

arteche



INSTANTANEOUS  
AUXILIARY RELAYS

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



# Moving together

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# ANSWERS FOR ANY APPLICATION

ARTECHE instantaneous auxiliary relays are monoestable relays, whose output contacts change instantaneously from non-working position to working position when its coil is energized, coming back these contacts to the initial non-working position when the coil is no more fed.

ARTECHE instantaneous auxiliary relays range are designed to guarantee the best features and complete security even in the hardest working environment.

The design, durability and quality of the different alternatives that ARTECHE instantaneous relays can offer (FF range and standard range), make them suitable for high responsibility controls in different areas, highlighting:

## ELECTRICAL UTILITIES:

### Power plants, electrical substations.

- › Direct operation on MV / HV (circuit breaker, sectionalizer)
- › Galvanic isolation between the control system and the primary equipment
- › Applications where high speed operation is a must
- › Applications where high breaking capacity is required
- › Tripping functions
- › Contact multiplication in control systems of HV / MV installations and power plants
- › Low duty loads control, activate digital inputs. FF range
- › Specific relays for Nuclear Power Plants



## RAILWAY SECTOR:

### Electrification, signalling, interlocking and rolling stock.

- › Boarding doors locking
- › Brake circuit command
- › Security loop
- › Pantograph control
- › Lighting and air conditioned systems operation
- › Traction system
- › Low duty loads control, activate digital inputs. FF range



## INDUSTRIAL SECTOR:

### Continuous process industries (Petrochemical, concrete, iron industries), water treatment, ...

- › Critical process surveillance
- › Alarms for signalling and telecontrol
- › Galvanic isolation between the control and the power systems
- › Low duty loads control, activate digital inputs. FF range

The great power of the output contacts makes possible direct action on HV and MV switchgear, because their making/breaking capacities, continuous through-current and overvoltage capacity guarantee perfect insulation.

# GENERAL CHARACTERISTICS

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

- › Designed to allow continuous operation even in high temperature ambient, within the whole voltage range.
- › Self-cleaning contacts.
- › High level of electrical insulation between input and output circuits.
- › Security contacts (EN 50205 Standard).
- › Availability of extended voltage range (+25/-30%) for high security applications.
- › Capable to operate under low duty loads, activate digital inputs, and operate without any load. **FF Range.**
- › High speed operation (up to 3 ms).
- › Capable to withstand vibrations and seismic conditions (EN 61373; IEEE 344; IEEE 323; IEEE C37.98 Standards).
- › Sturdy design.
- › Including an internal diode to avoid damaging the relay when connecting with inverse polarity.
- › High protection degree (IP40), with transparent cover, making them suitable for use in salty and tropical atmospheres.
- › In compliance with the most demanding test standards: IEC, EN, IEEE and bearing the CE mark.
- › Wide range of auxiliary voltage levels (Vdc and Vac).
- › Up to 16 output contacts in one single relay for contact multiplication (ask for technical characteristics of the 16 contacts model).
- › Simplicity of installation (plug-in relays in a wide range of sockets with different installation configurations).
- › Capable to work under ambient of 100% humidity.
- › 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 or by the magnetic blow out, high speed operation of the output 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.
- › **IEC 50155** (IEC 60571 equivalent). Railway applications - Rolling stock equipment.
- › **IEC 61373.** Railway applications - Shock and vibration tests.
- › **NFF 16-101 and NFF 16-102.** Rolling stock fire behaviour.
- › **EN 50205.** Relays with forcibly mechanically guided contacts.

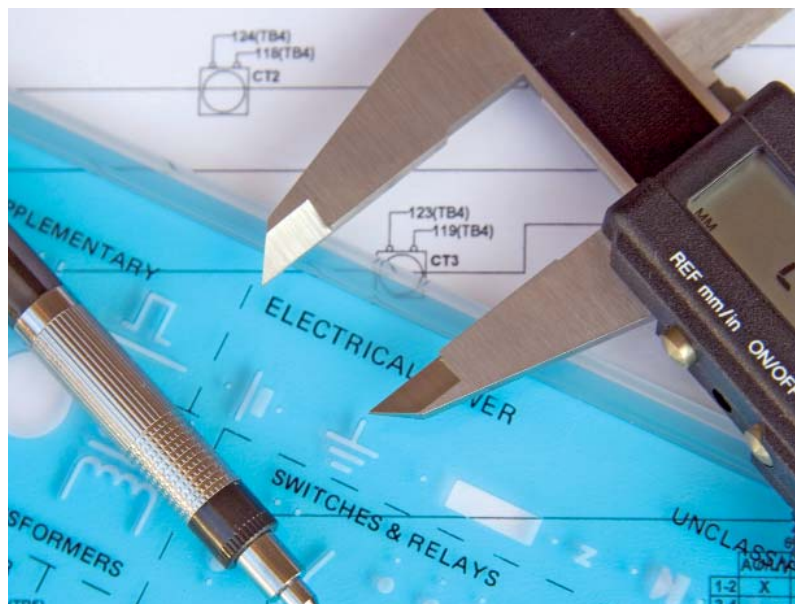
## GENERAL STANDARDS

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.



**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

## GENERAL PURPOSE INSTANTANEOUS AUXILIARY RELAYS

ARTECHE's general purpose instantaneous auxiliary relays are designed to directly operate to the tripping and control circuit.

Their pick-up time lower than 20 ms and the high breaking capacity of their contacts make them appropriate to be used as an interface between the protection system and the breaker. Furthermore, its multiple output contacts permit to use these relays in control and signalling applications as well as per direct operation on HV and MV primary equipments.



## AUXILIARY TRIPPING INSTANTANEOUS RELAYS

ARTECHE offers specific relays intended to be used in tripping applications, where the requirements of pick-up time (with models that assure the trip even in less than 3 ms) and the breaking capacity are demanding, as the trip of HV and MV breakers.

