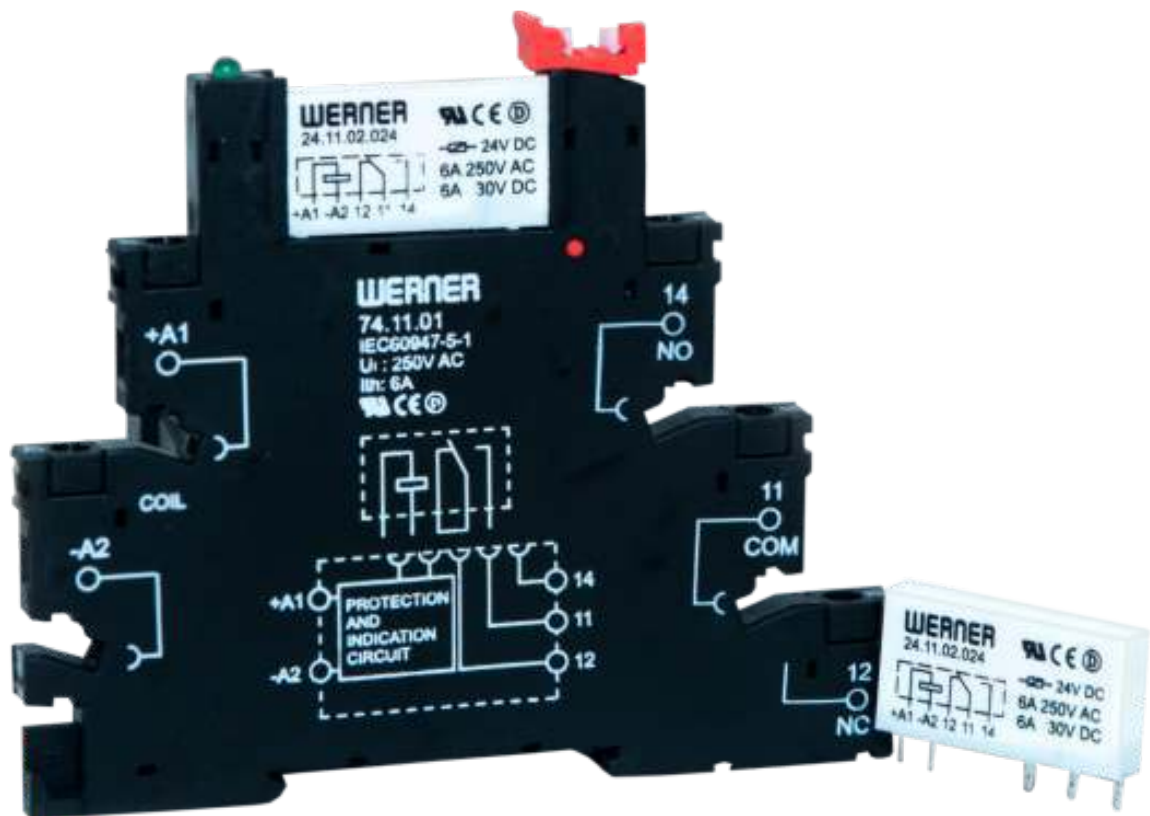


PRODUCT SPECIFICATION

24 Series Ultra Thin Relays (Leaf Relays)



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Ultra Slim Relays



WERNER's 24 Series Ultra Slim Relays embody the latest in compact relay design technology you can buy anywhere on the world market. Only a selected few of the world's top brand switchgear suppliers are even able to produce this kind of high performance fully sealed type of relays. With this product line WERNER sets once again the marks in terms of advanced product design, top features and availability.

Features Overview

- All models designed applying MFMS design principles (**Max Function Min Space**)
- All models designed applying solid modeling and finite elements design methods
- All models design for heavy duty or even vibrating environments
- All models available for use with 50 Hz and 60 Hz cycles
- All models available for direct PC or socket mounting
- Featuring only 5mm width of both relay and socket

Highlights

- All models designed for direct PC mount or panel mount via 77 Series sockets
- All models available in standard current ratings from 6V to 48V (DC)
- Available in SPST with up to 8 Ampere Continuous Load Current
- Available in SPDT with up to 6 Ampere Continuous Load Current
- All models provide a dielectric strength of up to 5.000 V (AC)
- All Relays are fully sealed type

24 Series Ultra Slim Relays by WERNER are your best selection if you need to create highly demanding low current circuits with a minimum usage of space. They stand for your optimum solution in space saving technology if you have to satisfy your client's wishes with a very compact but yet best performing solution producing a very little amount of heat to keep your panels cool.

