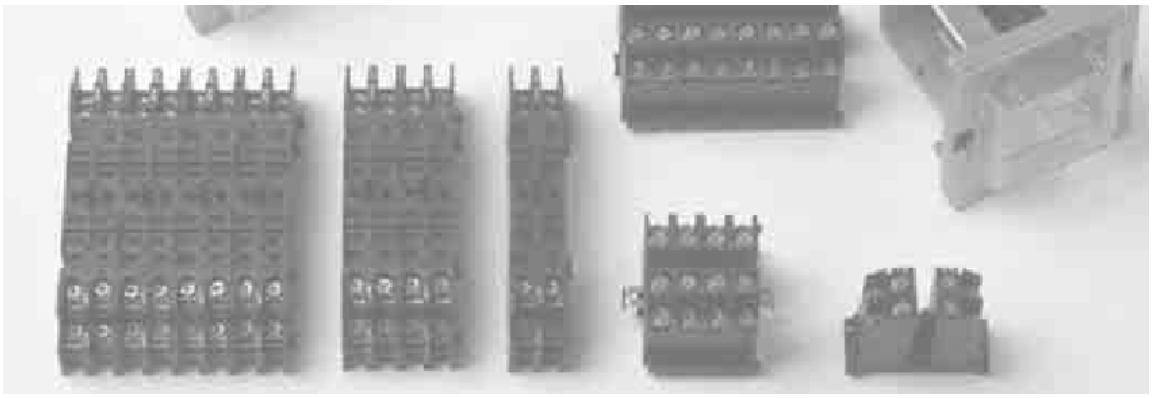


SOCKETS AND ACCESSORIES FOR ARTECHE AUXILIARY RELAYS

USER MANUAL

1 PURPOSE

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

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 to the carrier, to the relevant insurance company and to the factory.

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

3 CLASSIFICATION

The sockets are classified according to 4 criteria:

a. Size of relay (D, F, J, I)

b. Installation type (DIN rail, rear and flush mounting)

c. Type of connections (screw, faston, double faston)

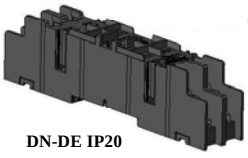
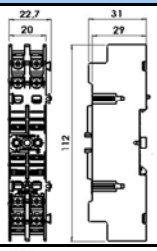
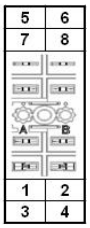
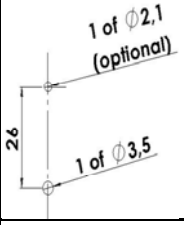
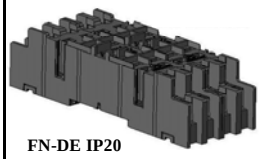
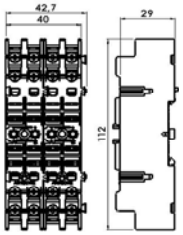
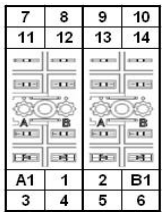
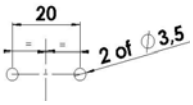
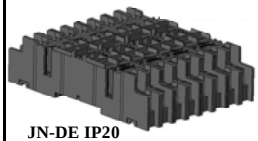
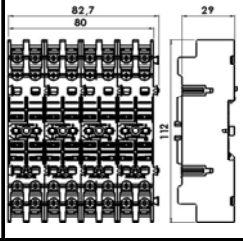
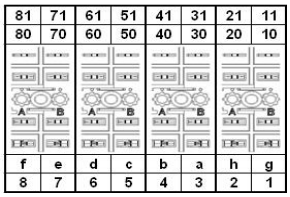
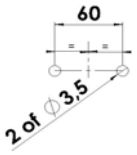
d. Degree of protection (IP 10, IP 20)

There are currently two families of sockets, those for the updated design developed by Arteche, called "OP" from now on and sockets for the previous design, called “NO OP.”

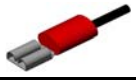
The following tables show the OP sockets in the Arteche range classified according to the three criteria described above.

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, according to the degree of protection.

3.1. - OP sockets with front screw or faston connections (IP 20)

BASE/ SOCKET	DIMENSIONES/ DIMENSIONS	CONEXIONES INTERNAS/ INTERNAL CONNECTIONS (Vista superior/Top view)	FIJACIÓN A PANEL / FIX DRILLING	RELES / RELAYS
 DN-DE IP20 DN-DE2C IP20 (*)				RD OP DD-10 OP
 FN-DE IP20 FN-DE2C IP20 (*)				RF OP TDF OP VDF10 OP BF
 JN-DE IP20 JN-DE2C IP20 (*)				RJ OP TDJ OP VDJ30 OP RJS4 OP BJ

Terminals:

