TTBCA 400 relay - Delay-on pull-in, instantaneous

Datasheet

Features

- Delay-on pull-in and instataneous functions
- Delay range from 0.5 s up to 4 s (other on request up to 60 s)
- Time delay fully programmable by dip switch
- Status LED indicator
- Plug-in design with secure locking feature for maximum ease of maintenance
- 4 simple break CO contacts (form C), 6 A with 2 instantaneous C/O and 2 C/O delayed contacts on pull-in
- Weld no transfer contacts
- Contact life (mechanical) of 10 million cycles

Benefits

- Proven reliable
- Long life cycle
- Accurate timing selection finger safe
- Easy to maintain and replace
- Low life cycle cost
- No maintenance

Railway compliancy

- NF F 62-002 Rolling stock - Instantaneous relays contacts and sockets
- NF F 16-101/102 Fire behaviour - Railway rolling stock
- EN 50155 Railway application - electronic equipment used on rolling stock
- IEC 61373 Railway application - shock and vibration tests

Description

This time delay relay has 4 changeover simple break contacts with 2 instantaneous contacts and 2 delayed contacts on pull-in fully programmable (with dipswitch) from 0.5 seconds to 4 seconds. The access to dip switch is available by removing time delay cover. This feature prohibits frivolous field time delay setting.

The plug-in design offers secure locking feature for maximum ease of maintenance (no wires need to be disconnected or other hardware removed for relay inspection or replacement). The resistance to impact and vibration is conform to standards in force for Railway Transported Equipment.

Positive mechanical keying of relay to socket is built into relay and socket during manufacture and terminal identifications are clearly marked on identification plate that is permanently attached to the relay.

The TTBCA 400 relay is pluggable in the following sockets: EA 102 B, EA 102 BF, EA 103 BF, EA 104 B, EA 104 BF, EA 105 BF, EA 112 BF.

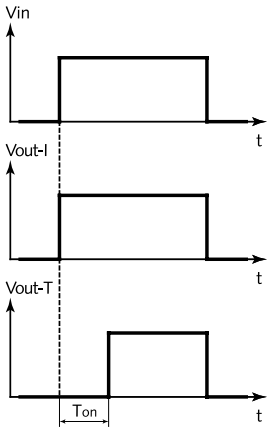
Application

The TTBCA 400 timing relay is designed for applications with a programmable timing function used for example in HVAC and lighting

TTBCA 400 relay
Technical specifications

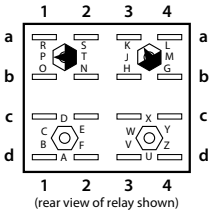
Functional and connection diagrams

Timing diagram



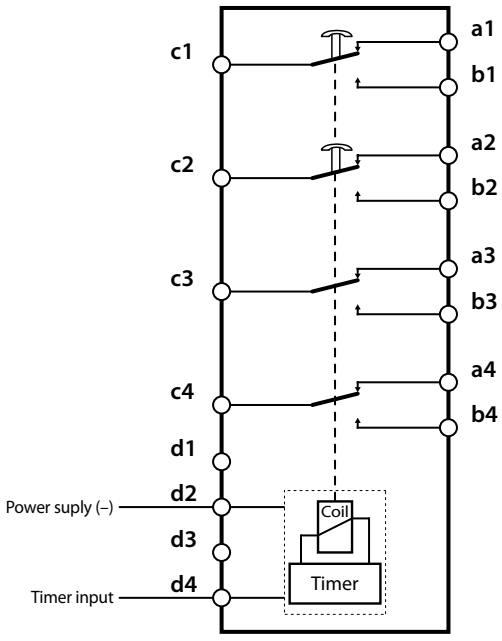
Relay pin correspondence

Relay pin correspondence

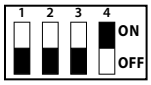


Example: **KP keying**

Connection diagram



Dip switch setting



- Set DS 1 to in ON or OFF position
- The time setting can only be the value of one dipswitch ON. Timing cannot be the sum of each dipswitch ON

DS no	Delay time	
DS 1	OFF	0.5 s
DS 2	OFF	1 s
DS 3	OFF	2 s
DS 4	ON	4 s

Example:
The sample dip switch above is set to 4 s

TTBCA 400 relay
Technical specifications

Time characteristics

Time function	Delay on pull-in and instantaneous
Total time delay range	0.5 s...60 s
Time delay adjustment	Fixed after setting the dip switch (acces available by removing relay cover)
Adjustment / repeatability accuracy	< 2% (td >5 s), < 10% (td = 0.25 s...5 s), 0.1% (td = time delay)

