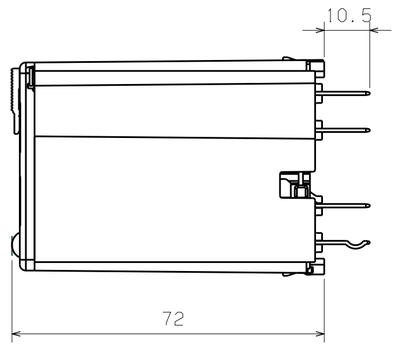
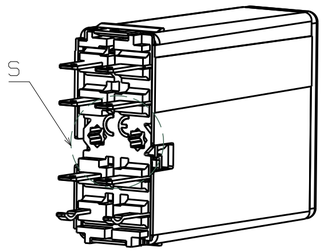
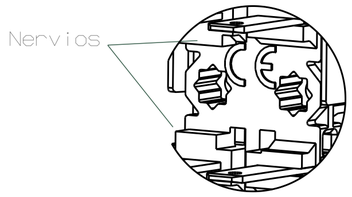
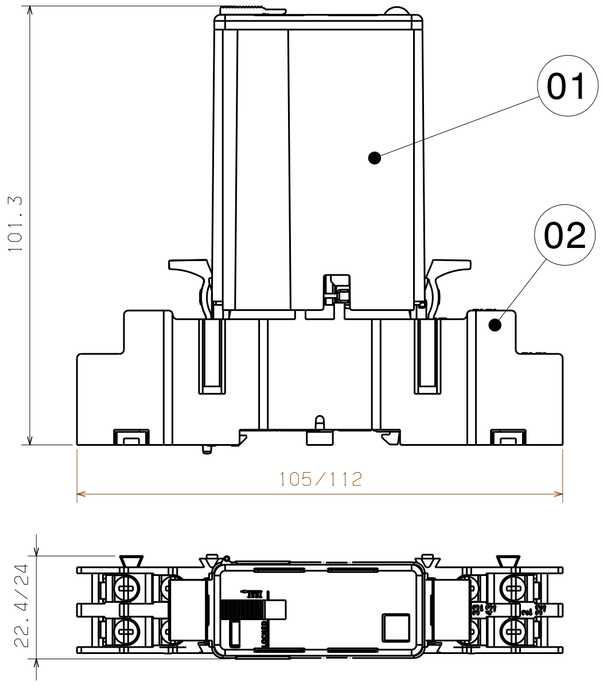
01

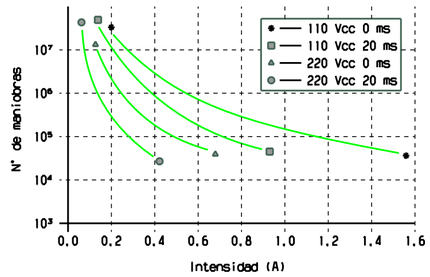




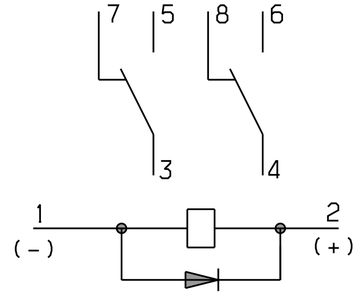




Curvas de poder de corte



CONEXIONADO



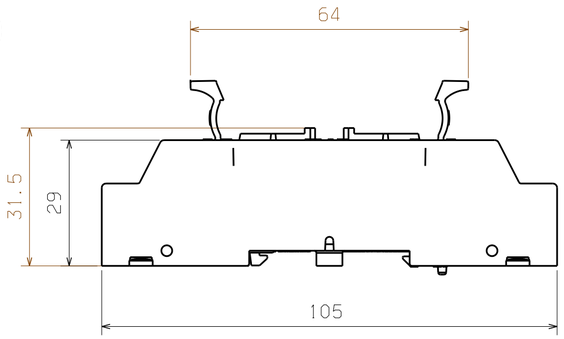
Rango de tension:	+25% -30% Un
Consumo:	2 W
Tiempos de excitacion:	<20 ms
Tiempos de desexcitacion:	<40 ms/Vcc
Paso de intensidad permanente:	10 A
Paso de intensidad instantanea:	80 A/200 ms 150 A/10 ms
Capacidad de cierre:	40 A/0,5 s/110 Vcc
Capacidad de corte:	ver curvas
Umax. contacto abierto:	250 Vcc/400 Vca
N° de maniobras en vacio:	10^7 operaciones
Temperatura de utilizacion:	-10°C +55°C
Humedad maxima utilizacion:	93%/40°C

Caracteristicas tecnicas segun normas:

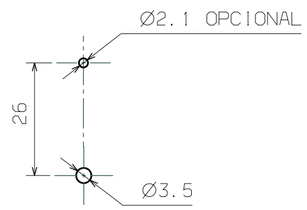
- Norma: IEC 60068-2-27 Ensayo resistencia a choque
  Nivel de ensayo: 9g / 11ms
- Norma: IEC 60068-2-29 Ensayo resistencia a golpe
  Nivel de ensayo: 10g / 16ms
- Norma: IEC 60068-2-6 Ensayo resistencia a vibraciones (sinusoidal)
  Nivel de ensayo: 2g / 5Hz a 150Hz

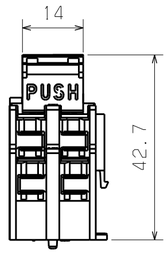
Diodo de proteccion de bobina incorporado

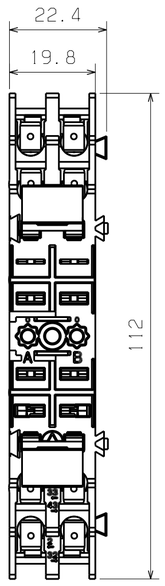
02

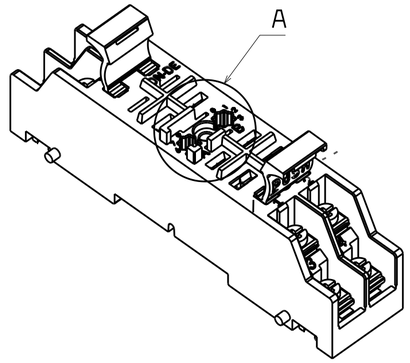


AGUJEROS DE FIJACION

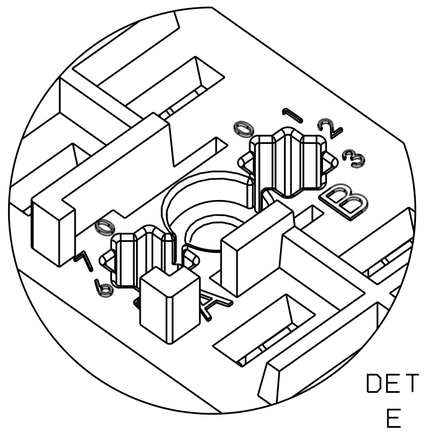








RESALTES POKA YOKE



DETALLE A
E (4:1)

MARCA	02	01
DESCRIPCIÓN	BASE RELE CONEX FASTON 4,8X0.5 *BASE RELÈ CONN. FASTON 4,8X0.5*	RELE RD2 SY DI FF 24VDC *RELÉ RD2 SY DI FF 24VDC*
CANT.	1	1
CÓDIGO O NORMA	X.69.00150.98	X.69.00150.01
MATERIAL O REFERENCIA	ARTECHE DN-DE2C IP20 FF+ENCLAV. E	ARTECHE RD2 SYDIFF OP 00101 24VDC
PESO (Kg)	0.600	0.125
DIMENSIONES (mm)		

Ed.	Descrizione	Date	Nome
A	AÑADIR DATASHEETS	2016-06-24	12199
B	AÑADIR DATASHEETS	2016-07-26	96015
C	AÑADIR DATASHEETS	2016-09-27	96015

LOCOMOTIVA E401

ISO 2768-cK
DIN ISO 13920-BF

0.000 | A2 | BEASAIN | OT | Y

CAF Power & Automation

1:1	Disegnato	12/03/2015	10221
	Comprovato	12/03/2015	12199
	Verificato	12/03/2015	14422
	Date		Nome
	es/it		

CONSTRUCCIONES Y AUXILIAR DE FERROCARRILES, S.A. BEASAIN (GIPUZKOA)

RELE ARTECHE RD2 Y BASE

RELÉ ARTECHE RD2 E BASE

B.20.71.142 | C | 1/33

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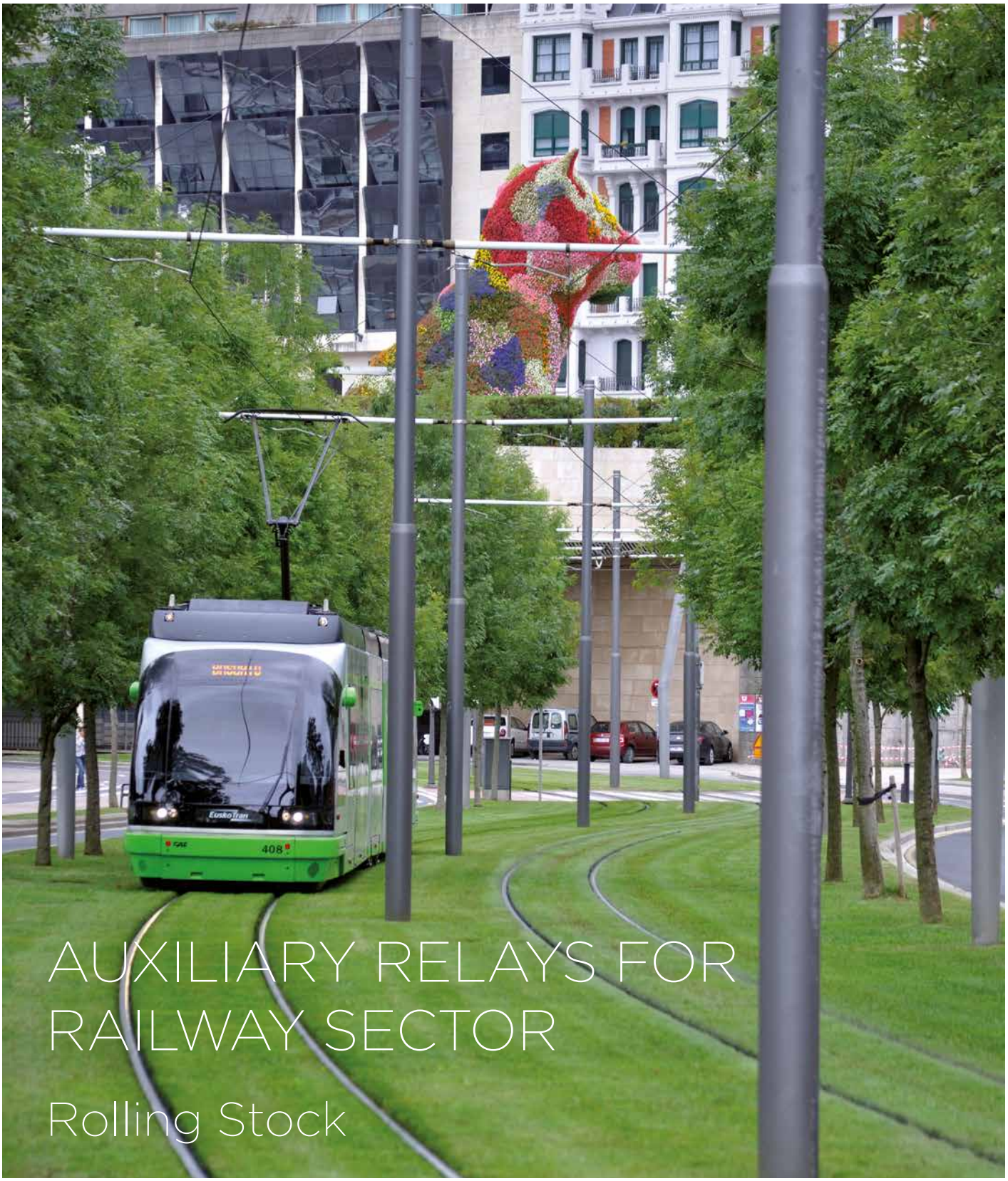