24 Series Ultra Slim Relays

WERNER

Ultra Slim Relays

Features:

- Ultra Slim Relay
- High Dielectric strength of 5,000V AC
- Contact Capacity of 6A
- Only 15 mm height
- SPST & SPDT
- Recommended for interface application & Home appliance



Approvals

Approbations and Declaration of conformity

CE

CE

Overvoltage category

III, as per EN IEC 60947-5-1

DC Coil Ratings

Voltage	Rated Current (mA) AC 60Hz	Coil Resistance ($\Omega \pm 10\%$)	Power Consumption (watts)	Operation Properties		
				Continuous Voltage	Pickup Voltage	Dropout Voltage
6V	28.3	211	Abt. 0.217	160% max.	70% max.	5% min.
12V	14.2	847				
24V	7.1	3388				
48V	4.5	10617				

$\pm 15\%$ at 20°C

Contact Rating

Model	Contact Form	Continuous Current Resistive load	Allowable Voltage
SPST	NO	6A	250 V DC
SPDT	NO	5A	30 V DC
	NC	5A	

Specifications

Operating Temperature	-40 to +85°C (No freezing)	
Contact Resistance	100mΩ maximum at 6V DC, 1A	
Operating Humidity	45% to 85% RH (No condensation)	
Insulation Resistance	100MΩ minimum at 500V DC	
Dielectric Strength	Between contact and coil:	4,000V AC at 50/60 Hz for 1 minute
	Between Contacts:	1,000VAC at 50/60 Hz for one minute
Vibration Resistance	Damage limits:	10 to 55Hz, amplitude 1.5 mm
	Operating extremes:	10 to 55Hz, amplitude 1.5 mm
Shock Resistance	Damage limits:	100m/s ² (100G)
	Operating extremes:	1000m/s ² (100G)
Mechanical Durability	5x10 ⁷ Operations at No Load condition.	
Electrical Durability	(NO : 5x10 ⁴ , NC : 3x10 ⁴ Operations at Rated Resistive Load.	
Operate Time	10ms maximum at 20°C	
Release Time	5ms maximum at 20°C	
Contact Material	Silver Tin oxide alloy	
Operating Frequency	Electrical:	3600 operations/hour maximum
	Mechanical:	10,000 operations/hour maximum
Weight (approx.)	6g	

Socket Specification

Mounting	Terminal type	Terminal	Torque	Wire Size	Model No.
					1 Pole
DIN Rail	With Finger-safe	M3 screws - coil M3.5 screws - contact	0.6 to 1.0 N.m	Up to 3.5mm ² (12AWG)	74.11.01
	With Finger-safe	With Spring Clamp	-	upto 1.5mm ²	74.11.02