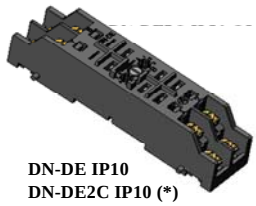
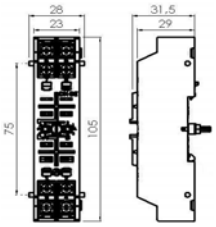
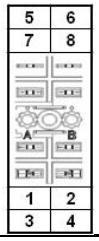
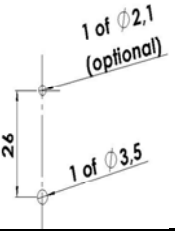
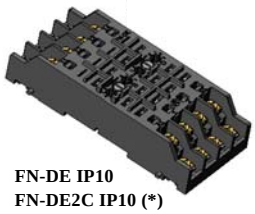
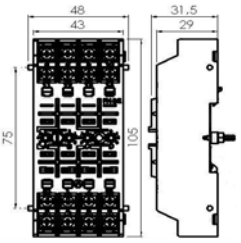
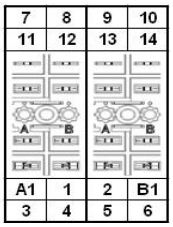
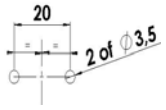
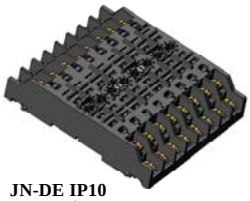
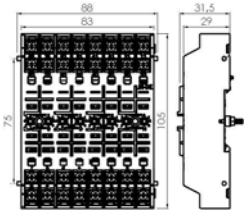
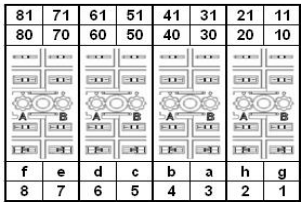
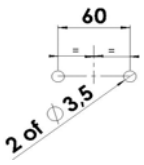
TIPO / TYPE	SECCION HILO MAX. MAX. WIRE SECTION	CANTIDAD QUANTITY
HORQUILLA FORK TERMINAL 	2,5 mm^2	1
TERMINAL ENCHUFABLE LOCKING TERMINAL 	2,5 mm^2	1
TERMINAL REDONDO CABLE PIN TERMINAL 	2,5 mm^2	1
TERMINAL PLANO BLADE TERMINAL 	2,5 mm^2	1
WIRE 	0,2-2,5 mm^2	2
DOBLE FASTON 4,8 X 0,5 DOUBLE FASTON 4,8 X 0,5 (*) 	2,5 mm^2	2

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

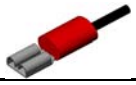
Recommended for screwed sockets:

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

3.2. - OP sockets with front screw or faston connections (IP 10)

BASE/ SOCKET	DIMENSIONES/ DIMENSIONS	CONEXIONES INTERNAS/ INTERNAL CONNECTIONS (Vista superior/Top view)	FIJACIÓN A PANEL / FIX DRILLING	RELES / RELAYS
 DN-DE IP10 DN-DE2C IP10 (*)				RD OP DD-10 OP
 FN-DE IP10 FN-DE2C IP10 (*)				RF OP TDF OP VDF10 OP BF
 JN-DE IP10 JN-DE2C IP10 (*)				RJ OP TDJ OP VDJ30 OP RJS4 OP BJ

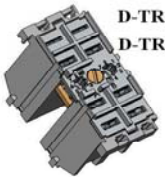
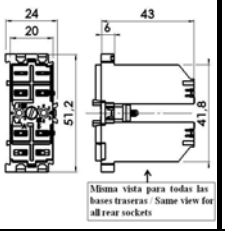
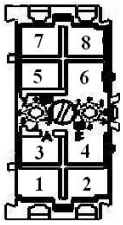
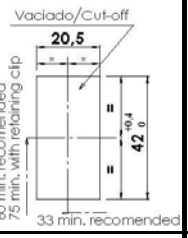
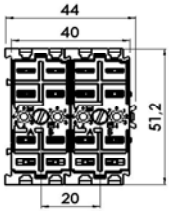
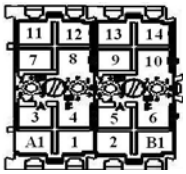
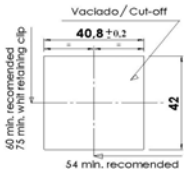
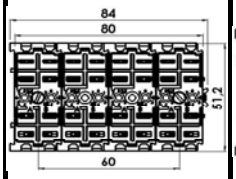
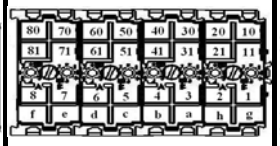
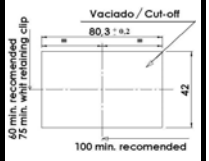
Terminals:

TIPO / TYPE	SECCION HILO MAX. MAX. WIRE SECTION	CANTIDAD QUANTITY
REDONDO ROUND TERMINAL 	2,5 mm^2	2
HORQUILLA FORK TERMINAL 	6,0 mm^2	2
TERMINAL ENCHUFABLE LOCKING TERMINAL 	2,5 mm^2	2
TERMINAL REDONDO CABLE PIN TERMINAL 	2,5 mm^2	2
TERMINAL PLANO BLADE TERMINAL 	2,5 mm^2	2
WIRE 	0,2-4,0 mm^2	2
DOBLE FASTON 6,35 X 0,8 DOUBLE FASTON 6,35 X 0,8 (*) 	2,5 mm^2	2

Recommended for screwed sockets:

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

3.3. - OP sockets with rear screw or faston connections

BASE/ SOCKET	DIMENSIONES/ DIMENSIONS	CONEXIONES INTERNAS/ INTERNAL CONNECTIONS (Vista superior/Top view)	FIJACIÓN A PANEL / FIX DRILLING	IP	RELES / RELAYS
				10	RD OP DD-10 OP
				10	RF OP TDF OP VDF10 OP BF
				10	RJ OP TDJ OP VDJ30 OP RJS4 OP BJ

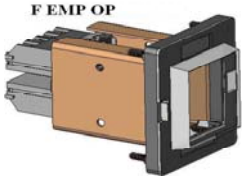
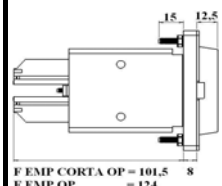
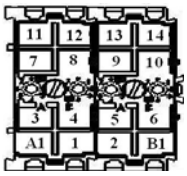
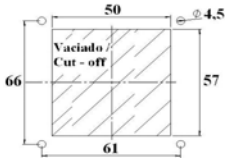
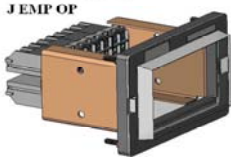
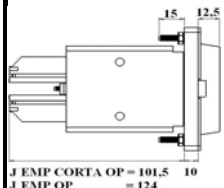
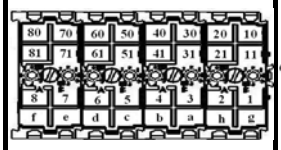
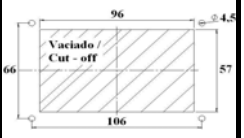
Terminals:

TERMINAL			
TIPO TYPE		SECCION HILO MAX. MAXIMUN WIRE SECTION	CANTIDAD QUANTITY
HORQUILLA FORK TERMINAL		2,5 mm^2	1
TERMINAL ENCHUFABLE LOCKING TERMINAL		2,5 mm^2	2
TERMINAL REDONDO CABLE PIN TERMINAL		2,5 mm^2	2
TERMINAL PLANO BLADE TERMINAL		2,5 mm^2	2
WIRE		0,2 - 2,5 mm^2	2
DOBLE FASTON 4,8 X 0,5 DOUBLE FASTON 4,8 X 0,5 (*)		2,5 mm^2	2

Recommended for screwed sockets:

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

3.4. - OP rear flush mounting screw socket.

BASE/ SOCKET	DIMENSIONES/ DIMENSIONS	CONEXIONES INTERNAS/ INTERNAL CONNECTIONS (Vista superior/Top view)	FIJACIÓN A PANEL / FIX DRILLING	IP	RELES / RELAYS
F EMP CORTA OP F EMP OP 				10	F EMP CORTA OP: RF OP F EMP OP: TDF OP VDF10 OP BF
J EMP CORTA OP J EMP OP 				10	J EMP CORTA OP: RJ OP J EMP OP: TDJ OP VDJ30 OP RJS4 OP BJ

Terminals:

TERMINAL		
TIPO TYPE	SECCION HILO MAX. MAXIMUN WIRE SECTION	CANTIDAD QUANTITY
HORQUILLA FORK TERMINAL 	2,5 mm^2	1
TERMINAL ENCHUFABLE LOCKING TERMINAL 	2,5 mm^2	2
TERMINAL REDONDO CABLE PIN TERMINAL 	2,5 mm^2	2
TERMINAL PLANO BLADE TERMINAL 	2,5 mm^2	2
WIRE 	0,2 - 2,5 mm^2	2

Recommended:

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

4 INSTALLATION

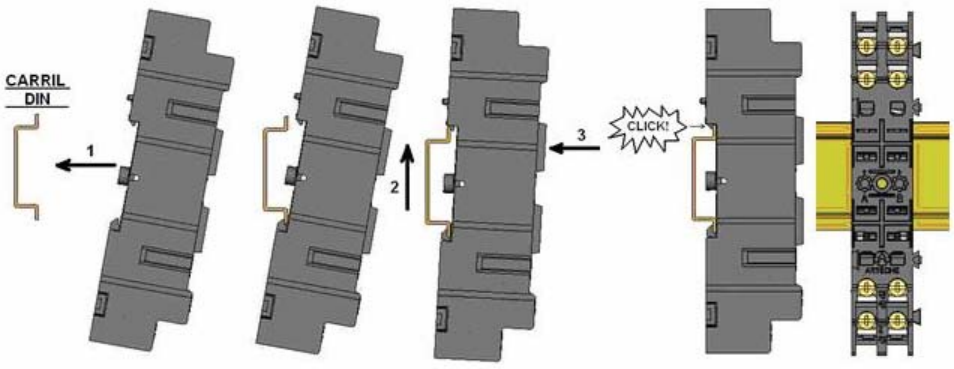
The previous section defined both the sizes of the various types of sockets and the cut-outs for rear and flush mounting sockets and the spacing between fixing holes.
The following gives a series of recommendations for installing the sockets in panels or cabinets.

4.1. - Installation of sockets on DIN rails

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

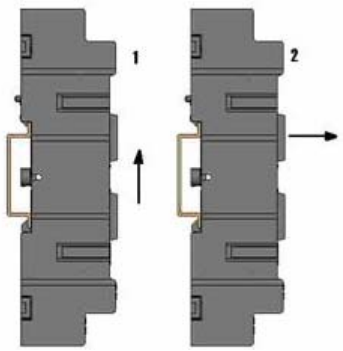
1. Insert the lower tabs on the socket on the lower part of the DIN rail as shown in figure below.