AUXILIARY RELAYS FOR RAILWAY SECTOR

Rolling Stock

This document may be subject to changes. Contact ARTECHE to confirm the characteristics and availability of the products described here.

Moving together

INDEX

ANSWERS FOR RAILWAY APPLICATIONS

ARTECHE auxiliary relays guarantee the best features and complete security even in the hardest working environment.

The FF range has been designed to fulfil the most demanding requirements in the railway industry in regards to low duty loads, fire and smoke, etc.

Their design, durability and quality make them suitable for high responsibility controls in the railway sector, highlighting:

ROLLING STOCK:

- Boarding doors locking.
- Brake circuit command.
- Security loop.
- Pantograph control.
- Lighting and air conditioned systems operation.
- Traction system.
- Brake systems.

INTERLOCKING AND SIGNALLING:

Interface between infrastructure and rolling stock:

- ASFA systems.
- RTMC systems.
- RTMS systems.
- CBTC systems.
- ETCS systems.
- ATO/ATP/ATS/APR... systems

GENERAL CHARACTERISTICS

The main features of ARTECHE's auxiliary relays are the following:

- Security contacts, WELD NO TRANSFER (EN 50205 Standard).
- NO WELD contacts (NF F 70-031 Standard).
- Capable to withstand vibrations and seismic conditions (EN 61373 Standard).
- Capable to operate under low duty loads, activate digital inputs, and operate without any load.
- Security applications: they can be used in applications up to SIL 4.
- Wide range of auxiliary voltage levels (Vdc and Vac).
- Sturdy design.
- Self-cleaning contacts.
- Designed to allow continuous operation even in high ambient temperature, within the whole voltage range.
- High level of electrical insulation between input and output circuits.
- High degree of protection (IP40), with transparent cover, making them suitable for use in salty and tropical atmospheres.
- Capable to work under ambients with relative humidity around 100%.
- Simplicity of installation (plug-in relays in a wide range of sockets with different installation configurations).
- No need of maintenance after installation.

In addition, the different number of alternatives that are offered when the equipment is selected, both technically (increase of the breaking capacity by serial contacts, possibility of adding different options to the relay) and in the assembly method (front, rear or flush mounted sockets, with screws or fastons) must be considered.

TECHNICAL STANDARDS

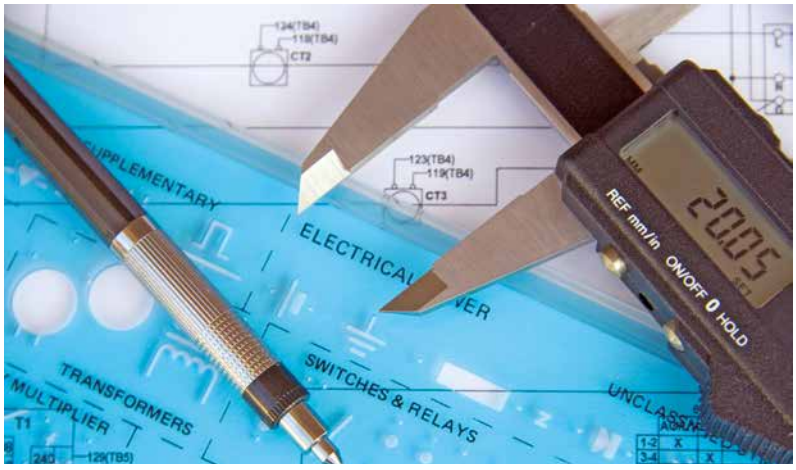
RAILWAY APPLICABLE STANDARDS

- **EN 60077 Series.** Rolling stock equipment.
  - Part 1: General conditions in service and general terms.
  - Part 2: Electrotechnical components.
- **EN 50155** (IEC 60571 equivalent). Railway applications - Electronic equipment used on rolling stock.
- **IEC 61373.** Railway applications - Shock and vibration tests.
- **NF F 16-101 y NF F 16-102.** Rolling stock fire behaviour.
- **EN 45545-2.** Railway applications - Fire behavior of materials and components.
- **RIA 12.** General specification for protection of traction and rolling stock electronic equipment from transients and surges in DC control systems.
- **EN 50121-3-2:2006.** Electromagnetic compatibility.
- **EN 50205.** Relays with forcibly mechanically guided contacts. WELD NO TRANSFER
- **NF F 70-031.** Contact weld resistance tests. NO WELD CONTACTS

GENERAL STANDARDS

In addition to the specific applicable standards, ARTECHE auxiliary relays are designed based on the fulfilment of the following standards:

- **IEC 61810:** Electromechanical all-or-nothing relays.
- **IEC 60255:** Electrical relays. Measuring relays and protection equipment.
- **IEC 61812:** Specified time relays for industrial use.
- **IEC 60947:** Low-voltage switchgear and controlgear.
- **IEC 61000:** Electromagnetic compatibility.



E322124

UL Recognized Component Marks for USA and Canada: The combined UL signs for the USA and Canada are recognized by the authorities of both countries. All auxiliary relays identified with this mark meet the requirements of both countries.

RANGE OF PRODUCTS

INSTANTANEOUS RELAYS

Thanks to an exhaustive control process, the FF range can assure a correct performance of the contacts with low duty loads or even with no load.

These instantaneous relays can be manufactured with different options: front led, mechanical indication of the contacts position, trip flag and push to test button (see model selection table in page 27).

Instantaneous relays

ARTECHE's auxiliary relays are designed to work properly under frequent vibration and shock applications, as in the case of railway sector.

They comply with the extended voltage range (+25 / -30 %).

The sturdy design of our equipment, with a higher appropriate pressure between contacts, allows them to withstand vibrations without penalizing the good performance of the relays.

Instantaneous relays with coil overvoltage protection

In applications with overvoltage, where drop-out time is not important, it is recommended to use a diode. Otherwise, a varistor is more suitable.

These elements are aimed to discharge the energy of the coil when the relay is no longer energized.

These relays are suitable when the customer wishes to protect the contact of the equipment which commands the operation of our relay, providing a longer durability of the whole protection and control system.

TIMERS

Relays in which the operation of the contacts is subject to a timing set in the relay. This timing can be on pick up, drop out, cyclic ...with high accuracy and a wide range, from milliseconds to several hours, all of them available in the same relay.

When timing is on drop out or cyclic, an auxiliary supply is needed.

There is the possibility of having different voltages for supply and command of the timing, by choosing the option "independent command" (see model selection table in page 29).

LATCHING RELAYS

ARTECHE latching relays have two stable positions for the output contacts. Depending on which coil is fed, contacts will change from one position to the other. The ARTECHE latching relays only have consumption during the change from one position to the other, having therefore no consumption in permanence.

CONTACTORS

Their design is based on the instantaneous relays, but incorporating magnetic blow-out and ceramic shielding to protect the plastic materials from the electric arc created when opening high loads. This configuration allows them to open up to 15 Amps in 125 Vdc, 40ms inductive circuits.

IMPULSE RELAYS

Similar to latching relay with a single input. Each impulse in the input makes the contact position change. An auxiliary supply is needed.

arteche

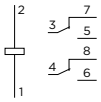
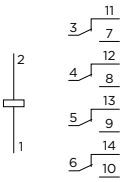
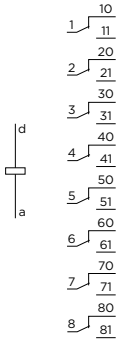
RAILWAY APPLICATIONS

MODEL	ROLLING STOCK	SIGNALING	CONTACTS	WELD NO TRANSFER SECURITY CONTACTS	NO WELD CONTACTS
Instantaneous					
RD-2SY	•	•	2 CO	•	•
RF-4SY	•	•	4 CO	•	•
RJ-8SY	•	•	8 CO	•	•
RD-2SYDI / RD-2SYV	•	•	2 CO	•	•
RF-4SYDI / RF-4SYV	•	•	4 CO	•	•
RJ-8SYDI / RJ-8SYV	•	•	8 CO	•	•
Timers					
TDF-2	•	•	2 CO	•	•
TDF-4	•	•	4 CO	•	•
TDF-22	•	•	4 CO (2 inst. + 2 timed.)	•	•
TDJ-8	•	•	8 CO	•	•
TDJ-44	•	•	8 CO (4 inst. + 4 timed.)	•	•
Latching					
BF-3	•	•	3 CO		
BF-4	•	•	4 CO		
BJ-8	•	•	8 CO		
BF-3BB	•	•	3 CO		
BF-4BB	•	•	4 CO		
BJ-8BB	•	•	8 CO		
Contactors					
CD-2	•	•	2 CO (2NO Contactor + 2NC Relay)		•
CF-4	•	•	4 CO (4NO Contactor + 4NC Relay)		•
CJ-8	•	•	8 CO (8NO Contactor + 8NC Relay)		•
CD-2DI	•	•	2 CO (2NO Contactor + 2NC Relay)		•
CF-4DI	•	•	4 CO (4NO Contactor + 4NC Relay)		•
CJ-8DI	•	•	8 CO (8NO Contactor + 8NC Relay)		•
Impulse relay					
RBF-2	•	•	2CO	•	•
RBF-4	•	•	4CO	•	•