24.11.01.024

Series	
24 Series Relays	

Terminal Type	
1	Ultra Slim

Number of Poles	
0	SPST
1	SPDT



Types	
0	Basic

Voltage	
006	6V
012	12V
024	24V
048	48V

Coil	
1	AC
2	DC

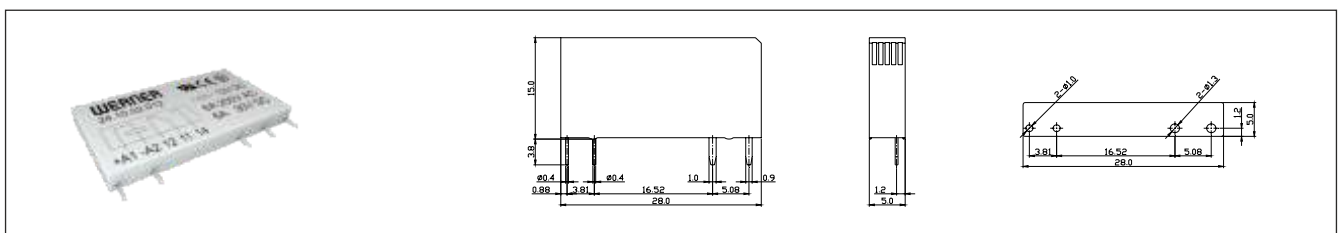
24 Series Ultra Slim Relays

Model Number Selection

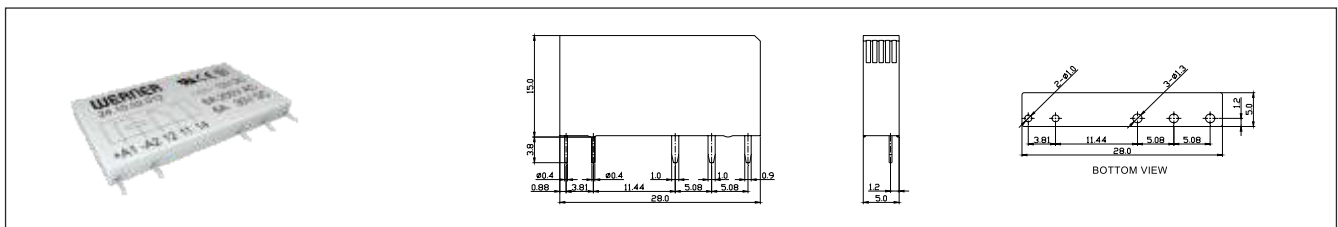
Appearance	Terminal Type	Types	Voltage	Model No.	
				AC	DC
 <p>SPST</p>	Ultra Slim	Basic	6V	24.10.01.006	24.10.02.006
			12V	24.10.01.012	24.10.02.012
			24V	24.10.01.024	24.10.02.024
			48V	24.10.01.048	24.10.02.048
 <p>SPDT</p>	Ultra Slim	Basic	6V	24.11.01.006	24.11.02.006
			12V	24.11.01.012	24.11.02.012
			24V	24.11.01.024	24.11.02.024
			48V	24.11.01.048	24.11.02.048

Dimensions



24.21(SPST)



24.22 (SPDT)

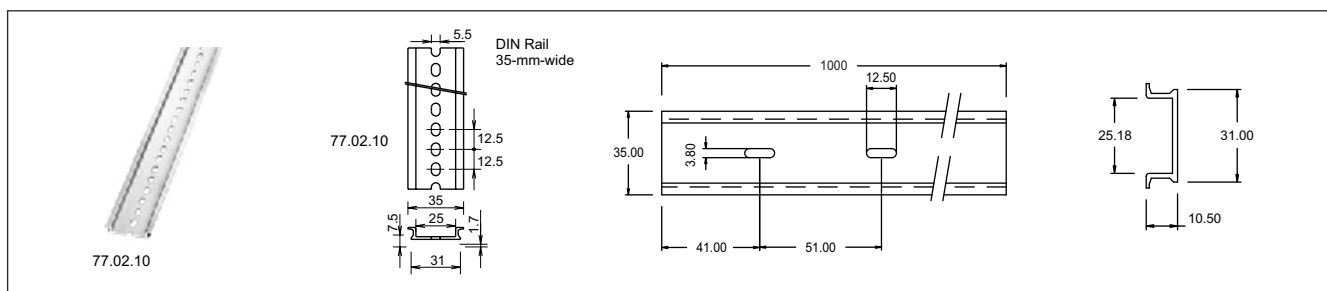


Internal Connection (Bottom View)

SPST	SPDT
	

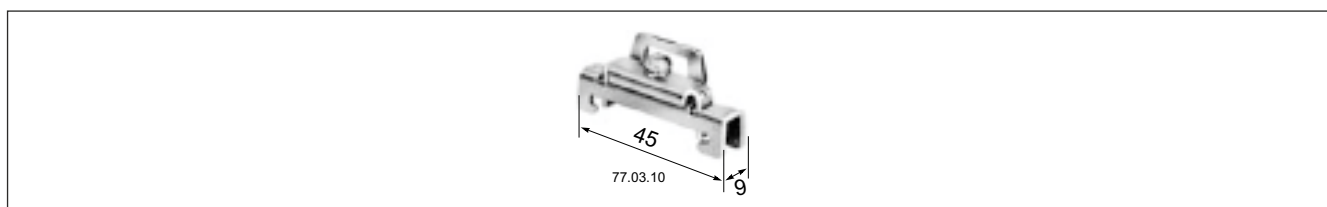
Accessories

DIN Rails



DIN Rail No.	Material	Length	Weight	Width
77.02.10	Aluminum	1000 mm	200 g	35 mm

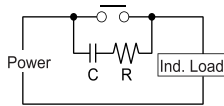
Mounting Clips



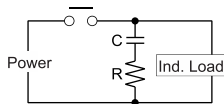
Mounting Clips No.	Rails	Width	Weight
77.03.10	77.02.10	45 mm	15.2 g

Protection

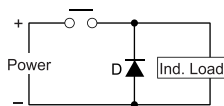
When an inrush current flows through the load, the contact may become welded. The contact ratings show maximum values, Make sure that these values are not exceeded. Contact a contact protection circuit, such as a current limiting resistor as a optional solution.