These relays include a standard front LED that indicates when the relay is fed.

Relay trip flag is available, which indicates when the relay has operated, as a memory state.

All the relays include a diode in parallel with the coil (see auxiliary relays with overvoltage protection characteristic) and comply with the shock and vibration standards, related to the relays with seismic characteristics.



## AUXILIARY INSTANTANEOUS RELAYS WITH SEISMIC CHARACTERISTICS

They are designed in order to properly perform under frequent vibration and shock applications, as railway sector, or because of safety requirements as nuclear power plants.

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

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



## INSTANTANEOUS AUXILIARY RELAYS WITH COIL OVERVOLTAGE PROTECTION

ARTECHE's auxiliary relays, either Vdc or Vac, have the possibility of including an element in parallel with the coil (diode or varistance).

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

These elements aimed to discharge the energy of the coil when the relay is not longer energized.

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





# INSTANTANEOUS RELAYS



› Our relays are tested under extreme operating conditions, ensuring the highest level of safety and quality to operate your electrical assets.

# GENERAL PURPOSE INSTANTANEOUS RELAYS

Model	RD-2	RF-4	RJ-8
Applications	Operate directly to the tripping and control circuit.		
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)	22,5 x 50,4 x 72	42,5 x 50,4 x 72 (F short Type)	82,5 x 50,4 x 72 (J short Type)
Coil characteristics			
Standard voltages <sup>(1)</sup>	24, 48, 72, 110, 125, 220 Vdc 24, 48, 63,5, 110, 127, 230, 400 Vac (50-60 Hz) <sup>(4)</sup>		
Voltage range	+10% -20% U <sub>N</sub>		
Pick-up voltage	See pick-up/release voltage-temperature curves		
Release voltage	See pick-up/release voltage-temperature curves		
Consumptions in permanence (U <sub>N</sub> )	2,6 W; 3,3 VA	3,9 W; 6,6 VA	6 W; 11 VA
Operating time			
Pick-up time	<20 ms		
Drop-out time	Vdc: <10 ms • Vac: <50ms With LED: <50ms	Vdc: <15 ms • Vac: <50 ms With LED: <50 ms	
Contacts			
Contact material	AgNi		
Contacts resistance <sup>(2)</sup>	≤30 mΩ / ≤15 mΩ (Range FF)		
Distance between contacts	1,8 mm		
Permanent current	10 A		
Instantaneous current	30 A during 1 s / 80 A during 200 ms / 200 A during 10 ms		
Max. making capacity	40 A / 0,5 s / 110 Vdc		
Breaking capacity	See breaking capacity curves (Contact configuration type A)		
Max. breaking capacity	See value for 50,000 operations		
Max. switching voltage	250 Vdc / 400 Vac		
Performance data			
Mechanical endurance	10 <sup>7</sup> operations		
Operating temperature	-40°C +70°C		
Storage temperature	-40°C +70°C		
Max. operating humidity	93% / +40°C		
Operating altitude <sup>(3)</sup>	<2000 m		


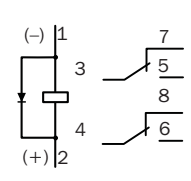
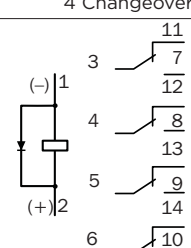
<sup>(1)</sup> Other voltage upon request

<sup>(2)</sup> Guarantee data for relays just manufactured

<sup>(3)</sup> Ask for higher altitudes

<sup>(4)</sup> Voltage not recognized by UL

# TRIP RELAYS (I)

Model	RD-2R	RD-2XR	RF-4R	RF-4XR	
					
Applications	Intended for tripping applications where high demanding requirements in operating time (with tripping time from 8ms to 3 ms) and breaking capacity are needed, that is the case of tripping HV and MV circuit breakers.				
Construction characteristics					
Contacts no.	2 Changeover		4 Changeover		
Connections					
Options	With OP options • LED included • Diode in parallel with the coil included				
Weight (g)	125		250		
Dimensions (mm)	22,5 x 50,4 x 72		42,5 x 50,4 x 72 (F short Type)		
Coil characteristics					
Standard voltages <sup>(1)</sup>	24, 48, 110, 125, 220, 250 <sup>(4)</sup> Vdc / 110, 127, 230 Vac (50-60Hz)	24, 48, 110, 125, 220, 250 Vdc	24, 48, 110, 125, 220, 250 <sup>(4)</sup> Vdc / 110, 127, 230 Vac (50-60 Hz)	24, 48, 110, 125, 220, 250 <sup>(4)</sup> Vdc	
Voltage range	+10% -20% U <sub>N</sub>				
Pick-up voltage	See pick-up/release voltage-temperature curves				
Release voltage	See pick-up/release voltage-temperature curves				
Consumptions	0,95 W		1 W		
	In permanence (U <sub>N</sub> )				
	Peak • ≤96 Vdc	0,8 A / 20 ms	2,5 A / 20 ms	0,8 A / 20 ms	2,5 A / 20 ms
	Peak • >96 Vdc	0,3 A / 20 ms	0,8 A / 20 ms	0,3 A / 20 ms	0,8 A / 20 ms
Operating time					
Pick-up time	<8 ms (<10 ms Vac)	<5,5 ms	<8 ms (<10 ms Vac)	<5,5 ms	
Drop-out time	Vdc: <40 ms Vac: <50 ms	Vdc: <40 ms	Vdc: <40 ms Vac: <50 ms	Vdc: <40 ms	
Contacts					
Contact material	AgNi				
Contacts resistance <sup>(2)</sup>	≤30 mΩ				
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				
Max. making capacity	40 A / 0,5 s / 110 Vdc				
Breaking capacity	See breaking capacity curves (Contact configuration type B)				
Max. breaking capacity	See value for 50.000 operations				
Max. switching voltage	250 Vdc / 400 Vac				
Performance data					
Mechanical endurance	10 <sup>7</sup> operations				
Operating temperature	-25°C +70°C				
Storage temperature	-30°C +70°C				
Max. operating humidity	93% / +40°C				
Operating altitude <sup>(3)</sup>	<2000 m				