Coil data

Keying	U_{nom}	$U_{operating}$	P_{nom}	R coil (Ω) (1)	L/R (ms) (2)
AO	24 VDC	16 / 33 VDC	2 W	1555	6 ms
TDB (3)	36 VDC	25 / 45 VDC	2 W	3300	6 ms
TDB (3)	48 VDC	33 / 60 VDC	2 W	6100	6 ms
AG	72 VDC	48 / 90 VDC	2W	12400	6 ms
TDB (3)	96 VDC	65 / 120 VDC	2 W	22200	6 ms
TDB (3)	110 VDC	75 / 138 VDC	2 W	22200	6 ms

(1) Coil resistance tol.: ± 8% at 20 °C
(2) Valid for closed relay
(3) To be defined

Contact data - standard version (Ag contacts)

Nominal current	6 A resistive
Nominal breaking capacity and life	1 A at 72 VDC L/R : 0 ms Electrical life: 1 x 10^6 op. 0.550 A at 72 VDC L/R: 15 ms Electrical life: 0.5 x 10^6 op. Lamp filament curcuit: 120 W at 72 VDC Electrical life: 0.2 x 10^6 op.
Number of contacts	4 simple break contacts (form C) (2 instantaneous + 2 time delay)
Contact material	Ag + 0.2 µm AU
Contact resistance	15 mΩ max

TTBCA 400 relay
Technical specifications

Electrical characteristics

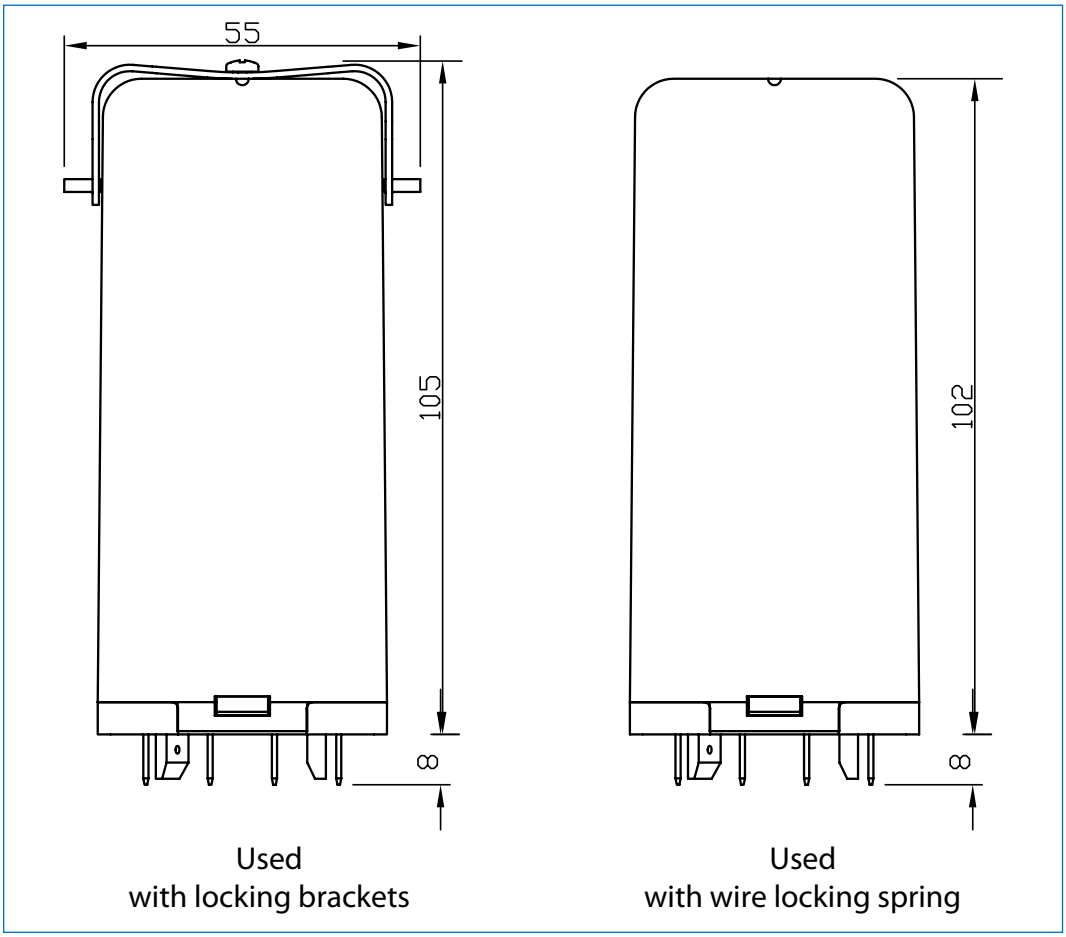
Dielectric strength	1500 VAC, 1 min between contacts 2600 VAC, 1 min between contacts, coil and frame
Insulation resistance	≥ 1000 MΩ at 500 VDC