TECHNICAL FEATURES PER MODEL

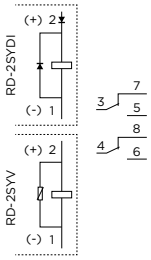
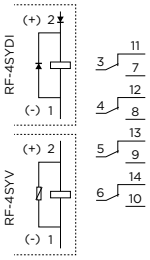
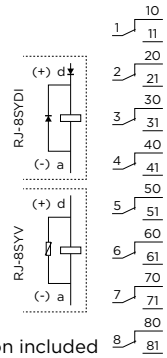
› World-class range of auxiliary relays for energy sector, specially designed for the most demanding applications

INSTANTANEOUS RELAYS

Model	RD-2SY	RF-4SY	RJ-8SY
			
Applications	Frequent vibration and shock applications, as railway sector.		
Construction characteristics			
Contacts no.	2 Changeover	4 Changeover	8 Changeover
Connections			
Options	With OP options	With OP options/Push-to-test button included	
Weight (g)	125	250	500
Dimensions (mm)	(A) 22,5 x (B) 50,4 x (C) 72 (D short type)	(A) 42,5 x (B) 50,4 x (C) 72 (F short type)	(A) 82,5 x (B) 50,4 x (C) 72 (J short type)
Coil characteristics			
Standard voltages[1]	24, 48, 72, 96, 110, 125, 220 Vdc 24, 48, 63,5, 110, 127, 230, 400 [4] Vac (50-60 Hz)		
Voltage range	+25% -30% U_N		
Pick-up / release voltage	See pick-up/release voltage-temperature curves		
Average consumption in permanence (U_N)	2,6 W	3,9 W	6 W
Operating time			
Pick-up time	< 20 ms		
Drop-out time	Vdc: <10 ms / Vac or with LED: <50 ms	Vdc: <15 ms / Vac or with LED: <50 ms	
Contacts			
Contact material	AgNi		
Contacts resistance[2]	≤ 15 mΩ		
Max. contacts resistance[5]	40 mΩ at 10 A		
Distance between contacts	1,2 mm		
Permanent current	10 A		
Instantaneous current	30 A during 1 s / 80 A during 200 ms / 200 A during 10 ms		
Wetting current/voltage	12 Vdc, 10 mA		
Max. making capacity	40 A, 0,5 s, 110 Vdc / 30A, 1 s, 36 Vdc, 30.000 operations (1 op/ 15 s)		
Breaking capacity	See breaking capacity curves (Contact configuration type B)		
Max. breaking capacity	See value for 50,000 operations		
U_{max} opened contact	250 Vdc / 400 Vac		
General data			
Mechanical endurance	10^7 operations		
Dielectric strength	2 kV (between independent circuits) / 1,5 kV (between open contacts)		
Impulse voltage	5 kV (between independent circuits) / 2,5 kV (between open contacts)		
Insulation resistance	>1000 GΩ		
Operating temperature	-65ºC +70ºC		
Storage temperature	-65ºC +85ºC		
Max. operating humidity	93% / +40ºC		
Operating altitude[3]	<2000 m		

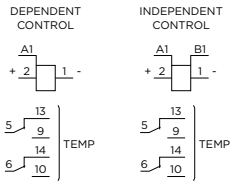
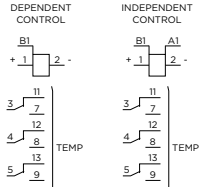
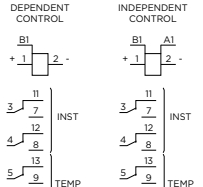
[1] Other voltages upon request
[2] Guarantee data for relays just manufactured
[3] Ask for higher altitudes
[4] Voltage not recognized by UL
[5] At the end of working life

INSTANTANEOUS RELAYS WITH COIL OVERVOLTAGE PROTECTION

Model	RD-2SYDI • RD-2SYV	RF-4SYDI • RF-4SYV	RJ-8SYDI • RJ-8SYV
			
Applications	Frequent Vibration and Shock applications, as railway sector. Intended to protect the contact of the equipment that feeds the coil in our relay.		
Construction characteristics			
Contacts no.	2 Changeover	4 Changeover	8 Changeover
Connections			
Options	With OP options	With OP options/Push-to-test button included	
Weight (g)	125	250	500
Dimensions (mm)	(A) 22,5 x (B) 50,4 x (C) 72 (D short type)	(A) 42,5 x (B) 50,4 x (C) 72 (F short type)	(A) 82,5 x (B) 50,4 x (C) 72 (J short type)
Coil characteristics			
Standard voltages[1]	24, 48, 72, 96, 110, 125, 220 Vdc 24, 48, 63,5, 110, 127, 230, 400 [4] Vac (50-60 Hz)		
Voltage range	+25% -30% U_N		
Pick-up / release voltage	See pick-up/release voltage-temperature curves		
Average consumption in permanence (U_N)	2,6 W	3,9 W	6 W
Operating time			
Pick-up time		< 20 ms	
Drop-out time		V Series: <25ms DI Series: <50 ms	
Contacts			
Contact material	AgNi		
Contacts resistance[2]	≤ 15 mΩ		
Max. contacts resistance[5]	40 mΩ at 10 A		
Distance between contacts	1,2 mm		
Permanent current	10 A		
Instantaneous current	30 A during 1 s / 80 A during 200 ms / 200 A during 10 ms		
Wetting current/voltage	12 Vdc, 10 mA		
Max. making capacity	40 A, 0,5 s, 110 Vdc / 30A, 1 s, 36 Vdc, 30.000 operations (1 op/ 15 s)		
Breaking capacity	See breaking capacity curves (Contact configuration type B)		
Max. breaking capacity	See value for 50,000 operations		
U_{max} opened contact	250 Vdc / 400 Vac		
General data			
Mechanical endurance	10^7 operations		
Dielectric strength	2 kV (between independent circuits) / 1,5 kV (between open contacts)		
Impulse voltage	5 kV (between independent circuits) / 2,5 kV (between open contacts)		
Insulation resistance	>1000 GΩ		
Operating temperature	-65ºC +70ºC		
Storage temperature	-65ºC +85ºC		
Max. operating humidity	93% / +40ºC		
Operating altitude[3]	<2000 m		

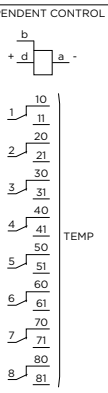
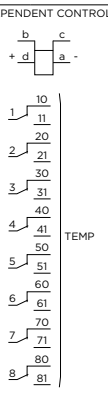
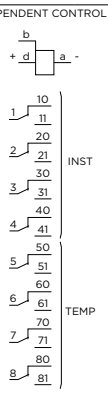
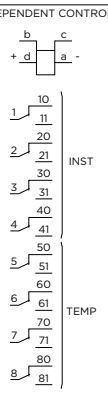
[1] Other voltages upon request
[2] Guarantee data for relays just manufactured
[3] Ask for higher altitudes
[4] Voltage not recognized by UL
[5] At the end of working life

TIME-LAG RELAYS (I)

Model	TDF-2	TDF-4	TDF-22
			
Applications	Electrical command timing		
Construction characteristics			
Timing Contacts no.	2 Changeover	4 Changeover	2 Changeover
Instantaneous contact no.	0 Changeover	0 Changeover	2 Changeover
Connections			
Options (With OP options)			
Weight (g)	265		
Dimensions (mm)	(A) 42,5 x (B) 50,4 x (C) 96,6 (F large type)		
Coil characteristics			
Standard voltages[1]	24, 48, 72, 96, 110, 125, 220, 250 [4] Vdc/Vac (50-60 Hz)		
Voltage range	+25% -30% U_N (except range 250) [4]		
Pick-up / release voltage	See power supply-temperature charts for time-lag relays		
Average consumption in permanence (U_N)	2,6 W	3,85 W	5,35 W
Operating time			
Time range	between 0,03 s to 99 h		
Pick-up time	< 23 ms		
Drop-out time	< 40 ms		
Contacts			
Contact type	2 Changeover	4 Changeover	
Contact material	AgNi		
Contacts resistance[2]	≤ 15 mΩ		
Max. contacts resistance[5]	40 mΩ at 10 A		
Distance between contacts	1,2 mm		
Permanent current	10 A		
Instantaneous current	30 A during 1 s / 80 A during 200 ms / 200 A during 10 ms		
Wetting current/voltage	12 Vdc, 10 mA		
Max. making capacity	40 A, 0,5 s, 110 Vdc / 30A, 1 s, 36 Vdc, 30.000 operations (1 op/ 15 s)		
Breaking capacity	See breaking capacity curves (Contact configuration type B)		
Max. breaking capacity	See value for 50,000 operations		
U_{max} opened contact	250 Vdc / 400 Vac		
General data			
Mechanical endurance	10^7 operations		
Dielectric strength	2 kV (between independent circuits) / 1,5 kV (between open contacts)		
Impulse voltage	5 kV (between independent circuits) / 2,5 kV (between open contacts)		
Insulation resistance	>1000 GΩ		
Operating temperature	Up to 125 Vdc: -40ºC +70ºC / 220 Vdc - 250 Vdc: -40º+55ºC		
Storage temperature	-40ºC +85ºC		
Max. operating humidity	93% / +40ºC		
Operating altitude[3]	<2000 m		

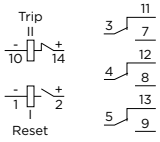
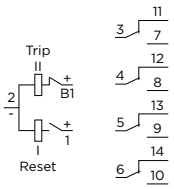
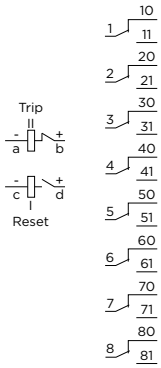
[1] Other voltages upon request
[2] Guarantee data for relays just manufactured
[3] Ask for higher altitudes
[4] UL in progress for this voltage
[5] At the end of working life

TIME-LAG RELAYS (II)

