
The following page(s) are extracted from multi-page Kuhnke product catalogues or CDRoms and any page number shown is relevant to the original document. The PDF sheets here may have been combined to provide technical information about the specific product(s) you have selected.

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.

Contact Details

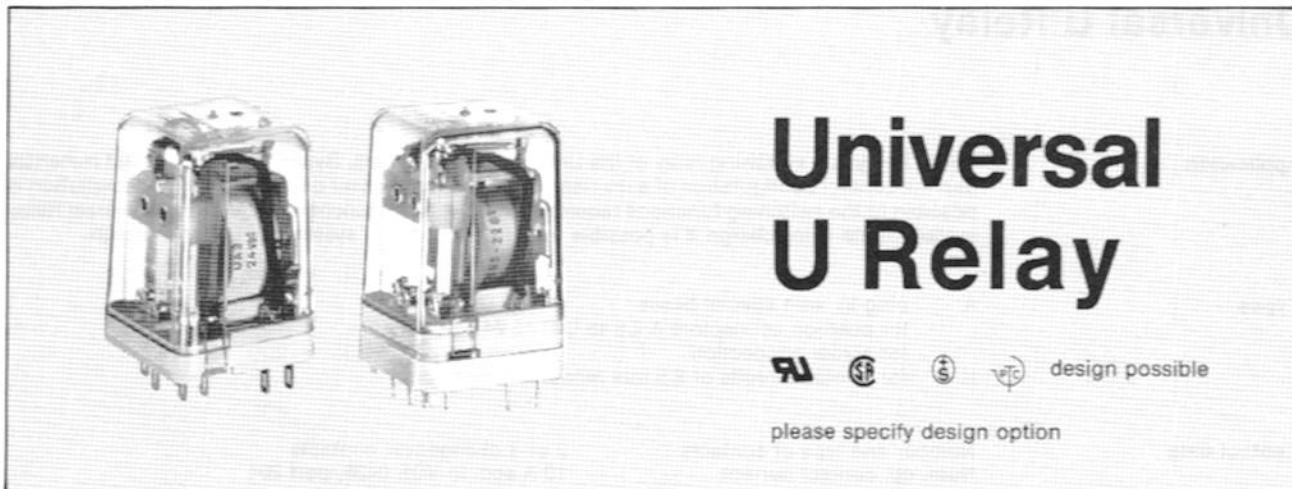
Kuhnke sales and service in the UK

H. Kuhnke Ltd
Unit 6 Focus 303
Focus Way, Walworth Business Park
Andover
Hampshire
SP10 5NY
United Kingdom

Tel: +44 (0)1264 364194
Fax: +44 (0)1264 365991
Email: sales@kuhnke.co.uk

Important Note

The information shown in these documents is for guidance only. No liability is accepted for any errors or omissions. The designer or user is solely responsible for the safe and proper application of the parts, assemblies or equipment described.



Universal U Relay





 design possible

please specify design option

Order code

U A 2 F - 24 V DC

U Relay

Types

- A plug-in type with special bases
for push-on connectors A 2.8 to DIN 46 247
for solder connection
- H for printed circuits

Contact arrangement

- 2 C/O contacts for 6 A 2X changeover } high resistance coil types
- 3 C/O contacts for 6 A 3X contacts }

Contact material

- Hard silver (no code letter)
- C AgCdO
- P AgPd
- B Hard silver 10 µm gold-cladding
- F Twin contacts, hard silver
- G Twin contacts, 10 µm gold-cladding
- N Twin contacts, 150 µm gold-plating

Nominal coil voltage

Coil current type

- DC direct current
- AC alternating current 50/60 Hz

Additional options

Manual operation, protective diode, LED on request.

Order code for:

U Relays with special winding

e.g. UA2-XXX

XXX = coil number

U Relays of special design

RS XXXX

XXXX = 4-digit reference number

Accessories (dimensions pages 116 to 117)

relay	sockets* for				retaining clip
	screw connection		solder connection	printed circuit	
	for screw fastening	with quick action fastening**			
UA	Z 352	Z 352.02	Z 351	Z 354	Z 455

* We recommend using retaining clips.

** Quick-action fastening for rails EN 50 022-35x7.5 or 15.

Universal U Relay

Application The U Relay is a switching relay of the Universal Relay system. By virtue of the contact materials and the contact configuration of a maximum of three changeover contacts available, adaptation is possible to the switching functions required. With the other function relays of the Universal Relay system of the same design it is possible to construct control systems of uniform design.

Types

- A plug-in, with special bases
for push-on connectors A 2.8 to DIN 46 247
for solder connection
- H for printed circuits of 2.5 mm modular dimension

Contact data

Number and type of contacts 2 or 3 changeover contacts
 Nom. op. contact current 10 A acc. to VDE 0435, part 201

Switch-on current 4 A with dual contacts
 ≤ 20 A (≤ 10 with dual contacts)

Nom. voltage 250 V AC

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 sulphur 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	make and break contacts: hard silver with 10 µm gold-cladding changeover contact: 150 µm gold-plating AuAgCu70/25/5	cost efficient solution for switching-of low loads
N	twin contacts	150 µm gold alloy-plating AuAgCu 70/25/5	increased reliability and contact service life at low loads

Universal U Relay

AC switching reliability:

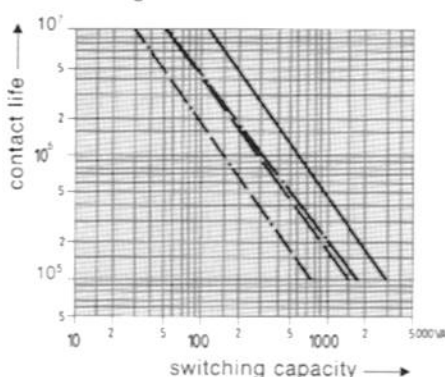
determined at 220 V/50 Hz, with hard silver main and twin contacts, resistive or inductive load ($\cos \varphi = 0.4 \dots 0.7$), switching frequency 1 Hz, 25 % duty cycle.