This protection circuit can be used when the load impedance is smaller than the RC impedance in an AC load power circuit.
R: Resistor of approximately the same resistance value as the load
C: 0.1 to 1 μF

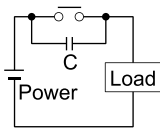


This protection circuit can be used for both AC and DC load power circuits.
R: Resistor of approximately the same resistance value as the load
C: 0.1 to 1 μF

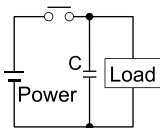


This protection circuit can be used for DC load power circuits. Use a diode with the following ratings.
Reverse withstand voltage: Power voltage of the load circuit x 10
Forward current: More than the load current.

Prevents



This protection circuit is very effective in arc suppression when opening the contact however, the capacitor is charged while the contacts are opened else the capacitor is discharged through the contacts, increasing the possibility of contact welding.



This protection circuit is very effective in arc suppression when opening the contact however, a current flows to charge the capacitor, causing contact welding when the contacts are closed.

Safety Precautions

Do not drop, shock or remove the relay cover to maintain the initial characteristics.
The relay cover cannot be removed from the base during normal operation.
Use the relay in environments free from dust, condensation, dioxide or hydrogen sulfide.

Make sure that the coil voltage does not exceed applicable coil voltage range.
Prevent usage of relays in the vicinity of strong magnetic field, as that may cause malfunctioning of relays.

Failure to turn off power before wiring, installation, removal and maintenance may cause electrical shock or fire hazard.

Attention on specifications and rated values to prevent electrical shock or fire hazard.
Use wires of the proper size to meet voltage and current requirements.

Tighten the terminal screws on the relay socket to the proper tightening torque.

Prevent using the check button as a switch.

The durability of the check button is a minimum of 200 operations.

It is advisable to apply a positive voltage to terminals of neighboring poles and a negative voltage to the other terminals of neighboring poles when using DC loads on 4PDT relays to prevent the possibility of short circuits.

A soldering iron of 30 to 60W would be recommended when soldering the relay terminals and the preferred time to complete soldering is within 4 seconds approximately.

Terms And Conditions

Please read this catalog before purchasing any products. Please consult your *WERNER* representative for any clarifications or comments.

Application Considerations

WERNER shall not be responsible for conformity with any regulations, codes or standards that apply to use of the products. *WERNER* shall provide applicable third party certification documents identifying ratings and limitations of use that apply to the products in case of the customer's request.

Prevent use the products for an application involving risk to life or property. Be sure that the *WERNER*'s products are properly rated and installed for the overall system or equipment.

WERNER shall not be responsible for the user's programming of a programmable products.

Warranty

WERNER's warranty represents that the products are free from defects in materials and workmanship for a period of one year.

WERNER shall not be responsible for any special loss of profit, commercial loss, indirect or consequential damages relevant to products.

WERNER shall not be responsible for repair, warranty or any claims regarding the products unless *WERNER*'s Analysis confirm that the products were properly stored, installed, handled, maintained and not a result of accident, insufficient, abuse, misuse, natural disaster, improper installation excessive electrical supply, environmental conditions or abnormal mechanical.

Disclaimers

WERNER shall practice to change type/model numbers when published ratings or features are changed, however some specifications of the products may be changed without any notice.

When in doubt, please consult with your *WERNER* representative to confirm actual specifications of products.

WERNER shall change product specifications and accessories at any time based on improvements and other reasons.

The information in this catalog has been carefully checked. However, *WERNER* take no responsibilities for clerical, typographical or proofreading errors.



Product specifications are subject to change without notice.

Thank you for choosing *WERNER* products.

24 Series Ultra Slim Relays

WERNER



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Inventing Innovation...

H.Q.

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