<sup>(1)</sup> Other voltage upon request

<sup>(2)</sup> Guarantee data for relays just manufactured

<sup>(3)</sup> Ask for higher altitudes

<sup>(4)</sup> Voltage not recognized by UL

# TRIP RELAYS (II)

Model	RJ-8R	RJ-8XR	RJ-4XR4	
Applications	Intended for tripping applications where high quality requirements in operating time (with models even tripping in less than 3 ms) and breaking capacity are needed, that is the case of tripping HV and MV circuit breakers.			
Construction characteristics				
Contacts no.	8 Changeover		4 Changeover + 4 Fast Singles-Inversors without break power	
Connections				
Options	With OP options • LED included • Diode in parallel with the coil included			
Weight (g)	500		335	
Dimensions (mm)	82,5 x 50,4 x 72 (J short type)		42,5 x 50,4 x 82,5 (F short Type)	
Coil characteristics				
Standard voltages <sup>(1)</sup>	24, 48, 110, 125, 220, 250 <sup>(4)</sup> Vdc/110, 127, 230 Vac (50-60 Hz)	24, 48, 110, 125, 220, 250 <sup>(4)</sup> Vdc	110, 125, 220, 250 <sup>(4)</sup> Vdc	
Voltage range	+10% -20% U <sub>N</sub>		+15% -20% U <sub>N</sub>	
Pick-up voltage	See pick-up/release voltage-temperature curves			
Release voltage	See pick-up/release voltage-temperature curves			
Consumptions	1,4 W		6,5 W	
	In permanence (U <sub>N</sub> )			
	Peak • ≤96 Vdc	0,8 A / 20 ms	2,5 A / 20 ms	25 W / 5 ms
	Peak • >96 Vdc	0,3 A / 20 ms	0,8 A / 20 ms	
Operating time				
Pick-up time	<8 ms Vdc (<10 ms Vac) (Range 24 Vdc <10 ms)	<6,5 ms	Contacts 1-4: <3 ms Contacts 5-8: <20 ms	
Drop-out time	Vdc: <40 ms Vac: <50 ms	Vdc: <40 ms	Contacts 1-4: <25 ms Contacts 5-8: <50 ms	
Contacts				
Contact material	AgNi		Contacts 1-4: AgNi 10 Contacts 5-8: Ag1000	
Contacts resistance <sup>(2)</sup>	≤30 mΩ			
Distance between contacts	1,2 mm		Contacts 5-8: 1,2 mm	
Distance between contacts	10 A		Contacts 5-8: 15 A Contacts 1-4: 8 A	
Instantaneous current	30 A during 1 s / 80 A during 200 ms / 200 A during 10 ms			
Max. making capacity	40 A / 0,5 s / 110 Vdc			
Breaking capacity	See breaking capacity curves (Contact configuration type B)			
Max. breaking capacity	See value for 50,000 operations			
Max. switching voltage	250 Vdc / 400 Vac			
Performance data				
Mechanical endurance	10 <sup>7</sup> operations			
Operating temperature	-25°C +70°C			
Storage temperature	-30°C +70°C			
Max. operating humidity	93% / +40°C			
Operating altitude <sup>(3)</sup>	<2000 m			

<sup>(1)</sup> Other voltage upon request  
<sup>(2)</sup> Guarantee data for relays just manufactured




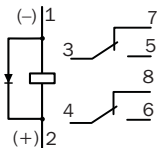
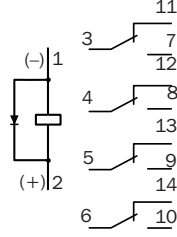
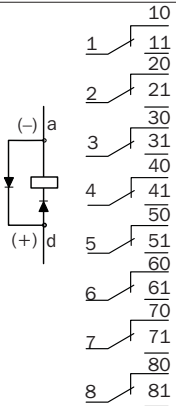
<sup>(3)</sup> Ask for higher altitudes  
<sup>(4)</sup> Voltage not recognized by UL

# INSTANTANEOUS RELAYS WITH SEISMIC CHARACTERISTICS

Model	RD-2SY	RF-4SY	RJ-8SY
Applications	Frequent vibration and shock applications, as railway sector, or because of safety requirements as nuclear power plants.		
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)	22,5 x 50,4 x 72	42,5 x 50,4 x 72 (F short Type)	82,5 x 50,4 x 72 (J short Type)
Coil characteristics			
Standard voltages <sup>(1)</sup>	24, 48, 72, 110, 125, 220 Vdc 24, 48, 63,5, 110, 127, 230, 400 <sup>(4)</sup> Vac (50-60 Hz)		
Voltage range	+25% -30% U <sub>N</sub>		
Pick-up voltage	See pick-up/release voltage-temperature curves		
Release voltage	See pick-up/release voltage-temperature curves		
Consumptions in permanence (U <sub>N</sub> )	2,6 W; 3,3 VA	3,9 W; 6,6 VA	6 W; 11 VA
Operating time			
Pick-up time	< 20 ms		
Drop-out time	Vdc: <10 ms / Vac: <50 ms / With LED	Vdc: <15 ms / Vac: <50 ms / With LED	
Contacts			
Contact material	AgNi		
Contacts resistance <sup>(2)</sup>	≤30 mΩ / ≤15 mΩ (FF Range)		
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		
Max. making capacity	40 A / 0,5 s / 110 Vdc		
Breaking capacity	See breaking capacity curves (Contact configuration type B)		
Max. breaking capacity	See value for 50,000 operations		
Max. switching voltage	250 Vdc / 400 Vac		
Performance data			
Mechanical endurance	10 <sup>7</sup> operations		
Operating temperature	-40°C +70°C		
Storage temperature	-40°C +70°C		
Max. operating humidity	93% / +40°C		
Operating altitude <sup>(3)</sup>	<2000 m		