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:

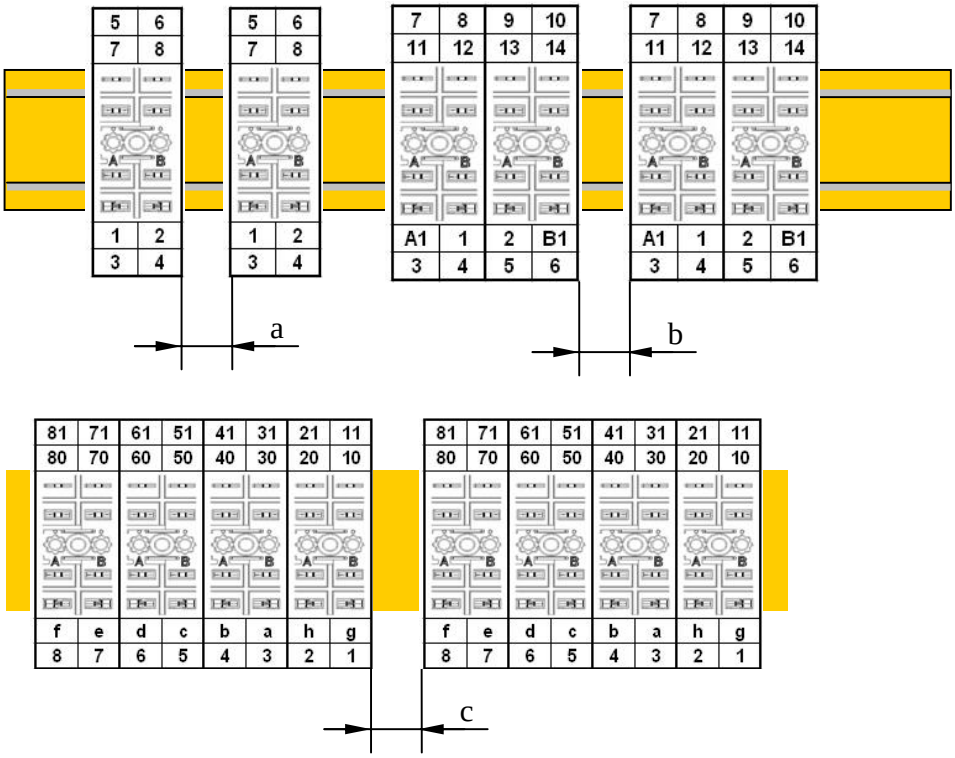
1. Fully fit the socket on the lower part of the DIN rail as shown in figure below.
2. Pull the socket lightly outwards to remove it from the DIN rail.



4.2. - Spacing between sockets

The following gives the minimum recommended distances between sockets for the correct installation of Arteche relays, both the OP version and the rest, to allow their installation and removal and to prevent unnecessary overheating and damage to the useful life of the relays.

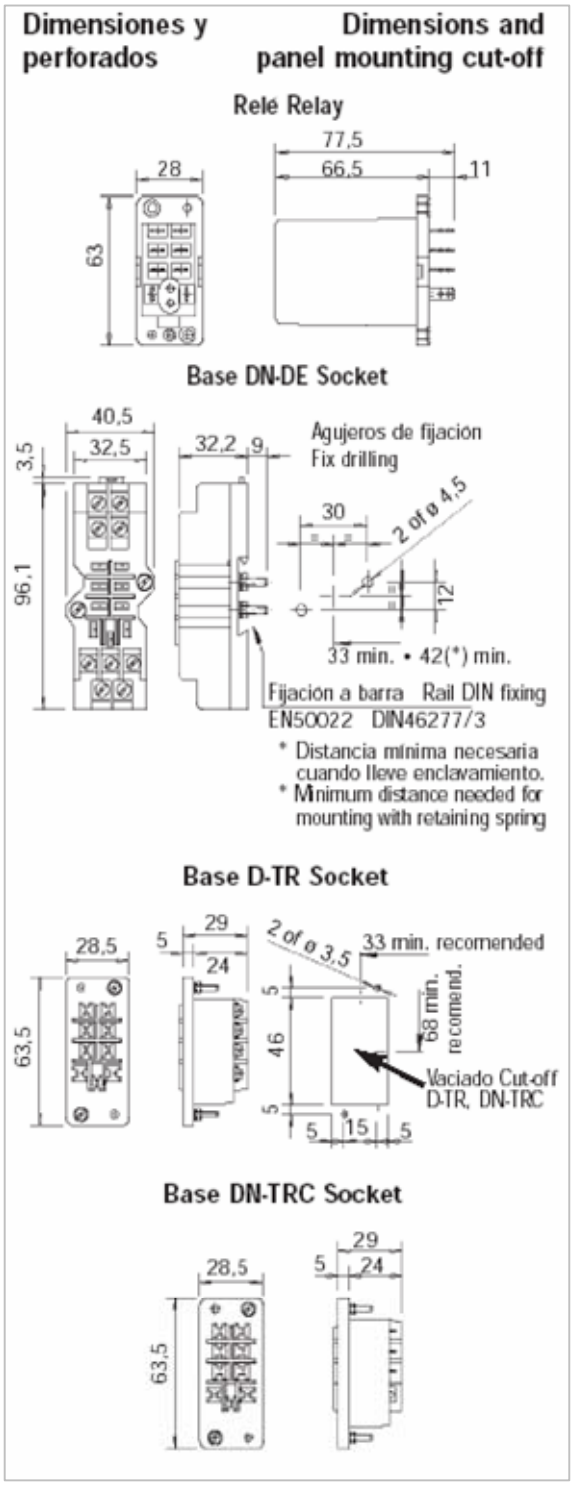
Installation on DIN rail:

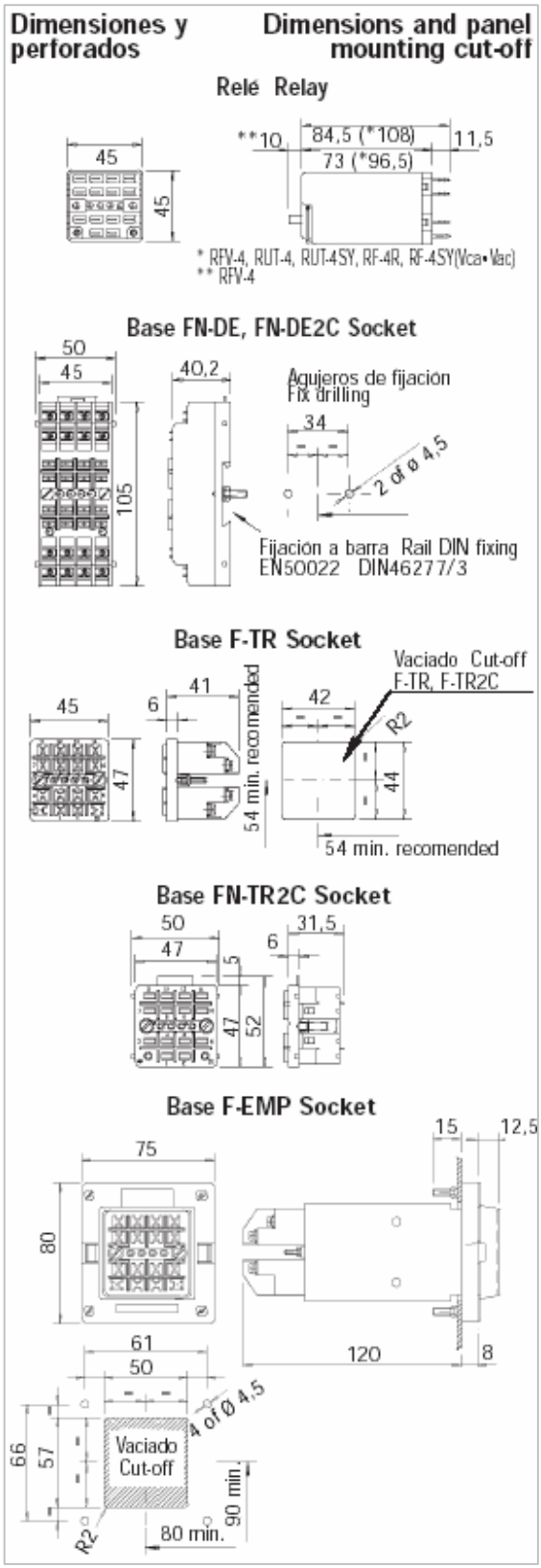


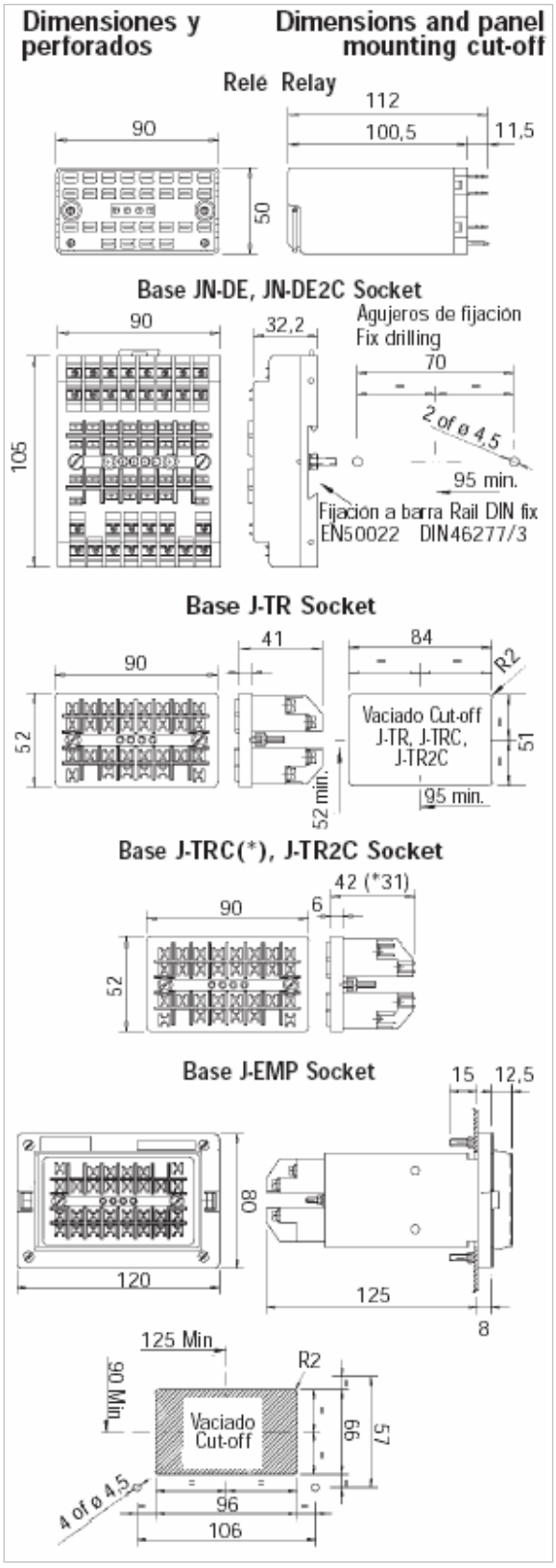
	OP Relays	Rest of Relés
a	5 mm	---
b	5 mm	6 mm
c	5 mm	12 mm