Mechanical & environmental characteristics

Vibration	NF F 62-002 The tests are conducted in the X, Y , Z planes at frequency between 10 & 150 cycles (sinusoidal) at 2 g
Shock	NF F 62-002 Tests are applied in both directions in the X, Y & Z planes. Then successive shocks are administered consisting of the positive component of sinusoidal with a value of 15 g, 11 ms Other vibration and shock tests can be performed on request
Mechanical life	10 x 10^6 operations
Weight	200 g
Temperature	-40 °C...+85 °C
Humidity	93% RH, 40° C for 4 days
Salt mist	5% NaCl, 35° C for 4 days
Protection	IP40 (timing relay on socket)
Fire & smoke	Materials: Polycarbonate (cover) / polyester melamine (base) Note: These materials have been tested for fire propagation and smoke emission according standards NF F 16-101, NF F 16-102.

TTBCA 400 relay
Technical specifications

Dimensions (mm)

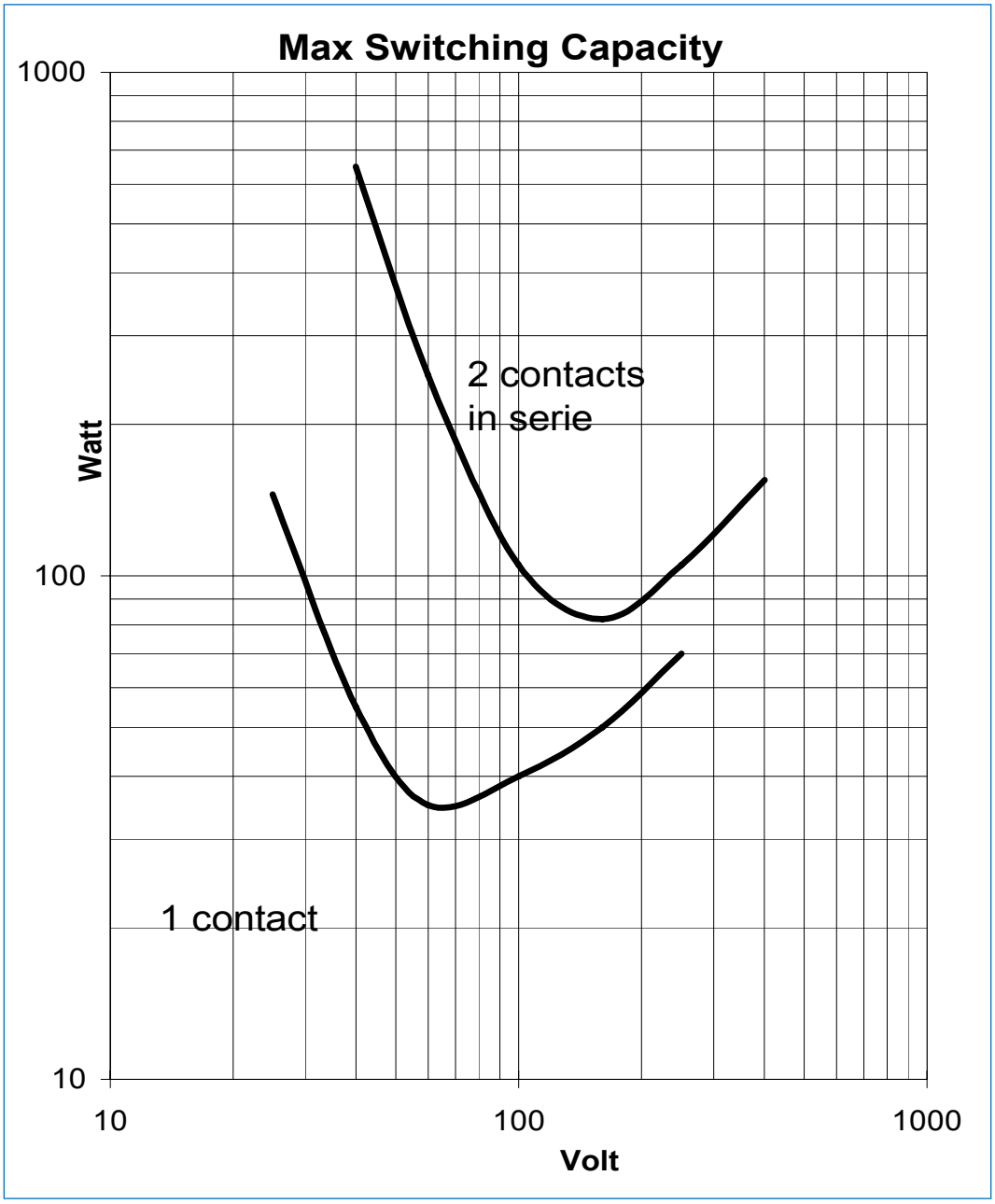


Used
with locking brackets

Used
with wire locking spring

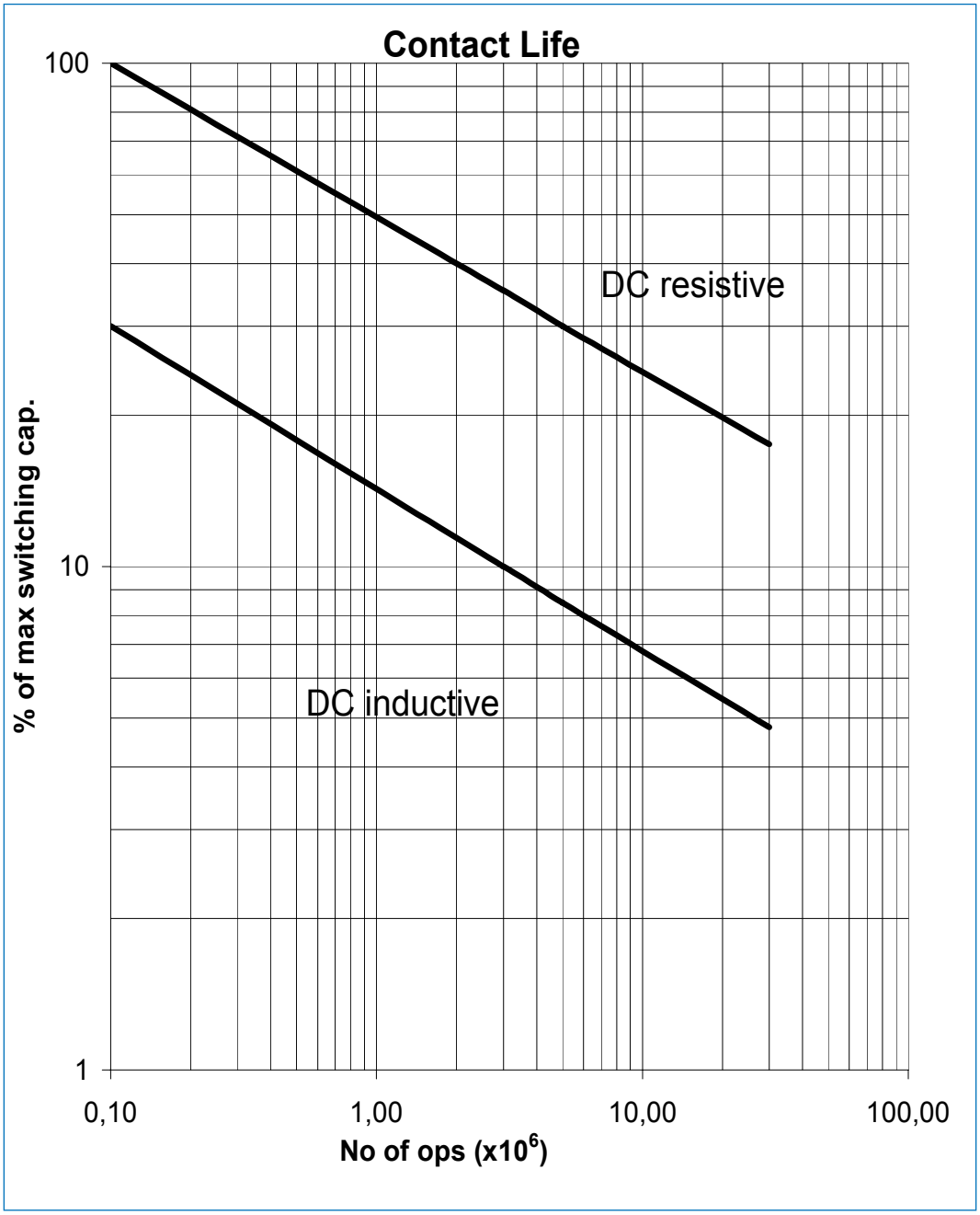
TTBCA 400 relay
Technical specifications