<sup>(1)</sup> Other voltage upon request  
<sup>(2)</sup> Guarantee data for relays just manufactured  
<sup>(3)</sup> Ask for higher altitudes  
<sup>(4)</sup> Voltage not recognized by UL

# INSTANTANEOUS RELAYS WITH COIL OVERVOLTAGE PROTECTION (I)

Model	RD-2DI RD-2V <sup>(4)</sup>	RF-4DI RF-4V <sup>(4)</sup>	RJ-8DI RJ-8V <sup>(4)</sup>
			
Applications	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)	22,5 x 50,4 x 72	42,5 x 50,4 x 72 (F short Type)	82,5 x 50,4 x 72 (J short Type)
Coil characteristics			
Standard voltages <sup>(1)</sup>	24, 48, 72, 110, 125, 220 Vdc 24, 48, 63,5, 110, 127, 230, 400 <sup>(4)</sup> Vac (50-60 Hz)		
Voltage range	+10% -20% U <sub>N</sub>		
Pick-up voltage	See pick-up/release voltage-temperature curves		
Release voltage	See pick-up/release voltage-temperature curves		
Consumptions in permanence (U <sub>N</sub> )	2,6 W; 3,3 VA	3,9 W; 6,6 VA	6 W; 11 VA
Operating time			
Pick-up time	< 20 ms		
Drop-out time	V Series: <25ms DI Series: <50 ms		
Contacts			
Contact material	AgNi		
Contacts resistance <sup>(2)</sup>	≤30 mΩ / ≤15 mΩ (FF Range)		
Distance between contacts	1,8 mm		
Permanent current	10 A		
Instantaneous current	30 A during 1 s / 80 A during 200 ms / 200 A during 10 ms		
Max. making capacity	40 A / 0,5 s / 110 Vdc		
Breaking capacity	See breaking capacity curves (Contact configuration type A)		
Max. breaking capacity	See value for 50,000 operations		
Max. switching voltage	250 Vdc / 400 Vac		
Performance data			
Mechanical endurance	10 <sup>7</sup> operations		
Operating temperature	-40°C +70°C		
Storage temperature	-40°C +70°C		
Max. operating humidity	93% / +40°C		
Operating altitude <sup>(3)</sup>	<2000 m		

<sup>(1)</sup> Other voltage upon request  
<sup>(2)</sup> Guarantee data for relays just manufactured

<sup>(3)</sup> Ask for higher altitudes  
<sup>(4)</sup> Voltage not recognized by UL

# INSTANTANEOUS RELAYS WITH COIL OVERVOLTAGE PROTECTION (II)

Model	RD-2SYDI RD-2SYV <sup>(4)</sup>	RF-4SYDI RF-4SYV <sup>(4)</sup>	RJ-8SYDI RJ-8SYV <sup>(4)</sup>
Applications	Frequent Vibration and Shock applications, as railway sector, or because of safety requirements as nuclear power plants. 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)	22,5 x 50,4 x 72	42,5 x 50,4 x 72 (F short Type)	82,5 x 50,4 x 72 (J short Type)
<b>Coil characteristics</b>			
Standard voltages <sup>(1)</sup>	24, 48, 72, 110, 125, 220 Vdc 24, 48, 63,5, 110, 127, 230, 400 <sup>(4)</sup> Vac (50-60 Hz)		
Voltage range	+25% -30% U <sub>N</sub>		
Pick-up voltage	See pick-up/release voltage-temperature curves		
Release voltage	See pick-up/release voltage-temperature curves		
Consumptions in permanence (U <sub>N</sub> )	2,6 W; 3,3 VA	3,9 W; 6,6 VA	6 W; 11 VA
<b>Operating time</b>			
Pick-up time	< 20 ms		
Drop-out time	V Series: <25ms DI Series: <50 ms		
<b>Contacts</b>			
Contact material	AgNi		
Contacts resistance <sup>(2)</sup>	≤30 mΩ / ≤15 mΩ (FF Range)		
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		
Max. making capacity	40 A / 0,5 s / 110 Vdc		
Breaking capacity	See breaking capacity curves (Contact configuration type A)		
Max. breaking capacity	See value for 50,000 operations		
Max. switching voltage	250 Vdc / 400 Vac		
<b>Performance data</b>			
Mechanical endurance	10 <sup>7</sup> operations		
Operating temperature	-40°C +70°C		
Storage temperature	-40°C +70°C		
Max. operating humidity	93% / +40°C		
Operating altitude <sup>(3)</sup>	<2000 m		