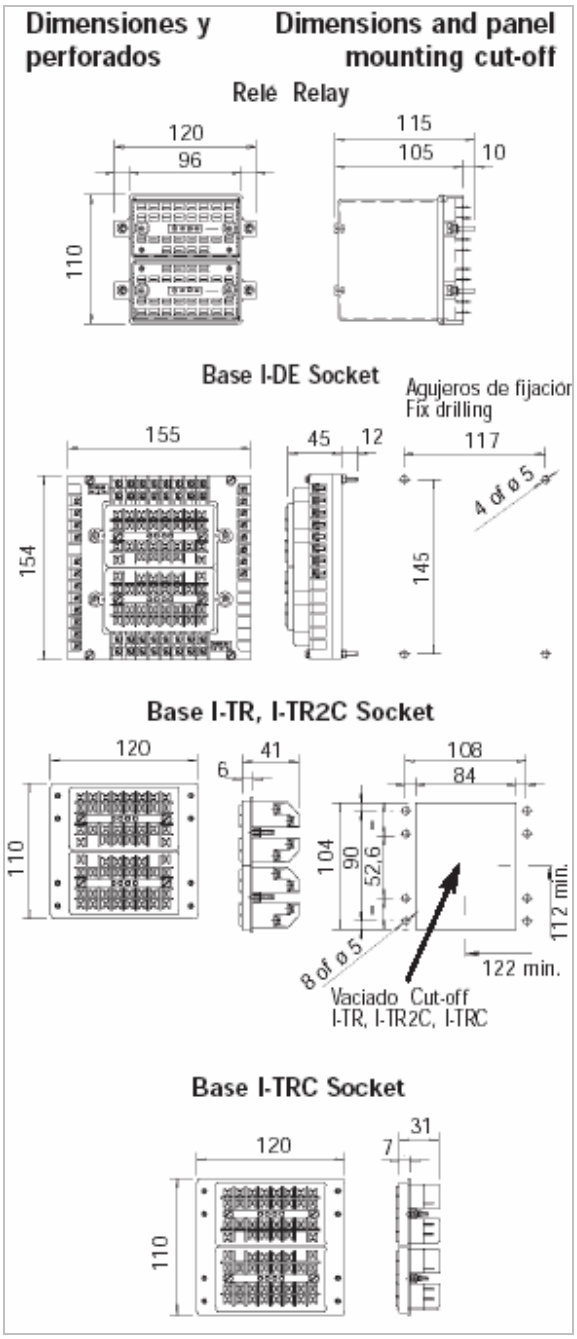
We considered that the natural placement of the relay is with the DIN rail horizontal, the socket mounted vertically on the rail and the relay fitted into the socket with its label legible and facing the user. If the relay position is not natural, it is recommended that retaining clips are used to prevent the bad fitting of the relays in the sockets.

5 “NO OP” SOCKETS






Dimensiones y perforados
Dimensions and panel mounting cut-off
Relé Relay
112
100,5
11,5
90
50
Base JN-DE, JN-DE2C Socket
Agujeros de fijación
Fix drilling
90
32,2
70
2 of ø 4,5
105
95 min.
Fijación a barra Rail DIN fix
EN50022 DIN46277/3
Base J-TR Socket
41
84
90
R2
52
Vaciado Cut-off
J-TR, J-TRC,
J-TR2C
51
52 min.
95 min.
Base J-TRC(*), J-TR2C Socket
42 (*31)
90
6
52
Base J-EMP Socket
15
12,5
80
120
125
8
125 Min
R2
90 Min.
Vaciado
Cut-off
66
57
4 of ø 4,5
96
106


Dimensiones y perforados
Dimensions and panel mounting cut-off
Relé Relay
120
96
115
105
10
110
Base I-DE Socket
Agujeros de fijación
Fix drilling
155
45
12
117
4 of ø 5
154
145
Base I-TR, I-TR2C Socket
120
41
6
108
84
110
104
90
52,6
112 min.
8 of ø 5
122 min.
Vaciado Cut-off
I-TR, I-TR2C, I-TRC
Base I-TRC Socket
120
31
7
110

6 RETAINING CLIPS

The design of the new OP sockets allows both OP relays and the rest (NO OP) to be plugged into them, except for the D size sockets.

