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Hard copy product catalogues, and CDROMs have been published describing Kuhnke Pneumatics, Solenoids, Relays and Electronics; some divided into different books. A list of current publications is available on this web site or from our sales offices. Some may be available for download, but as substantially larger files.

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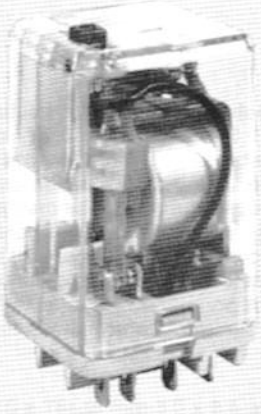
Important Note



Universal UB Relay

Standard design

Order code

U B 3 F – 24 V DC N

U Relay

Types
- B — plug-in type, alternatively the terminals will take 4.8 x 0.5 mm (0.187 x 0.02") push-on connectors

Contact arrangement
- 2 — C/O contacts — 2 X changeover contacts — for high resistance coil types
- 3 — C/O contacts — 3 X changeover contacts — for high resistance coil types

Contact material
- Hard silver (no code letter)
- C — Silver cadmium oxide
- P* — Silver palladium
- B* — Hard silver, 10 µm gold-cladding
- F — Twin contacts in hard silver
- G — Twin contacts, 10 µm gold-cladding
- N* — Twin contacts, 150 µm gold alloy-plating

* Not yet applied for UL-approval.

Nominal operating coil voltage

Coil current type
- DC — direct current
- AC — alternating current 50/60 Hz

Additional options
- N — manual operation and status indicator standard
- NH — no manual operation optional
- NZ — no status indicator, LED on request
- NHZ — no manual operation or status indicator, LED on request

} protection diode (only with DC types) on request

Order code for
U Relays with special winding — e.g. UB 3-XXX — XXX = coil number
U Relays of special design — RS XXXX — XXXX = 4 digit reference number

Accessories (dimensions page 115)

relay	socket for screw connection with quick action-rail fastening and for screw fastening	retaining clip
UB	Z 346	Z 441

Universal UB Relay

Application

The UB Relay is a switching relay of the Universal Relay system. It is suitable as a plug-in type relay. Alternatively, push-on connectors 4.8 x 0.5 mm (0.187 x 0.02") can be used. Manual operation and a mechanical status indicator are standard. The manual operation is effected by a spring button on the top surface of the dust cap. The button position can be fixed in the ON-position using retaining clip Z 441 together with our mountings. The mechanical status indicator clearly shows the ON- or OFF-position of the relay. Marker strips (e.g. Phönix SBS 6) can be stuck on the transparent cap. Optionally, single (main) contacts or twin (control) contacts are available. The relays can also be supplied with contacts sets in isolated arcchambers so as to increase isolation between adjacent and different contact potentials. Together with other relays of the Universal Relay system it is possible to construct uniform control systems.

Type

B plug-in spade type, or push-on connectors 4.8 x 0.5 mm (0.187 x 0.02")

Contact data

Number and type of contacts	2 or 3 changeover contacts
Nom. op. contact current	10 A 4 A with twin contacts
Pull-in current	≤ 20 A (≤ 10 A with twin contacts)
Nom. op. contact voltage	380 V AC, B 380 250 V AC, C 250

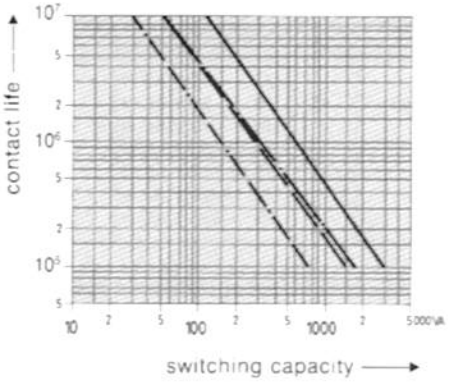
Contact material, type of contact

Code letter	Type of contact	Contact material	Application
no code letter	main contact	hard silver	standard contact material for normal use
C	main contact	AgCdO 90/10	lessens tendency to weld at switch-on current peaks
P	main contact	AgPd 70/30	for use in sulfur containing atmosphere, with low contact load tendency to form a non-conducting film
B	main contact	hard silver with 10 µm hard gold-cladding	multi-range contact for low and high loads
F	twin contacts	hard silver	increased reliability in dusty atmosphere, considering the specific properties of hard silver
G	twin contacts	switching contacts: hard silver with 10 µm gold-cladding changeover contact: 150 µm gold-plated AuAgCu 70/25/5	cost efficient solution for switching of low loads
N	twin contacts	150 µm gold alloy-plated AuAgCu 70/25/5	increased reliability and contact service life at low loads

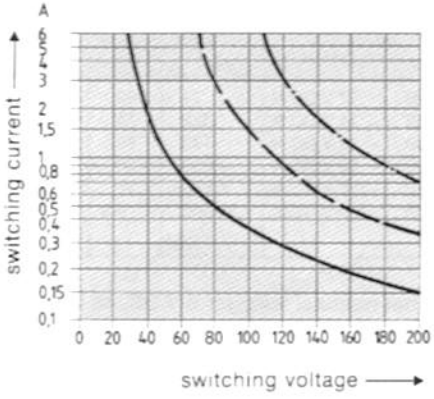
Universal UB Relay

AC switching reliability:
determined at 220 V/50 Hz, with hard silver main and twin contacts, resistive or inductive load (cos φ = 0.4 . . . 0.7), switching frequency 1 Hz, 25 % duty cycle.
DC switching capability:
determined with hard silver main contacts, resistive load, no additional spark quenching with one, two or three contacts in series, switching frequence 1 Hz, 25 % duty cycle.