Model	TDJ-8	TDJ-44
		
Applications	Electrical Command Timing	
Construction characteristics		
Timing Contacts no.	8 Changeover	4 Changeover
Instantaneous contact no.	0 Changeover	4 Changeover
Connections	 	 
Options (With OP options)	**S d-a** Supply Voltage **C b-a** Control Voltage	**S d-a** Supply Voltage **C b-c** Control Voltage
Weight (g)	500	
Dimensions (mm)	(A) 82,5 x (B) 50,4 x (C) 96,6 (J large type)	
Coil characteristics		
Standard voltages[1]	24, 48, 72, 96, 110, 125, 220, 250 [4] Vdc/Vac (50-60 Hz)	
Voltage range	+25% -30% U_N (except range 250: +10% -20%)	
Pick-up / release voltage	See power supply-temperature charts for time-lag relays	
Average consumption in permanence (U_N)	6 W	7,9 W
Operating time		
Time range	between 0,03 s to 99 h	
Pick-up time	<23 ms	
Drop-out time	<40 ms	
Contacts		
Contact type	8 Changeover	
Contact material	AgNi	
Contacts resistance[2]	≤ 15 mΩ	
Max. contacts resistance[5]	40 mΩ at 10 A	
Distance between contacts	1,2 mm	
Permanent current	10 A	
Instantaneous current	30 A during 1s / 80 A during 200 ms / 200 A during 10 ms	
Wetting current/voltage	12 Vdc, 10 mA	
Max. making capacity	40 A, 0,5 s, 110 Vdc / 30A, 1 s, 36 Vdc, 30.000 operations (1 op/ 15 s)	
Breaking capacity	See breaking capacity curves (Contact configuration type B)	
Max. breaking capacity	See value for 50,000 operations	
U_{max} opened contact	250 Vdc / 400 Vac	
General data		
Mechanical endurance	10^7 operations	
Dielectric strength	2 kV (between independent circuits) / 1,5 kV (between open contacts)	
Impulse voltage	5 kV (between independent circuits) / 2,5 kV (between open contacts)	
Insulation resistance	>1000 GΩ	
Operating temperature	Up to 125 Vdc: -40ºC +70ºC / 220 Vdc - 250 Vdc: -40º+55ºC	
Storage temperature	-40ºC +85ºC	
Max. operating humidity	93% / +40ºC	
Operating altitude[2]	<2000 m	

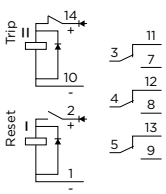
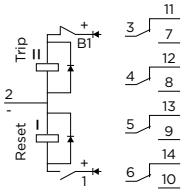
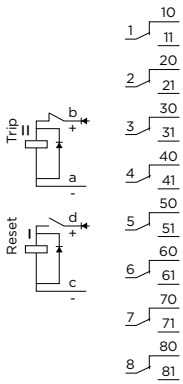
[1] Other voltages upon request
[2] Guarantee data for relays just manufactured
[3] Ask for higher altitudes
[4] UL in progress for this voltage
[5] At the end of working life

GENERAL PURPOSE LATCHING RELAYS

Model	BF-3	BF-4	BJ-8
			
Applications	Relays with two stable positions. Required when the position memory (open-close, automatic-manual, local-remote...) is needed.		
Construction characteristics			
Contacts no.	3 Changeover	4 Changeover	8 Changeover
Connections			
Options	Options are not available		
Weight (g)	300		600
Dimensions (mm)	(A) 45 x (B) 45 x (C) 96,5 (F large type)		(A) 90 x (B) 50 x (C) 100,5 (J large type)
Coil characteristics			
Standard voltages[1]	24, 48, 72, 96, 110, 125, 220 Vdc / 63,5, 110, 127, 230 Vac (50-60 Hz)		
Voltage range	+25% -30% U_N		
Pick-up voltage	See pick-up voltage / temperature curves for Latching relays		
Average consumption only in the change-over	6 W		12 W
Operating time			
Pick-up time	<20 ms		
Contacts			
Contact material	AgNi		
Contacts resistance[3]	≤ 15 mΩ		
Max. contacts resistance[4]	40 mΩ at 10 A		
Distance between contacts	1,8 mm		
Permanent current	10 A		
Instantaneous current	80 A during 200 ms / 200 A during 10 ms		
Wetting current/voltage	12 Vdc, 10 mA		
Max. making capacity	40 A, 0,5 s, 110 Vdc / 30A, 1 s, 36 Vdc, 30.000 operations (1 op/ 15 s)		
Breaking capacity	See breaking capacity curves (Contact configuration type A)		
Max. breaking capacity	See value for 50,000 operations		
U_{max} opened contact	250 Vdc / 400 Vac		
General data			
Mechanical endurance	10^7 operations		
Dielectric strength	2 kV (between independent circuits) / 1,5 kV (between open contacts)		
Impulse voltage	5 kV (between independent circuits) / 2,5 kV (between open contacts)		
Insulation resistance	>1000 GΩ		
Operating temperature	-40ºC +70ºC		
Storage temperature	-40ºC +85ºC		
Max. operating humidity	93% / +40ºC		
Operating altitude[2]	<2000 m		

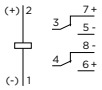
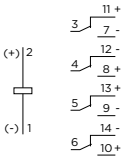
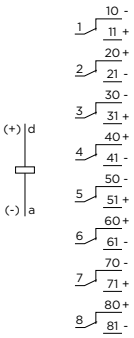
[1] Other voltages upon request
[2] Ask for higher altitudes
[3] Guarantee data for relays just manufactured
[4] At the end of working life

LATCHING RELAYS WITH COIL OVERVOLTAGE PROTECTION

Model	BF-3BB	BF-4BB	BJ-8BB
			
Applications	Intended to protect the contact of the equipment that feeds the coil in our relay.		
Construction characteristics			
Contacts no.	3 Changeover	4 Changeover	8 Changeover
Connections			
Options	Options are not available		
Weight (g)	300		600
Dimensions (mm)	(A) 45 x (B) 45 x (C) 96,5 (F large type)		(A) 90 x (B) 50 x (C) 100,5 (J large type)
Coil characteristics			
Standard voltages[1]	24, 48, 72, 110, 125, 220 Vdc[3]		
Voltage range	+25% -30% U_N		
Pick-up voltage	See pick-up voltage / temperature curves for Latching relays		
Average consumption only in the change-over	6 W		12 W
Operating time			
Pick-up time	<20 ms		
Contacts			
Contact material	AgNi		
Contacts resistance[4]	≤ 15 mΩ		
Max. contacts resistance[5]	40 mΩ at 10 A		
Distance between contacts	1,8 mm		
Permanent current	10 A		
Instantaneous current	80 A during 200 ms / 200 A during 10 ms		
Wetting current/voltage	12 Vdc, 10 mA		
Max. making capacity	40 A, 0,5 s, 110 Vdc / 30A, 1 s, 36 Vdc, 30.000 operations (1 op/ 15 s)		
Breaking capacity	See breaking capacity curves (Contact configuration type A)		
Max. breaking capacity	See value for 50,000 operations		
U_{max} opened contact	250 Vdc / 400 Vac		
General data			
Mechanical endurance	10^7 operations		
Dielectric strength	2 kV (between independent circuits) / 1,5 kV (between open contacts)		
Impulse voltage	5 kV (between independent circuits) / 2,5 kV (between open contacts)		
Insulation resistance	>1000 GΩ		
Operating temperature	-40ºC +70ºC		
Storage temperature	-40ºC +85ºC		
Max. operating humidity	93% / +40ºC		
Operating altitude[2]	<2000 m		

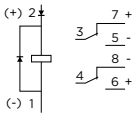
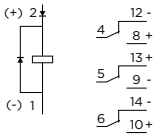
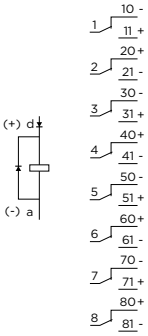
[1] Other voltages upon request
[2] Ask for higher altitudes
[3] Vac voltages upon request
[4] Guarantee data for relays just manufactured
[5] At the end of working life

CONTACTORS (I)

Model	CD-2	CF-4	CJ-8
			
Applications	Opening inductive load in DC circuits. NO contacts are heavy duty contacts, and NC contacts are standard contacts.		
Construction characteristics			
Contacts no.	2 Changeover polarized	4 Changeover polarized	8 Changeover polarized
Connections			
Options			
Weight (g)	129	254	505
Dimensions (mm)	(A) 22,5 x (B) 50,4 x (C) 72 (D short type)	(A) 42,5 x (B) 50,4 x (C) 72 (F short type)	(A) 82,5 x (B) 50,4 x (C) 72 (J short type)
Coil characteristics			
Standard voltages[1]	24, 48, 72, 96, 110, 125, 220 Vdc / 24, 48, 63,5, 110, 230 Vac (50-60Hz)		
Voltage range	+25% -30% U_N		
Pick-up / release voltage	See pick-up/release voltage-temperature curves		
Average consumption in permanence (U_N)	2,6 W	3,9 W	6 W
Operating time			
Pick-up time	< 20 ms		
Drop-out time	50ms		
Contacts			
Contact material	AgNi		
Contacts resistance[2]	≤ 15 mΩ		
Max. contacts resistance[4]	40 mΩ at 10 A		
Distance between contacts	1,2 mm		
Permanent current	10 A		
Instantaneous current	30 A during 1 s / 80 A during 200 ms / 200 A during 10 ms		
Wetting current/voltage	12 Vdc, 10 mA		
Max. making capacity	40 A, 0,5 s, 110 Vdc / 30A, 1 s, 36 Vdc, 30.000 operations (1 op/ 15 s)		
Breaking capacity	See breaking capacity curves (Contactor curve for the NO contacts, standard instantaneous relay curves for NC contacts)		
Max. breaking capacity	125 VDC - 40ms: Contacts NA 6 Amp. 10^5 operations - 15 Amp. 100 operations; Contacts NC 0,52 Amp. 50000 operations		
U_{max} opened contact	250 Vdc / 400 Vac		
General data			
Mechanical endurance	10^7 operations		
Dielectric strength	2 kV (between independent circuits) / 1,5 kV (between open contacts)		
Impulse voltage	5 kV (between independent circuits) / 2,5 kV (between open contacts)		
Insulation resistance	>1000 GΩ		
Operating temperature	-40ºC +70ºC		
Storage temperature	-40ºC + 85ºC		
Max. operating humidity	93% / +40ºC		
Operating altitude[3]	<2000 m		

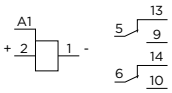
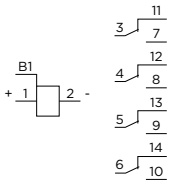
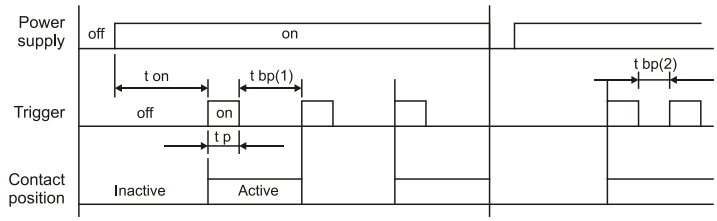
[1] Other voltages upon request
[2] Guarantee data for relays just manufactured
[3] Ask for higher altitudes
[4] At the end of working life

CONTACTORS (II)