<sup>(1)</sup> Other voltage upon request

<sup>(3)</sup> Ask for higher altitudes

<sup>(2)</sup> Guarantee data for relays just manufactured

<sup>(4)</sup> Voltage not recognized by UL

# BREAKING CAPACITY



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



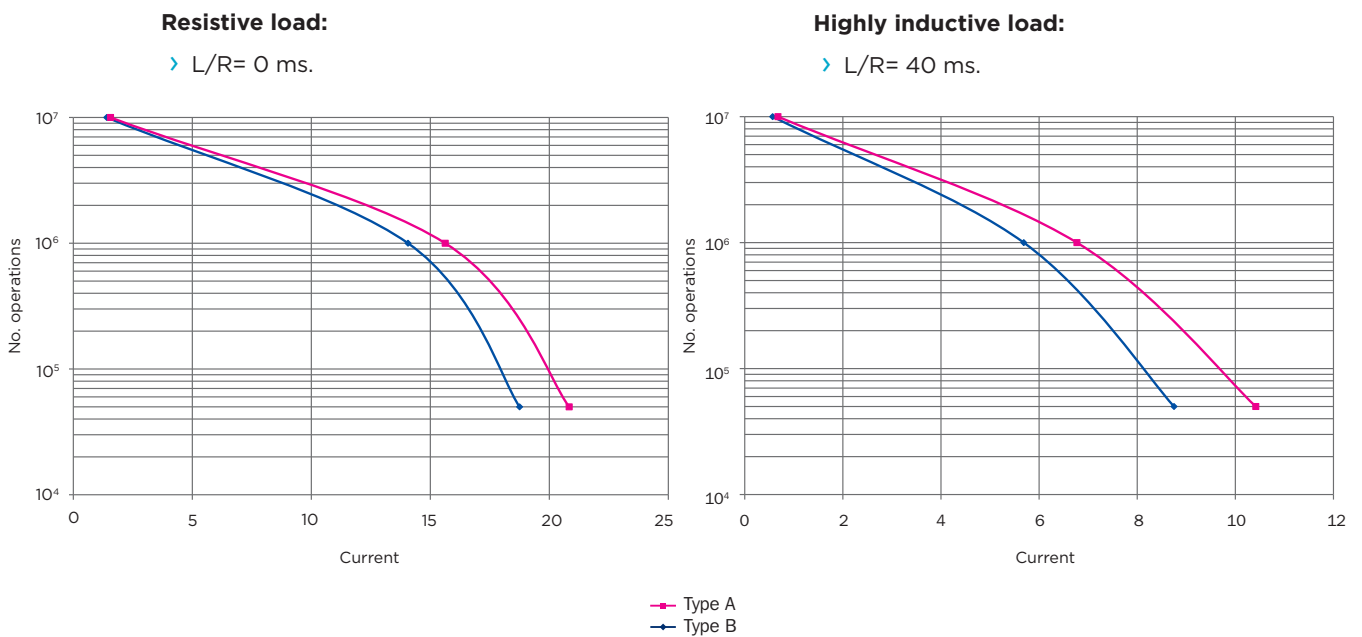
# BREAKING CAPACITY

The breaking capacity is a critical parameter on the design and the applications of the relays. 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 a high breaking capacity values. These limits are showed in the table below, in terms of power and current values. In all the cases, these relays guarantee a right performance during 50,000 operations.

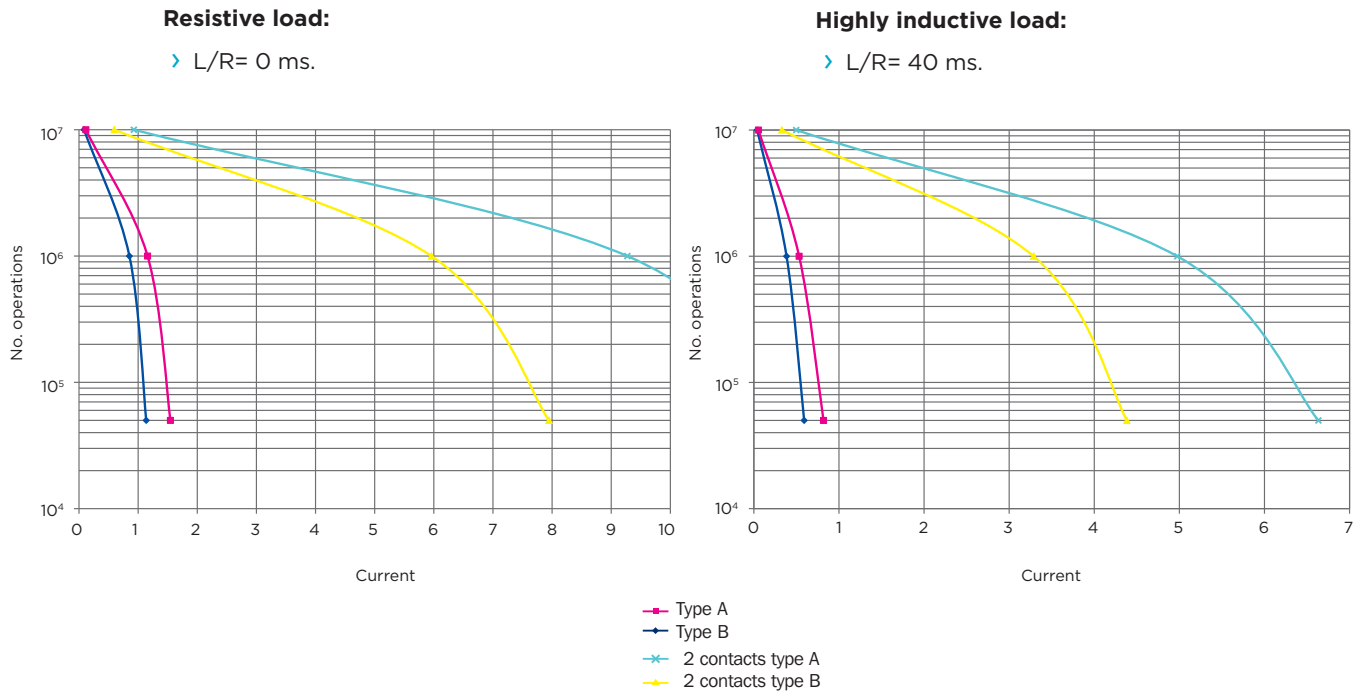
Likewise, the values showed in the following charts have been obtained in standard conditions in the laboratory, and they could be different in real conditions. In any case, the possibility of connecting serial contacts or a bigger distance between contacts makes these values to be considerably increased.