Dynamic relay selection curve No 1



TTBCA 400 relay
Technical specifications

Dynamic relay selection curve No 2



TTBCA 400 relay
Mounting possiblities / sockets

EA 102 B

EA 103 BF

EA 104 B

EA 112 BF

Panel/flush mounting

EA 102 B	Locking bracket (905843), rear connection, double Faston 5 mm
EA 102 BF	Wire locking spring (926853), rear connection, single Faston 5 mm
EA 104 B	Locking bracket (905843), rear connection, single Faston 5 x 0.8 mm
EA 104 BF	Wire locking spring (926853), rear connection, single Faston 5 x 0.8 mm
EA 112 BF	Wire locking spring (926853), rear connection, crimp contact

Surface/wall mounting

EA 103 BF*	Wire locking spring (926853), front connection, M3 screw 6.5 mm ring terminals ($2.5\ mm^2$)
EA 105 BF*	Wire locking spring (926853), front connection, single Faston 5 mm

* Mounting possibility on 35 mm rail EN 50022 by adding suffix D to the part number (see socket datasheet)

Note: Keying of relay to socket can be specified by adding the keying letters in the part number.
See all details in the related socket datasheet.

TTBCA 400 relay
Spare parts

Spare parts - order part numbers

(1)

LOCKING BRACKET

905846

(1)

SCREW FOR BRACKET

C927210

(1)

METAL STRAP (2)

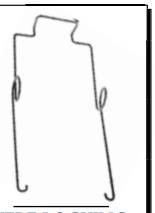
P928060

(1)

METAL STRAP (4)

P928061

(1)



WIRE LOCKING SPRING

431906654

(1)

ROUND PLASTIC PLUGS

414928005

(2)

HEX. PLASTIC KEYS

414905678

(3)

LOCK PINS ASSY 2 SCREWS

906364

212903020

(1) Parts only for socket
(2) Parts for relay and socket
(3) Parts only for relay

TTBCA 400 relay
Instructions

Installation

Install socket and connect wiring correctly according identification to terminals. Plug relay into socket. Reverse installation into socket not possible due to mechanical blocking by snap-lock.
Don't reverse polarity of coil connection. Relays can be mounted (tightly) next to each other and in any attitude.
Warning! Never use silicon near by relays

Operation

Before operating always apply voltage to coil to check correct operation.
Long term storage may corrode the silver on the relay pins. Just by plugging the relay into the socket, the female bifurcated receivers will automatically clean the corrosion on the pins and guarantee a good connection.
Do not use the relay in places with flammable gas as the arc generated from switching could ignite gasses.

Maintenance

Correct operation of relay can easily be checked as transparent cover gives good visibility on the moving contacts. When the relay doesn't seem to operate correct, please check presence of coil voltage. Use a multimeter. If LED is used, coil presence should be indicated. If coil voltage is present, but the relay doesn't work, a short circuit of suppression diode is possible (The coil connection was reversed). If relay doesn't work after inspection, please replace relay unit by a similar model. Send defective relay back to manufacturer. Normal wear and tear excluded.

TTBCA 400 relay
Ordering scheme

Configuration:

TTBCA 400	72	AG		F	1
1. Relay model	2. Nominal voltage	3. Keying	4. Weld no transfer	5. Cover type	6. Language (test report)

This example represents a **TTBCA 400 72 AG F 1**.
Description: TTBCA series relay, Unom: 72 VDC, Keying AG, relay cover for wire locking spring, test report in English

1. Relay model

TTBCA 400

2 & 3. Nominal voltage and keying

24 AO	24 VDC
36 XX	36 VDC
48 XX	48 VDC
72 AG	72 VDC
96 XX	96 VDC
110 XX	110 VDC

(XX = to be defined)

4. Weld no transfer option

Weld no transfer available (standard)

5. Relay cover type

–	Relay cover with lock pins
F	Relay cover forwire locking spring

6. Language on test report

–	French
1	English
2	Spanish

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SERVING SAFETY

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