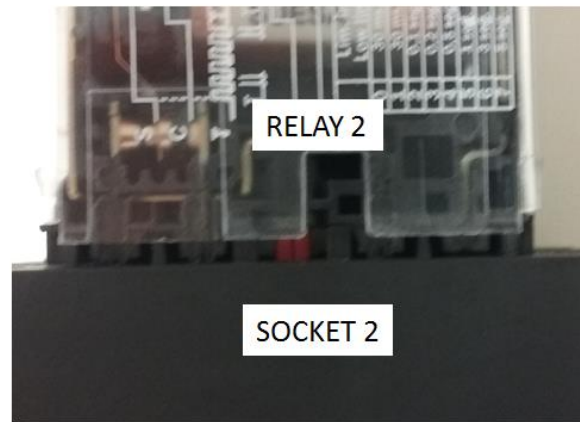
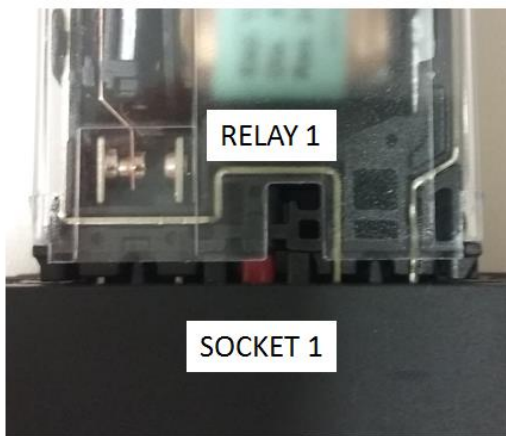


SOCKET TOP VIEW

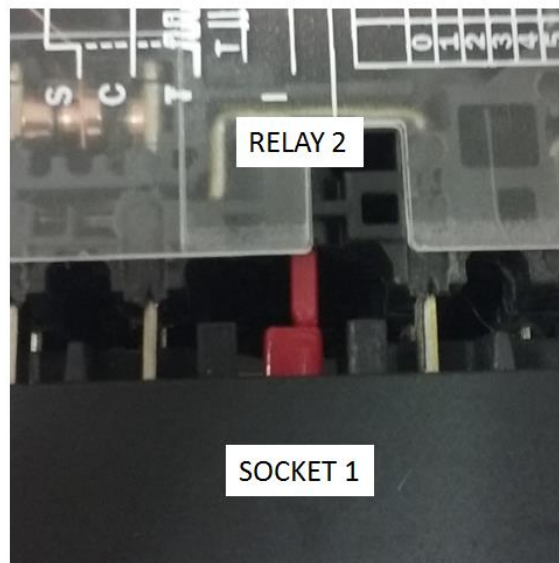
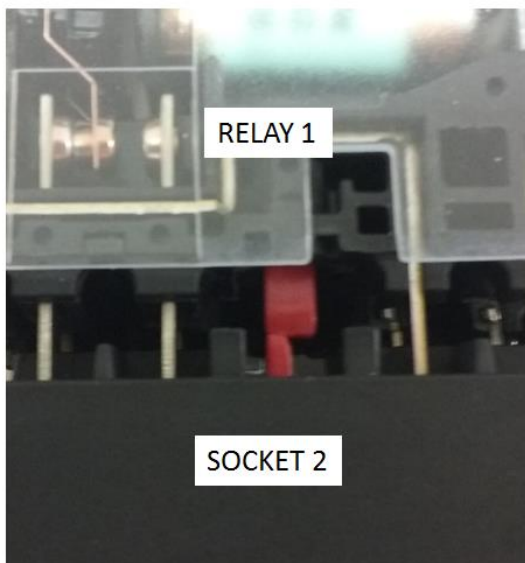


RELAY BOTTOM VIEW

Once the pins are inserted, Relay 1 will fit into Socket 1 and Relay 2 will fit into Socket 2:



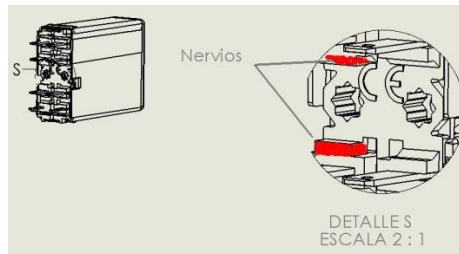
When trying to connect Relay 1 with Socket 2 or Relay 2 with Socket 1, the pins will collide and thus the connections will not be possible:



WARNING!

Every relay and socket comprising the keying system must have a pin inserted on the star-shaped receptacle. In the previous example, if a relay or a socket has no pin inserted, or has a pin inserted in an incorrect receptacle which is not "A", then the keying will not work and the connection will not be prevented.

The sockets also have nerves (shown in red in the figures above and below) that prevent the erroneous fitting of the relay, ensuring that each relay terminal is connected to its proper socket terminal:



Chapter 7. Tests

Electrical security test: **IEC 60255-27**

- Dielectric test: 2kV, 50Hz, 1min
- Surge withstand: 5kV, 0,5J, 1,2/50 μ s.
- Insulation: 500Vdc > 100M Ω m

Mechanical safety tests:

- Connection capacity and thread maximum torque: **IEC 60999-1**
- Cable extraction force: **IEC 60999-1**

Environmental tests:

- Thermal shock: **IEC 60068-2**, +70°C / -25°C / 5 cycles of 3h+3h.
- Damp heat: **IEC 60068-2**, 40°C / 93%RH / 4 days
- Sinusoidal vibrations: **EN 60068-2-6**: Fc
- Shock: **EN 60068-2-27**: Ea, 5Hz - 8Hz: 3,5mm amplitude. 8Hz - 150Hz: 1g
- Bump test: **EN 60068-2-29**: Eb, 15g / 11ms
- Seismic qualification: IEEE 344-2004, IEEE C37.98-1987, ZPA 5
- Free fall test: **EN 60068-2-32**: procedure 1, 1.000mm / 2 falls from each X, Y and Z position

Thermal test:

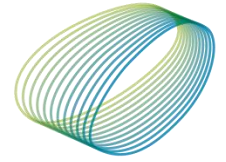
→ Temperature rise at rated voltage: **EN 61810-7**, 55°C / 10A / 3h

Functional tests:

→ Resistance of paints to solvents: **IEC 61810-1**

→ Engaging and separating forces (basic test procedures and measurement methods): **EN 60512-13-1**

→ Degrees of protection provided by enclosures (IP code): **EN 60529**



arteche

Moving together