## 24 Vdc voltage Different loads configurations.



Vdc	Contact configuration	0 ms		20 ms		40 ms	
		P(W)	I(A)	P(W)	I(A)	P(W)	I(A)
24	Type A	500	20,83	370	15,42	250	10,42
	Type B	450	18,75	300	12,50	210	8,75

## 110 Vdc voltage Different loads configurations.

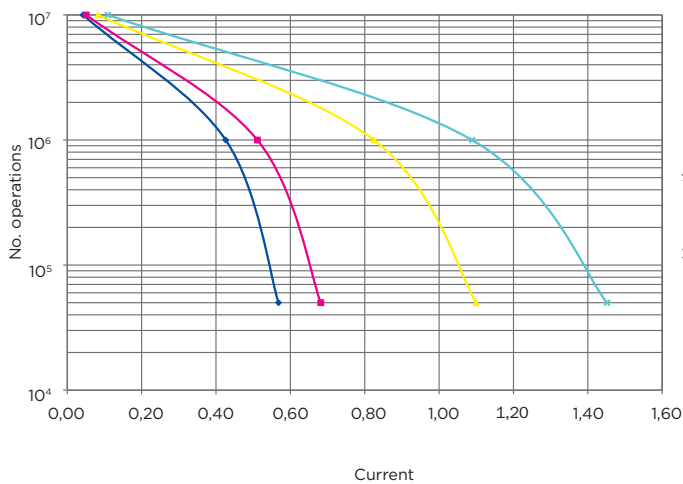


Vdc	Contacts configuration	0 ms		20 ms		40 ms	
		P(W)	I(A)	P(W)	I(A)	P(W)	I(A)
110	Type A	170	1,55	140	1,27	90	0,82
	Type B	125	1,14	100	0,91	65	0,59
	2 contacts type A	1.360	12,36	1.106	10,05	730	6,63
	2 contacts type B	874	7,95	742	6,74	482	4,38

## 220 Vdc voltage Different loads configurations.

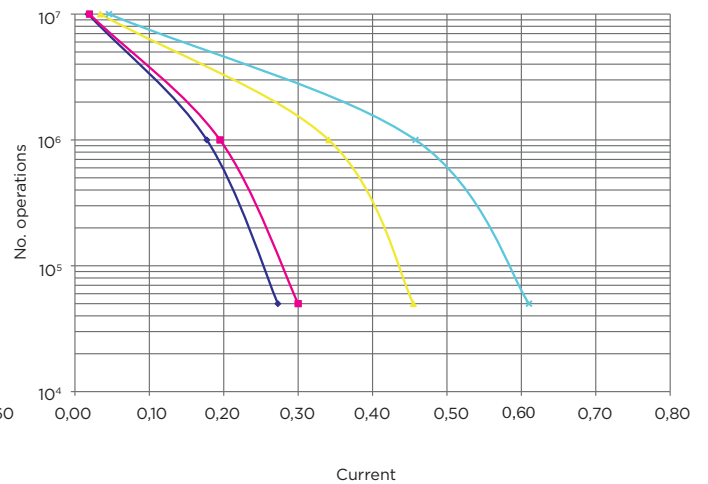
### Resistive load:

> L/R= 0 ms.



### Highly inductive load:

> L/R= 40 ms.



— Type A  
— Type B  
— 2 contacts type A  
— 2 contacts type B

Vdc	Contacts configuration	0 ms		20 ms		40 ms	
		P(W)	I(A)	P(W)	I(A)	P(W)	I(A)
220	Type A	150	0,68	115	0,52	66	0,30
	Type B	125	0,57	104	0,47	60	0,27
	2 contacts type A	319	1,45	234	1,06	134	0,61
	2 contacts type B	242	1,10	177	0,81	100	0,45

## 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:

- › Type A: Breaking capacity of the relays with distance between contacts = 1.8 mm.
- › Type B: Breaking capacity of the relays with distance between contacts = 1.2 mm.
- › 2 contacts type A: Breaking capacity for relays with serial contacts, and distance between contacts=1.8 mm.
- › 2 contacts type B: Breaking capacity for relays with serial contacts, and 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

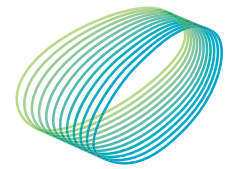
ARTECHE's auxiliary relays are power relays, designed specially to have a high breaking capacity. Thus, there are applications where the loads are so high that it is necessary to even increase the breaking capacity, keeping the reliability of the contacts of the auxiliary relays.

Recommendations to increase breaking capacity:

- › Connect contacts in series. The breaking capacity is increased considerably, guaranteeing the right performance during a high number of operations. See curves for two contacts.
- › Include the magnetic blow-out option: This option is indicated for safety applications (back-up) where the load values are extremely high. The mechanical life of the relay is reduced, but it is able to open very high loads for a certain number of operations.

These values of high breaking capacity are represented in the following table, where the high capacity of the output contacts of ARTECHE's auxiliary relays is proved:

Equipe	I	V	L/R
With contact configuration Type A + magnetic blow out (OP: 1XXXX)	5 A	125 Vdc	40 ms
With contact configuration Type B + magnetic blow out (OP: 1XXXX)			
2 contacts type A + magnetic blow out (OP: 1XXXX)	15 A	125 Vdc	40 ms
2 contacts type B + magnetic blow out (OP: 1XXXX)			



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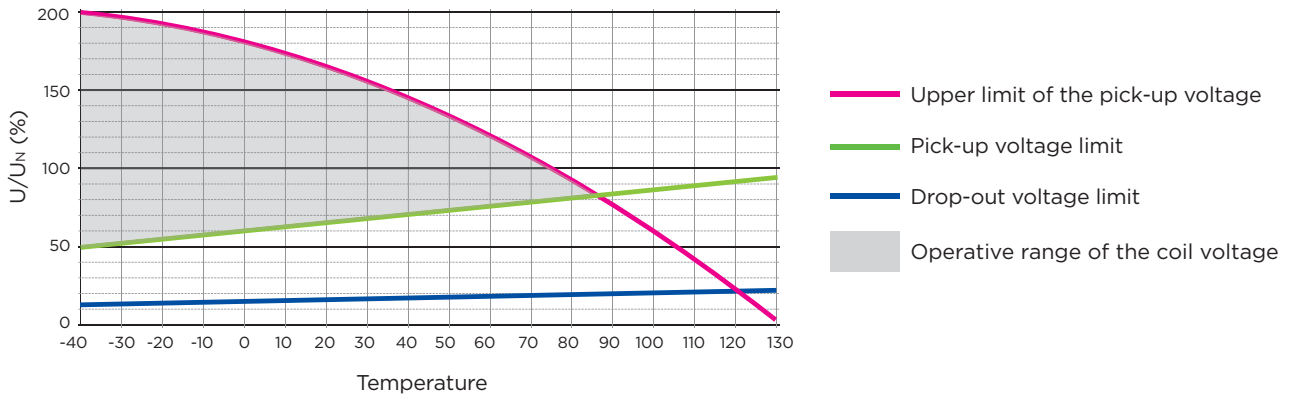
# PICK-UP VOLTAGE/RELEASE VOLTAGE-TEMPERATURE CHARTS