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

TYPE	OP SOCKET	OP RELAY
E0	Universal	Universal (RD OP; RF OP; RJ OP; TDF OP; VDF OP; VDJ OP; RJS OP); RUT OP
E41	DN DE IP	RD OP
E40	FN DE IP	RF OP
E43	FN DE IP	TDF OP; VDF OP; RUT OP
E42	FN TR IP	RF OP
E44	FN TR OP	TDF OP; VDF OP; RUT OP
E45	JN DE IP	RJ OP
E47	JN DE IP	TDJ OP; VDJ OP
E46	JN TR OP	RJ OP
E48	JN TR OP	TDJ OP; VDJ OP

TYPE	OP SOCKET	NO OP RELAY
E30	FN DE IP	RF except RF-4SY Vca, RF-4R, RFV y RUT
E31	FN DE IP	BF; RFV; VDF; TF; TF-FT; TDF RUT; RF-4R, RF-4SY Vca
E20	FN TR OP	RF except RF-4SY Vca, RF-4R, RFV and RUT
E21	FN TR OP	BF; RFV; VDF; TF; TF-FT; TDF RUT; RF-4R, RF-4SY Vca
E28	JN DE IP	RJ de Vcc (except RJ-8R)
E29	JN DE IP	BJ; UJ; IJ; TJ; RJ Vca, RJ-8R
E26	JN TR OP	RJ Vcc (except RJ-8R)
E27	JN TR OP	BJ; UJ; IJ; TJ; RJ Vca, RJ-8R

TYPE	NO OP SOCKET	OP RELAY
E24	FN DE	RF OP
E25	FN DE	VDF OP; TDF OP; RUT OP
E22	F TR	RF OP
E23	F TR	VDF OP; TDF OP; RUT OP
E-34	JN-DE	RJ OP
E-35	JN-DE	TDJ OP
E-32	J-TR	RJ OP
E-33	J-TR	TDJ OP

TYPE	NO OP SOCKET	NO OP RELAY
E1	FN-DE (front screw connections) FN-DE2C (front double clip connections)	RF except RF-4SY for V AC, RF-4R, RFV and RUT
E2	FN-DE (front screw connections) FN-DE2C (front double clip connections)	BF, RFV, VDF, TF, TF-FT, TDF RUT, RF-4R, RF-4SY for V AC
E4	JN-DE (front screw connections) JN-DE2C (front double clip connections)	RJ for V DC (except RJ-8R)
E5	JN-DE (front screw connections) JN-DE2C (front double clip connections)	BJ, UJ, IJ, RJ for V AC, RJ-8R
E6	DN-DE (front screw connections)	RD
E7	F-TR (rear screw connections) FN-TR2C (rear double clip connections)	RF except RF-4SY for V AC, RF-4R, RFV and RUT
E8	F-TR (rear screw connections) FN-TR2C (rear double clip connections)	BF, RFV, VDF, TF, TF-FT, TDF RUT, RF-4R, RF-4SY for V AC
E10	J-TR (rear screw connections) J-TRC (rear clip connections) J-TR2C (rear double clip connections)	RJ for V DC (except RJ-8R)
E11	J-TR (rear screw connections) J-TRC (rear clip connections) J-TR2C (rear double clip connections)	BJ, UJ, IJ, RJ for V AC, RJ-8R
E12	D-TR (rear screw connections) DN-TRC (rear clip connections)	RD

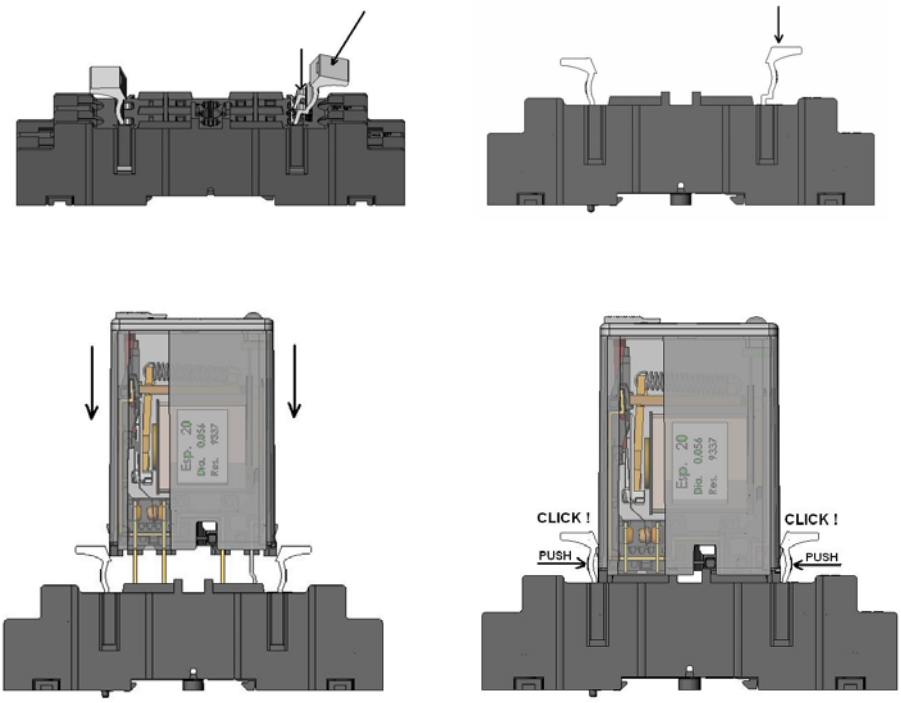
To fit the E0 universal retaining clip:

1. Insert the retaining clips in the housing in the socket as shown in the following figure.

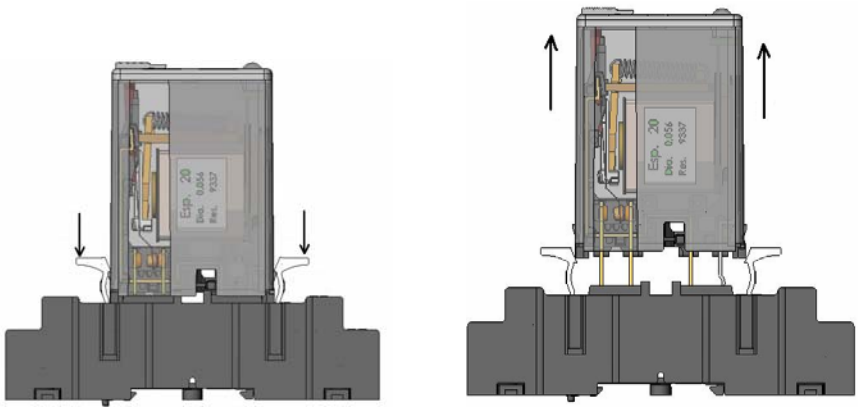
2. Fully fit the retaining clip against the socket on the lower part of the DIN rail with a light vertical pressure.

3. Insert the relay.

4. 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).

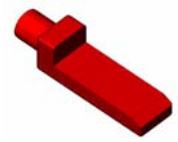


To remove the relay, release the retaining clip by pressing lightly on it as shown in the following figure.

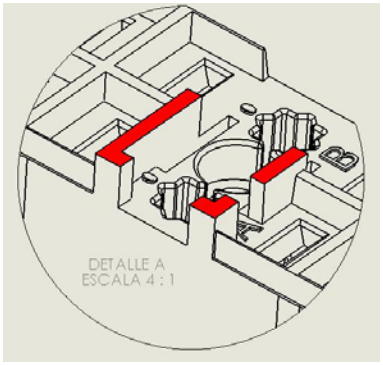


7 SECURITY PINS

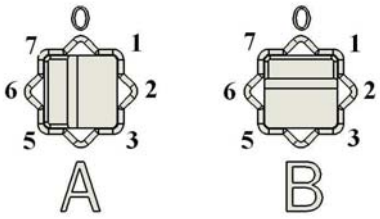
Security pins may be fitted to the OP sockets.



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 V DC).



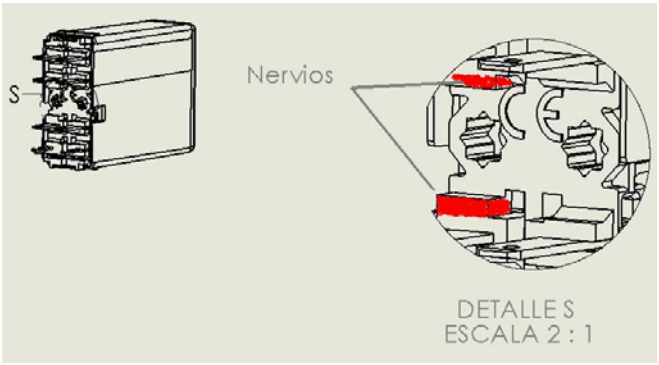
The sockets have star-shaped sockets as shown in the following figure which allow a large number of combinations.



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

- D sockets 64 combinations (2 pins).
- F sockets: 4096 combinations (4 pins).
- J sockets: 40,962 combinations (8 pins)

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.



8 TESTS

Electrical security tests: **IEC 60255-5**

Dielectric Test: 2 kV, 50 Hz, 1 min
Surge Withstand: 5 kV, 0.5 J, 1.2/50 µs
Insulation: 500 V DC, > 100 M

Mechanical safety tests:

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

Environmental tests:

Thermal shock: **IEC 60068-2,** +70 ºC, -25 ºC, 5 cycles of 3 h + 3 h
Damp heat: **IEC 60068-2**, 40 ºC, 93% RH, 4 days
Sinusoidal vibrations: **EN 60068-2-6:** Fc
Shock: **EN 60068-2-27**: Ea, 5 Hz - 8 Hz, 3.5 mm amplitude. 8 Hz - 150 Hz: 1 g acceleration
Bump Test: **EN 60068-2-29**: Eb, 15 g, 11 ms
Seismic qualification: **IEEE 344-2004, IEEE C37.98-1987**, ZPA 5
Free fall Test: **EN 60068-2-32,** procedure 1, 1000 mm, 2 falls from each X, Y and Z position.

Thermal tests:

Temperature rise at rated voltage: **EN 61810-7**, 55 ºC, 10 A,3 h

Functional tests:

Resistance of paints to solvents: **IEC 61810-1, IEC 2003**
Engaging and separating forces (basic test procedures and measurement methods): **EN 605512-13-1**
Degrees of protection provided by enclosures (IP code): **EN 60529**