Model	CD-2DI	CF-4DI	CJ-8DI
			
Applications	Contactors with coil overvoltage protection		
Construction characteristics			
Contacts no.	2 Changeover polarized	4 Changeover polarized	8 Changeover polarized
Connections			
Options			
Weight (g)	129	254	505
Dimensions (mm)	(A) 22,5 x (B) 50,4 x (C) 72 (D short type)	(A) 42,5 x (B) 50,4 x (C) 72 (F short type)	(A) 82,5 x (B) 50,4 x (C) 72 (J short type)
Coil characteristics			
Standard voltages[1]	24, 48, 72, 96, 110, 125, 220 Vdc / 24, 48, 63,5, 110, 230 Vac (50-60Hz)		
Voltage range	+25% -30% U_N		
Pick-up / release voltage	See pick-up/release voltage-temperature curves		
Average consumption in permanence (U_N)	2,6 W	3,9 W	6 W
Operating time			
Pick-up time	<20 ms		
Drop-out time	<50ms		
Contacts			
Contact material	AgNi		
Contacts resistance[2]	≤ 15 mΩ		
Max. contacts resistance[4]	40 mΩ at 10 A		
Distance between contacts	1,2 mm		
Permanent current	10 A		
Instantaneous current	30 A during 1 s / 80 A during 200 ms / 200 A during 10 ms		
Wetting current/voltage	12 Vdc, 10 mA		
Max. making capacity	40 A, 0,5 s, 110 Vdc / 30A, 1 s, 36 Vdc, 30.000 operations (1 op/ 15 s)		
Breaking capacity	See breaking capacity curves (Contactor curve for the NO contacts, standard instantaneous relay curves for NC contacts)		
Max. breaking capacity	125 VDC - 40ms: Contacts NA 6 Amp. 10^5 operations - 15 Amp. 100 operations; Contacts NC 0,52 Amp. 50000 operations		
U_{max} opened contact	250 Vdc / 400 Vac		
General data			
Mechanical endurance	10^7 operations		
Dielectric strength	2 kV (between independent circuits) / 1,5 kV (between open contacts)		
Impulse voltage	5 kV (between independent circuits) / 2,5 kV (between open contacts)		
Insulation resistance	>1000 GΩ		
Operating temperature	-40ºC +70ºC		
Storage temperature	-40ºC +85ºC		
Max. operating humidity	93% / +40ºC		
Operating altitude[3]	<2000 m		

[1] Other voltages upon request
[2] Guarantee data for relays just manufactured
[3] Ask for higher altitudes
[4] At the end of working life

IMPULSE RELAY

Model	RBF-2	RBF-4
		
Applications	Latching relay with a single input, the state of the contacts change with each input pulse. Auxiliary supply is needed.	
Construction characteristics		
Contacts no.	2 Changeover	4 Changeover
Connections	 **S 2-1** Supply Voltage **C A1-1** Control Voltage	 **S 1-2** Supply Voltage **C B1-2** Control Voltage
Operation Chart **t on:** Turn on time <= 30ms. **t bp:** Minimum time between pulses, 30ms. t bp(1)>= 30ms t bp(2) < 30ms **t p:** Trigger minimum length, 30ms (max. 99 hours)		
Weight (g)	265	
Dimensions (mm)	(A) 42,5 x (B) 50,4 x (C) 96,6 (F large type)	
Coil characteristics		
Standard voltages[1]	24, 48, 72, 96, 110, 125, 250 Vdc/Vac (50-60 Hz)	
Voltage range	+25% -30% U_N (except range 250)	
Pick-up / release voltage	See power supply-temperature charts for impulse relay	
Average consumption in permanence (U_N)	2,6 W	3,85 W
Operating time		
Pick-up time	< 23 ms	
Drop-out time	< 40 ms	
Contacts		
Contact type	2 Changeover	4 Changeover
Contact material	AgNi	
Contacts resistance[2]	≤ 15 mΩ	
Max. contacts resistance[4]	40 mΩ at 10 A	
Distance between contacts	1,2 mm	
Permanent current	10 A	
Instantaneous current	30 A during 1 s / 80 A during 200 ms / 200 A during 10 ms	
Wetting current/voltage	12 Vdc, 10 mA	
Max. making capacity	40 A, 0,5 s, 110 Vdc / 30A, 1 s, 36 Vdc, 30.000 operations (1 op/ 15 s)	
Breaking capacity	See breaking capacity curves (Contact configuration type B)	
Max. breaking capacity	See value for 50,000 operations	
U_{max} opened contact	250 Vdc / 400 Vac	
General data		
Mechanical endurance	10^7 operations	
Dielectric strength	2 kV (between independent circuits) / 1,5 kV (between open contacts)	
Impulse voltage	5 kV (between independent circuits) / 2,5 kV (between open contacts)	
Insulation resistance	>1000 GΩ	
Operating temperature	Up to 125 Vdc: -40ºC +70ºC / 220 Vdc - 250 Vdc: -40º+55ºC	
Storage temperature	-40ºC +85ºC	
Max. operating humidity	93% / +40ºC	
Operating altitude[2]	<2000 m	

[1] Other voltages upon request
[2] Guarantee data for relays just manufactured
[3] Ask for higher altitudes
[4] At the end of working life

BREAKING CAPACITY

› With devices operating worldwide, also heavy industries like oil & gas sector trust in our relays.

BREAKING CAPACITY

The breaking capacity is a critical parameter on the design and the application of the relay. Its mechanical life could be considerably reduced, depending on the value of the load (especially with heavy duty loads), the number of operations and the environmental conditions in which the relay is operating.

In any configuration, ARTECHE's auxiliary relays have high breaking capacity values. These limits are shown in the table below, in terms of power and current values. In all cases, these relays guarantee the correct performance during 50,000 operations.

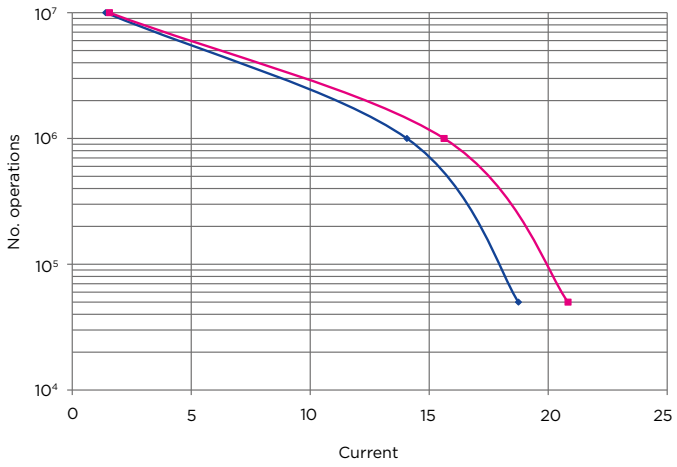
Likewise, the values shown in the following charts have been obtained in standard conditions in the laboratory, and they could be different in real conditions. In any case, the possibility of connecting serial contacts or a bigger distance between contacts makes these values to be considerably increased.

INSTANTANEOUS, LATCHING, TIMERS AND PULSE RELAYS

24 Vdc voltage
Different load configurations.

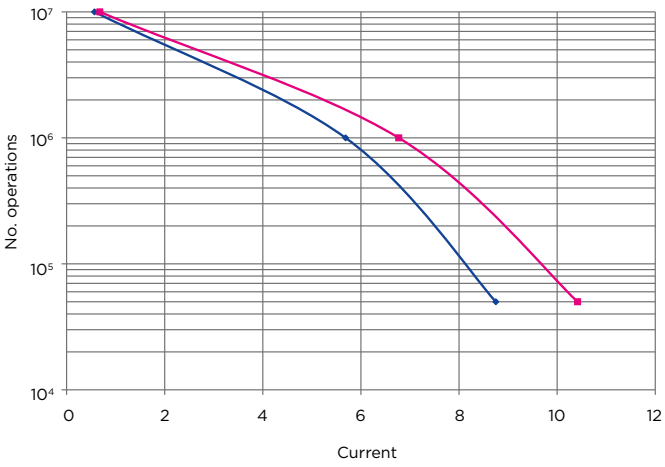
Resistive load:

› L/R= 0 ms.



Highly inductive load:

› L/R= 40 ms.



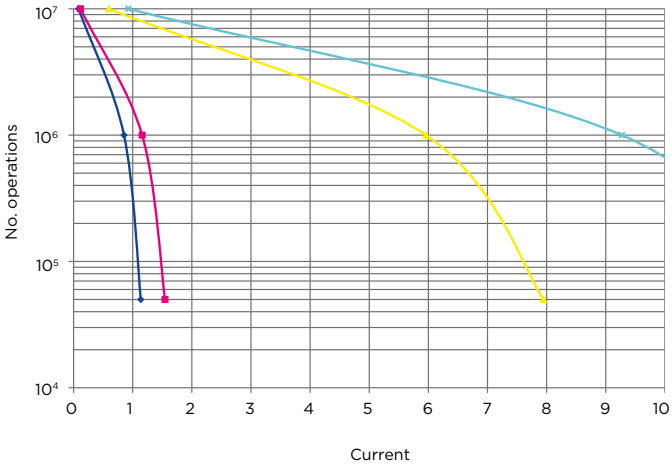
Distance between contacts = 1,8 mm
Distance between contacts = 1,2 mm

		0 ms		20 ms		40 ms	
Vdc	Contact configuration	P(W)	I(A)	P(W)	I(A)	P(W)	I(A)
24	Distance between contacts = 1,8 mm	500	20,83	370	15,42	250	10,42
	Distance between contacts = 1,2 mm	450	18,75	300	12,50	210	8,75

110 Vdc voltage
Different load configurations.

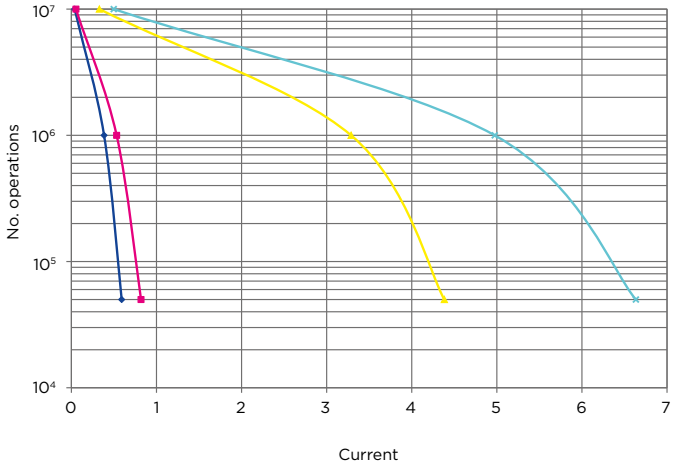
Resistive load:

› L/R= 0 ms.



Highly inductive load:

› L/R= 40 ms.