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

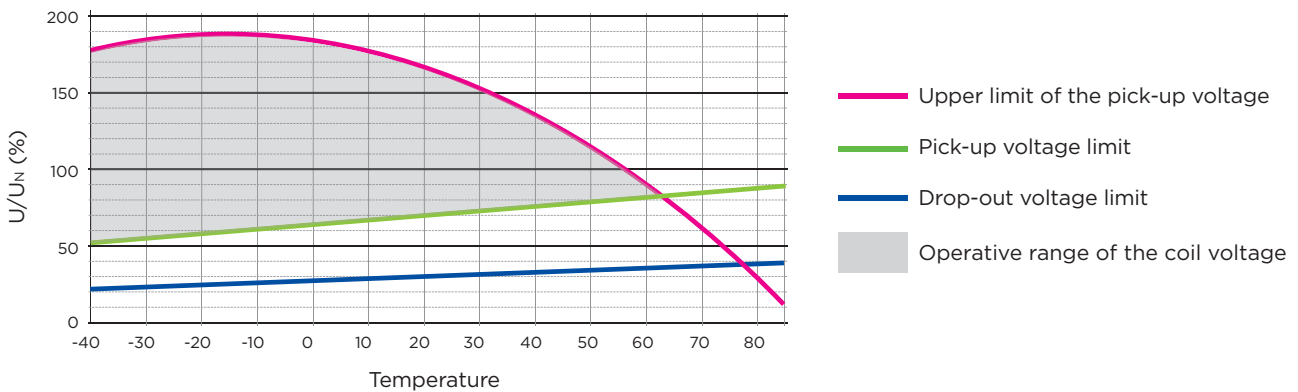
## GENERAL PURPOSE RELAYS AND RELAYS WITH COIL OVERVOLTAGE PROTECTION

**Operative range against ambient temperature**



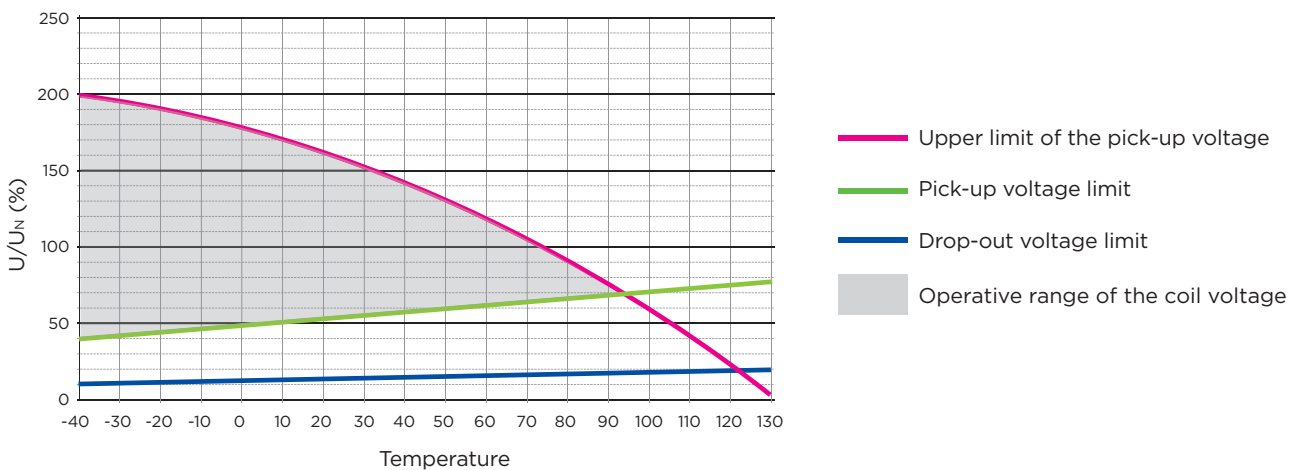
## TRIPPING RELAYS

**Operative range against ambient temperature**



## INSTANTANEOUS RELAYS WITH SEISMIC CHARACTERISTICS

**Operative range against ambient temperature**



# MODELS SELECTION

Instantaneous	Type	Range	Range FF(*)	Aux. Supply Vdc or Vac.	Options							
General purpose range					OP							
2 contacts relay	RD-2											
4 contacts relay	RF-4											1
8 contacts relay	RJ-8											1
Tripping relays range												
Fast		R						1				
Extra-fast (Vdc only)		XR						1				
Ultra-fast (only Vdc)	J-4XR4							1	0	0	0	
Seismic characteristics range												
Seismic		SY										
With coil overvoltage protection range												
Diode in parallel with the coil (only Vdc)		DI										
Varistance in parallel with the coil		V										
With seismic characteristics and coil overvoltage protection range												
Seismic with diode in parallel with the coil (only Vdc)		SYDI										
Seismic with diode in parallel with the coil		SYV										
Range												
	No		-									
	Yes		FF									
Aux. Supply Vdc o Vac												
Indicate voltage level and if it is VDC or VAC (ex: 24 VDC)												
Options												
High breaking capacity (magnetic arc blow-out)	No							0				
	Yes							1				
Front LED	No							0				
	Yes							1				
Mechanical contact position indicator	No								0			
	Yes								1			
Trip flag	No									0		
	Yes									1		
Push to test button	No											0
	To push the contacts											1
	Fix the contacts											2