AC switching reliability
90 % working



DC switching capability



– · – · – = resistive load, twin contacts
– – · – = inductive load, twin contacts
——— = resistive load, main contacts
– – – = inductive load, main contacts

——— 1 contact
– – – 2 contacts in series
– · – · – 3 contacts in series

Operating times

	DC excitation	AC excitation
Pull-in time	8–14 ms	5–14 ms
Drop-out time	3– 8 ms	7–14 ms

Insulation classification
B 380, VDE 0110 b/2.79
C 250, VDE 0110 b/2.79

Test voltage
2500 V (rms), coil and contacts to frame

Life expectancy
Mechanical life expectancy of the relay UB 3 . . . V . . . NZ, tested at 4 Hz and 50 % duty cycle. This value represents 90 % in working order.

DC excitation	AC excitation
approx. 100×10^6 cycles	approx. 30×10^6 cycles

Climatic classification
With reference to DIN 40040 – Application Class and Reliability Data for Components in Communication and Electronics – the Universal UB relay is suitable for the following climatic classification:

J Y D
Min. temperature –10° C
Max. temperature +40° C
Humidity exposure
Annual mean ≤ 80 %, max. 100 % for 30 days/year.

Further tests according to DIN IEC 68 – Environmental Tests for Electronic Products – were carried out on relays not connected to power, see p. 21.

Operating range
(see TNR page 20)

	Type of coil current		
	DC	AC, 50 Hz	AC, 60 Hz
Operating range	class 1 0.8 – 1.1 U_N	class 1 0.8 – 1.1 U_N	class 2 0.85 – 1.1 U_N
Pull-in – coil pre-excited with U_N at ambient temp. of:	class a 20° C	class a 20° C	class a 20° C
Drop-out	> 0.05 U_N	> 0.15 U_N	> 0.15 U_N

Ambient air temperature –5° C to +40° according to VDE 0435.

Depending on contact configuration, higher ambient temperatures may be permissible, as long as the maximum permissible temperature of 120° C is not exceeded.

Universal UB Relay

Standard coils

DC			AC 50/60*	50 Hz*
Number of contacts	2–3	2 X – 3 X**	2–3	2 – 3 X**
Pull-in power approx.	0.8 W	0.6 W	1.4 x nom. current	1.4 x nom. current
Nominal power approx.	2.0 W	1.2 W	3.0/2.5 VA	2 VA

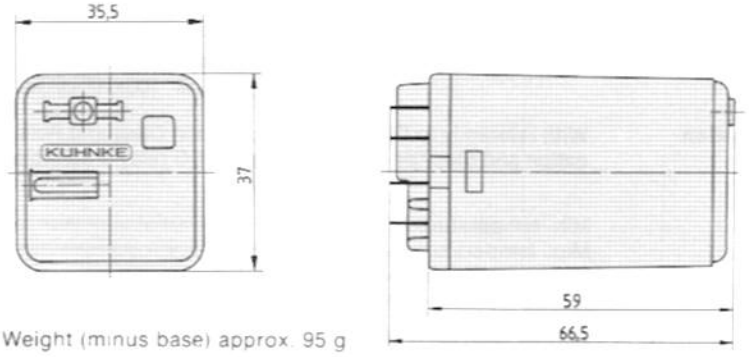
Relay designation Nom. voltage	Nom. resistance Ω	Nom. current mA	Relay designation Nom. voltage	Nom. resistance Ω	Nom. current mA	Relay designation Nom. voltage	Nom. resistance Ω	Nom. current 50 Hz mA	Nom. current 60 Hz mA	Relay designation Nom. Voltage	Nom. resistance Ω	Nom. current mA
UB . . – 12 V DC N	74	162				UB. . – 12 V AC N	17	250	210			
UB . . – 24 V DC N	322	74	UB . X . 24 V DC N	500	48	UB. . – 24 V AC N	74	125	104	UB . X . 24 V AC N	100	83
UB . . – 40 V DC N	730	55				UB. . – 42 V AC N	234	71	60			
UB . . – 60 V DC N	1 850	32				UB. . – 60 V AC N	474	50	42			
UB . . –110 V DC N	5 870	19				UB. . –110 V AC N	1 710	27	23			
UB . . –220 V DC N	22 300	9.9				UB. . –220 V AC N	7 500	14	11			
						UB. . –230 V AC N	7 500	14	11	UB . X . 230 V AC N	9 210	9

Other nominal voltages 6 V DC, 48 V DC, 48 V AC, 125 V AC. Special higher resistance special windings and further nominal voltage types are available on request.

* The U relays are designed for 50 and 60 Hz. The relays pull in at 50 Hz and 80 % and at 60 Hz and 85 % of the nominal voltage. The X types are designed for 50 Hz and pull in at 80 % of the nominal voltage.

** Relays with high resistance windings (X types)

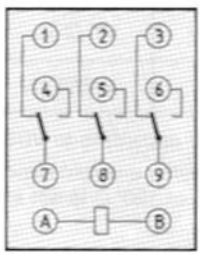
Dimensions



Weight (minus base) approx. 95 g

Connection diagram

viewed on terminals



In relays with 2 PDT contacts terminals 1–4–7 and 3–6–9 are occupied.