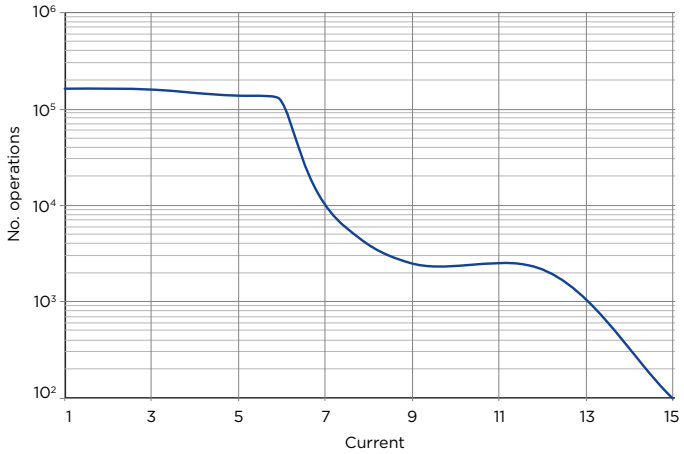
- Distance between contacts = 1,8 mm
- Distance between contacts = 1,2 mm
- 2 contacts in series. Distance between contacts = 1,8 mm
- 2 contacts in series. Distance between contacts = 1,2 mm

		0 ms		20 ms		40 ms	
Vdc	Contact configuration	P(W)	I(A)	P(W)	I(A)	P(W)	I(A)
110	Distance between contacts = 1,8 mm	170	1,55	140	1,27	90	0,82
	Distance between contacts = 1,2 mm	125	1,14	100	0,91	65	0,59
	2 contacts in series. Distance between contacts = 1,8 mm	1.360	12,36	1.106	10,05	730	6,63
	2 contacts in series. Distance between contacts = 1,2 mm	874	7,95	742	6,74	482	4,38

CONTACTORS

110 Vdc
Voltage

› L/R= 40 ms.



HOW TO SELECT THE CURVE OF MY RELAY

These charts show the breaking capacity values, either for resistive and highly inductive loads, in three voltage values of reference (ask for other voltage values). The charts show two different curves:

- Pink Curve: Breaking capacity of the relays with distance between contacts = 1.8 mm.
- Blue Curve: Breaking capacity of the relays with distance between contacts = 1.2 mm.

The distance between contacts is shown in the tables of technical data.

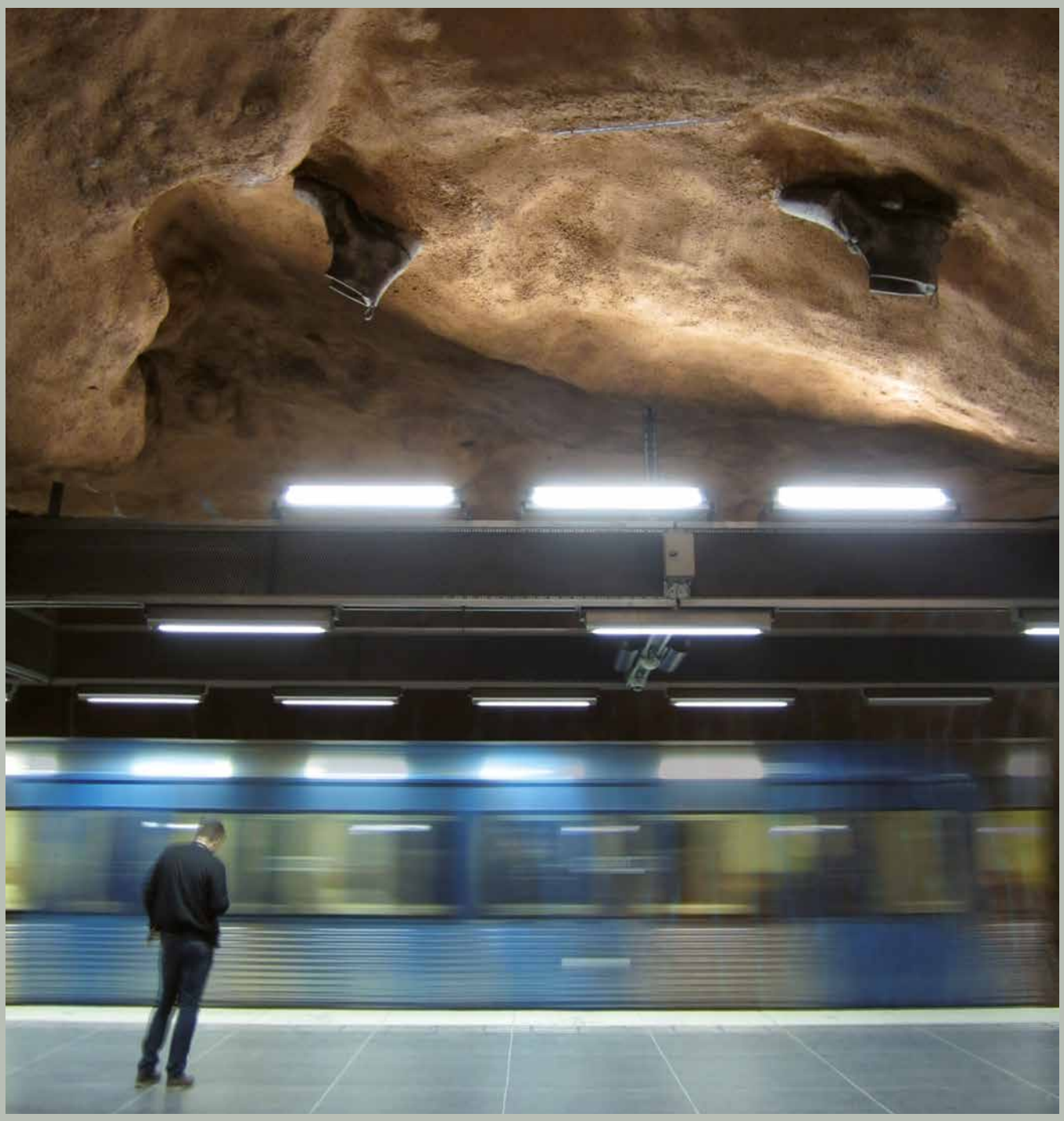
HOW THE BREAKING CAPACITY CAN BE INCREASED

Although ARTECHE auxiliary relays are power relays, designed to have a high breaking capacity, there are applications where the loads are so high that it is necessary to even increase the breaking capacity, keeping the reliability of the contacts of the auxiliary relays.

Thus, ARTECHE relays offer the possibility of connecting 2 or more contacts in series giving an important increase of breaking capacity, guaranteeing the right performance during a high number of operations.

The breaking capacity obtained is shown in the breaking capacity charts with yellow and light blue colours.

PICK-UP VOLTAGE/RELEASE VOLTAGE-TEMPERATURE CHARTS

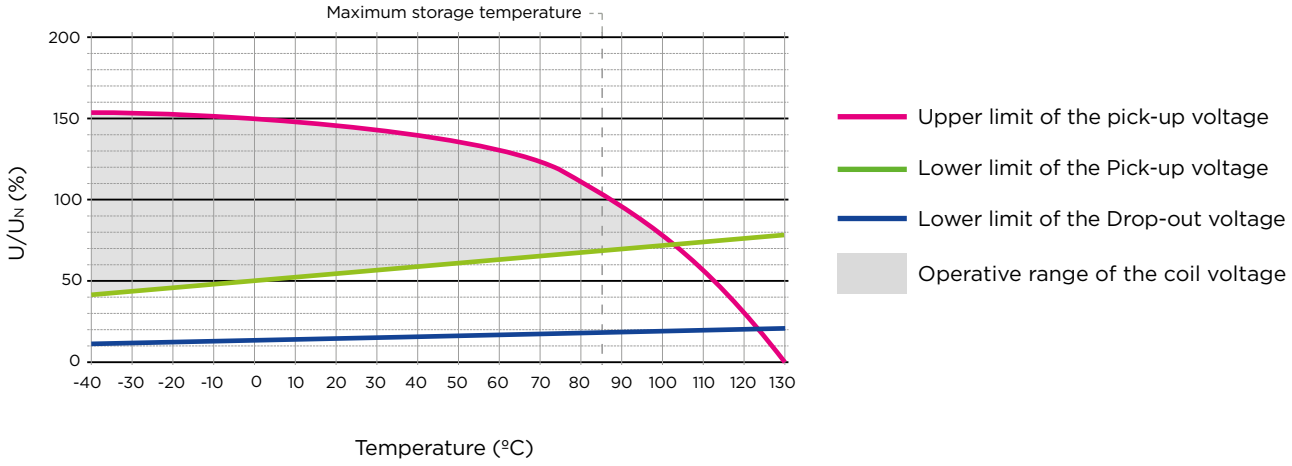


INSTANTANEOUS RELAYS AND CONTACTORS

Variability of operative voltage range against temperature for the instantaneous auxiliary relays.

INSTANTANEOUS RELAYS WITH AND WITHOUT COIL OVERVOLTAGE PROTECTION AND CONTACTORS

Operative range against ambient temperature.

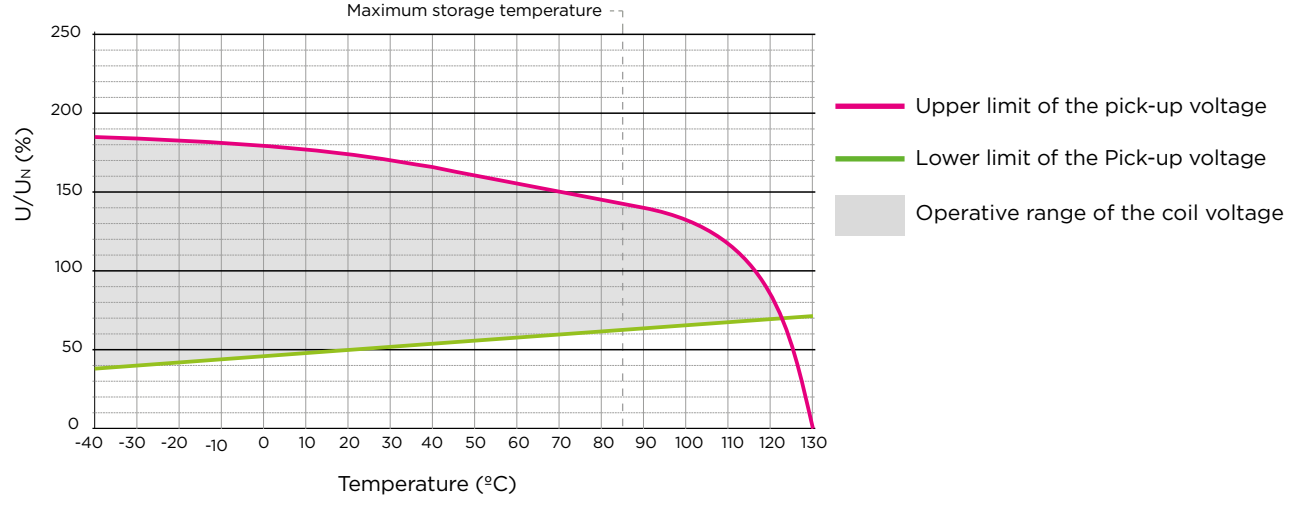


LATCHING RELAYS

The following curve shows the variability of operative voltage range against temperature for the Latching relays.