DC switching capability:

determined with hard silver main contacts, resistive load, no additional spark quenching with one, two or three contacts in series, switching frequency 1 Hz, 25 % duty cycle.

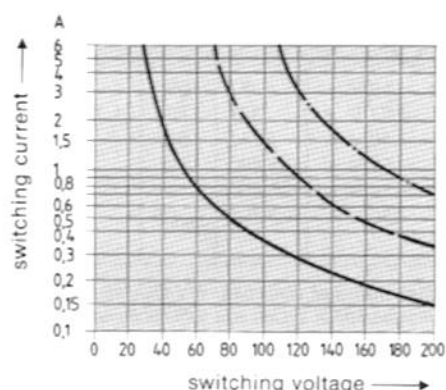
AC switching reliability

90 % working



..... = resistive load, twin contacts
 - - - = inductive load, twin contacts
 ——— = resistive load, main contacts
 - · - · = inductive load, main contacts

DC switching capability



——— 1 contact
 - - - 2 contacts in series
 3 contacts in series

Operating times

	DC excitation	AC excitation
Pull-in time	5 – 12 ms	4 – 12 ms
Drop-out time	3 – 8 ms	3 – 12 ms

Insulation classification

C 250, VDE 0110 b/2.79

Test voltage

2500 V (rms), coil and contacts to frame

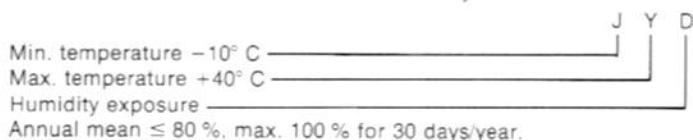
Life expectancy

Mechanical life expectancy tested at 4 Hz with 50 % duty cycle. This value represents 90 % in working order.

DC excitation approx. 100×10^6 cycles AC excitation 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 U Relay is suitable for the following climatic classification:



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 with U_N	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 $+40^\circ\text{C}$ 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 U Relay

Standard coils

DC						AC 50/60 Hz*				50 Hz*		
Number of contacts		2-3		2 X - 3 X**		Number of contacts		2 - 3		2 X - 3 X**		
Pull-in power approx.		0.8 W		0.6 W		Pull-in current approx.		1.4 x nom. current		1.3 nom. current		
Nominal power approx.		2.0 W		1.2 W		Nominal power approx.		3.0/2.5 VA		2 VA		
Relay designation Nom. voltage	Nominal resistance Ω	Nom. current mA	Relay designation Nom. voltage	Nominal resistance Ω	Nom. current mA	Relay designation Nom. voltage	Nom. resistance Ω	Nom. current 50 Hz 60 Hz mA	Relay designation Nom. voltage	Nom. resistance Ω	Nom. current mA	
U..- 12 V =	77	160	U..X-24 V =	500	48	U..- 12 V ~	19	220	190	U..X- 24 V ~	100	83
- 24 V =	327	73				- 24 V ~	84	100	90			
- 40 V =	742	54				- 42 V ~	260	60	54			
- 60 V =	1 880	32				- 60 V ~	534	42	37			
-110 V =	5 960	19				-110 V ~	1 860	30	23			
-220 V =	22 700	9.7				-220 V ~	7 670	12	10			
						-230 V ~	8 140	11	9.5	U..X-230 V ~	9 950	9

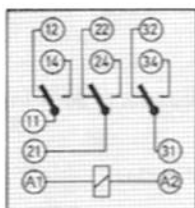
Other nominal voltages: 6 V DC, 48 V DC, 60 V AC, 48 V AC, 125 V AC. Special higher resistance windings and further nominal voltages for X types are available on request.

- * The U Relays are designed for 50 and at 60 Hz. The relays pull in at 50 Hz and 80 % and 60 Hz and 85 % of the nominal voltage. The X type are designed for 50 Hz and pull in at 80 % of the nominal voltage.
- ** Relays with high resistance windings (X types).

Connection diagram

viewed on terminals

Types A and H

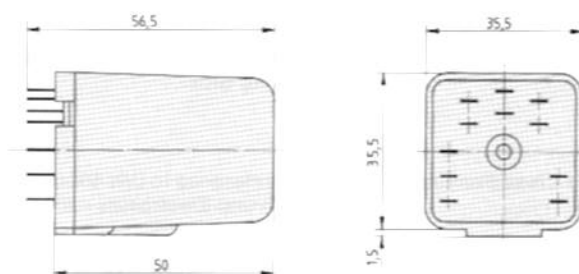


In relays with two changeover contacts, terminals 11-12-14 and 31-32-34 are occupied.

Dimensions and grid matrix

Type A

Weight (minus base) UA approx. 80 g
UH approx. 80 g



Type H