Restrictions

(\*) Indicate just if FF range is required

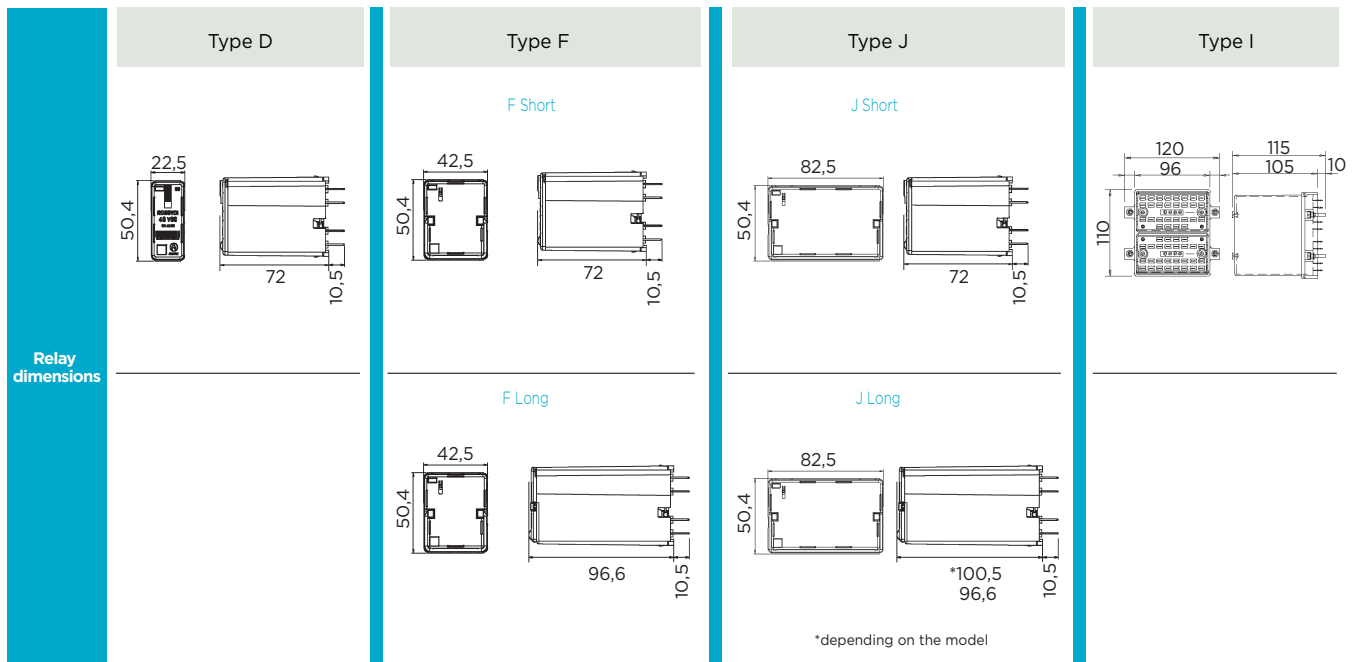




Esp. 17125  
Dia. 6.3  
Res. 6093

Precision and safety for  
your electrical assets with  
our high performance  
instantaneous relays

# DIMENSIONS OF THE RELAYS



# SOCKETS: DIMENSIONS AND CUT-OUT

Sockets		Accessories			Weight (g)
Relay	Type	Screw	Faston	Double faston	
RD	IP10 Front connection	DN-DE IP10		DN-DE2C IP10	60
	IP20 Front connection	DN-DE IP20		DN-DE2C IP20	60
	Rear connection	DN-TR OP		DN-TR2C OP	50
RF	IP10 Front connection	FN-DE IP10		FN-DE2C IP10	110
	IP20 Front connection	FN-DE IP20		FN-DE2C IP20	110
	IP20 Rear connection	FN-TR OP		FN-TR2C OP	90
	IP20 Flush mounting	F-EMP OP			300
RJ	IP10 Front connection	JN-DE IP10		JN-DE2C IP10	225
	IP20 Front connection	JN-DE IP20		JN-DE2C IP20	225
	IP20 Rear connection	JN-TR OP		JN-TR2C OP	180
	IP20 Flush mounting	J-EMP OP			400
RI	IP20 Front connection	I-DE			1.000
	IP20 Rear connection	I-TR	I-TRC	I-TRC2C	500

Accessories
Retaining clips
Function signs on the extraction ring
Security pins

	Relays type D	Relays type F	Relays type J	Relays type I
Sockets for DIN rail (1) (2)	DN-DE IP10 • DN-DE2C IP10 	FN-DE IP10 • FN-DE2C IP10 	JN-DE IP10 • JN-DE2C IP10 	I-DE 
	DN-DE IP20 • DN-DE2C IP20 	FN-DE IP20 • FN-DE2C IP20 	JN-DE IP20 • JN-DE2C IP20 	
Sockets for rear connection	DN-TR OP • DN-TR2C OP 	FN-TR OP • FN-TR2C OP 	JN-TR OP • JN-TR2C OP 	I-TR • I-TRC • I-TR2C 
		F-EMP OP • F-EMP (short) OP 	J-EMP OP • J-EMP (short) OP 	I-TR • I-TR2C 
Sockets for flush mounting		F-EMP OP • F-EMP (long) OP 	J-EMP OP • J-EMP (long) OP 	I-TRC 
	Cut-out			



(1) DIN rail according to EN50022 (2) Minimum distance between sockets will depend on type of relay and sockets. Please request sockets user manual for more detailed information.