GENERAL PURPOSE LATCHING RELAYS AND LATCHING RELAYS WITH COIL OVERVOLTAGE PROTECTION

Operative range against ambient temperature.

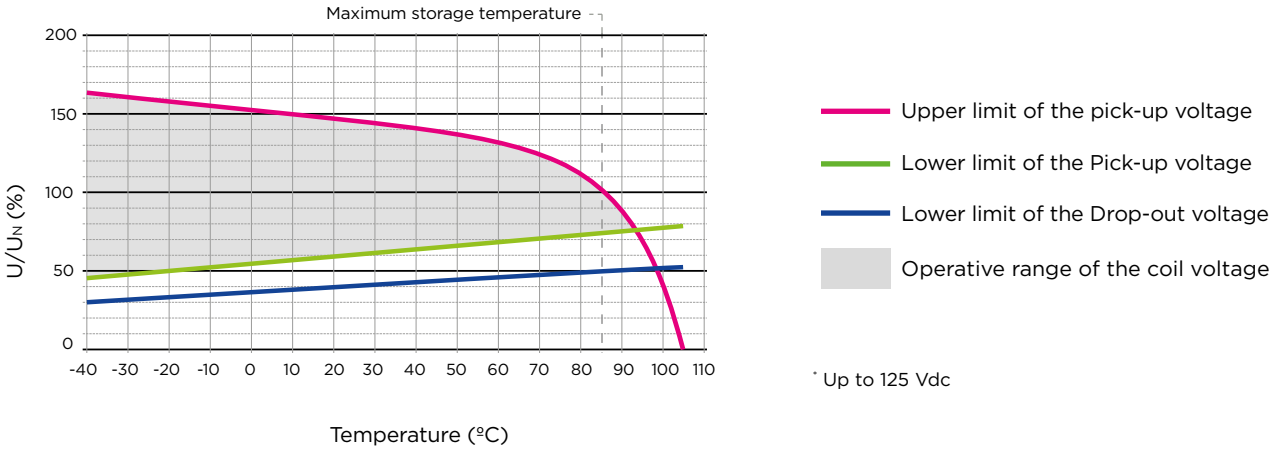


TIME-LAG RELAYS AND IMPULSE RELAY

The following curve shows the variability of operative voltage range against temperature for the time-lag relays.

