The UR-01 universal relay

This relay has many uses and can be used for many appliances. It is designed for installation on a DIN rail and changing its settings is performed by the DIP switches under the cover. The relay provides 8 functions (from the usual ON/OFF switching relay to a generator of regular pulses). It is very user-friendly.

Caution: Only a person with an adequate electrotechnical qualification can connect the product to the electricity supply.
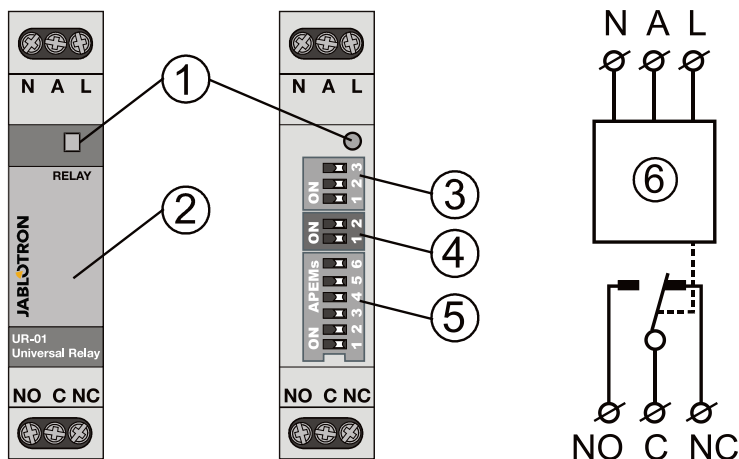
Description

Figure: 1 – LED indicator (indicates switching); 2 – Cover (remove by pulling off or by a suitable tool); 3 – Settings: FUNCTION; 4 – TIME MULTIPLIER (× 1 s, × 10 s, × 1 min…); 5 – TIME; 6 –Relay circuit

Terminals:

N	Mains neutral (module supply)	NO	Normally open contact
A	Activation input (active when connected to mains LIVE)*	C	Common terminal
L	Mains live (module supply)	NC	Normally closed contact

* activation input A reacts to connection to the live line for at least 0.1 sec.
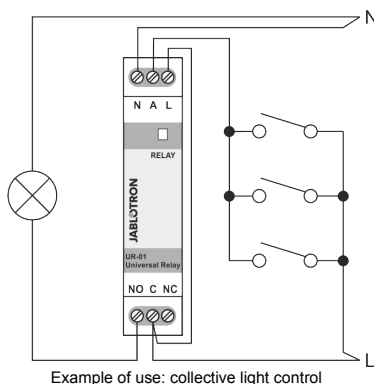
Warning: glowing buttons connected in parallel with the A and L terminals cannot be used for control (the A input would be permanently active). If backlighting for the button is required then use a type with independent powering of the indicator.

Installation

1. Think about the application type
2. Remove the upper cover and set the properties (see the following description)
3. Put it onto the DIN rail and connect the wires (no voltage connected)
4. Connect the power and perform a test (modify the settings if needed)
5. Close the cover

Setting

There are 3 sets of DIP switches representing the following: FUNCTION, MULTIPLIER and TIME (**1 = DIP ON**).