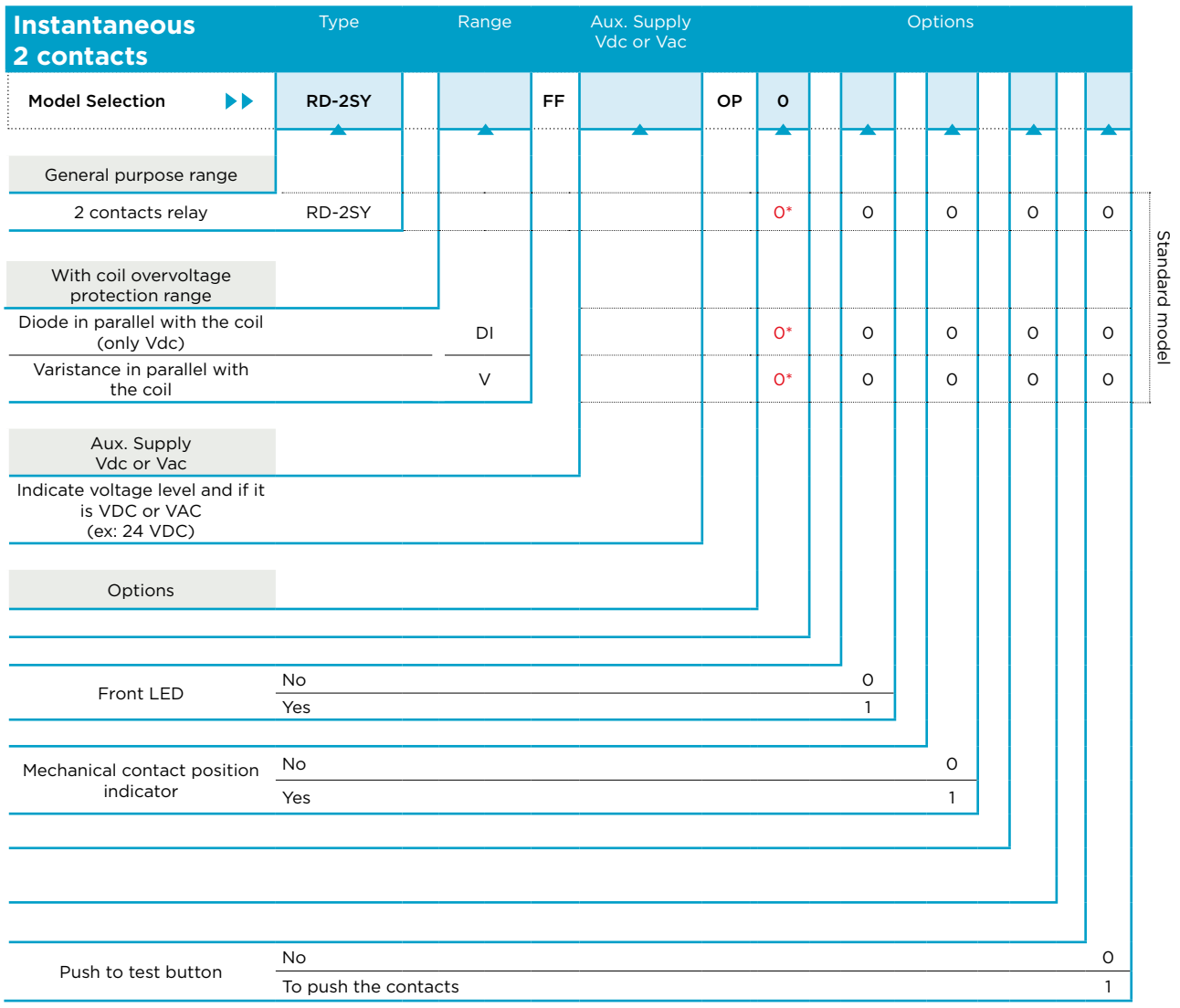
TIME-LAG RELAYS AND IMPULSE RELAY

***Operative range against ambient temperature.**



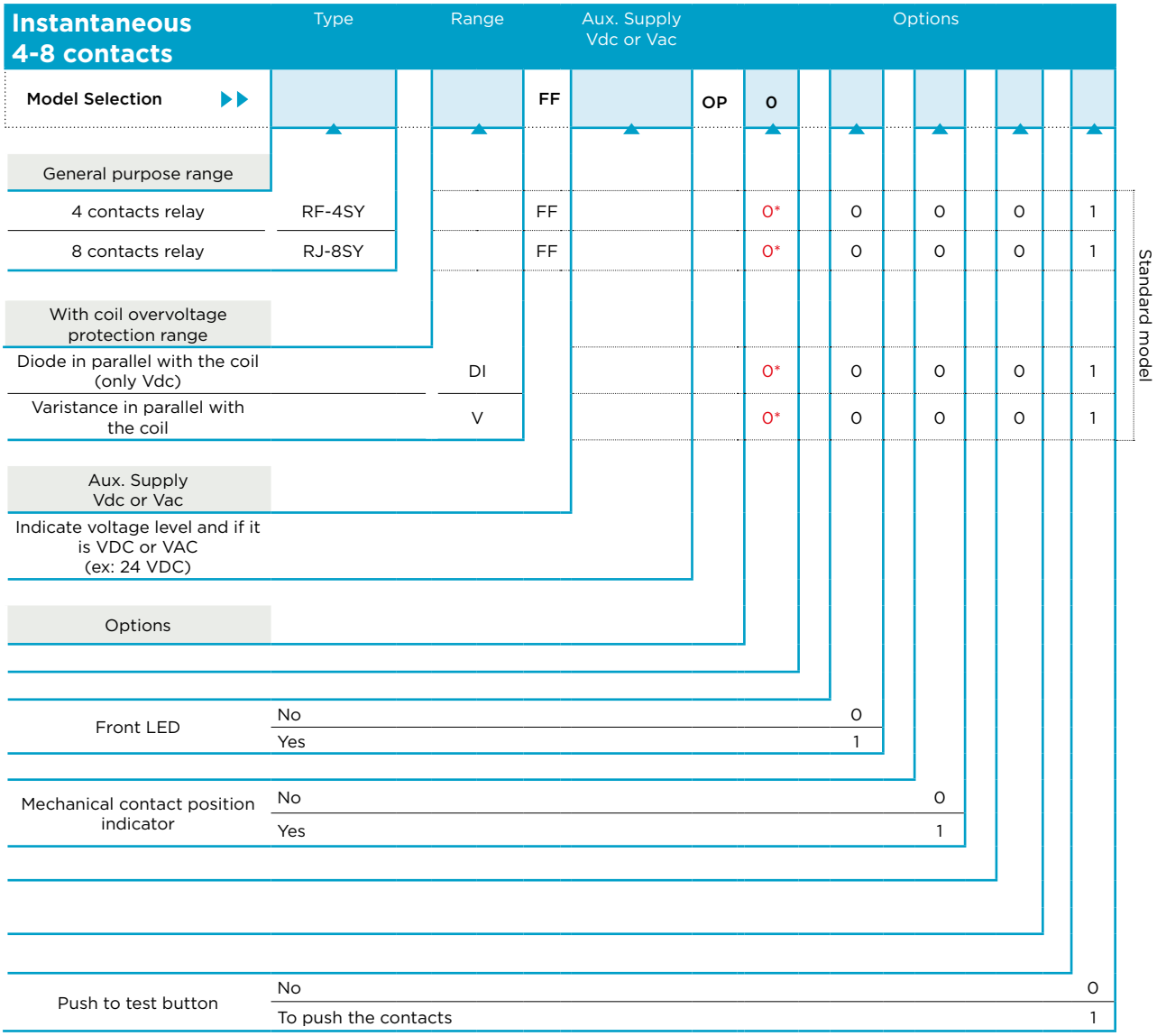
* Up to 125 Vdc

MODEL SELECTION

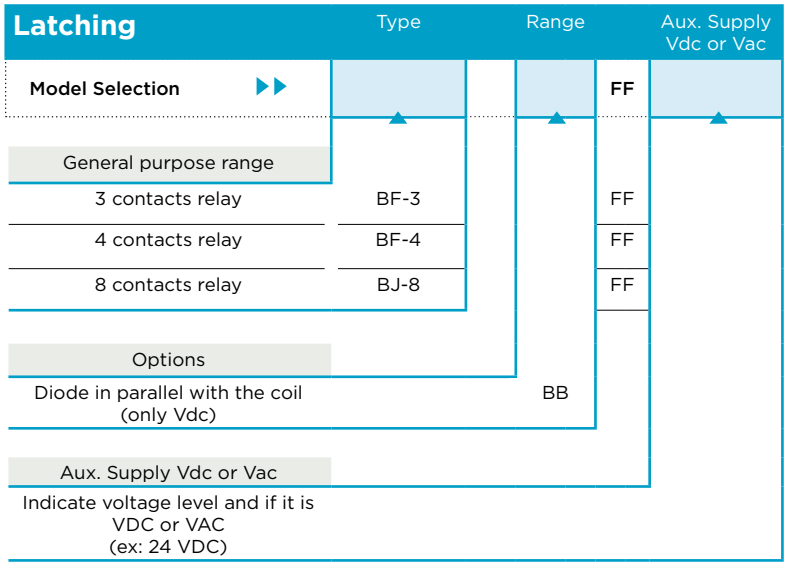


*Mandatory option

MODEL SELECTION



*Mandatory option



Timers

Model Selection ▶▶	Type	Aux. Supply		Options	
		FF	OP	0	0
General purpose range					
Relay with 2 timer contacts	TDF-2	FF		0*	0 / 0*
Relay with 4 timer contacts	TDF-4	FF		0*	0 / 0*
Relay with 2 instantaneous contacts + 2 timer contacts	TDF-22	FF		0*	0 / 0*
Relay with 8 timer contacts	TDJ-8	FF		0*	0 / 0*
Relay with 4 instantaneous contacts + 4 timer contacts	TDJ-44	FF		0*	0 / 0*

Standard model

Aux. Supply

Indicate voltage level (ex.: 24Vdc/Vac)

Options

Command sign voltage			
	Dependent Standard		0
	Independent Different voltages for the command signal and the power supply	24 Vdc • Vac	1
		48 Vdc • Vac	2
		60 Vdc • Vac	3
		72 Vdc • Vac	4
		96 Vdc • Vac	5
		110 Vdc • Vac	6
		125 Vdc • Vac	7
		220 Vdc • Vac	8

(*) Mandatory option

Contactors (Instantaneous)

Model Selection ▶▶	Type	Range	Aux. Supply Vdc
			FF
General purpose range			
2 contacts conatctor	CD-2		
4 contacts contactor	CF-4		
8 contacts contactor	CJ-8		

With coil overvoltage protection range

Diode in pararell with the coil	DI
Varistance in pararell with the coil	V

Aux. Supply Vdc

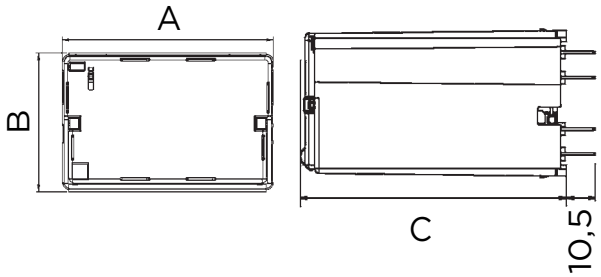
Indicate voltage level (ex:24 Vdc)

Contactors (Timers)	Type		Aux. Supply Vdc/Vac		
Model Selection ▶▶		**FF**		**OP**	
General purpose range					
Contactor with 2 timer contacts	CTF-2	FF			0
Contactor with 4 timer contacts	CTF-4	FF			0
Contactor with 2 instantaneous contacts + 2 timer contacts	CTF-22	FF			0
Contactor with 8 timer contacts	CTJ-8	FF			0
Contactor with 4 instantaneous contacts + 4 timer contacts	CTJ-44	FF			0
Aux. Supply Vdc					
Indicate voltage level (ex:24 Vdc)					
Options					
Command sign and voltage	Dependent Standard				0
	Independent Different voltages for the command signal and the power supply	24 Vdc • Vac			1
		48 Vdc • Vac			2
		60 Vdc • Vac			3
		72 Vdc • Vac			4
		96 Vdc • Vac			5
		110 Vdc • Vac			6
		125 Vdc • Vac			7
		220 Vdc • Vac			8

Standard model

DIMENSIONS OF THE RELAYS

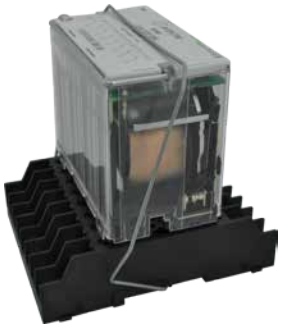
› Dimensions: A x B x C



RETAINING CLIPS

RETAINING CLIPS	OP SOCKET	RELATED PLUGGED RELAY	
E0	Universal (D and F sized sockets require 2 units ; J sized sockets require 4 units)	RD; RF; RJ; TDF; TDJ	Universal (Bag of 20 units)
			Universal (Bag of 100 units)
E41	DN-DE IP, DN-DE 2C IP	RD OP	
E50	DN-TR OP, DN-TR 2C OP	RD OP	
E40	FN-DE IP, FN-DE 2C IP	RF OP	
E43	FN-DE IP, FN-DE 2C IP	TDF OP	
E42	FN-TR OP, FN-TR 2C OP	RF OP	
E44	FN-TR OP, FN-TR 2C OP	TDF OP	
E31	FN-DE IP, FN-DE 2C IP	BF	
E21	FN-TR OP, FN-TR 2C OP	BF	
E45	JN-DE IP, JN-DE 2C IP	RJ OP	
E47	JN-DE IP, JN-DE 2C IP	TDJ OP	
E46	JN-TR OP, JN-TR 2C OP	RJ OP	
E48	JN-TR OP, JN-TR 2C OP	TDJ OP	
E29	JN-DE IP, JN-DE 2C IP	BJ; UJ	
E27	JN-TR OP, JN-TR 2C OP	BJ; UJ	
OTHER ACCESSORIES			
Security pins for RD; RF; RJ; TDF; TDJ relays (bag of 100 units)			

› E0 retaining clips



› E** retaining clips

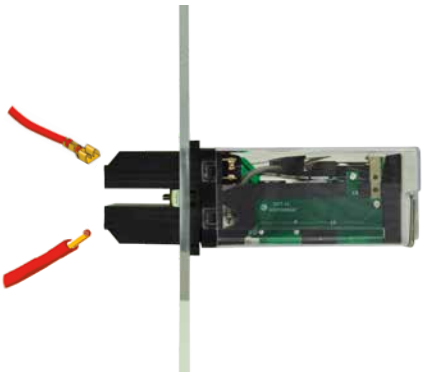
SOCKETS, DIMENSIONS AND CUT-OUT

Sockets		Accessories		
Relay	Type	Screw	Double faston	Weight (g)
D	IP10 Front connection	DN-DE IP10 FF	DN-DE2C IP10 FF	60
	IP20 Front connection	DN-DE IP20 FF	DN-DE2C IP20 FF	60
	IP20 Rear connection	DN-TR OP FF	DN-TR2C OP FF	50
F	IP10 Front connection	FN-DE IP10 FF	FN-DE2C IP10 FF	110
	IP20 Front connection	FN-DE IP20 FF	FN-DE2C IP20 FF	110
	IP20 Rear connection	FN-TR OP FF	FN-TR2C OP FF	90
J	IP10 Front connection	JN-DE IP10 FF	JN-DE2C IP10 FF	225
	IP20 Front connection	JN-DE IP20 FF	JN-DE2C IP20 FF	225
	IP20 Rear connection	JN-TR OP FF	JN-TR2C OP FF	180

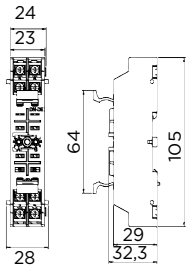
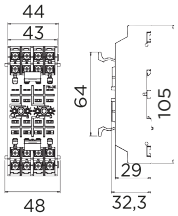
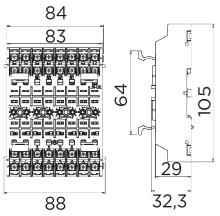
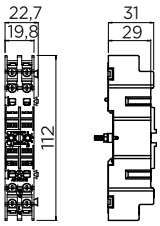
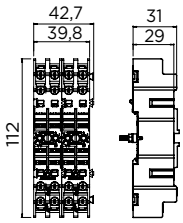
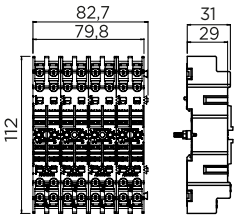
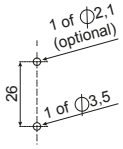
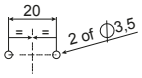
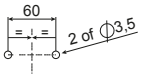
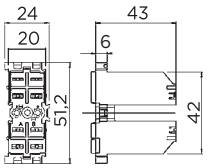
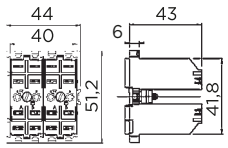
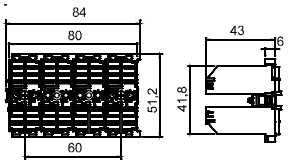
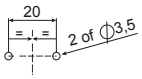
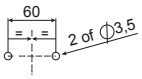
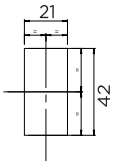
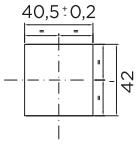
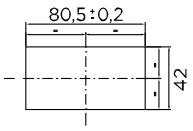
Accessories
Retaining clips
Function signs on the extraction ring
Security pins (*)

(*) Not availble for latching relays

› Front connection socket



› Rear connection socket

	Relays type D	Relays type F	Relays type J
Sockets for DIN rail (1) (2)	DN-DE IP10 FF • DN-DE2C IP10 FF	FN-DE IP10 FF • FN-DE2C IP10 FF	JN-DE IP10 FF • JN-DE2C IP10 FF
			
	DN-DE IP20 FF • DN-DE2C IP20 FF	FN-DE IP20 FF • FN-DE2C IP20 FF	JN-DE IP20 FF • JN-DE2C IP20 FF
			
	Fix Drilling	Fix Drilling	Fix Drilling
			
Sockets for rear connection	DN-TR OP IP10 FF • DN-TR2C OP IP10 FF	FN-TR OP IP10 FF • FN-TR2C OP IP10 FF	JN-TR OP IP10 FF • JN-TR2C OP IP10 FF
			
	Fix Drilling	Fix Drilling	Fix Drilling
			
Cut-Out			

(1) DIN rail according to EN50022 DIN46277/3

(2) Minimum distance between sockets will depend on type of relay and sockets. Please request sockets user manual for more detailed information.

arteche
Moving together

Updates: ARTECHE_CT_Auxiliary-Relays-Railway Sector_EN
Version: 1.8