Example of use: collective light control

Relay FUNCTIONS

Description	DIP	1	2	3	Application
Switching relay – switches ON when the **L** terminal is connected to the **A** terminal*. Setting the time and multiplier has no effect.		0	0	0	Usual relay.
Toggling relay – by momentarily connecting the **L** (trigger signal) to the **A** terminal, the relay changes its state (ON – OFF – ON …). Setting the time and multiplier has no effect.		0	0	1	Collective light control from more places by the buttons.
Toggling relay with time limitation – The relay changes its state (ON – OFF – ON …) by a switching impulse (trigger signal) on the **A** terminal. Switching time is limited by a pre-set time.		0	1	0	Ideal for collective light control from more places. The light does not light longer than you have pre-set it.
Delayed disconnection – when there is a live line **L** signal on the **A** terminal, the relay is switched ON. When the **L** signal is disconnected from the **A** terminal the relay switches OFF after a pre-set time.		0	1	1	Fan delay, etc.
Delayed connection – when there is no live line **L** signal on the **A** terminal, the relay is switched OFF. When the **L** signal is connected to the **A** terminal the relay switches ON after a pre-set time.		1	0	0	Motor start up in "star" mode – triangle and so on.
Pre-set impulse time by connection – by connecting the **L** terminal to the **A** terminal the relay switches ON for a pre-set time. The next activation for the already switched relay restarts its countdown timer (the switching impulse is extended).		1	0	1	For switching ON an electrical appliance for a pre-determined time (time is not extended by holding the button, another press is needed).
Pre-set impulse time by disconnection – by disconnecting the **L** terminal from the **A** terminal the relay switches ON for a pre-set time. The next activation for the already switched relay restarts its countdown timer (the switching impulse is extended).		1	1	0	For switching a fan ON after the light has been switched OFF, etc..
Regular switching cycle -- when the live line **L** is connected to the **A** terminal, it starts a cycle of ON for 10 minutes then OFF for a pre-set time, repeating this cycle. The process continues until the live line **L** is disconnected from the **A** terminal.		1	1	1	Regular heating drying ladder in the bathroom, etc.

* When the relay is set to Switching relay mode, the L terminal is permanently powered, then relay switches ON immediately when the live line is connected to the A terminal. If the live line is connected to the both terminals (A and L) at the same moment, the relay switches ON with an approximately 1 sec delay (the relay circuits boot up).

The relay switches OFF when the power is cut (if switched on). When the mains recovers it stays OFF for approximately 1 sec (the relay circuits boot up) and then it is ready for A terminal activation (i.e. the relay doesn´t remember the last status before the mains fault).

TIME (digit is multiplied by a multiplier)

1	2	3	4	5	6	DIP
32	16	8	4	2	1	Value*
0	0	0	0	0	1	1
0	0	0	0	1	0	2
0	0	0	0	1	1	3
:	:	:	:	:	:	:
1	1	1	1	1	1	63
0	0	0	0	0	0	64

MULTIPLIER

1	2	DIP
0	0	× 1 s
0	1	× 10 s
1	0	× 1 min
1	1	× 1 hr

The minimum time which can be set is 1 sec, maximum time 64 hours.

* = Sum of all values

Technical specifications

Power:	230 V AC / 50 Hz, protection class II.
Power consumption:	0.3 W / max. 0.8 W
A input:	230 V AC
Relay contact rating:	
(relay contacts are galvanically separated from the device)	
Maximum switching voltage	250 V AC / 24 V DC
Resistive load (cosφ=1)	max.16 A
Inductive load, capacitive load (cosφ=0.4)	max. 8 A
Halogen lights	max. 1000 W
DC	384 W
Minimum acceptable relay output through-wattage (DC)	0.5 W
Cross section of connecting wires	max. 2 x 1.5 mm^2
	max. 1 x 2.5 mm^2
Dimensions	18 x 90 x 65 mm, 1 DIN module
Operational environment	indoor general
Operational temperature range	-10 to + 40 °C
IP covering	IP20, IP40 valid for front panel according to EN 60529
Also complies with:	EN 60947-1, EN 60947-6-1, EN 50581.

Caution: The device should be connected to a circuit which is protected by a circuit breaker (max. 16 A).

JabloPCB s.r.o. hereby declares that the UR-01 is in compliance with the essential requirements and other relevant provisions of Directive 2004/108/EC, 2006/95/EC and 2011/65/EU. The original of the conformity assessment can be found at obchod@jablopcb.cz - Technical Support section

Note: Although this product does not contain any harmful materials we suggest you return the product to the dealer or directly to the producer after use. For more detailed information visit obchod@jablopcb.cz